BEFORE THE HON'BLE NATIONAL GREEN TRIBUNAL

PRINCIPAL BENCH, NEW DELHI

Original Application No. 924/2024

In the matter of:

News Item titled "Sand mafia destroys Jhelum embankment puts thousands at risk" appearing in Daily Excelsior dated 09.07.2024

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1.	**Interim Response** on behalf of Central Pollution Control Board (CPCB), Respondent No.1, in compliance to Hon'ble NGT order in OA No. 924/2024 in compliance to Hon'ble NGT order dated 26.07.2024.	
2.	**Annexure- I** A copy of Hon'ble NGT order dated 26.07.2024 in O.A No. 924/20224.	
3.	**Annexure- II** A copy of letter dated 13.08.2024 issued by CPCB to J & K PCB.	
4.	**Annexure- III** A copy of emails dated 09.09.2024 reading compliance of Hon'ble NGT order dated 26.07.2024 in OA No 924/2024.	
5.	**Annexure- IV** A copy of report filed by CPCB dated 30.01.2020 in OA No. 360/2015.	
6.	**Annexure- V** A copy of Hon'ble NGT order dated 26.02.2021 I OA No. 360/2015.	
7.	**Annexure- VI** A copy of direction issued by CPCB to Environment Secretaries dated 11.06.2021.	
8.	**Annexure- VII** A copy of letter dated 22.09.2023 issued by CPCB to SPCBs regarding categorization of sand/riverbed material mining from riverbed and its floodplains.	

Filed by Advocate Soni Singh
(on behalf of Central Pollution Control Board)

Place: Delhi
Dated:06.11.2024

BEFORE THE HON'BLE NATIONAL GREEN TRIBUNAL

PRINCIPAL BENCH, NEW DELHI

Original Application No. 924/2024

In the matter of:

News Item titled "Sand mafia destroys Jhelum embankment puts thousands at risk" appearing in Daily Excelsior dated 09.07.2024

Interim Response on behalf of Central Pollution Control Board (CPCB), Respondent No.1, in compliance to Hon'ble NGT order in OA No. 924/2024 in compliance to Hon'ble NGT order dated 26.07.2024.

1. That Hon'ble NGT vide Order dated 26.07.2024 impleaded CPCB as Respondent no. 2. Thereby, the reply is made in succeeding paragraphs. A copy of order dated 26.07.2024 passed by this Hon'ble NGT is annexed herewith as **Annexure I**.

2. That, CPCB is a statutory Board constituted under Section 3 of the Water (Prevention and Control of Pollution) Act, 1974. It performs the functions under The Water (Prevention and Control of Pollution) Act, 1974, The Air (Prevention and Control of Pollution) Act, 1981 and The Environment (Protection) Act, 1986.

3. That this Hon'ble Tribunal has taken up the subject matter *suo moto* on the basis of news item titled "Sand mafia destroys Jhelum embankment, puts thousands at risk" appearing in Daily Excelsior dated 09.07.2024 and observed that the news item is related to destruction of the Jhelum embankment near the Khankah Bagh area of Pampore in South Kashmir's Pulwama district.

4. That, this Hon'ble Tribunal vide aforesaid order dated 26.07.2024 also constituted a joint committee comprising of representative of the Member Secretary, Jammu and Kashmir Pollution Control Committee (J&K PCC); Regional Office, Ministry of Environment, Forest and Climate Change (MoEF&CC), Chandigarh and the District Magistrate, Pulwama. The District Magistrate, Pulwama was directed to act as coordinating agency in the joint committee. The joint committee has been directed to visit the site, ascertain the correct position, the truthfulness of the facts disclosed in the news item as mentioned in order and suggest remedial action along with submission of action taken report before the Tribunal. The CPCB requested J&K PCC vide letter dated 13.08.2024, annexed herewith as **Annexure-II,** and e-mails dated-09.09.2024 & 30.10.2024, annexed herewith as **Annexure-III (Colly),** to coordinate with concerned office in District Pulwama and provide a report in this matter. J&K PCC is also expected to file response as an independent respondent in this matter.

BRIEF SUBMISSIONS REGARDING REGULATIONS / STEPS TAKEN FOR SUSTAINABLE SAND MINING:

5. That, under the provisions of the Mines and Minerals (Development & Regulation), Act, 1957 (hereinafter referred as "MMDR Act, 1957"), the States are empowered to make the rules for regulating the grant of prospecting licenses or mining leases in respect of minor minerals and making rules for preventing illegal mining, transportation and storage of minerals. The Section of 23(C) of MMDR Act 1957, empowered States to make rules for preventing illegal mining, transportation and storage of minerals. All such mining which qualifies illegal, is to be dealt with as per the provisions of MMDR Act, 1957 by the concerned state authorities.

NOTARY PUBLIC
R.L. Chaudhary
N.C.T. of Delhi
Regd. No. 1513
GOVT. OF INDIA

6. That Central Government has made it mandatory to obtain Environmental Clearance for mining of minerals. MoEF&CC published EIA Notification 2006 and its amendments regarding Environmental Clearance to be obtained by mine owner for mining activities, which includes Environment Impact Assessment/Environment Management Plan Reports. Impact of riverbed / sand mining on the water resources is assessed and necessary conditions for safeguarding the environment are stipulated while granting necessary environmental clearances required as per law.

7. That MoEF&CC issued "Sustainable Sand Mining Management Guidelines 2016" to promote scientific mining of sand and encourage environmental friendly management practices.

8. That for enforcement of the regulatory provisions related to river sand mining for effective monitoring and ensuring sustainable sand mining, MoEF&CC has issued "Enforcement and Monitoring Guidelines for Sand Mining" in January 2020.

9. That in the matter of OA No. 360/2015 *National Green Tribunal Bar Association vs. Virendra Singh (State of Gujarat),* a report was prepared by an expert committee [**Annexure IV**] formed by the order of Hon'ble NGT (PB) comprising of representatives of MoEF&CC, CPCB, Indian Institute of Forest Management-Bhopal, Institute of Economic Growth-New Delhi and Madras School of Economics, Chennai to recommend a scale of compensation to NGT (PB) to deal with cases of illegal sand mining in whole of country and the report was submitted to NGT on 30.01.2020.

10. That Hon'ble NGT vide order dated 26.02.2021 [**Annexure V**] accepted the recommendations of the expert committee and directed that the scale of operation of compensation as per report dated 30.01.2020 (Approach II) to be adopted by all States/UTs and Environment Secretary to evolve an appropriate mechanism for assessment of compensation in all Districts of the State and for utilisation of recovered compensation for restoration of environment by preparing appropriate action plan.

11. That as directed by the Hon'ble NGT vide order dated 26.02.2021, CPCB vide letter dated 11.06.2021 [**Annexure VI**] also issued directions to Environment Secretaries of States/UTs to evolve an appropriate mechanism for assessment of compensation in all Districts of the State and for utilisation of recovered compensation for restoration of environment by preparing appropriate action plan as per order dated 26.02.2024.

12. That the CPCB vide letter dated 22.09.2023 [**Annexure VII**] directed all SPCBs/PCCs to adopt and implement the categorization of sand/riverbed material mining from riverbed and its floodplains (excluding manual excavation) into consent mechanism.

13. That, the answering respondent herein craves leave of the Hon'ble Tribunal to file additional reply, in future, if required.

14. That, in view of the submissions made in preceding paragraphs, the answering respondent i.e. CPCB shall abide by the orders/directions passed by the Hon'ble Tribunal in the instant matter.

(Nazimuddin)
Scientist 'F'
Central Pollution Control Board

NOTARY PUBLIC
R.L. Chaudhary
N.C.T. of Delhi
Regd. No. 1513
GOVT. OF INDIA

BEFORE THE HON'BLE NATIONAL GREEN TRIBUNAL

PRINCIPAL BENCH, NEW DELHI

Original Application No. 924/2024

In the matter of:

News Item titled "Sand mafia destroys Jhelum embankment puts thousands at risk" appearing in Daily Excelsior dated 09.07.2024

AFFIDAVIT

I, **Nazimuddin** working as Scientist 'F' in Central Pollution Control Board, Parivesh Bhawan, East Arjun Nagar, Delhi, the Respondent No. 1 in the above matter, do hereby solemnly affirm, declare on oath and state as under: -

1. That I, the deponent herein is authorized representative to represent the Respondent CPCB in the present case, and as such, I am well conversant with the facts and circumstances of the present case on the basis of the information derived from the official records, and hence, I am competent and authorized to verify, sign and swear this affidavit on behalf of the Respondent CPCB.

2. That the accompanying interim response may be read part and parcel of the present affidavit.

3. That the accompanying interim response has been drafted and filed under my instructions and authority the contents thereof are true and correct on the basis of the record maintained during ordinary course of business of CPCB and available records and documents and the contents of the same are read over and explained to me and are not repeated herein for the sake of brevity.

DEPONENT

NOTARY PUBLIC
R.L. Chaudhary
N.C.T. of Delhi
Regd. No. 1513
GOVT. OF INDIA

नाजिमउद्दीन / Nazimuddin
वैज्ञानिक 'एफ' / Scientist 'F'
केंद्रीय प्रदूषण नियंत्रण बोर्ड
Central Pollution Control Board
(पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय, भारत सरकार)
(M/o Environment, Forest And Climate Change, Govt. of India)
परिवेश भवन, पूर्वी अर्जुन नगर, दिल्ली–110032
Parivesh Bhawan, East Arjun Nagar, Delhi-110032

VERIFICATION:

Verified at New Delhi on this day of 06 NOV 2024 2024 that the contents of the above reply are correct and true on the basis of the records of the case as mentioned in the day-to-day affairs of the CPCB. Nothing has been concealed therefrom or mis-stated.

DEPONENT

NOTARY PUBLIC
R.L. Chaudhary
N.C.T. of Delhi
Regd. No. 1513
GOVT. OF INDIA

ATTESTED
NOTARY PUBLIC
GOVT. OF INDIA
06 NOV 2024

नाज़िमउद्दीन / Nazimuddin
वैज्ञानिक 'एफ' / Scientist 'F'
केंद्रीय प्रदूषण नियंत्रण बोर्ड
Central Pollution Control Board
(पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय, भारत सरकार)
(M/o Environment, Forest And Climate Change, Govt. of India)
परिवेश भवन, पूर्वी अर्जुन नगर, दिल्ली–110032
Parivesh Bhawan, East Arjun Nagar, Delhi-110032

Annexure- I

Item No. 06 Court No. 3

BEFORE THE NATIONAL GREEN TRIBUNAL
PRINCIPAL BENCH, NEW DELHI

Original Application No. 924/2024

News Item titled "Sand mafia destroys Jhelum embankment puts thousands at risk" appearing in Daily Excelsior dated 09.07.2024

Date of hearing: 26.07.2024

CORAM: HON'BLE MR. JUSTICE ARUN KUMAR TYAGI, JUDICIAL MEMBER
HON'BLE DR. A. SENTHIL VEL, EXPERT MEMBER

Applicant: None appeared

ORDER

1. This Original Application is registered *suo-moto* on the basis of the news item titled "Sand mafia destroys Jhelum embankment puts thousands at risk" appearing in Daily Excelsior dated 09.07.2024.

2. The news item relates to the destruction of the Jhelum embankment near the Khankah Bagh area of Pampore in South Kashmir's Pulwama district. As per the article, this activity left nearly 400 households vulnerable to potential floods, risking both their lives and property. The article highlights that locals reported suspicious movements of heavy vehicles over several days, culminating in the destruction of the embankment to illegally extract sand. Despite community intervention, the sand mafia managed to flee with some equipment, leaving behind damaged crops and heightened flood risks.

3. The news item states that the root cause of the incident lies in unchecked illegal sand mining driven by profit motives, disregarding environmental regulations and community safety. The destruction of the embankment not only increases flood risks but also disrupts local

ecology, threatening habitats and polluting water sources. The sand extraction accelerates river velocity, leading to erosion of riverbanks and endangering infrastructure like bridges. This incident recalls memories of the devastating 2014 floods, heightening community fears and emphasizing the urgent need for preventative measures.

4. The news item raises substantial issue relating to compliance of the environmental norms, especially compliance of the Environment Protection Act, 1986 and Sustainable Sand Mining Guidelines, 2016.

5. Power of the Tribunal to take up the matter *suo-motu* has been recognized by the Hon'ble Supreme Court in the matter of *"Municipal Corporation of Greater Mumbai vs. Ankita Sinha & Ors." reported in 2021 SCC Online SC 897*.

6. Hence, we implead the following as respondents in the matter:

(1). Central Pollution Control Board, through its Member Secretary, Parivesh Bhawan, East Arjun Nagar, Delhi-110032.

(2). Pollution Control Committee J&K, through its Member Secretary, Parivesh Bhawan, Forest Complex, Gladni, Narwal, transport Nagar, Jammu, Jammu and Kashmir 180004

(3). Ministry of Environment and Forest, Integrated Regional Office, Bays No. 24-25, Sector 31 A, Dakshin Marg, Chandigarh – 160030

(4). Geology and Mining Department, through its Director, J.L. Nehru Udhyog Bhawan, 4th Floor, Rail Head Complex, Jammu-180006

(5). District Magistrate, Pulwama, Ground Floor, Mini-Secretariat, Pulwama, 192301

7. Issue notice to the above respondents for filing their response at least one week before the next date of hearing.

8. Having regard to the substantial question relating to environment arising out of the implementation of the Scheduled Enactment, we deem it proper to form a joint Committee comprising of the representative of the Member Secretary, J&K PCC; RO, MoEF&CC, Chandigarh and the District Magistrate, Pulwama. The District Magistrate, Pulwama will act as coordinating agency in the Committee. The joint Committee will visit the site, ascertain the correct position, the truthfulness of the facts disclosed in the news item as mentioned above and also suggest the remedial action and submit the action taken report before the Tribunal within three months by e-mail at judicial-ngt@gov.in preferably in the form of searchable PDF/ OCR Support PDF and not in the form of Image PDF.

9. List on 07.11.2024.

Arun Kumar Tyagi, JM

Dr. A. Senthil Vel, EM

July 26, 2024
Original Application No. 924/2024
SN

Annexure- II

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

By Speed Post / E-mail

No. CPCB/Mining/CM-13011/197/2024/

13 August 2024

To,

Member Secretary,
Jammu and Kashmir Pollution Control Committee,
Parivesh Bhawan, Forest Complex,
Transport Nagar, Jammu – 180 006
(**e-mail**: membersecretaryjkspcb@gmail.com)

Sub.: In reference to Hon'ble NGT (PB) OA No. 924/2024 order dated-26.07.2024-reg.

