REPORT OF THE OVERSIGHT COMMITTEE, NGT, U.P, LUCKNOW

IN THE MATTER OF:-

ORIGINAL APPLICATION NO. 360/2015

NATIONAL GREEN TRIBUNAL BAR ASSOCIATION
VERSUS
VIRENDER SINGH (STATE OF GUJARAT)

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REPORT OF OVERSIGHT COMMITTEE IN COMPLIANCE OF ORDER OF HON'BLE NATIONAL GREEN TRIBUNAL PASSED IN O.A. NO. 360/2015 IN RE: NATIONAL GREEN TRIBUNAL BAR ASSOCIATION Vs. VIRENDRA SINGH (STATE OF GUJARAT) WITH REGARDS TO THE ILLEGAL SAND MINING IN THE STATE OF GUJARAT, KARNATAKA, MAHARASTRA, WEST BENGAL, ODISHA, PUNJAB, HARYANA AND UTTAR PRADESH

(Updated Compliance Report in continuation of Earlier Report dated 13.08.2020)

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I. INTRODUCTION

Hon'ble National Green Tribunal dealing with the matter of OA No. 360/2015 in re: *National Green Tribunal Bar Association vs Virendra Singh has* taken into account the matter of illegal sand mining in Uttar Pradesh. Several cases have been filed regarding remedial action against illegal sand mining in the States of Gujarat, Karnataka, Maharashtra, West Bengal, Odisha, Punjab, Haryana and Uttar Pradesh. Hon'ble Supreme Court had directed in *Deepak Kumar Vs State of Haryana &Ors. (2012) 4 SCC 629* that leases of minor minerals including their renewal, even for an area of less than 5 hectares be granted only after environmental clearance from MOEF&CC. The direction was held to be necessary in view of degradation of environment on account of illegal and unrestricted upstream, instream and flood plain sand mining activities.

As per the observation by Hon'ble Supreme Court, the absence of regulation of such mining was not justified as it was a threat to bio-diversity, could destroy riverine vegetation, cause erosion, pollute water sources, badly affect riparian ecology, damage ecosystem of rivers, safety of bridges, cause weakening of riverbeds, destruction of natural habitats of organisms living on the riverbeds, affect fish breeding and migration, spell disaster for the conservation of bird species and increase saline water in the rivers. These mining activities have direct impact on the physical habitat characteristics of the rivers (i.e. bed elevation, substrate composition and stability, in-stream roughness of elements, depth, velocity, turbidity, sediment transport, stream discharge and temperature). Thus, lack of proper management and planning disturbs marine ecosystem and upsets the ability of natural marine processes to replenish the sand.

II. ILLEGAL SAND MINING IN INDIA

The process of mining affects water balance, wildlife habitats, local climate, pattern of rainfall, sedimentation and depletion of forest and ultimately results in ecological disruption (Mehta, 2019).[1]

According to Stebbins (2006[2]), mining from streambed causes alteration of channel slope and changes in channel morphology. Sand mining and dredging activities affect quality of water, reducing water quality for downstream users and increasing treatment costs. Ecological impacts (i.e. loss of habitats and species disturbances) are a result of mining gravel and sand continuously leading to removal of channel substrate, suspension of sediments and clearance of vegetation.

Pereira (2012[3]) researched on sand mining in India (legal and illegal) by studying three villages in Maharashtra. He stated that the sources of sand and gravel such as riverbeds, beaches, creeks are being mined faster than nature can replenish. India has the third largest construction business in the world after USA and China, so sand and gravel are required in large quantities and all this happens when the country does not have a regulatory and monitoring framework for excavation of sand.

Mining process involves combinations of estimating, drilling, blasting, excavating, hoisting, crushing and hauling, as well as measures for quality control, health and safety, financial risks and environmental impacts. To maximize the profit and utilization of mine reserves while providing a better development program, a good mining plan/schedule must not only meet both the long-range and short-range mining requirements but also satisfy many practical details that are unique to day-to-day operations (Kozan and Liu, 2011[4]).

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[1] Mehta PS (2019). The Indian Mining Sector: Effects on the Environment & FDI Inflows. Conference on Foreign Direct Investment and the Environment. OSDC Headquarters, Paris, France held on 7th – 8th February, 2002. Pp. 1-10.

[2] Stebbins M (2006). Can gravel Mining and Water Supply Well coexist. Maine- University of Maine.

[3] Pereira K (2012). Illegal Sand Mining: The Unexamined threat to Water Security in India. https://www.ismenvis.nic.in

[4] Kozan E and Liu SQ (2011). Operations Research for Mining: A Classification and Literature Review. pp. 1-23. https://www.researchgate.net/publication/292017272

Mining industries provide most of the materials for building infrastructure and instruments of daily use and also supply fertilizers to agriculture. Mining is the human activity that has been disturbing environment and is linked with large social impacts and inequalities. Valuable mining practices need to change and contribute to community development with more equity and to protect natural resources as well as ecosystems better as reported by Carvalho (2017)[5].

Despite this, the menace of illegal sand mining in India continues unabated. 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 mining of minor minerals including sand in the country[6]. 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 noncompliance of Sustainable Sand Mining Management Guidelines, 2016. The State of Kerala suffered largely in 2004 Tsunami and 2018 floods which were stated to be aggravated by illegal sand extraction[7].

The issue of illegal sand mining is also rampant in the states of Goa[8], Bihar[9], Tamil Nadu[10], Uttarakhand[11], Telangana[12], Jammu and Kashmir[13].

III. FEW ORDERS PASSED BY THE HON'BLE NGT IN O.A. No. 360/2015

1. The State of Uttar Pradesh was directed to frame a policy to check illegal sand mining. MOEF & CC was also directed to prepare comprehensive guideline on the subject matter. The Hon'ble NGT considered regulatory regime applicable in some of the States in the light of the judgement of the Hon'ble Supreme Court in *Deepak Kumar* (supra), including in the States of

[5] Carvalho FP (2017). Mining Industry and Sustainable Development: time for change. *Food and Energy Security* published by John Wiley & Sons Ltd. and the Association of Applied Biologists. pp. 61-77

[6] http://www.legalserviceindia.com/legal/article-73-why-is-illegal-sand-mining-harmful-.html

[7] https://sandrp.in/2019/03/01/sand-mining-2018-is-it-a-national-menace/

[8] https://timesofindia.indiatimes.com/city/goa/govt-is-ignoring-illegal-sand-mining/articleshow/67908428.cms

[9] https://www.firstpost.com/india/illegal-sand-mining-part-3-bihar-govts-attempted-crackdown-has-sent-pricessoaring-officials-face-axe-as-rivers-in-ruin-6008351.html

[10] https://en.wikipedia.org/wiki/Sand_mining_in_Tamil_Nadu

[11] https://sandrp.in/tag/uttarakhand-sand-mining/

[12] https://sandrp.in/2019/02/26/sand-mining-2018-telangana-and-andhra-pradesh/

[13] https://greaterkashmir.com/article/news.aspx?story_id=309365&catid=2&mid=53&AspxAutoDetectCookieSupport =1

Uttar Pradesh, Haryana, Madhya Pradesh, Maharashtra, Karnataka, Gujarat, West Bengal and Odisha. The issue for consideration in the matters listed above relates to updation of enforcement and monitoring mechanism to control and regulate illegal sand mining.

The Ministry of Environment, Forest and Climate Change (MoEF&CC) issued 'Sustainable Sand Mining and Management Guidelines, 2016' under the provisions of the Environment (Protection) Act, 1986 (EP Act, 1986) on 15.01.2016. Hon'ble NGT constituted a High-Powered Committee headed by the Secretary, MoEF&CC which gave its report in September 2016, suggesting further Safeguards. Vide order dated 04.09.2018 in *OA 173/2018, Mushtakeem v. MoEF & Ors*., Hon'ble NGT directed revision of the guidelines in the light of the said report with further suggestions. Now, the Guidelines of 2020 have come in existence.

2. Some important directions had been given by Hon'ble NGT in **other cases of mining** that have a bearing on this case as well. **Important orders of Hon'ble NGT are order dated 04.09.2019 in OA No. 173/2018 in re: *Sudarsan Das versus State of West Bengal and others*; order dated 26.04.2019 passed in OA No. 44/2016 in re: *Mushtakeem versus MoEF&CC and others* and order dated 13.09.2018 passed in OA No. 186/2016 in re: *Satendra Pandey versus MoEF&CC and another***. Salient directives in these cases were as follows:

a. *There has to be a demarcation of boundaries of all mineral leases. No mining can be allowed without demarcating the boundary.*
b. *Mining has to be as per EIA Notification, 2006, MOEF Notification dated 15.01.2016 and Sustainable Sand Mining Management Guidelines, 2016.*
c. *Compliance of Water (Prevention and Control of Pollution) Act, 1974, Air (Prevention and Control of Pollution) Act, 1981 and Regulations of Central Ground Water Authority in all sand mining leases is mandatory.*
d. *For ensuring compliance of all these directives, district administration is fully accountable.*
e. *District Magistrates and Superintendents of Police have to seize all mining equipments and vehicles in case of illegal mining.*
f. *Besides criminal proceedings, there has to be imposed exemplary penalty by District Magistrates in case of illegal mining.*
g. *A detailed restoration plan for rivers and river beds has to be made, based on recommendations of Expert Committee.*
h. *Assessment of ecological damage has to be ensured by Indian Council of Forestry Research and Education, Dehradun, incorporating cost of river bed material, cost of*

ecological restoration, and net present value of the future ecosystem services foregone. Regional Office of the Central Pollution Control Board would be the Nodal Officer.

i. *Vehicles confiscated would be released only on payment of 50% of showroom value.*

j. *For environmental clearance in sand mining, even for B-2 cases, where land is between 5 to 25 Hectares, there will be provision for assessment (EIA), Environment Management Plan (EMP) and public consultation. Even in the cases of leases below 5Hectares, Form-1M would be made more comprehensive and recommendation of environmental clearance would be made by State Environment Impact Assessment Authority (SEIAA) rather than by District Environment Impact Assessment Authority (DEIAA).*

k. *MoEF&CC will prepare guidelines for calculation of damage to mine out areas.*

3. As per order dated 05.04.2019 in O. A.360/2015, the status of Sand mining in the State of Uttar Pradesh was as follows:

- O.A. No. 44/2016 in re: *Mushtakeem vs. MoEF&CC & Ors.,* involved illegal mining in Uttar Pradesh and Haryana on riverbeds of Yamuna. The matter was disposed of vide order dated 05.09.2018 following directions passed on 04.09.2018 in Sudarsan Das (supra). In terms of order dated 05.09.2018, no report was received from the State of Uttar Pradesh. Thus, further directions were made. A report was received from Additional Chief Secretary, Haryana vide email dated 05.04.2019 to the effect that the State of Haryana was following the guidelines and would implement revised Sustainable Sand Mining Guidelines issued by the Ministry of Environment, Forest and Climate Change (MoEF&CC) in terms of the order dated 04.09.2018, in *O.A No. 173/2018 (Earlier O.A. No. 89/2017 (EZ) (I.A. No. 76/2019), Sudarsan Das Vs. State of West Bengal & Ors*.

4. **Vide order dated 05.04.2019 following major issues were focused:**

"(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.

Re (i): 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).

As per the observation of Hon'ble Tribunal, need for revision of Sustainable Sand Mining Guidelines, 2016 was discussed. The 2016 Guidelines needed revision in the light of report of High-Powered Committee in September, 2016 for rectifying the failure of monitoring mechanism. In this regard, the MoEF&CC was directed to take necessary steps in the matter in terms of order dated 04.09.2018 in *Sudarsan Das* (supra) by June 30, 2019 and file compliance report by 15.07.2019.

Re (ii): Compliance of Sustainable Sand Mining Guidelines, 2016 as may be revised by MoEF&CC.

As earlier, the State of Uttar Pradesh was required to follow SSMG, 2016 as may be revised by MoEF&CC and even other States where illegal sand mining was taking place. All States were to take steps in terms of **orders dated 04.09.2018** in *Sudarsan Das v. State of West Bengal & ors,* **05.09.2018** in *Mushtakeem v. MoEF&CC & Ors.*, 13.09.2018 in *Satendra Pandey v. MOEF&CC* & Ors. and **16.01.2019** titled Compliance of Municipal Solid Waste Management Rules, 2016.

Re (iii): Effective monitoring mechanism for preventive and remedial measures as directed in orders of this Tribunal, including surveillance system and recovery of compensation.

With regard to current status in various States, it was felt that monitoring mechanism in respect of preventive and remedial measures was not effective and illegal sand mining was rampant. Regarding monetary compensation, it was directed that the same had to be not only equal to cost of mined material and penalty to evade royalty but also to meet cost of restoration and NPV of eco services foregone forever. Seizure of vehicles or other equipment was to be dealt with as per rules and directions in *Threat to life arising out of coal mining in South Garo Hills district* (supra).

Re (iv): Directions in Individual Cases

- In *Sudarsan Das (supra)* one of the directions was that the Chief Secretaries of West Bengal and Odisha would prepare a restoration plan in consultation with the Central Pollution Control Board (CPCB), Indian School of Mines, Dhanbad and the Respective State Pollution Control Boards (SPCBs).
- The *State of Uttar Prade*sh had not complied with the order dated 05.09.2018 and in view of this the last opportunity to comply was given till 30.06.2019, failing which

coercive measures had to be adopted. Responsibility for compliance was held with the Chief Secretary.

Re (v): Scale of Compensation

- The scale of compensation proposed by the State of Gujarat did not fully comply with the 'Polluter Pays' principle which envisaged that polluter was required to pay for complete restoration of the environment. This principle was articulated further by the Hon'ble Supreme Court of India in *T.N. Godavarman Thirumulpad vs Union of India & Ors, (2006) 1 SCC 1* in the context of forests. In this matter, the Hon'ble Supreme Court appointed a committee of experts and following directions were given:

  i. To identify and define parameters (scientific, biometric and social) on the basis of which each of the categories of values of forest land should be estimated.

  ii. To formulate a practical methodology applicable to different bio-geographical zones of India for estimation of the values in monetary terms in respect of each of the above categories of forest values.

  iii. To illustratively apply this methodology to obtain actual numerical values for different forest types for each bio-geographical zone in the country.

  iv. To determine on the basis of established principles of public finance, who should pay the costs of restoration and /or compensation with respect to each category of values of forests.

  v. Which projects deserve to be exempted from payment of NPV.

- The compensation had to not only included the full value of the illegally mined material but also cost of restoration of environment as well as cost of ecological services foregone forever. In *Sudarsan Das Vs. State of West Bengal & Ors.* (Supra), it was held that full value of the material, the cost of restoration and the NPV should form part of the compensation to be recovered. There had also to be action against the polluters and the erring officers. The vehicles or any other equipment used for illegal mining were required to be confiscated and to be released only on payment of at least 50% of the showroom value as laid down in *Original Application No.110(THC)/2012, Threat to life arising out of coal mining in South Garo Hills District v. State of Meghalaya& Ors.* This scale could then apply for all States, as far as possible.

- It was felt necessary to constitute a Committee comprising representatives of the MOEF&CC, CPCB, Indian Institute of Forest Management, Bhopal; Institute of Economic Growth, Delhi and Madras School of Economics to prepare a scale of compensation,

after including the above components which could then be adopted in whole of the country.

5. Hon'ble NGT vide order dated 05.04.2019 in this matter mentioned that its directions given **vide *order dated 04.09.2018 in OA No. 173 of 2010*** should be followed. The directions to the MoEF&CC in the said order were as under:

"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 at least 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 at least 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

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

26. Such steps may be worked out within two months and circulated to all States. The Mechanism may provide for a report of implementation from the concerned States every quarter. The matter may be reviewed after every six months by the MoEF&CC.

27. The direction with regard to 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 as directed in para (vi) may be an Over-Encompassing Body to monitor the conditions of Environmental Clearance with respect to all development projects".

6. The directions in OA No. 173/2018 in re: Sudarsan Das versus State of West Bengal and others vide order dated 04.09.2019: The issue of illegal sand mining on the banks of river Swaran Rekha on Orissa-West Bengal Border was considered. The illegal sand mining was observed without requisite safeguards and in violation of **Sustainable Sand Mining and Management Guidelines, 2016.** Hon'ble Tribunal gave the following directions:

(i) The State of West Bengal and Odisha may demarcate the boundaries for regulating grant of sand mining lease within three months from today. No mining lease of minor minerals may be given in the area in question till demarcation is complete. All existing mining operations in those areas shall remain suspended till demarcation work is completed and attains finality. To carry out the demarcation, the Chief Secretaries of the two States may constitute a team of three suitable officers each within two weeks. The said teams may hold their first meeting within one month.

(ii) The States of West Bengal and Odisha must ensure that mining in all sand mining blocks is undertaken strictly in accordance with the provisions of EIA Notification, 2006, MOEF Notification dated 15th January, 2016 and the Sustainable Sand Mining Management Guidelines, 2016. They must also ensure that no sand mining is permitted without due compliance of 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. The District Administration must be held accountable for any failure.

(iii) District Magistrates and Superintendents of Police, Balasore district in Odisha and Paschim Medinapur, West Bengal, respectively, shall seize all sump pumps, other machinery, tools, vehicles, etc. used for carrying out illegal sand mining.

(iv) Apart from instituting appropriate criminal proceedings against those carrying out illegal mining, exemplary penalty shall be imposed against them by the concerned District Magistrates within three months from today to recover the cost of restoration of environment and to compensate the victims.

(v) The Chief Secretaries of the two States shall also get prepared jointly a detailed restoration plan for river Subarnarekha and its river beds for which a Committee of experts shall be constituted from independent institutions, i.e., the CPCB, Indian School of Mines, Dhanbad and the respective State Pollution Control Boards as members. Such constitution may take place within one month.

(vi) The Expert Committee shall carry out detailed study and submit the restoration plan, as far as may be practicable, within three months after its constitution.

(vii) The Committee shall also get the assessment done through Indian Council of Forestry Research and Education, Dehradun of the ecological damage on account of illegal mining by incorporating the following components:

(a) Cost of river bed material.
(b) Cost of ecological restoration.
(c) Net present value of the future ecosystem services foregone.

(viii) The above steps may be facilitated by the Regional Office of the CPCB as nodal officer, by coordinating with the Chief Secretaries of the two States.

(ix) The damage suffered by the inhabitants caused by the illegal mining may also be assessed by the above Committee, which shall form a separate component of the Restoration Plan for river Subarnarekha as per direction No. (v) above. Cost of restoration plan shall be recovered as environmental compensation from the illegal miners, to be identified by the District Magistrate. The component of the compensation in respect of damages suffered by the inhabitants may be credited with District Legal Services Authority. The District Legal Services Authority may disburse the same to the victims of illegal mining, after proper identification".

7. **The directions in OA No. 186/2016 in re: Satendra Pandey vs. MOEF & CC and another, Order dated 13.09.2018:** Vide order dated 13.09.2018 in *O.A. No. 186/2016, Satendra Pandey Vs. MOEF*, the Hon'ble NGT observed that Notifications dated 15.01.2016, 20.01.2016 and 01.07.2016 to the extent of procedure of environment impact assessment were diluted and in violation of judgment of the Hon'ble Supreme Court in *Deepak Kumar Vs. State of Haryana & Ors.: (2012) 4 SCC 629* and also in O.A. No. 123/2014 dated 13.01.2015 and found it to be unsustainable. The direction of the Hon'ble NGT is given below:

> *"25. The MoEF&CC shall, therefore, take appropriate steps to revise the procedure laid down in the impugned Notification dated 15th January, 2016 in terms of the above directions so that it is conformity with the letter and spirit of the directions passed by the Hon'ble Supreme Court in Deepak Kumar (supra)."*

8. Vide order dated **26.07.2019** the Report of the CPCB was considered in OA No. 360 of 2015 which includes-

i. The Committee constituted in terms of paragraph 57 was to prepare a scale of compensation and furnish its interim report seeking six months' time.
ii. In view of the failure of the States to give appropriate response or failure to give any response, while giving last opportunity, we make it clear that for any further default, matter may have to be viewed seriously and deterrent costs imposed for continued default in giving relevant response by the States. The cost may have to be recovered personally from senior Officers of the State responsible for the default.
iii. It is made clear that pending further reports, the States must apply the compensation regime as per principles specified in paragraph 56 of order dated 05.04.2019.
iv. All the reports be filed in O.A. No. 360 of 2015.
v. Apology of Director, IIT – Indian School of Mines, Dhanbad is taken on record. He is advised to be careful in future.
vi. Copies of this order be sent to the Secretary, MoEF &CC, Chairman CPCB and the Chief Secretaries of 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.

9. Vide order dated **08.01.2020**, Hon'ble NGT observed that directions given by Hon'ble NGT in earlier orders have not been complied. In the order it was specifically stated that "*the only course left with this Tribunal in the circumstances is coercive measures as per law". Civil Appeal No(s). 3799-3800/2019* have been filed by the MoEF&CC which were heard on 31.01.2020. The Hon'ble Supreme Court observed that Hon'ble NGT may adjourn proceedings against officials of MoEF&CC. As per the observations of the Hon'ble Supreme Court, the matter was deferred and taken up for consideration without going into the matter for earlier non compliance by the officers of the MoEF&CC.

10. Vide order dated **17.08.2020**, Hon'ble NGT observed that directions given by Hon'ble NGT in earlier orders have not been complied. The compliance report was filed by the MoEF&CC on 28.01.2020 to the effect that all necessary suggestions have been included in "Enforcement and Monitoring Guidelines for Sand Mining, 2020". The new guidelines have been uploaded on the website of the Ministry on 27.01.2020. The guidelines have been communicated to all the States for their ratification and would apply thereafter.

IV. MINUTES OF THE MEETING OF OVERSIGHT COMMITTEE IN O.A. NO. 360 OF 2015

The meeting regarding O.A. No. 360/2015 was held on 28.07.2020 (Refer Appendix- I) and 21.12.2020 (Refer Appendix- II) by the Oversight Committee, NGT, UP through Video-Conferencing. The minutes of meeting are as follows:

1. Regarding revision of Sustainable Sand Mining Guidelines, 2016 it was informed by Chief Mining Officer, Uttar Pradesh that Sustainable Sand Mining Guidelines, 2020 are being followed now in the State of Uttar Pradesh.

2. As per Hon'ble NGT orders it was directed that Chief Secretary must ensure compliance of Sand Mining Guidelines. In the meeting it was mentioned that so far, no review has taken place at the level of Chief Secretary. The Committee directed that the Chief Secretary may hold a monitoring meeting and report the implementation to Hon'ble NGT.

3. With reference to effective monitoring mechanism for preventive and remedial measures for sand mining, the Chief Mining Officer informed that District Administration is directly responsible for all mining activity in the District. All DSRs were prepared only on the recommendation of the District Collectors. Besides the system of installing pillars on the

ground, geo-coordinates have to be compulsorily indicated for each mining site to ensure that mining activity is taking place at the allotted site only.

4. Chief Mining Officer reported that CCTV Cameras and weigh bridges have been installed on each site. Regular monitoring and patrolling are taking place. Progress of each site was being monitored at headquarter level regularly.

5. Regarding the system of recovery of compensation including damage to environment and provision of future gains foregone, CPCB informed that they had submitted a draft scheme for approval of Hon'ble NGT.

V. SUMMARY OF COMPLIANCE STATUS AS GIVEN BY MINES DEPARTMENT REGARDING COMPLIANCE OF THE DIRECTIONS GIVEN BY HON'BLE NGT IN O.A. NO. 360 OF 2015

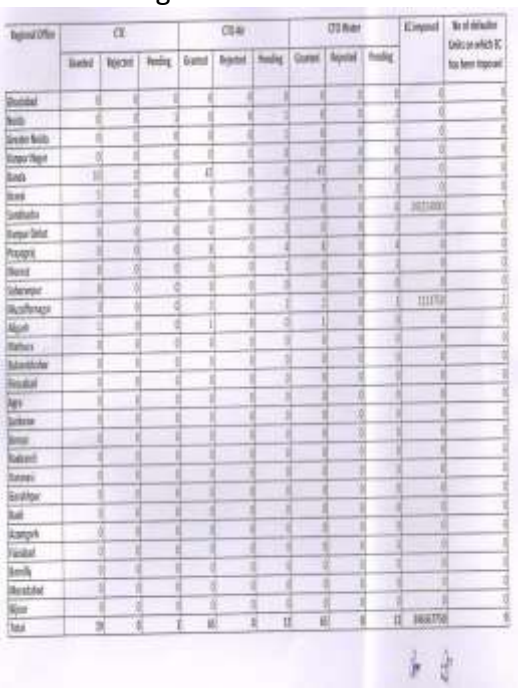
Various issues and directions were discussed in orders of the Hon'ble NGT **in O.A. No. 360/2015.** The compliance status of the different issues on a questionnaire given to them by the Oversight Committee has been reported by Chief Mining Officer on 28.07.2020 **(Appendix-III),** 06.08.2020 **(Appendix- IV)** and 15.12.2020 **(Appendix- V).** The details are 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**	**Partially Complied**	The orders of Hon'ble NGT dated 18.02.2016 in *OA No. 184/2013*

	cover the restoration cost of environment and to compensate the victims.		*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 check-post/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 below:  **(Refer Appendix- IX)**

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 Sub-Divisional (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

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 restoration.

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.

The Member Secretary, UPPCB is directed to send this report to the Registrar General, National Green Tribunal, Principal Bench, New Delhi for placing the same before the Hon'ble Tribunal with a copy to the Chief Secretary, Government of Uttar Pradesh for necessary action. The report also be uploaded on the website of the Committee.

08-01-2021	08-01-2021
X Anup Chandra Pandey	X SVS Rathore
Dr Anup Chandra Pandey Member, Oversight Committee Signed by: ANUP CHANDRA PANDEY	Justice SVS Rathore Chairman, Oversight Committee Signed by: SURENDRA VIKRAM SINGH RATHORE

January 08, 2021

Annexures: As above

Please visit our website: ***oscngt.upsdc.gov.in*** for more information.

Appendices:

***Appendix-I**: Minutes of the Meeting of Oversight Committee, NGT held on 28.07.2020*

***Appendix- II**: Minutes of the Meeting of Oversight Committee, NGT held on 21.12.2020*

***Appendix- III**: The Compliance Report in O.A. No. 360/2015 submitted by Chief Mines Officer on 28.07.2020*

***Appendix- IV**: The Compliance Status in O.A. No. 360/2015 submitted by Chief Mines Officer on 06.08.2020*

***Appendix- V**: The Compliance Status in O.A. No. 360/2015 submitted by Chief Mines Officer on 15.12.2020*

***Appendix- VI**: Recommendation on Scale of Compensation to deal with cases of illegal sand mining with annexures submitted by CPCB on 22.12.2020*

***Appendix- VII**: Order of the* Hon'ble NGT dated 17/08/2020 suggested to consider suggestions of Shri Panjwani which were noted at point no 13

***Appendix- VIII**: The Compliance Report in O.A. No. 360/2015 submitted by CPCB on 22.12.2020*

***Appendix- IX**: The Compliance Report in O.A. No. 360/2015 submitted by UPPCB on 21.12.2020*

***Appendix- X**: Enforcement & Monitoring Guidelines for Sand Mining (January, 2020)*

News Articles

सख्ती: अवैध खनन पर डीएम की भीष्म प्रतिज्ञा! मची खलबली!

