

Item No. 01 (Bhopal Bench)

**BEFORE THE NATIONAL GREEN TRIBUNAL  
PRINCIPAL BENCH, NEW DELHI  
(Through Video Conferencing)**

Original Application No. 66/2020(CZ)

Atul Agarwal

Applicant(s)

Versus

State of M.P. & Ors.

Respondent(s)

Date of hearing: 19.10.2020

**CORAM : HON'BLE MR.JUSTICE SHEO KUMAR SINGH, JUDICIAL MEMBER  
HON'BLE DR. SATYAWAN SINGH GARBYAL, EXPERT MEMBER**

For Applicant(s): Mr. Brajesh Pandey, Advocate & Mr.Varun  
Thakur, Advocate for Applicant

For Respondent(s): Mr. Enosh George, Advocate

**ORDER**

1. The issue of illegal mining in the area of Lidhorahat Ghat Badtua in District Sagar was raised in this application and a joint committee consisting the District Magistrate, District Mining Officer and Madhya Pradesh Pollution Control Board was directed to submit a report.
2. After submission of report, this Tribunal vide order dated 02.09.2020 observed as follows:-

“

2. In compliance thereof, the Collector vide letter dated 22.08.2020 has submitted and forwarded the report of the Committee which as follows:-

“ 3. The point raised in application and status observed during inspection are as follows:-

<b>S. No.</b>	<b>Issue Raised by applicant</b>	<b>Status observed during inspection</b>
1.	Land bearing survey no. 335 measuring 31.76 hectares at Vill- Lidhorahat Distt- District- Sagar is a govt. land, but the revenue department has allotted the said land to private person for mining purpose. This land is non-forest land.	Land bearing survey no. 335 village- Lidhorahat District- Sagar is govt. land and 02 mine leases of the area 2.0 and 2.8 hectares are allotted by mining department for stone mine. One mine of 2.0 hectares has obtained environmental clearance, consent from State Pollution Control Board and NOC/ permission from other deptt. As per policy of State government. At present only one stone mine has started operations. No plant cutting was done due to mining activity as there is no planation in the area. Protection fencing is developed around mine pit.
2.	The illegal mining in the area of Lidhorahat, Badtuma, Sironja, distt. Sagar by private company without following the due process of law.	Stone mines in government land as well as private land are allotted for mining of stone after getting environmental clearance, NOC from forest department, gram panchayat, revenue department and consent from M.P. Pollution Control Board. As per rules, mines should be allotted 100 meters away from highway

		and residential area. 28 mines are allotted to stone mining in Pamakhedi and nearby villages which have started mining in Villages Pamakhedi, Lidhorahat, Badtuma, Ragolli, Khejarabag. No illegal mining was found in the area as mentioned in the application. All mines are allotted 100 meter away from highway, residential area, bridges, school etc.
3.	35 Stone crushers are running in surrounding area of Jamwant temple and 10 Stone crusher in Village-Lidhorahat, Badtuma, Sironja, distt. Sagar near National Highway 44. Road in damages in the area.	Jamwant temple is established in Village-Galgal Toria. No stone crusher unit is established around 500 meters of temple. 28 Stone crushers are established in area mentioned in the application and have permission/consent from Pollution Control Board. Stone crushers have installed necessary Pollution Control arrangement. Road condition is good in the area mentioned in the application.
4.	Illegal operation of more than 30 crusher without due process of law and they are doing illegal mining. Stone crusher is causing pollution to the agricultural land and local residents.	<ul style="list-style-type: none"> <li>• One stone crusher in Pamakhedi is established without consent of the M.P. Pollution Control Board. Closure direction is issued to the unit under provision of Air Act, 1981. Unit is closed and electric supply to unit is also terminated.</li> <li>• No any other illegal established of stone crusher is observed. Crushers have installed necessary Air Pollution Control Arraignments. Regular visit of the area is being done and if any violation is observed necessary notice/direction is issued for rectification/up-</li> </ul>

		<i>gradation.</i>
5.	<i>Huge RDX are stored for heavy blast for mining</i>	<i>RDX is not used for blasting in monies. Blasting in stone mines is done by persons having explosive license from department of explosive and class-2 slurry based explosive cartridge is used for blasting.</i>