Sir,

Please refer to Hon'ble NGT (PB) order dated-26.07.2024 (copy enclosed) in OA No. 924/2024 registered suo-motu titled as "News Item titled "Sand mafia destroys Jhelum embankment puts thousands at risk" on the basis of news item appearing in Daily Excelsior dated 09.07.2024." The copy of news item is enclosed for kind information.

Hon'ble NGT (PB) has impleaded 05 respondents - CPCB, J&K PCC, MoEF&CC IRO, Geology & Mining Department and District Magistrate (Pulwama) and directed respondents to submit their response at least one week before the next date of hearing i.e., 07.11.2024. Hon'ble NGT vide para 8 of the order has also constituted a Joint Committee to *visit the site, ascertain the correct position, the truthfulness of the facts disclosed in the news item and also suggest remedial action and submit the action taken report* within 03 months before Tribunal.

In this regard, it is requested to coordinate with concerned district administration/mining department and arrange a report in the matter to CPCB at the earliest.

Yours faithfully,

13/8/2024

(Nazimuddin)
Scientist-'F' & Head
IPC-II Division

Encl.: As above

Copy to:

Regional Director (RD-Chandigarh), Central Pollution Control Board (RD), BSNL Telephone Exchange, 2nd Floor, Sector-49, Chandigarh - 160 047	:	For kind information and coordination with J&K PCC in the matter.

Annexure- IIIA

Compliance of Hon’ble NGT Order dated 26.07.2024 in the matter of OA No. 924/2024-reg.

ME

Me <nikitag.cpcb@gov.in>
Mon, 09 Sep 2024 10:40:36 AM +0530SENT

To

"Member JKPCC"<membersecy.pcb@jk.gov.in>,"membersecretaryjkspcb"<membersecretaryjkspcb@gmail.com>

Cc

"Narender Sharma"<narendersharma.cpcb@nic.in>,"R D Chandigarh"<rdchandigarh.cpcb@nic.in>,"Nazim uddin"<nazim.cpcb@nic.in>

Tags

Sir,

This is a reminder about CPCB Letter No. CPCB/Mining/CM-13011/197/2024/3486 dated 13.08.2024 (copy attached) regarding the Hon’ble NGT Order dated 26.07.2024 in the matter of OA No. 924/2024; News item titled “Sand Mafia destroys Jhelum embankment puts thousands at risk” appearing in Daily Excelsior dated 09.07.2024 wherein the Hon'ble NGT has impleaded 05 respondents including CPCB and J&K PCC and directed them to submit their response at least one week before the next date of hearing i.e., 07.11.2024.

Hon'ble NGT vide para 8 of the order has also constituted a Joint Committee to *visit the site, ascertain the correct position, the truthfulness of the facts disclosed in the news item as mentioned above and also suggest the remedial action and submit the action taken report before the Tribunal within three months.*

In this regard, it is again requested to coordinate with the concerned District Administration/Mining Department to provide a detailed report on this matter to CPCB at rdchandigarh.cpcb@nic.in and nazim.cpcb@nic.in

Regards/सादर
Nikita Grover/निकिता ग्रोवर
Scientist-B/वैज्ञानिक-ख
Central Pollution Control Board/केंद्रीय प्रदूषण नियंत्रण बोर्ड
Regional Directorate, Chandigarh/क्षेत्रीय निदेशालय, चंडीगढ़
BSNL Telephone Exchange,2nd Floor, Sector 49-C, Chandigarh-160047/बीएसएनएल टेलीफोन एक्सचेंज, दूसरी मंजिल, सेक्टर 49-सी, चंडीगढ़-160047

Annexure- IIIB

Re: Compliance of Hon'ble NGT Order dated 26.07.2024 in the matter of OA No. 924/2024- reg.

ME

Me <nikitag.cpcb@gov.in>
Wed, 30 Oct 2024 12:27:54 PM +0530SENT

To

"Member JKPCC"<membersecy.pcb@jk.gov.in>,"membersecretaryjkspcb"<membersecretaryjkspcb@gmail.com>

Cc

"Narender Sharma"<narendersharma.cpcb@nic.in>,"R D Chandigarh"<rdchandigarh.cpcb@nic.in>,"Nazimuddin"<nazim.cpcb@nic.in>

Tags

Sir,

This is a reminder about CPCB Letter No. CPCB/Mining/CM-13011/197/2024/3486 dated 13.08.2024 (copy attached) and Kindly take this as Urgent.the trailing mail dated 09.09.2024 regarding the Hon'ble NGT Order dated 26.07.2024 in the matter of OA No. 924/2024; News item titled "Sand Mafia destroys Jhelum embankment puts thousands at risk" appearing in Daily Excelsior dated 09.07.2024 wherein the Hon'ble NGT has impleaded 05 respondents including CPCB and J&K PCC and directed them to submit their response at least one week before the next date of hearing i.e., 07.11.2024.

Hon'ble NGT vide para 8 of the order has also constituted a Joint Committee to *visit the site, ascertain the correct position, the truthfulness of the facts disclosed in the news item as mentioned above and also suggest the remedial action and submit the action taken report before the Tribunal within three months.*

In this regard, it is again requested to coordinate with the concerned District Administration/Mining Department to provide a detailed report on this matter to CPCB at rdchandigarh.cpcb@nic.in and nazim.cpcb@nic.in

Kindly take this as Urgent.

Regards/सादर
Nikita Grover/निकिता ग्रोवर
Scientist-B/वैज्ञानिक-ख
Central Pollution Control Board/केंद्रीय प्रदूषण नियंत्रण बोर्ड
Regional Directorate, Chandigarh/क्षेत्रीय निदेशालय, चंडीगढ़
BSNL Telephone Exchange,2nd Floor, Sector 49-C, Chandigarh-160047/बीएसएनएल टेलीफोन एक्सचेंज, दूसरी मंजिल, सेक्टर 49-सी, चंडीगढ़-160047

Annexure- IV

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)**

INDEX

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

INDEX

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 practise, 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 de-stabilising 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.

Table No. 01: Approach 1				
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:

a) 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.

b) Market Value of the material per (MT or m^3) will be based on applicable market price of the mined material.

c) **Risk Factor (RF)** to take value as per the Risk Level of the illegal mining case, as below:

Table No. 02				
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:

Table No. 03				
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:

Table No. 04				
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 TableNo.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 maybe 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% (Puroshothaman 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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Annexure – A

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 x 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 x 400 = 6000000/-	
Risk Factor (RF)	Severity	*Severe*
	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.)	=6000000/- x (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*400 = 6000000/-

Annual Value of Foregone Ecological Values D*RF = 6000000/-

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

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

$$= \sum \frac{(6000000)}{(1+0.05)^1} + \frac{(6000000)}{(1+0.05)^2} + \frac{(6000000)}{(1+0.05)^3} + \frac{(6000000)}{(1+0.05)^4} + \frac{(6000000)}{(1+0.05)^5}$$

= Rs. 2,59,76,860/-

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

= NPV = PV - D

= 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)	=10000x 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 *Severe* 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*400 = 4000000/-

Annual Value of Foregone Ecological Values D*RF = 4000000/-

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

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

$$= \sum \frac{(4000000)}{(1+0.05)^1} + \frac{(4000000)}{(1+0.05)^2} + \frac{(4000000)}{(1+0.05)^3} + \frac{(4000000)}{(1+0.05)^4} + \frac{(4000000)}{(1+0.05)^5}$$

= Rs. 1,73,17,907/-

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

= NPV = PV - D

= Rs. 1,33,17,907/-

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. 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	=12000 m^2 x 4 m =48000 m^3

(The example can be applied to a case of totally illegal mining without EC also where illegal mining of 18000 m^3has 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)	Severity	*Severe*
	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/- x (1+1+0.6)	
	=Rs 1,87,20,000/-	

Compensation Charge (Scenario II – explicit accounting of NPV)

Market Value of Illegally Mined Material (D) 18000*400 = 7200000/-

Annual Value of Foregone Ecological Values D*RF = 7200000/-

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

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

$$= \sum \frac{(7200000)}{(1+0.05)^1} + \frac{(7200000)}{(1+0.05)^2} + \frac{(7200000)}{(1+0.05)^3} + \frac{(7200000)}{(1+0.05)^4} + \frac{(7200000)}{(1+0.05)^5}$$

= Rs. 3,11,72,232/-

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

= NPV = PV - D

= 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 x 400 = 20,00,000/-
Risk Factor (RF)	Severity *Severe* 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.)	=2000000/- x (1+1+0.3) =Rs. 46,00,000/-

Compensation Charge (Scenario II – explicit accounting of NPV)

Market Value of Illegally Mined Material (D) 5000*400 = 2000000/-

Annual Value of Foregone Ecological Values D*RF = 2000000/-

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

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

$$= \sum \frac{(2000000)}{(1+0.05)^1} + \frac{(2000000)}{(1+0.05)^2} + \frac{(2000000)}{(1+0.05)^3} + \frac{(2000000)}{(1+0.05)^4} + \frac{(2000000)}{(1+0.05)^5}$$

= Rs. 86,58,953/-

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

= NPV = PV - D

= 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/-

Annexure I

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 Sundeep, 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.

Annexure II

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.

(I) 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, geo-morphological, 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: 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 illegal 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 cane 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 Nos. 02 to 20 Court No. 1

BEFORE THE NATIONAL GREEN TRIBUNAL
PRINCIPAL BENCH, NEW DELHI

Original Application No. 360/2015

(With report dated 15.01.2021)

National Green Tribunal Bar Association Applicant

Versus

Virender Singh (State of Gujarat) Respondent

With

Original Application No. 366/2015

National Green Tribunal Bar Association Applicant

Versus

Dr. Sarvabhoum Bagali (State of Karnataka) Respondent

With

Original Application No. 368/2015

National Green Tribunal Bar Association Applicant

Versus

Dr. Sarvabhoum Bagali (State of Karnataka) Respondent

With

Original Application No. 173/2018
(Earlier O.A. No. 89/2017 (EZ)

Sudarsan Das Applicant

Versus

State of West Bengal & Ors. Respondent(s)

With

Original Application No. 874/2018

In Re: News item published in "The Tribune " Authored by Arun Sharma Titled "Mounds of sand on Sutlej banks, mining mafia digs in"

With

Original Application No. 44/2016

Mushtakeem Applicant

Versus

MoEF & CC & Ors. Respondent(s)

With

Original Application No. 517/2015

Sandeep Kumar Applicant

Versus

Ministry of Environment, Forests and
Climate Change & Ors. Respondent(s)

With

Original Application No. 550/2015

Virender Kumar Applicant

Versus

Ministry of Environment, Forests and
Climate Change & Ors. Respondent(s)

With

Original Application No. 530/2016

Sandeep Kumar Applicant

Versus

Ministry of Environment, Forests and
Climate Change & Ors. Respondent(s)

With

Original Application No. 272/2016

M/s Ganga Yamuna Mining Co. Applicant

Versus

State of Haryana & Ors. Respondent(s)

With

Original Application No. 481/2016

Joginder Singh Applicant

Versus

Ministry of Environment & Forest Respondent

With

Original Application No. 540/2015

Ved Pal Singh Applicant

Versus

Ministry of Environment and Forests & Ors. Respondent(s)

With

Original Application No. 90/2016

Chander Mohan Uppal Applicant

Versus

State of U.P. & Ors. Respondent(s)

With

Execution Application No. 40/2017
IN
O.A. No. 517/2015

Sandeep Kumar Applicant

Versus

Ministry of Environment, Forests and
Climate Change & Ors. Respondent(s)

With

Original Application No. 671/2017
(Earlier O.A.No.123/2014)

Himmat Singh Shekhawat Applicant

Versus

State of Rajasthan & Ors. Respondent(s)

With

Original Application No. 726/2018

Rupesh Pethe Applicant

Versus

State of M.P. & Ors. Respondent(s)

With

Original Application No. 456/2018
(Earlier O.A. No. 146/2014 (CZ)

Nityanand Mishra Applicant

Versus

State of M.P. & Ors. Respondent(s)

With

Original Application No. 1086/2018
(Earlier O.A.No.140/2014)

Nanga Ram Dangi Applicant

Versus

Secretary, Department of Environment &
Forests & Ors. Respondent(s)

With

Original Application No. 575/2019

Yaduraj Singh Jat Applicant

Versus

State of Rajasthan Respondent

Date of hearing: 26.02.2021

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

Applicant:	Ms. Katyayni, Advocate in OA 1086/2018
Amicus Curiae:	Mr. Raj Panjwani, Senior Advocate with Mr. Aagney Sail, Advocate
Respondent(s):	Mr. Divya Prakash Pande, Advocate. for CPCB & MoEF & CC Mr. Raj Kumar, Advocate for CPCB in OA 726/2018 Ms. Soni Singh, Advocate for CPCB in OA 456/2018 Mr. Attin Shankar Rastogi, Mr. Balendu Shekhar & Mr. Shlok Chandra, Advocates for MoEF & CC Mr. Ankit Verma, Advocate for State of UP Mr. Rahul Khurana, Advocate for State of Haryana Mr. Darpan KM, Advocate for State of Karnataka Ms. Madhumita Bhattacharjee, Advocate. for State of West Bengal Mr. Vikas Mahajan, AAG for State of HP Mr. Maulik Nanavati, Advocate for State of Gujarat Ms. Soumya Priyadarshinee, Advocate for State of MP Ms. Sakshi Popli, Advocate for DPCC

ORDER

1. The issue for consideration in this group of matters relates to updation of enforcement and monitoring mechanism to control and regulate illegal sand mining (including riverbed sand mining) in the light of directions in the judgments of the Hon'ble Supreme Court, including in *Deepak Kumar v. State of Haryana & Ors.: (2012) 4 SCC 629* and *Goa Foundation v. Union of India & Ors.* (2014) 6 SCC 590 and orders of this Tribunal.