शरद मिश्रा

बांदा। जिले में लाल सोने (मौरंग) की लूट की मिल रही शिकायतों पर जिलाधिकारी आनन्द सिंह रेड एलर्ट हो गये हैं। उनके मातहत उन्हें अवैध खनन न होने के संदर्भ में जो गुमराह कर रहे है, शिकायतें मिलने पर डीएम इस संदर्भ में गम्भीर हैं और वह स्वयं अवैध खनन की शिकायतों पर मौके पर पहुंच कर निरीक्षण करेंगे। डीएम आनन्द कुमार सिंह की अवैध खनन न होने देने की घोषणा भीष्म प्रतिज्ञा के समान जनता के बीच मानी जा रही है, क्योंकि अभी उन्होंने अपने थोड़े ही कार्यकाल में दर्शा दिया है की बिगड़ैल जिले को लाइन पर कैसे लाया जा सकता है।

डीएम आनन्द सिंह को आभास हो चुका है की जिले में अवैध बालू खनन पर पूरी तरह अभी लगाम नहीं लग पा रहा क्योंकि उनके स्वयं के आधीन भी कुछ कथित भ्रष्ट अफसर आस्तीन के सांप जैसा काम कर रहे हैं। इसके चलते खनन माफिया बेलगाम से हैं। यही कारण है की अवैध खनन का बोलबाला सिर चढ़ कर बोल रहा है।

जिले में नसेनी अवैध खनन के लिए बदनाम है तो बदौसा में केन व रंज की सहायक बागै नदी में बरकतपुर घाट पर एक से दूसरे छोर तक नदी के बीच कतारबद्ध बांस गड़े दिखते हैं। इन बांस के बीच लोहे की मोटी प्लेट, कंक्रीट व पत्थर से बनाए गए रास्ते से कहानी खुद उजागर हो जाती है। नदी के बीच से गुजरते वाहन बताने को काफी हैं कि बहते हुए पानी पर भारी वाहन किसी तकनीक से नहीं चल रहे, बल्कि पानी के नीचे पत्थर, सीमेंट व मौरंग की बोरियां डालकर पुल बनाया गया है। नदी के बीच में पोकलैंड गरज रहीं हैं। मौरंग खनन के साथ ट्रक और डंपर लोड हो रहे हैं। बाद में इसी अवैध पुल से होकर गुजरते हैं।

डीएम साहब को हम बता दें की आश्चर्य की बात यह बताई जा रही है की सबको नजर आने वाला यह अवैध पुल खनिज विभाग और क्षेत्रीय प्रशासनिक अधिकारियों को नहीं दिखता है। खनिज अधिकारी सुभाष सिंह कहीं भी अवैध खनन और अवैध रूप से बनाए गए अस्थायी पुल को कपोल कल्पित बताते हैं। माफिया नेशनल ग्रीन ट्रिब्यूनल के निर्देशों को सरेआम उलंघनकर रहें हैं, और जिम्मेदार अनदेखी कर रहे हैं। प्रतिबंधित मशीनें जलधारा में तांडव मचा रही हैं। नदी की जलधारा जहां दिशा बदल रही है, वहीं ग्रामीणों के लिए जलसंकट भविष्य में खड़ा हो सकता है तो जलीय जीव-जंतुओं के अस्तित्व को भी खतरा है।

डीएम साहब के संज्ञान में मामला आया तो एसडीएम नरैनी, सदर व अतर्रा की टीम गठित की। 24 घंटे में रिपोर्ट मांगी है। खुद मौके पर जाकर जांच करने को कहा है। अवैध पुल मिलने पर कठोर भी होगी।दूसरी ओर बरकतपुर बालू खदान पहुंचे खनिज अधिकारी व राजस्व टीम ने सीमांकन जांचा।अस्थायी पुल को अवैध मानने से इंकार कर दिया।गजब के हैं खनिज विभाग के अधिकारी हकीकत नहीं दिखती।रविवार को बरकतपुर बालू खदान में अवैध खनन और नदी में अवैध पुल बनाने की जांच करने पूरा अमला पहुंचा, लेकिन आदर सत्कार के बीच चली जांच के दौरान सब ठीक दिखा।उसी तरह जैसे एक दिन पहले महुटा खदान का जायजा लिया गया था। खास यह कि नदी के बीच बने पुल को खनिज अधिकारी ने अवैध मानने से इन्कार कर दिया। कहा कि नदी का पानी रुका नहीं है, इसलिए किसी कानून का उल्लंघन नहीं हुआ।खनन शर्तों व मानक के विपरीत सात से 10 फीट गहरी खोदाई के सवाल पर गोल-मोल जवाब देकर बात टाल दी गई। जानकार बताते हैं कि उदयपुर में दो हेक्टेयर से ज्यादा में अवैध खनन हो चुका है।

अब जिलाधिकारी भी काफी हद तक धतराष्ट्रों को समझ चुके हैं और समस्या के निदान के लिये उन्होंने अपने कार्यवाई रूपी गांडीव हाथ सख्त कर राजस्व को हानि न पहुचने देने की अपनी रफ्तार को और गति देने की सी ठान ली हैं।

वॉयस ऑफ मूवमेंट

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बुन्देलखण्ड

भुलसी खदान पर अवैध खनन: बिगाड़ रहे नदी का स्वरूप

भ्रष्टाचारः खनिज विभाग व पुलिस की मिली भगत

बेख़ौफ़ चल रहे है ओवर लोड बालू भरे ट्रैक्टर

जिला संवाददाता

भरुआ सुमेरपुर (हमीरपुर) खनिज विभाग व पुलिस की मिली भगत से टीकापुर खदान से ओवर लोड बालू भरे ट्रैक्टरों की धमाचौकड़ी दिन रात बदस्तूर जारी है।इन बालू भरे ओवर लोड टैक्टरों के खिलाफ कोई कार्यवाही न होने से इनके हौसले बुलंद है।

विकास खण्ड सुमेरपुर के ललपुरा थाना क्षेत्र से करीब तीन दर्जन ट्रैक्टर ओवर लोड बालू लाद कर रोजाना फर्राटा भर रहे है।इन ट्रैक्टरों में करीब 180 से 200 फिट तक बालू लदी रहती है।बताया गया कि कुछ टैक्टर रॉयल्टी से चलते है और अधिक सख्या में ट्रैक्टर बिना रॉयल्टी के चलते है उसमें भी जो टैक्टर रॉयल्टी से चलते है उनका समय दो घण्टे का होता है लेकिन उसी रॉयल्टी से कई चक्कर लगा लेते है ओवर लोड बालू लादकर चलने वाले एक टैक्टर चालक का कहना था कि इसके एवज में ललपुरा व सुमेरपुर थाने को बाकायदा सुविधा शुल्क दिया जाता है ललपुरा क्षेत्र की टीकापुर व अन्य खदानों से ओवर लोड टैक्टर बालू लादकर क्षेत्र के बांकी,बांक, बिलाहड़ी, पलरा, नदेहरा, धरमपुर, अमिलिया, सुमेरपुर सहित कई गांवों में बालू की बिक्री करते है। लोगो का कहना है कि ओवर लोड बालू भरे ट्रैक्टरों के खिलाफ आखिर कोई कार्यवाही क्यो नही की जा रही है न ही इनकी रॉयल्टी देखी जा रही है इससे साबित होता है कि चाहे वो खनिज विभाग हो या पुलिस दोनों ही इस धंधे को करने में खुली छूट दिए है।अन्यथा यदि कार्यवाही होने लगे तो मजाल नही है कि ओवर लोड बालू भरे ट्रक बेखौफ़ चलते रहे।मालूम हो कि पिछले दिनों रुपया लेते हुए ललपुरा थाने के एक दिवान का वीडियो वायरल हुआ था और उसके खिलाफ कार्यवाही भी हुई थी इसके बावजूद अभी भी इसमी कोई सुधार नही हुआ और ओवर लोड बालू भरे टैक्टरों की धमाचौकड़ी बदस्तूर जारी है।

Appendix- I

Meeting No. 45

MINUTES OF MEETINGS OF OVERSIGHT COMMITTEE, NGT, UP LUCKNOW HELD ON 28.07.2020 AT 11-00 AM AT (ORGANISED WITH THE HELP OF NIC) IN OA NO. 360 OF 2015 IN RE: NATIONAL GREEN TRIBUNAL BAR ASSOCIATION VS VIRENDRA SINGH

THROUGH VIDEO-CONFERENCING

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Present: Hon'ble Mr Justice SVS Rathore, Chairman, and
Dr Anup Chandra Pandey, Member.

Other dignitaries present:

1. Shri JB Singh, District Magistrate, Etawah
2. Shri Mannan Akhtar, District Magistrate, Jalaun
3. Shri Abhishek, District Magistrate, Auraiya
4. Shri Ashish Tiwari, Member Secretary, UPPCB
5. Shri Anil Kumar Sharma, Chief Mining Officer
6. Shri Avadhesh Tripathi, CPCB

The Committee reviewed the implementation of the directions of Hon NGT in **OA No. 360 of 2015** in re: *National Green Tribunal Bar Association vs Virendra Singh* in the light of NGT's order dated 05.04.2019. Before going into the point-wise detailed compliance of the order, we would like to give the background of the case.

Some of the important directions given by NGT in other cases of mining have a bearing on this case as well. Important NGT orders are order dated 04.09.2019 in **OA No. 173/2018** in re: *Sudarshan Das versus State of West Bengal and others*, order dated 26.04.2019 passed in **OA No. 44/2016** in re: *Mushtakeem versus MoEF&CC and others* and order dated 13.09.2018 passed in **OA No. 186/2016** in re: *Satendra Pandey versus MoEF&CC and anothe*r. Salient directives in these cases are as follows:

1. There has to be a demarcation of boundaries of all mineral leases. No mining can be allowed without demarcating the boundary.

2. Mining has to be as per EIA Notification, 2006, MoEF Notification dated 15.01.2016 and Sustainable Sand Mining Management Guidelines, 2016.

3. Compliance of Water (Prevention and Control of Pollution) Act, 1974, Air (Prevention and Control of Pollution) Act, 1981 and Regulations of Central Ground Water Authority in all sand mining leases is mandatory.

4. For ensuring compliance of all these directives, district administration is fully accountable.

5. District Magistrates and Superintendents of Police have to seize all mining equipments and vehicles in case of illegal mining.

6. Besides criminal proceedings, there has to be imposed exemplary penalty by District Magistrates in case of illegal mining.

7. A detailed restoration plan for rivers and river beds has to be made, based on recommendations of Expert Committee.

8. Assessment of ecological damage has to be ensured by Indian Council of Forestry Research and Education, Dehradun, incorporating cost of river bed material, cost of ecological restoration, and net present value of the future ecosystem services foregone. Regional Office of the Central Pollution Control Board would be the Nodal Officer.

9. Vehicles confiscated would be released only on payment of 50% of showroom value.

10. For environmental clearance in sand mining, even for B-2 cases, where land is between 5 to 25 Hectares, there will be provision for assessment (EIA), Environment Management Plan (EMP) and public consultation. Even in the cases of leases below 5

Hectares, Form-1M would be made more comprehensive and recommendation of environmental clearance would be made by State Environment Impact Assessment Authority (SEIAA) rather than by District Environment Impact Assessment Authority (DEIAA).

11. MoEF&CC will prepare guidelines for calculation of damage to mined out areas.

Hon NGT in its order dated 5.4.19 in this case has mentioned that its directions given vide order 04.09.2018 in OA No. 173 of 2018 should be followed. The directions of the Hon Tribunal in that order may be summarised as under:

(i) Mining Surveillance System discussed in para 23 above be finalised.

(ii) Safeguards suggested in Sustainable Sand Mining Guidelines 2016 be followed.

(iii) Suggestions given in the High-Powered Committee Report be followed.

(iv) Demarcation of boundaries of different leases be put in public domain.

(v) SOPs be made for evaluating loss to the ecology and for recovering cost of restoration from the legal or illegal miners.

(vi) Dedicated institutional mechanism be set up for effective monitoring of sand and gravel mining.

(vii) At least 25% of the value of mined material be kept for restoration of the area and for compensating the inhabitants.

(viii) Independent annual environmental third party audit be made one of the conditions of every mining lease and it be placed in public domain.

(ix) A three member committee of the local inhabitants nominated by DM be associated with this audit

Main Issues in the present OA are as follows:

(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

Regarding point-wise compliance, it was mentioned by the Chief Mines Officer that:

(i) Sustainable Sand Mining Guidelines have now been revised as Sustainable Sand Mining Guidelines, 2020 and the same are being followed.

(ii) Compliance of Sustainable Sand Mining Guidelines-

Hon NGT has directed that the Chief Secretary may monitor the implementation of these guidelines and furnish reports as directed earlier. It was mentioned that so far no review has taken place at the level of Chief Secretary. It

was directed that the Chief Secretary may hold a monitoring meeting and report the implementation to Hon NGT.

(iii) Effective monitoring mechanism for preventive and remedial measures including surveillance system for recovery of compensation-

Chief Mining Officer informed that District Administration is directly responsible for all mining activity in the District. All DSRs are prepared only on the recommendation of the District Collectors. Besides the system of installing pillars on the ground, site coordinates have to be compulsorily indicated for each mining site to ensure that mining activity is taking place at the allotted site only. CCTV Cameras and weigh bridges have been installed on each site. Regular monitoring and patrolling is taking place. Progress of each site is monitored at headquarter level regularly.

(iv) Regarding the system of recovery of compensation including damage to environment and provision of future gains foregone, CPCB informs that they have submitted a draft scheme for approval of Hon NGT.

It was mentioned that the State of UP has so far not complied with the order dated 08.09.2018 and last opportunity for compliance has been given. Responsibility for compliance is of the Chief Secretary. It was directed that review meetings may be held at Chief Secretary level and compliance report as directed be filed before Hon NGT before the next date of listing of the case i.e. 17.08.2020.

28-07-2020

X Anup Chandra Pandey

Dr Anup Chandra Pandey
Member, Oversight Committee
Signed by: ANUP CHANDRA PANDEY

28-07-2020

X SVS Rathore

Justice SVS Rathore
Chairman, Oversight Committee
Signed by: SURENDRA VIKRAM SINGH RATHORE

July 28, 2020

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Appendix- II

Meeting No. 82

MINUTES OF MEETINGS OF OVERSIGHT COMMITTEE, NGT, UP LUCKNOW HELD ON 21.12.2020 AT 11-00 AM IN OA NO. 360 OF 2015 IN RE: NATIONAL GREEN TRIBUNAL BAR ASSOCIATION VS VIRENDRA SINGH THROUGH VIDEO-CONFERENCING

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Present: Hon'ble Mr Justice SVS Rathore, Chairman, and Dr Anup Chandra Pandey, Member.

Other dignitaries present:

1. Shri Ashish Tiwari, Member Secretary, UPPCB
2. Shri Anil Kumar Sharma, Chief Mining Officer
3. Dr D. K. Soni, CPCB

The Committee reviewed the implementation of the directions of Hon NGT in **OA No. 360 of 2015** in re: *National Green Tribunal Bar Association vs Virendra Singh* in the light of NGT's order dated 05.04.2019. Before going into the point-wise detailed compliance of the order, we would like to give the background of the case.

Some of the important directions given by Hon'ble NGT in other cases of mining have a bearing on this case as well. Important orders of Hon'ble NGT dated 04.09.2019 in **OA No. 173/2018** in re: *Sudarshan Das versus State of West Bengal and others*, order dated 26.04.2019 passed in **OA No. 44/2016** in re: *Mushtakeem versus MoEF&CC and others* and order dated 13.09.2018 passed in **OA No. 186/2016** in re: *Satendra Pandey versus MoEF&CC and another*. Salient directives in these cases are as follows:

1. There has to be a demarcation of boundaries of all mineral leases. No mining can be allowed without demarcating the boundary.

2. Mining has to be as per EIA Notification, 2006, MoEF Notification dated 15.01.2016 and Sustainable Sand Mining Management Guidelines, 2016.

3. Compliance of Water (Prevention and Control of Pollution) Act, 1974, Air (Prevention and Control of Pollution) Act, 1981 and Regulations of Central Ground Water Authority in all sand mining leases is mandatory.

4. For ensuring compliance of all these directives, district administration is fully accountable.

5. District Magistrates and Superintendents of Police have to seize all mining equipment and vehicles in case of illegal mining.

6. Besides criminal proceedings, there has to be imposed exemplary penalty by District Magistrates in case of illegal mining.

7. A detailed restoration plan for rivers and river beds has to be made, based on recommendations of Expert Committee.

8. Assessment of ecological damage has to be ensured by Indian Council of Forestry Research and Education, Dehradun, incorporating cost of river bed material, cost of ecological restoration, and net present value of the future ecosystem services foregone. Regional Office of the Central Pollution Control Board would be the Nodal Officer.

9. Vehicles confiscated would be released only on payment of 50% of showroom value.

10. For environmental clearance in sand mining, even for B-2 cases, where land is between 5 to 25 Hectares, there will be provision for assessment (EIA), Environment Management Plan (EMP) and public consultation. Even in the cases of leases below 5 Hectares, Form-1M would be made more comprehensive and recommendation of environmental clearance would be made by State Environment Impact Assessment Authority (SEIAA) rather than by District Environment Impact Assessment Authority (DEIAA).

11. MoEF&CC will prepare guidelines for calculation of damage to mine out areas.

Hon NGT in its order dated 05.04.2019 in this case has mentioned that its directions given vide order 04.09.2018 in OA No. 173 of 2018 should be followed. The directions of the Hon Tribunal in that order may be summarised as under:

(i) *Mining Surveillance System discussed in para 23 above be finalised.*

(ii) Safeguards suggested in Sustainable Sand Mining Guidelines 2016 be followed.

(iii) Suggestions given in the High-Powered Committee Report be followed.

(iv) Demarcation of boundaries of different leases be put in public domain.

(v) SOPs be made for evaluating loss to the ecology and for recovering cost of restoration from the legal or illegal miners.

(vi) Dedicated institutional mechanism be set up for effective monitoring of sand and gravel mining.

(vii) At least 25% of the value of mined material be kept for restoration of the area and for compensating the inhabitants.

(viii) Independent annual environmental third-party audit be made one of the conditions of every mining lease and it be placed in public domain.

(ix) A three-member committee of the local inhabitants nominated by DM be associated with this audit.

Main Issues in the present OA are as follows:

(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 Sudarshan 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

Regarding point-wise compliance, it was mentioned by the Chief Mines Officer that:

(i) **Sustainable Sand Mining Guidelines**, **2016** have now been revised as Sustainable Sand Mining Guidelines, 2020 and the same are being followed in the State.

(ii) **Compliance of Sustainable Sand Mining Guidelines-**

Hon'ble NGT has directed that the Chief Secretary may monitor the implementation of Compliance of Sand Mining Guidelines and furnish reports as directed earlier. In the meeting, it was mentioned that so far, no review has taken place at the level of Chief Secretary. It was directed that the Chief Secretary may hold a monitoring meeting and report the implementation to Hon'ble NGT.

(iii) **Effective monitoring mechanism for preventive and remedial measures including surveillance system for recovery of compensation-**

As per earlier information given by the Chief Mining Officer, the District Administration is directly responsible for all mining activity in the District. All DSRs are prepared only on the recommendation of the District Collectors. Besides the system of installing pillars on the ground, geo-coordinates have to be compulsorily indicated for each mining site to ensure that mining activity is taking place at the

allotted site only. CCTV Cameras and weigh bridges have been installed on each site. At present, 33000 vehicles are registered and 284 weigh bridges are established. As per the guidelines, 125 peoples/firms are blacklisted and the details are also uploaded on departmental website. Regular monitoring and patrolling are taking place. The liquidation process is also done as per the rules. Progress of each site is monitored at headquarter level regularly. Vehicle Tracking System (VTS) process is implemented for the control of misused and overloading of vehicles. In First stage, action is being taken in five multi mineral districts viz., Hamirpur, Banda, Fatehpur, Jalaun and Jhansi.

(iv) **Regarding the system of recovery of compensation including damage to environment and provision of future gains foregone, CPCB informs that they have submitted a draft scheme for approval of Hon'ble NGT.**

It was mentioned that the State of UP has so far not complied with the order dated 08.09.2018 and last opportunity for compliance has been given. Responsibility for compliance is of the Chief Secretary. It was directed that review meetings may be held at Chief Secretary level and compliance report as directed be filed before Hon'ble NGT before the next date of listing of the case i.e. 14.01.2021.

Various issues and directions were discussed in orders of the Hon'ble NGT **in O.A. No. 360/2015.** The compliance status of the different issues on a questionnaire given to them by the Oversight Committee has been reported by Chief Mining Officer on 15.12.2020. The details are 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, 36000 registered vehicles and 310 Weigh Bridges have been established.
2	**Demarcation of boundaries for regulating grant of sand mining lease**	**Partially Complied**	As per the 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 on avoidance, which is being followed by the entire District Magistrate.
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 the 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**	**Partially**	Rule- 41(J)(1) of the 1963 Rules envisages

	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.	**Complied**	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 is 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 construct check-post/gate and install 4 CCTV cameras capable of recording at 360° visibility at his own expense for monitoring. This shall be done 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**	**Not 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" of 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. Hon'ble NGT wide his order dated 17/08/2020 suggested to consider suggestions of Shri Panjwani which were noted at point no 13 of said NGT order. copy is enclosed as 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 and was submitted before the Hon'ble NGT by CPCB on 12.10.2020. Copy of same is enclosed as Appendix-VIII.

			In case Hon'ble Oversight Committee requires further details the same can be communicated to the nodal officer of the said expert Committee and will be provided accordingly. At CPCB Delhi, Shri Nazimuddin, Scientist E is the Nodal Officer for this task, his contact detail has been provided.
17	**Status of EC imposed and realized by the UPPCB till date in this regard**	**Not Complied**	In compliance of Order dated 08.01.2020 of Hon'ble NGT in O.A. 360 of 2015 status of EC imposed and realized is given below: 
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.

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.
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 any progress towards amendments of the Act/Rules does that the Courts can order for the fine as ordered by Hon'ble NGT.**	**Not Complied**	Regarding the control of environmental damage, the Rules/ Regulations promugulated by the Department of Environment to include the order of Hon'ble NGT regarding the recovery of environmental damage, Department of Forest and Mine, Department of Forest, Environment and Climate Change, Govt. of Uttar Pradesh vide letter no. 1672/86-2020 dated 22.09.2020 is referred to.

21-12-2020

X Anup Chandra Pandey

Dr Anup Chandra Pandey
Member, Oversight Committee
Signed by: ANUP CHANDRA PANDEY

21-12-2020

X SVS Rathore

Justice SVS Rathore
Chairman, Oversight Committee
Signed by: SURENDRA VIKRAM SINGH RATHORE

Dec 21, 2020

Annexures: As above

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भूतत्व एवं खनिकर्म निदेशालय, उ0प्र0 **Appendix- II**

दिनांक 28.07.2020 को ओवर साईट कमेटी की वीडियों कान्फ्रेन्सिंग में दिये गये निर्देशों के कम में अवैध खनन/परिवहन पर प्रभावी नियंत्रण हेतु माइनिंग सर्विलांस सिस्टम के सम्बन्ध में विवरण :–

1. अवैध खनन/परिवहन पर प्रभावी नियंत्रण करने के उद्देश्य से इन्टीग्रेटेड माइन्स सर्विलांस सिस्टम को प्रयोग में लाये जाने हेतु भूतत्व एवं खनिकर्म निदेशालय, लखनऊ में स्थायी कमाण्ड सेन्टर की स्थापना की गयी है। कमाण्ड सेन्टर के माध्यम से आर्टीफिशियल इन्टेलिजेन्स युक्त साफ्टवेयर द्वारा खनन संकियाओं की मॉनिटरिंग की जा रही है, जिस हेतु ड्रोन एवं क्लाउड सर्विसेज को प्रयोग लाये जाने की व्यवस्था है। जनपद–फतेहपुर, बॉदा, प्रयागराज एवं सहारनपुर में कुछ क्षेत्रों की ड्रोन के माध्यम से विडियोग्राफी करायी गयी है।

2. उ0प्र0 उपखनिज(परिहार) नियमावली–1963 यथासंशोधित के द्वारा नियमों में संशोधन कर उपखनिजों का परिवहन करने वाले वाहनों की निगरानी हेतु 05 हे0 से अधिक क्षेत्रफल वाले पट्टों के पट्टाधारकों द्वारा सी0सी0टी0वी0 कैमरा तथा आर0एफ0आई0डी0 स्कैनर लगाया जाना अनिवार्य किया गया है। इसके साथ ही सी0सी0टी0वी0 कैमरा को कमाण्ड सेन्टर में प्रयुक्त आर्टिफिशियल इन्टेलीजेन्श युक्त सॉफटवेयर से इन्टीग्रेट किये जाने के निर्देश दिये गये है।

3. उत्तर प्रदेश उपखनिज (परिहार) नियमावली–1963 यथासंशोधित के नियम नियम–23 में जियो–कोआर्डीनेट्स के साथ किसी क्षेत्र को विज्ञापित किये जाने तथा नियम–17 में परिहार पर स्वीकृत क्षेत्रों के समस्त सीमास्तम्भों के जियो–कोआर्डीनेट्स का उल्लेख करने के प्राविधान किये गये है, जिसका अनुपालन समस्त जिलाधिकारियों द्वारा किया जा रहा है।

4. अवैध खनन/परिवहन पर प्रभावी नियंत्रण हेतु Integrated Mining Surveillance System (IMSS) अर्न्तगत खनन क्षेत्रो के खनिजो का परिवहन करने वाले वाहनो का पंजीकरण व खानों में निकासी स्थल पर कैमरे व वे–ब्रिज स्थापित कराये गये हैं। जिसे निदेशालय स्थित कमाण्ड सेन्टर से इण्टीग्रेड किया गया हैं। वर्तमान में 33000 वाहनों का पंजीकरण तथा 284 वे–ब्रिज स्थापित किये गये है।

5. पट्टाधारक तथा पट्टाधारक से भिन्न अन्य किसी व्यक्ति द्वारा अवैध खनन/परिवहन का आरोप सिद्ध पाये जाने पर उनका नाम दो वर्ष से अनाधिक ऐसी अवधि के लिए जैसा कि उचित हो, काली सूची में डाल दिया जायेगा जो विभाग की वेबसाईट पर अपलोड किया जायेगा तथा काली सूची की अवधि तक कोई खनन परिहार अनुमन्य नही किये जाने सम्बन्धी प्राविधान उत्तर प्रदेश उपखनिज परिहार नियमावली–1963 में किया गया है। अवैध खनन/परिवहन में लिप्त 125 व्यक्तियों/फर्मो पर नियमानुसार कार्यवाही करते हुए काली सूची घोषित कर विभागीय वेबसाईट पर अपलोड किया गया है।

6. खनिजों के अवैध उत्खनन पर प्रभावी नियंत्रण हेतु उत्तर प्रदेश खनिज (अवैध खनन परिवहन एवं भण्डारण का निवारण) नियमावली–2002 को अतिक्रमित कर नई नियमावली उत्तर प्रदेश खनिज (अवैध खनन, परिवहन एवं भण्डारण का निवारण) नियमावली–2018 प्रथम संशोधन नियमावली–2019 द्वारा 05 कि0मी0 की परिधि से बाहर भण्डारण अनुज्ञा स्वीकृत किये जाने का

प्राविधान किया गया है ताकि भण्डारण की आड़ में नदी तल मं अवैध खनन न हो साथ ही मानसून सत्र (01 जुलाई से 30 सितम्बर तक) में भण्डारित खनिजों का 90 प्रतिशत स्टॉक परिसमाप्त (liquidation) करने का भी प्राविधान है।

7. अवैध खनन/परिवहन पर प्रभावी नियंत्रण हेतु उत्तर प्रदेश शासन द्वारा निर्गत शासनादेश सं0–616/86–2018, दिनांक–20.03.2018 द्वारा जिलाधिकारी की अध्यक्षता में 07 सदस्यीय (पुलिस अधीक्षक, प्रभागीय वन अधिकारी, उपजिलाधिकारी, पुलिस क्षेत्राधिकारी, सहायक सम्भागीय परिवहन अधिकारी एवं खान अधिकारी) जनपदीय कार्यबल का गठन किया गया है।

8. खनिजों के परिवहन में अभिवहन पास के दुरूपयोग एवं ओवरलोडिंग के नियंत्रण हेतु खनिजों का परिवहन करने वाले वाहनों में Vehicle Tracking System (VTS) प्रणाली लागू की गयी है। प्रथम चरण में प्रदेश के पॉच खनिज बाहुल्य जनपदों हमीरपुर/बांदा/फतेहपुर/जालौन एवं झांसी में कार्यवाही की जा रही है।

9. खनिजों के अवैध खनन पर प्रभावी नियंत्रण किये जाने के उद्देश्य से प्रदेश में खनिजों के अधिकाधिक खनन क्षेत्रों को खनन परिहार पर व्यवस्थित किये जाने हेतु प्राथमिकता के आधार पर क्षेत्रों का सर्वेक्षण कराकर सस्टनेबल सैण्ड माइनिग गाईडलाईन 2020 के अनुसार नये क्षेत्रों का चिन्हांकन कर, तदनुसार डी0एस0आर0 में सम्मिलित कराने की कार्यवाही की जा रही है।

10. शासनादेश संख्या–1407/86–2017–107(सामान्य)/2017, दिनांक–11.07.2017 द्वारा दिनांक 01.08.2017 से उपखनिजों के परिवहन हेतु मुद्रित अभिवहन प्रपत्र एम0एम0 11 के स्थान पर आनलाईन रायल्टी के भुगतान पर ई–एम0एम0 11 लागू किया गया, जिससे प्रदेश में उपखनिजों के अवैध परिवहन पर प्रभावी नियंत्रण हो पाना सम्भव हुआ है।

11. ई एम0एम0–11 की स्कैन/छायाप्रति के प्रयोग पर अंकुश लगाये जाने हेतु एन0आई0 सी0 के सहयोग ई एम0एम0–11 जनित किये जाने हेतु साफ्टवेयर में निम्नवत् Security Features की व्यवस्था की गयी है :–

(i) ई एम0एम0–11 के क्यू0आर0 कोड के नीचे अल्फा न्यूमैरिक अंक लाया गया है। अल्फा न्यूमैरिक अंक, ई एम0एम0–11 के मूल प्रति के Front Side में दिखेगा परन्तु ई एम0एम0–11 के Back Side में नही दिखेगा। स्कैन/छायाप्रति में उक्त एल्फा न्यूमैरिक डिजिट विलुप्त हो जायेगा।

(ii) ई एम0एम0–11 की मूल प्रति में Security Features अल्फा न्यूमैरिक अंक में किसी प्रकार का छेड़छाड़ करने से अल्फा न्यूमैरिक अंक ई एम0एम0–11 के Back Side में प्रदर्शित होने लगेगी।

12. निदेशालय के पत्र संख्या–450/एम–1 ए 233 (भण्डारण)/18 दिनांक 30.06.2020 द्वारा प्रदेश में भण्डारण स्थल से भी उपखनिजों का परिवहन इलेक्ट्रानिक जनित ई–फार्म–सी के माध्यम से किये जाने के निर्देश समस्त जिलाधिकारियों को दिये गये है, जिसका अनुपालन किया जा रहा है।

(अनिल कुमार शर्मा)
मुख्य खान अधिकारी

R-railetter-3

Directorate of Geology and Mining, UP **Appendix-IV**

In compliance of the Meeting No. 45 dated 28.07.2020 of Hon Oversight Committee, NGT, UP Lucknow in the matter of O.A. NO. 360/2015 in re: National Green Tribunal Bar Association Vs. State Of U.P. & Ors.

