

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

Original Application No. 1391/2024

**In the matter of:**

In Re: News Item titled "*Vishaw stream gasps for breath amid mining pollution*" appearing in Greater Kashmir dated 16.12.2024

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**N.D.O.H-23.4.2025**

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**Filed by:**

**ADV. ANUJ BHANDARI**

**On behalf of Central Pollution Control Board**

**Place: Delhi**

**Date: 21.04.2025**

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

Original Application No. 1391/2024

**In the matter of:**

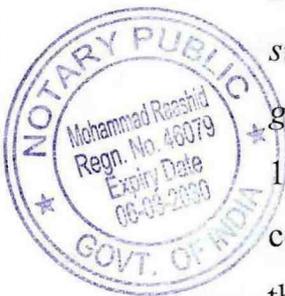
In Re: News Item titled "*Vishaw stream gasps for breath amid mining pollution*" appearing in Greater Kashmir dated 16.12.2024

**REPLY ON BEHALF OF THE RESPONDENT NO. 2 i.e.**

**CENTRAL POLLUTION CONTROL BOARD (CPCB)**

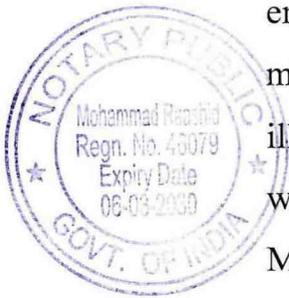
I, Prasoon Gargava, working as Scientist 'F' in Central Pollution Control Board at Parivesh Bhavan, East Arjun Nagar, Delhi-110032, do solemnly affirm and state on oath as under:

1. I, the deponent herein, am well aware of the facts of the case and competent to file the present affidavit on behalf of the Respondent No. 2.
2. That, vide order dated 3.1.2025 the Hon'ble National Green Tribunal Principal Bench (hereinafter to be referred as "Hon'ble NGT") has taken *suo-moto* cognizance on the basis of News article titled "*Vishaw stream gasps for breath amid mining pollution*" published in Greater Kashmir dated 16.12.2024 and that news item is related to the alleged deteriorating condition of the trout population in the Vishaw stream, a vital tributary of the River Jhelum in south Kashmir's Kulgam district allegedly due to rising pollution and unregulated mining activities, and registered the same as OA No. 1391 of 2024. Hon'ble NGT vide the above stated order had also impleaded CPCB as a respondent in the instant matter and had directed to



file response/ reply accordingly. Thereby, the reply is made in succeeding paragraphs.

3. It is submitted that, the CPCB is constituted under Section 3 of The Water (Prevention & Control of Pollution), Act 1974 (hereinafter to be referred as "**Water Act**"). It performs its functions under the Water Act, 1974 and The Air (Prevention & Control of Pollution), Act 1981 (hereinafter to be referred as "Air Act"), and under The Environment (Protection) Act, 1986. That, it is further submitted that the State Pollution Control Boards /Pollution Control Committees have been constituted in States/UTs under the Water Act, 1974 and the Air Act, 1981, and they perform their functions and implement the provisions of these Acts in respect of territorial jurisdiction of the concerned State/UT.
4. That, under provisions of the Mines and Minerals (Development and Regulation) Act, 1957 (**MMDR Act**), the State Governments are empowered to make rules for regulating the grant of prospecting licenses / mining leases in respect of minor minerals and to make rules for preventing illegal mining, transportation and storage of minerals. All such mining which qualifies under illegal, are to be dealt according to the provision of MMDR Act by the Mining Department.
5. That, the Central Government had issued EIA Notification 1994 and 2006 and made it mandatory for project proponents to obtain prior Environmental Clearance for projects/activities covered under the Schedule of the notification from Central Government/SEIAA, including projects for mining



of minor minerals. The EC process also includes Environment Impact Assessment/Environment Management Plan Reports.

6. That, State Level Environment Impact Assessment Authority (hereinafter referred to as "SEIAA") are constituted in States/UTs and empowered to grant Environmental Clearance as per procedures specified in the EIA Notification for the respective States/UTs.
7. That, the Ministry of Environment Forest and Climate Change formulated the Sustainable Sand Mining Management Guidelines 2016 (SSMMG 2016) and Enforcement & Monitoring Guidelines for Sand Mining (EMGSM 2020) in consideration to various orders /directions rendered by Hon'ble NGT (PB) in matters related to illegal sand mining and also based on reports submitted by expert committees. These two guidelines shall be read and implemented in sync with each other.
8. That, these guidelines govern the preparation of the District Survey Report in respect of mineral deposits within District and provide a comprehensive framework for sustainable sand mining practices.
9. The Hon'ble NGT (PB) vide order dated 05.04.2019 in O.A. No. 360 of 2015 constituted a committee of experts to suggest a scale of environmental compensation to deal with the cases of illegal (river) sand mining. Accordingly, CPCB submitted report of the committee on 30.01.2020, which suggested two approaches regarding the scale of compensation to deal with cases of illegal (river) sand mining in the country. Copy of Report of the

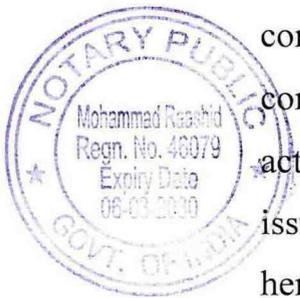


Committee submitted by CPCB dated 30.01.2020 is annexed herewith as **ANNEXURE –I.**

10. That Hon'ble NGT vide order dated 26.02.2021 in the aforesaid OA 360/2015 accepted the recommendations of the expert committee and directed for adoption by all States/UTs and Environment Secretaries to evolve an appropriate mechanism in states for assessment of compensation in all Districts of the States and for utilization of recovered compensation for restoration of environment by preparing appropriate action plan by using the approved scale (Approach-2) of compensation as said report of expert committee. The Copy of the order dated 26.02.2021 of this Hon'ble Tribunal in O.A. 360/2015 is annexed herewith as **ANNEXURE-II.**

11. That, in compliance of aforesaid NGT order dated 26.02.2021, CPCB issued directions dated 11.06.2021, under Section 5 of Environment (Protection) Act, 1986, whereby Environment Secretary (all States/UTs), were directed to evolve an appropriate mechanism for assessment and recovery of compensation in all Districts of the State and utilization of the recovered compensation for restoration of environment by preparing an appropriate action plan, as per the NGT order. Copy of the directions dated 11.06.2021 issued by the CPCB to Environment Secretary (all States/UTs) is annexed herewith as **ANNEXURE –III.**

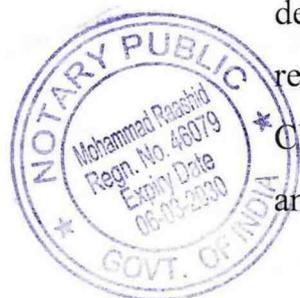
12. That, additionally, CPCB vide letter 22.09.2023 directed all SPCBs/PCCs to adopt and implement the categorization of sand/riverbed material mining from riverbed and its floodplains (excluding manual excavation) into consent mechanism. The copy of CPCB letter is annexed herewith as



**ANNEXURE - IV.** Recently, CPCB has revised the Classification of sectors and vide letter dated 12.02.2025 directed SPCBs/PCCs for its adoption and implementation, wherein "Sand / riverbed material mining from riverbed and its floodplains" are classified under "Other/special category sectors" which include those projects which cannot be classified based on the scoring methodology of pollution index but require classification based on precautionary principle and considering the potential of ecological damage/health and environment related risk etc. There is no change in the category of sand/riverbed material mining projects in the revised classification and all such projects require consent from concerned SPCB/PCC. The copy of CPCB letter is annexed herewith as **ANNEXURE - V.**

13. That in view of Hon'ble NGT order dated 03.01.2025, CPCB communicated with J&K PCC vide letter dated 10.02.2025 to coordinate with the concerned department and provide a report in this matter and followed-up through reminder emails on 21.02.2025, 17.03.2025 and 07.04.2025. The copy of CPCB letters dated 10.02.2025, 21.02.2025; 17.03.2025 and 07.04.2025 are annexed herewith as **ANNEXURE - VI.**

14. In response to follow up with J&KPCC, on 07/04/2025, CPCB received a copy of letter No. PCC/ROK/LS (NGT)/2025/100-101 dated 20/03/2025, issued by the Regional Director, Kashmir, J&K Pollution Control Committee, addressed to the Member Secretary of J&KPCC, along with a comprehensive report on the present matter. The copy of the aforementioned letter along with the comprehensive report is annexed herewith as **ANNEXURE - VII.**



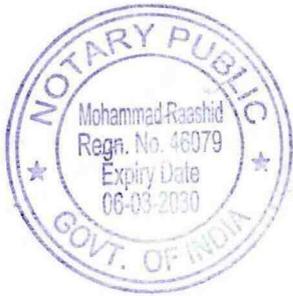
15. That, the key finding of the investigation carried out by J&KPCC, Regional Directorate, Kashmir are as follows;

- i. *The Vishaw Stream originates from an oligotrophic Lake namely "Kousarnag" located at an elevation of 3,962.4 meters above sea level in District Kulgam. The river forms a water fall in "Aharbal" and passes through Adabal, Nehama Adijen, Laisoo. Guddr, Brazloo, Ashmuji, Kelam. Nawpora, Qaimohand and finally joins with River Jhelum at Sangam.*
- ii. *In District Kulgam, total 19 Mineral Blocks are found operating along the Vishaw River. Out of 19 mineral blocks, 11 Mineral Blocks are operating without valid consent to operate from J&KPCC under Air (Prevention & Control of Pollution) Act. 1981 and Water (Prevention & Control of Pollution) Act 1974. The details of the aforementioned units have been provided to Geology & Mining Department on 19/02/2025 by J&KPCC District Officer, Kulgam.*
- iii. *The illegal and unscientific mining was observed which is detrimental to the health of river ecosystem particularly disrupting the natural flow and course of water that creates unsuitable condition for the growth of aquatic fauna.*
- iv. *The analysis of samples collected from Vishaw stream at 07 different locations indicate that water quality in all monitoring locations meet the prescribed permissible limit for primary water quality for outdoor bathing criteria in terms physico-chemical parameters. The values of*



*faecal coliform for all the sampling spots falls within the prescribed Maximum permissible norm of 2500 MPN/100 ml, however, three locations namely Khudwani, Niyana and Aarpora do not meet the desirable limit of 500 MPN/100 ml for Faecal Coliform.*

- v. *At many locations along the course of river solid waste was found dumped on the banks of Vishaw Nallah which was mostly composed of non-biodegradable plastic.*
- vi. *Rural development Department have constructed many solid waste segregation sheds at many locations near the bank of Vishaw Nallah, however these segregation sheds were found unattended without further scientific waste management, as a result these sheds are becoming open garbage dumps thus posing further threat to Vishaw Nallah.*



16. That, various recommendations have also been provided in the above report of J&K PCC Regional Directorate, Kashmir which may be enforced by the concerned agency such as Geology & Mining Department, Rural Development Department, J&K PCC and District Administration, Kulgam of J&K in the Union Territory.

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

18. That, in light of the above submissions, it is respectfully submitted that this answering respondent, i.e., CPCB, shall abide by any order(s) or direction(s) passed by this Hon'ble Tribunal in this Original Application.



*P. Gargava*

**DEPONENT**

**प्रसून गार्गव / Prasoon Gargava**  
 वैज्ञानिक 'एफ' एवं प्रमाण प्रमुख (आई.सी.सी.-II) / Scientist 'F' & Divisional Head (IPC-II)  
**केंद्रीय प्रदूषण नियंत्रण बोर्ड**  
**Central Pollution Control Board**  
 (पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय, भारत सरकार)  
 (M/o Environment, Forest & Climate Change, Govt. of India)  
 परिवेश भवन, पूर्वी अर्जुन नगर, दिल्ली-110032  
 Parivesh Bhawan, East Arjun Nagar, Delhi-110032

**VERIFICATION**

Verified that the contents of the above affidavit are true and correct my knowledge and based on information derived from official records which I believe to be correct. No part of it is false and nothing has been concealed therein.

**ATTESTED**

*Rto*  
**NOTARY PUBLIC DELHI**  
**GOVT INDIA**

Delhi

Dated: 21.04. 2025

**21 APR 2025**

*P. Gargava*

**DEPONENT**

**प्रसून गार्गव / Prasoon Gargava**  
 वैज्ञानिक 'एफ' एवं प्रमाण प्रमुख (आई.सी.सी.-II) / Scientist 'F' & Divisional Head (IPC-II)  
**केंद्रीय प्रदूषण नियंत्रण बोर्ड**  
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 (M/o Environment, Forest & Climate Change, Govt. of India)  
 परिवेश भवन, पूर्वी अर्जुन नगर, दिल्ली-110032  
 Parivesh Bhawan, East Arjun Nagar, Delhi-110032

## BEFORE THE HON'BLE NATIONAL GREEN TRIBUNAL

PRINCIPAL BENCH, NEW DELHI

ORIGINAL APPLICATION NO. 360/2015

**IN THE MATTER OF:-**

NATIONAL GREEN TRIBUNAL BAR ASSOCIATION

APPLICANT(S)

VERSUS

VIRENDRA SINGH (STATE OF GUJARAT)

RESPONDENT(S)

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NAZIMUDDIN  
SCIENTIST 'E'

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

PLACE: - DELHI

DATED: - 30.01.2020

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

Submitted to

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

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

**29<sup>th</sup> 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 Sundeeep, 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 destabilising the ecological conditions have been taken into account while setting the legally permitted quantity for extraction. Mining beyond this is illegal and causes trade-offs between this particular provisioning service of the river (sand flow) and its supporting and regulating (and other provisioning) services which thereby get affected, constituting ecological damages. The compensation would comprise of the material cost of the illegally mined sand and foregone ecological values, while keeping in mind the objective of restoration.
- Finally, it is noted that the concerned authority shall take appropriate action under the provision of applicable Acts/ Rules, whenever any illegal or non-complying mining activities is observed. The proposed environmental compensation suggested in this recommendation will be in addition to the requirement of any such action.

### 3.2 Determination of Net Present Value (NPV)

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

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

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

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

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

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

**\*References:**

Verma, M., Negandhi, D., Wahal, A., Kumar, R., Kinhal, G., & Kumar, A. (2014). Revision of rates of NPV applicable for different class/category of forests. Bhopal: Indian Institute of Forest Management. Retrieved from [http://iifm.ac.in/wp-content/uploads/2016/06/IIFM\\_NPV\\_07NOV.pdf](http://iifm.ac.in/wp-content/uploads/2016/06/IIFM_NPV_07NOV.pdf)

Chopra, K., Kadekodi, G., & Eswaran, V. (2006). Report of the Expert Committee on Net Present Value .submitted to the Honourable Supreme Court of India. Retrieved from <http://www.fedmin.com/fedmin/npvk.pdf>

Chopra, K., & Dasgupta, P. (2008). Assessing the economic and ecosystem services contribution of forests: issues in modelling, and an illustration. *The International Forestry Review*, 10(2), 376-386. Retrieved from <https://www.jstor.org/stable/43740351>

CEC (Central Empowered Committee). (2007). Supplementary report in IA No.826 in IA No.566 regarding calculation of Net Present Value(NPV) payable on use of forest land of different types for non-forest purposes. Retrieved from [https://www.prsindia.org/sites/default/files/bill\\_files/bill185\\_20080723185\\_Central\\_Empowered\\_Committee\\_Guidelines.pdf](https://www.prsindia.org/sites/default/files/bill_files/bill185_20080723185_Central_Empowered_Committee_Guidelines.pdf)

#### 4. Recommendations on Scale of Compensation

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

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

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

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

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

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

Permitted Quantity (in MT or m <sup>3</sup> )	Total Extraction (in MT or m <sup>3</sup> )	Excess Extraction (in MT or m <sup>3</sup> )	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 <sup>3</sup>
				DF = 0.3 if Z/X = 0.11 to 0.40 DF = 0.6 if Z/X = 0.41 to 0.70 DF = 1 if Z/X >= 0.71
				RF = 0.25, 0.50, 0.75, 1.00 (as per table 2)

**Note:**

- The inspecting team will consider the error in measurement of quantity of material (maximum 10% for up to 5 Ha. sites but should be less for large sites) and accordingly decide/recommend whether any particular case is fit for imposing compensation for damages or not.
- Market Value of the material per (MT or m<sup>3</sup>) will be based on applicable market price of the mined material.
- Risk Factor (RF)** to take value as per the Risk Level of the illegal mining case, as below:

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

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

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

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

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

Deriving the Risk Factor (RF): Some criteria can be considered by states for judging the risk factor applicable at various sites. Accordingly, States may develop a subjective scale for severity of impact (Risk Factor-RF) for purposes of implementing the interim compensation scale based on any 3 of the 4 heads listed in 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.