3. *Perusal of the report reveals that at point no. iv, it is reported that one stone crusher in Pamakhedi is established without consent of MP Pollution Control Board. Closure direction has been issued to the unit under the provisions of Air Act, 1981. The unit is closed and electricity supply to the unit is also terminated.*
4. *The State Pollution Control Board is directed to take necessary action for calculation of environmental compensation and take necessary steps to recovery in accordance to law and further action taken report be submitted on 19.10.2020.”*
3. In compliance thereof, the State Pollution Control Board has calculated an environmental compensation to the tune of Rs. 1,62,500/- to be levied on the defaulting units.
4. It is argued, by the Learned Counsel for the applicant that the sand mining is directly in contravention of standards established under 2016 Guidelines. The said Guidelines prescribe different Environment Standard in Clause 49 which is titled “Protection of Infrastructure” which provides that the mining shall not be undertaken in mining lease located in 200-500 infrastructure meter of bridge, 200 meter upstream and downstream of water supply/irrigation scheme, 100 meters from the edge

of National Highway and railway line, 50 meters from a reservoir, canal or building, 25 meter from the edge of State Highway and 10 meters from the edge of other roads except on special exemption by the Sub-Divisional level Joint Inspection committee.

5. The learned counsel appearing for the Ministry of Environment, Forest and Climate Change (MoEF&CC) has argued that the respondent-Ministry has formulated the new guidelines i.e. “Enforcement & Monitoring Guidelines for Sand Mining” (EMGSM 2020) supplemental to the existing guidelines i.e. Sustainable Sand Management Guidelines 2016, which focus on the effective monitoring of the sand mining since from the identification of sand mineral sources of its dispatch and end-use by consumers and the general public. Further, this document will serve as a guideline for collection of critical information of enforcement of the regulatory provision(s) and also highlights the essential infrastructural requirements necessary for effective monitoring for sustainable sand mining.
6. Learned counsel appearing for the MoEF&CC has submitted that the Monitoring Guidelines as issued by the Ministry is required to be followed. It is to be noted that enforcement of Monitoring Guidelines for Sand Mining was issued in January, 2020 by the Ministry of Environment and Forest. The relevant paras are quoted below:

*“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  $\frac{1}{4}$ th of 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  $\frac{3}{4}$ <sup>th</sup> 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.”*

#### **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 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 11<sup>th</sup> April, 2018 and 19<sup>th</sup> 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 providing 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  $\frac{3}{4}$ th part of the river, width needs to be identified on a map. Out of the  $\frac{3}{4}$ th part area, where there is a deposition/aggradation of the material needs to be identified. The remaining  $\frac{1}{4}$ th 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, desiltation 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**.*

## **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 instream 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 pre 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.*

#### **5.2.4 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.*

7. Learned counsel appearing for the applicant had submitted that the criteria as laid down or followed by the authorities are not in accordance with the provisions of law or neither has been laid down anywhere in the rules. The Sustainable Sand Mining Guidelines are exhausted in respect of sand mining activity. Clause 49 of the Guidelines says that the mining cannot be undertaken in 200-500 infrastructure meter of bridge, 200 meter upstream and downstream water supply/ irrigation scheme, 100

meter from the edge of the national highway and railway line, 50 meter reservoir, canal or building 25 meter from the edge of State Highway and 10 meter from edge of other roads. There is no mention of any distance from a human habitation.

8. The Learned Counsel for the applicant has further submitted that Section 5 of Madhya Pradesh Mines and Minerals Rules 1996 are required to be mentioned as under:

*“CHAPTER II General Restrictions*

*On Undertaking Mining Operations*

5. *Restrictions on the grant of [trade quarry] or quarry lease. - (1) No quarry lease, or [trade quarry] shall be granted to any person unless such person is an Indian National or a company as defined in sub-section*

*(1) of Section 3 of the Companies Act, 1956 (No. 1 of 1956) and satisfies such conditions prescribed in these rules.*

*Explanation. - In case of a firm or any other association of individuals, for the purpose of this sub-rule, a person shall be deemed to be an Indian National only, if all the members of the firm or association are citizens of India.*

- (2) No quarry lease, or [trade quarry] shall be granted in respect of an area :-*
- (a) notified by the Government as reserved for the use of the Government, Local Authorities or for any other public or for special purposes except with the previous approval of the State Government;*
  - (b) in forest land without the permission of appropriate authority as prescribed in the Forest (Conservation) Act, 1980 (No. 69 of 1980);*
  - [(c) within a distance of 300 metres from sensitive areas like radio station, Doordarshan Kendra, airport, defence establishment etc. 100 metres from any bridge, national/state highway, railway line, public place or 10 metres from grameen kanchcha rasta.*