Date 06.08.2020

Sr. no.	Issues	Breif
1	What has been the progress in ensuring issues related to illegal sand mining in the State of Uttar Pradesh? Specify what temporary arrangement has been made in this regard?	• खनिजो के अवैध खनन व परिवहन पर प्रभावी नियंत्रण करने हेतु शासनादेश सं0–616/86– 2018–371/2005, दिनांक–20.03.2018 द्वारा जिलाधिकारी की अध्यक्षता में सात सदस्यीय जनपद स्तरीय कार्य बल (टास्क फोर्स) का गठन किया गया है। • IMSS के अर्न्तगत खनन क्षेत्रों के Geo-fencing, कार्यरत बालू/मोरम की खदानों पर PTZ Camera, खनन क्षेत्र से निकासी स्थल पर खनिजों के वाहनों के मापन हेतु कैमरे युक्त Weigh-Bridge स्थापित करते हुए इसे निदेशालय स्थित कमाण्ड सेन्टर से Integrate किया गया है। वर्तमान में 33000 वाहनों का पंजीकरण तथा 250 Weigh-Bridge स्थापित किये गये है।
2	Has demarcation of boundaries for regulating grant of sand mining lease done?	उत्तर प्रदेश उपखनिज (परिहार) नियमावली–1963 यथासंशोधित के नियम नियम–23 में जियो–कोआर्डीनेट्स के साथ किसी क्षेत्र को विज्ञापित किये जाने तथा नियम–17 में परिहार पर स्वीकृत क्षेत्रों के समस्त सीमास्तम्भों के जियो–कोआर्डीनेट्स का उल्लेख करने के प्राविधान किये गये है, जिसका अनुपालन समस्त जिलाधिकारियों द्वारा किया जा रहा है।
3	Has restriction imposed on leasing of minor minerals in any area till demarcation is completed?	खनन पट्टा स्वीकृति उपरान्त नियमावली–1963 के नियम–17 के अन्तर्गत सीमांकन के पश्चात् ही खनन पट्टा विलेख का निष्पादन किये जाने के प्राविधान है।
4	Has the Chief Secretary constituted a team to carry out demarcation?	नियमावली–1963 के नियम–17 के अन्तर्गत भूतत्व एवं खनिकर्म निदेशालय के अधिकृत अधिकारी/कर्मचारी द्वारा क्षेत्र का सर्वेक्षण/सीमांकन किये जाने का प्राविधान है। मुख्य सचिव स्तर से पृथक से टीम गठित किये जाने का औचित्य नही है।
5	What steps have been taken to ensure that 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?	• नियमावली–1963 के नियम–34(4) में पर्यावरण समाघात निर्धारण अधिसूचना दिनांक 14.09.2006 एवं तत्क्रम में समय–समय पर यथासंशोधित अधिसूचनाओं के अनुक्रम में खनन प्रारम्भ करने के पूर्व पर्यावरणीय अनापत्ति प्राप्त करने के प्राविधान है। • MoEF&CC द्वारा निर्गत Sustainable Sand Mining Managment Guidelines, 2016 के अनुसार मानसून सत्र में नदी तल से खनन कार्य प्रतिबन्धित होता है, इस प्रकार प्रदेश में माह जुलाई, अगस्त, सितम्बर में खनन कार्य प्रतिबन्धित रहता है।

6	What actions have been taken to ensure that 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?	नियमावली–1963 के नियम–41(ज)(1) में प्राविधानित है कि पट्टेदार नदी तल में तीन मीटर की गहराई अथवा जलस्तर जो भी कम हो, के परे कोई खनन संक्रियायें नही करेगा। राज्य स्तरीय पर्यावरण संघात प्राधिकरण (SEIAA) द्वारा निर्गत पर्यावरण स्वच्छता प्रमाण पत्र में उल्लिखित शर्तो का पालन कराया जा रहा है।
7	It was directed by Hon'ble NGT that District authorities shall seize all sump pumps, other machinery, tools,vehicles, etc. used for carrying out illegal sand mining. Any action of this sort undertaken?	निदेशालय में प्राप्त सूचना के अनुसार कोई प्रकरण संज्ञान में नही आया है।
8	Has any penalty imposed or not by concerned Department to cover the restoration cost of environment and to compensate the victims?	मा0 राष्ट्रीय हरित अधिकरण में योजित ओ0ए0 सं0–184/2013 गुरप्रीत सिंह बग्गा बनाम एम0ओ0ई0एफ में पर्यावरण क्षतिपूर्ति/जुर्माना वसूली के सम्बन्ध में मा0 एन0जी0टी0 का आदेश दिनांक 18.02.2016 के अनुपालन में सम्बन्धित पट्टाधारकों से पर्यावरणीय क्षति में लगाये गये जुर्माने की वसूली की कार्यवाही जनपद स्तर पर प्रचलित है।
9	What is the current status of a detailed restoration plan for the concerned river and its river beds. Has this been done?	खनन योजना में restoration plan को सम्मिलित कर अनुमोदित खनन योजना के आधार पर खनन कार्य किया जा रहा है।
10	The Committee shall also get 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 foregone.	मा0 राष्ट्रीय हरित अधिकरण में योजित ओ0ए0 सं0–184/2013 गुरप्रीत सिंह बग्गा बनाम एम0ओ0ई0एफ में पर्यावरण क्षतिपूर्ति/जुर्माना वसूली के सम्बन्ध में मा0 एन0जी0टी0 का आदेश दिनांक 18.02.2016 के अनुपालन में पर्यावरण क्षति का आंकलन Indian Council of Forestry Research and Education, Dehradun से कराकर कार्यवाही की जा रही है।
11	What action has been taken against the polluters and the erring officers?	निदेशालय में प्राप्त सूचना के अनुसार कोई प्रकरण संज्ञान में नही आया है।
12	Present status of CCTV Cameras installation at mining points to verify the amount of sand extracted?	उत्तर प्रदेश उपखनिज (परिहार) नियमावली– 1963 यथासंशोधित के नियम–35(2) में प्राविधानित है कि खनन पट्टाधारक जिसका खनन पट्टा क्षेत्र 05 हेक्टेयर से अधिक है, परिवहन के निगरानी के लिये, स्वयं के व्यय पर 360 डिग्री दृश्यता रिकार्डिंग के योग्य चार सी0सी0टी0वी0 कैमरा लगाने सहित एक चैक पोस्ट/गेट का निर्माण करेगा तथा उसका अनुरक्षण करेगा, जिसका अनुपालन जिलाधिकारी द्वारा कराया जा रहा है।

13	What is the status of regular patrolling by the police to inspect the mining operations?	खनिजो के अवैध खनन व परिवहन पर प्रभावी नियंत्रण करने हेतु शासनादेश सं0–616/86–2018–371/2005, दिनांक–20.03.2018 द्वारा जिलाधिकारी की अध्यक्षता में सात सदस्यीय जनपद स्तरीय कार्य बल (टास्क फोर्स) का गठन किया गया है। उक्त टाक्स फोर्स में पुलिस विभाग के पुलिस उपाधिक्षक स्तर के अधिकारी नामित है। टास्क फोर्स द्वारा खनन क्षेत्रों की सतत् निगरानी रखी जाती है।
14	Present status of daily reports regarding mining to be filed by SHO/ Mining officer to be sent to District Magistrate.	ओ0ए0 संख्या 670/2018 अतुल सिंह चौहान बनाम पर्यावरण वन एवं जलवायु परिवर्तन मंत्रालय व अन्य में पारित मा0 एन0जी0टी0 के आदेश के अनुपालन में जिलाधिकारी प्रयागराज से प्राप्त सूचना के अनुसार जनपद स्तर पर गठित टास्क फोर्स द्वारा अवैध खनन/परिवहन की नियमित जॉच की जा रही है तथा तद्सम्बन्धी सूचना से जिलाधिकारी/वरिष्ठ पुलिस अधीक्षक प्रयागराज को सूचित किया जा रहा है।
15	Have any such vehicles been confiscated?	ओ0ए0 संख्या 670/2018 अतुल सिंह चौहान बनाम पर्यावरण वन एवं जलवायु परिवर्तन मंत्रालय व अन्य में पारित आदेश के अनुपालन में जनपद प्रयागराज में वित्तीय वर्ष 2018–19 में 06, 2019–20 में 80 तथा वित्तीय वर्ष 2020–21 में अब तक 90 मामलों में सक्षम न्यायालय में परिवाद प्रस्तुत किया गया है, जिसमें मा0 एन0जी0टी0 द्वारा पारित आदेश को समावेशित कर लिया गया है। उक्त के सम्बन्ध में अन्य जनपदों को भी निर्देश निर्गत किये गये है।
16	How much EC has been imposed and realized by the CPCB till date in this regards?	सम्बन्धित विभाग की सूचना निदेशालय स्तर पर उपलब्ध नही है।
17	With regard to 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. Present status?	जनपदों में जिलाधिकारी के मार्गदर्शन में पर्यावरण स्वच्छता प्रमाण पत्र की शर्तो का अनुपालन प्रदूषण नियंत्रण बोर्ड/विभागीय अधिकारी द्वारा किया जाता है। पृथक से संस्थागत तंत्र की स्थापना है।
18	It was directed to require incorporation of further safeguards based on High Powered Committee report and observations into the Sustainable Sand Mining and Management Guidelines, 2016. What has been the progress so far.	MoEF&CC द्वारा निर्गत Sustainable Sand Mining Managment Guidelines, 2016 का अनुपालन कराया जा रहा है।
19	What necessary steps have been taken by MOEF & CC to restore effective impact assessment and safeguards, any action taken against the erring officers?	प्रकरण में निदेशालय स्तर से टिप्पणी अपेक्षित नही है।

(अनिल कुमार शर्मा)
मुख्य खान अधिकारी

Appendix- V

Directorate of Geology and Mining, UP

NGT, UP Lucknow in the matter of O.A. NO. 360/2015 in re: National Green Tribunal Bar Association Vs. State Of U.P. & Ors.

Date 15.12.2020

Sr. no.	Issues	Breif
1	What has been the progress in ensuring issues related to illegal sand mining in the State of Uttar Pradesh? Specify what temporary arrangement has been made in this regard?	• खनिजो के अवैध खनन व परिवहन पर प्रभावी नियंत्रण करने हेतु शासनादेश सं0–616/86–2018–371/2005, दिनांक–20.03.2018 द्वारा जिलाधिकारी की अध्यक्षता में सात सदस्यीय जनपद स्तरीय कार्य बल (टास्क फोर्स) का गठन किया गया है। • IMSS के अर्न्तगत खनन क्षेत्रों के Geo-fencing, कार्यरत बालू/मोरम की खदानों पर PTZ Camera, खनन क्षेत्र से निकासी स्थल पर खनिजों के वाहनों के मापन हेतु कैमरे युक्त Weigh-Bridge स्थापित करते हुए इसे निदेशालय स्थित कमाण्ड सेन्टर से Integrate किया गया है। वर्तमान में 36000 वाहनों का पंजीकरण तथा 310 Weigh-Bridge स्थापित किये गये है।
2	Has demarcation of boundaries for regulating grant of sand mining lease done?	उत्तर प्रदेश उपखनिज (परिहार) नियमावली–1963 यथासंशोधित के नियम नियम–23 में जियो–कोआर्डीनेट्स के साथ किसी क्षेत्र को विज्ञापित किये जाने तथा नियम–17 में परिहार पर स्वीकृत क्षेत्रों के समस्त सीमास्तम्भों के जियो–कोआर्डीनेट्स का उल्लेख करने के प्राविधान किये गये है, जिसका अनुपालन समस्त जिलाधिकारियों द्वारा किया जा रहा है।
3	Has restriction imposed on leasing of minor minerals in any area till demarcation is completed?	खनन पट्टा स्वीकृति उपरान्त नियमावली–1963 के नियम–17 के अन्तर्गत सीमांकन के पश्चात् ही खनन पट्टा विलेख का निष्पादन किये जाने के प्राविधान है।
4	Has the Chief Secretary constituted a team to carry out demarcation?	नियमावली–1963 के नियम–17 के अन्तर्गत भूतत्व एवं खनिकर्म निदेशालय के अधिकृत अधिकारी/कर्मचारी द्वारा क्षेत्र का सर्वेक्षण/सीमांकन किये जाने का प्राविधान है। मुख्य सचिव स्तर से पृथक से टीम गठित किये जाने का औचित्य नही है।
5	What steps have been taken to ensure that 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?	• नियमावली–1963 के नियम–34(4) में पर्यावरण समाघात निर्धारण अधिसूचना दिनांक 14.09.2006 एवं तत्क्रम में समय–समय पर यथासंशोधित अधिसूचनाओं के अनुक्रम में खनन प्रारम्भ करने के पूर्व पर्यावरणीय अनापत्ति प्राप्त करने के प्राविधान है। • MoEF&CC द्वारा निर्गत Sustainable Sand Mining Managment Guidelines, 2016 के अनुसार मानसून सत्र में नदी तल से खनन कार्य प्रतिबन्धित होता है, इस प्रकार प्रदेश में माह जुलाई, अगस्त, सितम्बर में खनन कार्य प्रतिबन्धित रहता है।
6	What actions have been taken to ensure that no sand mining is permitted without due compliance	नियमावली–1963 के नियम–41(ज)(1) में प्राविधानित है कि पट्टेदार नदी तल में तीन मीटर की गहराई अथवा जलस्तर जो भी कम हो, के परे कोई खनन संक्रियायें

	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?	नही करेगा। राज्य स्तरीय पर्यावरण संघात प्राधिकरण (SEIAA) द्वारा निर्गत पर्यावरण स्वच्छता प्रमाण पत्र में उल्लिखित शर्तो का पालन कराया जा रहा है।
7	It was directed by Hon'ble NGT that District authorities shall seize all sump pumps, other machinery, tools,vehicles, etc. used for carrying out illegal sand mining. Any action of this sort undertaken?	निदेशालय में प्राप्त सूचना के अनुसार कोई प्रकरण संज्ञान में नही आया है।
8	Has any penalty imposed or not by concerned Department to cover the restoration cost of environment and to compensate the victims?	मा0 राष्ट्रीय हरित अधिकरण में योजित ओ0ए0 सं0–184/2013 गुरप्रीत सिंह बग्गा बनाम एम0ओ0ई0एफ में पर्यावरण क्षतिपूर्ति/जुर्माना वसूली के सम्बन्ध में मा0 एन0जी0टी0 का आदेश दिनांक 18.02.2016 के अनुपालन में सम्बन्धित पट्टाधारकों से पर्यावरणीय क्षति में लगाये गये जुर्माने की वसूली की कार्यवाही जनपद स्तर पर प्रचलित है।
9	What is the current status of a detailed restoration plan for the concerned river and its river beds. Has this been done?	खनन योजना में restoration plan को सम्मिलित कर अनुमोदित खनन योजना के आधार पर खनन कार्य किया जा रहा है।
10	The Committee shall also get 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 foregone.	मा0 राष्ट्रीय हरित अधिकरण में योजित ओ0ए0 सं0–184/2013 गुरप्रीत सिंह बग्गा बनाम एम0ओ0ई0एफ में पर्यावरण क्षतिपूर्ति/जुर्माना वसूली के सम्बन्ध में मा0 एन0जी0टी0 का आदेश दिनांक 18.02.2016 के अनुपालन में पर्यावरण क्षति का आंकलन Indian Council of Forestry Research and Education, Dehradun से कराकर कार्यवाही की जा रही है।
11	What action has been taken against the polluters and the erring officers?	निदेशालय में प्राप्त सूचना के अनुसार कोई प्रकरण संज्ञान में नही आया है।
12	Present status of CCTV Cameras installation at mining points to verify the amount of sand extracted?	उत्तर प्रदेश उपखनिज (परिहार) नियमावली– 1963 यथासंशोधित के नियम–35(2) में प्राविधानित है कि खनन पट्टाधारक जिसका खनन पट्टा क्षेत्र 05 हेक्टेयर से अधिक है, परिवहन के निगरानी के लिये, स्वयं के व्यय पर 360 डिग्री दृश्यता रिकार्डिंग के योग्य चार सी0सी0टी0वी0 कैमरा लगाने सहित एक चैक पोस्ट/गेट का निर्माण करेगा तथा उसका अनुरक्षण करेगा, जिसका अनुपालन जिलाधिकारी द्वारा कराया जा रहा है।
13	What is the status of regular patrolling by the police to inspect the mining operations?	खनिजो के अवैध खनन व परिवहन पर प्रभावी नियंत्रण करने हेतु शासनादेश सं0–616/86–2018–371/2005, दिनांक–20.03.2018 द्वारा जिलाधिकारी की अध्यक्षता में सात सदस्यीय जनपद स्तरीय कार्य बल (टास्क फोर्स) का गठन किया गया है। उक्त टाक्स फोर्स में पुलिस विभाग के पुलिस

		उपाधिक्षक स्तर के अधिकारी नामित है। टास्क फोर्स द्वारा खनन क्षेत्रों की सतत् निगरानी रखी जाती है।
14	Present status of daily reports regarding mining to be filed by SHO/ Mining officer to be sent to District Magistrate.	ओ0ए0 संख्या 670/2018 अतुल सिंह चौहान बनाम पर्यावरण वन एवं जलवायु परिवर्तन मंत्रालय व अन्य में पारित मा0 एन0जी0टी0 के आदेश के अनुपालन में जिलाधिकारी प्रयागराज से प्राप्त सूचना के अनुसार जनपद स्तर पर गठित टास्क फोर्स द्वारा अवैध खनन/परिवहन की नियमित जॉच की जा रही है तथा तद्सम्बन्धी सूचना से जिलाधिकारी/वरिष्ठ पुलिस अधीक्षक प्रयागराज को सूचित किया जा रहा है।
15	Have any such vehicles been confiscated?	ओ0ए0 संख्या 670/2018 अतुल सिंह चौहान बनाम पर्यावरण वन एवं जलवायु परिवर्तन मंत्रालय व अन्य में पारित आदेश के अनुपालन में जनपद प्रयागराज में वित्तीय वर्ष 2018–19 में 06, 2019–20 में 80 तथा वित्तीय वर्ष 2020–21 में माह नवम्बर–2020 तक 150 एफ0आई0आर0 एवं 214 मामलों में सक्षम न्यायालय में परिवाद प्रस्तुत किया गया है, जिसमें मा0 एन0जी0टी0 द्वारा पारित आदेश को समावेशित कर लिया गया है। उक्त के सम्बन्ध में अन्य जनपदों को भी निर्देश निर्गत किये गये है।
16	How much EC has been imposed and realized by the CPCB till date in this regards?	सम्बन्धित विभाग की सूचना निदेशालय स्तर पर उपलब्ध नही है।
17	With regard to 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. Present status?	जनपदों में जिलाधिकारी के मार्गदर्शन में पर्यावरण स्वच्छता प्रमाण पत्र की शर्तो का अनुपालन प्रदूषण नियंत्रण बोर्ड/विभागीय अधिकारी द्वारा किया जाता है। पृथक से संस्थागत तंत्र की स्थापना है।
18	It was directed to require incorporation of further safeguards based on High Powered Committee report and observations into the Sustainable Sand Mining and Management Guidelines, 2016. What has been the progress so far.	MoEF&CC द्वारा निर्गत Sustainable Sand Mining Managment Guidelines, 2016 का अनुपालन कराया जा रहा है।
19	What steps have been taken by the District Administration for the effective monitoring mechanism for preventive and remedial measures including surveillance system for recovery of compensation?	पर्यावरण सम्बन्धी नियमों में आवश्यक संशोधनोपरान्त कार्यवाही की जायेगी।
20	What necessary steps have been taken by MOEF & CC to restore effective impact assessment and safeguards, any action taken against the erring officers?	प्रकरण में निदेशालय स्तर से टिप्पणी अपेक्षित नही है।

21	Has the Chief Secretary filed the report regarding recovery of compensation (i.e. damage to environment)?	प्रकरण में निदेशालय स्तर से टिप्पणी अपेक्षित नही है।
22	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	पर्यावरण क्षति को नियंत्रित किये जाने के सम्बन्ध में पर्यावरण विभाग द्वारा प्रख्यापित नियमों/अधिनियमों में पर्यावरण क्षति की वसूली सम्बन्धी मा0 एन0जी0टी0 के आदेश को समावेशित किये जाने हेतु वन, पर्यावरण एवं जलवायु परिवर्तन विभाग, उ0प्र0 शासन को भूतत्व एवं खनिकर्म विभाग, उ0प्र0 के पत्र सं0–1672/86–2020 दिनांक 22.09.2020 सन्दर्भित किया गया है।

(अनिल कुमार शर्मा)
मुख्य खान अधिकारी

Appendix- VI

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
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PLACE: - DELHI
DATED: - 30.01.2020

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

Submitted to

Hon'ble National Green Tribunal,

Principal Bench, New Delhi

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

29th January 2020

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1. Introduction

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

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

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

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

2. Constitution of Committee

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

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

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

3. Impacts due to Illegal Sand Mining

3.1 Framework for a Compensation Scale

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

- Extent of Illegal Mining: It must be recognised that in any given geographic area the ecological impacts will be felt from all mining that takes place in the relevant region (or that within which the water body concerned is located). Hence, ideally, a landscape has to be considered for estimating the ecological damages in their entirety. However, this may practically pose several data and information challenges. Sometimes the ecological processes are also uncertain. Therefore, the objective in the current context would be to establish a practical approach of estimating the extent of 'illegal' mining, assuming that the legally permitted mining takes into account the sustainable ecological limits within which such mining should be restricted. For present purposes, to fix individual liability, this may be done by making an assessment of the total extraction through sand mining being carried out and netting out the amount for which environmental clearance has been given.
- Restoration of ecology: It is acknowledged at the outset that in 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 Risk Level Risk Factor (RF)	*Severe* 4 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 m^3	=12000 m^2 x 4 m =48000

(The example can be applied to a case of totally illegal mining without EC also where illegal mining of 18000 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.01 to 04, 06 to 15 Court No. 1

BEFORE THE NATIONAL GREEN TRIBUNAL
PRINCIPAL BENCH, NEW DELHI

Original Application No. 360/2015
WITH
Original Application No. 366/2015
(M.A.No. 02/2019)
WITH
Original Application No. 368/2015
(M.A.No. 16/2019)
WITH
Original Application No. 173/2018
(Earlier O.A. No. 89/2017 (EZ)
(I.A. No. 76/2019)
WITH
Original Application No. 874/2018
WITH
Original Application No. 44/2016
WITH
Original Application No. 517/2015
WITH
Original Application No. 550/2015
WITH
Original Application No. 530/2016
WITH
Original Application No. 272/2016
WITH
Original Application No. 481/2016
WITH
Original Application No. 540/2015
WITH
Original Application No. 90/2016
WITH
Execution Application No. 40/2017
IN
O.A. No. 517/2015

National Green Tribunal Bar Association — Applicant(s)
Versus
Virender Singh (State of Gujarat) — Respondent(s)
WITH
National Green Tribunal Bar Association — Applicant(s)
Versus
Dr.SarvabhoumBagali (State of Karnataka) — Respondent(s)
WITH
National Green Tribunal Bar Association — Applicant(s)

Versus

Dr.Sarvabhoum Bagali (State of Maharashtra) Respondent(s)

WITH

Sudarsan Das Applicant(s)

Versus

State of West Bengal &Ors.
(State of West Bengal and Odisha) Respondent(s)

WITH

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

WITH

Mushtakeem Applicant(s)

Versus

MoEF& CC &Ors. Respondent(s)

WITH

Sandeep Kumar Applicant(s)

Versus

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

WITH

Virender Kumar Applicant(s)

Versus

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

WITH

Sandeep Kumar Applicant(s)

Versus

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

WITH

M/s Ganga Yamuna Mining Co. Applicant(s)

Versus

State of Haryana&Ors. Respondent(s)

WITH

Joginder Singh Applicant(s)

Versus

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

WITH

Ved Pal Singh Applicant(s)

Versus

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

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WITH

Chander Mohan Uppal — Applicant(s)

Versus

State of U.P. &Ors. — Respondent(s)

WITH

Sandeep Kumar — Applicant(s)

Versus

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

Date of hearing: 05.04.2019

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

For Applicant(s): Mr. Raj Panjwani, Sr. Advocate, Mr. Aagney Sai, Advocate
Mr. Sravan Kumar, Advocate
Mr. Rahul Choudhary, Ms. Meera Gopal, Mr. Sharan Balakrishna, Advocates.

For Respondent (s): Ms. Puja Singh, Advocate for the State of Gujarat
Mr. Devraj Ashok, Advocate for State of Karnataka
Mr. Soumyajit Pani, Advocate for State of Odisha
Mr. Raja Chatterjee, Advocate for State of West Bengal
Mr. Ankit Verma, Advocate for State of U.P
Mr. Divya Prakash Pande, Advocate
Mr. Shlok Chandra, Mr. Ritesh Kumar Sharma, Advocates
Mr. Sany Antony, Advocate
Mr. Ankur Mittal, Mr. Abhay Gupta, Advocate
Mr. Rahul Khurana, Advocate, Mrs. Madhri Gupta, Mr. Sanjay Sabbarwa, Mining Officer

ORDER

1. The common question for consideration in this group of matters is the steps required to be taken for environment protection from unregulated sand mining in the States of Gujarat, Karnataka, Maharashtra, West Bengal, Odisha, Punjab, Haryana and Uttar Pradesh. The issue is common even with regard to States who are not party to these proceedings.

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Background

2. The Hon'ble Supreme Court, vide judgment in *Deepak Kumar Vs State of Haryana &Ors. (2012) 4 SCC 629*, directed that leases of minor minerals, including their renewal, even for an area of less than 5 hectares (ha) be granted only after environmental clearance from the Ministry of Environment and Forest and Climate Change (MoEF & CC). This direction was held to be necessary in view of degradation of environment on account of illegal and unrestricted upstream, in-stream and flood plain sand mining activities. Under the existing guidelines, no environmental clearance was required for minor leases of less than 5 hectare area. The result was that there was no regulation of such mining which resulted in environmental degradation. Even bigger cluster was split up in less than 5 ha units to avoid law.

3. The Hon'ble Supreme Court observed that absence of regulation of such mining was not justified as it was 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.

4. The Hon'ble Supreme Court observed that such mining 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.

5. The Hon'ble Supreme Court 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.

6. The grievance before the Tribunal is that the river bed mining was taking place at several locations in violation of judgment of the Hon'ble Supreme Court either without any valid lease or under leases

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given without following the strict regulatory regime in terms of judgment of the Hon'ble Supreme Court or in violation of lease conditions.

Proceedings before NGT

7. This Tribunal passed several orders in the present matter since 05.08.2013[1] to check illegal sand mining from the riverbeds without environmental clearance or in violation of terms of environmental clearance. The State of Uttar Pradesh was directed to frame a policy to check illegal sand mining. MoEF&CC was also directed to prepare comprehensive guideline on the subject. The Tribunal considered regulatory regime applicable in some of the States in the light of the judgment of the Hon'ble Supreme Court in *Deepak Kumar* (supra), including in the States of Uttar Pradesh, Haryana, Madhya Pradesh, Maharashtra, Karnataka, Gujarat, West Bengal and Odisha. The MoEF&CC issued Sustainable Sand Mining Guidelines 2016, vide notification dated 15.01.2016. Thereafter, further directions were issued by the Tribunal in the light of report of the High-powered Committee[2].

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.[3] In Uttarakhand, a 115 years old bridge collapsed due to overloaded sand trucks. In Maharashtra,

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[1] In O.A. No 38/2015
[2] Order dated 08.08.2018 in Gurpreet Singh Bagga Vs. Ministry of Environment, Forest and Climate Change, E.A. No. 17/2016
[3] http://www.legalserviceindia.com/legal/article-73-why-is-illegal-sand-mining-harmful-.html

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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.[4] The issue of illegal sand mining is also rampant in the states of Goa[5], Bihar[6], Tamil Nadu[7], Uttarakhand[8], Telangana[9], Jammu and Kashmir[10] amidst others.

9. Natural resources are 'public goods' and the Doctrine of Equality must guide the State in determining the actual mechanism for distribution of natural resources. It takes into account the rights and obligations of the State vis-a-vis its people and the demands that the people be granted equitable access to natural resources and they are adequately compensated for the transfer of these resources for public domain and regulation of rights and obligations of the State vis-à-vis private parties seeking to acquire the resources which demands that the procedure adopted and distribution is just and transparent.

10. Public Trust Doctrine primarily rests on the principle that certain resources like air, sea, water and forest have great importance to public as a whole and it is wholly unjustified to make them a subject of private ownership. The public trust doctrine enjoins upon the Governments to protect the resources for enjoyment of general public

[4] https://sandrp.in/2019/03/01/sand-mining-2018-is-it-a-national-menace/
[5] https://timesofindia.indiatimes.com/city/goa/govt-is-ignoring-illegal-sand-mining/articleshow/67908428.cms
[6] 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
[7] https://en.wikipedia.org/wiki/Sand_mining_in_Tamil_Nadu
[8] https://sandrp.in/tag/utterakhand-sand-mining/
[9] https://sandrp.in/2019/02/26/sand-mining-2018-telangana-and-andhra-pradesh/
[10] https://greaterkashmir.com/article/news.aspx?story_id=309365&catid=2&mid=53&AspxAutoDetectCookieSupport=1

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rather than to permit the use for private ownership of commercial purposes.[11]

11. When the State holds a resource that is freely available for the use of public, it provides for a high degree of judicial scrutiny on any action of the State in dealing with the subject in a prudent manner. It is the duty of the State to provide complete protection to the natural resources as a trustee of the public at large. Moreover, a policy to give free sand must be justified as a welfare measure but even this consideration cannot justify unregulated and unscientific mining unmindful of impact on environment. If in the course of mining, damage is caused, cost of the same must be recovered from such violators. In any case, the authorities cannot avoid their duty under the environmental law to prevent and restore the damage which is an inalienable duty of the State.

Sudarsan Das v. State of West Bengal

Vide order dated 04.09.2018 in *O.A No. 173/2018, Sudarsan Das v. State of West Bengal & Ors*, the Tribunal considered the issue of unchecked mechanised sand mining on the banks of river Subarnarekha by use of suction pumps, earth movers and netting in an area falling under Jaleshwar Tehsil, Balasore District, Odisha on the Odisha – West Bengal Boarder area and neighbouring district of West Medinapur in the State of West Bengal. The mining was being done by a method whereby ground water is allowed to seep into excavation of 40 to 50 feet beneath the river and collected in sumps and pumped away for disposal. No environmental clearance had been

[11]Natural Resources Allocation in RE: Special Reference No. 1/2012, (2012)10 SCC1, para 77-78,89-92

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taken nor consent taken from the Pollution Control Board. This was impacting the ecology of the river including its channel geometry, bed elevation, substratum composition and stability, instream roughness of the bed, flow velocity, discharge capacity, sediment transpiration capacity, turbidity, temperature, etc. Such indiscriminate mining was the cause of the river Subarnarekha changing its course every year and made susceptible to flooding during every monsoon, threatening the safety of the villages situated along the river bank due to the banks being severely eroded in villages Rajnagar, Mankia, Kanrpur, Totapada, Beherasahi and Praharajpur. The authorities confirmed that illegal mining was taking place at large scale without any Environmental Clearance under the Environment (Protection) Act, 1986 or Consent under the Water (Prevention and Control of Pollution) Act, 1974 or the Air (Prevention and Control of Pollution) Act, 1981. Sustainable Sand Mining and Management Guidelines, 2016 were also not being followed. There was adverse impact on the ecology. No Management Plan was prepared for replenishment of preventive steps. Safeguards suggested in the report of High-powered Committee in September, 2016[12] were also not been adopted.

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[12] The report suggest follows:

"i) Project Proponent must ensure that the security features of Transport Permission viz. (a) Printed on Indian Bank Association (IBA) approved Magnetic Ink Character Recognition Code (MICR) paper; (c) Unique Barcode; (d) Unique Quick Response Code (QR); (e) Fugitive Ink Background; (f) Invisible Ink Mark; (g) Void Pantograph; (h) Watermark.

ii) Project Proponent must ensure that the CCTV camera, Personal Computer (PC), Internet Connection, Power Back up, access control of mine lease site; and arrangement for weight or approximation of weight of mined out mineral on basis of volume of the trailer of vehicle used at mine lease site are available.

iii) Project Proponent must ensure the Scanning of Transport Permit or Receipt and uploading on Server.

iv) The State Mines and Geology Department should print the Transport Permits/Receipt with security features enumerated at Paragraph (i) above and issue them to the mine lease holder 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 preferably 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,

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the 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.

v) 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 website, Android Application and SMS.

vi) In case the Vehicle breakdown, the validity of Transport Permit or Receipt shall be extended by sending SMS by driver in specific format to report breakdown of vehicle. The server will register this information and register the breakdown. The State can also establish a call centre, 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/call centre.

vii) The route of vehicle from source to destination should be tracked through the system using check points, Radio-frequency identification (RFID) Tags, and Global Positioning System (GPS) tracking.

viii) The system shall enable the Authorities to develop periodic report on different parameters like daily lifting report, vehicle log/history, lifting against allocation, and total lifting. The system can be used to generate auto mails/SMS. This will enable the District Collector/Magistrate to get all the relevant details and will 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 should be tracked."