#### References:

1. Chopra K, Kadekodi G, Eswaran V (2006) Report of the Expert Committee on Net Present Value submitted to the Honourable Supreme Court of India. Retrieved from <http://www.fedmin.com/fedmin/npvk.pdf>
2. Purushothaman S, Viswanath S, Kunhikannan C (2000) Economic valuation of extractive conservation in a tropical deciduous forest in Madhya Pradesh, India. *Tropical ecology* 41(1): 61-72. Retrieved from <http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.538.7962&rep=rep1&type=pdf>
3. Zhuang J, Liang Z, Lin T, De Guzman F (2007) Theory and Practice in the Choice of Social Discount Rate for Cost-Benefit Analysis: A Survey. ERD Working paper series No. 94. Asian Development Bank. Retrieved from <https://www.adb.org/sites/default/files/publication/28360/wp094.pdf>
4. Simpson AR (2008) Selecting a discount rate for evaluating water distribution projects—The sustainability controversy. 10th Annual Symposium on Water Distribution Systems Analysis, American Society of Civil Engineers, Kruger National Park, South Africa, 17-20. [https://doi.org/10.1061/41024\(340\)11](https://doi.org/10.1061/41024(340)11)

5. Murty, M.N., Panda, M., and Joe, W. (2018). Reassessment of National Parameters for Project Appraisal in India. Study Report, Study for the NITI Aayog, Institute of Economic Growth, Delhi.
6. Weitzman, M. L. 1998. Why the far-distant future should be discounted at its lowest possible rate. *Journal of Environmental Economics and Management* 36: 201–8.
7. Weitzman, M. L. 2001. Gamma discounting. *American Economic Review* 91: 260–71.
8. Markandya, A. and M.N. Murty (2000), *Cleaning Up Ganges: The Cost Benefit Analysis*, Oxford University Press, New Delhi.
9. Gollier, Christian. 2012. *Pricing the planet's future: The economics of discounting in an uncertain world*. Princeton, NJ: Princeton University Press.
10. Purnamita Dasgupta, et al (2019) Cost effective adaptation to flood: sanitation interventions in the Gandak river basin, India, *Climate and Development*, DOI: 10.1080/17565529.2019.1682490. Published online 09 November 2019. (Open access) <https://www.tandfonline.com/doi/full/10.1080/17565529.2019.1682490>

### 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 <sup>3</sup>
Total Area of mined out mineral	=15000 m <sup>2</sup>
Total Permitted Area in Environmental Clearance	=10000 m <sup>2</sup>
Excess Mined out area	=5000 m <sup>2</sup>
Total Depth permitted as in Environmental Clearance	=3 m
Excess extraction (Z)	=5000 x 3 = 15000 m <sup>3</sup>
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 <sup>3</sup> )	D = 15000 x 400 = 6000000/-
Risk Factor (RF)	Severity <i>Severe</i> Risk Level 4 Risk Factor (RF) 1
Deterrence Factor (DF)	DF = 0.6 (for Z/X in 0.41 to 0.70 range)
Compensation	=D 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)  $5000 \times 400 = 6000000/-$

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

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

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

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

$$= NPV = PV - D$$

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

### Compensation Charge in above case:

Approach 1 (no explicit accounting of NPV)	Approach 2 (explicit accounting of NPV)
$D \times (1 + RF + DF)$	@ 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 <sup>3</sup>
Total Permitted Area in Environmental Clearance	=10000 m <sup>2</sup>
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 <sup>3</sup>
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 <sup>3</sup> )	D = 10000 x 400 = 4000000/-
Risk Factor (RF)	Severity <i>Severe</i> Risk Level                    4 Risk Factor (RF)            1
Deterrence Factor (DF)	DF = 0.3 (for Z/X in 0.11 to 0.40 range)
Compensation	=D x (1+RF+DF)
Total (in Rs.)	=4000000/- x (1+1+0.3) =Rs 92,00,000/-

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

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

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

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

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

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

$$= NPV = PV - D$$

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

### Compensation Charge in above case:

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

### Example 03: Violation with respect to Depth and Area

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

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

Violation reported as follow:

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

**(The example can be applied to a case of totally illegal mining without EC also where illegal mining of 18000 m<sup>3</sup> has been done)**

Excess Extraction (Z)	=18000 m <sup>3</sup>
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 <sup>3</sup> )	D = 18000 x 400 = 7200000/-
Risk Factor (RF)	Severity <i>Severe</i> Risk Level 4 Risk Factor (RF) 1
Deterrence Factor (DF)	DF = 0.6 (for Z/X in 0.41 to 0.70 range)
Compensation	=D 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)  $18000 \times 400 = 7200000/-$

Annual Value of Foregone Ecological Values  $D \times RF = 7200000/-$

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

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

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

$$= NPV = PV - D$$

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

**Compensation Charge in above case:**

Approach 1 (no explicit accounting of NPV)	Approach 2 (explicit accounting of NPV)
$D \times (1 + RF + DF)$	@ 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 <sup>3</sup>
Total Permitted Quantity in Environmental Clearance (X)	=30000 m <sup>3</sup>
Excess Extraction (Z)	=5000 m <sup>3</sup>
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 <sup>3</sup> )	D = 5000 x 400 = 20,00,000/-
Risk Factor (RF)	Severity <i>Severe</i> Risk Level                    4 Risk Factor (RF)            1
Deterrence Factor (DF)	DF = 0.3 (for Z/X in 0.11 to 0.40 range)
Compensation	=D 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)  $5000 \times 400 = 2000000/-$

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

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

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

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

$$= NPV = PV - D$$

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

### Compensation Charge in above case:

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

### Deliberations in the Meetings of the Committee

#### First meeting of the committee

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

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

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

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

#### Second Meeting of the Committee

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

##### Expert Institutes:

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

##### Individual Experts:

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

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

#### **Committee Members:**

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

#### **Subject Experts**

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

#### **Views of Subject Experts:**

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

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

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

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

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

### **Third Meeting of the committee**

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

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

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

#### **Fourth Meeting of the committee**

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

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

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

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

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

#### **Fifth Meeting of the committee**

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

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

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

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

**Sand Mining**

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

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

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

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

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

### **Adverse impact of sand mining**

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

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

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

#### **A. Physical Impacts:**

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

- (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, geomorphological, groundwater level and physical characteristics of river.
- Assessment of groundwater flow to/from river will depends to aquifer and river characteristic and hence it varies site to site.
- Water quality (suspended particles, turbidity, oil and grease etc.) of SW and GW in sand mined area may be assessed.
- Control measures such as bank stabilization should be evaluated.
- Remote sensing data may be used for morphological and other analysis of rivers.
- An integrated environmental assessment, management and monitoring program should be part of sand extraction processes.

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

(Prof. K. S. Kavikumar)

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

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

---

T<sub>1</sub>

T<sub>2</sub>

T<sub>3</sub>

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.

**Inputs about existing legal provisions regarding illegal mining**

(MoEF&CC & CPCB)

**Compensation as per Statutory Provisions**

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

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

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

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

Therefore, compensation can be classified in following two categories

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

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

### **Illegal and Non-complying Mining**

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

### **Sustainable Sand Mining Management Guidelines 2016**

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

### **Relief and Compensation under NGT Act 2010**

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

## Annexure - IV

**Inputs/suggestions for detailed assessment of damages**

(MoEF&amp;CC)

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

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

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

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

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

Table No. 05: Indicative Damages

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

### Pre-requisite for damage assessment

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

In addition to checklist, the following information is necessary:

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

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

### Standard Operating Procedure

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

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

Damage Assessment Report Format			
Mining Lease	Individual / Cluster		
Total Mine Lease Area			
Area permitted for Mining (excluding safety bench marks)			
Permitted depth	----- meter		
Mining Area Description -	Riverbed / Floodplain / Combine Area		
Applicable Mining Method	Mechanised / Semi-mechanised / Manual		
Quantity available for mining			
Mineral available for mining			
Bulk Density of Mineral			
Replenishment Rate (Yearly basis)			
Ground Level	Point 01 -	Point 02 -	
	Point 03 -	Point 04 -	
	Average = -----		
Ground water Level	Point 01 -	Point 02 -	
	Point 03 -	Point 04 -	
	Average = -----		
Riverbed Depth	Point 01 -	Point 02 -	
	Point 03 -	Point 04 -	
	Average = -----		
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

Versus

Virender Singh (State of Gujarat)

WITH

National Green Tribunal Bar Association

Versus

Dr.SarvabhounBagali (State of Karnataka)

WITH

National Green Tribunal Bar Association

Applicant(s)

Respondent(s)

Applicant(s)

Respondent(s)

Applicant(s)

	Versus	
Dr.Sarvabhoun 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)

Chander Mohan Uppal	WITH	Applicant(s)
State of U.P. &Ors.	Versus	Respondent(s)
Sandeep Kumar	WITH	Applicant(s)
Ministry of Environment, Forests and Climate Change &Ors.	Versus	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.

**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

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<sup>1</sup> 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<sup>2</sup>.
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.<sup>3</sup> In Uttarakhand, a 115 years old bridge collapsed due to overloaded sand trucks. In Maharashtra,

<sup>1</sup> In O.A. No 38/2015

<sup>2</sup> Order dated 08.08.2018 in Gurpreet Singh Bagga Vs. Ministry of Environment, Forest and Climate Change, E.A. No. 17/2016

<sup>3</sup> <http://www.legalserviceindia.com/legal/article-73-why-is-illegal-sand-mining-harmful-.html>

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.<sup>4</sup> The issue of illegal sand mining is also rampant in the states of Goa<sup>5</sup>, Bihar<sup>6</sup>, Tamil Nadu<sup>7</sup>, Uttarakhand<sup>8</sup>, Telangana<sup>9</sup>, Jammu and Kashmir<sup>10</sup> 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

<sup>4</sup> <https://sandrp.in/2019/03/01/sand-mining-2018-is-it-a-national-menace/>

<sup>5</sup> <https://timesofindia.indiatimes.com/city/goa/govt-is-ignoring-illegal-sand-mining/articleshow/67908428.cms>

<sup>6</sup> <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>

<sup>7</sup> [http://en.wikipedia.org/wiki/Sand\\_mining\\_in\\_Tamil\\_Nadu](http://en.wikipedia.org/wiki/Sand_mining_in_Tamil_Nadu)

<sup>8</sup> <http://sandrp.in/tag/uttarakhand-sand-mining/>

<sup>9</sup> <https://sandrp.in/2019/02/26/sand-mining-2018-telangana-and-andhra-pradesh/>

<sup>10</sup> [https://greaterkashmir.com/article/news.aspx?story\\_id=309365&catid=2&mid=53&AspxAutoDetectCookieSupport](https://greaterkashmir.com/article/news.aspx?story_id=309365&catid=2&mid=53&AspxAutoDetectCookieSupport)

rather than to permit the use for private ownership of commercial purposes.<sup>11</sup>

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 Jaleswar 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

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

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<sup>12</sup> were also not been adopted.

<sup>12</sup> 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,

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."

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<sup>13</sup> 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.*

<sup>13</sup> Vide order dated 04.09.2018 in Original 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.”*

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*

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 Mining 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

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

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 Application No. 110(THC)/2012, Threat to life arising out of coal mining in south Garo Hills district v. State of Meghalaya & and Ors.*, the

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. Sarvabhoom Bagali (State of Karnataka)* and O.A. No. 368/2015 (M.A. No. 16/2019), *National Green Tribunal Bar Association v. Dr. Sarvabhoom 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*

*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”<sup>14</sup> 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”<sup>15</sup> 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*

<sup>14</sup><https://bangaloremirror.indiatimes.com/bangalore/others/karnataka-sand-mafia-under-scanner-after-lorry-runs-over-official/articleshow/67221261.cms>

<sup>15</sup><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"<sup>16</sup> 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*

<sup>16</sup> <https://www.hindustantimes.com/india-news/maharashtra-registers-most-cases-of-illegal-mining-between-2013-17/story-2j69aqmsygzCcTBBBB8emtN.html>

*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.*

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*

*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.

**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*

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](mailto: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

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<sup>17</sup>, Goa<sup>18</sup>, Kerala<sup>19</sup>, Telangana<sup>20</sup> and Tamil Nadu<sup>21</sup>.

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.

<sup>17</sup>[https://greaterkashmir.com/article/news.aspx?story\\_id=309365&catid=2&mid=53&AspxAutoDetectCookieSupport=1](https://greaterkashmir.com/article/news.aspx?story_id=309365&catid=2&mid=53&AspxAutoDetectCookieSupport=1)

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

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

<sup>20</sup> <https://sandrp.in/2019/02/26/sand-mining-2018-telangana-and-andhra-pradesh/>

<sup>21</sup> [https://en.wikipedia.org/wiki/Sand\\_mining\\_in\\_Tamil\\_Nadu](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 *Sudarsan 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

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 monetary 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**

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

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](mailto: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](mailto: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

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. Sarvabhoom 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

Mushakeem

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 & 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

Himma 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

For Respondent(s):

Mr. Vikas Mahajan, Additional Advocate General For State of HP  
 Mr. Atin 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.

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 in 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.nqt@gmail.com](mailto:filing.nqt@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 15<sup>th</sup> 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.

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 26.07.2019. 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 in the submission 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 report has been furnished but it has deficiencies which have been pointed out during the hearing. The same may be rectified positively before 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

Dr. Nagin Nanda, EM

Siddhanta Das, EM

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



Item Nos. 02 to 20

Court No. 1

**BEFORE THE NATIONAL GREEN TRIBUNAL  
PRINCIPAL BENCH, NEW DELHI**

Original Application No. 360/2015

(With report dated 15.01.2021)

National Green Tribunal Bar Association Applicant

Versus

Virender Singh (State of Gujarat) Respondent

**With**

Original Application No. 366/2015

National Green Tribunal Bar Association Applicant

Versus

Dr. Sarvabhoun Bagali (State of Karnataka) Respondent

**With**

Original Application No. 368/2015

National Green Tribunal Bar Association Applicant

Versus

Dr. Sarvabhoun Bagali (State of Karnataka) Respondent

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

Sudarsan Das Applicant

Versus

State of West Bengal &amp; Ors. Respondent(s)

**With**

Original Application No. 874/2018

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

Original Application No. 44/2016

Mushtakeem Applicant

Versus

MoEF &amp; CC &amp; Ors.

Respondent(s)

**With**

Original Application No. 517/2015

Sandeep Kumar

Applicant

Versus

Ministry of Environment, Forests and  
Climate Change & Ors.

Respondent(s)

**With**

Original Application No. 550/2015

Virender Kumar

Applicant

Versus

Ministry of Environment, Forests and  
Climate Change & Ors.

Respondent(s)

**With**

Original Application No. 530/2016

Sandeep Kumar

Applicant

Versus

Ministry of Environment, Forests and  
Climate Change & Ors.

Respondent(s)

**With**

Original Application No. 272/2016

M/s Ganga Yamuna Mining Co.

Applicant

Versus

State of Haryana &amp; Ors.

Respondent(s)

**With**

Original Application No. 481/2016

Joginder Singh

Applicant

Versus

Ministry of Environment &amp; Forest

Respondent

**With**

Original Application No. 540/2015

Ved Pal Singh

Applicant

Versus

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

**With**Original Application No. 90/2016  
Chander Mohan Uppal Applicant

Versus

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

**With**Execution Application No. 40/2017  
IN  
O.A. No. 517/2015  
Sandeep Kumar Applicant

Versus

Ministry of Environment, Forests and  
Climate Change & Ors. Respondent(s)**With**Original Application No. 671/2017  
(Earlier O.A.No.123/2014)  
Himmat Singh Shekhawat Applicant

Versus

State of Rajasthan &amp; Ors. Respondent(s)

**With**Original Application No. 726/2018  
Rupesh Pethe Applicant

Versus

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

**With**Original Application No. 456/2018  
(Earlier O.A. No. 146/2014 (CZ))  
Nityanand Mishra Applicant

Versus

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

**With**Original Application No. 1086/2018  
(Earlier O.A.No.140/2014)  
Nanga Ram Dangi Applicant

Versus

Secretary, Department of Environment &  
Forests & Ors.

Respondent(s)

**With**

Original Application No. 575/2019

Yaduraj Singh Jat

Applicant

Versus

State of Rajasthan

Respondent

Date of hearing: 26.02.2021

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

Applicant: Ms. Katyayni, Advocate in OA 1086/2018

Amicus Curiae: Mr. Raj Panjwani, Senior Advocate with Mr. Aagney Sail, Advocate

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

**ORDER**

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

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

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

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

- a. **enforcement of SSMG-2016 and EMGSM-2020,**
- b. **compensation regime,**
- c. **procedure for seizure and release of vehicles,**

- d. periodic interaction among the stakeholders as discussed in later part of the judgment,**
- e. designing and reviewing monitoring mechanism from time to time including grievance redressal.**

**‘Sustainable Sand Mining and Management Guidelines, 2016’ (SSMG-2016) and “Enforcement and Monitoring Guidelines for Sand Mining, 2020” (EMGSM-2020)**

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

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<sup>1</sup> Para 25 of the said order is as follows:

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

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

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

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

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

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

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

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

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

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

#### **Seizure and Release of vehicles involved in illegal mining**

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

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

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

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

9. Following further directions were issued :-

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

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

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

### **Scale of compensation for violations on polluter pays principle**

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

“8. *The Committee considered two approaches:*

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

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

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

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

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

“

<b>Table No. 01: Approach 1</b>				
<b>Permitted Quantity (in MT or m<sup>3</sup>)</b>	<b>Total Extraction (in MT or m<sup>3</sup>)</b>	<b>Excess Extraction (in MT or m<sup>3</sup>)</b>	<b>Exceedance in Extraction:</b>	<b>Compensation Charge (in Rs.)</b>
X	Y	Z = Y-X	Z/ X	D * (1+RF + DF) Where D = Z x Market Value-of-the-material-per-MT-or-m <sup>3</sup>

				DF = 0.3 if Z/X = 0.11 to 0.40 DF = 0.6 if Z/X = 0.41 to 0.70 DF = 1 if Z/X >= 0.71
				RF = 0.25, 0.50, 0.75, 1.00 (as per table 2)

11. Approach 2 is demonstrated by following formula:

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

$$\text{Total Benefits(B)} = \text{Market Value of illegal extraction} : D \text{ (refer Table 1)}$$

$$\text{Total Ecological Costs} = \text{Market Value Adjusted for risk factor: } D * \text{RF (refer Table1).}$$

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

12. Final recommendation is as follows:

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



the Oversight Committee for the State of UP<sup>3</sup> to which reference will be made later.