*(d) except for the mineral sand or bajri, within a distance of 100 metres from river banks, nalas, canal, reservoir, dam, any natural water course or any water impounding structure.]*

*(e) which is not compact and contiguous.”*

9. The Principal Bench of this Tribunal in O.A. No. 304/2019, *M. Haridasan & Ors. Vs. State of Kerala* directed the Central Pollution Control Board to submit the report. The report prepared by the CPCB in compliance of the said order is as follows:

### **“2.0 Stone Quarrying:**

*Stone is classified as minor minerals under Section 3(e) of the Mines and Minerals (Development and Regulations) Act, 1957. As per provisions of MMDR Act, the administrative and legal control over minor minerals vests with State Governments and empowered to make rules to govern minor minerals.*

*Stone Quarrying / Mining is an activity where extraction of stone is done from hillocks or mountain or ground surface having geological mineral deposits. The stone extracted from stone quarry are used either as construction materials or in stone crushers to produce rori/bajri and dust.*

*Systematic Mining (formation of benches) is done by blasting and drilling, to loosen up the rock materials followed by fragmentation of large size into smaller size. The reduced size material is then loaded and transferred to stone crushers for further processing in order to obtain necessary sizes required for final use. The blasting and drilling during mining operation have environmental impacts and requires mitigation measures to minimise the impacts on environment and nearby habitations.*

### **3.0 Minor Mineral Concession Rules**

*As per sub-section (1) of section 15 of the Mines and Minerals (Development and Regulation) Act, 1957 (Central Act 67 of 1957), State Government has to make Rules for regulating the grant of quarry lease, mining lease/permit, mineral concessions and purposes connected in respect of minor minerals.*

Accordingly, State Governments have framed rules and defined the criteria of minimum distance of minor mineral mining from different locations based on the type of mining used.

Minimum distance prescribed by various states is vary with respect to mining operation of minor mineral involved. In general, minimum distance prescribed by states such as Rajasthan, Madhya Pradesh, Punjab, Tamil Nadu, Orissa, Bihar, Uttar Pradesh, Himachal Pradesh, West Bengal, Sikkim, Meghalaya and Manipur are:

- In the range of 45 - 200 m from any reservoir, canal, public works such as public roads and buildings
- In the range of 45 -100 m from any railway line / area
- In the range of 60 - 100 m from National Highway, State Highway and other roads and 10 m from village roads

Various states have further prescribed minimum distance based on the use of blasting in mining operation of minor mineral, as follow:

**Kerala:**

When blasting is involved, no mining within a range of 50 — 100 m from the boundary line of any railway line, bridges, reservoirs, tanks, residential buildings, Government protected monuments, canals, rivers, public roads having vehicular traffic, any other public works or the boundary walls of places of worship whereas, when no blasting is involved, range of 50-75 m is prescribed as minimum distance.

**Karnataka, Maharashtra, Goa, Gujarat:**

When blasting is involved, no mining within a distance of 200 m from the boundary line of any railway line reservoir, tank bund, canal, or other public works and public structures or any public road or building whereas, when no blasting is involved, minimum distance of 50 m is defined.

**Jammu & Kashmir:**

When blasting is involved, no mining within a distance of 500 m from the outer periphery of the defined limits of a National Highway, Railway line, State Highway, Major District Roads (MDR) and Other District Road (ODRs) whereas, when no blasting is involved, minimum distance of 150 m is defined.

**Assam:**

*When blasting is involved, no mining within a distance of 250 m from the outer periphery of the defined limits of any village habitation, National Highway, State Highway and other roads whereas, when no blasting is involved, minimum distance of 50 m is defined.*

**Note:** *Distance criteria defined by various states, has been defined from the outer edge of the cutting or outer edge of the bank, as the case may be and in the case of a building horizontally from the plinth thereof.*

**4.0 Criteria of Danger Zone: Directorate General of Mines Safety**

*As per Directorate General of Mines Safety circular no. - DGMS (SOMA)/ (Tech) Cir No. 2 of 2003 Dt. 31/01/2003, on subject of Dangers due to blasting projectiles, all places within the radius of 500 m from the place of firing to be treated as danger zone and accordingly, all person in danger zone to take protection in substantially built shelter at the time of blasting.*