Considerations required to be kept in mind for sustainable sand mining are:

a. Parts of the river reach that experience deposition or aggradation shall be identified first. The Lease holder/ Environmental Clearance holder may be allowed to extract the sand and gravel deposit in these locations to manage aggradation problem.

b. The distance between sites for sand and gravel mining shall depend on the replenishment rate of the river. Sediment rating curve for the potential sites shall be developed and checked against the extracted volumes of sand and gravel.

c. Sand and gravel may be extracted across the entire active channel during the dry season.

d. Abandoned stream channels on terrace and inactive floodplains be preferred rather than active channels and their deltas and flood plains. Stream should not be diverted to form inactive channel.

e. Layers of sand and gravel which could be removed from the riverbed shall depend on the width of the river and replenishment rate of the river.

f. Sand and gravel shall not be allowed to be extracted where erosion may occur, such as at the concave bank.

g. Segments of braided river system should be used preferably falling within the lateral migration area of the river regime that enhances the feasibility of sediment replenishment.

h. Sand and gravel shall not be extracted within 200 to 500 meter from any crucial hydraulic structure such as pumping station, water intakes, and bridges. The exact distance should be ascertained by the local authorities based on local situation. The cross-section survey should cover a minimum distance of 1.0 km upstream and 1.0 km downstream of the potential reach for extraction. The sediment sampling should include the bed material and bed material load before, during and after extraction period. Develop a sediment rating curve at the upstream end of the potential reach using the surveyed cross- section. Using the historical or gauged flow rating curve, determine the suitable period of high flow that can replenish the extracted volume. Calculate the extraction volume based on the sediment rating curve and high flow period after determining the allowable mining depth.

i. Sand and gravel could be extracted from the downstream of the sand bar at river bends. Retaining the upstream one to two thirds of the bar and riparian vegetation is accepted as a method to promote channel stability.

j. Flood discharge capacity of the river could be maintained in areas where there are significant flood hazard to existing structures or infrastructure. Sand and gravel mining may be allowed to maintain the natural flow capacity based on surveyed cross- section history.

k. Alternatively, off-channel or floodplain extraction is recommended to allow rivers to replenish the quantity taken out during mining.

l. The Piedmont Zone (Bhabhar area) particularly in the Himalayan foothills, where riverbed material is mined, this sandy-gravelly track constitutes excellent conduits and holds the greater potential for ground water recharge. Mining in such areas should be preferred in locations selected away from the channel bank stretches.

m. Mining depth should be restricted to 3 meter and distance from the bank should be 3 meter or 10 percent of the river width whichever less.

n. The borrow area should preferably be located on the river side of the proposed embankment, because they get silted up in course of time. For low embankment less than 6 m in height, borrow area should not be selected within 25 m from the toe/heel of the embankment. In case of higher embankment the distance should not be less than 50 m. In order to obviate development of flow parallel to embankment, cross bars of width eight times the depth of borrow pits spaced 50 to 60 meters centre-to-centre should be left in the borrow pits.

o. Demarcation of mining area with pillars and geo-referencing should be done prior to start of mining."

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12. The Management Plan as per the guidelines is to require system of replenishment as well as preventive steps during the sand mining. Replenishment and reclamation of riverine sand are the integral part. Guidelines also deal with the issue of depth of mining and strict regulatory regime. The management of mining clusters should have a separate approach. Management of sand deposited after the floods should be treated as separate for mining. Monitoring system proposed includes safeguards during transport as well as checking of condition of mining.

13. The Tribunal noted that Ministry of Mines and Indian Bureau of Mines (IBM) had developed Mines Surveillance System (MSS), with assistance from Bhaskaracharya Institute for space applications and Geoinformatics (BISAG), Gandhinagar and Ministry of Electronics and Information Technology (MEITY). The Mining Surveillance System (MSS) is a satellite-based monitoring system which aims to establish a regime of responsive mineral administration by curbing instances of illegal mining activity through automatic remote sensing detection technology.

14. In view of above, the Tribunal directed[13] the MoEF&CC to revise its guidelines as in-spite of the guidelines already issued, the monitoring mechanism was not working effectively. The directions of this Tribunal are:

> "*i. Mining Surveillance System discussed in para 23 above be finalized in consultation with ISRO Hyderabad.*

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13 Vide order dated 04.09.2018 inOriginal Application No. 173 of 2018 (Earlier O.A. No. 89/2017) (EZ) in the matter of Sudarsan Das Vs. State of West Bengal &Ors.

ii *Safeguards suggested in Sustainable Sand Mining Guidelines published by the MoEF&CC in the year 2016.*

iii *Suggestions in the High-Powered 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 preferably include ex-servicemen, former teacher and former civil servant. The Committee will be nominated by the District Magistrate."*

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15. Such steps were to be worked out within two months and circulated to all States. The mechanism is to provide for a report of implementation from the concerned States every quarter. The matter needs to be reviewed after every six months by the MoEF & CC. The direction with regard to 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 as directed in para (vi) is for an All-Encompassing Body to monitor the conditions of Environmental Clearance with respect to all development projects. Report of the steps taken by MOEF&CC was to be furnished to this Tribunal by email at filing.ngt@gmail.com on or before 31.12.2018.

16. The Tribunal also issued directions to the State of West Bengal and Odisha to take steps as follows:

"

i. *The State of West Bengal and Odisha may demarcate the boundaries for regulating grant of sand mining lease within three months from today. No mining lease of minor minerals may be given in the area in question till demarcation is complete. All existing mining operations in those areas shall remain suspended till demarcation work is completed and attains finality. To carry out the demarcation, the Chief Secretaries of the two States may constitute a team of three suitable officers each within two weeks. The said teams may hold their first meeting within one month.*

ii. *The States of West Bengal and Odisha must ensure that mining in all sand mining blocks is undertaken strictly in accordance with the provisions of EIA Notification, 2006, MoEF*

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Notification dated 15th January, 2016 and the Sustainable Sand Mining Management Guidelines, 2016. They must also ensure that no sand mining is permitted without due compliance of 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. The District Administration must be held accountable for any failure.

iii. *District Magistrates and Superintendents of Police, Balasore district in Odisha and Paschim Medinapur, West Bengal, respectively, shall seize all sump pumps, other machinery, tools, vehicles, etc. used for carrying out illegal sand mining.*

iv. *Apart from instituting appropriate criminal proceedings against those carrying out illegal mining, exemplary penalty shall be imposed against them by the concerned District Magistrates within three months from today to cover the cost of restoration of environment and to compensate the victims.*

v. *The Chief Secretaries of the two States shall also get prepared jointly a detailed restoration plan for river Subarnarekha and its riverbeds for which a Committee of experts shall be constituted from independent institutions, i.e., the CPCB, Indian School of Mines, Dhanbad and the respective State Pollution Control Boards as members. Such constitution may take place within one month.*

vi. *The Expert Committee shall carry out detailed study and submit the restoration plan, as far as may be practicable, within three months after its constitution.*

vii. *The Committee shall also get the assessment done through Indian Council of Forestry Research and Education, Dehradun of the ecological damage on account of illegal mining by incorporating the following components: a) Cost of riverbed material. b) Cost of ecological restoration. c) Net present value of the future ecosystem services foregone.*

viii. *The above steps may be facilitated by the Regional Office of the CPCB as nodal officer, by coordinating with the Chief Secretaries of the two States.*

ix. *The damage suffered by the inhabitants caused by the illegal mining may also be assessed by the above Committee, which shall form a separate component of the Restoration Plan for river Subarnarekha as per direction No. (v) above. Cost of restoration plan shall be recovered as environmental compensation from the illegal miners, to be identified by the District Magistrate. The component of the compensation in respect of damages suffered by the inhabitants may be credited with District Legal Services Authority. The District Legal Services Authority may disburse the same to the victims of illegal mining, after proper identification."*

17. An oversight Committee was formed headed by Justice R.K. Merathia, former Judge of Jharkhand High Court to oversee the execution of above directions which was to function for six months.

Consideration in Today's Proceedings

Sand Minning in the State of West Bengal and Odisha

18. The matter has been listed today to consider the report from the MoEF & CC which was to be furnished by 31.12.2018 in terms of

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para 28 in *Sudarshan Das* (supra) and report of the oversight Committee which was to be furnished within three months in respect of steps taken by the State of West Bengal and Odisha in terms of direction of this Tribunal.

19. We may note that vide order dated 16.01.2019 in *O.A. No. 606/2018,* titled *Compliance of Municipal Solid Waste Management Rules, 2016,* the Tribunal flagged the issue of sand mining as one of the issues required to be monitored by the Chief Secretaries of the concerned States and to be reported to the Tribunal on personal appearance of Chief Secretaries before the Tribunal.

20. In pursuance of the said direction, Chief Secretaries of Odisha and West Bengal furnished their respective reports on 26.03.2019 and 02.04.2019. Learned counsels for the State of West Bengal and Odisha have relied upon the said reports during the hearing of present cases. The reports were not found to be satisfactory as per orders of the Tribunal dated 26.03.2019 and 02.04.2019 respectively and further directions were issued.

21. Question for consideration is further directions in the matter. We will consider this aspect after noticing developments in connected cases.

Sand Mining in the State of Gujarat

22. Following the above order in Sudarsan Das (*supra*), the issue of illegal sand mining in the State of Gujarat was dealt with in *O.A. No. 360/2015, National Green Tribunal Bar Association v. Virender Singh (State of Gujarat).* The Tribunal passed several orders from time to time since 28.11.2016 and finally considered the report of the State

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of Gujarat vide order dated 13.07.2018 to the effect that persons engaged in illegal mining were identified and proceeded against. The Tribunal directed the State of Gujarat to take further preventive and remedial steps and observed that compounding fee to be recovered should be fixed having regard not only to the cost of mined material but also the cost of restoration of the environment and cost of ecological services lost forever and should be separately accounted for, for restoration of the environment. Again, vide order dated 17.09.2018, the Tribunal considered the policy of the State of Gujarat but found that preventive and remedial steps proposed were not sufficient. Damage caused to the environment was not fully taken into account. It was required to include Net Present Value (NPV) of future ecosystem services foregone forever. It was also observed that the preventive steps should also include demarcation and publication of boundaries in different leases and the same may be placed in the public domain. The Tribunal also referred to other orders on the subject being orders dated 05.09.2018, 10.09.2018 and 13.09.2018 in *Original Application No. 44/2016- Mushtakeem Vs. MoEF & CC & Ors., Original Application No. 304/2015- Jai singh & Anr. Vs. Union of India & Ors.* and *Original Application No. 186/2016 - Satendra Pandey Vs. Ministry of Environment, Forest & Climate Change & Anr.* The application was disposed of but the action taken report was required to be furnished. Accordingly, the matters have been put up today for consideration of the action taken report.

23. We may also note that vide order dated 04.01.2019 in *Original ApplicationNo.110(THC)/2012, Threat to life arising out of coal mining in south Garo Hills district v. State of Meghalaya & and Ors.*, the

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issue of compensation and seizure of vehicles in the context of illegal rat hole mining in the State of Meghalaya was considered. On the subject of compensation to be recovered for damage to the environment, it was observed:

> *"31. Paying capacity and the amount which may act as deterrent to prevent further damage is also well recognised. Net Present Value of the ecological services foregone and cost of damage to environment and pristine ecology,the cost of illegal mined material, and the cost of mitigation and restoration are also relevant factors. The Committee may go into these aspects to determine the final figure.*
>
> *32. We are satisfied that having regard to the totality of factual situation emerging from the record, damages required to be recovered are not, prima facie, less than Rs. 100 Crores. Accordingly, by way of an interim measure, we require the State of Meghalaya to deposit Rs. 100 crores within two months with the CPCB in this regard."*

On the subject of vehicles, it was observed:

> *" 36. The Committee may also consider the following:-*
>
> > *Any cranes and trucks found to be involved in illegal mining or transportation which have not yet been seized may also be seized. The seized vehicles or equipments be released by the concerned District Magistrates only after recovering damages to the extent of 50% of the showroom 17 price of the vehicles or equipments. The said amount may also be credited to the restoration fund."*

24. We have perused the report filed by the State of Gujarat vide email dated 17.12.2018 to the effect that environment compensation scale has been enhanced which now can be between 21% to 41% value of the illegally mined material and if such value is found to be less than the cost of the damage to the environment, the matter is to be referred to the State Pollution Control Board. The above

compensation is in addition to the penalties under the Rules. However, the scale of penalty has not been specified.

25. Accordingly, further directions are required which may apply not only to the State of Gujarat but also other States. We may consider this aspect after taking note of developments in other States.

Sand Mining in the State of Karnataka

26. *O.A. No. 366/2015 (M.A. No. 02/2019), National Green Tribunal Bar Association v. Dr. Sarvabhoum Bagali (State of Karnataka) and O.A. No. 368/2015 (M.A. No. 16/2019), National Green Tribunal Bar Association v. Dr. Sarvabhoum Bagali (State of Maharashtra)* relate to the issue of sand mining in the State of Karnataka and Maharashtra. Vide order dated 25.09.2018, the matter was considered in the light of observations in *O.A No. 173/2018 (Earlier O.A. No. 89/2017 (EZ) (I.A. No. 76/2019), Sudarsan Das Vs. State of West Bengal &Ors and Original Application No. 186/2016, Satendra Pandey v. Ministry of Environment, Forest & Climate Change &Anr.* The States of Karnataka and Maharashtra were required to take steps as per the directions in the above matters, to the extent applicable and file an affidavit.

27. Accordingly, an affidavit has been filed on 06.03.2019 by the state of Karnataka stating that there was no sand *mafia* in the State of Karnataka and only there are exceptional instances. It is further submitted:

> *"I submit that all necessary steps are taken by Government of Karnataka and compliance report is submitted in this case, separately. If this Hon'ble Tribunal opines to establish any "Monitoring*

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Mechanism", we welcome it. However, any suggestions or directions may kindly be issued to Government of Karnataka to (1) evaluate loss to the ecology (2) to recover cost of restoration from illegal miners (3) to monitor mining (4) to make provision for restoration (5) for compensation to the inhabitants and (6) for audit etc., the Government of Karnataka will obey the directions of this Hon'ble Court."

28. Our attention has been drawn to a news article published in Bangalore Mirror dated 24.12.2018 appearing under the title "Karnataka: Sand mafia under scanner after lorry runs over official"[14] and an article published in Decan Herald dated 17.09.2018 under the title "Karnataka is a leading State that witnesses the devastating effects of sand mining"[15] to the effect that fourteen million metric tonnes of sand unaccounted for the State of Karnataka is as follows:

> *"The state government is receiving approximately Rs 150 crore as royalty from legitimate sand mining blocks every year. As per estimates, the state government is losing around Rs 200 crore per year due to illegal sand mining. Here is a ballpark estimation to find out the consumption of sand in the state. According to cement manufacturing companies' data, around 18 million metric tonnes of cement is sold in the state every year. The cement-sand mix ratio is either 1:4 or 1:6 (four or six bags of sand per cement bag). Even if 1:4 ratio is taken, a whopping 70 million metric tonnes of sand is approximately used in the state every year. The official data from the Department*

[14] https://bangaloremirror.indiatimes.com/bangalore/others/karnataka-sand-mafia-under-scanner-after-lorry-runs-over-official/articleshow/67221261.cms
[15] https://www.deccanherald.com/exclusives/illegal-sand-mining-wrecking.html

of Mines and Geology shows that from the blocks permitted by it, a total quantity of 30 million metric tonnes of sand (from all types of blocks - river sand, patta land, blocks allocated to government departments, and manufactured sand) is produced in the state. As per this, there is a difference of around 40 million metric tonnes of sand in comparison to the cement sold in the state."

29. We may consider further directions after noting facts of other states.

Sand Mining in the State of Maharashtra

30. In the case of Maharashtra, an affidavit has been filed by the State of Maharashtra on 20.2.2019 to the effect that the State Government is in the process of framing Sand Mining Policy for which a Committee has been constituted.

31. Our attention has also been drawn to an article published in The Hindustan Times dated 27.01.2019 under the title "Maharashtra registers most cases of illegal mining between 2013-17"[16] inter alia stating as follows:

"Maharashtra recorded 1,39,706 illegal mining cases between 2013 and 2017, the highest number in the country, revealed data submitted by the Union environment ministry before the Rajya Sabha on January 3.

However, the state had one of the lowest number of prosecutions in such cases. The state filed 712 first information reports (FIR) and one court case, while seizing around 1,39,000 vehicles used in illegal

[16] https://www.hindustantimes.com/india-news/maharashtra-registers-most-cases-of-illegal-mining-between-2013-17/story-2j69aqmsygzCcTBBB8emtN.html

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mining operations and collecting Rs 267 crores as fines from offender.

India recorded 4,16,410 cases during the same time, which means Maharashtra accounts for 33.5% of all cases in the country. Uttar Pradesh recorded 36,054 illegal mining cases, Madhya Pradesh 46,193, Karnataka 33,390, and Goa had 3 cases. The information was submitted in response to a query on the environmental impact of illegal mining."

32. In view of above, further directions are required to be considered for the State of Maharashtra.

Sand Mining in the State of Punjab

33. Vide order dated 13.11.2018 in *O.A. No. 874/2018 News item published in "The Tribune " Authored by Arun Sharma Titled "Mounds of sand on Sutlej banks, mining mafia digs in"*, a report was sought on the allegation of large scale illegal mining on the bank of River Satluj in District Ropar in the light of directions vide order dated 04.09.2018 in Sudershan Das (supra) and other orders. Accordingly, a report has been received vide email dated 25.02.2019 confirming that illegal mining had taken place. The observations in the inspection report are as follows:

"1. No mining operation was observed during visit of the Committee at the mining sites located in the riverbed.

2. The mining of minor minerals in the riverbed has taken place more than permitted depth of 3 meters, as specified in point no. 4(i) of Form – L appended to the Punjab Minor Mineral Rules, 2013, which is a violation of sustainable mining practice.

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3. *The specified boundaries or demarcation of mine lease area was not demarcated as required for checking illegal mining, substantiates the fact of illegal or unauthorized excavation of minerals.*
4. *From the existing natural level adjoining to the mining site, it we noticed that mining has been carried out in an unscientifically manner as:*
    a) *The mining of minor mineral has been done beyond the permitted depth.*
    b) *No strip of 7.5 m width of the lease boundary as seen left as per provisions of the Metalliferous Mines Regulations, 1961 in compliance to condition imposed in the Mining Plan approved by the State Geologist, Punjab, a serious violation for safety of banks.*
    c) *The contractor has not maintained slope height not exceeding 45 degree from the horizontal width along the boundaries of mining site in compliance to condition no. 12 of the letter vide which mining plan was approved, negligence towards slope stability.*
    d) *The contractor was not providing bench along the boundary of the mining site having height not exceeding 1.5 m and is width should not be less than the height as per condition no. 13 of the letter vide which mining plan was approve.*

1. *From the conditions of the area along the riverbed in revenue estate of village Baihara and Swarha, it seems that the mining has been carried out at the different locations in an unscientific way.*
2. *During the inspection, the impressions of heavy vehicles movement were observed. Also, it was found that road for movement of vehicle were in very bad shape as these roads have not been*

stabilized or metalled with any of construction material and no plantation was observed along the roads.

3. *The development of water sumps as well as erosion of banks due to unscientific mining within the riverbed are threat to river ecological system and make it prone to flooding conditions during full flow. Also, it may cause the course of river to change rapidly and meandering to a great extent.*
4. *No check post was observed during the visit along the routes leading to mining lease area.*
5. *As per stipulation of environmental clearance, the contractor is required to maintain safety and stability of river banks i.e. 3 m or 10% of the width of the river, whichever is more will be left intact as no mining zone. Since no embankment of the riverbed was noticed and there was no demarcation of the mining site, as such, compliance of the above stipulation of the Environmental Clearance could not be verified.*
6. *The contractor has neither done any plantation along with the lease boundary of mining site in compliance to the condition imposed in the approval letter of the Mining plan.*
7. *The stone crusher units nearby the riverbed were observed by the committee. The stone crusher units were observed to be non-operational during visit of the committee, but stock piling of crushed material is indicative of their operation. The heavy machineries like JCB, pokland machines, dumper etc. were observed around the river, which may have been use for illegal mining in the area. Hence, the possession of these types of machines and working of stone crusher units need to be regulated. This issue needs to be monitored by the State."*

34. The Committee further observed.

"The suggestions of the joint committee visit on 20.12.2018 in the report filed in OA no. 767 of 2018 titled as Dinesh Kumar Chadha versus State of Punjab & Others were as follows :

- *The mining activity within the riverbed should not be permitted without the preparation of Comprehensive Mining plan/ District Survey report as required in Sustainable Sand Mining Management Guidelines, 2016 issued by the MoEF by the State of Punjab with replenishment/ scientific study by an institute of national importance and prior recommendations of MoEF & CC.*

- *The State of Punjab may be asked to develop mechanism to stop the illegal extraction and transportation of riverbed material. The mechanism must include the environmental compensation for violators and vehicles used for the purpose to be seized along with prosecution of owners of such vehicles. Including cancellation of registration certificate of such vehicles.*

- *The District Administration may consider establishing the check post barrier at suitable site to check vehicles carrying the riverbed material and to maintain strict vigil over overloading vehicles involved.*

- *The Detailed Survey of river eco system comprising of identification of river stretches affected by unscientific mining should be carried out for preservation and exclusion of stretches from any type of extraction process or mining activity. In addition the auction of identified stretches may not*

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be considered without approved annual replenishment report.

- *The restoration plan of river ecosystem in mine lease area should be enforced for minimizing the impacts of unscientific mining and to improve the riparian habitat. The State of Punjab can be asked to execute the restoration plan within time bound manner.*

- *The demarcation of auctioned mine lease area should be done urgently with pillars/fencing along with geo-referencing to protect the river ecosystem and to avoid bed degradation.*

- *The raw material to be imported, processed, dispatched and balance stock shall be regulated strictly as per the policy guidelines for registration and working of stone crushers in the State of Punjab issued by the Department of Industries and Commerce vide notification dated 19.03.2015.*

- *As regards to initiating action against the erring officials, the Heads of the concerned Departments should identify the erring officials who allowed to take place illegal mining and initiate action against these officials, after conducting detailed investigations.*

The same physical conditions have been noticed during the recent visit on 20.2.2019 at the mining sites located in the revenue estate of village Baihara and Swarha, as such, the suggestions may be considered by the court alongwith the followings:

- *The District Survey Report for the mining site in the area in order to identify depositions / aggradations stretches of the riverbed material should be prepared.*
- *Declaration of safety zones around infrastructures like National Highway, Bridge, Railway line etc. must be ensured for protection as per provisions of the Punjab Minor Minerals Rules, 2013.*
- *Replenishment report including time of replenishment for the mining area to be undertaken by the concerned Authorities for permitting mining.*
- *Strict vigilance to be implemented to ensure no illegal mining / transportation in the bed of river.*

As regards to facts noted regarding mining beneath the bridge on Sri Anandpur Sahib-Garshankar road, besides above, it is suggested as under:

(i) *The Deptt. of Mining is required to ensure the compliance of stipulations of para 4 of Form 'L' appended to the Punjab Mining Minerals Rules, 2013 as regards to no mining area within a distance of 500m upstream /downstream of any high level bridge and 250m upstream / downstream of other bridges.*

(ii) *The Mining department jointly with Deptt. of Irrigation is required to rejuvenate the area near and beneath the above mentioned bridge so as to ensure safety of the same and these departments are required to take necessary safeguards for further safety of the said bridge."*

35. In view of above, directions are called for to the State of Punjab to deal with the issue of sand mining.

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Sand mining in the State of Uttar Pradesh and Haryana

36. O.A. No. 44/2016, Mushtakeem v. MoEF&CC & Ors., involved illegal mining in Uttar Pradesh and Haryana on riverbeds of Yamuna. The matter was disposed of vide order dated 05.09.2018, following directions dated 04.09.2018 in Sudershan Das (supra). In terms of order dated 05.09.2018, no report has been received from the State of Uttar Pradesh. Thus further directions are necessary. A report has been received from Additional Chief Secretary, Haryana vide email dated 05.04.2019 to the effect that the State of Haryana was following the guidelines and will implement revised Sustainable Sand Mining Guidelines issued by the Ministry of Environment, Forest and Climate Change (MoEF&CC) in terms of the order dated 04.09.2018, in *O.A No. 173/2018 (Earlier O.A. No. 89/2017 (EZ) (I.A. No. 76/2019), Sudarsan Das Vs. State of West Bengal & Ors.*

37. In view of the above, further directions are called for to the State of Uttar Pradesh and Haryana to deal with the issue of sand mining.

Sand Mining in the State of Madhya Pradesh

38. Though no case of the State of Madhya Pradesh is listed today, we have taken note of the problem sand mining in the State in O.A. No. 456/2018 Nityanand Mishra v. State of M.P. & Ors., which is pending before this Tribunal and sought report from Committee vide order dated 31.07.2018. Accordingly, a report is submitted & the same is on record of the said case. Extract from the report is as follows:

"Sand mining is directly affecting basking and nesting

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habitats of species in SGS. Mining of sand from the riverbed and river banks will negatively alter the river morphology, will increase sedimentation and turbidity and also disrupt the lateral connectivity within the river. Studies have already shown condition of Son River to be at a critical level with severely compromised river flows. Sand mining will only result in compounding what is an already sub-optimal riverine habitat. Any further degradation of this habitat will potentially make Son River uninhabitable for some of the most threatened fauna in the country. The data from offence registers of SGS as depicted in table 1 does indicate that there has been an increase in the number of cases with respect to the illegal sand mining in the sanctuary area. The information is about cases that were caught and processed by the Forest Department. ***There are many cases that go unnoticed due to inadequate patrolling as everyone informs that one truck generates illegal revenue of Rs. 12,000 and per night 1000 trucks generate illegal revenue of Rs. 1,20,00,000."***

39. In view of above, further directions are necessary for the State of Madhya Pradesh to deal with the issue of sand mining.

Sand Mining in the State of Andhra Pradesh

40. We may also note that in the case of *Anumolu Gandhi V. State of Andhra Pradesh in Original Application No. 935/2018,* illegal sand mining causing damage to Krishna river in Vijayawada, Godavari river and their tributaries in the State of Andhra Pradesh and absence of remedial steps was considered. The Tribunal vide order dated 04.04.2019 directed the Chief Secretary of the State of Andhra Pradesh to forthwith prohibit all unregulated sand mining without following the procedure prescribed under the law in the judgment of the Hon'ble Supreme Court in Deepak Kumar v. State of Haryana. The Tribunal further directed Chief Secretary of the State to evolve a mechanism to assess and recover the cost of sand mining already incurred in the last three years and initiate

steps to recover compensation to meet the cost of restoration of environment. The Tribunal constituted a Committee comprising CPCB, MoEF&CC, National Institute of Mines, Dhanbad, IIT Roorkee and Madras School of Economics to undertake environment damage assessment within three months and furnish a report to this Tribunal by e-mail at ngt.filing@gmail.com.

41. In this light, further directions are called for to the State of Rajasthan and Andhra Pradesh to deal with the issue of sand mining.

Sand Mining in the State of Rajasthan and Himachal Pradesh

42. The problem of illegal sand mining contrary to the directions of the Hon'ble Supreme Court in Deepak Kumar vs. State of Haryana (supra) in the States of Rajasthan, Himachal Pradesh, Karnataka, Madhya Pradesh and Punjab was also considered by this Tribunal in Himmat Singh Shekhawat vs. State of Rajasthan & Ors. (O.A. No. 797/2018) vide order dated 15.03.2019. the Tribunal founds the reports submitted by the States to be unsatisfactory and accordingly directed furnishing of fresh action taken reports. The matter was directed to be listed on 11.07.2019. The said matter may now be listed on 23.07.2019 along with the present batch of matters.

Sand Mining in Bihar

43. This Tribunal vide its order dated 24.08.2018 in Amarshakti v. State of Bihar & Ors. O.A. No. 596/2018 dealt with the issue of illegal sand mining during monsoon in the rivers Son and Ganga at Koelbar and Patna in Bihar. The Tribunal directed the

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Secretary, mines and minerals, Bihar to constitute a team comprising of officers of Mines and Minerals Department and District Magistrate and S.P. Patna to look into the allegations and report compliance to the Tribunal. Report dated 12.10.2018 was received from the Government of Bihar stated that 122 prosecutions were initiated and 297 persons arrested. 32 boats and 287 trucks were seized in District Saran. Action was also taken in District Bhojpur at Ara and District Vaishali at Hajipur. The Tribunal directed the Secretary, Government of Bihar to monitor the matter from time to time and continue to enforce the law.

Sand Mining in Uttarakhand

44. The issue of illegal sand mining in the State of Uttarakhand was also considered by this Tribunal vide its order dated 27.11.2018 in Anand Gopal Singh Bist v. State of Uttarakhand O.A. No. 751/2018 wherein, this Tribunal directed the District Magistrate Nanital and Principal Chief Conservator of Forest, Dehradun to jointly look into the matter. The Tribunal vide its order dated 14.02.2019 directed that the monitoring may continue and the Collector may ensure that Revenue Department performs its duty in accordance with law.

Sand Mining in other States

45. Illegal sand mining in violation of Sustainable Sand Mining Guidelines, 2016 has also been reported widely in the States of

Jammu and Kashmir[17], Goa[18], Kerala[19], Telangana[20] and Tamil and Nadu[21].

46. General directions may be necessary even for Bihar, Uttarakhand, Jammu and Kashmir, Goa, Kerala, Telangana and Tamil Nadu which may also apply to any other States facing the issue of illegal sand mining.

Issues

47. Main issues are:

(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

48. We may now deal with the issues involved and directions required.

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[17] https://greaterkashmir.com/article/news.aspx?story_id=309365&catid=2&mid=53&AspxAutoDetectCookieSupport=1

18 https://timesofindia.indiatimes.com/city/goa/govt-is-ignoring-illegal-sand-mining/articleshow/67908428.cms

[19] Order dated 29.03.2019 in News Item Published In "Indian Express" Authored by Vishnu Verma in O.A. No. 76/2019

[20] https://sandrp.in/2019/02/26/sand-mining-2018-telangana-and-andhra-pradesh/

[21] https://en.wikipedia.org/wiki/Sand_mining_in_Tamil_Nadu

Re (i): 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).