2. Some of the matters have been pending for about seven years while others have been tagged to the pending matters later, from time to time, in view of common question. We need not refer to the individual facts and all the earlier order. It will suffice to refer to some of the significant orders passed from time to time given in a tabular form as follows:

Sl. No.	**Party name**	**Date of orders**	**Particulars**
1.	OA No. 173/2018 Sudarsan Das v. State of West Bengal & Ors.	04.09.2018	Inter alia directing revision of monitoring mechanism by the MoEF&CC.
2.	OA No. 44/2016 Mushtakeem v. MoEF&CC & Ors.	05.09.2018	
3.	OA No. 186 of 2016 Satendra Pandey Vs. Ministry of Environment, Forest & Climate Change & Anr	13.09.2018	Inter alia disapproving dispensing with requirement of public hearing and requiring evaluation by DEIAA.
4.	OA 606/2018, Compliance of Municipal Solid Waste Management Rules, 2016	16.01.2019	Requiring the Chief Secretaries to monitor the subject of unregulated and unscientific sand mining
5.	O.A. No. 360/2015, National Green Tribunal Bar Association v. Virender Singh (State of Gujarat)	05.04.2019	Inter alia consideration of scale of compensation and revised monitoring mechanism
6.	OA No. 44/2016 Mushtakeem v. MoEF&CC & Ors.	19.02.2020	Inter alia modifying the mechanism for release of vehicles
7.	OA No. 360/2015 National Green Tribunal Bar Association v. Virender Singh (State of Gujarat)	17.08.2020	Inter alia considering the scale of compensation proposed by the CPCB
8.	O.A. No. 40/2020, Pawan Kumar v. State of Bihar & Ors.	14.10.2020	Inter alia engagement of experts from NABT/QCCI for preparation of DSR/ replenishment study
9.	O.A. No. 726 of 2018 Rupesh Pethe v. State of M.P. & Ors.,	04.11.2020	

3. We may now refer to the developments which have taken place during pendency of the matters and then proceed to decide the surviving issues, as further discussed in para 24:

a. enforcement of SSMG-2016 and EMGSM-2020,

b. compensation regime,

c. procedure for seizure and release of vehicles,

d. periodic interaction among the stakeholders as discussed in later part of the judgment,

e. designing and reviewing monitoring mechanism from time to time including grievance redressal.

'Sustainable Sand Mining and Management Guidelines, 2016' (SSMG-2016) and "Enforcement and Monitoring Guidelines for Sand Mining, 2020" (EMGSM-2020)

4. In the course of proceedings, the Ministry of Environment, Forest and Climate Change (MoEF&CC) issued 'Sustainable Sand Mining and Management Guidelines, 2016' (SSMG-2016) under the provisions of the Environment (Protection) Act, 1986 (EP Act, 1986) on 15.01.2016. Further, in the light of the September 2016 report of the High-Powered Committee (constituted by the Tribunal), headed by the Secretary, MoEF&CC and suggestions as noted in order dated 04.09.2018 in *OA 173/2018, Sudarsan Das v. State of West Bengal & Ors.*, the Tribunal directed revision of the guidelines.[1] Accordingly, the MoEF&CC has issued "Enforcement

[1] Para 25 of the said order is as follows:

"25. In view of above discussion, we are of the view that since the subject of mining is also required to be regulated for protection of environment and it is to take care of this requirement, MoEF&CC has issued directions from time to time under Section 3 and 5 of the Environment (Protection) Act, 1986. The MoEF&CC needs to revise its directions keeping in mind the following:

i. Mining Surveillance System discussed in para 23 above be finalized in consultation with ISRO Hyderabad.
ii. Safeguards suggested in Sustainable Sand Mining Guidelines published by the MoEF&CC in the year 2016.
iii. Suggestions in the High Power Committee Report.
iv. Requirement of demarcation of boundaries being published in respect of different leases in public domain.
v. Need to issue SOP laying down mechanism to evaluate loss to the ecology and to recover the cost of restoration of such damage from the legal or illegal miners. Such evaluation must include cost of mining material as well as cost of ecological restoration and net present value of future eco system services forgone.
vi. Need to set up a dedicated institutional mechanism for effective monitoring of sand and gravel mining which may also take care of mining done without any Environmental Clearance as well as mining done in violation of Environmental Clearance conditions.
vii. The Mining Department may make a provision for keeping apart atleast 25% of the value of mined material for restoration of the area affected by the mining and also for compensating the inhabitants affected by the mining.
viii. One of the conditions of every lease of mine or minerals would be that there will be independent environmental audit atleast once in a year by reputed third party entity and report of such audit be placed in public domain.
ix. In the course of such environmental audit, a three-member committee of the local inhabitants will also be associated. Composition of three members committee may

and Monitoring Guidelines for Sand Mining, 2020" (EMGSM 2020), uploaded on the website on 27.01.2020 and communicated to all the States. Salient features thereof will be noted later.

Issue of EC procedure being handled by SEIAA instead of DEIAA, after public hearing and other necessary steps, procedure for revision of DSR preparation and enforcement mechanism in States, including compensation regime and seizure and release of vehicles

5. Vide order dated 13.09.2018 in *O.A. No. 186/2016, Satyender Pandey Vs. MoEF*, further direction was issued against dispensing with the requirement of public hearing and evaluation by SEIAA in terms of the judgment of the Hon'ble Supreme Court in *Deepak Kumar, supra* thereby the guidelines/notification dated 15.01.2016 dispensing with such requirement was held to be hit by the judgment of the Hon'ble Supreme Court in *Deepak Kumar, supra* and thus not enforceable.

6. On 05.04.2019, the Tribunal conducted comprehensive review of the matter and noted following issues required consideration. Directions were issued with reference to the said issues:

> ***"(a) Revision of Sustainable Sand Mining Guidelines, 2016 by the MoEF&CC in the light of directions of this Tribunal vide order dated 04.09.2018 in Sudarsan Das (supra).***
> ***(b) Compliance of Sustainable Sand Mining Guidelines, 2016 as may be revised by MoEF&CC as above.***
> ***(c) Effective monitoring mechanism for preventive and remedial measures as directed in orders of this Tribunal, including surveillance system and recovery of compensation.***
> ***(d) Directions in individual cases listed today.***
> ***(e) Scale of compensation."***

7. Considering the extent of illegality in the process, apart from directing revision of the Guidelines as above, the Tribunal directed the

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preferably include ex-servicemen, former teacher and former civil servant. The Committee will be nominated by the District Magistrate."

States[2] to review their monitoring mechanism in the light of observations of this Tribunal in earlier orders, including orders dated 04.09.2018 in *Sudarsan Das v. State of West Bengal & Ors*, 05.09.2018 in *Mushtakeem v. MoEF&CC & Ors.* and 16.01.2019 in OA 606/2018, *Compliance of Municipal Solid Waste Management Rules, 2016*. **Though direction was issued to the States who were parties before the Tribunal, the directions are of general nature applicable to sand mining in all the State /UTs**. The Tribunal also considered compliance reports from different States after finding that the response of the State was not satisfactory.

Seizure and Release of vehicles involved in illegal mining

8. Another issue bearing on the enforcement mechanism is the action against the vehicles used in illegal sand mining. Seizure of such vehicles is required and release of seized vehicles lightly defeats the purpose of the coercive measures. Since the vehicles are in a way weapon of offence, the same cannot be dealt with in the manner disputed property is dealt with under section 451 Cr.PC. by releasing the same in favour of the ostensible owner by taking an entrustment/indemnity bond/*sapurdginama.* In Sujit Kumar Rana, (2004) 4 SCC 129 and order dated 26.03.2019 in Cr. A. 524/2019, State of Madhya Pradesh v. Uday Singh, it was held that special procedure for seizure and release of such vehicles prevails over the procedure under Section 451 Cr.P.C. This Tribunal earlier directed, in the case of illegal mining in Meghalaya that such vehicles should be released only on the payment of 50% of the showroom value. The same was affirmed by the Hon'ble Supreme Court in *2019 (8) SCC 177*. Similar order was passed by the Tribunal on 10.01.2019 in O.A. No. 670/2018, *Atul*

[2] The States of West Bengal, Gujarat, Karnataka, Maharashtra, Punjab, Uttar Pradesh, Haryana, Madhya Pradesh, Andhra Pradesh, Bihar, Uttarakhand, Jammu and Kashmir, Goa, Kerala, Telangana and Tamil Nadu and Himachal Pradesh

Chouhan v. State of U.P., which stands affirmed by the Hon'ble Supreme Court vide order dated 07.05.2019 in C.A. No. 1590/2019. **Thus, the procedure under Cr.P.C. for release of vehicles on *superdari* without stringent conditions would not apply in respect of action taken for enforcement of Sustainable Guidelines issued under the Environment (Protection) Act, 1986 (EP Act) and for enforcement of orders of this Tribunal under Section 15 of the National Green Tribunal Act, 2010 (NGT Act).** However, having regard to the difficulty expressed by the State that requirement to pay 50% of the showroom value of the vehicle was resulting in vehicles not being released at all, the earlier order was modified on 19.02.2020 to the effect that following scale of amount be recovered for release of the seized vehicles:-

Sr. No.	***Category of Vehicle***	***Penalty Amount***
1	*Vehicles/Equipments/Excavators with showroom value more than Rs. 25 lacs and less than 5 years old.*	*Rs. 4 lacs*
2	*Vehicles/Equipments/Excavators with showroom value more than Rs. 25 lacs and more than 5 years but less than 10 years old.*	*Rs. 3 lacs*
3	*For the remaining Vehicles older than 10 years/Equipments/ Excavators which are otherwise legally permissible to be operated and not covered by Serial No. 1 and 2.*	*Rs. 2 lacs*
Note – I: *On repetition of the offence by the same vehicle/ equipment, Order dated 05.04.2019 will be applicable.*		
Note – II: *The option of release may be available for a period of one month from the date of seizure and thereafter, the vehicles may be confiscated and auctioned.*		

9. Following further directions were issued :-

> *"6.* ***The State may issue an appropriate Office Order/Rule to the above effect and publish the same. Needless to say that any private contract between a financer and a debtor cannot affect the States' sovereign power to protect the environment and take incidental coercive measure for enforcement of rule of law. Lien of the State will override any private interest. The above compensation regime will be over and above any existing Rules or provisions. The amount collected may be***

remitted to the State PCBs/PCCs for being utilized for restoration of the environment.

7. The above course of action will be permissible to all the States at their option."

Scale of compensation for violations on polluter pays principle

10. Vide order dated 17.08.2020, the Tribunal considered the CPCB report dated 30.01.2020, in pursuance of earlier orders on scale of compensation to be recovered for violation of norms for mining on polluter pays principle and the matter was deferred for further consideration of such scale and further orders in the light of the EMGSM 2020. **On the issue of scale of compensation for violations, the Tribunal held that the same has to be calculated having regard to the polluter pays principle and not mere loss of royalty. This requires taking into account value of the illegally mined material and cost of restoration of the environment.** CPCB did the exercise by constituting an expert Committee. The Tribunal considered the report as follows:-

"8. The Committee considered two approaches:

(I) Approach 1: Direct Compensation based on the market value of extraction, adjusted for ecological damages.

(II) Approach 2: Computing a Simplified NPV for ecological damages.

9. In the first approach, the criteria adopted is:

- *Exceedance Factor (EF).*
- *Risk Factor (RF).*
- *Deterrence Factor (DF).*

10. Approach 1 is demonstrated by Table 1 as follows:

"

Table No. 01: Approach 1				
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)	”

11. *Approach 2 is demonstrated by following formula:*

“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 may be 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 = Market Value Adjusted for risk factor: D * RF (refer Table1).*

*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, Σ (**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).”*

12. *Final recommendation is as follows:*

“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 may be***

adopted in the interim. *In situations where the risk categorization 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	*8%*	*7%*	*6%*	*5%*

”

11. Annexure-A appended to the report gives the calculation as follows:

“Compensation Charge (Scenario II - explicit accounting of NPV)

Market Value of Illegally Mined Material (D) *5000*400 = 2000000/-*

Annual Value of Foregone Ecological Values *D*RF = 2000000/-*

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

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

= $\sum \frac{(2000000)}{(1+0.05)^1} + \frac{(2000000)}{(1+0.05)^2} + \frac{(2000000)}{(1+0.05)^3} + \frac{(2000000)}{(1+0.05)^4} + \frac{2000000)}{(1+0.05)^5}$

= Rs. 86,58,953/-

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

= *NPV=PV-D*
= *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/-*

”

12. The Tribunal directed undertaking of scenario analysis, as suggested on behalf of the applicant and to furnish a further report accordingly. Further report dated 12.10.2020 has been filed by the CPCB reiterating its earlier report. **We propose to approve approach-2 in the report.** Apart from the above, a report dated 15.01.2021 has been filed by

the Oversight Committee for the State of UP[3] to which reference will be made later.

Procedure for DSR/EC

13. Vide order dated 14.10.2020 in *O.A. No. 40/2020*, *Pawan Kumar v. State of Bihar & Ors.*, the issue of preparation of District Survey Report (DSR) by Experts was considered. Vide Notification dated 25.07.2018 issued by the MoEF&CC, under Section 3(2)(v) of the EP Act, 1986 amending EIA Notification dated 14.09.2006, procedure for preparation of DSR for sand mining/riverbed mining was laid down. **The DSR is crucial as it contains Environment Management plan, including the replenishment study and other safeguards and is the basis to consider the environment impact of mining based on which decision to grant the Environmental Clearance is taken**. The Tribunal held that for such crucial exercise, the **Experts should be out of those accredited by the National Accreditation Board of Education and Training/ Quality Control Council of India (NABT/QCCI) in terms of O.M. of MoEF&CC dated 16.03.2010**. Verification by the District Magistrate and evaluation by the SEAC was also necessary. Accordingly, following directions were issued in relation to a matter arising from the State of Bihar:-

> *"(ii) As the DEIAA is not functioning as a consequence of the decision of the Tribunal in Satendra Pandey (supra),* ***the DSR shall be prepared through a consultant(s) accredited by the National Accreditation Board of Education and Training/ Quality Control Council of India in terms of O.M. of MoEF&CC dated 16.03.2010.***
>
> *(iii)* ***The DSR so prepared shall be submitted to the District Magistrate who shall verify the DSR only in respect of the relevant facts pertaining to the physical and geographical features of the district which shall be distinct from the scientific findings based on the parameters prescribed in the SSMMG-2016. After such verification, the District Magistrate shall forward the DSR for examination and evaluation by the State Expert Appraisal Committee (SEAC) having regarding to the fact***

[3] constituted by this Tribunal to oversee compliance of environmental issues, on suggestions of the State Government.

that the SEIAA comprises of technical/scientific experts. The SEAC after appraisal of the report shall forward it to the SEIAA for consideration and approval if it meets all scientific/technical requirements.