*Further, mine manager to control the throw and to prevent ejection of flying fragments within a safe distance with the use of refined blasting practices as well as developed explosives and accessories such as controlled blasting Technique with milli-second delay detonators/ electric shock tubes/ cord relays or use of sequential blasting machines or by adequately muffling of holes etc.*

**5.0 Criteria of no blasting distance around blast sites: Indiana Department of Natural Resource, USA**

*(Source: Citizen Guide to Coal Mine Blasting in Indiana)*

*Indiana Department of Natural Resource, USA has stated that the blasting not to be conducted within 300 feet (~91 m) of an occupied dwelling or school, church or hospital, public building, community or institutional building.*

**6.0 Conclusion:**

*In view of available information, following minimum distance criteria may be considered for permitting stone quarrying by SPCBs:*

*In view of available information, following minimum distance criteria may be considered for permitting stone quarrying by SPCBs:*

<i>Mining Type</i>		<i>Minimum Distance</i>	<i>Locations</i>
A.	<i>When Blasting is not involved</i>	100 m	<i>Residential/Public buildings, Inhabited sites, Protected monuments, Heritage sites, National / State Highway, District roads, Public roads, Railway line/area, Ropeway or Ropeway trestle or station, Bridges, Dams, Reservoirs, River, Canals, or Lakes or Tanks, or any other locations to be considered by States.</i>
B.	<i>When Blasting is involved</i>	200 m **	

**\*\*Note:** *The regulations for danger zone (500 m) prescribed by Directorate General of Mines Safety also have to be complied compulsorily and necessary measures should be taken to minimise the impact on environment.*

*However, if any states is already having stringent criteria than the above for minor mineral mining (i.e. more prescribed distances than the above), the same shall be applicable.”*

10. It is further argued that the conditions of plantation have not been complied with. We are of the view that if there is a condition for plantation, it must be complied with and for non-compliance of the conditions, the State Pollution Control Board is directed to do the necessary action, according to law and in case it requires the recovery of environmental compensation, the State Pollution Control Board shall proceed accordingly.
11. Accordingly, we dispose of this application with the following directions:-
  1. The State Pollution Control Board is directed to realise the amount of Rs. 1,62500/-as environmental compensation, according to law

and to deposit the said amount in the account of Madhya Pradesh Pollution Control Board to be spent for environmental matters.

2. The Environmental Clearance issued for mining of sand should contain the following mandatory conditions:-

- (i) The Licensee must use minimum number of poclains and it should not be more than two in the project site.
- (ii) The District Administration should assess the site for Environmental impact at the end of first year to permit the continuation of the operation.
- (iii) The Annual replenishment report certified by the authorised agency must be submitted to the prescribed authority. In case, the replenishment is low, the mining activity/production levels shall accordingly be decreased/stopped.
- (iv) The ultimate working depth shall be 1 m from the present natural river bed level and the thickness of the sand available shall be more than 3 m in the proposed quarry site.
- (v) The sand quarrying shall not be carried out below the ground water table under any circumstances. In case, the ground water table occurs within the permitted depth at 1 meter, quarrying operation shall be stopped immediately.

- (vi) The sand mining should not disturb in any way the turbidity, velocity and flow pattern of the river water.
  - (vii) The mining activity shall be monitored by the Taluk level Force once in a month by conducting physical verification.
  - (viii) After closure of the mining, the licensee shall immediately remove all the sheds put up in the quarry and all the equipments used for operation of sand quarry. The roads/pathways shall be levelled to let the river resume its normal course without any artificial obstruction to the extent possible.
  - (ix) The mined out pits to be backfilled where warranted and area should be suitably landscaped to prevent environmental degradation.
3. There must be an institutional framework and enforcement mechanism to prevent illegal and excess quarrying.
  4. The mining should be undertaken by the State without any adverse impact on the environment.
  5. The State must ensure that the sand quarries would adhere to the norms regarding extent and depth. The boundary of the quarry shall be demarcated by following the procedure set-out under Clause 2 (ii) of the conditions imposed by the environmental authority.

6. The parameter of distance as mentioned above be taken from the State local laws and in case of no provision by the state, parameter laid down by this Tribunal be followed. A condition of planation must be observed.
  
12. In view of above observations and directions no further action is required in this application. Thus, the original application is finally disposed of, as no order to cost.

Sheo Kumar Singh, JM

Dr. S.S.Garbyal, EM

JG  
Original Application No.66/2020(CZ)