49. As noted in para 12 to 15 above, need for revision of Sustainable Sand Mining Guidelines, 2016 has been discussed by the Tribunal in order dated 04.09.2018. Further discussion is unnecessary. The 2016 Guidelines need revision in the light of report of High Powered Committee in September 2016, failure of Monitoring mechanism followed by State Boards, SEIIAs, DEIAAs and MSS system developed by Ministry of Mines & IBN with the assistance of BISAG and MAITY and other observations quoted in paras 12 to 15 above. Since no report has been received from MoEF&CC as per report dated 04.09.2018, the MoEF&CC may now take necessary steps in the matter in terms of order dated 04.09.2018 in *Sudersan Das* (supra) latest by June 30, 2019 and file compliance report by 15.07.2019.

Re (ii): Compliance of Sustainable Sand Mining Guidelines, 2016 as may be revised by MoEF&CC as above.

50. As noted earlier in paras 17, 23, 27, 31 and 35, States of West Bengal, Odisha, Gujarat, Karnataka, Maharashtra, Punjab, Haryana and Uttar Pradesh are required to follow SSMG, 2016 as may be revised by MoEF&CC and even other States where illegal sand mining is taking place. All such States may take steps in terms of orders dated 04.09.2018 in *Sudarsan Das v. State of West Bengal & ors*, 05.09.2018 in *Mushtakeem v. MoEF&CC & Ors.*, 13.09.2018 in *Satendra Pandey v. MoEF&CC* & Ors. and 16.01.2019 titled Compliance of Municipal Solid Waste

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Management Rules, 2016. The Chief Secretaries may monitor and furnish reports as earlier directed on the subject of sand mining.

Re (iii): Effective monitoring mechanism for preventive and remedial measures as directed in orders of this Tribunal, including surveillance system and recovery of compensation.

51. We have found in the discussion above, particularly in paras 8 to 11, 20, 21, 23, 29, 32, 33, 36, 39, 41 and 43 with regard to factual position in various States that monitoring mechanism-preventive and remedial measures is not effective and illegal sand mining is continuing. The same needs to be reviewed in the light of above discussion. The States may review monitoring mechanism in terms of several directions of the Tribunal and guidelines of MoEF&CC. As regards monetory compensation, the same has to be not only equal to cost of mined material and penalty to evade royalty but also to meet cost of restoration and NPV of eco services fore gone forever. Seizure of vehicles or other equipment may be dealt with as per rules and directions in *Threat to life arising out of coal mining in South Garo Hills district* (supra).

Re (iv): Directions in Individual Cases Listed Today. For the discussion and observation hereinabove, case is made out for issuing directions following discussion on the subject.

52. In *Sudarsan Das (supra)* one of the directions was that the Chief Secretaries of West Bengal and Odisha will prepare a restoration plan in consultation with the Central Pollution Control Board (CPCB), Indian School of Mines, Dhanbad and the Respective State Pollution Control Boards (SPCBs). We are informed that Indian School of Mines, Dhanbad declined to comply with the

order. This may call for remedial action against defiance by the said institution. Order of this Tribunal is a decree of the Court and can be executed in the manner provided under Section 51 CPC by ordering civil imprisonment or adopting other norms. Violation of order of this Tribunal is also a criminal offence punishable by imprisonment and fine. The Head of the Department concerned is liable to be proceeded against. Thus, the Director Indian School of Mines, Dhanbad will have to be required to appear in person to explain why action be not taken for violation of order of this Tribunal. The State of West Bengal, Orissa, Punjab and Gujarat need to send further action taken reports by 30.06.2019.

53. The State of Uttar Pradesh has not complied with the order dated 05.09.2018. This must not be done by way of last opportunity till 30.06.2019, failing which coercive measures will be adopted. Responsibility for compliance will be of the Chief Secretary.

54. In O.A. No. 173/2018, in view of the fact that term of the oversight Committee headed by Justice Ramesh Kumar Merathia, former Judge, High Court of Jharkhand was six months which period is over, the said Committee may now conclude its proceedings and furnish its final report with findings and recommendations on or before April 30, 2019. Further directions in the matter may be considered on the next date.

Re (v): Scale of Compensation

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55. We have held that the scale of compensation proposed by the State of Gujarat does not fully comply with the 'Polluter Pays' principle which envisages that polluter is required to pay for complete restoration of the environment. This principle has been articulated further by the Hon'ble Supreme Court of India in *T.N. Godavarman Thirumulpad vs Union Of India & Ors, (2006) 1 SCC 1* in the context of forests. In this matter, the Hon'ble Supreme Court appointed a committee of experts and following directions were given:

i. To identify and define parameters (scientific, biometric and social) on the basis of which each of the categories of values of forest land should be estimated.

ii. To formulate a practical methodology applicable to different biogeographical zones of India for estimation of the values in monetary terms in respect of each of the above categories of forest values.

iii. To illustratively apply this methodology to obtain actual numerical values for different forest types for each biogeographical zone in the country.

iv. To determine on the basis of established principles of public finance, who should pay the costs of restoration and /or compensation with respect to each category of values of forests.

v. Which projects deserve to be exempted from payment of NPV.

56. Similar criteria may have to be taken into account for arriving at an approximate scale of compensation. The compensation is to

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58. We sum up our directions as follows:

a) MoEF&CC may now take necessary steps in the matter in terms of order dated 04.09.2018 in *Sudersan Das* (supra) latest by June 30, 2019 and file compliance report by 15.07.2019, as already directed.

b) 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 may take steps in terms of orders dated 04.09.2018 in *Sudarsan Das v. State of West Bengal & ors,* 05.09.2018 in, 13.9.2018 in *Mushtakeem v. MoEF&CC & Ors.* and 16.01.2019 in Compliance of Municipal Solid Waste Management Rules, 2016. The Chief Secretaries may monitor and furnish reports as earlier directed.

(c) 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 may review monitoring mechanism in terms of directions of the Tribunal and guidelines of MoEF&CC.

(d) The Director Indian School of Mines, Dhanbad may appear in person on 26.07.2019 to explain why action be not taken for violation of order of this Tribunal.

(e) The State of West Bengal, Gujarat, Karnataka, Maharashtra, Punjab, Uttar Pradesh, Haryana, Madhya Pradesh, Andhra Pradesh, Bihar, Uttarakhand, Jammu and Kashmir, Goa,

include not only the full value of the illegally mined material but also cost of restoration of environment as well as cost of ecological services foregone forever. It should be deterrent so as not to render such illegal activity profitable. In *Sudarsan Das Vs. State of West Bengal & Ors.* (Supra), it was held that full value of the material, the cost of restoration and the NPV should form part of the compensation to be recovered. There has also to be action against the polluters and the erring officers. The vehicles or any other equipment used for illegal mining are required to be confiscated and to be released only on payment of atleast 50% of the showroom value as laid down in *Original Application No.110(THC)/2012, Threat to life arising out of coal mining in South Garo Hills District v. State of Meghalaya& Ors.* This scale can then apply for all States, as far as possible.

57. We consider it necessary to constitute a Committee comprising representatives of the MoEF&CC, Central Pollution Control Board (CPCB), Indian Institute of Forest Management, Bhopal, Institute of Economic Growth Delhi and Madras School of Economics to prepare a scale of compensation, after including the above components which can then be adopted in whole of the country. The report may be furnished within three months to the Tribunal by email at ngt.filing@gmail.com. The nodal agency for compliance and coordination will be CPCB. The Committee may also take professional service of an expert/ institution in the matter if it so desires.

Conclusions

Kerala, Telangana and Tamil Nadu and Himachal Pradesh may send further action taken reports by 30.06.2019.

(f) The Committee in terms of para 59 above may furnish its report within three months to the Tribunal by email at ngt.filing@gmail.com

59. A copy of this order be sent to MoEF&CC, Central Pollution Control Board (CPCB), Indian Institute of Forest Management, Bhopal, Institute of Economic Growth, Delhi and Madras School of Economics, Chennai by email.

List the matter for further consideration on 26.07.2019.

Adarsh Kumar Goel, CP

K. Ramakrishnan, JM

Dr. Nagin Nanda, EM

April 05, 2019
Original Application No. 360/2015
With other connected matters
AS

Annexure - VI

Item Nos. 01 to 15 Court No. 1

BEFORE THE NATIONAL GREEN TRIBUNAL
PRINCIPAL BENCH, NEW DELHI

Original Application No. 360/2015
With
Original Application No. 366/2015
(M.A. No. 02/2019 & M.A. No. 251/2019)
With
Original Application No. 368/2015
(M.A. No. 16/2019 & M.A. No. 170/2019 M.A. No. 213/2019)
With
Original Application No. 173/2018
(Earlier O.A. No. 89/2017 (EZ)
(I.A. No. 76/2019 & I.A. No. 709/2019)
With
Original Application No. 874/2018
With
Original Application No. 44/2016
With
Original Application No. 517/2015
With
Original Application No. 550/2015
With
Original Application No. 530/2016
With
Original Application No. 272/2016
With
Original Application No. 481/2016
With
Original Application No. 540/2015
With
Original Application No. 90/2016
With
Execution Application No. 40/2017
IN
O.A. No. 517/2015
With
Original Application No. 671/2017

National Green Tribunal Bar Association Applicant(s)

Versus

Virender Singh (State of Gujarat) Respondent(s)

WITH

National Green Tribunal Bar Association Applicant(s)

Versus

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Dr.Sarvabhoum Bagali
(State of Karnataka) Respondent(s)

WITH

Sudarsan Das Applicant(s)

Versus

State of West Bengal & Ors. Respondent(s)

With

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

With

Mushtakeem Applicant(s)

Versus

MoEF & CC & Ors. Respondent(s)

With

Sandeep Kumar Applicant(s)

Versus

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

With

Virender Kumar Applicant(s)

Versus

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

With

Sandeep Kumar Applicant(s)

Versus

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

With
M/s Ganga Yamuna Mining Co. Applicant(s)

Versus

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State of Haryana & Ors. Respondent(s)

With

Joginder Singh Applicant(s)

Versus

Ministry of Environment & Forest & Ors. Respondent(s)

With

Ved Pal Singh Applicant(s)

Versus

Ministry of Environment & Forest & Ors. Respondent(s)

With

Chander Mohan Uppal Applicant(s)

Versus

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

With

Sandeep Kumar Applicant(s)

Versus

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

With

Himmat Singh Shekhawat Applicant(s)

Versus

State of Rajasthan & Ors. Respondent(s)

Date of hearing: 08.01.2020

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

For Applicant(s): Mr. Raj Panjwani, Senior Advocate and Mr. Rahul Choudhary, Advocate
Mr. Aageny Sail, Advocate

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For Respondent(s): Mr. Vikas Mahajan, Additional Advocate General For State of HP
Mr. Attin Shankar Rastogi, Advocate, Mr. Ravi Prasad, Additional Secretary and Mr. Sundeep Kumar, for MoEF&CC
Ms. Vipra Bhardwaj, Advocate for CPCB
Ms. Rukmani Bobde, Advocate for State of MP
Ms. Madhumita Bhattacharjee, Advocate for State of West Bengal
Mr. Darpan KM, Advocate for State of Karnataka
Mr. Ankit Verma, Advocate for State of UP
Mr. Rahul Khurana, Advocate for State of Haryana
Mr. Rakesh Kumar, Additional Director Mines, Govt. of Rajasthan
Mr. Shlok Chandra, Advocate for MoEF&CC

ORDER

1. Common question for consideration in this group of matters is the steps required to be taken for environment protection from unregulated sand mining in the States of Gujarat, Karnataka, Maharashtra, West Bengal, Odisha, Punjab, Haryana and Uttar Pradesh. The issue is common even with regard to States who are not party to these proceedings.

2. Vide order dated 04.09.2018 in *O.A. No. 173/2018*, the issue of illegal sand mining on the banks of river Swaran Rekha on Orissa – West Bengal Border was considered in the light of material on record and it was found that illegal sand mining was going on without requisite safeguards and in violation of Sustainable Sand Mining and Management Guidelines, 2016. Further, High Powered Committee constituted under the orders of this Tribunal headed by Secretary, MoEF&CC gave a report in September 2016 suggesting further safeguards. The said report was accepted by this Tribunal and it was directed that the said suggestions were required to be incorporated in the Notification dated 15.01.2016 by which Sustainable Sand Mining and Management Guidelines, 2016 were notified.

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Monitoring mechanism was also required to be straightened. Final directions to the MoEF&CC in the said order are quoted below for ready reference:

> *"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 preferably include ex-servicemen, former teacher and former civil servant. The Committee will be nominated by the District Magistrate.*
>
> *26. Such steps may be worked out within two months and circulated to all States. The Mechanism may provide for a report of implementation from the concerned States every*

quarter. The matter may be reviewed after every six months by the MoEF&CC.

27. The direction with regard to 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 as directed in para (vi) may be an Over-Encompassing Body to monitor the conditions of Environmental Clearance with respect to all development projects.

28. A copy of this order be sent to MoEF&CC by e-mail. Report of the steps taken by MOEF&CC may be furnished to this Tribunal by email at filing.ngt@gmail.com on or before 31.12.2018."

3. Vide order dated 13.09.2018 in *O.A. No. 186/2016, Satyender Pandey Vs. MoEF*, the Tribunal found that Notifications dated 15.01.2016, 20.01.2016 and 01.07.2016 to the extent procedure of environment impact assessment was diluted in violation of judgment of the Hon'ble Supreme Court in *Deepak Kumar Vs. State of Haryana & Ors.: (2012) 4 SCC 629* and also of this Tribunal in O.A. No. 123/2014 dated 13.01.2015 to be unsustainable. This same were also violative of Sustainable Sand Mining and Management Guidelines, 2016 to the extent of dispensing with the public hearing and the same was required to be revised. The direction of this of this Tribunal is quoted below for ready reference:

"25. The MoEF&CC shall, therefore, take appropriate steps to revise the procedure laid down in the impugned Notification dated 15th January, 2016 in terms of the above directions and observations so that it is conformity with the letter and spirit of the directions passed by the Hon'ble Supreme Court in Deepak Kumar (supra)."

The above directions remains to be implemented and on 16.12.2019 in E.A. No. 55/2018, further direction has been issued to ensure compliance failing which coercive measures may be initiated. Matter is listed on 31.01.2020.

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4. The matter was comprehensively considered again on 05.04.2019 with reference to the following specific issues and directions were issued:-

> *"(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."*

5. The matter was thereafter considered on 26.03.2019. With regard to non-compliance of order dated 04.09.2018 in *O.A. No. 173/2018*, it was observed:-

> *"None appeared for the MoEF&CC during hearing but while dictating the order, learned counsel for MoEF&CC suddenly appeared and only casual explanation furnished is that MoEF&CC has approached the Hon'ble Supreme Court. While seeking of reasonable time for compliance on the ground that the matter was pending in higher Court may stand on different footing, there is no justification for unreasonable delay for more than 9 months on the part of the MoEF&CC. Learned counsel for the applicant submitted that in absence of any stay, order of this Tribunal may be enforced by coercive measures. We find merit in the submission but before doing so, we give an opportunity for compliance of the directions and direct Additional Secretary concerned of MoEF&CC to remain present in person with the compliance report and an explanation as to why action be not taken against the person responsible for the default."*

6. The Additional Secretary, MoEF&CC is present in person and his only explanation is that the work involved is intricate and time consuming. We find absolutely no merit in the explanation. It is difficult to understand as to why a competent

team of officers in the Government cannot complete the exercise directed by the Tribunal to safeguard the interest of environment based mainly on High Powered Committee of the Ministry itself, if there is a will to work. The order of this Tribunal, in substance, merely requires incorporation of further safeguards based on High Powered Committee report and observations of this Tribunal into the Sustainable Sand Mining and Management Guidelines, 2016 The attempt appears to be to avoid carrying out the order of this Tribunal for reasons difficult to fathom. Such attitude does not augur well for effective rule of law.

7. As already noted, order dated 13.09.2018 in *O.A. No. 186/2016, Satyendra Pandey, supra* remains uncomplied by the MoEF&CC even though a period of more than one year has passed causing serious prejudice to the environment in continued violation of directions of the Hon'ble Supreme Court and this Tribunal. This is resulted in uncalled for confusion in the mind of statutory authorities dealing with the subject on the ground resulting in illegal mining and avoidable damage to the environment which needs to be urgently safeguarded. MoEF&CC as a responsible body should have taken necessary steps which are not at all difficult to restore effective impact assessment and safeguards in terms of observations of this Tribunal. This does not involve any long or complicated procedure. We do not see any difficulty in officers of MoEF&CC in understanding the issue or executing the orders of this Tribunal, if there is will to do so. We hope that the said order will now be positively complied before the next date, failing

which this Tribunal will have no other option except for taking coercive action against the erring officers of the MoEF&CC. As already noted sufficient opportunity has already been given in the last more than one year and there has been total failure so far.

8. Every order of this Tribunal, subject to further order of a Constitutional Court, is a binding decree. Rule of law requires its strict compliance. Any violation thereof is a criminal offence under the National Green Tribunal Act, 2010. In the present case, either there is no intention to comply or no competence which is wholly undesirable situation. Only course left with this Tribunal in the circumstances is coercive measures as per law. We do hope that the same will now be positively complied with before the next dated. The Additional Secretary may remain present on the next date.

9. Other issue is the report of CPCB on the subject of fixing the amount of environmental compensation. Though a report has been furnished but it has deficiencies which have been pointed out during the hearing. The same may be rectified positively before the next date. The reports of the States about compliance will be considered on the next date.

List again on 31.01.2020.

Adarsh Kumar Goel, CP

S.P Wangdi, JM

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Dr. Nagin Nanda, EM

Siddhanta Das, EM

January 08, 2020
O.A. No. 360/2015 and other connected matters
A

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Item Nos. 04 to 18 Court No. 1

BEFORE THE NATIONAL GREEN TRIBUNAL PRINCIPAL BENCH, NEW DELHI

(By Video Conferencing)

Original Application No. 360/2015 (With report dated 30.01.2020)

National Green Tribunal Bar Association Applicant(s)

Versus

Virender Singh (State of Gujarat) Respondent(s)

AND

Original Application No. 366/2015

National Green Tribunal Bar Association Applicant(s)

Versus

Dr. Sarvabhoum Bagali (State of Karnataka) Respondent(s)

AND

Original Application No. 368/2015

National Green Tribunal Bar Association Applicant(s)

Versus

Dr. Sarvabhoum Bagali (State of Karnataka) Respondent(s)

AND

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

Sudarsan Das Applicant(s)

Versus

State of West Bengal & Ors. Respondent(s)

AND

Original Application No. 874/2018

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

AND

Original Application No. 44/2016

Mushtakeem — Applicant(s)

Versus

MoEF & CC & Ors. — Respondent(s)

AND

Original Application No. 517/2015

Sandeep Kumar — Applicant(s)

Versus

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

AND

Original Application No. 550/2015

Virender Kumar — Applicant(s)

Versus

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

AND

Original Application No. 530/2016

Sandeep Kumar — Applicant(s)

Versus

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

AND

Original Application No. 272/2016

M/s Ganga Yamuna Mining Co. — Applicant(s)

Versus

State of Haryana & Ors. — Respondent(s)

AND

Original Application No. 481/2016

Joginder Singh — Applicant(s)

Versus

Ministry of Environment & Forest & Ors. — Respondent(s)

AND

Original Application No. 540/2015

Ved Pal Singh — Applicant(s)

Versus

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

AND

Original Application No. 90/2016

Chander Mohan Uppal — Applicant(s)

Versus

State of U.P. & Ors. — Respondent(s)

AND

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

Sandeep Kumar — Applicant(s)

Versus

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

AND

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

Himmat Singh Shekhawat — Applicant(s)

Versus

State of Rajasthan & Ors. — Respondent(s)

Date of hearing: 17.08.2020

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

Applicant(s):	Mr. Sravan Kumar, Advocate in OA173/2018
Amicus:	Mr. Raj Panjwani, Senior Advocate with Mr. Aagney Sail, Advocate in OA 366/2015
Respondent(s):	Mr. Divya Prakash Pandey, Advocate for CPCB Mr. Attin Shankar Rastogi, Advocate and Mr. Balendu Shekhar, Advocate for MoEF&CC Mr. Ankit Verma, Advocate for State of UP Mr. Parath H. Bhatt, Advocate for State of Gujarat

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. The Ministry of Environment, Forest and Climate Change (MoEF&CC) issued 'Sustainable Sand Mining and Management Guidelines, 2016' under the provisions of the Environment (Protection) Act, 1986 (EP Act, 1986) on 15.01.2016. This Tribunal constituted a High-Powered Committee headed by the Secretary, MoEF&CC which gave its report in September 2016, suggesting further safeguards. Vide order dated 04.09.2018 in *OA 173/2018, Mushtakeem*

v. MoEF & Ors., the Tribunal directed revision of the guidelines in the light of the said report with further suggestions.[1]

2. Further, vide order dated 13.09.2018 in *O.A. No. 186/2016, Satyender Pandey Vs. MoEF*, further direction was issued to strictly

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

enforce the judgment of the Hon'ble Supreme Court in *Deepak Kumar Vs. State of Haryana & Ors.: (2012) 4 SCC 629* as it was found that the said judgment was being diluted by dispensing with the requirement of public hearing.

3. On reviewing the compliance of the above directions in above batch of matters on 05.04.2019, following issues were framed for consideration and further directions were issued with reference to the above 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."*

4. Thereafter, the matter was considered on 26.07.2019 and it was found that the MoEF&CC had not complied with the directions of this Tribunal without any justification only on the ground that the MoEF&CC was approaching the Hon'ble Supreme Court. What was required to be done was to incorporate the safeguards suggested by the High-Powered Committee and to remedy non-compliance of the order of the Hon'ble Supreme Court in *Deepak Kumar (supra)*, apart from considering certain further suggestions to strengthen the monitoring mechanism. The Tribunal also noted that CPCB was required to give report about scale of environmental compensation and States were required to give report of the steps taken to enforce the sustainable sand mining norms.

5. The matter was thereafter considered on 08.01.2020 and the matter was deferred. On later date, it was brought to our notice that *Civil Appeal No(s). 3799-3800/2019* has been filed by the MoEF&CC which

came up for hearing on 31.01.2020. The Hon'ble Supreme Court observed that the Tribunal may adjourn proceedings against officials of MoEF&CC. Keeping in mind the observations of the Hon'ble Supreme Court, the matter was deferred and has been taken up for consideration today without going into the matter for earlier non compliance by the officers of the MoEF&CC.

6. We have considered the compliance report filed by the MoEF&CC on 28.01.2020 to the effect that all necessary suggestions have been included in "Enforcement and Monitoring Guidelines for Sand Mining, 2020". The new guidelines have been uploaded on the website of the Ministry on 27.01.2020. The guidelines have been communicated to all the States.

7. We have also perused the report of the CPCB dated 30.01.2020 prepared by the following:

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

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-* *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:

"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)."*

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%*

"

13. We have heard learned Senior Counsel Shri Panjwani for the applicants and learned Counsel for the MoEF&CC and CPCB. Learned Amicus has submitted that the method for determining compensation suggested is complex and misses the present ecological value. Choice of discount rates has further complexity. Direct compensation approach method is preferable but needs to be modified as follows:

"a. The market value (MV) is based on scheduled market rates.

b. Risk of Loss to Ecology Factor (RLEF) - it is proposed that there be just two levels of risk factors (Loss to Ecology) - medium and high.

c. Restitution of Ecology Cost Factor (RCF) – this factor is proposed to provide for resources for restoration of the ecology that is lost due to the mining.

d. Deterrence factor - It is proposed the deterrence factors are dropped, for simplification of calculations.

e. Therefore, the calculation would now be as follows:

i. EQ – extent of illegally mined quantity of sand
ii. MP – Scheduled market price
iii. Risk of loss to ecology factor (RLEF) – medium - 0.4 and high – 0.7
iv. Restitution cost factor (RCF) – 0.3

f. Therefore, the calculation would therefore be Ecological Damage (ED)
= EQ x MP x (Risk of Ecological Loss Factor + Restitution Cost factor)

g. In case the market price is not available or is artificially low, then it may be prudent to use the Royalty rates as the base value, instead of market rates. In such a scenario, the Risk Factor's and Restitution cost factors would need to be increased accordingly.

h. The report rightly assumes that the compensation for ecological damage would be in addition to the loss of the illegally mined material due to confiscation, and additional penalties as per the applicable state level regulations. It is also submitted that the seizure of vehicles and equipment and compounding fees charged for the same must be continued as they provide a direct deterrence to the operators involved in the same.

i. The application of this modified method would require a simple identification of the medium and high risk zones for mining. This would be done by the state and district administration led by the state pollution control board officials in consultation with the mining, forest, fishery, irrigation and public works department officials and experts. Till this identification is undertaken, in adherence to the precautionary principle, all areas should be treated as high risk zones.

j. For example, if 1000 cubic metres of sand ***is seized*** *from a* ***high risk zone*** *(with RLEF =0.7) , and the market price of the seized sand is Rs*

100 per cubic meter, i.e. with a market value of Rs 100,000, then the RLEF + RCF would be 0.7 + 0.3 = 1.0 and the calculation would be as follows.

i. Ecological Damage (ED) = EQ x MP x (Risk of Ecological Loss Factor + Restitution Cost factor)

ED = 1000 m3 x Rs 100 / m3 x (0.7 + 0.3)
= 1000 x (1.0)
= Rs 100,000

*ii. If the sand **seized** is from a **low risk zone**, then the RLEF would be 0.4 and the RCF would be 0.3 , with an additive total factor value of 0.7, and the total compensation amount would be as follows:*

ED = 1000 m3 x Rs 100 / m3 x (0.4 + 0.3)
= 1000 x (0.7)
= Rs 70,000

*iii. In a scenario where the sand is **not seized,** but there is evidence of illegal sand mining on the ground, then an additional factor of 1.0 should be added to the ED formula, as follows:*

*Ecological Damage (ED) = EQ x MP x (No seizure factor of **1.0** + Risk of Ecological Loss Factor + Restitution Cost factor)*

*iv. Therefore, as in the previous example if there is evidence of illegal mining (**but no seizure**) of 1000 cubic metres from a high risk zone (with RLEF =0.7) , and the market price of the sand is Rs*
100 per cubic meter, i.e. with a market value of Rs 100,000, then the total additive factor would be 1.0 + RLEF + RCF = 2.0 and the calculation would be as follows.

Ecological Damage (ED) = EQ x MP x (No seizure factor of 1.0 + Risk of Ecological Loss Factor + Restitution Cost factor)

ED = 1000 m3 x Rs 100 / m3 x (1 + 0.7 + 0.3)
= 100,000 x (2.0)
= Rs 200,000

*v. If there is evidence of illegal mining (**but no seizure**) in a **low risk zone**, then the RLEF would be 0.4, the RCF would remain at*
0.3 , and an additional no seizure factor of 1.0 would be added with a total additive value of 1.7, and the total compensation amount would be as follows:

ED = 1000 m3 x Rs 100 / m3 x (1.0 + 0.4 + 0.3)
= 1000 x (1.7)
= Rs 1,70,000"

14. We are of the view that the suggestion of Shri Panjwani needs to be looked into by the same Committee and thereafter the scale of compensation finalized. The Committee may also undertake scenario

analysis in the same manner as for per approach 1 and 2. Shri Panjwani is at liberty to interact with the Member Secretary, CPCB.

15. Let the report of the said Committee be furnished by the CPCB within one month 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.

16. Shri Panjwni seeks time to respond to the revised guidelines issued by the MoEF&CC. We accordingly grant time and defer consideration thereof.

List for further consideration on 14.10.2020.

Adarsh Kumar Goel, CP

S. P. Wangdi, JM

Dr. Nagin Nanda, EM

August 17, 2020
Original Application No. 360/2015
and other connected matters
DV

Appendix- VIII

BEFORE THE HON'BLE NATIONAL GREEN TRIBUNAL,
Principal Bench, New Delhi
In
Original Application No. 360/2015

In the Matter of: -

National Green Tribunal Bar Association Applicant(s)

Vs.

Virender Singh (State of Gujarat) Respondent(s)

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1.	Compliance Report of CPCB in the matter of O.A. No. 360/2015 titled as National Green Tribunal Bar Association Vs. Virender Singh (State of Gujarat) in compliance of Hon'ble NGT order dated 17.08.2020.	
2.	Annexure- I Minutes of the meeting of the committee of experts held on 11.09.2020.	
3.	Annexure-II Hon'ble NGT order dated 17.08.2020.	

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

Place: Delhi
Date: 12.10.2020

Compliance Report of CPCB

(Order dated 17.08.2020 of Hon'ble National Green Tribunal-Principal Bench in O.A. 360 of 2015)

2. Reports filed by CPCB in this matter

In compliance of Order dated 05.04.2029 of Hon'ble National Green Tribunal - Principal Bench in O.A. 360 of 2015 (13 clubbed cases), Central Pollution Control Board filed in NGT on 06.01.2020 the "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 Committee of Expert recommended two approaches regarding the scale of compensation to deal with the cases of illegal sand mining, namely, Approach 1: Direct Compensation based on the market value of extraction, adjusted for ecological damages, and Approach 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

3. Observations and Recommendations of Amicus and Order dated 17.08.2020

The above revised Recommendations of the Committee of Experts were again taken up by Hon'ble NGT on 17.08.2020 wherein Hon'ble NGT heard the observation of the Amicus on the Recommendations of the Committee of Experts that - "*the method for determining compensation suggested is complex and misses the present ecological value and the choice of discount rates (in the second approach) has further complexity, and that the direct compensation approach method (the first approach) is preferable but needs to be modified as follows: ...*".

The modified approach suggested by the Amicus is quoted in Para 13 of Order dated 17.08.2020 of Hon'ble NGT.