(iv) ***While preparing the DSR, the MoEF&CC Accredited Agency/Consultant shall scrupulously follow the procedure and the parameters laid down under the SSMMG-2016 and EMGSM-2020 read in sync with each other****."*

14. Considering the above, vide order dated 04.11.2020 in O.A. No. 726 of 2018, *Rupesh Pethe v. State of M.P. & Ors.,* the Tribunal directed that the above direction ought to be followed pan India, as follows:-

"5. ***The above direction may be followed by the State of MP also for the sake of uniformity.*** *Further information required to be furnished is about the extent of illegal mining, extent of action taken, including the compensation recovered, vehicles seized and other coercive measures and impact of such action. The State of M.P. may compile relevant directions on the subject including the binding order of any Courts or Tribunal. This exercise may be undertaken jointly by the Secretary Geology and Mining, Member Secretary State PCB and Member Secretary SEIAA. In light of above, the State may further revise its policy and exercise. Let further compliance status be furnished before the next date by e-mail at judicial-ngt@gov.in preferably in the form of searchable PDF/ OCR Support PDF and not in the form of Image PDF.*

6. ***We are of the view that the above directions need to be followed by all other States where the issue of mining is relevant.***

7. A copy of this order be forwarded to the Chief Secretaries of all the States and UTs by e-mail for compliance."

Adverse impact of unscientific/unregulated Sand Mining

15. It is undisputed that there is huge degradation of environment on account of unregulated sand mining remains which is otherwise lucrative activity. It poses threat to bio-diversity, could destroy riverine vegetation, cause erosion, pollute water sources, badly affecting riparian ecology, damaging ecosystem of rivers, safety of bridges, weakening of riverbeds, destruction of natural habitats of organisms living on the riverbeds, affects fish breeding and migration, spell disaster for the conservation bird

species, increase saline water in the rivers. It has direct impact on the physical habitat characteristics of the rivers such as bed elevation, substrate composition and stability, in-stream roughness elements, depth, velocity, turbidity, sediment transport, stream discharge and temperature. Increase in demand of sand has placed immense pressure in the supply of sand resource and mining activities were going on illegally as well as legally without requisite restrictions. Lack of proper planning and sand management disturbs marine ecosystem and upset the ability of natural marine processes to replenish the sand. The Hon'ble Supreme Court (in Deepak Kumar, supra) noted that core group was constituted by the MoEF&CC to examine the impact of minor minerals on riverbeds and ground waters. A draft report was prepared recommending mandatory preparation of mining plan on the pattern of mining plans for major minerals. Further recommendations are reclamation and rehabilitation of abandoned mines, proportion of hydro geo-logical balance for minerals below ground water table limiting depth of mining to 3 meter and identification on locations where mining should be permitted was required. There is need for identifying safety zones in the proximity of intendments. Thus, strict regulatory parameters were required for regulating mining of minor minerals. It was noted that in-stream mining lowers the stream bottom of rivers which may lead to bank erosion. Depletion of sand in the stream bed causes deepening of rivers which may result in destruction of aquatic and riparian habitats. It has impact on stream's physical habitat characteristics.

16. *In State (NCT of Delhi) v. Sanjay, (2014) 9 SCC 772*, at page 790, it was observed :

> ***"32.*** *The policy and object of the Mines and Minerals Act and Rules have a long history and are the result of an increasing awareness of*

the compelling need to restore the serious ecological imbalance and to stop the damages being caused to the nature. The Court cannot lose sight of the fact that ***adverse and destructive environmental impact of sand mining has been discussed in the UNEP Global Environmental Alert Service Report. As per the contents of the Report, lack of proper scientific methodology for river sand mining has led to indiscriminate sand mining, while weak governance and corruption have led to widespread illegal mining. While referring to the proposition in India, it was stated that sand trading is a lucrative business, and there is evidence of illegal trading such as the case of the influential mafias in our country.***

33. The mining of aggregates in rivers has led to severe damage to rivers, including pollution and changes in levels of pH. Removing sediment from rivers causes the river to cut its channel through the bed of the valley floor, or channel incision, both upstream and downstream of the extraction site. This leads to coarsening of bed material and lateral channel instability. It can change the riverbed itself. The removal of more than 12 million tonnes of sand a year from Vembanad Lake catchment in India has led to the lowering of the riverbed by 7 to 15 cm a year. Incision can also cause the alluvial aquifer to drain to a lower level, resulting in a loss of aquifer storage. It can also increase flood frequency and intensity by reducing flood regulation capacity. However, lowering the water table is most threatening to water supply exacerbating drought occurrence and severity as tributaries of major rivers dry up when sand mining reaches certain thresholds. Illegal sand mining also causes erosion. Damming and mining have reduced sediment delivery from rivers to many coastal areas, leading to accelerated beach erosion.

34. The Report also dealt with the astonishing impact of sand mining on the economy. It states that tourism may be affected through beach erosion. Fishing, both traditional and commercial, can be affected through destruction of benthic fauna. Agriculture could be affected through loss of agricultural land from river erosion and the lowering of the water table. The insurance sector is affected through exacerbation of the impact of extreme events such as floods, droughts and storm surges through decreased protection of beach fronts. The erosion of coastal areas and beaches affects houses and infrastructure. A decrease in bed load or channel shortening can cause downstream erosion including bank erosion and the undercutting or undermining of engineering structures such as bridges, side protection walls and structures for water supply.

35. Sand is often removed from beaches to build hotels, roads and other tourism-related infrastructure. In some locations, continued construction is likely to lead to an unsustainable situation and destruction of the main natural attraction for visitors—beaches themselves. Mining from, within or near a riverbed has a direct impact on the stream's physical characteristics, such as channel geometry, bed elevation, substratum composition and stability, instream roughness of the bed, flow velocity, discharge capacity, sediment transportation capacity, turbidity, temperature, etc. Alteration or

modification of the above attributes may cause hazardous impact on ecological equilibrium of riverine regime. This may also cause adverse impact on instream biota and riparian habitats. This disturbance may also cause changes in channel configuration and flow paths

…..Today, demand for sand and gravel continues to increase. Mining operators, instead of working in conjunction with cognizant resource agencies to ensure that sand mining is conducted in a responsible manner, are engaged in full-time profiteering. Excessive in-stream sand and gravel mining from riverbeds and like resources causes the degradation of rivers. In-stream mining lowers the stream bottom, which leads to bank erosion. Depletion of sand in the stream-bed and along coastal areas causes the deepening of rivers and estuaries and enlargement of river mouths and coastal inlets. It also leads to saline water intrusion from the nearby sea. The effect of mining is compounded by the effect of sea level rise. Any volume of sand exported from stream-beds and coastal areas is a loss to the system. Excessive in-stream sand mining is a threat to bridges, river banks and nearby structures. Sand mining also affects the adjoining groundwater system and the uses that local people make of the river. Further, according to researches, in-stream sand mining results in the destruction of aquatic and riparian habitat through wholesale changes in the channel morphology. The ill effects include bed degradation, bed coarsening, lowered water tables near the stream-bed and channel instability. These physical impacts cause degradation of riparian and aquatic biota and may lead to the undermining of bridges and other structures. Continued extraction of sand from riverbeds may also cause the entire stream-bed to degrade to the depth of excavation."

Need for regulation under the Water, Air and EP Acts by PCBs, apart from the Mining authorities under the Mining law

17. Again, in Goa Foundation, supra (prs 74-76) it was observed that **mining was required to be regulated not only by the Mining department but also by the PCBs under the Water and Air Act and by the MoEF under the EP Act. It is made clear that the environment laws override other laws and any provision to the contrary in the Mines Act will not stay in the way of enforcing the environment norms. In this regard reference may also be made to report of the Ministry of Mines entitled "Sand Mining Framework" which will not stand in the way of modified mechanism in accordance with this order.**

Salient features of the EMGSM-2020

18. We may note the salient features of the EMGSM-2020, which are supplemental to existing SSMG-2016 and seek to provide effective enforcement and monitoring from the stage of identification of source to its dispatch and end use which requires involvement of all stakeholders viz. Central Government, State Government, Leaseholders/Mine Owners, Distributors, Dealers, Transporters and Consumers (bulk & retail)**.** EMGSM refer to the judgment of the Hon'ble Supreme Court in *Deepak Kumar Vs. State of Haryana & Ors. (2012) 4 SCC 629* making EC mandatory irrespective of the area of mining lease, followed by monitoring in terms of the Environment Management Plan, using IT and IT enabled services. **Monitoring has to be with reference to quantity of mined material, transportation with a view to promote environmental protection, limit negative physiological, hydrogeological and social impacts underpinning sustainable economic growth.** Observations in the order of this Tribunal dated 04.09.2018 in O.A. 173/2018 in Sudarsan Das vs. State of West Bengal & Ors. has also been referred to as follows:

> *"There can be no two views that an effective institutional monitoring mechanism is required not only at the stage when Environmental Clearance is granted but also at subsequent stages".*
> *"The guidelines focus on the preparation of District Survey Report and the Management Plan" …*
> *We are of the view that all the safeguards which are suggested in sustainable sand mining guidelines as well as notification dated 15.01.2016 ought to be scrupulously followed." …*
> *It is a known fact that in spite of the above-suggested guidelines being in existence, on the ground level, illegal mining is still going on. The existing mechanism has not been successful and effective in remedying the situation." …*
> *Since there is an utter failure in the current monitoring mechanism followed by the State Boards, SEIAAs and DEIAAs, it is required to be revised for effective monitoring of sand and gravel mining and a dedicated monitoring mechanism be set up."*

Further reference has been made to the directions in the order dated 05.04.2019 requiring the 17 States, which were party before the Tribunal

viz. West Bengal, Gujarat, Karnataka, Maharashtra, Punjab, Uttar Pradesh, Haryana, Madhya Pradesh, Andhra Pradesh, Bihar, Uttarakhand, Jammu and Kashmir, Goa, Kerala, Telangana and Tamil Nadu and Himachal Pradesh, to follow the revised Guidelines and to review their respective monitoring mechanism. It is then stated that with the object of regulating the mining, the sources of sand and steps required are mentioned which provide for District Survey Report (DSR), Mining Plan, replenishment study, consideration of environment impact while granting EC, laying down conditions for EC, monitoring of transportation to the end user to ensure that only legally mined material is transported. There is need to balance between deposition and extraction of sand as per replenishment study, maintaining surveillance, using Unmanned Artificial Vehicles (UAVs)/Drone for reserves estimation, quantity estimation, land use monitoring. Details about all these aspects have been mentioned in the said Guidelines. With regard to post EC monitoring, there is a provision for environment audit, monitoring of sale and purchase by developing online portal and laying down the levels of monitoring i.e. Level 1- Reach/ Stockyard level monitoring, Level 2 - Transportation monitoring, Level 3 - End consumer monitoring/ bulk consumer, Level 4 - Indirect monitoring. Reference has then been made to the High-Powered Committee incorporating safeguards to be adopted by the project proponents. There is also provision for assessment of compensation for the ecological damage by the State/ PCB/ any other Authority. Inter District and Inter State boundaries are separately dealt with. The uniform monitoring mechanism stipulates:

" 9.4. ***Monitoring Mechanism***

xxx ……xxx……xxx……

1. *All precaution shall be taken to ensure that the water stream flows unhindered and process of Natural river meandering doesn't get affected due to mining activity.*

2. *River mining from outside shall not affect rivers, no mining shall be permitted in an area up to a width of 100 meters from the active edge of embankments or distance prescribed by the Irrigation department.*

3. *The mining from the area outside river bed shall be permitted subject to the condition that a safety margin of two meters (2 m) shall be maintained above the groundwater table while undertaking mining and no mining operation shall be permissible below this level unless specific permission is obtained from the Competent Authority. Further, the mining should not exceed nine-meter (9 m) at any point in time.*

4. *Survey shall be carried out for identifying the stretches having habitation of freshwater turtles or turtle nesting zones. Similarly, stretches shall be identified for other species of significant importance to the river ecosystem. Such stretch with adequate buffer distance shall be declared as no-mining zone and no mining shall be permitted. The regulatory authority as defined for granting Environmental Clearance, while considering the application of issuance of ToR and/or EC for the adjacent block (to non-mining zone) of mining shall take due precaution and impose requisite conditions to safeguard the interest of such species of importance.*

5. *District administration shall provide detailed information on its website about the sand mines in its district for public information, with an objective to extend all information in public domain so that the citizens are aware of the mining activities and can also report to the district administration on any deviation observed. Appropriate feedback and its redressal mechanism shall also be made operational. The details shall include, but not limited to, lease area, geo-coordinates of lease area and mineable area, transport routes, permitted capacity, regulatory conditions for operation including mining, environmental and social commitments etc.*

6. *A website needs to be maintain to track the movement of centralised sand mining and a Centralised server system should be made to manage the data related to sand mining across India.*

7. *The mineral concession holders shall maintain electronic weighbridges at the appropriate location identified by the district mining officer, in order to ensure that all mined minerals from that particular mine are accounted for before the material is dispatched from the mine. The weighing bridge shall have the provision of CCTV camera and all dispatch from the mine shall be accounted for.*

8. The mineral movement shall be monitored and controlled through the use of transit permit with security features like printing on IBA approved MICR papers, Unique bar/QR, fugitive ink background, invisible ink mark, void pantographs and watermarks papers or through use of RFID tagged transit permits and IT /IT-enabled services. Such monitoring system shall be created and made operationalised by State Mining department and district level mining officer shall be responsible for ensuring that all legal and operational mines are connected and providing the requisite information on the system. Regular check and associated report shall be submitted to DLTF and uploaded on the website.

9. State Government shall constitute a District Level Task Force (DLTF) under the Chairmanship of Deputy Commissioner/District Magistrate/Collector with Superintendents of Police and other related senior functionaries (District Forest Officer, District transport officer, Regional officer- SPCBs, Senior Officer of Irrigation Department, District Mining Officer) with one/two independent member nominated by the Commissioner concerned. The independent member shall be retired government officials/teacher or ex-serviceman or ex-judiciary member.

The DLTF shall keep regular watch over the mining activities and movement of minerals in the district. The DLTF shall have its regular meeting, preferably every month to reconcile the information from the mining activity, and other observations made during the month and take appropriate corrective and remedial action, which may include a recommendation for revoking mining lease or environmental clearance. The DLTF may constitute an independent committee of the expert to assess the environmental or ecological damage caused due to illegal mining and recommend recovery of environmental compensation from the miner's concern. The recommendation may also include action under the provision of E(P) Act, 1986.

10. The area not identified for mining due to restriction or otherwise are also to be monitored on a regular basis by the DLTF. Any observations of mining activity from the restricted area shall be reported and corrective measures shall be initiated on an urgent basis by the DLTF.

11. The dispatch routes shall be defined in the Environmental Clearance and shall be avoided through densely habituated area and the increase in the number of vehicle movement on the road shall be in agreement with the IRC guidelines / carrying capacity of the road. The alternate and dedicated route shall be explored and preferred for movement of mining to avoid inconvenience to the local habitat. The mining production capacity, by volume/weight, shall be governed by total permissible dispatch calculated based on

the carrying capacity of dispatch link roads and accordingly, the production should be regulated.

12. *The movement of minerals shall be reconciled with the data collected from the mines and various Naka/check posts. Other measures may also include a general survey of the potential mineable area in the district which has not been leased/auctioned or permitted for mining due to regulatory or other reasons.*

13. *The location and number of check post requirement shall be reviewed by DLTF on a regular basis so that appropriate changes in location/number could be made as per the requirement. Such review shall be carried out on a regular basis for the district on inter-state boundary or district providing multiple passages between two districts of different states.*

14. The district administration shall compile the information from their district of the permitted and legal mined out minerals and other details and share such information and intelligence with the officials of the adjoining district (Inter or/and Intra State) for reconciliation. The information shall include the area of operation, permissible quantity, mined out minerals (production) the permitted route etc., and other observations, especially where the mine lease boundary is congruent with the district boundary. Such coordination meeting shall be held on a quarterly basis, alternatively in two district headquarters or any other site in two districts decided mutually by the District Magistrate.