### **Procedure for DSR/EC**

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

*“(ii) As the DEIAA is not functioning as a consequence of the decision of the Tribunal in Satendra Pandey (supra), the DSR shall be prepared through a consultant(s) accredited by the National Accreditation Board of Education and Training/ Quality Control Council of India in terms of O.M. of MoEF&CC dated 16.03.2010.*

*“(iii) The DSR so prepared shall be submitted to the District Magistrate who shall verify the DSR only in respect of the relevant facts pertaining to the physical and geographical features of the district which shall be distinct from the scientific findings based on the parameters prescribed in the SSMMG-2016. After such verification, the District Magistrate shall forward the DSR for examination and evaluation by the State Expert Appraisal Committee (SEAC) having regard to the fact*

<sup>3</sup> constituted by this Tribunal to oversee compliance of environmental issues, on suggestions of the State Government.

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

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

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

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

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

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

#### **Adverse impact of unscientific/unregulated Sand Mining**

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

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

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

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

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

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

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

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

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

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

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

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

### **Salient features of the EMGSM-2020**

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

*“There can be no two views that an effective institutional monitoring mechanism is required not only at the stage when Environmental Clearance is granted but also at subsequent stages”.*

*“The guidelines focus on the preparation of District Survey Report and the Management Plan” ...*

*We are of the view that all the safeguards which are suggested in sustainable sand mining guidelines as well as notification dated 15.01.2016 ought to be scrupulously followed.” ...*

*It is a known fact that in spite of the above-suggested guidelines being in existence, on the ground level, illegal mining is still going on. The existing mechanism has not been successful and effective in remedying the situation.” ...*

*Since there is an utter failure in the current monitoring mechanism followed by the State Boards, SEIAAs and DEIAAs, it is required to be revised for effective monitoring of sand and gravel mining and a dedicated monitoring mechanism be set up.”*

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

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

“ 9.4. **Monitoring Mechanism**

xxx .....xxx.....xxx.....

1. *All precaution shall be taken to ensure that the water stream flows unhindered and process of Natural river meandering doesn't get affected due to mining activity.*
2. *River mining from outside shall not affect rivers, no mining shall be permitted in an area up to a width of 100 meters from the active edge of embankments or distance prescribed by the Irrigation department.*
3. *The mining from the area outside river bed shall be permitted subject to the condition that a safety margin of two meters (2 m) shall be maintained above the groundwater table while undertaking mining and no mining operation shall be permissible below this level unless specific permission is obtained from the Competent Authority. Further, the mining should not exceed nine-meter (9 m) at any point in time.*
4. *Survey shall be carried out for identifying the stretches having habitation of freshwater turtles or turtle nesting zones. Similarly, stretches shall be identified for other species of significant importance to the river ecosystem. Such stretch with adequate buffer distance shall be declared as no-mining zone and no mining shall be permitted. The regulatory authority as defined for granting Environmental Clearance, while considering the application of issuance of ToR and/or EC for the adjacent block (to non-mining zone) of mining shall take due precaution and impose requisite conditions to safeguard the interest of such species of importance.*
5. *District administration shall provide detailed information on its website about the sand mines in its district for public information, with an objective to extend all information in public domain so that the citizens are aware of the mining activities and can also report to the district administration on any deviation observed. Appropriate feedback and its redressal mechanism shall also be made operational. The details shall include, but not limited to, lease area, geo-coordinates of lease area and mineable area, transport routes, permitted capacity, regulatory conditions for operation including mining, environmental and social commitments etc.*
6. *A website needs to be maintain to track the movement of centralised sand mining and a Centralised server system should be made to manage the data related to sand mining across India.*
7. *The mineral concession holders shall maintain electronic weighbridges at the appropriate location identified by the district mining officer, in order to ensure that all mined minerals from that particular mine are accounted for before the material is dispatched from the mine. The weighing bridge shall have the provision of CCTV camera and all dispatch from the mine shall be accounted for.*

8. *The mineral movement shall be monitored and controlled through the use of transit permit with security features like printing on IBA approved MICR papers, Unique bar/QR, fugitive ink background, invisible ink mark, void pantographs and watermarks papers or through use of RFID tagged transit permits and IT /IT-enabled services. Such monitoring system shall be created and made operationalised by State Mining department and district level mining officer shall be responsible for ensuring that all legal and operational mines are connected and providing the requisite information on the system. Regular check and associated report shall be submitted to DLTF and uploaded on the website.*
9. **State Government shall constitute a District Level Task Force (DLTF) under the Chairmanship of Deputy Commissioner/District Magistrate/Collector with Superintendents of Police and other related senior functionaries (District Forest Officer, District transport officer, Regional officer- SPCBs, Senior Officer of Irrigation Department, District Mining Officer) with one/two independent member nominated by the Commissioner concerned. The independent member shall be retired government officials/teacher or ex-serviceman or ex-judiciary member.**

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

10. *The area not identified for mining due to restriction or otherwise are also to be monitored on a regular basis by the DLTF. Any observations of mining activity from the restricted area shall be reported and corrective measures shall be initiated on an urgent basis by the DLTF.*
11. *The dispatch routes shall be defined in the Environmental Clearance and shall be avoided through densely habituated area and the increase in the number of vehicle movement on the road shall be in agreement with the IRC guidelines / carrying capacity of the road. The alternate and dedicated route shall be explored and preferred for movement of mining to avoid inconvenience to the local habitat. The mining production capacity, by volume/weight, shall be governed by total permissible dispatch calculated based on*

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

12. *The movement of minerals shall be reconciled with the data collected from the mines and various Naka/check posts. Other measures may also include a general survey of the potential mineable area in the district which has not been leased/auctioned or permitted for mining due to regulatory or other reasons.*
13. *The location and number of check post requirement shall be reviewed by DLTF on a regular basis so that appropriate changes in location/number could be made as per the requirement. Such review shall be carried out on a regular basis for the district on inter-state boundary or district providing multiple passages between two districts of different states.*
14. ***The district administration shall compile the information from their district of the permitted and legal mined out minerals and other details and share such information and intelligence with the officials of the adjoining district (Inter or/and Intra State) for reconciliation. The information shall include the area of operation, permissible quantity, mined out minerals (production) the permitted route etc., and other observations, especially where the mine lease boundary is congruent with the district boundary. Such coordination meeting shall be held on a quarterly basis, alternatively in two district headquarters or any other site in two districts decided mutually by the District Magistrate.***
15. ***The mining department shall include submission of an annual environmental audit report as one of the conditions in the mining lease agreement. The annual audit for each river bed mining lease shall be carried out and the audit report shall be uploaded on the website of district administration. The audit shall be carried out by an independent team of 3 members nominated by District Collector/Magistrate/Commissioner comprising of Ex-Serviceman, Ex-Government officials of repute, Professor or Person having experience of mining/environment. The guidelines and method of the audit shall reflect adequately the monitor-able parameters and output and reflect the compliance status with respect to the conditions imposed by the regulatory authorities including conditions of Environmental clearance.***
16. *The in-situ and ex-situ environmental mitigative measures stipulated as EMP, CER, CSR and other environmental and safety conditions in mines including the welfare of labours shall properly reflect in the audit report.*

#### **9.5 Suggestive additional requirements are**

**i. The requirement at the Mine Lease Site:**

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

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

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

**iii. Proposed working of the system:**

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

**iv. Checking On Route:**

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

**v. Breakdown of Vehicle:**

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

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

**vi. Tracking of Vehicles:**

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

**vii. Alerts or Report Generation and Action Review:**

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

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

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

**9.6 Actions against illegal excavation and transport**

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

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

1. *The action should be taken under all legal options available simultaneously. Thus, after identifying the case of illegal excavation, storage and/or transport of minor minerals (including sand), fine should be levied as per the land revenue laws/code(s) of the state. In addition, FIR should be lodged in the police station under relevant sections of law including sec 379 IPC. In addition, action under the Motor Vehicle Act, 1989 and relevant rules should initiate to cancel/suspend the driving license of the driver and permit of the vehicle. Further, action should be initiated under provisions in the Income Tax Act, 1961 for unaccounted income and under the Central Goods and Services Act, 2017 for nonpayment of GST. (Earlier this was done under the state act pertaining to Value Added Tax/Sales Tax). Habitual offenders should also be taken up under local state laws for externment and/or preventive action. It is clarified that as per law, it is possible to take all actions under various laws simultaneously for one offence. What is prohibited in law is an action under the same law for the same act more than once.*
2. *The action should be taken against all persons responsible. Often, there is a tendency to penalize only the drivers of the vehicles. The mafia of illegal mining and transport is much bigger and drivers are only one part of the system. It is necessary to identify all those involved in the offence. It is usually not possible to reach the place of excavation without creating a motorable pathway up to the same through land which may be private land. Such role of such landowners needs to be looked into for each offence and proceeded against simultaneously. Further, the role of vehicle owners needs to be probed. Role of the person who allowed his land to be used for illegal excavation and storage should also be examined. Lastly, the person who purchases such sand should also be probed. The legal proceedings stated above needs to be initiated against all of these together. An attempt should be made to fix the financial responsibility in joint and several ways so that recovery is easier.*
3. *There may be discretion available in law about the extent of the penalty to be levied. If such discretion is very wide, then it is advisable that guidelines may be laid down to reduce such discretion in law for levying penalties. For example, in Maharashtra, Land Revenue Code, fine of any amount of penalty up to thrice the value of the sand can be levied. Solapur district administration had instructed Tahsildars and SDMs not to use discretion and levy the fine of three times the value. Availability of discretion makes junior level functionaries susceptible to pressures and it may also lead to corrupt practices.*

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

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

#### **Compliance Status in States – Context of UP**

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

<b>S. No.</b>	<b>Directions by Hon'ble NGT</b>	<b>Compliance Status (Yes/No)</b>	<b>Compliance Status</b>
<b>1.</b>	<i>Status of the progress in ensuring issues related to illegal sand mining in the State of Uttar Pradesh</i>	<b>Partially Complied</b>	<i>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.</i>
<b>2.</b>	<i>Demarcation of boundaries for regulating grant of sand mining lease</i>	<b>Partially Complied</b>	<i>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.</i>

3.	<i>Environmental Compensation imposed on leasing of minor minerals in any area to cover the restoration cost of environment and to compensate the victims</i>	<b>Partially Complied</b>	<i>There is provision for execution of mining lease deed only after demarcation under rule-17 of the Mining lease Approval Rules, 1963.</i>
4.	<i>Status of the constitution of a team to carry out demarcation by the Chief Secretary</i>	<b>Partially Complied</b>	<i>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</i>
5.	<i>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</i>	<b>Partially Complied</b>	<p><i>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.</i></p> <p><i>ii. According to the Sustainable Sand Mining Management Guidelines, 2016 issued by MOEF&amp;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.</i></p>
6.	<i>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</i>	<b>Partially Complied</b>	<i>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.</i>
7.	<i>District authorities shall seize all sump pumps, other machinery, tools, vehicles, etc. used for carrying out illegal sand mining.</i>	<b>Partially Complied</b>	<i>Report awaited</i>
8.	<i>Any penalty imposed or not by concerned Department to cover the restoration cost of environment and to compensate the victims.</i>	<b>Partially Complied</b>	<i>The orders of Hon'ble NGT dated 18.02.2016 in OA No. 184/2013 Gurpreet Singh Baggha vs. MOEF, regarding recovery of penalty/ environmental damage from the concerned lease holders are being complied at district level.</i>
9.	<i>Status of a detailed restoration plan for the concerned river and its river beds</i>	<b>Partially Complied</b>	<i>Mining work is being done on the basis of approved mining scheme by including the restoration plan in the mining plan.</i>

<b>10</b>	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.	<b>Partially Complied</b>	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.
<b>11</b>	Action against the polluters and the erring officers	<b>Not Complied</b>	Report awaited
<b>12</b>	Status of CCTV Cameras installation at mining points to verify the amount of sand extracted	<b>Partially Complied</b>	Rule-35(2) of Uttar Pradesh Minor Mineral Regulations, 1963 provides that the mining lease holder whose mining lease area is more than 5 hectares, shall constructs checkpost/gate and install 4 CCTV cameras capable of recording at 360° visibility at his own expense for monitoring. Under the supervision of the DMs.
<b>13</b>	Status of regular patrolling by the police to inspect the mining operations	<b>Partially Complied</b>	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.
<b>14</b>	Status of daily reports regarding mining to be filed by SHO/ Mining officer to be sent to District Magistrate.	<b>Partially Complied</b>	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.
<b>15</b>	Status of vehicles confiscation	<b>Partially Complied</b>	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	<b>Partially Complied</b>	<p>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:</p> <ol style="list-style-type: none"> <li>1. Direct Compensation based on the market value of extraction, adjusted for ecological damages</li> <li>2. Computing a Simplified NPV for ecological damages.</li> </ol> <p>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 &amp; 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).</p> <p>In compliance of the Hon'ble NGT direction, the matter was examined by the same expert Committee at CPCB, Delhi &amp; 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.</p>
17	Status of EC imposed and realized by the UPPCB till date in this regard	<b>Partially Complied</b>	<p>In compliance of Order dated 08.01.2020 of Hon'ble NGT in O.A. 360 of 2015 are given at Appendix -IX of the report</p>

<b>18</b>	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.	<b>Partially Complied</b>	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.
<b>19</b>	Safeguards based on High Powered Committee report and observations into the Sustainable Sand Mining and Management Guidelines, 2016.	<b>Partially Complied</b>	MOEF& CC is following the Sustainable Sand Mining Management Guidelines, 2016. (Refer Appendix- X)
<b>20</b>	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.	<b>Not Complied</b>	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)
<b>21</b>	Necessary steps have been taken by MOEF & CC to restore effective impact assessment and safeguards; any action taken against the erring officers	<b>Not Complied</b>	Report awaited
<b>22</b>	Status of Chief Secretary filed the report regarding recovery of compensation (i.e. damage to environment)	<b>Not Complied</b>	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.	<b>Not Complied</b>	<p>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&amp;CC, Govt. of India has issued 'Enforcement &amp; Monitoring Guidelines for Sand Mining' Jan., 2020 which has the following provisions regarding illegal mining:</p> <p>"As per the provision of 23 (C) of MMDR Act, the State Government is empowered to make rules for preventing illegal mining, and transportation &amp; storage of illegal minerals. All such mining which qualifies under illegal shall be dealt with in the provision of MMDR Act the concern authorities".</p> <p>In the above circumstance the necessary amendments in Mining Regulation/ The Uttar Pradesh SubDivisional (Avoidance) Rules, 1963 is to be initiated by the Mines &amp; Geology Department, Govt. of U.P. (Refer Appendix- XI).</p>
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**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."***

#### **Stand of State of MP**

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

#### **Stand of State of Rajasthan**

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

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

### **Today's Consideration**

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

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

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

<sup>4</sup><http://www.legalserviceindia.com/legal/article-73-why-is-illegal-sand-mining-harmful-.html>

<sup>5</sup><https://sandrp.in/2019/03/01/sand-mining-2018-is-it-a-national-menace/>

<sup>6</sup><https://timesofindia.indiatimes.com/city/goa/govt-is-ignoring-illegal-sand-mining/articleshow/67908428.cms>

<sup>7</sup><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>

<sup>8</sup>[https://en.wikipedia.org/wiki/Sand\\_mining\\_in\\_Tamil\\_Nadu](https://en.wikipedia.org/wiki/Sand_mining_in_Tamil_Nadu)

<sup>9</sup><https://sandrp.in/tag/uttarakhand-sand-mining/>

<sup>10</sup><https://sandrp.in/2019/02/26/sand-mining-2018-telangana-and-andhra-pradesh/>

<sup>11</sup>[https://greaterkashmir.com/article/news.aspx?story\\_id=309365&catid=2&mid=53&AspxAutoDetectCookieSupport=1](https://greaterkashmir.com/article/news.aspx?story_id=309365&catid=2&mid=53&AspxAutoDetectCookieSupport=1)

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

### **Compensation**

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

### **Interaction for Effective enforcement**

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

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

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

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

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

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

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

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

#### **Publication of Annual Reports**

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

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

#### **Interaction at National Level**

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

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

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

Adarsh Kumar Goel, CP

S.K. Singh, JM

Dr. Nagin Nanda, EM

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

No. CPCB/IPC-II/NGT-OA(360/2015)/2021/2027-2061

11 June, 2021

To,

The Environment Secretary,  
(As per list)

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

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

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

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

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

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

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

केन्द्रीय प्रदूषण नियंत्रण बोर्ड  
निर्गत... NS Gangwar  
दिनांक... 14/06/2021

(Naresh Pal Gangwar)  
Chairman

*Naresh Pal Gangwar*  
hkg  
o/c

Copy for information to:

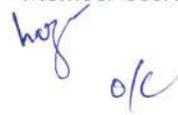
1. **The Joint Secretary,**  
IA-II Division,  
Ministry of Environment, Forest & Climate Change,  
Indira Paryavaran Bhawan,  
Jor Bagh Road, New Delhi – 110003

: for information, please

2. **The Member Secretary,**  
SPCBs/PCCs  
(As per list)