Hon'ble NGT vide Order dated 17.08.2020 further directed that "*the suggestion of (Amicus) Shri Panjwani needs to be looked into by the same Committee and thereafter the scale of compensation finalized. The Committee may also undertake scenario analysis in the same manner as for per approach 1 and 2. Shri Panjwani is at liberty to interact with the Member Secretary, CPCB.*"

4. Examining of the Recommendations of the Amicus by the Committee of Expert

The Environmental Compensation (EC) as per Approach 1 suggested by the Committee of Experts in brief is as below (full Recommendations submitted in NGT on 30.01.2020 are available at NGT website):

EC = D*(1+RF+DF)

The Amicus expressed preference to Approach 1, but gave suggestion for its modifications. The Environmental Damage (ED) as per the alternate proposal of the Amicus, in brief is as below (full proposal is quoted in the Order dated 17.08.2020):

ED = (EQxMP)*(RELF+RCF)

Basic similarities and differences in the above two proposal are as below:

- The D in the first proposal and EQxMP in the second one practically denote the same thing i.e. market value of the illegally mined material.
- The RF (Risk Factor) in the first proposal and RELF (Risk of Loss to Ecology Factor) in the second one both are based on similar concerns as apparent by the names, but different ranges of these factors have been suggested in the two proposals, RF - from 0.25 to 1.0 in the first and RELF - 0.3 to 0.7 in the second.
- The remaining corresponding factors, DF (Deterrent Factor) in the first proposal and RCF (Restitution of Ecology Cost Factor) in the second one have different ranges/value of these factors are suggested in the two proposals, i.e. DF - from 0.3 to 1.0 and RCF- 0.3.
- The range of the overall multiplication factors by which the market value of the illegally mined material will be multiplied to arrive at the EC/ED in variable cases is 1.55 to 3.0 as per the proposal of Committee of Experts, and it is 1.7-2.0 as per the proposal of the Amicus.

In compliance of the Order dated 17.08.2020 a meeting of the Committee of Experts to discuss the alternate proposal of the Amicus regarding EC/ED to deal with cases of illegal mining was convened by CPCB on 11.09.2020 at 11.00 am through video conference. All experts examined the alternate proposal of the Amicus and unanimously expressed that instead of the alternate proposal, the proposal of the Expert Committee submitted by CPCB in NGT on 30.01.2020 may be considered. Minutes of the Committee meeting are annexed as Annexure-I.

***

Minutes of Meeting of Committee of Experts constituted in the matter of Hon'ble NGT OA No. 360/2015 regarding preparation of scale of compensation to be adopted in whole country.

Hon'ble NGT in OA No. 360/2015 in the matter of National Green Tribunal Bar Association Vs. Virender Singh (State of Gujarat) and 13 other clubbed cases regarding illegal sand mining, vide order dated-17.08.2020 directed committee to look into the suggestion of Amicus in the matter and scale of compensation to be finalized.

In view of above, a meeting of committee of experts was convened on at 11:00 AM on 11.09.2020 through video-conferencing in CPCB. Committee experts and officials of CPCB were present in the meeting.

Shri Nazimuddin, Additional Director & Head - IPC-II Division, welcomed the committee experts and explained the purpose of the meeting through briefing the order, apprised that no further inputs have been received from Amicus Curiae and requested experts to provide their views and opinion in the matter.

Dr. K.S. Kavikumar, Professor, MSE Chennai, said that the scale of compensation suggested in the committee report (submitted earlier in NGT) that the compensation should not include the market value of seized material as material is recovered. Further, he highlighted the importance of **risk factor and deterrence factor** adopted for calculating the compensation and expressed to stick to the scale of compensation suggested by committee experts.

Dr. Yogesh Dubey, Associate Professor, IIFM Bhopal, expressed that the ease of application of the scale of compensation is understandable, simpler and useful to its applicant (inspection team or local authorities) and agreed that **risk factor and deterrence factor** are key factors in the suggested scale of compensation and needs to be retained.

Dr. Purnamita Dasgupta, Professor, IEG Delhi, agreed with the views of other committee experts to retain the scale of compensation suggested by the committee. Further, she said that the objectives of scale of compensation is not limited to only levying compensation but it was also to halt the further ecological damage in the country. The formula suggested also takes care of the need for recognising the heterogeneity of the conditions of river basins existing in the country by incorporating a range of risk and deterrence factors. She expressed that the **risk factor and deterrence factor** are important. The scale of compensation suggested by the committee is overall straightforward enough for computing compensation and maybe considered for adoption.

Shri A. Sudhakar, Scientist E, CPCB Delhi, suggested that the scale of compensation suggested by committee may be adopted for few years and subsequently may be revised based on the suggestions of the State Authorities. He agreed with other experts for inclusion of **risk factor and deterrence factor** as suggested by the committee in the scale of compensation, and expressed that the compensation should be deterrent enough in order to prevent the illegal mining by anyone.

Shri Sundeep, Director, MoEF&CC Delhi, said that the scale of compensation suggested by committee was an interim arrangement to act as guiding factor for the purpose till the detailed studies are conducted. He opined that scale of compensation suggested by the committee was comprehensive, could be applied to specific sites and for which, **risk factor and deterrence factor** were included. Further, he expressed that the rationale behind the suggestion of amicus in reference to factor to be adopted is not fully explained. Also, he opined that ecological damage cannot only be governed with respect to illegal mined material, instead it need to be governed on the basis of ground factors. He supported the views of other committee experts to stick to scale of compensation suggested by the committee.

Meeting ended with vote of thanks to committee experts.

उत्तर प्रदेश प्रदूषण नियंत्रण बोर्ड
UTTAR PRADESH POLLUTION CONTROL BOARD

संदर्भ सं0 Ref. No 53/C-2/अन्य/NGT Cell-52/20 दिनॉक Date 18-12-20

सेवा में,

माननीय सदस्य, ओवरसाइट कमेटी,
पर्यावरण निदेशालय, विनीत खण्ड–1
गोमती नगर,
लखनऊ।

विषयः मा0 एन0जी0टी0 में विचाराधीन ओ0ए0 संख्या 360/2015 में पारित आदेश दिनांक 08.01.2020 के अनुपालन की समीक्षा हेतु मा0 ओवरसाइट कमेटी की दिनांक 21.12.2020 को आहूत वीडियो कान्फ्रेसिंग के सम्बंध में।

महोदय,

कृपया मा0 ओवरसाइट कमेटी के ई–मेल दिनांक 09.12.2020 का संदर्भ ग्रहण करने का कष्ट करें। उक्त के अनुकम में मा0 एन0जी0टी0 में विचाराधीन ओ0ए0 संख्या 360/2015 में पारित आदेश दिनांक 08.01.2020 के अनुपालन के संबंध में समीक्षा बैठक हेतु उ0प्र0 प्रदूषण नियंत्रण बोर्ड से सम्बंधित बिन्दुओं पर वांछित सूचनायें संलग्न कर आवश्यक कार्यवाही हेतु सादर प्रेषित हैं।

भवदीय,

(अजय कुमार शर्मा)
मुख्य पर्यावरण अधिकारी वृत्त–2

संलग्नक–यथोपरि।

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Regional Office	CTE			CTO Air			CTO Water			EC imposed	No of defaulter Units on which EC has been imposed
	Granted	Rejected	Pending	Granted	Rejected	Pending	Granted	Rejected	Pending		
Ghaziabad	0	0	0	0	0	0	0	0	0	0	0
Noida	0	0	1	0	0	1	0	0	1	0	0
Greater Noida	0	0	0	0	0	1	0	0	1	0	0
Kanpur Nagar	0	0	0	0	0	0	0	0	0	0	0
Banda	10	0	0	47	0	0	47	0	0	0	0
Jhansi	5	0	0	7	0	2	7	0	2	0	0
Sonbhadra	0	0	0	0	0	0	0	0	0	345254000	7
Kanpur Dehat	0	0	0	0	0	2	0	0	2	0	0
Prayagraj	0	0	0	8	0	4	8	0	4	0	0
Meerut	0	0	0	0	0	1	0	0	1	0	0
Saharanpur	0	0	0	0	0	0	0	0	0	0	0
Muzaffarnagar	3	0	0	2	0	1	2	0	1	1113750	2
Aligarh	1	0	0	1	0	0	1	0	0	0	0
Mathura	0	0	0	0	0	0	0	0	0	0	0
Bulandshahar	0	0	0	0	0	0	0	0	0	0	0
Firozabad	0	0	0	0	0	0	0	0	0	0	0
Agra	0	0	0	0	0	0	0	0	0	0	0
Lucknow	0	0	0	0	0	0	0	0	0	0	0
Unnao	0	0	0	0	0	0	0	0	0	0	0
Raebareli	0	0	0	0	0	0	0	0	0	0	0
Varanasi	0	0	0	0	0	0	0	0	0	0	0
Gorakhpur	0	0	0	0	0	0	0	0	0	0	0
Basti	0	0	0	0	0	0	0	0	0	0	0
Azamgarh	0	0	0	0	0	0	0	0	0	0	0
Faizabad	0	0	0	0	0	0	0	0	0	0	0
Bareilly	0	0	0	0	0	0	0	0	0	0	0
Moradabad	0	0	0	0	0	0	0	0	0	0	0
Bijnor	0	0	0	0	0	0	0	0	0	0	0
Total	19	0	1	65	0	12	65	0	12	346367750	9

Appendix- X

Enforcement & Monitoring Guidelines for Sand Mining

Ministry of Environment, Forest and Climate change

January, 2020

Table of Content

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1.0 INTRODUCTION

The Ministry of Environment Forest & Climate Change formulated the Sustainable Sand Management Guidelines 2016 which focuses on the Management of Sand Mining in the Country. But in the recent past, it has been observed that apart from management and systematic mining practices there is an urgent need to have a guideline for effective enforcement of regulatory provision and their monitoring.

Section 23 C of MMDR, Act 1957 empowered the State Government to make rules for preventing illegal mining, transportation and storage of minerals. But in the recent past, it has been observed that there was large number of illegal mining cases in the Country and in some cases, many of the officers lost their lives while executing their duties for curbing illegal mining incidence. The illegal and uncontrolled illegal mining leads to loss of revenue to the State and degradation of the environment.

India is developing at a faster pace and much technological advancement has already been taken place in the surveillance and remote monitoring in the field of mining. Thus, it is prudent to utilize the technological advancement for the effective monitoring of the mining activities particularly sand mining in the country.

Use of latest remote surveillance and IT services helps in effective monitoring of the sand mining activity in-country and also assist the government in controlling the illegal mining activity in the country. Thus, there is a need for an effective policy for monitoring of sand mining in the Country which can be enforced on the ground. These guidelines focus on the effective monitoring of the sand mining since from the identification of sand mineral sources to its dispatch and end-use by consumers and the general public. Further, the effective monitoring and enforcement require efforts from not only Government agencies but also by consumers and the general public.

It is the responsibility of every citizen of India to protect the environment and effective monitoring can only be possible when all the stakeholders viz. Central Government, State Government, Leaseholders/Mine Owners, Distributors, Dealers, Transporters and Consumers (bulk & retail) will contribute towards sustainable mining, and comply with all the statutory provisions. It is felt necessary to identify the minimum requirements across all geographical region to have a uniform protocol for monitoring and enforcement of regulatory provision prescribed for sustainable sand and gravel mining.

This document will serve as a guideline for collection of critical information for enforcement of the regulatory provision(s) and also highlights the essential infrastructural requirements necessary for effective monitoring for Sustainable Sand Mining.

The document is prepared in consideration of various orders/directions issued by Hon'ble NGT in matters pertaining to illegal sand mining and also based on the reports submitted by expert committees and investigation teams.

Further, this document is supplemental to the existing "Sustainable Sand Mining Management Guideline-2016" (SSMG-2016), and these two guidelines viz. "Enforcement & Monitoring Guidelines for Sand Mining" (EMGSM-2020) and SSMG-2016 shall be read and implemented in sync with each other. In case, any ambiguity or variation between the provision of both these document arises, the provision made in "Enforcement & Monitoring Guidelines for Sand Mining-2020 "shall prevail.

2.0 NEED FOR POLICY GUIDELINES

The Ministry of Environment, Forest & Climate Change (MoEF&CC) published Environmental Impact Assessment Notification 1994 which is only applicable for the Major Minerals more than 5 ha. In order to cover the minor minerals also into the preview of EIA, the MoEF&CC issued EIA Notification 2006 for Major & Minor Mineral more than 5 Ha. The Hon'ble Supreme Court in its Judgment dated the 27th February 2012 in I.A. No.12- 13 of 2011 in Special Leave Petition (C) No.19628-19629 of 2009, in the matter of Deepak Kumar etc. Vs. State of Haryana and Others etc. made prior environment clearance mandatory for mining of minor minerals irrespective of the area of mining lease. In order to comply with the judgment of Hon'ble Supreme Court, the Ministry issued S.O.141 (E) dated 15.01.2016. Further, MoEF&CC published Sustainable Sand Mining Management Guidelines 2016 for scientific and sustainable sand mining in the Country. The recommendations for the management of sustainable sand extraction are the key objective of the Guidelines. Special emphasis is given on monitoring of the mined out material, which is key to the success of the environmental management plan. Use of IT and IT-enabled services for effective monitoring of the quantity of mined out material and transportation along with process re-engineering has been made a part of the Guidelines. Guidelines support the fundamental concept, promote environmental protection, limit negative physiological, hydrogeological and social impacts underpinning sustainable economic growth.

The Hon'ble NGT in its order dated 04.09.2018 in O.A. 173/2018 in the matter of Sudarsan Das vs. State of West Bengal & Ors. Inter-alia observed that *"**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."

The Hon'ble NGT in its order dated 04.09.2018 in O.A. 173/2018 in the matter of Sudarsan Das vs. State of West Bengal & Ors. directed that ***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:***

- *Mining Surveillance System discussed in para 23 above be finalized in consultation with ISRO Hyderabad.*
- *Safeguards suggested in Sustainable Sand Mining Guidelines published by the MoEF&CC in the year 2016.*
- *Suggestions in the High Power Committee Report.*
- *The requirement of demarcation of boundaries being published in respect of different leases in the public domain.*
- *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 the cost of mining material as well as the cost of ecological restoration and the net present value of future ecosystem services forgone.*
- *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.*

- *The Mining Department may make a provision for keeping apart at least 25% of the value of mined material for the restoration of the area affected by the mining and also for compensating the inhabitants affected by the mining.*

- *One of the conditions of every lease of mine or minerals would be that there will be independent environmental audit at least once in a year by reputed third party entity and report of such audit be placed in the public domain.*

- *In the course of such an environmental audit, a three-member committee of the local inhabitants will also be associated. Composition of three members committee may preferably include ex-servicemen, a former teacher and former civil servant. The Committee will be nominated by the District Magistrate.*

The Hon'ble NGT in its order dated 05.09.2018 in O.A. 44/2016 in the matter of Mushtakeem Vs. MoEF & CC & Ors. Inter-alia observed the following:

"Para 20. In Original Application No. 481/2016, the allegation is that there is the connivance of the District Administration with the miners and mining is going in violation of conditions of Environmental Clearance. According to the applicant, an effective mechanism is required to be evolved so that illegal mining does not place."

"Para 22. We proceed to consider the main question proposed for the consideration stated earlier hereinabove as to ***how to ensure the protection of the environment by checking illegal mining."***

"Para 23. We have dealt with the identical issue relating to the illegal sand mining in the border districts in the State of West Bengal and Odisha in the order dated 04th September 2018 in Sudarsan Das Vs. State of West Bengal & Ors., Original Application No. 173 of 2018. We have directed the MoEF&CC to revise the guidelines on the subject for an effective mechanism for sand mining, relevant portions of which are reproduced below: -..."

The Hon'ble NGT in its order dated 10.09.2018 in O.A. 304/2015 in the matter of Jai Singh & Anr.Vs. Union of India Ors. inter-alia observed the following:

"Para 6. After disposal of the above matters, a disturbing event widely reported in media which took place on 07th September 2018 has been brought to our notice. ***A Deputy Ranger who tried to stop illegal mining was killed by mining mafia at Morena in the State of M.P.***

"Para 7. The above disturbing event may also be kept in mind by the MoEF, while considering the issuance of revised guidelines in light of the judgment dated 05th September 2018 (Supra)."

The Hon'ble NGT in its order dated 05.04.2019 in O.A. 360/2015 in the matter of National Green Tribunal Bar Association & Anr.Vs. Union of India & Ors. inter-alia observed the following:

"*The 2016 Guidelines need revision in the light of the report of High Powered Committee in September 2016, failure of Monitoring mechanism followed by State Boards, SEIIAs, DEIAAs and MSS system developed by Ministry of Mines & IBM with the assistance of BISAG and MAITY and other observations quoted in paras 12 to 15 above.*

50. As noted earlier in paras 17, 23, 27, 31 and 35, States of West Bengal, Odisha, Gujarat, Karnataka, Maharashtra, Punjab, Haryana and Uttar

Pradesh are required to follow SSMG, 2016 as may be revised by MoEF&CC and even other States where illegal sand mining is taking place.

The States may review the monitoring mechanism in terms of several directions of the Tribunal and guidelines of MoEF&CC.

The international conservation concern regarding natural wealth is a universal demand. Article 51(a) subsection (G) of the constitution requires every citizen of India to protect and improve the natural environment including forest, lakes, rivers, wildlife and to have compassion for the living creature.

The Hon'ble Supreme Court in the case of M.C. Mehta Vs. Kamal Nath (1997) 1 SCC 388 held that under Article of Indian Constitution incorporates the "Public Trust Doctrine" and as such extents to the protection of all-natural resources which includes the protection of flora and fauna.

The Hon'ble Supreme Court in the case of Vellore Citizens Welfare Forum Vs. Union of India & Ors (1996) held that the precautionary principle is part of the Environmental Law in India. It further stated that onus of proof is on the actor of the developer/industrialize to show that its actions are environmentally benign."

3.0 OBJECTIVE OF GUIDLINES

- Identification and Quantification of Mineral Resource and its optimal utilization.
- To regulate the Sand & Gravel Mining in the Country since its identification to its final end-use by the consumers and the general public.
- Use of IT-enabled services & latest technologies for surveillance of the sand mining at each step.
- Reduction in demand & supply gaps.
- Setting up the procedure for replenishment study of Sand.
- Post Environmental Clearance Monitoring.
- Procedure for Environmental Audit.
- To control the instance of illegal mining.

4.0 REQUIREMENTS FOR MONITORING & ENFOCEMENT

Sustainable Sand Mining Management Guidelines (SSMMG) 2016 and past experience suggest that the source of sand in India are through

a) River (riverbed and flood plain),
b) Lakes and reservoirs,
c) Agricultural fields,
d) Coastal / marine sand,
e) Palaeo-channels and
f) Manufactured Sand (M-Sand).

The SSMMG-2016 highlights the identification of the sand mining sources, replenishment of the River Bed Material (Sand, Boulder, Gravel, Cobble etc.), preparation of Districts Survey Report, and Standard Environmental Conditions suitable for sand mining projects.

The necessary requirements to comply with the direction of Hon'ble NGT and to facilitate effective monitoring and enforcement of regulatory provision for sand mining in the country are as follows:

i) Identification of sand mining sources, its quantification and feasibility for mining considering various environmental (proximity of protected area, wetlands, creeks, forest etc.) and other factors such as important structures, places of archaeological importance, habitation, prohibited area etc.

ii) The mining lease auctioned by State government as per their Minor Mineral Concession Rules are granted of Letter of Intent (LoI), but it has been observed that many of the sites are not suitable w.r.t environmental aspects. In most of the cases, the unplanned grant of mining lease leads to formation of cluster and/or contiguous cluster

of small mining leases which sometimes is difficult to regulate and monitor. In order to address such issues, more emphasis is required on the preparation of District Survey Report and its format for reporting,

iii) Mining Plan is an important document to assist the mine owner to operate the mine in a scientific manner. States have their own format for preparation of mining plan and it is observed that recording of the initial level of mining lease at shorter interval say 25m X 25 m grid interval is not present.

iv) There is no practice for regular replenishment study to ascertain the rate of depositing, plan and section needs to be prepared based on the restrictions provided in letter of intent and provisions of Sustainable Sand Mining Management Guidelines 2016.

v) Environmental Clearance is a process wherein the regulatory authorities after considering the potential environment impact of mining clearance is granted with a set of specific & standard conditions to carry out mining operations, but often it is observed that letter of intent is granted for a location which has less potential for mining and not feasible for environment-friendly mining. This leads to an unnecessary financial burden on the mine owners and litigations. Thus, LoI should be preferably granted for those locations which have the least possibility of an impact on the environment and nearby habitation.

vi) It is the responsibility of the mine owner to obtain all the statutory clearance and comply with the conditions stipulated in the clearance letter. Mining should be carried out within the mining lease area as per

approved mining plan or mining plan concurred by other regulatory authorities.

vii) Mining operation also involves transportation of mineral from the mining area to end-user and its necessary that movement of the mineral needs to be monitored.

The State Government already have power under section 23c of MMDR, Act 1957 to make rules for preventing illegal mining, transportation and storage of minerals. However, there are instances of illegal mining which shows that there is a need for strengthening the system of mineral dispatch and its monitoring. This document provides good practices already under implementation by various states for regulating the mineral sale, dispatch, storage, transportation and use.

viii) The river reaches with sand provide the resource and thus it is necessary to ascertain the rate of replenishment of the mineral. Regular replenishment study needs to be carried out to keep a balance between deposition and extraction. This document provides the procedure to be followed for conducting replenishment study.

ix) Even after all the regulatory procedure and policy being in place, there are instances where illegal mining is taking place. There is a need for regular surveillance of the sand mining reaches. The monitoring agencies can monitor the sites remotely by using Unmanned Artificial Vehicles (UAVs)/Drone which is now a viable option. The drone can also be used for reserves estimation, quantity estimation, land use monitoring. This document highlights possible use of IT/Satellite/Drone technology for effective monitoring of sand mining.

4.1 Identification of possible sand mining sources and preparation of District Survey Report (DSR)

4.1.1 Preparation of District Survey Report.

"Sustainable Sand Mining Guidelines, 2016" issued by MoEF&CC requires preparation of District Survey Report (DSR), which is an important initial step before grant of mining lease/LoI. The guidelines emphasize detailed procedure to be followed for the purpose of identification of areas of aggradation/ deposition where mining can be allowed and identification of areas of erosion and proximity to infrastructural structures and installation where mining should be prohibited. Calculation of annual rate of replenishment, allowing time for replenishment after mining, identification of ways of scientific and systematic mining; identifying measures for protection of environment and ecology and determining measures for protection of bank erosion, benchmark (BM) with respect to mean Sea Level (MSL) should be made essential in mining channel reaches (MCR) below which no mining shall be allowed.

The Hon'ble NGT in its Judgment dated 08.12.2017 in the matter of Anjani Kumar vs State of Uttar Pradesh & Ors. inter-alia mentioned the following regarding sand mining in the Uttar Pradesh.

> *"It states that the main object of preparation of District Survey Report is to ensure identification of areas of aggradation/deposition where mining can be allowed and identification of areas of erosion and proximity to infrastructural structures and installation where mining should be prohibited and calculation of annual rate of replenishment and allowing time for replenishment after mining area. Thus, the environmental protection requires a strictly regulated mining in terms of area, quantity as well as most importantly replenishment thereof."*

"The data collection and declared for preparation of DSR shall take precedence over other data and would form the foundation for providing mining lease in terms of Appendix- x to the Notification dated 15th January 2016 must be prepared by the statutory authority stated therein i.e. DEIAA prior to awarding of permits for carrying on mining activity in any part of the State of UP."

The Hon'ble High Court of Jharkhand at Ranchi in its orders dated the 11th April 2018 and 19th June 2018 in W.P. (PIL) No. 1806 of 2015, in the matter of Court on its Own Motion Versus the State of Jharkhand & Others with W.P. (PIL) No. 290 of 2013, in the matter of Hemant Kumar Shilkarwar Versus the State of Jharkhand & Others, has inter-alia directed the preparation of District Survey Report for minor minerals other than Sand and Bajri or delegation of the powers for preparation of format of District Survey Report of minor minerals other than sand and Bajri to the State Government and/or District Environment Impact Assessment Authority and District Expert Appraisal Committee. To comply with the direction of Hon'ble High Court the Ministry has issued S.O. 3611(E) dated 25.07.2018, wherein, the procedure of preparation of DSR is mentioned. But it is felt that still there is other information that needs to be reported in DSR to make it a comprehensive DSR.

Therefore, preparation of District Survey Report is a very important step and sustainable sand mining in any part of the country will depends on the quality of District Survey Report.

Considering the importance of district survey report, the Ministry of Environment Forest and climate change, after consultation with experts dealing with mining-related matters, formulated the following guidelines for the preparation of comprehensive District Survey Report for sand mining.

a) District Survey Report for sand mining shall be prepared before the auction/e-auction/grant of the mining lease/Letter of Intent (LoI) by Mining department or department dealing the mining activity in respective states.

b) The first step is to develop the inventory of the River Bed Material and Other sand sources in the District. In order to make the inventory of River Bed Material, a detailed survey of the district needs to be carried out, to identify the source of River Bed Material and alternative source of sand (M-Sand). The source will include rivers, de-siltation of reservoir/dams, Patta lands/Khatedari Land, M-sand etc.

The revenue department of Kerala already conducted river mapping and sand auditing of around 20 rivers of Kerala which is a good example wherein the profile of rivers was created at regular intervals and aggradation/deposition was identified along with water level. In the same study, benchmarks were also created at a prominent location at regular interval for future surveying. Such study helps the mining departments to identify the source of sand.

Thus, it is proposed that for preparation of district survey report, the auditing of rivers needs to be carried out. There is already a provision under MMDR Act 2015 for National Mineral Exploration Trust (MET) wherein a 2% of royalty amount to be deposited in the trust. This fund is used for mineral exploration in the country. The Sand Auditing is also a sort of identification of mineral and State Government may request Central Govt. for proving funds for river auditing. The Central Govt. (Ministry of Mines) may also explore the possibilities for providing the funds for river auditing. The other option is that State Govt. may conduct such studies by its own fund and the same may be recovered from the leaseholders to whom the mining lease will be allocated.

c) District Survey Report is to be prepared in such a way that it not only identifies the mineral-bearing area but also define the mining and no mining zones considering various environmental and social factors.

d) Identification of the source of Sand & M-Sand. The sources may be from Rivers, Lakes, Ponds, Dams, De-silting locations, Patta land/Khtedari lands. The details in case of Rivers such as [name, length of river, type (Perennial or Non-Perennial), Villages, Tehsil, District], in case of Lakes, Ponds, Dams, De-silting locations [Name, owned/maintained by (State Govt./PSU), area, Villages, Tehsil, District] in case of Patta land/Khtedari lands [Owner Name, Sy No, Area, Agricultural/Non-Agricultural, Villages, Tehsil, District], in case of M-Sand Plant [Owner Name, Sy No, Area, Quantity/Annum, Villages, Tehsil, District], needs to be recorded as per format given in **Annexure-I.**

e) Defining the sources of Sand/M-Sand in the district is the next step for identification of the potential area of deposition/aggradation wherein mining lease could be granted. Detailed survey needs to be carried out for quantification of minerals. The purpose of mining in the river bed is for channelization of rivers so as to avoid the possibility of flooding and to maintain the flow of the rivers. For this, the entire river stretch needs to be surveyed and original ground level (OGL) to be recorded and area of aggradation/deposition needs to be ascertained by comparing the level difference between the outside riverbed OGL and water level. Once the area of aggradation/deposition are identified, then the quantity of River Bed Material available needs to be calculated. The next step is channelization of the river bed and for this central ¾th part of the river, width needs to be identified on a map. Out of the ¾th part area, where there is a deposition/aggradation of the material needs to be identified. The remaining ¼th area needs to be kept as no mining zone for the

protection of banks. The specific gravity of the material also needs to be ascertained by analyzing the sample from a NABL accredited lab. Thus, the quantity of material available in metric ton needs to be calculated for mining and no mining zone.

Note: As physical survey with conventional method is time-consuming, use of unmanned aerial vehicle (UAV) may be explored to carry out the survey and finalizing the original ground level and for developing a 3D model of the area.

f) The permanent boundary pillars need to be erected after identification of an area of aggradation and deposition outside the bank of the river at a safe location for future surveying. The distance between boundary pillars on each side of the bank shall not be more than 100 meters.

g) Identifying the mining and no mining zone shall follow with defining the area of sensitivity by ascertaining the distance of the mining area from the protected area, forest, bridges, important structures, habitation etc. and based on the sensitivity the area needs to be defined in sensitive and non-sensitive area.

h) Demand and supply of the Riverbed Material through market survey needs to be carried out. In addition to this future demand for the next 5 years also needs to be considered.

i) It is suggested that as far as possible the sensitive areas should be avoided for mining, unless local safety condition arises. Such deviation shall be temporary & shall not be a permanent feature.

j) The final area selected for the mining should be then divided into mining lease as per the requirement of State Government. It is suggested the mining lease area should be so selected as to cover the entire deposition area. Dividing a large area of deposition/aggradation into smaller

mining leases should be avoided as it leads to loss of mineral and indirectly promote illegal mining.

k) Cluster situation shall be examined. A cluster is formed when one mining lease of homogenous mineral is within 500 meters of the other mining lease. In order to reduce the cluster formation mining lease size should be defined in such a way that distance between any two clusters preferably should not be less than 2.5 Km. Mining lease should be defined in such a way that the total area of the mining leases in a cluster should not be more than 10 Ha.

l) The number of a contiguous cluster needs to be ascertained. Contiguous cluster is formed when one cluster is at a distance of 2.5 Km from the other cluster.

m) The mining outside the riverbed on Patta land/Khatedari land be granted when there is possibility of replenishment of material. In case, there is no replenishment then mining lease shall only be granted when there is no riverbed mining possibility within 5 KM of the Patta land/Khatedari land. For government projects, mining could be allowed on Patta land/Khatedari land but the mining should only be done by the Government agency and material should not be used for sale in the open market. Cluster situation as mentioned in para k above is also applicable for the mining in Patta land/Khatedari land.

n) The State Government should define the transportation route from the mining lease considering the maximum production from the mines as at this stage the size of mining leases, their location, the quantity of mineral that can be mined safely etc. is available with the State Government. It is suggested that the transportation route should be selected in such a way that the movement of trucks/tippers/tractors from the villages having habitation should be avoided. The transportation route so

selected should be verified by the State Government for its carrying capacity.

o) Potential site for mining having its impact on the forest, protected area, habitation, bridges etc, shall be avoided. For this, a sub-divisional committee may be formed which after the site visit shall decide its suitability for mining. The list of mining lease after the recommendation of the Committee needs to be defined in the following format given in as **Annexure-II**. The Sub-Divisional Committee after the site visit shall make a recommendation on the site for its suitability of mining and also records the reason for selecting the mining lease in the Patta land. The details regarding cluster and contiguous cluster needs to be provided as in **Annexure-III**. The details of the transportation need to be provided as in **Annexure IV.**

p) **Public consultation-**The Comments of the various stakeholders may be sought on the list of mining lease to be auctioned. The State Government shall give an advertisement in the local and national newspaper for seeking comments of the general public on the list of mining lease included in the DSR. The DSR should be placed in the public domain for at least one month from the date of publication of the advertisement for obtaining comments of the general public. The comments so received shall be placed before the sub-divisional committee for active consideration. The final list of sand mining areas [leases to be granted on riverbed & Patta land/Khatedari land, de-siltation location (ponds/lakes/dams), M-Sand Plants (alternate source of sand)] after the public hearing needs to be defined in the final DSR in the format as per **Annexure-V.** The details regarding cluster and contiguous cluster needs to be provided in **Annexure-VI**. The details of the transportation need to be provided in **Annexure-VII.**

4.2 Grant of Letter of Intent to those mining leases which are falling in potential mining zone

The State Government shall issue letter of intent as per procedure laid down in their Minor Mineral Concession Rules with due consideration of final district survey report. The State Government shall ensure that all the letter of intent shall have complete details of the mining lease including geo-coordinate of the corner points, the involvement of forest land, distance from the forest land, distance from the protected area, distance from other sites of archaeological importance, details of the cluster situation etc. The demarcation of the boundaries of LoI/Lease area shall be placed in public domain along with LoI/lease deed details.