15. The mining department shall include submission of an annual environmental audit report as one of the conditions in the mining lease agreement. The annual audit for each river bed mining lease shall be carried out and the audit report shall be uploaded on the website of district administration. The audit shall be carried out by an independent team of 3 members nominated by District Collector/Magistrate/Commissioner comprising of Ex-Serviceman, Ex-Government officials of repute, Professor or Person having experience of mining/environment. The guidelines and method of the audit shall reflect adequately the monitor-able parameters and output and reflect the compliance status with respect to the conditions imposed by the regulatory authorities including conditions of Environmental clearance.

16. *The in-situ and ex-situ environmental mitigative measures stipulated as EMP, CER, CSR and other environmental and safety conditions in mines including the welfare of labours shall properly reflect in the audit report.*

9.5 Suggestive additional requirements are

i. The requirement at the Mine Lease Site:

a. Small Size Plot (Up to 5 hectares): Android Based Smart Phone.
b. Large Size Plots (More than 5 hectares): CCTV camera, Personal Computer (PC), Internet Connection, Power Back up.
c. Access control of mine lease site.
d. Arrangement for weight or approximation of the weight of mined out mineral on the basis of the volume of the trailer of vehicle used.

ii. Scanning of Transport Permit or Receipt and Uploading on Server:

a. Website: Scanning of receipt on mining site can be done through barcode scanner and computer using the software;
b. Android Application: Scanning on mining site can be done using Android Application using a smartphone. It will require internet availability on SIM card;
c. SMS: Transport Permit or Receipt shall be uploaded on the server even by sending SMS through mobile. Once Transport Permit or Receipt get uploaded, a unique invoice code gets generated with its validity period.

iii. Proposed working of the system:

The State Mining Department should print the Transport Permit or Receipt with security features and issue them to the mining leaseholder through the District Collector. Once these Transport Permits or Receipts are issued, they would be uploaded on the server against that mine lease area. Each receipt should be preferable with pre-fixed quantity, so the total quantity gets determined for the receipts issued. When the Transport Permit or Receipt barcode gets scanned and invoice is generated, that particular barcode gets used and its validity time is recorded on the server. So all the details of transporting of mined out material can be captured on the server and the Transport Permit or Receipt cannot be reused.

iv. Checking On Route:

The staff deployed for the purpose of checking of vehicles carrying mined mineral should be in a position to check the validity of Transport Permit or Receipt by scanning them using the website, Android Application and SMS.

v. Breakdown of Vehicle:

In case the vehicle break-down, the validity of Transport Permit or Receipt shall be extended by sending SMS by the driver in specific format to report the breakdown of the vehicle. The server will register this information and register the breakdown. The State can also establish a call center, which can register breakdowns of such vehicles and extend

the validity period. The subsequent restart of the vehicle also should be similarly reported to the server or call center.

vi. Tracking of Vehicles:

The route of the vehicle from source to destination can be tracked through the system using checkpoints, RFID Tags, and GPS tracking.

vii. Alerts or Report Generation and Action Review:

The system will enable the authorities to develop a periodic report on different parameters like daily lifting report, vehicle log or history, lifting against allocation, and total lifting. The system can be used to generate auto mails or SMS. This will enable the District Collector or District Magistrate to get all the relevant details and shall enable the authority to block the scanning facility of any site found to be indulged in irregularity. Whenever any authority intercepts any vehicle transporting illegal sand, it shall get registered on the server and shall be mandatory for the officer to fill in the report on action taken. Every intercepted vehicle shall be tracked.

The monitoring of mined out mineral, environmental clearance conditions and enforcement of Environment Management Plan will be ensured by the regulatory authority and the State Pollution Control Board or Committee. The monitoring arrangements envisaged above shall be put in place. The monitoring of enforcement of environmental clearance conditions shall be done by the Central Pollution Control Board, Ministry of Environment, Forest and Climate Change and the agency nominated by the Ministry for the purpose.

Some of the State has followed the SSMMG-2016 and has also improvised or customized on the provisions given therein, and are successfully in operation. Salient provision adopted at different stages of sand mining in the state of Tamil Nadu is given as ***Annexure VIII.***

9.6 Actions against illegal excavation and transport

Solapur district administration in Maharashtra had adopted a multi-pronged strategy to penalize the persons involved in illegal excavation and transport which resulted in a significant increase in revenue earned by the state. Following rules and procedures as mentioned in these guidelines will add to the costs of PP. Those involved in illegal activities are not required to bear these costs and this will make their supply in the market cheaper (though illegal). This will put the players running their business by following rules and procedures laid down by the government to disadvantage as far as the selling price is considered. Therefore, it is necessary to come down heavily on those involved in illegal excavation/transport, so that there is no incentive for players to abide by the rules.

The following action may be taken to achieve this deterrence against illegal business:

1. *The action should be taken under all legal options available simultaneously. Thus, after identifying the case of illegal excavation, storage and/or transport of minor minerals (including sand), fine should be levied as per the land revenue laws/code(s) of the state. In addition, FIR should be lodged in the police station under relevant sections of law including sec 379 IPC. In addition, action under the Motor Vehicle Act, 1989 and relevant rules should initiate to cancel/suspend the driving license of the driver and permit of the vehicle. Further, action should be initiated under provisions in the Income Tax Act, 1961 for unaccounted income and under the Central Goods and Services Act, 2017 for nonpayment of GST. (Earlier this was done under the state act pertaining to Value Added Tax/Sales Tax). Habitual offenders should also be taken up under local state laws for externment and/or preventive action. It is clarified that as per law, it is possible to take all actions under various laws simultaneously for one offence. What is prohibited in law is an action under the same law for the same act more than once.*

2. *The action should be taken against all persons responsible. Often, there is a tendency to penalize only the drivers of the vehicles. The mafia of illegal mining and transport is much bigger and drivers are only one part of the system. It is necessary to identify all those involved in the offence. It is usually not possible to reach the place of excavation without creating a motorable pathway up to the same through land which may be private land. Such role of such landowners needs to be looked into for each offence and proceeded against simultaneously. Further, the role of vehicle owners needs to be probed. Role of the person who allowed his land to be used for illegal excavation and storage should also be examined. Lastly, the person who purchases such sand should also be probed. The legal proceedings stated above needs to be initiated against all of these together. An attempt should be made to fix the financial responsibility in joint and several ways so that recovery is easier.*

3. *There may be discretion available in law about the extent of the penalty to be levied. If such discretion is very wide, then it is advisable that guidelines may be laid down to reduce such discretion in law for levying penalties. For example, in Maharashtra, Land Revenue Code, fine of any amount of penalty up to thrice the value of the sand can be levied. Solapur district administration had instructed Tahsildars and SDMs not to use discretion and levy the fine of three times the value. Availability of discretion makes junior level functionaries susceptible to pressures and it may also lead to corrupt practices.*

4. *It is emphasized that actions, as stated above, are most important to ensure that the IT-based system works. If these exemplary actions are not taken against everyone, it shall create a strong disincentive to those involved in legal excavation and transportation. For IT-based (or any other) legal system to work, it is necessary to ensure that illegal system stops working altogether."*

19. Several formats have been suggested in the Annexures, apart from salient provisions in the State of Tamil Nadu before execution of the mining lease and after execution of such lease including **judicious mined closure plan, reclamation, removal of sheds and maintaining of record for future reference.**

Compliance Status in States – Context of UP

20. We now refer to the Oversight Committee report dated 15.01.2021 for the State of UP with regard to status of compliance of Sustainable Guidelines as follows:-

"

S. No.	***Directions by Hon'ble NGT***	***Compliance Status (Yes/No)***	***Compliance Status***
1.	*Status of the progress in ensuring issues related to illegal sand mining in the State of Uttar Pradesh*	***Partially Complied***	*For effective control of illegal mining and transportation of minerals, a seven-member District level Task Force has been constituted under the chairmanship of District Magistrate vide Govt. Order no. 616/86-2018-371/2005 dated 20.03.2018.* *Under the Integrated Mines Surveillance System (IMSS), all the mine areas have been geo fenced. PTZ cameras at the mines have been installed. Weigh Bridges fitted with cameras have been installed at all mines and have been integrated with the Control Centre at Head Quarters. At present, there are 36000 registered vehicles and 310 Weigh Bridges have been established.*
2.	*Demarcation of boundaries for regulating grant of sand mining lease*	***Partially Complied***	*Rule-23 of the Uttar Pradesh Sub-Divisional (Avoidance) Rules, 1963 as amended, provides for the advertisement of an area with Geo-coordinates and Rule-17 mentions the Geo- coordinates of all boundaries of the area sanctioned. These are being followed by all the District Magistrates.*

3.	*Environmental Compensation imposed on leasing of minor minerals in any area to cover the restoration cost of environment and to compensate the victims*	***Partially Complied***	*There is provision for execution of mining lease deed only after demarcation under rule-17 of the Mining lease Approval Rules, 1963.*
4.	*Status of the constitution of a team to carry out demarcation by the Chief Secretary*	***Partially Complied***	*Under Rule-17 of the Uttar Pradesh Sub-Divisional (Avoidance) Rules, 1963, there is a provision for survey/demarcation of the area by an authorized officer/employee of the Directorate of Geology and Mining. A separate team is not justified at the level of Chief Secretary*
5.	*Mining in all blocks is undertaken as per provisions of EIA Notification, 2006; MOEF Notification dated 15.1.2016 and the Sustainable Sand Mining Management Guidelines, 2016*	***Partially Complied***	*i. Rule 34(4) of Rules-1963 contains the provision for obtaining Environmental Clearance before commencement of mining in the sequence of notification dated 14.09.2006 and the notification as amended from time to time.* *ii. According to the Sustainable Sand Mining Management Guidelines, 2016 issued by MOEF&CC, mining work is restricted from the riverbed during the monsoon season. Thus, mining work is restricted in the month of July, August and September in the State.*
6.	*No sand mining is permitted without due compliance of the Water (Prevention and Control of Pollution) Act, 1974 and the Air (Prevention and Control of Pollution) Act, 1981 as well as regulations governing clearances by the Central Ground Water Authority*	***Partially Complied***	*Rule- 41(J)(1) of the 1963 Rules envisages that no mining operations in the leveled river bed shall be carried out beyond the depth of 3 meters or water level whichever is less/lower. The conditions mentioned in the Environmental Cleanliness Certificate issued by the State Level Environmental Impact Authority (SEIAA), are being followed.*
7.	*District authorities shall seize all sump pumps, other machinery, tools, vehicles, etc. used for carrying out illegal sand mining.*	***Partially Complied***	*Report awaited*
8.	*Any penalty imposed or not by concerned Department to cover the restoration cost of environment and to compensate the victims.*	***Partially Complied***	*The orders of Hon'ble NGT dated 18.02.2016 in OA No. 184/2013 Gurpreet Singh Baggha vs. MOEF, regarding recovery of penalty/ environmental damage from the concerned lease holders are being complied at district level.*
9.	*Status of a detailed restoration plan for the concerned river and its river beds*	***Partially Complied***	*Mining work is being done on the basis of approved mining scheme by including the restoration plan in the mining plan.*

10	*Status of the assessment done through Indian Council of Forestry Research and Education, Dehradun of the ecological damage on account of illegal mining by incorporating the given components:* *a) Cost of river bed material* *b) Cost of ecological restoration* *c) Net present value of the future ecosystem services.*	***Partially Complied***	*In OA No. 184/2013 Gurpreet Singh Bagga vs. MOEF, the action is being taken by conducting assessment of environmental damage in compliance with Indian Council of Forestry Research and Education, Dehradun.*
11	*Action against the polluters and the erring officers*	***Not Complied***	*Report awaited*
12	*Status of CCTV Cameras installation at mining points to verify the amount of sand extracted*	***Partially Complied***	*Rule-35(2) of Uttar Pradesh Minor Mineral Regulations, 1963 provides that the mining lease holder whose mining lease area is more than 5 hectares, shall constructs checkpost/gate and install 4 CCTV cameras capable of recording at 360° visibility at his own expense for monitoring. Under the supervision of the DMs.*
13	*Status of regular patrolling by the police to inspect the mining operations*	***Partially Complied***	*For effective control over illegal mining and transportation of minerals, a seven-member district level task force has been set up under the chairmanship of DM vide order no. 616/86-2018-371/2005 dated 20.03.2018. Deputy Superintendent of Police level officers of Police department are members of this task force. The mining areas are constantly monitored by this task force.*
14	*Status of daily reports regarding mining to be filed by SHO/ Mining officer to be sent to District Magistrate.*	***Partially Complied***	*According to the information received from the DM, Prayagraj in compliance of the order of Hon'ble NGT passed in OA No. 670/2018 in re: Atul Singh Chauhan vs. MOEF&CC and Ors., regular checking of illegal mining transportation is being done by the Task force constituted at the district level. The District Collector/ Senior Superintendent of Police, Prayagraj are regularly informed.*
15	*Status of vehicles confiscation*	***Partially Complied***	*In compliance of orders of Hon'ble NGT in OA No. 670/2018 in re: Atul Singh Chauhan vs. MOEF&CC and Ors., in district Prayagraj 06 chargesheets were filed in the financial year 2018- 19; 80 chargesheets filed in 2019-20 and in the year 2020-21 till the month of November, 2020, 150 FIRs and 214 cases have been filed in the competent Courts, including the order passed by Hon'ble NGT. Similar instructions have also been issued to the other districts regarding the above.*

16	*Status of EC imposed and realized by the CPCB till date in this regard*	***Partially Complied***	*In compliance of Order dated 05.04.2019 of Hon'ble NGT, Principal Bench in O.A. 360 of 2015 (13 clubbed cases), CPCB in NGT on 06.01.2020 the "Recommendations on Scale of Compensation to deal with the cases of illegal sand mining" were made by the Committee of Experts constituted by Hon'ble NGT. The Committee of Expert recommended two approaches regarding the scale of compensation to deal with the cases of illegal sand mining:* *1. Direct Compensation based on the market value of extraction, adjusted for ecological damages* *2. Computing a Simplified NPV for ecological damages.* *The above referred recommendations were initially taken up by Hon'ble NGT during the hearing on 08.01.2020 wherein Hon'ble NGT expressed prima facie deficiencies in the recommendations and directed for rectification of the deficiencies before the next date. Accordingly, the Committee of Experts reviewed and revised its recommendations, and CPCB filed in NGT on 30.01.2020 the revised "Recommendations on Scale of Compensation to deal with the cases of illegal sand mining" of the Committee of Experts constituted by Hon'ble NGT. The scale of compensation was calculated by adopting two approaches. For details of approach, I & II refer Appendix- VI. It was also suggested by the Hon'ble NGT vide its order dated 17/08/2020 to consider the suggestions of Shri Panjwani which were noted at point no 13 needs to be looked into by the same Committee and thereafter the Scale of Compensation finalized (Refer Appendix- VII).* *In compliance of the Hon'ble NGT direction, the matter was examined by the same expert Committee at CPCB, Delhi & found that more or less the formula suggested by committee and the methodology suggested by Shri Panjwani is similar except some of the factors. The details of same are noted at point no. 3 of the affidavits is submitted before the Hon'ble NGT by CPCB on 12.10.2020. Copy of same is enclosed as Appendix-VIII.*
17	*Status of EC imposed and realized by the UPPCB till date in this regard*	***Partially Complied***	*In compliance of Order dated 08.01.2020 of Hon'ble NGT in O.A. 360 of 2015 are given at Appendix -IX of the report*