: for information, please

  
(Prashant Gargava)  
Member Secretary



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

08.	Dadra & Nagar Haveli, Daman & Diu	The Environment Secretary, Department of Environment & Forest Secretariat, Daman, Fort Area, Post Office Moti Daman – 396 220 DAMAN & DIU	The Member Secretary, Pollution Control Committee, UTs of Daman, Diu and Dadra & Nagar Haveli Fort Area, Court Compound, Moti Daman - 396 220 DAMAN & DIU
09.	Delhi	The Environment Secretary, Department of Environment, 6th Level, Delhi Secretariat, IP Estate, DELHI – 110 002	The Member Secretary, Delhi Pollution Control Committee, Government of N.C.T. Delhi 4th Floor, ISBT Building, Kashmere Gate, DELHI-110 006
10.	Goa	The Environment Secretary, Department of Environment and Climate Change , 4th Floor Dempo Towers, Patto - Panaji - 403 511. GOA	The Member Secretary, Goa State Pollution Control Board Nr. Pilerne Industrial Estate, Opp. Saligao Seminary, Saligao - Bardez Goa – 403 511 GOA
11.	Gujarat	The Environment Secretary, Forests & Environment Department, Block 14, 8 th floor, Sachivalaya, Gandhinagar - 382 010 GUJARAT	The Member Secretary, Gujarat Pollution Control Board Paryavaran Bhavan, Sector 10-A, Gandhi Nagar 382 010, GUJARAT
12.	Haryana	The Environment Secretary, Department of Environment & Climate Change, Seventh Floor, Main Secretariat, Sector 16, CHANDIGARH – 160 017	The Member Secretary, Haryana State Pollution Control Board C-11, Sector-6, Panchkula- 134109, HARYANA
13.	Himachal Pradesh	The Environment Secretary, Department of Environment, Science & Technology, Paryavaran Bhawan, Near US Club, Shimla – 171 001 HIMACHAL PRADESH	The Member Secretary, Himachal Pradesh State Pollution Control Board Him Parivesh, Phase-III, New Shimla – 171 009 HIMACHAL PRADESH
14.	Jammu & Kashmir	The Environment Secretary, Department of Forest, Environment & Ecology, 4 <sup>th</sup> Floor, Mini Block Secretariat, Jammu, JAMMU & KASHMIR	The Member Secretary, J&K Pollution Control Board, Parivesh Bhawan, Shiekh-ul- Campus, Behind Govt. Silk Factory, Raj Bagh, Srinagar – 190 008 JAMMU & KASHMIR
15.	Jharkhand	The Environment Secretary, Department of Environment, Forest & Climate Change, Nepal House, Doranda, Ranchi – 834 002 JHARKHAND	The Member Secretary, Jharkhand State Pollution Control Board T.A. Bldg., HEC, P. O. Dhurwa, Ranchi - 834 004 JHARKHAND
16.	Karnataka	The Environment Secretary, Forest, Ecology and Environment Department,	The Member Secretary, Karnataka State Pollution Control Board “Parisara Bhavan”, #49,4th & 5th Floor, Church Street, Bangalore 560 001

		Secretariat, 4th Floor, M. S. Building, Bangalore – 560 001 KARNATAKA	KARNATAKA
17.	Kerala	The Environment Secretary, Department of Environment and Climate Change, 4th Floor, K.S.R.T.C Bus Terminal Thampanoor, Thiruvananthapuram – 695 001 KERALA	The Member Secretary, Kerala State Pollution Control Board Head Office, Pattom. P. O Thiruvananthapuram - 695 004 KERALA
18.	Lakshadweep	The Environment Secretary, Department of Environment and Forest, 1st Floor, Paryavaran Bhavan, Kavaratti, LAKSHADWEEP	The Member Secretary, Lakshadweep Pollution Control Committee, Department of Science, Technology & Environment, Kavarati – 682 555, LAKSHADWEEP
19.	Madhya Pradesh	The Environment Secretary, Housing and Environment Department, Paryavaran Parisar, E- 5, Arera Colony, Bhopal – 462 016 MADHYA PRADESH	The Member Secretary, Madhya Pradesh Pollution Control Board Paryavaran Parisar, E-5, Arera Colony Bhopal - 462 016 MADHYA PRADESH
20.	Maharashtra	The Environment Secretary, Environment & Climate Change Department, New Administrative Building, Madam Kama Road, Hutatma Chowak, Mumbai – 400 032 MAHARASHTRA	The Member Secretary, Maharashtra Pollution Control Board, Kalpataru Points, 3rd & 4th Floor, Sion Matunga Scheme Road No.6 Opp. Cine Planet, Sion Circle, Sion (E), Mumbai-400 022 MAHARASHTRA
21.	Manipur	The Environment Secretary, Directorate of Environment and Climate Change, Mini Secretariat Rd, opposite Superitendant of Police, Porompat – 795 010 MANIPUR	The Member Secretary, Manipur Pollution Control Board Lamphalpat, Imphal – 795 004, MANIPUR
22.	Meghalaya	The Environment Secretary, Forest and Environment Department, Secretariat Building, North Range, Forest Colony, Khasi Hills, Shillong – 793 001 MEGHALAYA	The Member Secretary, Meghalaya State Pollution Control Board, “ARDEN”, Lumpyngngad, Shillong – 793 014, MEGHALAYA
23.	Mizoram	The Environment Secretary, Department of Environment, Forest & Climate Change, Tuikhuahlang, Aizawl, MIZORAM	The Member Secretary, Mizoram Pollution Control Board New Secretariat Complex, Khatla, Aizawl – 796 001, MIZORAM
24.	Nagaland	The Environment Secretary, Department of Environment, Forest & Climate Change,	The Member Secretary, Nagaland Pollution Control Board Signal Point, Dimapur,

		New Secretariat, Kohima, NAGALAND	NAGALAND
25.	Odisha	The Environment Secretary, Forest & Environment Department, Kharavel Bhawan, Bhubaneswar, ODISHA	The Member Secretary, Odisha State Pollution Control Board Paribesh Bhawan, A-118, Nilakantha Nagar Unit VIII Bhubaneswar – 751 012, ODISHA
26.	Puducherry	The Environment Secretary, Department of Science, Technology and Environment, III Floor, PHB Building Anna Nagar, PUDUCHERRY - 605 005	The Member Secretary, Puducherry Pollution Control Committee 'B' Block, Ground Floor, Chief Secretariat, PUDUCHERRY-605 001
27.	Punjab	The Environment Secretary, Department of Science, Technology and Environment, 6th Floor, Punjab Civil Secretariat-2, Sector 9, CHANDIGARH – 160 009	The Member Secretary, Punjab Pollution Control Board Vatavaran Bhawan, Nabha Road Patiala 147 001 PUNJAB
28.	Rajasthan	The Environment Secretary, Department of Environment, 4, Jhalana Institutional Area, Jhalana Doongri, Jaipur – 302 004 RAJASTHAN	The Member Secretary, Rajasthan Pollution Control Board, A-4, Institutional Area, Jalana Dungri, Jaipur 302 004, RAJASTHAN
29.	Sikkim	The Environment Secretary, Forest and Environment Department, Government of Sikkim Forest Secretariat Deorali - 737102 Gangtok, East Sikkim, SIKKIM	The Member Secretary, Sikkim State Pollution Control Board State Land Use & Environment Cell Govt. of Sikkim, Deorali Gangtok – 737 102 SIKKIM
30.	Tamil Nadu	The Environment Secretary, Department of Environment, No. 1, Jeenis Road, Panagal Building, Ground Floor, Saidapet, Chennai – 600 015 TAMIL NADU	The Member Secretary, Tamil Nadu Pollution Control Board 76, Anna Salai, Guindy Industrial Estate, Race View Colony, Guindy, Chennai – 600 032 TAMIL NADU
31.	Telangana	The Environment Secretary, Department of Environment, Forests, Science and Technology, Telangana Secretariat 5th Floor, Burgula Rama Krishna Rao Bhawan, NH 44, Hill Fort, Adarsh Nagar, Hyderabad – 500 063 TELANGANA	The Member Secretary, Telangana State Pollution Control Board Paryavaran Bhawan, A-III, Industrial Estate, Sanathnagar, Hyderabad – 500 018 TELANGANA
32.	Tripura	The Environment Secretary, Department of Science, Technology & Environment,	The Member Secretary, Tripura State Pollution Control Board Parivesh Bhawan, Pandit Nehru Complex

		Vigyan Prajukti O Paribesh Bhawan, P.N. Complex, Gorkhabasti, Agartala – 799 006, West Tripura TRIPURA	P.O. Kunjaban, Gorkhabasti, Agartala – 799 006 TRIPURA
33.	Uttar Pradesh	The Environment Secretary, Environment, Forest and Climate Change Department, Bapu Bhawan Secretariat, Vidhan Sabha, Lucknow – 226 001 UTTAR PRADESH	The Member Secretary, Uttar Pradesh Pollution Control Board IIIrd Floor PICUP Bhavan Vibhuthi Khand, Gomti Nagar, Lucknow – 226 020 UTTAR PRADESH
34.	Uttarakhand	The Environment Secretary, Department of Environment & Forest, 4, Subhash Road, Secretariat, 4 <sup>th</sup> floor, New Building, Dehradun – 248 001 UTTARAKHAND	The Member Secretary, Uttarakhand Environment Protection & Pollution Control Board 29/20, Nemi Road, Dalanwala, Dehradun – 268 001 UTTARAKHAND
35.	West Bengal	The Environment Secretary, Department of Environment, 5th Floor, Pranisampad Bhawan, Block LB-II, Salt Lake, Sector III, Bidhannagar, Kolkata – 700 106 WEST BENGAL	The Member Secretary, West Bengal Pollution Control Board Paribesh Bhavan, 10-A, Block LA, Sector III, Salt Lake City, Kolkata-700 091 WEST BENGAL

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## Annexure-IV

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

SPEED-POST

CPCB/IPC-IV/ROGW

22.09.2023

To,

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

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

Sir,

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

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

Now, CPCB has categorized 'Sand/riverbed material mining from riverbed and its floodplains (excluding manual excavation)', the details of which are given at **Annexure-I**.

All SPCBs/PCCs are directed to adopt and implement the categorization of Semiconductor Manufacturing Industries and submit the Action Taken Report (ATR), within 15 days.

Yours faithfully,

(Bharat Kumar Sharma)  
Member Secretary

Encl.: as above.

Page 1 of 2

'परिवेश भवन' पर्वी अर्जुन नगर, दिल्ली-110032

Parivesh Bhawan, East Arjun Nagar, Delhi-110032

दूरभाष/Tel : 43102030, 22305792, वेबसाईट/Website : www.cpcb.nic.in

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**Copy to:**

- 1 The Additional Secretary (CP Division)  
Ministry of Environment, Forests  
& Climate Change,  
Indira Paryavaran Bhawan,  
Jor Bagh Road,  
New Delhi -110 003
- 2 All Regional Directors,  
CPCB  
(as per list)
- 3 Div. Head, IPC-II,  
CPCB, Delhi
- 4 Div. Head-IT,  
CPCB, Delhi

: with a request to upload this letter on  
CPCB website



(Bharat Kumar Sharma)



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

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

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

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

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

Copy to :

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

CP-18/1/2023-IPC-VI-HO-CPCB-HO

Date: 12.02.2025

To

The Chairman  
State Pollution Control Board/Pollution Control Committee  
(As per the list)

**Sub: Directions under section 18(1)(b) of the Water (Prevention & Control of Pollution) Act, 1974 and the Air (Prevention & Control of Pollution) Act, 1981 regarding harmonization of classification of industrial sectors under Red, Orange, Green, White and Blue categories.**

WHEREAS, under section 16 (2)(b) of the Water (Prevention and Control of Pollution) Act, 1974 and under Section 16 (2)(c) of the Air (Prevention & Control of Pollution) Act, 1981, one of the functions of the Central Pollution Control Board (CPCB), constituted under the Water (Prevention and Control of Pollution) Act, 1974, is to coordinate activities of the State Pollution Control Boards (SPCBs) and Pollution Control Committees (PCCs); and

WHEREAS, under section 16 (2)(c) of the Water (Prevention and Control of Pollution) Act, 1974 and under Section 16 (2)(d) of the Air (Prevention & Control of Pollution) Act, 1981, one of the functions of the CPCB is to provide technical assistance and guidance to SPCBs and PCCs; and

WHEREAS, it was brought to the notice of CPCB, that different SPCBs/PCCs were following different criteria for the classification of industrial sectors under different categories. Therefore, in 2012, to have uniformity in classification throughout the country, CPCB vide letter no. B-29012/1/2012/ESS/1526-1563, dated 04.06.2012 issued directions under section 18(1)(b) of the Water Act, 1974 and the Air Act, 1981 to SPCBs/PCCs to adopt and implement standardized list of Red, Orange and Green categories of industries; and

WHEREAS, in 2016, the Central Pollution Control Board (CPCB) developed a scoring methodology based on the Pollution Index (PI) to harmonize the criteria for classification of industrial sectors. The PI is determined based on Precautionary Principle- by evaluating potential of water pollution, air pollution, and hazardous waste generation from particular sector. CPCB vide letter no. B-29012//ESS(CPA)/2015-16, dated 07.03.2016 issued directions under section 18(1)(b) of the Water Act, 1974 and the Air Act, 1981 to SPCBs/PCCs to adopt and implement revised classification. SPCBs/PCCs were also directed to categorize any new or left over sectors at their level by constituting a Committee and following the methodology prescribed by CPCB; and

Page 1 of 5

**‘परिवेश भवन’ पूर्वी अर्जुन नगर, दिल्ली-110032**

Parivesh Bhawan, East Arjun Nagar, New Delhi - 110032

दूरभाष/Tel: 43102030, 22305792, वेबसाइट/Website : [www.cpbc.nic.in](http://www.cpbc.nic.in)

(K)

WHEREAS, CPCB vide letter no. B-29016/ROGW/IPC-VI/2020-21, dated 30.04.2020, issued directions under section 18(1)(b) of the Water Act, 1974 and the Air Act, 1981 to SPCBs/PCCs regarding segregated list of non-industrial sectors (activities/ facilities/ infrastructure/ services) such as sewage treatment plants, healthcare facilities, hotels, building and construction projects, airports, highways etc. Further, CPCB also classified few additional sectors from time to time; and

WHEREAS, based on the experience gained over the years in Pollution Index calculation, use of cleaner fuels like PNG/CNG etc., adoption of cleaner technology resulting in reduced emission/wastewater generation, a need was felt to revisit the classification methodology of 2016; and

WHEREAS, during July 2023, CPCB prepared a “Draft Report on Classification of Industrial Sectors into Red, Orange, Green and White Categories: A Tool for Progressive Environmental Management” which was uploaded on CPCB website for seeking comments/suggestions of the stakeholders/public on the same. The draft report was also circulated to SPCBs/PCCs/MoEF&CC for comments; and

WHEREAS, CPCB vide office order dated 26.09.2023 constituted a committee to critically examine and analyse the comments/suggestions and to make recommendations for suitable incorporation in the finalizing the methodology and classification; and

WHEREAS, based on the stakeholders’ comments, a need was felt to promote/incentivize units for adopting measures resulting in better environmental performance. Additionally, a requirement was also felt for separate category – Blue Category- for essential environmental services for management of environmental pollution arising from domestic/household activities. Accordingly, CPCB prepared an “Addendum and substitution thereto in Draft Report on Classification of Sectors into Red, Orange, Green, White and Blue Categories”, which was shared with SPCBs/PCCs and also uploaded on CPCB website on 11.07.2024 for seeking inputs/comments; and

WHEREAS, the amendment in Section-21 of the Air (Prevention and Control of Pollution) Act, 1981 through the Jan Vishwas (Amendment of Provisions) Act, 2023 and amendment in Section-25 of the Water (Prevention and Control of Pollution) Act, 1974 through the Water (Prevention and Control of Pollution) Amendment Act, 2024, grant exemption to certain categories of industries, as notified by Central Government, for obtaining consent under these Acts; and

WHEREAS, the Ministry of Environment, Forest and Climate Change, Government of India vide notification no. G.S.R. 702(E), dated 12.11.2024 granted exemption of consent under the Water Act, 1974 and the Air Act, 1981 to exemption of Consent to Establish (CTE) and Consent to Operate (CTO) to all industrial plants having pollution index score upto 20 (at present total 39 industrial sectors under white categories as per 2016 methodology) subject to

condition that such plant shall inform in writing to the concerned State Pollution Control Board (SPCB) or Pollution Control Committee (PCC); and

WHEREAS, the MoEF&CC vide letter no. Q-15012/2/2022/-CPW-Part (1)/e-240741, dated 14.11.2024 has issued Standard Operating Procedure for implementation of the said Notification dated 12.11.2024. The SOP includes the following provisions for White categories of industries:

- i. Industry to intimate to concerned SPCB/PCC about operations and self-declare the compliance with prevalent rules & regulations,
- ii. Concerned SPCB/PCC to maintain separate list of such industries/activities, and
- iii. Concerned SPCB/PCC to ensure that no activities other than those intimated, are carried out by exempted units.