The LOI should not be granted for mining area falling on both riverbed and outside riverbed. Therefore, in the same lease, both types of area should not be included.

The authority responsible for grant of lease for sand mining shall ensure that annual audit of the sand mining process, production and compliance of the imposed conditions by regulatory authority (Environmental clearance or mine plan) shall be one of the essential condition of the lease agreement. The annual audit report shall be submitted to the district administration, which shall be put in public domain through the district website. Any deviation observed shall be appropriately and in-accordance with applicable law shall be dealt by the concerned authority and corrective measures shall also be taken to restoration of ecological/environmental damage, if observed.

4.3 Mining Plan

The preparation of Mining Plan is also very important. The mining plan should include the original ground level recorded at an interval not more than 10M x 10M along & across the length of the river. In addition to this-levels, outside the mining lease and bank of the river up to meters needs to be recorded. In the mining plan, there should be 3 plates for each year production & development planning (pre-monsoon, monsoon and post-monsoon). The time period of monsoon should be defined in the DSR. At the time of review of the mining plan, the details of the replenishment study conducted for all the years needs to be included in the mining plan. The Mining Plan should include the certificate from PCCF on forest land, distance from the protected area, past production details for mining leases seeking expansion.

Following considerations shall be kept in mind for sand/gravel mining while approving mining plan

a) Parts of the river reach that experience deposition or aggradation shall be identified. The Leaseholder/ Environmental Clearance holder may be allowed to extract the sand and gravel deposit in these locations to manage aggradation problem.

b) The distance between sites for sand and gravel mining shall depend on the replenishment rate of the river. Sediment rating curve for the potential sites shall be developed and checked against the extracted volumes of sand and gravel.

c) Sand and gravel may be extracted across the entire active channel during the dry season.

d) Abandoned stream channels on the terrace and inactive floodplains be preferred rather than active channels and their deltas and flood plains. The stream should not be diverted to form the inactive channel.

e) Layers of sand and gravel which could be removed from the river bed shall depend on the width of the river and replenishment rate of the river.

f) Sand and gravel shall not be allowed to be extracted where erosion may occur, such as at the concave bank.

g) Segments of the braided river system should be used preferably falling within the lateral migration area of the river regime that enhances the feasibility of sediment replenishment.

h) Sand and gravel shall not be extracted up to a distance of 1 kilometre (1 km) from major bridges and highways on both sides, or five times (5x) of the span (x) of a bridge/public civil structure (including water intake points) on up-stream side and ten times (10x) the span of such bridge on down-stream side, subjected to a minimum of 250 meters on the upstream side and 500 meters on the downstream side.

i) The sediment sampling should include the bed material and bed material load before, during and after the extraction period. Develop a sediment rating curve at the upstream end of the potential reach using the surveyed cross-section. Using the historical or gauged flow rating curve, determine the suitable period of high flow that can replenish the extracted volume. Calculate the extraction volume based on the sediment rating curve and high flow period after determining the allowable mining depth.

j) Sand and gravel could be extracted from the downstream of the sand bar at river bends. Retaining the upstream one to two-thirds of the bar and riparian vegetation is accepted as a method to promote channel stability.

k) The flood discharge capacity of the river could be maintained in areas where there is a significant flood hazard to existing structures or infrastructure. Sand and gravel mining may be allowed to maintain the natural flow capacity based on surveyed cross-section history. Alternatively, off-channel or floodplain extraction is recommended to allow rivers to replenish the quantity taken out during mining.

l) The Piedmont Zone (Bhabhar area) particularly in the Himalayan foothills, where riverbed material is mined, this sandy-gravelly track constitutes excellent conduits and holds the greater potential for groundwater recharge. Mining in such areas should be preferred in locations selected away from the channel bank stretches.

m) Mining depth should be restricted to 3 meters and distance from the bank should be ¼th or river width and should not be less than 7.5 meters.

n) The borrow area should preferably be located on the riverside of the proposed embankment because they get silted in the course of time. For low embankment, less than 6 m in height, borrow area should not be selected within 25 m from the toe/heel of the embankment. In the case of the higher embankment, the distance should not be less than 50 m. In order to obviate the development of flow parallels to the embankment, crossbars of width eight times the depth of borrow pits spaced 50 to 60 meter center-to-center should be left in the borrow pits.

o) Demarcation of mining area with pillars and geo-referencing should be done prior to the start of mining.

p) A buffer distance /un-mined block of 50 meters after every block of 1000 meters over which mining is undertaken or at such distance as may be the directed/prescribed by the regulatory authority shall be maintained.

q) A buffer distance /unmined block of 50 meters after every block of 1000 meters over which mining is undertaken or at such distance as may be the directed/prescribed by the regulatory authority shall be maintained.

r) River bed sand mining shall be restricted within the central 3/4th width of the river/rivulet or 7.5 meters (inward) from river banks but up to 10% of the width of the river, as the case may be and decided by regulatory authority while granting environmental clearance in consultation with irrigation department. Regulating authority while regulating the zone of river bed mining shall ensure that the objective to minimize the effects of riverbank erosion and consequential channel migration are achieved to the extent possible. In general, the area for removal of minerals shall not exceed 60% of the mine lease area, and any deviation or relaxation in this regard shall be adequately supported by the scientific report.

s) Mining Plan for the mining leases(non-government) on agricultural fields/Patta land shall only be approved if there is a possibility of replenishment of the mineral or when there is no riverbed mining possibility within 5 KM of the Patta land/Khatedari land. For government projects mining could be allowed on Patta land/Khatedari land but the mining should only be done by the Government agency and material should not be used for sale in the open market.

The minerals reserve for river bed area is calculated on the basis of maximum depth of 3 meters and margins, width and other dimensions as mentioned in para (s) above. The area multiplied by depth gives the volume and volume multiplied with bulk density gives the quantity in Metric Ton. In case of river bed, mineable material per hectare area available for actual mining shall not exceed the maximum quantity of 60,000 MT per annum.

4.4 Obtaining Environmental & Other Statutory Clearance

The LOI Holder/Lease Holder to obtain Environmental and Other Statutory Clearances from the concerned authorities as per provision of applicable laws.

4.5 Baseline date before Commencement of Mining Operations

Baseline data in respect of the initial level of mining lease in the interval not more than 25 X 25 meters shall be collected for record by leaseholder. The level of river bed upstream and downstream up to 100 meters also needs to be recorded. The area outside the mining lease/river bank (if lease boundary coincides with mining lease) up to 100 meters from both the banks/mining lease needs to surveyed for initial level.

4.6 Additional measures where project proponent is selected by a bidding

In those states where sand plots are auctioned to the highest bidder, the following is suggested:

It has been observed that bidders try to form a cartel and bids are received for certain plots where legal mining is done, and bids for certain other plots don't elicit any response. Sand from these un-

auctioned plots is then excavated using the same machinery deployed for the excavation of adjacent plot which might have been auctioned off. It is not easily possible for the field machinery to prevent such illegal activities. This may be prevented by having plot of larger size. plots are large in size as possible are identified for auction. Care may be taken to ensure that no continuous stretch of plot in the river bed is divided for auction. A continuous stretch of plot shall be preferred for auction, and the attempt may not be made to auction it off in pieces.

5.0 REPLENISHMENT STUDY

The need for replenishment study for river bed sand is required in order to nullify the adverse impacts arising due to excessing sand extraction. Mining within or near riverbed has a direct impact on the stream's physical characteristics, such as channel geometry, bed elevation, substratum composition and stability, in-stream roughness of the bed, flow velocity, discharge capacity, sediment transport capacity, turbidity, temperature etc. Alteration or modification of the above attributes may cause an impact on the ecological equilibrium of the riverine regime, disturbance in channel configuration and flow-paths. This may also cause an adverse impact on in-stream biota and riparian habitats. It is assumed that the riparian habitat disturbance is minimum if the replenishment is equal to excavation for a given stretch. Therefore, to minimize the adverse impact arising out of sand mining in a given river stretch, it is imperative to have a study of replenishment of material during the defined period.

5.1 Generic Structure of Replenishment Study

Initially replenishment study requires four surveys. The first survey needs to be carried out in the month of April for recording the level of mining lease before the monsoon. The second survey is at the time of closing of mines for monsoon season. This survey will provide the quantity of the material excavated before the offset of monsoon. The third survey needs to be carried out after the monsoon to know the quantum of material deposited/replenished in the mining lease. The fourth survey at the end of March to know the quantity of material excavated during the financial year. For the subsequent years, there will be a requirement of only three surveys. The results of year-wise surveys help the state government to establish the replenishment rate of the river. Based on the replenishment rate future auction may be planned.

The replenishment period may vary on nature of the channel and season of deposition arising due to variation in the flow. Such period and season may vary on the geographical and precipitation characteristic of the region and requires to be defined by the local agencies preferable with the help of the Central Water Commission and Indian Meteorological Department. The excavation will, therefore, be limited to estimated replenishment estimated with consideration of other regulatory provisions.

5.2 Methodology for Replenishment Study

The replenishment estimation is based on a theoretical empirical formula with the estimation of bedload transport comprising of analytical models to calculate the replenishment estimation. The iso-pluvial maps of IMD can be used for estimation of rainfall. Catchment yield is computed using different standard empirical formulas relevant to the geographical and channel attributes. eg. Strange's Monsoon runoff curves for runoff coefficient). Peak flood discharge for the study area can be calculated by using Dickens, Jarvis and Rational formula at 25, 50 and 100 years return period. The estimation of bed load transport using Ackers and White Equation or similar can be made. A simulation model is used with basic data generated from the field in the pre-study and post-study period (preferably pre-monsoon and post-monsoon) to estimate the volume of replenished material. The particle size distribution and bulk density of the deposited material are required to be assessed from a NABL recognized laboratory. Considering the bulk density and the volume, the estimation of replenishment in weight will be calculated after considering safeguards and stability of the slopes and riverine regime. Some of the common methods used for field data acquisition for replenishment study

5.2.1. Physical survey of the field by the conventional method

i. The conventional survey technical using DGPS and other survey tools are used to define the topography, contours and offsets of the lease area. The survey should clearly depict the important attributes of the stretch of the river and its nearby important civil and other feature of importance. Such information will provide the eligible spatial area for mining. The contour and the elevation benchmarks will provide the baseline data for assessing the pre and post-study period scenario.

ii. Physical benchmarks are to be fixed at appropriate intervals (preferable 1 in 30 m) and the Reduced Level (RL) shall be validated from a nearby standard RL. These RL should be engraved on a steel plate (Bench Plate) and shall be fixed and placed at locations which are free from any damages and are available in pre and post-study period. The bench plates shall be available for use during the mining period as reference for all mining activity. Reference pillar may also be used in place of Bench Plates with visible and readable demarcation on the ground as common reference points to control the topographic survey and mining activity.

iii Baseline data on elevation status for a grid of 10 m x 10 m is preferred to have accuracy in the assessment. It is expected that two consecutive cross-sections in longitudinal and lateral direction should not be more than 10-meter distance apart, however, the regulatory authority may fix these intervals depending on the geographical and site-specific conditions, only and after providing the scientific reason for such deviation.

iv The changes observed in the elevation in per and post scenario at each node should be depicted in graphical forms with an appropriate scale to estimate the area of deposition and erosion. These graphical

presentations should depict the active channel regime and the flow bed elevation with other important features required to be considered for estimation of the mining area. The area of deposition and erosion shall be calculated for each cross-section after giving due regard to the stability and safety of active channel banks, and other features of importance. The elevation level shall be in reference to the nearest bench-plates established for the purpose.

v The levels (MSL & RL) of the corner point of each grid should be identifiable and safety barriers (Non-Mining) demarcated as restricted in consensus with Mineral Concession Rules of respective State, and the provision mentioned in this Sustainable Sand Mining Management Guidelines.

vi A clear identification is required to be highlighted between grids under mineable and grids under the non-mineable area. These baseline data (pre and post) be subjected to stimulation with the help of data mine software to derive at the replenishment area and corresponding volume and estimated weight.

vii The database should be structured in a tabulated form clearly depicting the nomenclature of the section lines, latitude and longitude of the starting point, chain-age and respective levels of all the points taken on that section line.

viii Net area shall be derived after the summation of the area of deposition minus area of erosion for each cross-section. The volume will be estimated by multiplying the distance between two cross-sections with the average of net area of these two consecutive cross-sections.

ix One sample per 900 square meters (30 m x 30 m) shall be preferred sample density for assessment of bulk density for estimation of deposition rate. Care should be taken that the sample for assessment

of bulk density is taken from the deposition zone and not from erosion. However, depending on the site condition, river morphology and geographical condition, sample density may be adjusted. Reason for such deviation shall be appropriately highlighted in the report with supporting scientific data.

5.2.2. Use of UAV/Drone and other image data processing techniques

With the development in image data processing tools and its accuracy acceptability, Drone/UAV fitted with the advance camera are used for survey purposes. Such technology has promising potential in the survey of sand mining zones due to its fast and reliable output deliveries. The survey is conducted using a set of instruments and compatible software to utilized the properly referenced data for depicting the topography of the study area. Instrument calibration and software compatibility and its validation with the ground data are an essential requirement for using this technique.

The details of the instruments their limitation and software used shall be demonstrated in the form of the accuracy assessment report, through a chapter in the replenishment study report. Other details to be incorporated in the report with regard to the study using such imaginary techniques shall highlight the followings:

a) **Flight Planning:** - The lease co-ordinates and the flight plan devised to capture the front and side overlap percentages for in each flight in reference to global coordinates (Kml or SHP file) system. The software used for the purpose and its details along with limitations with basic analytical assumptions.

b) **Block file generation:** - This operation concerns the selection of the sensor model and the definition of block properties, the addition of

imagery to the block file, marking of GCPs, generation of tie points and refining of the model.

c) **Interior orientation:** - The interior orientation of the stereo pair rational polynomial coefficients (RPC) used, which should be bundled with the scenes. RPCs are coefficient, which is used by photogrammetric software to represent the ground to-image viewing geometry.

d) **Exterior orientation:** For exterior orientation, ground control points shall be used, which are collected from the DGPS survey.

e) **Aero Triangulation:** - A critical phase in photogrammetric mapping is to rectify the satellite imagery at an appropriate tract on the surface of the earth. This is accomplished by collecting horizontal and vertical data [GCP's] to ascertain the spatial location of a number of features that are visible and measurable on the aerial images – this process is often called control bridging, which refers to passing horizontal and vertical information from one aerial image to the next.

f) **Ortho Generation:** - After running the above steps; the software shall automatically generate orthorectified imagery.

g) **DTM extraction:** For extraction of DTM, Generated point cloud data classified manually to extract bare earth.

5.2.3 Accuracy Assessment of Aerial Data:

To check the accuracy of DTM generated by Aerial data, few points are selected and compared with on-site by using DGPS instrument for the ground-truthing purpose. It is preferred to do ground-truthing at minimum 5 locations spread evenly across the lease area. The readings from the DGPS instrument are then compared with the Drone data for accuracy assessment

purpose. A comparative chart will be prepared in comparison of Data related to ground-truthing (by DGPS) and from Drone. Such accuracy assessment report shall a chapter of the replenishment study.

5.2.4 Replenishment study shall have the details of

- List of instruments
- List of software
- Establishment of Benchmark by putting No. of pillar points and various Ground Control Points (GCP) at the site.
- Ground Control Points (GCP) Collection: - Various GCPs were observed by using DGPS for Permanent Benchmarks and for control points.
- The summary of the elevation data from each section's profile based on the post-monsoon the survey should have mentioned in the table form.
- The detail of post-monsoon survey data in the tabular form shall be
- The detailed comparison of both pre-monsoon and post-monsoon elevation data shall be attached
- Cross-sectional depiction of deposition and erosion for each section in pre and post-deposition season shall be given supported by relevant field study data and plan.

6.0 ENFORCEMENT

6.1 Mining Operation:

The mining operations should be strictly carried out in accordance with the approved mining plan and after complying with all the conditions stipulated in Environmental & Other Statutory Clearance. Mine owner shall follow the operational procedure (for sale, dispatch, storage, reserve reconciliation and transportation) as may be defined by the concerned state government in its monitoring guidelines. Mine owner should comply with the recommendation and suggestion made by the High Power Committee as applicable.

6.2 Post Environment Clearnace Monitoring:

It's the responsibility of the EC Holder to comply with the Environmental Clearance conditions and upload the six-monthly EC compliance report on the website of the Ministry. For the category, 'A' mines (>100 Ha individual & cluster) Regional Office of the MoEF&CC are entrusted to carry out EC Monitoring and for the Category 'B' Mines by SEIAA. The monitoring shall be carried out as per the procedure/schedule suggested by MoEF&CC from time to time. MOEF&CC vide its notification S.O. 637(E) dated 28.02.2014 has delegated the power to State/Union Territory Environmental Impact Assessment Authority to issue show cause notice to project proponent in case of violation of Conditions of Environmental Clearance issued by the said authority and to issue direction for keeping the said EC in abeyance or withdrawing it. Thus, for category 'B' (0 to 100 Ha) projects SEIAAs are responsible for EC monitoring.

6.3 Environment Audit:

The Hon'ble NGT in its order dated 04.09.2018 in O.A. 173/2018 in the matter of Sudarsan Das vs. State of West Bengal & Ors. Inter-alia directed

that "*One of the conditions of every lease of mine or minerals would be that there will be independent environmental audit at least once in a year by reputed third party entity and report of such audit be placed in the public domain. In the course of such an environmental audit, a three-member committee of the local inhabitants will also be associated. Composition of three member's committee may preferably include ex-servicemen, a former teacher and former civil servant. The Committee will be nominated by the District Magistrate.*

The gazette notification on environmental audit has been issued by the Ministry of Environment and Forests on March 13, 1992 (amended vide notification GSR 386 (E) dated April 22, 1993). This notification applies to every person carrying on an industry, operation or process requiring consent to operate under Section 25 of the Water (Prevention and Control of Pollution) Act, 1974 (6 of 1974) or under section 21 of the Air (Prevention and Control of Pollution) Act, 1981 (14 of 1981), or both, or authorization under the Hazardous Waste (Management and Handling) Rules, 1989, issued under the Environment (Protection) Act, 1986 (29 of 1986). The notification requires that an Environmental Statement for the financial year ending the 31st March be submitted to the concerned State Pollution Control Board, on or before the 30th September of the same year.

It is suggested that NABET Accredited consultant may be engaged for Environment Audit and during the course of the audit, a three-member committee nominated by District Magistrate shall be associated.

6.4 Monitoring of Sale & Purchase of Sand:

6.4.1 In order to curb illegal mining it is very necessary that the general public is aware of the legal source of sand and RBM suppliers. The Ministry of Mines issued ***Sand Mining Framework 2018*** wherein it has proposed two mechanisms for the online sale of sand depending on whether there is a free market for sand in the State or the prices are regulated by the Government.

Para 1.2.12.2 Under the market model

In the case of the market model, all the lessees/ certified dealers in the State should register themselves on the online portal/ mobile app. For registering, the lessee/ certified dealer will have to enter the details of its concession/ stockyard, location, the quantity of sand expected on a weekly basis, as per the approved mining plan. Once registered, the online portal/ app will display the name of the reach/ stockyard and sand could be booked by the consumer from those leases/ stockyards and prices up to the delivery level. Further, the lessee/ certified dealer needs to regularly update the sand available in the reach/ stockyard, and they can decide the price at which they want to sell their sand. Anyone who wishes to purchase sand in the State will have the following options for buying:

1. *Mobile app*
2. *Online portal*
3. *Customer care/ telephone call*
4. *Licensed traders*

The consumer needs to register on the portal and log in using his/her credentials (Aadhar card based only). After logging in, the portal will display the entire list of reaches/ stockyards along with the quantity of sand available in those reaches/ stockyards and the quality and price of

sand. The consumer can filter/ sort the reaches/ stockyards based on such parameters as location, quality and price, and book from the lease/ stockyard he/she wishes to. The consumer should also have the option to purchase the sand by ordering at customer care. Also, stockyards should be made around all the major consumption hubs in the State based on their estimated demand.

Para 1.2.12.3 Controlled market prices

In case the prices are regulated by the State Government, the only difference from the previous model is that the price of sand at the river reach/ stockyard shall be uniform across the State/ district based on the quality and transportation lead. A consumer after logging in may choose the reach/ stockyard from which he/she wishes to purchase the sand. The payment for booking the sand in both the cases should be made on the portal/ app so that proper accounting of the sale of sand can be maintained by the Government. Also, stockyards should be made around all the major consumption hubs in the State based on their estimated demand.

It is suggested that the State Government should develop an online portal for sale and purchase of Sand & RBM. In addition to this State Government shall decide on the model viz. *Under market model or Controlled market prices or both* to be adopted for their respective States. The State Government shall accordingly modify their Minor Mineral Concession Rules within 6 months of publication of these guidelines. It is suggested that the controlled price model is more effective in controlling illegal sand mining. Because if the State Government is the only agency to provide the sand in the State, then price and supply of sand can be controlled more effectively. There will be no confusion in the consumers about legality of the purchase as the only source of sand provider is the State Government through its network of registered stockiest, retailers and transporters. The consumers

can fill the online request, pay the amount, select the transporter and give its feedback after the receipt of the sand. The transportation can also be controlled as the tippers used for transportation is registered tippers with GPS facility, the transportation route is well defined for easy monitoring, control over overloading of tippers, control over spillage of mineral etc. The State Govt. shall also make provision for penalizing the persons/agency buying the sand and RBM from the illegal sources.

6.4.2 The Ministry of Mines in its Sand Mining Framework also mentioned the following different level of monitoring:

Para 1.2.13.1 Level 1- Reach/ Stockyard level monitoring

For monitoring of the active reaches:

a. *Quantity of sand to be extracted from the reach should be based on the quantity of sand assessed in the reach by the Joint Inspection Team.*

b. *The lease boundary should be demarcated with geo-coordinates or geo-fenced to ensure that sand extraction is going on only within the permitted area.*

c. *De-casting from river beds should be monitored on a regular basis to keep a track of excavated quantity.*

d. *After every two years, a mandatory audit of the quantity extracted and quantity permitted along with the replenishment rate.*

e. *Mandatory e-pass/ e-permit should be made available at reach level for transportation of any sand by any GPS enabled vehicle with the provision of entering the vehicle number of the sand carrying vehicle and expected delivery address and customer name/ mobile number. Also, provision should be made available for stockyards/ stockiest of sand. In the case of*

nomination based (controlled pricing) business model, the margin of private stockist should be capped over a fixed percentage of notified prices.

f. At the stockyard, the stock supervisor should verify the authenticity of online payment receipt before issuing the transit pass. The loading of sand should be monitored electronically and all transporting vehicles should pass through an electronically monitored weighbridge. g. Real-time data capture for transportation

Para 1.2.13.2 Level 2 - Transportation monitoring

To make transportation monitoring effective and useful, all the sand carrying vehicles (tractors/ trucks) should be registered with the department and GPS equipment should be installed in all the sand carrying vehicles. Weighbridges with CCTV should be installed at all the stockyards, active reaches to ascertain the exact quantity of sand being transported in the vehicle. Check posts with CCTV cameras should be established near all major consumption centres to check if all the transporting vehicles are carrying a valid transport permit. The transport permit generated should contain the security features mentioned under section 5.11 so that one permit cannot be re-used by generating photocopies of the permit.

Para 1.2.13.3 Level 3 - End consumer monitoring/ bulk consumer

For end consumer monitoring, a customer grievance redressal center should be established to enquire about the grievances faced by the sand consumers. The telephone number of the call center should be advertised so that it reaches the general public through which anyone in the State can register his/her complain related to the sand, be it in terms of price or any other grievance. Additionally, profiles of customers should be analyzed such as the delivery of sand at the same address, usage pattern and its comparison with the estimated usage, as mentioned in purpose, etc. Further, surprise checking

should be conducted by the district level committee staff as per instructions of the monitoring agency.

Para 1.2.13.4 Level 4 - Indirect monitoring

Indirect monitoring can be done by determining sand consumption through the quantum of cement sales in the State, as the sale of cement is quite organized and data is easily available at the State level and district levels for the same. From district-wise cement consumption, the further trend of sand consumption can be derived. Any anomalies in the sand consumption/demand can be analyzed further.

Note: *The above monitoring mechanism is just a suggestion and the States may visit Andhra Pradesh and Telangana to study the monitoring mechanism in greater detail.*

It is suggested that State Government may consult with concern department of State of Telangana and Tamil Nadu to have better understanding on their experience and knowledge in adopting best sand mining enforcement provisions and monitoring practices and frame their own regulatory regime and monitoring framework. The framework of monitoring should essential include online sale & purchase of River Bed Material/ Auction of leases, Sand from rivers and other sources, online monitoring of excavation, storage and transportation of mineral for control of illegal mining.

The respective State Governments shall develop the online Sale & Purchase System after defining the model viz. Under market model or Controlled market prices model. The level of monitoring needs to be defined and guidelines need to be finalized by the respective State Governments as per their requirement with due consideration of suggestive guideline in this document. These all measure will help in curbing illegal mining.

7.0 Recommendations of High Power Committee:

A high power committee (HPC) was constituted by Hon'ble National Green Tribunal to assess the status of illegal mining the stretch of River Yamuna, under the chairmanship of Secretary, Ministry of Environment Forest & Climate Change. The committee after exhaustive field survey and interaction with stakeholders and having surprise visits submitted a comprehensive report on river sand mining along with certain recommendations on enforcement requirements and monitoring essentials. The same is provided in the following section for consideration of monitoring / regulatory authority to adopt applicable provisions in their monitoring framework and also to ensure that the infrastructural requirements recommended by the HPC are put in use at all locations including the lease area.

7.1 Recommendations of High Power Committee (HPC)

The following recommendation of the High Power Committee shall be considered while framing the monitoring mechanism by the State Government.

i. Project Proponent must ensure that following security features are included in the Transport Permission/Permits (TP) so that duplicate/fraudulent/forged TPs for transport, not accounted for in the IT-based system, is not possible.:

(a) Printed on Indian Bank Association (IBA) approved
(b) Magnetic Ink Character Recognition Code (MICR) paper;
(c) Unique Barcode;
(d) Unique Quick Response Code (QR);
(e) Fugitive Ink Background;
(f) Invisible Ink Mark;
(g) Void Pantograph;
(h) Watermark.

ii. Project Proponent must ensure that CCTV camera, Personal Computer (PC) or laptop, Internet Connection, Power Back up, access control of mine lease site; and arrangement for weight or approximation of weight of mined out mineral on basis of volume of the trailer of vehicle used at mine lease site are available.

iii. The PP has to enter the destination, distance between plot and destination, vehicle number etc in the system. After scanning, unique bar code number, invoice date time and validity date-time are generated by the software which gets printed individually on each TP Validity of TP is calculated based on the distance between plot and destination. After validity time is over the TP stands invalid.

iv. The officers involved in monitoring should be provided with mobile application and/or bar code scanners using which the TP can be checked anywhere on road. As soon as the bar or QR code on TP gets scanned through using the mobile application and/or scanner or vehicle number is entered into the application or sent by SMS to a predefined number, all details of TP such as plot details, vehicle details, validity time, etc. should be fetched from the server. This means if anything is re-written on TP and attempt is made to reuse the same, it can be traced immediately. Various reports can be generated using the system showing daily lifting reports and user performance report. This way the vehicles carrying sand can be tracked from source to destination.

v. The facility to fetch details using mobile app, website and SMS may be made available to the general public as well. However, they shall not be allowed to stop the vehicles to check the transportation. The only option that they should have is to check vehicle numbers of the passing vehicle in the mobile app or SMS for the validity of the pass. The only result that should be available to them should be if the vehicle carrying sand has a

valid permit at the relevant point of time or not. If the citizen finds that the vehicle doesn't have such a permit, as ascertained from mobile app or website or SMS, he should alert local authorities, who shall then take further action as per the law.

vi. 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/call center.

vii. The route of the vehicle from source to destination shall be tracked through the system using checkpoints, Radio-frequency identification (RFID) tags, and Global Positioning System (GPS) tracking.

viii. The system shall enable the Authorities to develop a periodic report on different parameters like daily lifting report, vehicle log/ history, lifting against allocation, and total lifting. The system can be used to generate auto mails/SMS. This will enable the District Collector / Magistrate and other authorities to get all the relevant details and will 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 should be tracked.

ix. It is necessary to prevent any truck/vehicle from transporting sand out of the identified plot bypassing the strong IT enabled system. Therefore, at each of the sand plot, the following additional measures should be taken.

(a) There shall be one entry and exit point provided for trucks/vehicles. The said entry point should have facilities as mentioned above. In case, it is necessary to have more than one entry/exit points, all such points shall have checkpoints with facilities as mentioned above. All other possible ways of entry/exit should be closed using barriers like compound, trench, etc. All provisions shall be made to not make it possible for any vehicle to enter or exit without entry into the computerized system.

(b) All such points should have 24X7 CCTV coverage, the footage of which should be made available online to the district administration. In cases, where sufficient internet bandwidth is not available, it may be deposited with the district administration on a weekly basis. If possible, the entry/exit points should have boom barriers which will record the vehicles entering and exiting the plot.