18	*Status of setting up of dedicated institutional mechanism for monitoring of conditions of Environmental Clearance as granted under EIA Notification, 2006 in respect of sand and gravel mining.*	***Partially Complied***	*Under the supervision of the DMs in the districts, the conditions of the Environmental Clearance Certificate are complied with by the PCBs/ Departmental officers. A separate institutional mechanism has been established for the same.*
19	*Safeguards based on High Powered Committee report and observations into the Sustainable Sand Mining and Management Guidelines, 2016.*	***Partially Complied***	*MOEF& CC is following the Sustainable Sand Mining Management Guidelines, 2016. (Refer Appendix- X)*
20	*Necessary steps have been taken by District Administration for the effective monitoring mechanisms for preventive and remedial measures including surveillance system for recovery of compensation.*	***Not Complied***	*Action will be taken after necessary amendments in environmental regulations. As per information given by the Mr. A.K. Tiwari, UPPCB on 07.01.2021 that: Comments: In compliance of Hon'ble NGT order dated 17.08.2020 in OA No. 360/2015 and as per provision of 'Enforcement & Monitoring Guidelines for Sand Mining' Jan., 2020 issued by MOEF&CC, Govt. of India, action is to be taken by concerned District Administration. (Refer Appendix- XI)*
21	*Necessary steps have been taken by MOEF & CC to restore effective impact assessment and safeguards; any action taken against the erring officers*	***Not Complied***	*Report awaited*
22	*Status of Chief Secretary filed the report regarding recovery of compensation (i.e. damage to environment)*	***Not Complied***	*Report awaited*

23	*Whether there is any progress towards amendments of the Act/Rules so that the Courts can order for the fine as ordered by Hon'ble NGT.*	***Not Complied***	*As per information given by the Mr. A.K. Tiwari, UPPCB on 07.01.2021 that: Comments: In compliance of Hon'ble Supreme Court Judgement dated the 27.02.2012 in I.A. No. 12-13 in Special Leave Petition (C) No. 19628-19629 of 2009, in the matter of Deepak Kumar etc. Vs. State of Haryana and Others and in compliance of Hon'ble NGT directions dated 04.09.2018 in O.A. No. 173/2018 in the matter of Sudarsan Das Vs. State of West Bengal, MOEF&CC, Govt. of India has issued 'Enforcement & Monitoring Guidelines for Sand Mining' Jan., 2020 which has the following provisions regarding illegal mining:* *"As per the provision of 23 (C) of MMDR Act, the State Government is empowered to make rules for preventing illegal mining, and transportation & storage of illegal minerals. All such mining which qualifies under illegal shall be dealt with in the provision of MMDR Act the concern authorities".* *In the above circumstance the necessary amendments in Mining Regulation/ The Uttar Pradesh SubDivisional (Avoidance) Rules, 1963 is to be initiated by the Mines & Geology Department, Govt. of U.P. (Refer Appendix- XI).*

Additional Information provided by Mines Department

1. ***The Mines Department has established a Command Centre at the Directorate of Geology and Mines at Lucknow from where they operate the Integrated Mines Surveillance System for the entire State. They are using Artificial Intelligence based Software and taking the help of Drones and Cloud Services for monitoring mining activity in the State. Drone Videography has been done in sensitive districts- Fatehpur, Banda, Prayagraj and Saharanpur. Besides the CCTV Cameras, they are using RFID tags to monitor the movement of vehicles.***

2. *They have made a provision in the Rules to blacklist a person for upto 2 years if found guilty of illegal mining/illegal transportation. So far 125 persons/firms have been blacklisted.*

3. *They have amended the Rules to allow storage of minerals beyond 5Km radius from the riverbed. This has been done to prevent illegal mining from river bed under the alibi of storage.*

4. ***They have established a Vehicle Tracking System to check the misuse of Transport Pass and Overloading. To begin with, this system has been introduced in the most sensitive districts of Hamirpur, Banda, Fatehpur, Jalaun and Jhansi.***

5. *New areas have been identified based on survey conducted according to Sustainable Mining Guidelines and they are being included in the DSR.*

6. *Instead of the printed MM-11, online royalty payment has been introduced through E- MM- 11.*

7. *Security features have been introduced in E-MM 11 to check its misuse.*

8. *Transport of minerals even from stores is being regulated through electronic E- forms.*

Observation of the Oversight Committee: *The Committee felt that the compliance of the Mining Department needs to be verified by independent sources. CPCB and UPPCB are being directed by the Committee to jointly verify the compliance. The report would be submitted in three months time.*

VI. RECOMMENDATIONS

1. *There have been a number of complaints regarding illegal mining specially in Districts of Hamirpur, Banda, Fatehpur, Jalaun, Prayagraj, Saharanpur and Jhansi. The Oversight Committee, while enclosing the newspaper cuttings has asked for a status report from the Directorate of Mining, which so far has not been received.* ***Illegal Mining is mining done without a Mining Plan in utter violation of environmental norms and is a grave threat to ecology and environment.*** *The State Government should have a zero tolerance on illegal mining and the Directorate of Mining and District Administration should immediately enquire into all such cases and if found correct take stringent legal action against the guilty.*

2. *Environmental Clearance takes into account all the environmental concerns. Mining plan is the instrument through which it is enforced. However, for mining activity going on illegally, there is neither any EC nor any mining plan. Illegal mining invariably leads to reckless damage to environment. Hence, utmost efforts are required in surveillance, patrolling and enforcement.* ***Electronic surveillance through UAVs/Remote Sensing is a good surveillance option especially in areas where sand mafias are active. Night vision drones could be used for checking mining activity at night. Sensitive spots need to be identified and police presence- both static presence and dynamic patrolling needs to be beefed up there. DMs / SSPs be made directly responsible for checking illegal mining****.*

3. *DSRs need to be prepared very carefully. They should be based on Physical surveys and replenishment studies.* ***Since sand deposition is a dynamic issue, they need to be regularly updated. While awarding lease deeds, important environmental parameters like deposition and replenishment of sand, areas of erosion, distance from infrastructural structures need be considered.***

4. ***In the absence of replenishment studies and physical inspection before award, many times sites are awarded where there is no sand. The lease holder per force indulges in mining adjoining areas, some of which may be environmentally not very suitable. Before award of LOI, physical inspection should be mandatory.***

5. *Areas where only few leases are operative and the rest are not settled/surrendered need to be carefully analyzed.* ***There could be a chance of cartel formation and mining of sand illegally from other vacant mining plots under the garb of the operative lease. (In district Prayagraj, there is only one operative lease out of 51 leases).***

6. ***Storage Godowns should be at least 5 kms away from the river bank. Otherwise, illegal mining can be carried on under the garb of storage by the leaseholder himself.***

7. ***Geo-fencing of sites, their physical demarcation, allotment of geo-coordinates to all the pillars and their constant physical inspection and electronic surveillance is a must to ensure that the mining activity is as per the approved mining plan and no illegal mining, detrimental to environment, is going on.***

8. *There has to be a mechanism to ensure that the* ***actual mining activity conforms to the approved Mining Plan and the approved Environment Management Plan (EMP). Besides the statutory system of Departmental inspections, there has to be a system of annual mandatory Environmental Audit by experts. Environment Department can empanel some experts/expert institutions with standard TORs and Remuneration terms which could be utilized by the Mines Department on a regular basis. This way the District Administrations can access good technical experts with standard conditions in a transparent way without bothering about tedious time-consuming tender formalities.***

9. *There has to be an effective mechanism for restoration of environment in case of its degradation due to mining.* ***A portion of the royalty could be reserved for it as Environment Restoration Fund. The Environment Department can empanel some reputed institutions 21 with standard terms for preparing environmental restoration plans which could be used directly by the Mining Department without the arduous formalities. These plans could be funded by the Environment Fund as mentioned above. Already a number of mineral rich districts like Sonbhadra have a sizeable District Mineral Fund at the disposal of the District Collector. However, since there is no mechanism available at the level of District Collector for preparation of Environment Restoration Plans, this fund is normally used for works other than environmental restoratio****n.*

10. All the mining activity should strictly comply with Provisions of EIA Notification 2006, Sustainable Sand Mining Guidelines, 2016; The Environmental Protection Act, 1986; The Water (Prevention and Control of Pollution) Act, 1974; The Air (Prevention and Control of Pollution) Act, 1981 and Regulations of Central Ground Water Authority.

11. Direction may be issued to the Principal Secretary, Mining to take immediate steps for amendment of rules so that the Courts may order the fine as ordered by the Hon'ble NGT."

Stand of State of MP

21. The State of MP has filed an affidavit on 13.01.2021 that necessary changes have been made in accordance with the directions of this Tribunal dated for procedure for granting EC in accordance with the directions of this Tribunal in the order dated 13.9.2018 in Satendra Pande, by constituting a Committee. Order dated 12.10.2020 was issued by the State of Madhya Pradesh on the subject. There is a proposal to amend the Minor Minerals Rules and also to introduce technology to prevent illegal mining using QR Code for transit passes, pool SMS facility to ascertain validity of electronic passes, google distance matrix to avoid multiple usage of single transit pass, web portal and mobile App to verify validity of electronic transit pass. It is not necessary to refer to the affidavits of other individual States in view of the fact that final and updated directions are now being issued in the light of which all the States/UTs are expected to take further steps in the matter.

Stand of State of Rajasthan

22. In the status report, filed by the State of Rajasthan on 16.10.2020, it is stated that the Chief Secretary Environment Cell has been established. It holds regular meetings with the District Magistrates. Meeting was also held with the Director General of Police (law and order), Secretary Home, Director Mines, all District Collectors, Dy. Conservators of Forest and other concerned officers. Directions have been issued for formation of SITs,

monitoring cases of illegal mining, setting up of special check posts on the routes used for illegal mining, ensuring CCTV surveillance, strict recovery of environmental compensation fee, etc. Directions have issued to District Magistrates to create awareness at Panchayat level. The Chief Secretary proposes proposed to issue comprehensive guidelines. Mining Department has also taken up a project for creating redressal portal and mobile app for reporting illegal mining.

Today's Consideration

23. The extent of challenge posed by illegal sand mining was noted by the Tribunal in the order dated 05.04.2019 in OA 360/2015 as follows:-

> *"8. Despite this, the menace of illegal sand mining in India continues unabated.* ***As per reports, the sand business in India employs over 35 million people and is valued at well over $126 billion per annum. In the year 2015-2016, there were over 19,000 cases of illegal minor minerals including sand in the country.[4] In Uttarakhand, a 115 years old bridge collapsed due to overloaded sand trucks. In Maharashtra, 26,628 cases of illegal sand mining were recorded in the year 2017. The State of Maharashtra has the highest number of cases of non-compliance of Sustainable Sand Mining Management Guidelines, 2016. The State of Kerala suffered hugely in 2004 Tsunami and 2018 floods which several report explain were aggravated by illegal sand extraction.[5] The issue of illegal sand mining is also rampant in the states of Goa[6], Bihar[7], Tamil Nadu[8], Uttarakhand[9], Telangana[10], Jammu and Kashmir[11] amidst others."***

24. In view of resume of above orders and responses, the issue which survives for consideration is enforcement of the 2016 and 2020 guidelines, read with orders dated 19.2.2020, 14.10.2020, 4.11.2020 and observations herein, by evolving appropriate comprehensive monitoring

[4] http://www.legalserviceindia.com/legal/article-73-why-is-illegal-sand-mining-harmful-.html
[5] https://sandrp.in/2019/03/01/sand-mining-2018-is-it-a-national-menace/
[6] https://timesofindia.indiatimes.com/city/goa/govt-is-ignoring-illegal-sand-mining/articleshow/67908428.cms
[7] https://www.firstpost.com/india/illegal-sand-mining-part-3-bihar-govts-attempted-crackdown-has-sent-prices-soaring-officials-face-axe-as-rivers-in-ruin-6008351.html
[8] https://en.wikipedia.org/wiki/Sand_mining_in_Tamil_Nadu
[9] https://sandrp.in/tag/uttarakhand-sand-mining/
[10] https://sandrp.in/2019/02/26/sand-mining-2018-telangana-and-andhra-pradesh/
[11] https://greaterkashmir.com/article/news.aspx?story_id=309365&catid=2&mid=53&AspxAutoDetectCookieSupport=1

mechanism, with designated accountable officers, grievance redressal mechanism, envisaging strict action against violators, including assessment and recovery of compensation for the violations, seizure of vehicles and review at higher levels in the State.

Compensation

25. In the light of discussion in para 12 above, having regard to the totality of the situation, w**e accept the report of the CPCB and direct that the scale of compensation calculated with reference to approach II be adopted by all the States/UTs. T**hough compensation assessment for damage to the environment is a dynamic concept, depending on variables, floor level formula can be worked out to avoid arbitrariness inherent in unguided discretion**. The CPCB may issue an appropriate statutory direction for the facility of monitoring and compliance to the Environment Secretaries of all the States/UTs who may forthwith evolve an appropriate mechanism for assessment and recovery of compensation in all Districts of the State. The recovered compensation may be kept in a separate account and utilized for restoration of environment by preparing an appropriate action plan under the directions of the Environment Secretary with the assistance of such individual/ institutions as may be considered necessary.**

Interaction for Effective enforcement

26. The above discussion shows that the problem has defied solution and unless tackled seriously, damage to the environment will continue. Clear road map is thus required with effective monitoring mechanism. Report of the Oversight Committee for UP and affidavit of the State of MP, the report from Rajasthan and some other States also show that effective

mechanism is lacking. For clarity on all issues, periodic interaction of stake holders, particularly the enforcement authorities is required. This will also facilitate engagement of accredited agencies/experts for preparing DSRs/replenishment studies. In the Central Government, the concerned authorities include Mining Ministry, Environment Ministry, Jalshakti Ministry and CPCB. In States, Departments of Mining, Environment, SEIAA, PCB and District Magistrates.