WHEREAS, the Committee constituted by CPCB evaluated the comments, incorporated the suitable changes and finalized the revised methodology as well as classification of sectors. Final report in this regard titled as "Classification of sectors in to Red, Orange, Green, White and Blue Categories (A tool for progressive environmental management)" was submitted to Ministry of Environment, Forest and Climate Change (MoEF&CC) for concurrence. The MoEF&CC vide letter no. Q-16017-57-2015-CPA, dated 15.01.2025 granted concurrence to the revised classification; and

WHEREAS, as per the revised methodology, the category of the sector is decided based on the following ranges of Pollution Index:

- i. Red:  $PI \geq 80$ ,
- ii. Orange:  $55 \leq PI < 80$ ,
- iii. Green:  $25 \leq PI < 55$ ,
- iv. White:  $PI < 25$ ; and

WHEREAS, based on the revised methodology, CPCB has classified a total of 419 sectors and sub-sectors as under:

- i. The Red Category: 125
- ii. The Orange Category: 137
- iii. The Green Category: 94
- iv. The White Category: 54
- v. The Blue Category: 9; and

WHEREAS, the purpose of classification is to ensure that the industry is established in a manner consistent with the environmental objectives and also to prompt industrial sectors to adopt cleaner technologies, ultimately resulting in the generation of no or minimum pollutants. The revised classification system also defines criteria for incentivizing such industry. The industry may self-assess the PI score as per defined criteria and can submit application to respective SPCBs/PCCs for consideration; and



**NOW, THEREFORE**, in the exercise of the powers delegated under Section 18(1)(b) of the Water (Prevention & Control of Pollution) Act, 1974 and Section 18(1)(b) of the Air (Prevention & Control of Pollution), Act, 1981 the earlier directions dated 07.03.2016 and subsequent directions/letter in the context of categorization of industries are withdrawn with immediate effect and following '**Directions**' are hereby issued for compliance by all SPCBs and PCCs:

1. That SPCBs and PCCs shall immediately adopt the revised methodology for classification of sectors and list of 419 sectors/sub-sectors classified under Red, Orange, Green, White, and Blue categories as detailed in the **attached** report- "Classification of Sectors into Red, Orange, Green, White and Blue Categories (A tool for progressive environmental management)".
2. That all pending application for consideration of consent (CTE/CTO) and future such application shall be processed as per the revised classification. In case CTE granted before the revised classification, applicability of CTO will be as per revised classification.
3. That the revised sectors/subsectors classified under Red, Orange, Green, White, and Blue category of sectors as given in the attached document shall be used by the SPCBs and PCCs for consent management, inventorization of units under different categories, siting criteria, deciding environmental surveillance frequency, calculation of environmental compensation, etc., as per the guidelines issued from time to time.
4. That SPCBs and PCCs shall prepare the inventory of Red, Orange, Green, White and Blue categories of units operating in their jurisdictions, based on the revised classification. SPCBs and PCCs shall upload the category and sector-wise list of such units on their website. SPCBs and PCCs shall also forward such list to CPCB, latest by 30.06.2025 and thereafter updated list by 30th June every year.
5. That the classification of sectors shall not be linked to sanction of loans/finance of bank proceedings.
6. That any further addition of any new or left-out sector and their classification which is not listed in the revised list of Red, Orange, Green, and White categories, shall be done at the level of concerned SPCB /PCC by constituting a Committee and following revised criteria & guidelines as detailed in the attached report and no concurrence of CPCB shall normally be required. Intimation of same from time to time will suffice. However, addition in Blue Category Sectors-Essential Environmental Services for domestic waste management, will be done at the level of CPCB only. SPCBs/PCCs may forward their proposal, if any, to CPCB in this regard.
7. That SPCBs and PCCs are required to prepare and submit list of additional sector classified under white category to CPCB on annual basis, by 30<sup>th</sup> of June every year, in the prescribed format (Annexure-V) as given in the attached report, for further notification for exemption from consent as per the provisions of the Jan Vishwas (Amendment of Provisions) Act, 2023, the Water Act, and the Air Act as amended from time to time by MoEF&CC.
8. That SPCBs and PCCs shall constitute a committee as prescribed in the report to evaluate the applications of the units for incentives due to adopting measures resulting in better environmental performance and reduction in PI score. The SPCB/PCC shall

place the separate list of such units on their website and also submit list of such units to CPCB on Annual Basis by 30th June every year.

The SPCBs/PCCs shall acknowledge the receipt of directions and submit the "Action Taken Report" in compliance with these directions to CPCB before 20.02.2025.

**Encl.** As above.

**(Bharat Kumar Sharma)**

Member Secretary

Copy to:

1. The Chief Secretary of all the States and UTs  
(As per the list)
2. The Secretary,  
Ministry of Micro, Small and Medium Entrepreneurs  
Udyog Bhawan, Rafi Marg, New Delhi - 110 011
3. The Secretary,  
Ministry of Heavy Industries  
Udyog Bhawan, Rafi Marg, New Delhi - 110 011
4. The Secretary,  
Ministry of New and Renewable Energy  
Block-14, CGO Complex,  
Lodhi Road, New Delhi-110 003
5. The Joint Secretary (CP Division)  
Ministry of Environment, Forests and Climate Change  
Indira Paryavaran Bhawan  
Jor Bagh Road, New Delhi - 110 003
6. All Regional Directorates, CPCB  
(As per the list)

**(Bharat Kumar Sharma)**

Member Secretary

<b>Address List of The Chief Secretaries of States/UTs</b>	
1. The Chief Secretary, Government of Andhra Pradesh, 1 <sup>st</sup> Block, A.P Secretariat Office, Velagapudi- 522503  E-mail:- ( <a href="mailto:cs@ap.gov.in">cs@ap.gov.in</a> )	2. The Chief Secretary, Government of Arunachal Pradesh, Civil Secretariat, Itanagar-791111  E-mail:- ( <a href="mailto:Cs-arunachal@nic.in">Cs-arunachal@nic.in</a> )
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# **Classification of Sectors into Red, Orange, Green, White and Blue Categories**

(A tool for progressive environmental management)



**Central Pollution Control Board**

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**(January 2025)**

तन्मय कुमार, भा.प्र.से.  
अध्यक्ष

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सत्यमेव जयते

FOREWORD

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MINISTRY OF ENVIRONMENT, FOREST & CLIMATE CHANGE, GOVT. OF INDIA

The concept of classifying industries into different pollution categories originated in 1989 with the Doon Valley (Uttarakhand) Notification issued by Ministry of Environment and Forests. Subsequently the concept of pollution index was developed by Central Pollution Control Board (CPCB) during 2016 to classify the sectors into different category. The 2016 classification helped State Pollution Control Boards (SPCBs)/Pollution Control Committees (PCCs) in streamlining consent management, prioritizing regulatory oversight & environmental monitoring, taking decision related to siting of units, etc. However, necessity felt for refining the concept of calculating Pollution Index to overcome certain limitation and to bifurcate sub-sectors based on pollution load, scale of operation etc.

Accordingly, draft methodology was prepared and widely circulated for inputs/comments/suggestions by placing the same on CPCB website (public domain) as well as by inviting comments from MoEF&CC/SPCBs/PCCs. As of 11.08.2024, i.e. the extended date for receipt of suggestions, CPCB received 170 representations, comprising over 700 comments from PSUs, NGOs, industries, industrial associations, including feedback from SPCBs of Kerala, Nagaland, Tamil Nadu, Mizoram, West Bengal, Punjab and Lakshadweep. The report has been finalised after examining all the comments by a working committee.

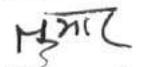
The 2025 classification methodology bifurcates sub-sectors based on pollution load, scale of operation, production technology, and type of fuel used into Red, Orange, Green, White and Blue categories. Red indicates the highest pollution potential, requiring stringent regulatory oversight, while White signifies minimal or no pollution, with much reduced compliance burden of merely intimation to the concerned SPCBs/PCCs. **A new Blue Category has also been introduced to distinguish the Essential Environmental Services** required for management of environmental concerns arising from anthropogenic pollution due to domestic/household activities which otherwise will have large littering potential. Additional 2 years validity for consent to operate (as per Pollution Index) is prescribed for the blue category.

This report also outlines the implementation pathway, which includes guidelines for State Pollution Control Boards/Pollution Control Committees to follow and implement the new classification system. Earlier classified 257 sectors have now been bifurcated and classified into 403 sectors (including sub sectors) and additionally, 16 new sectors have been introduced. Thus, the revised classification of 273 key sectors comprising of total 419 sectors/sub-sectors are further classified into Red Category (125 nos.), Orange Category (137 nos.), Green Category (94 nos.), White Category (54 nos.) and Blue Category (9 nos.). Progression between red, orange and green categories for the industrial sectors is also incorporated based on the use of less polluting available processes and technologies.

The report also comprises provisions for individual units to adopt cleaner technologies and practices resulting in reduction of pollution load in any sector. Incentives, such as extended validity for Consent to Operate (CTO) and reduced inspection frequencies, are outlined to encourage continual improvement of environmental performance. The incentive mechanism allowing progression between categories will thereby promote Ease of Doing Business by extended consent validity and enhance duration between inspections, thereby leading to reduced compliance burden.

To sum up, this report aims to create a more transparent, consistent, and incentivized regulatory mechanism for better environment management, promoting sustainable industrial development and better governance. I hope the report will be useful to all concerned in the field of industrial pollution control in the country and would incentivise the industries to switch over to cleaner process and technology leading to reduced air, water and soil pollution and also encourage setting up of blue category industries.

I would like to place on record my sincere appreciation for the hard work and valuable contributions by the CPCB team comprising of Shri Amit R. Thakkar, Add. Director, Shri Saubhagya Dixit, Scientist D, and Dr. Anantha N. S., SSA under the guidance of Shri Bharat Kumar Sharma, Member Secretary. I would also like to extend my thanks to Dr. Prashant Gargava, former Member Secretary, Shri P. K. Gupta, former Director and Shri Ajay Aggarwal, former Director, for their contribution. I would also express gratitude to the Working Committee, CPCB, MoEF&CC, SPCBs/PCCs and others for their contributions in the preparation of this report.

  
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## EXECUTIVE SUMMARY

The concept of classification of industrial sectors into red, orange, and green categories based on the size of operations and consumption of resources was first introduced in 1989 for Doon Valley, Uttarakhand. This classification aimed to aid decisions regarding siting of industries. Over the period of time, this concept was extended nationwide to manage consents and establish norms for surveillance and inspection of industry. In 2012, to have uniformity in classification throughout the country, the Central Pollution Control Board (CPCB) issued a standardized list of 244 sectors, classified under red (85 sectors), orange (73 sectors) and green (86 sectors) categories.

In 2016, the Central Pollution Control Board (CPCB) developed a scoring methodology based on the Pollution Index (PI) to harmonize the criteria for categorizing industries. This PI was determined by evaluating water pollution, air pollution, and hazardous waste generation. Using this methodology, CPCB classified 257 industrial sectors into four categories: Red (63 sectors), Orange (91 sectors), Green (65 sectors), and White (38 sectors). The White category was introduced for sectors considered "practically non-polluting" during 2016. Additionally, State Pollution Control Boards (SPCBs) and Pollution Control Committees (PCCs) were authorized to categorize any new or left over sectors according to the CPCB's 2016 methodology.

Further, based on the experience gained over the years, the increased use of cleaner fuels like PNG and bio-CNG, adoption of cleaner technology resulting into reduced wastewater generation, normalisation approach & different formula for calculating PI etc. a need was felt to revisit the classification methodology of 2016 for several such identified areas for improvement. Separate scoring for trade effluent and sewage effluent was also required due to differing characteristics and treatment methods.

Considering the scope of revision, CPCB published a draft report revising the methodology for calculating PI and accordingly classification of sectors into Red, Orange, Green, and White categories based on pollution index range was placed in the public domain for inputs/comments. Around 160 representations comprising more than 700 comments were received. Based on feedback/suggestions and examination of same by the working committee constituted for the purpose, the methodology was finalised. As per the final methodology, the scoring criteria for the following three major pollutant groups are as follows:

- i. Water Pollutant Score (PI<sub>W</sub>): Assesses the water pollution potential considering the oxygen demand of wastewater, other pollutants in the wastewater and quantity of wastewater generated.
- ii. Air Pollutant Score (PI<sub>A</sub>): Evaluates the potential air pollution due to process emissions (point source), work zone emissions (fugitive and odour) and type & quantity of fuel used.
- iii. Waste Pollutant Score (PI<sub>H</sub>): Considering the type and quantity of waste (which are hazardous/toxic/infectious/bulk in nature) generated.

Each pollutant group is scored out of 100, and the Cumulative Pollution Index is calculated. The category of the sector is decided based on the pollution index range, if  $PI \geq 80$  the category

of sector is Red, if PI ranges between  $55 \leq PI < 80$ , the category of sector is orange, similarly for the range of PI between  $25 \leq PI < 55$ , the category is Green and for  $PI < 25$ , the category of the sector is white.

Further, based on the stakeholders' comments, a need was felt to introduce a separate "blue category" for Essential Environmental Services (ESS) required for management of waste generated from domestic/household activities and, an incentive mechanism to promote units in a particular sector, taking measures resulting into better environmental performance. An addendum was prepared, shared and presented to all SPCBs/PCCs. The addendum was also placed in the CPCB Website on 11.07.2024 for inputs/comments. 09 representations were received in the addendum. All representations were examined, and classification based on revised methodology is finalised. Based on the revised methodology, CPCB has classified total 419 sectors and sub-sectors under Red (125), Orange (137), Green (94), White (54) and Blue (9) categories.

The report introduced incentive mechanism for the units in any sector that adopt environment friendly practices such as treatment and recovery of 100% wastewater, use of 100% cleaner fuel/renewal energy etc. and ensuring continuous compliance. These incentives are designed to encourage continuous improvement in environmental performance and to reward units that demonstrate proven implementation of sustainable practices and compliances.

Following are the salient features of the revised classification methodology:

- Methodology focusses on "Potential to pollute the environment" by the sector.
- Simplified single formula for Cumulative Pollution Index for all cases.
- Equal weightage to all three pollutant groups- Air, Water, and Waste.
- Cumulative PI based on weighted proportionate scores of pollutant groups.
- Separate scoring criteria for sectors generating sewage (such as Building & construction projects, STPs, Airports, etc.) and bio-medical waste (Health Care Facilities).
- Introduced Blue Category for 9 sectors under Essential Environmental Services required for management of waste generated from domestic/household activities.
- Appropriate weightage to scale of operations by introducing more slabs to bifurcates sub-sectors based on pollution load, scale of operation, production technology and type of fuel used.
- Introduction of sub-categories for sectors based on cleaner technologies, fuel types, integrated/segreated operations etc.
- Motivation to industries for progressive environmental management.
- A tool to assess the Cumulative Pollution Index and category based on revised method.

This report, prepared by the Central Pollution Control Board (CPCB), presents a revised methodology for classifying sectors based on their pollution potential. The classification aims to enhance environmental management and regulatory oversight by classifying sectors into red, orange, green, white, and blue categories. The report covers in detail about the genesis of

classification, need for the revision of 2016 methodology, scoring methodology for calculation of cumulative PI, etc.

The report also outlines guidelines for implementing the classification system. The classification may be used for consent management, inspection frequency, siting criteria, cluster development, pollution control plans, levying environmental compensation, promoting progressive environmental management, etc.

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**LIST OF ABBREVIATION**

CBG: Compressed Biogas

CNG: Compressed Natural Gas

CPI: Cumulative Pollution Index

CPCB: Central Pollution Control Board

CTE: Consent to Establishment

CTO: Consent to Operate

EC: Environment Compensation

ETP: Effluent Treatment Plant

EES: Essential Environmental Services

Gen-Set: Generator Set

HAPs: Hazardous Air Pollutants

HCFs: Health Care Facilities

HW: Hazardous Waste

MoEF&CC: Ministry of Environment, Forest & Climate Change

LNG: Liquefied Natural Gas

LPG: Liquefied Petroleum Gas

NGT: National Green Tribunal

NOC: No Objection Certificate

OCEMS: Online Continuous Effluent/Emission Monitoring System

PCC: Pollution Control Committee

PM: Particulate Matter

PI: Pollution Index

PI<sub>A</sub>: Air pollutant score

PI<sub>H</sub>: Waste pollutant score

PI<sub>w</sub>: Water pollutant score

PNG: Piped Natural Gas

SPCB: State Pollution Control Board

TTZ: Taz Trapezium Zone

VOCs: Volatile Organic Compounds

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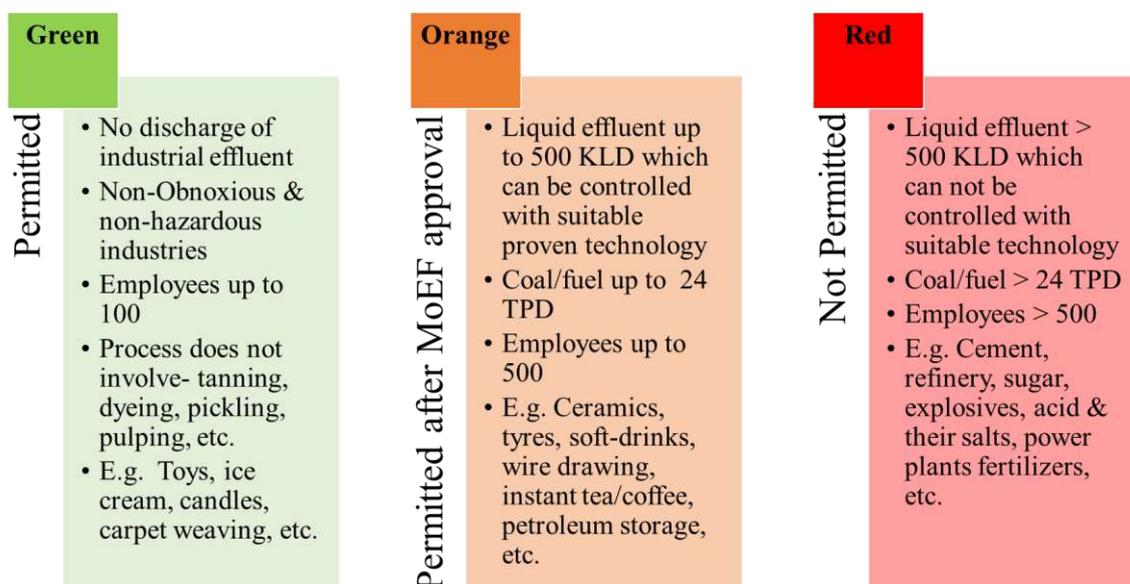
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## Genesis and Journey of Classification

### 1.1 Introduction

The notifications issued by the Ministry of Environment and Forest during 1989 for Doon Valley, Uttarakhand introduced the concept of classification of industries as red, orange, and green categories. The purpose of this classification was to facilitate decisions related to location of these industries. The criteria for classification of industries was primarily based on quantity of industrial effluent, quantity of fuel/coal, and the number of employees, and amount of waste generated. The notification included list of 129 sectors, classified under red (45), orange (35), and green (39) categories. The criteria used for Doon Valley Notification, 1989 is summarized in the **Figure I**.