8.0 GENERAL APPROACH TO SUSTAINABLE SAND MINING

8.1 Pre-requisite for starting sand mining operation

i) All district to prepare a comprehensive mining plan for the district as per the provision of District Survey Report. These reports shall be put on the website of District Administration. No mining shall be allowed in the area which has not been identified in the comprehensive mining plan of the District.

ii) Replenishment study should be conducted on regular basis.

iii) All potential rivers mining zone/area shall be identified and put for auction with proper geo-tagged details by the auctioning authority concerned.

iv) The latitude and longitude of each mining lease shall be clearly mentioned in Letter of Intent issued to the potential mine lease. Such information shall be provided on the website of the district administration.

v) The provision of these guidelines shall be considered while identifying the potential stretches /locations and boundaries of the leases for the minable area.

vi) The LoI holder shall seek Environmental Clearance as per the provision of EIA Notification, and the regulatory authority shall ensure that the provision suggested in "Sustainable Sand Mining & Management 2016" and in this documents, as applicable are part of the clearance conditions.

vii) There shall be no river bed mining operation allowed in monsoon

period. The period as defined by IMD Nagpur for each state shall be adhered with.

viii) The monitoring infrastructures including weighbridge and adequate fencing of the lease area, CCTV, Transport permits, etc, as suggested in this document shall be ensured in order to reduce unrecorded dispatch.

ix) Regular monitoring of mined minerals and its transportation and storage shall be ensured and all information shall be captured at centralized database so that easy tracking of illegal material can be done.

x) Annual audit of each mining lease shall be carried out wherein three independent member of repute, nominated by District administration shall also participate.

8.2 Mining of Sand from Agricultural Fields

This practice is prevalent in Haryana; to ensure that mining from outside doesn't affect rivers, no mining is permitted in an area up to a width of 100 meters from the active edge of embankments or distance prescribed by Irrigation department whichever is critical. The top layer of soil varying between 1 and 2 meters is removed and stacked separately and thereafter the sand deposit which maybe 10-15 meter deep is mined. After removing the sand layer up to a maximum depth of 09 meters or the maximum mineable minerals, as permitted by competent authority. The topsoil stacked is spread out on the field and the same is brought under the cultivation. Though the level of this land (mined out area) is lowered to the depth of the excavation and in initial years of cultivation the productivity is low, but the productivity of the fields improves with continued cultivation and addition of organic manure in the field. In Haryana, some leases are of large area

(ranging from 1000 hectare to 2000 hectare) and agricultural fields and river bed both are included in the same lease for mining.

The following recommendations should be kept in mind for mining in such leases:

1. Mining of sand in such mine leases will require environment clearance.
2. The lease should be of sand mining either from the agricultural field or river. In the same lease, both types of area should not be included.
3. The sand mining from the agricultural field is being done in Haryana for a long time and it can be done in a more sustainable manner without adverse impact on agricultural productivity if proper environmental safeguards are taken.
4. The slope of mining area adjacent to agricultural fields should be proper (preferably 45 degree) and adequate gap (minimum 10 feet) be left from adjacent agricultural field to avoid erosion and scouring.

The provision for sand mining in agricultural field may be permitted, whenever replenishment of sand occurs due to natural phenomena.

Permission may also be granted by competent authority (District administration) for excavation of sand/Soil from agricultural fields, after due diligence of this prevailing condition in order to avoid any unacceptable impact on the environment and nearby livelihood from agriculture provided such objective of such excavation mining of Soil/Sand in limited increase the productivity of sand agricultural field.

9.0 MONITORING MECHANISM

9.1 Illegal Mining

The Hon'ble Supreme Court in its Judgment dated 2.08.2017 in W.P 114 of 2014 in the matter of Common Cause Vs Union of India & Ors, inter-alia passed the following:

Para 128. *The simple reason for not accepting this interpretation is that Rule 2(ii-a) of the MCR was inserted by a notification dated 26th July 2012 while we are concerned with an earlier period. That apart, as mentioned above, the holder of a mining lease is required to adhere to the terms of the mining scheme, the mining plan and the mining lease as well as the statutes such as the EPA, the FCA, the Water (Prevention and Control of Pollution) Act, 1974 and the Air (Prevention and Control of Pollution) Act, 1981. If any mining operation is conducted in violation of any of these requirements, then that mining operation is illegal or unlawful. Any extraction of a mineral through an illegal or unlawful mining operation would become illegally or unlawfully extracted mineral."*

In view of above Judgement, any mining activities which are not governed under the provision of Environment (Protection) Act, 1985, The Water (Prevention & Control of Pollution Act, 1974, The Air (Prevention & Control of Pollution) Act, 1981, Forest Conservation Act-1980, Wildlife Protection Act - 1972, shall be considered as illegal mining within the provision of section 21(5) of Mines and Minerals (Development & Regulation) Act, 1957 (MMDR Act) and the concerned authority shall take necessary action within the provision of MMDR Act.

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 by the concern authorities.

State Pollution Control Board (SPCB) is the nodal authority in the State for dealing with cases related to pollution or environment management coming under the purview of the Water (Prevention and Control of Pollution) Act, 1974, the Air (Prevention and Control of Pollution) Act, 1981 and the Environment Protection Act 1986. SPCB shall initiate appropriate action under the provision of these acts for non-compliance of violation of the provisions.

9.2 Environmental Damage due to illegal mining

The environmental damages incurred or resulting due to illegal mining shall be assessed by a committee constituted by District Administration having expertise from relevant fields, and also having independent representation of locals and State Pollution Control Board. Guidelines for assessment of ecological damages prescribed by the State Government or Concerned Pollution Control Boards or any other authority shall be applicable and compensation as fixed shall be paid by the project proponent, in light of Hon'ble National Green Tribunal orders.

9.3 Monitoring of Mining near Inter-district or inter-state boundary

There are situations where bifurcated river becomes district boundaries or state boundaries in such situation it is difficult to assess the mining potential, or to have close monitoring and enforcement of the regulatory provision. Such challenges have been identified and dealt with in SSMG-2016. However, in the absence of any standardized procedure, the monitoring has not been effectively practiced. This has been highlighted by the High Power Committee constituted by NGT in the matter pertaining to illegal mining.

The districts/state sharing the boundary shall constitute the combined task force for monitoring of mined materials, mining activity and also should actively participate in the preparation of DSR by providing appropriate inputs. In such cases, the draft DSR so prepared shall be put up for public consultation in both the districts through respective district administration website.

The task force shall meet every quarter to reconcile the data collected during the period and identify any gap/ lapses based on the outcome of such meeting. The respective district shall take action/ corrective measures. Effort shall be made for real-time data sharing between both the district.

The task –force shall include essentially the representative of respective districts from the mining department, transport department, regional office of SPCB concerned and a reputed citizen nominated by district administration. The Taskforce shall be headed by officer not less than ADM rank and quarterly outcome shall be submitted to District administration.

In addition to the above, there is a need for strict surveillance, particularly at night. The State of Gujarat has already initiated a program called '*Trinetra*' for night surveillance by using night-vision drones to control illegal mining incidents. This program is giving satisfactory results. Such type of system may also be developed by each State within a reasonable time.

A typical standard operating procedure for assessing illegal mining by the committee constituted shall, but not limited to, include the steps given in the following table. However, the process of assessing can be modified based on site-specific conditions and any deviation shall be recorded in the report with proper justification.

Suggestive standard Practice for assessing illegal mining

Step 1	The assessment team should collect the information and documents prescribed in the 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 the day of visit and calculate the mined-out area in a 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 at least 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 at least 04 points in the mined-out area. For computing, the depth, averaging of the 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 the Pre-requisite section.
Step 11	Preparation of inventory of machinery used/observed on the field (optional)
Step 12	Preparation of inventory of hydraulic structures observed on the field (optional)
Step 13	Water sampling for assessment of water quality including physical and biological parameters. (optional)
Step 14	Reconciliation collation of data/information and compilation to maintain violation.
Step 15	Identification of restoration plan and computation of cost of the restoration plan.

9.4 Monitoring Mechanism

A uniform monitoring mechanism is required to assess the regulatory provision in quantitative terms, with robust institutional and legal framework. Based on past experience and suggestions available, the following requirements are suggested for defining a mechanism for monitoring of mining activities which will help in identification of mining which is operating either illegally or are violating the regulatory provisions. Some suggestion will facilitate direct or indirect information to help in such an assessment.

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 eco-system. 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 non-payment 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.

Annexure-I

Details of Sand/M-Sand Sources

a) Rivers:

River Name/M-Sand Plant	Total Stretch of River (in KM)	Type of River (Perennial or Non-Perennial)

b) De-Siltation Location: (Lakes/Ponds/Dams etc.)

Name of Reservoir/Dams	Maintain/Controlled by State Govt./PSU etc.	Location	District	Tehsil	Village	Size(Ha)

c) Patta Lands/Khatedari Land:

Owner	Sy. No	Area (Ha)	District	Tehsil	Village	Agricultural Land (Yes/No)

d) M-Sand Plants:

Plant Name	Owner	District	Tehsil	Village	Geo-location	Quantity Tonnes/Annum

Note: For inclusion of M-Sand Plant/Patta Land in DSR the plant/landowners need to submit the request to the Mining Department with complete details. Inclusion in DSR does not give them the right to operate the M-Sand Plant/Sand Mining lease.

Annexure-II

List of Potential Mining Leases (existing & proposed)

Rivers

River Details	Lease Details	Area (in Ha)	Distance (in KM) from PA/BR/WC/	Distance from Forest Area (in KM)	Mining leases within 500 meters (if yes cluster area)	Total excavation in Tonnes /Annum considering digging depth max as 3 meters	Mineral to be mined (Sand/ Bajri/ RBM etc.)	Existing / Proposed

Patta Lands/Khatedari Land: (existing & proposed)

Owner	Sy. No	Area	District	Tehsil	Village	Total Reserve (MT)	Total Mineral to be mined (MT)	Existing /Proposed

De-Siltation Location: (Lakes/Ponds/Dams etc.) (Existing & proposed)

Name of Reservoir /Dams	Maintain /Controlled by State Govt./PSU etc.	Location	District	Tehsil	Village	Size (Ha)	Quantity MT / Year	Existing /Proposed

M-Sand Plants :(existing & proposed)

Plant Name	Owner	District	Tehsil	Village	Geo-location	Quantity Tonnes/Annum	Existing/Proposed

Annexure-III

Cluster & Contiguous Cluster details

Clusters:

River Name	Cluster No.	Lease No	Location (Riverbed / Patta Land)	Village	Area (in Ha)	Total Excavation (Ton)	Total Mineral Excavation (Ton)

Contiguous Clusters:

River Name	Contiguous Cluster No.	Cluster No	Number of leases in the cluster	Location (Riverbed / Patta Land)	Distance between clusters	Village	Area of Cluster (Ha)	Total Mineral Excavation (Ton)

Annexure-IV

Transportation Routes for individual leases and leases in Cluster

Lease No	Transportation Route No	Number of tippers /day of lease	Number of tippers /day of all the lease on route	Length of Route in KM	Type of Road (Black Topped/ unpaved)	Recommendation for road (Black Topped/ unpaved)	The road will be Constructed by Govt/ Lease Owner	Route Map & Location

Cluster No	Transportation Route No	Number of tippers /day of cluster	Number of tippers /day of all the clusters on route	Length of Route in KM	Type of Road (Black Topped/ unpaved)	Recommendation for road(Black Topped/ unpaved)	The road will be Constructed by Govt/Lease Owner	Route Map & Location

Annexure-V

Final List of Potential Mining Leases (existing & proposed)

Rivers

River Details	Lease Details	Area (in Ha)	Distance (in KM) from PA/BR/WC/	Distance from Forest Area (in KM)	Mining leases within 500 meters (if yes cluster area)	Total excavation in (MT/Yr) (Mine depth max as 3 m)	Mineral to be mined (Sand/Bajri/RBM etc.)	Existing /Proposed

Patta Lands/Khatedari Land: (existing & proposed)

Owner	Sy. No	Area	District	Tehsil	Village	Total Reserve (MT)	Total Mineral to be mined (MT)	Existing /Proposed

De-Siltation Location: (Lakes/Ponds/Dams etc.) (Existing & proposed)

Name of Reservoir/ Dams	Maintain/ Controlled by State Govt./PSU etc.	Location	Distt.	Tehsil	Village	Size(Ha)	Quantity MT/Year	Existing/ Proposed

M-Sand Plants :(existing & proposed)

Plant Name	Owner	District	Tehsil	Village	Geo-location	Quantity MT/Annum	Existing/Proposed

Annexure-VI

Final List of Cluster & Contiguous Cluster

Clusters:

River Name	Cluster No.	Lease No	Location (Riverbed / Patta Land)	Village	Area (in Ha)	Total Excavation (Ton)	Total Mineral Excavation (Ton)

Contiguous Clusters:

River Name	Contiguous Cluster No.	Cluster No	Number of leases in the cluster	Location (Riverbed /Patta Land)	Distance between clusters	Village	Area of Cluster (in Ha)	Total Mineral Excavation (Ton)

Annexure-VII

Final Transportation Routes for individual leases and leases in Cluster

Lease No	Transportation Route No	Number of tippers /day of lease	Number of tippers /day of all the lease on route	Length of Route in KM	Type of Road (Black Topped/ unpaved)	Recommendation for road(Black Topped/ unpaved)	The road will be Constructed by Govt/Lease Owner	Route Map & Location

Cluster No	Transportation Route No	Number of tippers /day of cluster	Number of tippers /day of all the clusters on route	Length of Route in KM	Type of Road (Black Topped/ unpaved)	Recommendation for road(Black Topped/ unpaved)	The road will be Constructed by Govt/Lease Owner	Route Map & Location

Annexure VIII

Salient provision for sand mining in the state of Tamil Nadu

STEPS TO BE FOLLOWED BEFORE EXECUTION:

- The state as a policy should endeavor to have single authority/agency responsible for all river sand mining in the state with an objective to ease the gap in demand and supply and accordingly, take necessary measures including planning, monitoring of mined material and its transport, and to curb illegal mining and sale of materials.

- The prospective site for sand quarry may be identified based on the availability of adequate sand deposits along the river beds, which hinders the free flow of water and results in flooding during monsoon seasons. Emphasis may be given to such quarry sites which is more viable for replenishment.

- A detailed study may be conducted by engaging expert from reputed Institutions to identify prospective sand reaches, assessment of the impact of sand quarrying on the Ground Water Table and water availability, conduct bore log details and study the social and environmental aspects. The generic requirement for replenishment study is to be followed.

- Once the site is identified for prospective sand quarry site based on the detailed replenishment study, the concerned department shall submit the proposal with the geo-tagged boundary of the proposed mining Precise Area Proposal to the District Collector for approval.

- A joint inspection may be carried out by the RDO/Sub-Collector, Assistant/Deputy Director,

- Executive Engineer, TWAD Board and the PWD officials to consider the various factors before giving consent to the proposal.

- The RDO concerned along with Revenue officials may verify the revenue records of the proposed sand quarrying area and give the NOC.

- The AD/DD Mines may verify the presence of permanent structures such as tower line, bridge, monuments if any, in the vicinity of the proposed mining site as per Tamil Nadu Minor Mineral Concession Rules,1959 (As per Rule 36 " there shall be no quarrying of sand in any river bed or adjoining area or any other area which is located within 500 meter radial distance from the location of any bridge, water supply system, infiltration well or pumping installation of any of the local bodies or Central or State Government Department or the Tamil Nadu Water Supply and Drainage Board head works or any area identified for locating water supply schemes by any of the above mentioned Government Department or other bodies" and " The distance of 50 meter shall be measured in the case of railway, reservoir or canal horizontally from the outer toe of the bank or the outer edge of the cutting, as the case may be …. "). Also, the availability of minerals may be cross verified with the available DSR.

- The TWAD officials may verify the drinking water schemes located nearby the proposed quarry site and the minimum distance required as per statutory norms.

- Based on the feasibility report of the joint inspection by the Revenue, Tamil Nadu Water Supply and Drainage Board and Mining officials/experts, the District Collector may give consent for the Precise Area proposal.

- After getting Precise Area approval, a detailed Mining Plan and sketch shall be prepared by the Executive Engineer, PWD using the services of a NABET accredited consultant who holds the pivotal role in the preparation of mining plan. Due responsibility will be expected on the concerned consultant in the mining plan preparation taking care of adhering to all mining rules, existing as on date. The mining plan shall contain the details of quantity to be excavated, the period of mining, method of excavation, deployment of required machinery, Environment Management Plan (EMP), proposed number of laborers to be deployed and Conceptual Mining Plan, as per Rule 41 of TNMMC Rules 1959. It is also the duty of the consultant to give the safe distance of 50 m or twice the bank height from the toe of the riverbank, whichever is higher and fixing the Geo coordinates for boundaries using DGPS instruments.

- The concerned Executive Engineer, PWD shall submit the Mining Plan prepared by the NABET accredited consultant to the concerned Assistant/Deputy Director, Department of Geology and Mines for approval, as per Rule 42 of TNMMC 1959. After scrutiny, the Assistant/Deputy Director, Department of Geology will present the Mining plan before the State Level Environment Impact Assessment Authority (SEIAA) for granting Environmental Clearance.

- The Executive Engineer, PWD shall prepare Form I and Pre-feasibility report with the help of the consultant and submit to SEIAA for an area less than 50 Ha. or to the Ministry of Environment and Forest and Climate Change (MoEF&CC) for the area more than 50 Ha.

- The State Expert Appraisal Committee (SEAC) under SEIAA, consisting of experts from renowned fields such as Mines, Environment, Sociology etc. shall conduct a site inspection of the proposed sand quarry site and after intense scrutiny, may recommend the proposal to SEIAA for approval.

- SEIAA shall grant Environmental Clearance for the sand quarry proposal after analyzing all the statutory provisions and based on the recommendation of the SEAC.

- The Environmental Clearance shall be informed to the public with basic details through advertisement in at least two widely circulated local newspapers with at least one in the vernacular language of the locality, within 7 days of the receipt of the clearance.

- On receipt of the Environmental Clearance, the Executive Engineer, PWD shall apply for Consent to Establish (CTE), from the Tamil Nadu Pollution Control Board as per the Air and Water Act, to enter upon the sand quarry site and commence the preliminary works such as construction of temporary sheds, bio-toilets, formation of biodegradable road using sugar cane leaves etc., drilling of bore wells etc. as per the statutory requirements. After all the preliminary works are completed, the Executive Engineer, PWD shall apply for the Consent to Operate (CTO) from the Tamil Nadu Pollution Control Board. Earmarking boundary of the identified land site through the concrete posts along with red flags need to be established.

- On receipt of the CTO, the Executive Engineer, PWD shall request the consent of the District Collector to commence the quarries. The District Collector shall request the Taluk Level Task Force comprising of Tahsildar, Inspector of Police, Officials from the Departments of Geology and Mining, Transport and Forest, Assistant Engineer, PWD and the Village Administrative Officer concerned, to verify the compliance of all preconditions mentioned in the Environmental Clearance and grant necessary permission to start the functioning of new sand quarries.

II. STEPS TO BE FOLLOWED DURING EXECUTION:

- Before the commencement of mining operations, the depth of sand quarrying needs to be measured accurately using Advanced technology and new gadgets like Total Stations, Global Positioning System (GPS) instruments etc. The Total Station and GPS instruments also need to be calibrated before measurement. Both the traditional and modern techniques may be infused in the right blend to get an accurate measure of the depth. A clear contour map (0.25m interval) of the levels within 2Km (one Km U/s and one Km D/s) needs to be prepared and submitted to both the Project Director, Sand Quarrying Operations and all the Monitoring Committee members. The depth of sand quarrying shall be restricted to 1 m from the theoretical/design bed level.

- The mining area must be demarcated at a minimum distance of at least 50 m away from the river embankment on either side. The boundaries of the quarries may be fixed with reference to the existing survey marks from the survey fields adjacent to the river. Sand quarrying lease area shall be demarcated on the ground with pucca stone or concrete pillars to show the present natural bed level and the depth of mining allowed.

- Modern techniques such as drone survey may be adopted to assess the depth and quantity of the mined area. Boundary pillars shall be erected at an interval of 50 m each on all four sides of the sand quarry site with red flags on every pillar and also in site pillars. The levels of shoal height, river bed height and depth to be excavated up to one meter downwards shall be marked in the pillars to avoid any deviation from the approved depth of excavation.

- It shall be ensured that no sand quarrying of any type is undertaken with 50m of the distance mentioned in the proposal (whichever is higher)

from both the banks of the river to control and avoid erosion of river banks.

- Temporary access roads or Katcha roads shall be formed between the banks of the river and the mining area with locally available bio-degradable materials such as sugarcane waste (bagasse), hay, etc.

- Proper entry and exit point for the movement of loading vehicles in and out of the sand quarry site shall be carefully located taking into consideration the habitations/settlements in the area.

- To monitor the groundwater level during sand quarrying operations, a network of existing wells may be established around the sand quarrying area and new piezometers must be installed at all sand quarry sites. Monitoring of Ground Water Quality in the vicinity (one Km radius from the sand quarrying site) shall be carried out once in two months.

- Periodic Monitoring (at least four times in a year – pre-monsoon, Monsoon, Post monsoon and winter) once in each season shall be carried out by PWD and the data thus collected may be sent regularly to SEIAA/TNPCB. If at any stage, it is observed that the groundwater table is getting depleted due to the mining activity; necessary corrective measures shall be carried out, which includes immediate stopping of mining.

- Similar to the Baseline studies for data on water, soil and air etc., that is being done before the sand quarrying operations, the air and water quality may be checked periodically by Tamil Nadu Pollution Control Board to ensure that no pollution is caused due to Sand Quarrying Operations. 10. Safety gadgets such as earplugs, goggles, respiratory

devices, luminescent vests etc. may be provided to the workers at the sand quarry site.

- First aid kit with all essentials shall be kept ready at all quarry/depot site, in case of any emergency.

- To prevent air pollution due to the dust during sand quarrying operations and safeguard the persons in the sand quarry and depot site, constant water sprinkling on the pathways and dust prone areas may be done. The sand loaded vehicles are to be covered with a tarpaulin before moving out of the quarries/depots.

- Suitable depots shall be located in the vicinity of the sand quarry site to facilitate the sale of sand. While selecting the site for depots, it must be ensured that the site is within 25 km from the sand quarry site and has an area of around 10-15 Acres with parking facilities and proper entry and exit for smooth movement of the vehicles. The depot site shall preferably be a Government poramboke land, foreshore area of tank bund etc., near an NH/SH/MDR/ODR. In the absence of any Government land in the vicinity, private Patta land may be leased out and rent fixed as per the approved Government rates applicable therein.

- Permission must be obtained from the Electricity Board for power supply to operate the CCTV cameras at sand quarry site and depots.

- Minimum of two CCTV cameras, one each at the entry and exit point and one PTZ camera may be installed at all quarries/depots to monitor illegality if any taking place in the sand quarry/depot.

- To ensure uninterrupted seamless live streaming of videos from the surveillance cameras, a high-speed Internet Lease Line connection may

be made available at all quarries/depots. Arrangements may also be made for online monitoring of the sand quarrying, Centre for Assessing Real-Time Sand Mining (CARS) that could be located at the office of the Project Director in Chennai.

- The live streaming of the videos shall be monitored at a Centralised control room and the data shall be stored in the Server for future references. A robust Customer Care may also be functional 24 x 7 at the Control Room, to redress the grievance of the public.

- Drop gates shall be installed at the entry and exit points of all quarries/depots.

- Display boards shall be erected in local vernacular language at sand quarry/depot site, in the nearest village by which sand transportation will be carried and at the entrance of the village road from the main road.

- The concerned authority of PWD shall call for e-tender to select the contractors for loading/raising of sand at the quarry site, transporting contractors to transport sand from the quarry site to depots and loading/maintenance contractors at depots.

- Sand shall be loaded in the quarries in the PWD tendered GPS fitted vehicles and online transmit permit shall be issued by the competent authorities in PWD to the transporting vehicles to transport sand from the quarry to depots.

- On the arrival of the sand shunting vehicles from quarry to the depot, an online authentication shall be done to confirm the arrival of the

appropriate quantity of sand mentioned in the transport permit into the depot.

- The loading of sand from the depots shall be carried out by booking through the online portal "www.tnsand.in" as done presently. Online transit passes will also be issued to the loaded vehicles which could be verified by using an Android app "TNsand Investigator".

- During operation of the quarries, the PWD officers shall ensure that at no point in time, the depth of quarry exceeds 1 m depth from the river bed level and quarrying is done in a uniform manner over the entire mining area to avoid overexploitation and formation of pits at fixed places.

- Proper registers may be maintained at the entry and exit points of the sand quarry/depot sites and a Loading Register may be made available during inspection. An Inspection Register and a Complaint Register may be made available at the sand quarry/depot site.

- The functioning time of quarries/depots shall be from 7.00 AM to 6.00 PM. No sand transporting vehicles to be parked inside the quarry/depot site during night time.

- A copy of the approved mining plan may be kept at the quarry site for ready reference.

- Photographs and sketch showing the pit dimensions, depth etc. may be recorded every week and maintained in the sand quarry. The Executive Engineer, PWD may inspect each sand quarry on a weekly basis and ensure that mining activities are taking place within the approved boundaries/depth.

- The sand quarrying activity shall be stopped if the entire quantity is quarried even before the expiry of the sand quarry lease period and the same shall be mentioned by the PWD authorities.

- The Taluk Level Taskforce shall inspect the quarries every fortnight, as per G.O. (Ms) No. 135 of Industries Department, dated 13.11.2009 and record the status of the compliance in the registers maintained at the sand quarry site.

- The Taluk Level Task Force has to submit its inspection report to the District Level Task Force chaired by the District Collector. The District Level Task Force has to be convened every month to discuss cases of illegal quarrying. An Environmentalist from reputed State / Central Institution and a legal expert on environmental matters may be part of the District Level Task Force. The District Level Task Force shall also dispose of the petitions on illegal sand quarrying after due enquiry and scrutiny, and pass orders within a period of two months from the date of receipt of the complaint. If any person is aggrieved with the orders passed by the District Level Task Force, an appeal may be preferred before the Appellate Forum.

- The District Collector shall take necessary steps to strengthen the existing District and Taluk Level Committees and act on the complaints received, if any, on illegal sand quarrying and take strict remedial measures to rectify the same in a time-bound manner. The District Level Task Force may send its monthly report to the Appellate Forum formed as per G.O. (Ms) No. 27 of Industries Dept. dated 17.02.2015.

- The Appellate Forum shall hear the appeals filed against the orders passed by the District Level Task Force. The Appellate Forum comprises

of the Secretaries to Government from Industries Department, Public Works Department, Revenue Department, Environment and Forests Department, Commissioner of Geology and Mining and an Expert from a reputed Government Institution.

- The Appellate Forum may convene once in 2 months to deliberate on the reports from the District Level Task Force and shall dispose of the appeals made by the petitioners aggrieved with the orders passed by the District Level Task Force.

- Periodical Capacity building and sensitization of PWD officials on the environmental and legal aspects of sand quarrying may be made mandatory. Continuous training and awareness programs shall be scheduled and conducted by IIT/Anna University for the PWD staff to keep themselves aware of the best practices in this field. It may be ensured that the enforcement officials from the Departments of Revenue, Police, Geology and Mining and Transport in the districts where quarries are situated are given adequate training and capacity building on their duties and responsibilities with respect to inspection of sand quarries and sand transporting vehicles at specified time intervals.

- No blasting shall be carried out any point in time.

- It is the obligation of the Public Works Department to run the quarry in an environmentally friendly and ecologically sustainable manner.

- The Hon'ble High Court-appointed Monitoring Committee shall inspect the sand quarries periodically and submit a report to the Hon'ble High Court.

- The PWD should explore/take necessary steps to introduce Mining Surveillance System (MSS) in line with MSS evolved by the Indian Bureau of Mines and Bhaskaracharya Institute for Space Applications and Geo-informatics (BISAG).

III. STEPS TO BE FOLLOWED AFTER EXECUTION:

- A Judicious mine closure plan may be formulated once the quarry is closed after exhaustion of the quantity of sand.

- Reclamation works may be factored into the contract agreement and strict monitoring by the PWD officials may be initiated to scrupulously follow up the mine closure plan.

- It may be ensured that the total quantity of sand permitted in the EC shall not be exceeded in any case.

- After the exhaustion of the quantity of sand, the sheds constructed at the quarry site may be removed. All the roads and pathways may be levelled so that there is no obstruction for the normal flow in the river.

- All the records/registers may be carefully maintained by the PWD for future reference.

उत्तर प्रदेश प्रदूषण नियंत्रण बोर्ड
UTTAR PRADESH POLLUTION CONTROL BOARD

Ref. No. G 34558/C-6/ स्रा०/407/ अनि० सेल/20 Dated 6/1/2021

सेवा में,

श्री एल.एन. सोनी, पी.पी.एस,
मा० अध्यक्ष, ओवर साइट कमेटी, एन.जी.टी. पर्यावरण निदेशालय,
विनीत खण्ड–1, गोमती नगर,
लखनऊ।

विषयः **Minutes of Meeting of Oversight Committee, NGT, UP Lucknow Held on 21.12.2020 at 11:00 am in OA No. 360 of 2015 in RE: National Green Tribunal Bar Association vs. Virendra Singh Through Video-Conferencing के सम्बन्ध में।**

महोदय,

कृपया उपरोक्त विषयक दिनांक 21.12.2020 को वीडियों कान्फ्रेंसिंग के माध्यम से सम्पन्न बैठक के कार्यवृत्त का संदर्भ ग्रहण करने का कष्ट करें। कार्यवृत्त में विभिन्न बिन्दुओं की अनुपालन आख्या पर मुख्य खनन अधिकारी द्वारा सूचित किये गये बिन्दु संख्या 20 एवं 23 के सम्बन्ध में टिप्पणी निम्नानुसार है:–

Sl. No	Directions by Hon'ble NGT	Compliance Status (Yes/No)	Compliance Status	Comments
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 regulation	• Not pertains to UPPCB. • 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.
23.	Whether any progress towards amendments of the Act/Rules does that the Court can order for the fine as ordered by Hon'ble NGT.	Not Complied	Regarding the control of environmental damage, the Rules/Regulations promugulated by the Department of Environment to include the order of Hon'ble NGT regarding the recovery of environmental damage, Department of Forest and Mine, Department of Forest, Environmental and Climate Change, Govt. of Uttar Pradesh vide letter no. 1672/86-2020 dated 22.09.2020 is referred to	In compliance of the 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 OA No 173/2018 in the matter of Sudarsan Das vs State of West Bengal, MoEF & CC, Government of India has issued "Enforcement & Monitoring Guidelines for Sand Mining" January, 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 Sub- Divisional (Avoidance) Rules 1963 is to be initiated by the Mines & Geology Department , Government of U.P**

भवदीय,

5/1/21

(ए०के० तिवारी)
मुख्य पर्यावरण अधिकारी,
(वृत्त–6)

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