Enforcement of Monitoring Mechanism and review by the Chief Secretary at State level and Secretary MoEF&CC at National level

27. **We direct all the States/UTs to strictly follow the SSMG-2016 read with EMGSM-2020 reinforced by mechanism for preparation of DSRs (in terms of directions of this Tribunal dated 14.10.2020 in Pawan Kumar, supra and 04.11.2020 in Rupesh Pethe, supra), Environment Management Plans, replenishment studies, mine closure plans, grant of EC (in terms of direction dated 13.09.2018 in Satendra Pandey, supra), assessment and recovery of compensation (as per discussion in Para 25), seizure and release of vehicles involved in illegal mining (in terms of order dated 19.02.2020 in Mushtakeem, supra), other safeguards against violations, grievance redressal, accountability of the designated officers and periodical review at higher levels. As already noted, EMGSM-2020 contemplates extensive use of digital technology, including remote sensing.**

28. **We further direct that periodic inspection be conducted by a five-members Committee, headed and coordinated by the SEIAA and comprising CPCB (wherever it has regional office), State PCB and two expert members of SEAC dealing with the subject. Where CPCB regional office is not available, if MoEF&CC regional office is available, its Regional Officer will be included in the Committee.**

Where neither CPCB nor MoEF&CC regional office exists, Chairman, SEIAA will tie up with the nearest institution of repute such as IIT to nominate an expert for being included in the Committee. Such inspection must be conducted at least thrice for each lease i.e. after expiry of 25% the lease period, then after 50% of the period and finally six months before expiry of the lease period for midway correction and assessment of damage, if any. The reports of such inspections be acted upon and placed on website of the SEIAA. Every lessee, undertaking mining, must have an environment professional to facilitate sustainable mining in terms of the mining plan and environmental norms. This be overseen by the SEIAA. Environment Departments may also develop an appropriate mobile App for receiving and redressing the grievances against the sand mining, including connivance of the authorities and also a mechanism to fix accountability of the concerned officers. Recommendations of the Oversight Committee for the State of UP quoted earlier may be duly taken into account.

The mechanism must provide for review at the level of the Chief Secretary at least once in every quarter, in a meeting with all concerned Departments in the State. The Chief Secretary UP may ensure further action in the light of the report of the Oversight Committee.

Similarly, at National level, such review needs to be conducted atleast once in a year by the Secretary, Environment in coordination with the Secretaries Mining and Jalshakti Ministries the CPCB.

Publication of Annual Reports

29. **We further direct all the States/UTs to publish their annual reports on the subject and such annual reports may be furnished to**

MoEF&CC by 30th April every year giving status till 31st March. First such report as on 31.03.2022 may be filed with the MoEF&CC by all he States/UTs on or before 30.04.2022. The report may also be simultaneously posted on the website of the Environment Department of the States/UTs. Based on such reports, MoEF&CC may consider supplementing its Guidelines from time to time. The MoEF&CC may prepare a consolidated report considering the reports from the States/UTs and publish its own report on the subject, preferably by 31st May every year.

Interaction at National Level

30. **We direct the Secretary MoEF to convene a meeting in coordination with the CPCB and Mining and Jalshakti Ministries of Central Government and such other experts/individuals at National level and representatives of States within three months for inter-action on the subject which may be followed by such meetings being convened by the Chief Secretaries in all States in next three months. Holding of such meetings will provide clarity on enforcement strategies and help protection of environment.**

All the applications are disposed of. Individual issues may be gone into in accordance with the mechanism to be involved as above.

A copy of this order be forwarded to the MoEF&CC, CPCB, Secretaries, Ministries of Jalshakti and Mining, GoI, Chief Secretaries, Environment Secretaries, SEIAA and State PCBs/PCCs and District Magistrates of all the States/UTs by e-mail for compliance.

Adarsh Kumar Goel, CP

S.K. Singh, JM

Dr. Nagin Nanda, EM

February 26, 2021
Original Application No. 360/2015
and other connected matters
DV & A

Annexure- VI

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

No. CPCB/IPC-II/NGT-OA(360/2015)/2021/ 11 June, 2021

To,

The Environment Secretary,
(As per list)

Sub.: Direction under Section 5 of The Environment (Protection) Act, 1986 regarding development of mechanism for assessment and recovery of compensation as per Hon'ble NGT order dated-26.02.2021 in O.A. No. 360/2015-reg.

WHEREAS, Hon'ble National Green Tribunal (NGT) by order dated-26.02.2021 (Para 10 to 12 & 25) in O.A. No. 360 of 2015 (and other clubbed applications) has accepted the report of an Expert Committee constituted by NGT order regarding Scale of Environmental Compensation to deal with the cases of illegal sand mining, that was submitted by CPCB to NGT on 30.01.2020, and which was re-iterated in the report submitted by CPCB to NGT on dated-12.10.2020 (available at NGT website at the link*https://greentribunal.gov.in/news-update?title=360+of+2015*);

WHEREAS, Hon'ble NGT by the above mentioned order dated-26.02.2021 (Para 25) has directed that the scale of compensation calculated with reference to Approach II of the Expert Committee report dated-30.01.2020 be adopted by all the States/UTs and that the recovered compensation may be kept in a separate account and utilized for restoration of environment by preparing an appropriate action plan under the directions of the Environment Secretary with the assistance of such individual/ institutions as may be considered necessary;

WHEREAS, by the above mentioned order dated-26.02.2021 (Para 25), Hon'ble NGT has further directed CPCB to issue an appropriate statutory direction to Environment Secretaries of all the States / UTs for the facility of monitoring and compliance of above NGT direction;

AND WHEREAS, Central Government has delegated the power to issue directions under Section 5 of the Environment (Protection) Act, 1986 to CPCB also,

NOW THEREFORE, in compliance of above mentioned direction of NGT and in exercise of powers under Section 5 of the Environment (Protection) Act, 1986, you are hereby directed to evolve an appropriate mechanism for assessment and recovery of compensation in all Districts of the State and for utilization of the recovered compensation for restoration of environment by preparing an appropriate action plan, as per order dated-26.02.2021 of Hon'ble National Green Tribunal (Principal Bench) in OA No. 360/2015.

The action taken report in above reference may be provided to CPCB within one month.

(Naresh Pal Gangwar)
Chairman

Copy for information to:

1. **The Joint Secretary,** : for information, please
   IA-II Division,
   Ministry of Environment, Forest & Climate Change,
   Indira Paryavaran Bhawan,
   Jor Bagh Road, New Delhi – 110003

2. **The Member Secretary,** : for information, please
   SPCBs/PCCs
   (As per list)

(Prashant Gargava)
Member Secretary
o/c

S.No.	States/UTs	Address	
		Environment Secretary - Office	Member Secretary - Office
1.	Andaman & Nicobar Islands	The Environment Secretary, Department of Environment & Forest, O/o Secretary (G/A), Andaman & Nicobar Administration, Secretariat, Port Blair, ANDAMAN & NICOBAR	The Member Secretary, Andaman & Nicobar Islands Pollution Control Committee, Department of Science & Technology, Dollygunj Van Sadan, P.O. Haddo Port Blair – 744102 ANDAMAN & NICOBAR
2.	Andhra Pradesh	The Environment Secretary, Department of Environment, Forest, Science & technology, 4th Block, 1st Floor, Room No. 268, A.P. Secretariat Office, Velagapudi, ANDHRA PRADESH	The Member Secretary, Andhra Pradesh Pollution Control Board D. No. 33-26-14 D/2, Near Sunrise Hospital, Pushpa Hotel Centre, Chalamalavari Street, Kasturibaipet, Vijayawada – 520 010 ANDHRA PRADESH
3.	Arunachal Pradesh	The Environment Secretary, Department of Environment & Forest, Civil Secretariat, Itanagar – 791 111 ARUNACHAL PRADESH	The Member Secretary, Arunachal Pradesh State Pollution Control Board Govt. of Arunachal Pradesh, Department of Environment & Forests, Paryavaran Bhawan, Yupia Road, Papu Nalah, Naharlagun - 791 110 ARUNACHAL PRADESH
4.	Assam	The Environment Secretary, Department of Environment & Forest, Assam Secretariat, Block 'A', 2nd Floor Dispur, Guwahati – 781 006 ASSAM	The Member Secretary, Pollution Control Board- Assam, Bamunimaidam, Guwahati – 781 021 ASSAM
5.	Bihar	The Environment Secretary, Department of Environment, Forest & Climate Change, Van Vibhag Road, Nehru Nagar, Patliputra Colony, Patna - 800 013 BIHAR	The Member Secretary, Bihar State Pollution Control Board, Parivesh Bhawan, Plot No. NS-B/2, Paliputra Industrial Area, Patliputra, Patna – 800 023 BIHAR
6.	Chandigarh	The Environment Secretary, Department of Environment & Climate Change, MGSIPA Complex, Sector 26, CHANDIGARH – 160 019	The Member Secretary, Chandigarh Pollution Control Committee Paryavaran Bhawan, Ground Floor, Sector-19 B, Madhya Marg, CHANDIGARH – 160 019
7.	Chhattisgarh	The Environment Secretary, Department of Environment, Mahanadi Bhawan, Mantralaya, Mahanadi Bhawan, Atal Nagar, Nava Raipur- 492 001 CHHATTISGARH	The Member Secretary, Chhattisgarh State Environment Conservation Board, Paryavas Bhawan, North Block Sector-19, Atal Nagar, Raipur - 492 002, CHHATTISGARH

8.	Dadra & Nagar Haveli, Daman & Diu	The Environment Secretary, Department of Environment & Forest Secretariat, Daman, Fort Area, Post Office Moti Daman – 396 220 DAMAN & DIU	The Member Secretary, Pollution Control Committee, UTs of Daman, Diu and Dadra & Nagar Haveli Fort Area, Court Compound, Moti Daman - 396 220 DAMAN & DIU
09.	Delhi	The Environment Secretary, Department of Environment, 6th Level, Delhi Secretariat, IP Estate, DELHI – 110 002	The Member Secretary, Delhi Pollution Control Committee, Government of N.C.T. Delhi 4th Floor, ISBT Building, Kashmere Gate, DELHI-110 006
10.	Goa	The Environment Secretary, Department of Environment and Climate Change , 4th Floor Dempo Towers, Patto - Panaji - 403 511. GOA	The Member Secretary, Goa State Pollution Control Board Nr. Pilerne Industrial Estate, Opp. Saligao Seminary, Saligao - Bardez Goa – 403 511 GOA
11.	Gujarat	The Environment Secretary, Forests & Environment Department, Block 14, 8 th floor, Sachivalaya, Gandhinagar - 382 010 GUJARAT	The Member Secretary, Gujarat Pollution Control Board Paryavaran Bhavan, Sector 10-A, Gandhi Nagar 382 010, GUJARAT
12.	Haryana	The Environment Secretary, Department of Environment & Climate Change, Seventh Floor, Main Secretariat, Sector 16, CHANDIGARH – 160 017	The Member Secretary, Haryana State Pollution Control Board C-11, Sector-6, Panchkula- 134109, HARYANA
13.	Himachal Pradesh	The Environment Secretary, Department of Environment, Science & Technology, Paryavaran Bhawan, Near US Club, Shimla – 171 001 HIMACHAL PRADESH	The Member Secretary, Himachal Pradesh State Pollution Control Board Him Parivesh, Phase-III, New Shimla – 171 009 HIMACHAL PRADESH
14.	Jammu & Kashmir	The Environment Secretary, Department of Forest, Environment & Ecology, 4th Floor, Mini Block Secretariat, Jammu, JAMMU & KASHMIR	The Member Secretary, J&K Pollution Control Board, Parivesh Bhawan, Shiekh-ul- Campus, Behind Govt. Silk Factory, Raj Bagh, Srinagar – 190 008 JAMMU & KASHMIR
15.	Jharkhand	The Environment Secretary, Department of Environment, Forest & Climate Change, Nepal House, Doranda, Ranchi – 834 002 JHARKHAND	The Member Secretary, Jharkhand State Pollution Control Board T.A. Bldg., HEC, P. O. Dhurwa, Ranchi - 834 004 JHARKHAND

16.	Karnataka	The Environment Secretary, Forest, Ecology and Environment Department, Secretariat, 4th Floor, M. S. Building, Bangalore – 560 001 KARNATAKA	The Member Secretary, Karnataka State Pollution Control Board "Parisara Bhavan", #49,4th & 5th Floor, Church Street, Bangalore 560 001 KARANATAKA
17.	Kerala	The Environment Secretary, Department of Environment and Climate Change, 4th Floor, K.S.R.T.C Bus Terminal Thampanoor, Thiruvananthapuram – 695 001 KERALA	The Member Secretary, Kerala State Pollution Control Board Head Office, Pattom. P. O Thiruvananthapuram - 695 004 KERALA
18.	Lakshadweep	The Environment Secretary, Department of Environment and Forest, 1st Floor, Paryavaran Bhavan, Kavaratti, LAKSHADWEEP	The Member Secretary, Lakshadweep Pollution Control Committee, Department of Science, Technology & Environment, Kavarati – 682 555, LAKSHADWEEP
19.	Madhya Pradesh	The Environment Secretary, Housing and Environment Department, Paryavaran Parisar, E- 5, Arera Colony, Bhopal – 462 016 MADHYA PRADESH	The Member Secretary, Madhya Pradesh Pollution Control Board Paryavaran Parisar, E-5, Arera Colony Bhopal - 462 016 MADHYA PRADESH
20.	Maharashtra	The Environment Secretary, Environment & Climate Change Department, New Administrative Building, Madam Kama Road, Hutatma Chowak, Mumbai – 400 032 MAHARASHTRA	The Member Secretary, Maharashtra Pollution Control Board, Kalpataru Points, 3rd & 4th Floor, Sion Matunga Scheme Road No.6 Opp. Cine Planet, Sion Circle, Sion (E), Mumbai-400 022 MAHARASHTRA
21.	Manipur	The Environment Secretary, Directorate of Environment and Climate Change, Mini Secretariat Rd, opposite Superitendant of Police, Porompat – 795 010 MANIPUR	The Member Secretary, Manipur Pollution Control Board Lamphalpat, Imphal – 795 004, MANIPUR
22.	Meghalaya	The Environment Secretary, Forest and Environment Department, Secretariat Building, North Range, Forest Colony, Khasi Hills, Shillong – 793 001 MEGHALAYA	The Member Secretary, Meghalaya State Pollution Control Board, "ARDEN", Lumpyngngad, Shillong – 793 014, MEGHALAYA