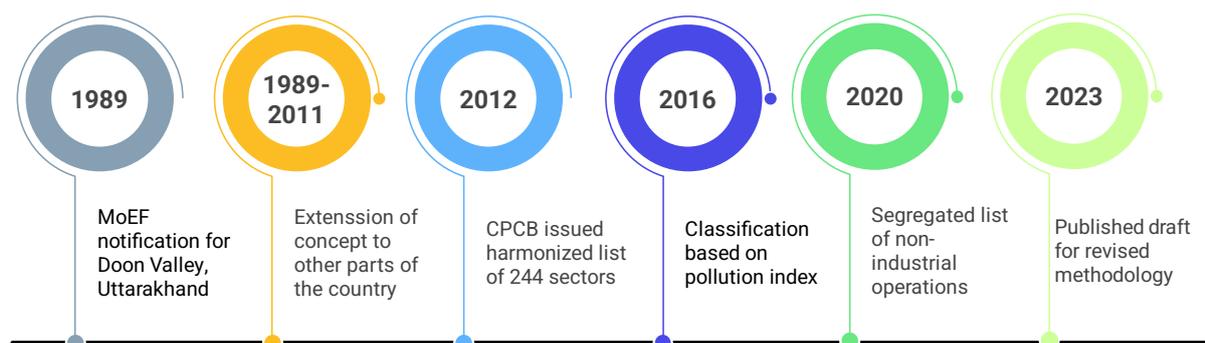


**Figure I: Criteria for classification of industries in Doon Valley Notification, 1989**

Subsequently, the application of this concept was extended to other parts of the country not only for the purpose of location of industries, but also for the purpose of consent management and formulation of norms related to surveillance/inspection of industries. As the State Pollution Control Boards (SPCBs) and Pollution Control Committees (PCCs) were following different

categorization of industries, to maintain the uniformity across the country, during 2012, CPCB issued a list of 244 sectors, classified under red (85), orange (73) and green (86) categories.

In order to harmonize the criteria for categorization, during the year 2016, CPCB developed the scoring methodology to classify the industries based on the Pollution Index (PI) which was a function of water pollution, air pollution and hazardous waste generation. Based on this methodology, CPCB has classified 257 sectors under red (63), orange (91), green (65) and white (38) categories and directed SPCBs/PCCs to adopt the same. During 2016, CPCB introduced white category as a new category for such sectors which are “practically non-polluting”. SPCBs/PCCs were also empowered to categorize any new/left-out sector at their own level, following the methodology prescribed by CPCB. Additionally, during 2020, CPCB also segregated the list of non-industrial operations/facilities. The overall journey of classification may be understood with the help of milestone chart shown in **Figure II**.



**Figure II: Genesis and journey of classification of sectors**

The concept of categorization is based on the “Precautionary Principle”, which focuses on potential of industries to pollute the environment. The purpose of categorization is to ensure that the industry is established in a manner consistent with the environmental objectives and to prompt industrial sectors to adopt cleaner technologies, ultimately resulting in generation of minimum pollutants.

\*\*\*\*\*

# 2

## Modified Methodology for Classification

### 2.1 Need and scope for revision of methodology

Based on the experience gained over the years, a need was felt to revisit the 2016 methodology for classification of sectors considering following scope of improvement:

#### i. Assessment of Pollution Index:

The category of any industrial sector depends on the Pollution Index (PI), which comprises of scores of three pollutant groups i.e., air pollution, water pollution and hazardous waste. The water and air pollutants were each assigned a weight of 40%. However, the hazardous waste generation was given 20% weightage in pollution index.

As per the classification methodology of 2016, in case of absence of any pollutant groups, pollution index was normalized to 100. As a result, different formulas were required to compute pollution index.

Further, the normalization method has certain limitations while comparing pollution potential among sectors having scores for all three pollutant groups verses score only for any one/two pollutant group(s). Moreover, it was also observed that in some sectors normalization involved subjectivity based on perception.

#### ii. Size of operations of industrial activities:

It was observed that, there was less variation in PI score of industry based on size of operation in same sector. Limited variables/slabs were considered for the quantity of wastewater discharge and fuel consumption. It was also observed that adequate weightage in the considered variables/slabs to account the variation in size of operations of industrial activities need to introduce.



### **iii. Consideration to segregated industrial activities:**

Although there were differences in pollution potential of integrated and standalone units of a particular sector, the classification methodology (2016) classifies the integrated or standalone units in the same sector. For example, standalone cement grinding units will have less pollution potential than integrated cement plants, but both were classified under red category.

### **iv. Consideration of type of fuel used:**

In industrial operations requiring fuels, the amount of emissions is governed by many factors such as the type of fuel and its calorific value, combustion efficiency, emission factors, etc. Use of biomass and cleaner gaseous fuels such as Piped Natural Gas (PNG), Liquefied Petroleum Gas (LPG), Compressed Natural Gas (CNG), bio-CNG etc. have increased significantly in recent years. It was observed that adequate weightage based on type of fuel used is required.

### **v. Separate scoring for sewage and trade effluent:**

It is desirable to have separate wastewater scoring criteria for the sectors generating trade effluent and sewage effluent, as characteristics, treatment method and impact are different for trade effluent generated from industrial sectors and sewage effluent generated from infrastructure & development sectors.

### **vi. Motivation to industries for progressive environmental management:**

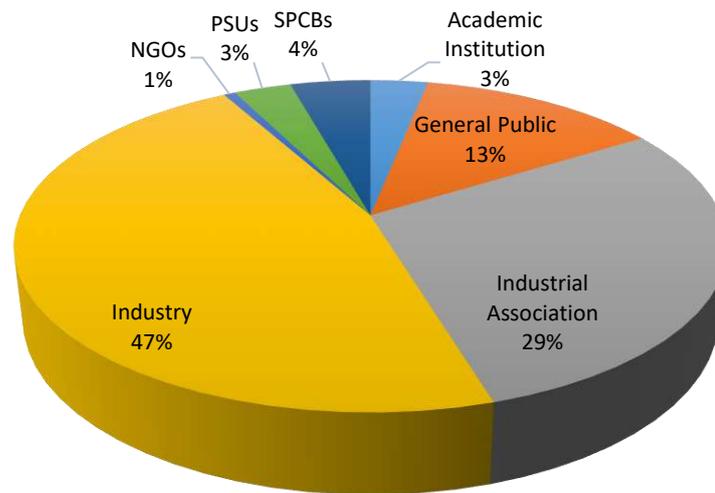
In the previous classification regime, there was no effective provision for change in category of industries based on the variation in pollution potential of a sector, even if the industries adopt cleaner technologies or switch over to cleaner raw material/cleaner fuel etc., resulting into reduction in pollution index.

## **2.2 Modified methodology for classification of sectors**

Considering the scope of revision, CPCB prepared a draft report on “Classification of Industrial Sectors into Red, Orange, Green and White Categories: A Tool for Progressive Environmental Management”. As per the draft report, a revised methodology for the classification is proposed which incorporates, water pollutant score, air pollutant score and waste generation score, based on the pollution potential of a sector on the environment. Scores out of 100 were given to each three pollutant groups and formula for calculating cumulative score based on the impact pollutant is devised. These scores are used for computation of pollution index for deciding the

category of industrial sector. The cut-offs for deciding the category were based on the quartiles of pollution indices, pollution potential of sectors, etc. The draft report was placed on CPCB website in July 2023, for comments/feedback from stakeholders.

CPCB received 161 representations, comprising more than 700 comments from various State Pollution Control Boards, research and technical institutions, industrial associations, NGOs, individual industries, and the public. The stakeholder-wise representations are shown with the help of pie-chart in **Figure III**.



**Figure III: Stakeholder-wise representations received**

Subsequently, CPCB constituted a committee to critically examine and analyse the comments and to make recommendations for suitable incorporation in the final methodology and classification. After incorporating the feedback received from stakeholders, the Committee has finalized the basic methodology which can be used as a yardstick for classification of the sectors into Red, Orange, Green and White Categories.

Further, based on the stakeholders' comments, a need was felt to introduce a separate "blue category" for Essential Environmental Services (ESS) required for management of waste generated from domestic/household activities and, an incentive mechanism to promote units in a particular sector, taking measures resulting into better environmental performance. An addendum was prepared, shared and presented to all SPCBs/PCCs. The addendum was also placed in the CPCB Website on 11.07.2024 for inputs/comments. Till last date (i.e. 11.08.2024) 09 representations were received in the addendum. All representations were examined, and classification based on revised methodology is finalised.



It is worth to mention that to safeguard the environment, following the fundamental principle of classification i.e., “Precautionary Principle”, scope is always available for application of mind and collective wisdom. As per the precautionary principle, when human activities may lead to morally unacceptable harm that is scientifically plausible but uncertain, actions shall be taken to avoid or diminish that harm. Therefore, variation from methodology is possible in case of projects having high chances of damage to the environment/eco-system such as river mining, etc. or having associated accidental risk such as major accident hazards installations wherein risk is associated with industrial activities having potential in terms of operation or process, manufacturing, transportation, and storage of one or more hazardous chemicals as prescribed by the Manufacture, Storage, and Import of Hazardous Chemical Rules, 1989.

Considering the above issues, the classification methodology was modified based on the potential of three pollutant groups, namely, water pollutant, air pollutant and waste pollutant (which are hazardous/toxic/infectious/bulk in nature), which have been given scores out of 100, each. Slabs are assigned for selection of pollutant groups respectively for water, air, and waste. Score can be decided based on dominant pollutants in the pollutant groups and quantity as detailed in Table-I, Table-II and Table-III. These scores are used for computation of pollution index for deciding the category of sector. The scoring methodology is based on the pollution potential during generation and not at the end of pipe/ after treatment considering the fact that all pollutants need to be treated and disposed as per the provisions/rules notified under the Water (Prevention and Control of Pollution) Act, 1974, the Air (Prevention and Control of Pollution) Act, 1981 and the Environment (Protection) Act, 1986 and as amended.

The details of scoring criteria for  $PI_W$  for “water pollutant,”  $PI_A$  for “air pollutant” and  $PI_H$  for “waste generating sector” are as follows:

### 2.2.1 Scoring criteria for Water Pollutant “ $PI_W$ ”

Water pollution score consider the potential water pollution load from any sector in terms of characteristics and quantity of untreated trade effluent (wastewater). The “trade effluent” includes any liquid, gaseous or solid substance which is discharged from any premises used for carrying on any [industry, operation or process, or treatment and disposal system], other than domestic sewage.

The water pollutant score ( $PI_W$ ) is the addition of three sub-scores which are based on organic content in terms of oxygen demand of wastewater (W1), potential of other pollutants (W2) and



quantum of wastewater (W3). The weightages of W1, W2 and W3 in the water pollution score are 35%, 30% and 35%, respectively.

Proportionate higher scores are assigned to the sectors generating trade effluent of high BOD and/or high COD, heavy metals/toxic compounds, and large volume of wastewater. The scores are assigned considering the potential for causing damage to the environment. It may be noted that for sectors generating industrial effluent, dominant quantity of trade effluent is considered in score W3 (W3-1 to W3-5). Whereas, for sectors generating huge volume of sewage effluent such as railway stations, STPs, residential building projects, airports etc., the separate scores W3 (W3-6 to W3-10) are assigned. The term used, “Sewage effluent” means effluent from any sewerage system or sewage disposal works and includes sullage from open drains. The scoring criteria for water polluting sectors are given in **Table-I**.

**Table I: Scoring Criteria for Water Polluting Sector**

Water Pollutant Group	Description	Score
<b>Score W1: Score based on the oxygen demand of wastewater</b> (Maximum of the following scores to be considered)		
W1-1	BOD $\geq$ 5,000 mg/l or COD $\geq$ 10,000 mg/l	35
W1-2	1000 $\leq$ BOD < 5,000 mg/l or 5000 $\leq$ COD < 10,000 mg/l	30
W1-3	500 $\leq$ BOD < 1,000 mg/l or 1000 $\leq$ COD < 5,000 mg/l	25
W1-4	100 $\leq$ BOD < 500 mg/l or 250 $\leq$ COD < 1,000 mg/l	20
W1-5	10 $\leq$ BOD < 100 mg/l or 50 $\leq$ COD < 250 mg/l	10
<b>Score W2: Score based on other pollutants in the wastewater</b> (Maximum of the following scores to be considered)		
W2-1	Pollutants like pesticides, heavy metals, and toxic compounds:  <i>(Aluminium, Anionic detergents, Barium, Chloramines, Copper, Fluoride, Total residual chlorine, Iron, Manganese, Mineral oil, Phenolic compounds, Selenium, Silver, Sulphide, Cadmium, Cyanide, Lead, Zinc, Mercury, Tin, Vanadium, Antimony, Benzene, Benzo-a-pyrene, Molybdenum, Nickel, Phosphates, Polychlorinated biphenyls, Polynuclear aromatic hydrocarbons, Arsenic, Total/Hexavalent Chromium, Trichloroethane, Trichloroethylene, Adsorbable Organic Halogens (AOx), Pesticides compounds, Residual antibiotic, Radioactive materials, etc.)</i>	30
W2-2	Pollutants like Nitrate Nitrogen, Nitrate, Ammonical Nitrogen, Total Kjeldahl Nitrogen (TKN), Oil & grease, pH < 5.5 or > 9	25
W2-3	Pollutants mainly in terms of inorganic dissolved solids and associated other impurities due to process e.g. wastewater generated from DM water rejects, boiler blowdowns, brine solution rejects, fresh-water RO rejects, etc.	20
W2-4	Pollutants mainly in terms of inorganic dissolved solids e.g. wastewater from cooling towers, cooling-re-circulation processes, etc.	15



<b>Score W3: Score based on quantity of wastewater generated</b>		
<b>A. For sectors generating Industrial Trade effluent (Maximum score to be considered)</b>		
W3-1	Wastewater $\geq$ 500 KLD	35
W3-2	100 KLD $\leq$ Wastewater $<$ 500 KLD	30
W3-3	50 KLD $\leq$ Wastewater $<$ 100 KLD	25
W3-4	10 KLD $\leq$ Wastewater $<$ 50 KLD	20
W3-5	Wastewater $<$ 10 KLD	15
<b>B. For sectors such as STPs, building projects, etc. generating/handling only high-volume Sewage (Maximum score to be considered)</b>		
W3-6	Sewage $\geq$ 5,000 KLD	35
W3-7	2,000 KLD $\leq$ Sewage $<$ 5,000 KLD	30
W3-8	500 KLD $\leq$ Sewage $<$ 2,000 KLD	25
W3-9	100 KLD $\leq$ Sewage $<$ 500 KLD	20
W3-10	Sewage $<$ 100 KLD	15
<b>Water Pollutant Score (PI<sub>w</sub>) = W1+W2+W3</b>		

### 2.2.2 Scoring criteria for Air Pollutant “PI<sub>A</sub>”:

Air pollution score consider the potential air pollution load from any sector in terms of characteristics of emissions and its quantum/scale in terms of quantity of fuel. The air pollutant score is based on generation of emission. The “air pollutant” means any solid, liquid, or gaseous substance (including noise) present in the atmosphere in such concentration as may be or tend to be injurious to human beings or other living creatures or plants or property or environment.

The air pollution score (PI<sub>A</sub>) is the addition of three sub-scores which are based on the type of pollutants in emissions (A1), work zone emission/fugitive emissions & odour nuisance (A2), and fuel type & quantity (A3). The weightages of A1, A2 and A3 in air pollution score are 35%, 30% and 35%, respectively.

Proportionate higher scores are assigned to the sectors generating emissions with hazardous air pollutants, process-based fugitive emissions and using solid/liquid fuels, as such pollutants have higher potential to damage the environment.

The California Air Resources Board defines fugitive emissions as “Emissions not caught by a capture system which are often due to equipment leaks, evaporative processes and windblown disturbances.” The fugitive emissions from any process having acid mist, VOCs, etc. are given higher weightage (score A2=30) as compared to the fugitive emissions of inert material (score A2=25). Sectors having persistent foul odour issue, will get score A2=20. Sectors/units using solid/liquid fuel will get higher score-A3, compared to the sectors using cleaner gaseous fuel or electricity. The scoring criteria for air polluting sectors are given at **Table-II**.

Table II : Scoring criteria for air polluting sectors

Air Pollutant Group	Description	Score
<b>Score A1: Score based on Process emissions (point source)</b> (Maximum of the following scores to be considered)		
A1-1	Hazardous Air Pollutants (HAPs) and heavy metals: <i>HAPs (Phosgene, Benzene, Benzo(α)pyrene, Butadiene, Toluene Di-isocyanate, Methylene-di-phenyl Di-isocyanate, Ethylene Oxide, Ethylene Di Chloride, Acrylonitrile, Propylene Oxide), Dioxins &amp; Furans, Asbestos, Polycyclic Aromatic Hydrocarbons (PAHs), HCN, Cd, Th, Hg, Sb, As, Pb, Co, Cr, Cu, Mn, Ni, V, etc.</i>	35
A1-2	Halogens, acids, and pesticides-based pollutants: <i>H<sub>2</sub>S, HF, HBr, P<sub>2</sub>O<sub>5</sub> as H<sub>3</sub>PO<sub>4</sub>, NH<sub>3</sub>, TOC, Cl, HCl, SO<sub>3</sub>, CH<sub>3</sub>Cl, Total Fluoride, PM having pesticide compounds/other organic compounds, Acid mist, etc.</i>	30
A1-3	Pollutants due to combustion of fuel or due to process: <i>PM, CO<sub>2</sub>, CO, NO<sub>x</sub>, SO<sub>2</sub>, etc.</i>	25
A1-4	Volatile Organic Compounds (VOCs): <i>Ethyl benzene, Styrene, Toluene, Xylene, Aromatics, Propylene Glycol, Ethylene Glycol, etc.</i>	20
<b>Score A2: Score based on fugitive emissions and odour nuisance</b> (Maximum of the following scores to be considered)		
A2-1	Fugitive emissions of Particulate Matter (PM), acid mist, VOCs, etc. from process	30
A2-2	Fugitive emissions of Particulate Matter (PM), acid mist, VOCs, etc. due to storage and handling, etc.	25
A2-3	Odour nuisance, including odour due to the use of binding gums, cements, adhesives, enamels etc.	20
<b>Score A3: Score based on quantity of fuel</b> (Maximum of the following scores to be considered)		
<b>Coal or liquid fuels</b>		
A3-1	Fuel consumption $\geq$ 24 TPD	35
A3-2	12 TPD $\leq$ Fuel consumption < 24 TPD	30
A3-3	Fuel consumption < 12 TPD	25
<b>Biomass-based fuels</b>		
A3-4	Fuel consumption $\geq$ 48 TPD	25
A3-5	24 TPD $\leq$ Fuel consumption < 48 TPD	20
A3-6	Fuel consumption < 24 TPD	15
<b>Cleaner/gaseous fuels, such as, PNG, CNG, LPG, Compressed Biogas (CBG), propane, butane etc.</b>		
A3-7	Fuel consumption $\geq$ 120 TPD	20
A3-8	60 TPD $\leq$ Fuel consumption < 120 TPD	15
A3-9	Fuel consumption < 60 TPD	10
A3-10	Electricity	0
<b>Air Pollutant Score (PI<sub>A</sub>) = A1+A2+A3</b>		
<b>Note:</b> In case, any sector/unit is using more than one type of fuel, the most polluting fuel category, will be considered.		



### 2.2.3 Scoring criteria for Industrial Waste Generating Sector “PI<sub>H</sub>”

Industrial waste generating sectors are considered based on the generation of hazardous waste/high volume low effect waste. As per the Hazardous and Other Wastes (Management & Trans-boundary Movement) Rules, 2016, the “hazardous waste” means any waste which by reason of characteristics such as physical, chemical, biological, reactive, toxic, flammable, explosive or corrosive, causes danger or is likely to cause danger to health or environment, whether alone or in contact with other wastes or substances and shall include waste as per the Schedule I, Schedule II and Schedule III of the rule. Further, scores are also assigned to the high-volume low effect wastes such as fly ash, phosphogypsum, red mud, jarosite, slags from pyro-metallurgical operations, mine tailings and ore beneficiation rejects.

The score for waste comprises of two sub-scores H1 and H2. The H1 score is based on the different type of hazardous waste which are generated during the process, and which required to be managed/disposed through common facility OR based on the generation of high-volume low effect waste/ HW like contaminated bags/ drums etc. The H2 score is based on the total quantum of waste generated.

The desirable disposal method such as incineration, landfill after treatment, landfill etc. signifies the potency of hazardous waste. In recent time, the utilization of hazardous waste as per the Rule-9 of Hazardous and Other Wastes (Management & Trans-boundary Movement) Rules, 2016, as alternate fuel and raw material in cement kilns, as recyclable hazardous waste etc. has increased. The classification is based on the pollution potential due to generation of such types of hazardous waste from any sector. The score for the quantum of hazardous waste is total potential of generation of such hazardous waste by any sector., Score H1: Based on potency of hazardous waste and score H2: Based on quantum of hazardous waste, are given weightage of 30% and 70%, respectively. Considering the higher risk due to amount of hazardous waste generated rather than its disposal method, more weightage is given to the quantity. Overall waste generation score in case of waste generating sector will be  $PI_H = H1 + H2$ . The scoring criteria for hazardous waste generating sectors are given at **Table-III**.

A separate scoring criterion has been included for sectors generating bio-medical waste. Bio-medical waste means any waste, which is generated during the diagnosis, treatment or immunisation of human beings or animals or research activities pertaining thereto or in the production or testing of biological or in health camps, including the categories mentioned in Schedule-I appended to the Bio-Medical Waste Management Rules, 2016. As any Health Care

Facilities (HCFs) generates all types of bio-medical waste (red, yellow, blue, and white) and quantities of such wastes may vary considerably based on the type of facility/location of facility (rural/urban), and other such factors. Therefore, scoring based on number of beds in a healthcare facility is considered as sole criteria for assigning waste score (H: B-1 to B-7) as tabulated in **Table-III**.

Least score of 25 is given to non-bedded healthcare facilities and maximum score of 100 is given to facilities having more than 1,000 beds. Overall waste generation score in case of bio-medical waste generating sector will be  $PI_H$ .

**Table III: Scoring criteria for waste generating Sectors**

Waste Pollutant Group	Description	Score
<b>A. Score for sectors generating hazardous waste</b>		
<b>Score H1: Score based on the hazardous waste management/disposal method.</b> (Maximum of the following scores to be considered)		
H1-1	Hazardous wastes which are flammable, ignitable, corrosive, oxidizing toxic, etc. and requiring disposal through incineration	30
H1-2	Hazardous wastes which are reactive, capable of yielding another material post disposal, etc. and requiring disposal in secured landfill after stabilization/treatment	25
H1-3	Hazardous wastes which are requiring direct disposal in secured landfill without stabilization	20
H1-4	High volume and low effect wastes, contaminated bags/ drums/ containers etc.	10
<b>Score H2: Score based on quantity of hazardous waste generation.</b> (Maximum of the following scores to be considered)		
H2-1	Hazardous Waste $\geq 5000$ TPA	70
H2-2	$1000 \text{ TPA} \leq \text{Hazardous Waste} < 5000 \text{ TPA}$	50
H2-3	$200 \text{ TPA} \leq \text{Hazardous Waste} < 1000 \text{ TPA}$	30
H2-4	$10 \text{ TPA} \leq \text{Hazardous Waste} < 200 \text{ TPA}$	20
H2-5	Hazardous Waste $< 10$ TPA	10
<b>B. Scores for the sectors generating bio-medical waste</b>		
B-1	No. of beds $\geq 1,000$	100
B-2	$500 \leq \text{No. of beds} < 1,000$	80
B-3	$200 \leq \text{No. of beds} < 500$	60
B-4	$50 \leq \text{No. of beds} < 200$	50
B-5	$10 \leq \text{No. of beds} < 50$	40
B-6	No. of beds $< 10$	30
B-7	Non-bedded facility	25
<b>For sectors generating hazardous waste <math>PI_H = H1+H2</math></b> <b>For sectors generating bio-medical waste <math>PI_H = B</math></b>		



### 2.3 Computation of Cumulative Pollution Index and criteria for deciding category of sector

In the revised methodology of classification (2025), all three pollutant scores due to water, air and industrial waste generation are taken into account while computing pollution index. The formula for computing cumulative pollution index (PI) is as follows:

$$PI = i_{max} + (100 - i_{max}) \left( \frac{i_2 + i_3}{200} \right)$$

Where,  $i_{max}$ , is the maximum score among Water ( $PI_W$ ), Air ( $PI_A$ ), and Waste ( $PI_H$ ) pollutant scores and  $i_2$  &  $i_3$  are the remaining pollutant scores.

The category of the sector will be decided based on the pollution index ranges given at **Table-IV**.

**Table IV: Ranges of Cumulative Pollution Index for different categories**

Cumulative Pollution Index (PI)	Category of industrial sector
$PI \geq 80$	Red
$55 \leq PI < 80$	Orange
$25 \leq PI < 55$	Green
$PI < 25$	White

The purpose of classification is to have uniform consent mechanism, defined routine monitoring frequency by concerned SPCB/PCC, environmental protection plans etc. Modified methodology also considers the variation in pollution potential due to various type of activities and operations in a particular sector.

The scores/pollution index/category of any two sectors may be same, however, comparing two different sectors based on the category or pollution index is not desirable as the cumulative PI is a function of air pollutant, water pollutant, and waste pollutant and the cumulative score is arithmetically relates the maximum score of one pollutant with the remaining other two pollutants. Hence, PI/category of sectors may be same but may have different impact on environment.



## **2.4 Blue Category Projects- Essential Environmental Services for management of environmental pollution arising from domestic/household activities**

Essential Environmental Services may be defined as those facilities which are essential to control, abate and mitigate pollution generated from Domestic and Industrial activities. Such Essential environment services for Industrial Activity includes CETP, CHWT/SDF, Effluent conveying system etc. and essential environment services for domestic activities includes STP, MSW etc. Both the type of EES plays a vital role in Environment Management. However, during the treatment of waste, some EES generates/handle hazardous waste/infectious waste. The EES which do not generate Hazardous Waste, and which otherwise have large littering potential can be categorised as Blue Category Projects. Further, there are past legal references wherein Hon'ble Apex court has also considered the importance and requirement of such Essential Environment Services.

Human settlements whether located in rural/urban/eco-sensitive area generate sewage, solid waste, and C&D waste, which are required to be managed to prevent adverse impact on environment and human health. Basic environment management facilities are required to be set-up to manage such waste which includes STP, C&D waste processing facility, MSW management facility like sanitary landfill, material recovery facility & waste processing units, bio-methanation, bio-composting, waste to energy, etc.

These facilities are basically essential environment services which play a vital role in protecting environment and human health. These facilities may also bring value addition by producing various by-products such as secondary raw material, compost, energy, etc. and promotes circular economy and sustainable development by converting waste into wealth. Moreover, these categories do not generate hazardous or infectious wastes.

As the role and importance of these facilities is different in nature as compared to other activities and industries in the sense that they are primarily set-up for prevention, control and abatement of soil, water and air pollution. It is more appropriate to have a separate colour category-Blue Category for essential environmental services facilities related to environmental pollution arising from domestic/household activities. These activities are required to meet all the prescribed environmental norms/rules notified from time to time and the pollution index for such Essential Environmental Services (EES) shall continue to be calculated as per the formula and consent to operate will be governed based on the pollution index. However, the



category of the EES will be termed “Blue Category sector” and as an incentive for the essential services, additional 2 years validity for consent to operate (as per PI) will be provided.

The list of EES facilities is given at [Annexure-II](#).

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# 3

## Classification of Sectors as per Revised Methodology

### 3.1 Types of sectors based on their activities

The revised methodology of classification will be applicable to all industries which may have potential for generation of environmental pollutants. As per the Section 2(j) of the Industrial Disputes Act, 1947, “Industry” means any business, trade, undertaking, manufacture, or calling of employers and includes any calling, service, employment, handicraft or industrial occupation or avocation of workman”, however, based on type of operational activities, the industries are divided into following four sectors:

- i. Industrial Sectors
- ii. Essential Environmental Services (EES)
  - a. EES for Industrial Waste
  - b. EES for Domestic Waste (Blue Category Sector)
- iii. Service/Infrastructure Development Sectors
- iv. Others/Special Category Sectors

The sectors which are involved in production of goods, products, etc. are considered under “Industrial Sectors”. The sectors covered under “Essential Environmental Services (EES)” are those facilities which are essential to control, abate and mitigate pollution generated from Domestic and Industrial activities. These services are essential facilities which are required to reduce pollution load on the environment, such as sewage treatment plants, common bio-medical waste treatment facilities, construction & demolition waste processing plants, etc. Essential Environmental Services Sectors are sub classified as “EES for industrial waste” and “EES for domestic waste (Blue category sectors which do not handle or generate infectious or hazardous waste)”. On the other hand, sectors which carry out service-related activities such as infrastructure projects, railways, airports, hospitals, etc. are covered under “Service/infrastructure development sectors”.



“Other/special category sectors” include those projects which cannot be classified based on the scoring methodology of pollution index but require classification based on precautionary principle and considering the potential of ecological damage/ health and environment related risk, etc. Few such sectors are sand mining, hydel power plants, etc.

The revised methodology of classification, sub-categorises the main sector based on the usage of cleaner technology/cleaner production/cleaner fuel which has proven reduction in trade effluent generation, emissions, waste, etc., for better environmental management, resulting into overall reduction of pollution index compared to main sector. For example, if coffee seeds processing industries use eco-pulping technology, which generates less water pollution, the pollution index of the said sector gets reduced and category changes from orange to green. Similarly, variation in type/scale of activities in a particular sector is also considered for classification of sub-sectors.

The methodology and scores have been screened through stakeholder feedback/consultation and public opinion. Available standard literature, various documents and guidelines, inspection reports, etc. were also referred, while assessing the scores for water pollution, air pollution, and waste generation for classification of sectors. Based on the modified methodology, the list of sectors and sector specific sub-classification is given at [Annexure-I](#) to [Annexure-IV](#). Summary of classified sectors is given in **Table-V**.

**Table V: Number of sectors classified under different categories**

Sl. No.	Type of sector	Total number of sectors/sub-sectors	Red	Orange	Green	White	Blue
1.	Industrial Sectors	359	107	120	81	51	-
2.	Essential Environmental Services (ESS)						
2.a.	ESS for domestic waste	9	-	-	-	-	9
2.b.	ESS for industrial waste	9	9	-	-	-	-
3.	Service/Infrastructure Development Sectors	37	7	15	13	2	-
4.	Others/Special Category Sectors	5	2	2	-	1	-
	<b>Total</b>	<b>419</b>	<b>125</b>	<b>137</b>	<b>94</b>	<b>54</b>	<b>9</b>



### 3.2. Usage of classification of sectors

The classification of sectors may be used for the following purposes:

- i. **Consent management:** SPCBs/PCCs may grant Consent to Operate (CTO) to red, orange, and green categories of industries for validity up to 5 years, 10 years, and 15 years, respectively as per existing provisions which would be later governed as per the provisions/guidelines under Jan Vishwas (Amendment of Provisions) Act, 2023/Water Act, as amended. The validity of blue category sectors will be 2 years more than the category based on PI.
- ii. **Inspection frequency:** SPCBs/PCCs may prioritize their environmental surveillance programs based on the categories of sectors. SPCBs/PCCs are required to ensure inspection of red, orange, and green category of industries at least once in six-months, one-year, and two-years, respectively. Common facilities and 17 categories of industries are to be inspected at least once in every three-months.
- iii. **Siting criteria:** The categorization may be used as a tool for deciding the location/siting of an industry in a particular location.
- iv. **Development of cluster:** The classification will help in planning of sector specific cluster, based on scoring of various pollutants and development of adequate environment management infrastructure facility, accordingly.
- v. **Sector specific plans for pollution control:** The plans for control of pollution may be prepared and implemented on priority for the sectors having higher pollution index and overall higher pollution load.
- vi. **Levying environmental compensation:** Pollution index may be used for determining and levying environmental compensation on industries violating the environmental norms.
- vii. **A tool for progressive environmental management:** Industrial units may adopt cleaner technologies, cleaner fuels, etc. which may result in reduction of pollution index, thus, moving to lower pollution potential category. It will provide incentives to industries in terms of less consent renewal fees, less environmental surveillance/compliance burden, more validity period for consents/authorizations, etc.

### 3.3 Classification of left-out/new sectors

The revised methodology of classification (2025) and list of sectors classified by CPCB is required to be adopted and implemented by all SPCBs/PCCs. In case of any new or left-out



sector, the SPCB/PCC may categorize the sector at its own level. For this purpose, a committee headed by the Member Secretary, SPCB/PCC and comprising of at least two senior cadre engineers/scientists of the SPCB/PCC (as nominated by the Member secretary of the concerned SPCB/PCC) may be constituted to examine the matter and classify the sector in accordance with the methodology prescribed by CPCB. The State Level Committee may also co-opt subject experts, industrial association representative, etc., as member, as per requirement. CPCB has also developed a tool to assess the Cumulative Pollution Index and category of any sector, which is available on CPCB website (<https://cpcb.nic.in/categorization-of-industrial-sectors/>).

In addition, all SPCBs/PCCs are required to submit list of all such sector classified under white category to CPCB in the prescribed format (**Annexure-V**), for notification as per provisions of Jan Vishwas (Amendment of Provisions) Act, 2023.

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## 4

## **Incentives to unit in a sector for adopting measures resulting to better environmental performance**

A methodology has been strategized to provide incentives to the unit in a sector which are dedicated to reduce environmental impacts from their operations/process. The objective can be achieved by 100% treatment and reuse of wastewater generated, having complete dependency on cleaner fuel alternatives (such as PNG, LPG, compressed biogas, propane, butane, electricity etc. for meeting energy requirement), implementation & achievements of targets of sector-specific charters of CPCB/SPCB for environmental management, EPR obligations and use of cleaner process/cleaner technology to eliminate generation of toxic/hazardous pollutants.

The units fulfilling the following eligibility criteria may submit their formal proposal to the concerned SPCB/PCC for consideration:

### **4.1 Eligibility Criteria**

- The unit should have completed at least one year of completion of production/operations with demonstrated, verifiable steps and submitted audit report from institute of repute for considering the unit for the purpose by concerned SPCB/PCC. To facilitate verification, the unit must have properly maintained logbooks/bills for production, electricity consumption, fuel, water consumption, wastewater treatment and use of treated wastewater.
- The unit should be located in conforming area with applicable Environment Clearance, Consent to Establishment (CTE) and Consent to Operate (CTO) and hazardous/bio-medical waste authorization from SPCB/PCC.
- Unit should comply with all the norms/conditions stipulated under EC, CTO and Guidelines/Rules issued by CPCB.



- In case, unit using ground water resource, it should have valid permission/NOC and also required to install electronic flowmeter.
- No penalty or legal obligation is imposed/pending against unit for violation of environmental norms. Records for last 5 years may be verified. In case establishment period of the unit is less than 5 years, the past records since the start of production may be verified.
- Unit should not be involved in any sort of accident/incident resulting into emission /discharge into the environment. Records for last 5 years may be verified.

All such units, interested in availing incentives are required to demonstrate and prove their initiatives to the Committee (to be constituted at the level of concerned SPCB/PCC), comprising of members as mentioned in **Table VI**.

**Table VI: Structure of Committee to evaluate the request of units adopting measures resulting in better environmental performance**

Sl. No.	Members	Role
1	Member Secretary, SPCB/PCC	Chairman
2	Subject expert from Indian Institute of Technologies (IITs) or National Institute of Technologies (NITs) or any other institute/university of repute.	Member
3	Expert from CSIR institute/laboratories, having expertise in industrial process and pollution control technologies/ environmental management	Member
4	Two officials of concerned SPCB/PCC, as nominated by the Member Secretary, SPCB/PCC	Member

#### 4.2. Evaluation Criteria

The committee shall scrutinize the proposals based on the eligibility criteria. The basis of evaluation will be- (i) Measures taken for treatment and reuse of wastewater to reduce freshwater consumption, (ii) Use of alternative cleaner fuel to reduce emissions, and (iii) Use of cleaner technology/ cleaner production which results in reduction in pollution/hazardous waste generation (iv) Recycling units identified for EPR obligations and has fulfilled all requirement including Environmentally Sound Management Facility for recycling.