23.	Mizoram	The Environment Secretary, Department of Environment, Forest & Climate Change, Tuikhuahtlang, Aizawl, MIZORAM	The Member Secretary, Mizoram Pollution Control Board New Secretariat Complex, Khatla, Aizawl – 796 001, MIZORAM
24.	Nagaland	The Environment Secretary, Department of Environment, Forest & Climate Change, New Secretariat, Kohima, NAGALAND	The Member Secretary, Nagaland Pollution Control Board Signal Point, Dimapur, NAGALAND
25.	Odisha	The Environment Secretary, Forest & Environment Department, Kharavel Bhavan, Bhubaneswar, ODISHA	The Member Secretary, Odisha State Pollution Control Board Paribesh Bhawan, A-118, Nilakantha Nagar Unit VIII Bhubaneswar – 751 012, ODISHA
26.	Puducherry	The Environment Secretary, Department of Science, Technology and Environment, III Floor, PHB Building Anna Nagar, PUDUCHERRY - 605 005	The Member Secretary, Puducherry Pollution Control Committee 'B' Block, Ground Floor, Chief Secretariat, PUDUCHERRY-605 001
27.	Punjab	The Environment Secretary, Department of Science, Technology and Environment, 6th Floor, Punjab Civil Secretariat-2, Sector 9, CHANDIGARH – 160 009	The Member Secretary, Punjab Pollution Control Board Vatavaran Bhawan, Nabha Road Patiala 147 001 PUNJAB
28.	Rajasthan	The Environment Secretary, Department of Environment, 4, Jhalana Institutional Area, Jhalana Doongri, Jaipur – 302 004 RAJASTHAN	The Member Secretary, Rajasthan Pollution Control Board, A-4, Institutional Area, Jalana Dungri, Jaipur 302 004, RAJASTHAN
29.	Sikkim	The Environment Secretary, Forest and Environment Department, Government of Sikkim Forest Secretariat Deorali - 737102 Gangtok, East Sikkim, SIKKIM	The Member Secretary, Sikkim State Pollution Control Board State Land Use & Environment Cell Govt. of Sikkim, Deorali Gangtok – 737 102 SIKKIM
30.	Tamil Nadu	The Environment Secretary, Department of Environment, No. 1, Jeenis Road, Panagal Building, Ground Floor, Saidapet, Chennai – 600 015 TAMIL NADU	The Member Secretary, Tamil Nadu Pollution Control Board 76, Anna Salai, Guindy Industrial Estate, Race View Colony, Guindy, Chennai – 600 032 TAMIL NADU

31.	Telangana	The Environment Secretary, Department of Environment, Forests, Science and Technology, Telangana Secretariat 5th Floor, Burgula Rama Krishna Rao Bhavan, NH 44, Hill Fort, Adarsh Nagar, Hyderabad – 500 063 TELANGANA	The Member Secretary, Telangana State Pollution Control Board Paryavaran Bhawan, A-III, Industrial Estate, Sanathnagar, Hyderabad – 500 018 TELANGANA
32.	Tripura	The Environment Secretary, Department of Science, Technology & Environment, Vigyan Prajukti O Paribesh Bhawan, P.N. Complex, Gorkhabasti, Agartala – 799 006, West Tripura TRIPURA	The Member Secretary, Tripura State Pollution Control Board Parivesh Bhawan, Pandit Nehru Complex P.O. Kunjaban, Gorkhabasti, Agartala – 799 006 TRIPURA
33.	Uttar Pradesh	The Environment Secretary, Environment, Forest and Climate Change Department, Bapu Bhawan Secretariat, Vidhan Sabha, Lucknow – 226 001 UTTAR PRADESH	The Member Secretary, Uttar Pradesh Pollution Control Board IIIrd Floor PICUP Bhavan Vibhuthi Khand, Gomti Nagar, Lucknow – 226 020 UTTAR PRADESH
34.	Uttarakhand	The Environment Secretary, Department of Environment & Forest, 4, Subhash Road, Secretariat, 4th floor, New Building, Dehradun – 248 001 UTTARAKHAND	The Member Secretary, Uttarakhand Environment Protection & Pollution Control Board 29/20, Nemi Road, Dalanwala, Dehradun – 268 001 UTTARAKHAND
35.	West Bengal	The Environment Secretary, Department of Environment, 5th Floor, Pranisampad Bhawan, Block LB-II, Salt Lake, Sector III, Bidhannagar, Kolkata – 700 106 WEST BENGAL	The Member Secretary, West Bengal Pollution Control Board Paribesh Bhavan, 10-A, Block LA, Sector III, Salt Lake City, Kolkata-700 091 WEST BENGAL

Annexure- VII

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

SPEED-POST

CPCB/IPC-IV/ROGW

22.09.2023

To,

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

Subject: Harmonization of Classification of Industrial Sectors into Red, Orange, Green and White Categories, regarding sand/river bed material mining activities.

Sir,

This has reference to the CPCB Directions issued u/s 18(1)(b) of the Air and Water Act on 07.03.2016, regarding 'Harmonization of classification of industrial sectors under Red/Orange/Green/White categories', wherein CPCB has categorized 242 industrial sectors into red, orange, green & white categories and directed all SPCBs/PCCs for its adoption and implementation.

Subsequently, CPCB has categorized the additional ten industrial sectors, namely, (i) Scrapping Centre (ii) Used Cooking Oil Collection Centre (iii) Compressed/Refined Biogas (iv) Railway Stations, (v) Dairy Farms & (vi) Gaushalas, (vii) Building and Construction Projects, having built-up area up to 20,000 m^2 and waste water generation $\geq$ 50 KLD, (viii) Construction and Demolition (C&D) Waste Processing Plants, (ix) Gold Assaying & Hallmarking Centres, and (x) Semi-conductor manufacturing industries.

Now, CPCB has categorized 'Sand/riverbed material mining from riverbed and its floodplains (excluding manual excavation)', the details of which are given at **Annexure-I**. All SPCBs/PCCs are directed to adopt and implement the same and submit the Action Taken Report within 15 days.

Yours faithfully,

(Bharat Kumar Sharma)
Member Secretary

Encl.: as above.

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

Copy to:

1 The Additional Secretary (CP Division)
Ministry of Environment, Forests
& Climate Change,
Indira Paryavaran Bhawan,
Jor Bagh Road,
New Delhi -110 003

2 All Regional Directors,
CPCB
(as per list)

3 Div. Head, IPC-II,
CPCB, Delhi

4 Div. Head-IT,
CPCB, Delhi : with a request to upload this letter on CPCB website

(Bharat Kumar Sharma)

Annexure-I

Categorization of sand / riverbed material mining from riverbed and its floodplains (excluding manual excavation)

Sl. No.	Sl. No. (as per CPCB Document)	Non-industrial operations	Category	Remarks
1	63	Sand / riverbed material mining from riverbed and its floodplains (excluding manual excavation)		i. Sand / riverbed material mining from riverbed and its floodplains may cause ecological disturbances, erosion of riverbed, change in hydro-geological conditions & river ecosystem, etc. ii. Cluster mining means that the distance of mining lease area is less than 500 m from periphery of another lease area. iii. This categorization is made considering the ecological damages and not based on pollution potential/index.
		(i) Mining lease area more than 5 hectares or Mining lease area up to 5 hectares which is part of cluster mining	Red	
		(ii) Standalone mining lease area up to five hectares in areas (not a part of any cluster mining)	Orange	

Note: Cluster mining as defined in 'Enforcement & Monitoring Guidelines for Sand Mining, 2020', issued by MoEF&CC.

Address List of Member Secretaries, SPCBs/PCCs			
1.	The Member Secretary Andhra Pradesh Pollution Control Board D.No. 33-26-14 D/2, Near Sunrise Hospital, Pushpa Hotel Centre, Chalamvari Street, Kasturibaipet, Vijayawada- 520007 (Andhra Pradesh)	2.	The Member Secretary Arunachal Pradesh State Pollution Control Board Paryavaran Bhawan, Yupia Road, Papu Nalah, Naharlagun – 791110 (Arunachal Pradesh)
3	The Member Secretary Assam Pollution Control Board Bamunimaidan, Guwahati – 781021 (Assam)	4	The Member Secretary Bihar State Pollution Control Board Parivesh Bhawan, Plot No.N-B/2, Patliputra Industrial Area Patna-800010 (Bihar)
5.	The Member Secretary Chhattisgarh Environment Conservation Board Paryavas Bhawan, North Block, Sector-19 Atal Nagar, Raipur– 492 002 (Chhattisgarh)	6.	The Member Secretary Goa State Pollution Control Board Nr. Pilerne Industrial Estate, Opp. Saligao Seminary, Saligao ,Bardez,- 403511(Goa)
7.	The Member Secretary Gujarat Pollution Control Board Paryavaran Bhavan, Sector-10A, Gandhinagar– 382043 (Gujarat)	8.	The Member Secretary Haryana State Pollution Control Board C-11, Sector 6, Panchkula- 134109 (Haryana)
9	The Member Secretary Himachal Pradesh State Pollution Control Board Paryavaran Bhavan, Phase III, New Shimla – 171009	10	The Member Secretary J&K State Pollution Control Board, Parivesh Bhawan, Forest Complex, Gladni, Narwal, Transport Nagar, Jammu- 180004 Jammu & Kashmir (J&K)
11.	The Member Secretary Jharkhand State Pollution Control Board T.A Building, HEC Campus, P.O. Dhurwa Ranchi – 834004 (Jharkhand)	12.	The Member Secretary Karnataka State Pollution Control Board Parisara Bhavan, #49, Church Street, Bengaluru – 560 001 (Karnataka)
13.	The Member Secretary Kerala State Pollution Control Board Plamoodu, Pattom P.O Thiruvananthapuram-695004 (Kerala)	14.	The Member Secretary Maharashtra Pollution Control Board Kalpataru Point, 3rd& 4th floor, Opp. PVR Cinema, Sion Circle (E), Mumbai- 400022 (Maharashtra)
15	The Member Secretary Manipur Pollution Control Board Lamphelpat, Imphal West D.C. Office Complex – 795004 (Manipur)	16	The Member Secretary Mizoram State Pollution Control Board New Secretariat Complex, Khatla, Thlanmual Peng, Aizwal Mizoram- 796001
17	The Member Secretary Meghalaya State Pollution Control Board Arden, Lumpyngngad, Shillong – 793014	18.	The Member Secretary Madhya Pradesh State Pollution Control Board Paryavaran Parisar, E-5 Arera Colony Bhopal – 462016
19.	The Member Secretary Nagaland State Pollution Control Board Signal Point, Dimapur, Nagaland – 797112	20	The Member Secretary Odisha State Pollution Control Board Paribesh Bhawan A-118, Nilakanta Nagar, Unit –VIII, Bhubaneshwar – 751012.

21	The Member Secretary Punjab State Pollution Control Board Nabha Road, ITI Rd, Adarsh Nagar, Prem Nagar,Patiala - 147001.	22	The Member Secretary Sikkim State Pollution Control Board Department of Forest, Environment & Wildlife Management Government of Sikkim, Deorali, Gangtok, -737102 (Sikkim)
23.	The Member Secretary Rajasthan State Pollution Control Board A-4 Institutional Area, Jhalane Dungri Jaipur – 302004. (Rajasthan)	24.	The Member Secretary Telangana State Pollution Control Board Paryavaran Bhavan A-3, Industrial Estate, Sanath Nagar, Hyderabad – 500 018 (Telangana)
25	The Member Secretary Tripura State Pollution Control Board Parivesh Bhawan Pt. Nehru Complex, Gorkhabasti P.O., Kunjaban, Agartala, Tripura - 799 006	26	The Member Secretary Tamil Nadu Pollution Control Board No. 76, Mount Salai, Guindy, Chennai – 600032 (Tamil Nadu)
27.	The Member Secretary Uttarakhand Pollution Control Board Gaura Devi Bhawan, 46 B IT Park Sahastradhara, Dehradun- 248001 Uttarakhand	28.	The Member Secretary Uttar Pradesh Pollution Control Board Building No. TC-12V Vibhuti Khand, Gomti Nagar, Lucknow– 226010. (Uttar Pradesh)
29.	The Member Secretary Andaman & Nicobar Islands Pollution Control Committee Department of Science & Technology Dollyganj Van Sadan, Haddo P.O., Port Blair-744102 (Andaman & Nicobar)	30	The Member Secretary Chandigarh Pollution Control Committee ParyavaranBhawan Madhya Marg, Sector - 19 B, Chandigarh – 160019. Chandigarh
31.	The Member Secretary Delhi Pollution Control Committee 4th & 5th Floor, ISBT Building, Kashmere Gate, Delhi - 110006.	32.	The Member Secretary Daman, Diu & Dadra Nagar Haveli Pollution Control Committee 1st Floor, Udhyog Bhavan Bhenslore, Dunetha Nani Daman, Daman – 396210
33.	The Member Secretary Lakshadweep Pollution Control Committee Lakshadweep Administration Department of Science, Technology & Environment Kavarati – 682555. (Lakshadweep)	34.	The Member Secretary Puducherry Pollution Control Committee Department of Science, Technology & Environment 3rd Floor, Housing Board Complex, Anna Nagar, Nellithope, Puducherry – 605 005
35.	The Member Secretary West Bengal Pollution Control Board Paribesh Bhavan Canteen, 10A, Sector III, Bidhannagar, Kolkata- 700106 West Bengal		

Copy to :

Address list of Regional Directors, CPCB			
1.	The Regional Director (Kolkata) Central Pollution Control Board 502, Southend Conclave 1582, Rajdanga Main Road Kolkata-700107	2.	The Regional Director (Vadodara) Central Pollution Control Board Parivesh Bhawan, Opp. Ward No. 10 VMC Office Subhanpura, Vadodara – 390 023 Gujarat
3.	The Regional Director (Shillong) Central Pollution Control Board BSNL NE- 1, Telecom Circle CTO Building Ground Floor Shillong-793001	4.	The Regional Director (Bhopal) Central Pollution Control Board 3rd Floor, Sahkar Bhawan North T.T Nagar Bhopal- 462003
5.	The Regional Director (Lucknow) Central Pollution Control Board Ground Floor, PICUP Bhawan Vibhuti Khand, Gomti Nagar Lucknow- 226020	6.	The Regional Director (Bengaluru) Central Pollution Control Board 1st & 2nd Floors, Nisarga Bhawan A-Block, Thimmaiah Main Road 7th D Cross, Shivanagar Opposite Pushpanjali Theatre Bengaluru-560010
7.	The Regional Director (Chandigarh) Central Pollution Control Board BSNL Exchange, 2nd Floor Sector 49-C, Chandigarh-160047	8.	The Regional Director (Chennai) Central Pollution Control Board 77-A, Second Floor South Avenue Road, Ambattur Industrial Estate, Ambattur Taluk, Thiruvallur District, Chennai - 600 058
9.	The Regional Director (Pune) Central Pollution Control Board Row House No. 1, Nisarg Vihar, Near Mitcon International Public School, Balewadi, Pune-411045		