The unit is required to demonstrate the successful implementation of measures by annual submission of third-party audit report (through institute of repute) regarding performance of environmental management measures. The Committee members may also inspect unit, collect samples, and get it analysed, check logbooks, electricity/water bills, examine system feasibility through mass-balances, ensure real-time submission of environment data to SPCB/PCC server, etc. The check and balances to examine the industry claims are summarized in **Table VII**.

**Table VII: Checks and balances to assess the adequacy of environment management measures**

Criteria	Checks and balances
<b>I. Wastewater Management</b>	
Installation of wastewater recovery system resulting into treatment and 100% reuse of treated wastewater in industrial process.	<ul style="list-style-type: none"> <li>• Unit must have adequate operational Effluent Treatment Plant (ETP). The freshwater requirement of the unit has shown proportionate reduction.</li> <li>• There should not be any flow/ponding of wastewater inside the premises or discharge outside from the premises. Further, there should not be any by-pass.</li> <li>• Electronic flowmeters and Pan-tilt-zoom (PTZ) camera should have been installed with connectivity for continuous transmission of data to SPCB/PCC and CPCB servers (as applicable).</li> <li>• Recirculation system should be clearly mapped and visible for inspection and flow meter should be installed at required locations with records.</li> <li>• Mass/water balance based on actual production need to be checked. The claim regarding reduction in freshwater consumption should have concurrency with the readings of flow meters, water bill, log-books, etc.</li> <li>• Treated wastewater should not be used for horticulture or agriculture purposes.</li> <li>• Sludge generated from treatment of wastewater should be managed properly as per the authorization issued by the concerned SPCB/PCC and timely submission of Form-IV as per the requirement of Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016.</li> </ul>
<b>II. Air Pollution Management</b>	
100% fuel dependency on cleaner fuels, such as- Piped Natural Gas (PNG), Compressed Natural Gas (CNG), Liquefied Natural Gas (LNG) Liquefied Petroleum Gas (LPG), Compressed	<ul style="list-style-type: none"> <li>• No other fuel (coal, pet-coke, furnace oil, etc.) should be stored/used in the unit premises. Diesel for Gensets (as an auxiliary power source) may be allowed. Preference may be given to the units using gas based Gensets.</li> <li>• Adequate facility for stack monitoring (port holes, zig-zag ladder etc.) should be available with provision of OCEMS (as applicable).</li> </ul>



Biogas (CBG), propane, butane, etc.	<ul style="list-style-type: none"> <li>• Use of upgraded air pollution control devices with higher efficiency for the reduction of emissions.</li> <li>• Adoption of cleaner technology, advanced pollution control systems etc. to control fugitive/emissions</li> <li>• Use of alternate cleaner raw material for generation of less pollution.</li> <li>• Use of renewable energy as an alternate to conventional fuel/power should be considered.</li> </ul>
<b>III. Waste Management</b>	
The unit has adopted cleaner technology/ cleaner production which results in reduction in pollution/hazardous waste generation	<ul style="list-style-type: none"> <li>• Reduction in generation of pollution/waste due to adoption of cleaner technology/change in raw material etc.</li> <li>• Mass balance based on actual production need to be checked. There should be concurrency in generation of hazardous waste, utilization, disposal, etc. with respect to net reduction in generation.</li> </ul>
<b>IV. EPR Targets (for recycling facilities)</b>	
Recycling units identified for EPR obligations and has fulfilled all requirement including Environmentally Sound Management Facility for recycling.	<ul style="list-style-type: none"> <li>• Complying with the requirement of EPR obligation identified by CPCB from time to time.</li> </ul>

### 4.3. Re-assessment of Pollution Index (PI)

The purpose of giving star category is to classify the unit in the sector as star performing units.

The category of the unit may be re-assessed as detailed below:

#### A. For Industries, Service/Infrastructure facilities and Essential Environmental Services Sectors for management of waste.

The pollution index of the units in any sector which have proven reduction in trade effluent generation and/or air pollution management and/or waste management measures, can be calculated based on submission of same with the supporting documents for considering the modified score based on the same methodology.

The revised cumulative pollution index (PI) will be calculated with modified air/water/waste scores as discussed in the methodology given in previous section. If revised, cumulative PI results to change in the category of unit in the sector, the nomenclature for revised category will be as per the **Table VIII**.

**Table VIII: Nomenclature for revised category**

Change in category	Nomenclature of revised category
Red to Orange	Red*
Orange to Green	Orange*
Green to White	Green*

### **B. Essential Environmental Service Sectors for Domestic/Household Waste- “Blue Category Sectors”:**

Units under Blue Category are required to reduce their existing PI score by 25%, by meeting evaluation criteria/check and balances, as mentioned in **Table III** to qualify for change in category to Blue\*.

#### **4.4 Incentives to the units for better environmental management**

Units which have demonstrated the successful implementation of environmental management measures and verified by the Committee, shall be eligible for the incentives, as listed in the **Table IX**.

**Table IX: Incentives to units for better environmental performance**

Category	Incentives
Red*	<ul style="list-style-type: none"> <li>• CTO may be granted for the validity of max. 10 years.</li> <li>• Prescribed random environmental surveillance inspection frequency may be once a year, considering the change in category.</li> </ul>
Orange*	<ul style="list-style-type: none"> <li>• CTO may be granted for the validity of max. 15 years.</li> <li>• Prescribed random environmental surveillance inspection frequency may be once in two years, considering the change in category.</li> </ul>
Green*	<ul style="list-style-type: none"> <li>• CTO may be granted for the validity of max. 20 years.</li> <li>• Prescribed random environmental surveillance inspection frequency may be once in four years, considering the change in category and given incentives twice the original category.</li> </ul>
Blue*	<ul style="list-style-type: none"> <li>• CTO may be granted with additional 3 years validity period.</li> <li>• Prescribed random environmental surveillance inspection frequency may be once in 3 months.</li> </ul>



In case of non-compliance(s) observed in future, the State Board can remove the star status and for calculation of EC, the PI of original category shall be considered.

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# 5

## Implementation pathway/guidelines

The revised methodology and classification of sectors will be implemented in prospective manner. For this purpose, following guidelines may be referred:

- i. All pending application for consideration of CTE/CTO and future such application shall be processed as per the revised methodology of classification. In case CTE granted before the revised classification, applicability of CTO will be as per new classification.
- ii. New classification will be applicable to existing units at the time of renewal of CTO or within one year from the date of directions issued by CPCB regarding implementation of revised classification, whichever is earlier. The annual fees or cumulative fees for the remaining period shall be as per the revised category.
- iii. SPCBs/PCCs may grant Consent to Operate (CTO) to units under red, orange, and green categories for maximum validity up to 5 years, 10 years, and 15 years, respectively as per existing provisions which would be later governed as per the provisions/guidelines under Jan Vishwas (Amendment of Provisions) Act, 2023/Water Act, as amended. SPCBs/PCCs may grant Consent to Operate (CTO) to units under Blue Category sectors with additional 2 years validity, considering their role as Essential Environmental Services for management of waste generated from domestic/household activities.
- iv. Requirement of intimation/consent for white category of industries, shall be governed as per the provisions/guidelines under Jan Vishwas (Amendment of Provisions) Act, 2023//Water Act, as amended.
- v. All sectors irrespective of category shall follow guidelines for pollution control, if any, issued by SPCB/PCC/CPCB time to time.



- vi. Siting of units shall be only in the conforming area as per the guidelines of CPCB/SPCB/PCC. Further, as per the Section 17(1)(n) of the Water Act, 1974 and the Section 17(1)(h) of the Air Act, 1981, SPCB/PCC may also frame policies/advisory with respect to the location of any industry/operations, the carrying on of which is likely to cause air/water pollution, considering the scale/type of industries and sensitivity of area. Siting of units in eco-sensitive area will be governed by their respective notifications.
- vii. The classification of sectors shall not be linked to sanction of loans/finance of bank proceedings.
- viii. In the matter of Taz Trapezium Zone (TTZ), for air pollution scores of 10 and 20 (as per 2016 methodology), equivalent scores of 30 and 60 (as per 2025 methodology), respectively, may be considered for sectoral guidelines/opinion from NEERI (Ref: Order dated 08.12.2021, in the matter of M.C. Mehta v/s Union of India, Writ Petition (Civil) No.13381/1984, before Hon'ble Supreme Court).
- ix. As per CPCB directions dated 12.12.2019, issued under Section 18(1)(b) of the Water Act, 1974 and the Air Act, 1981, SPCBs/PCCs are required to ensure inspection of red, orange, and green category of industries at least once in six-months, one-year, and two-years, respectively. Common waste treatment facilities and 17 categories of industries are to be inspected at least once in every three-months. (Ref: Order dated 05.11.2019, in the matter of Shailesh Singh v/s State of Haryana & Ors., OA No.639/2018, before Hon'ble National Green Tribunal, Principal Bench).
- x. The sectors which are classified under white or green category and if such sectors have installed Genset(s) of higher capacity which are classified under orange/green category, then such sector will be considered under higher category.
- xi. All Industrial units are encouraged to adopt measures such as cleaner technology/cleaner production, cleaner raw material, cleaner fuel etc., for better environmental management. If such measures result into overall reduction of pollution



index, request regarding change in category of such sectors/units may be made to concerned SPCB/PCC as detailed under Section 8 of this report.

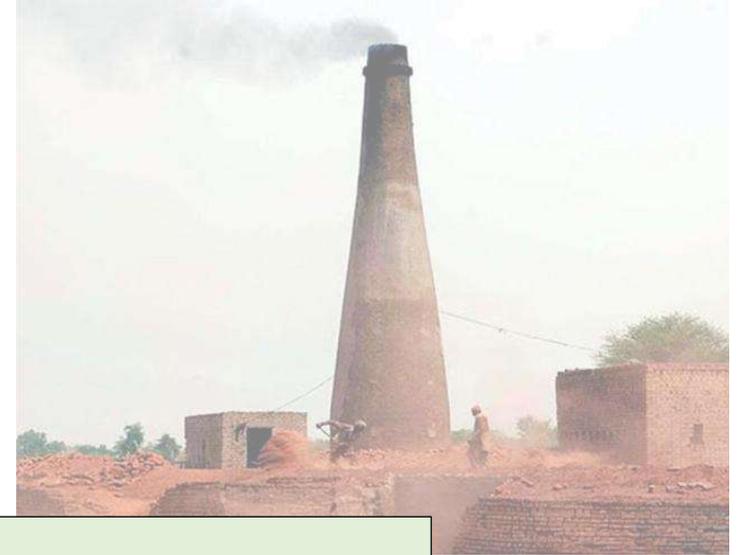
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12. *The Air (Prevention and Control of Pollution) Act, 1981*. (c1). [Online]. Government of India. [Accessed 15 March 2024]. Available from: [https://www.indiacode.nic.in/bitstream/123456789/1389/1/Prevwater1981\\_41.pdf](https://www.indiacode.nic.in/bitstream/123456789/1389/1/Prevwater1981_41.pdf)
13. *The Environment (Protection) Rules, 1986*. (c3). [Online]. Government of India. Ministry of Environment and Forests (Department of Environment, Forest, and Wildlife). [Accessed 02 April 2024]. Available from: [https://upload.indiacode.nic.in/showfile?actid=AC\\_MP\\_74\\_308\\_00003\\_00003\\_1543\\_231806694&type=rule&filename=ep\\_rules\\_1986.pdf](https://upload.indiacode.nic.in/showfile?actid=AC_MP_74_308_00003_00003_1543_231806694&type=rule&filename=ep_rules_1986.pdf)
14. *The Industrial Disputes Act, 1947*. (C2b). [Online]. Government of India. [Accessed 15 April 2024]. Available from: <https://www.indiacode.nic.in/bitstream/123456789/15191/1/A1947-14.pdf#search=dispute>
15. *The Occupational Safety, Health, and Working Conditions Code, 2020*. (c2). [Online]. Government of India. Ministry of Law and Justice (Legislative Department). [Accessed 15 April 2024]. Available from: [https://labour.gov.in/sites/default/files/osh\\_gazette.pdf](https://labour.gov.in/sites/default/files/osh_gazette.pdf)
16. *The Public Liability Insurance Act, 1991*. (c7). [Online]. Government of India. [Accessed 12 March 2024]. Available from: <https://www.indiacode.nic.in/bitstream/123456789/1960/1/A1991-06.pdf#search=9.The%20Public%20Liability%20Insurance%20Act,%201991>.
17. *The Water (Prevention and Control of Pollution) Act, 1974*. (c1). [Online]. Government of India. [Accessed 15 March 2024]. Available from: <https://www.indiacode.nic.in/bitstream/123456789/1612/3/A1974-06.pdf>



**ANNEXURE-I**  
**(LIST OF INDUSTRIAL SECTORS CLASSIFIED UNDER RED, ORANGE, GREEN, AND WHITE CATEGORIES)**



**LIST OF INDUSTRIAL SECTORS**

S. No.	Sector	W1	W2	W3	PI <sub>w</sub>	A1	A2	A3	PI <sub>A</sub>	H1	H2	PI <sub>H</sub>	Pollution Index (PI)	Category	Remarks	Concerned Division	
~A~																	
1	Manufacturing of <b>Automobiles</b> (integrated facilities)	20	30	25	75	0	25	0	25	25	20	45	83.8	Red	i. Such types of plants are having either one or combinations of polluting activities viz. washing, metal surface finishing operations, pickling, plating, electro-plating, phosphating, painting, heat treatment etc.  ii. Some of such plants may outsource some /all of the polluting activities or may have stand-alone units. In such cases, after thorough inspection of such units by concerned SPCB, re-categorization of the industry shall be made accordingly.	IPC-V	
2	<b>Asbestos</b> and asbestos based industries	10	30	25	65	35	30	30	95	25	30	55	98	Red	Asbestos is carcinogenic and banned in many countries.	IPC-II	
3	<b>Almirah</b> , Grill Manufacturing (Dry Mechanical Process)	0	0	0	0	0	30	0	30	0	0	0	30	Green		IPC-V	
~B~																	
<b>4.0</b>	<b>BAKERY, CONFECTIONERY AND SWEETS PRODUCTS</b>																
4.1	Bakery, confectionery, sweets with production capacity $\geq 1$ TPD	25	0	20	45	25	0	25	50	0	0	0	61.3	Orange		IPC-III	

S. No.	Sector	W1	W2	W3	PI <sub>w</sub>	A1	A2	A3	PI <sub>A</sub>	H1	H2	PI <sub>H</sub>	Pollution Index (PI)	Category	Remarks	Concerned Division
4.2	Bakery, confectionery, sweets with production capacity $\geq$ 1 TPD. (using cleaner/gaseous fuel)	25	0	20	45	25	0	10	35	0	0	0	54.6	Green		IPC-III
<b>5.0</b>	<b>BRICK MANUFACTURING</b>															
5.1	Brick kilns using coal as fuel	0	0	0	0	25	25	25	75	0	0	0	75	Orange		IPC-V
5.2	Brick kilns using biomass as fuel	0	0	0	0	25	25	15	65	0	0	0	65	Orange		IPC-V
5.3	Tunnel brick kilns (gas fired)	0	0	0	0	25	25	10	60	0	0	0	60	Orange		IPC-V
<b>6.0</b>	<b>MANUFACTURING OF AUTOCLAVED AERATED CONCRETE (AAC) BRICKS/BLOCKS.</b>															
6.1	AAC bricks/blocks manufacturing using coal as fuel (12 TPD and above)	0	0	0	0	25	25	30	80	0	0	0	80	Red		IPC-V
6.2	AAC bricks/blocks manufacturing using coal as fuel (less than 12 TPD)	0	0	0	0	25	25	25	75	0	0	0	75	Orange		IPC-V
6.3	AAC bricks/blocks manufacturing using biomass as fuel	0	0	0	0	25	25	20	70	0	0	0	70	Orange		IPC-V
6.4	AAC bricks/blocks manufacturing using gas as fuel	0	0	0	0	25	25	15	65	0	0	0	65	Orange		IPC-V
<b>7.0</b>	<b>FLY ASH BRICKS / BLOCK MANUFACTURING</b>															
7.1	Fly ash bricks/ block manufacturing (with boiler)	0	0	0	0	25	25	25	75	0	0	0	75	Orange		IPC-V
7.2	Fly ash bricks/ block manufacturing (without boiler)	0	0	0	0	0	25	0	25	0	0	0	25	Green		IPC-V
<b>8.0</b>	<b>MANUFACTURING OF NON-ALCOHOLIC BEVERAGES</b>															
8.1	Wastewater generation $\geq$ 100 KLD	25	20	30	75	25	0	25	50	0	0	0	81.3	Red		IPC-III
8.2	Wastewater generation < 100 KLD	25	20	25	70	25	0	25	50	0	0	0	77.5	Orange		IPC-III

S. No.	Sector	W1	W2	W3	PI <sub>w</sub>	A1	A2	A3	PI <sub>A</sub>	H1	H2	PI <sub>H</sub>	Pollution Index (PI)	Category	Remarks	Concerned Division	
<b>9.0</b>	<b>BATTERY MANUFACTURING</b>																
9.1	Lead-acid <b>Battery</b> manufacturing (excluding assembling and charging of lead acid <b>Battery</b> in micro-scale)	0	30	20	<b>50</b>	35	30	25	<b>90</b>	25	10	<b>35</b>	94.3	Red		IPC-V	
9.2	Dry cell <b>Battery</b> (excluding manufacturing of electrodes) and assembling & charging of acid lead battery on micro scale	0	30	15	<b>45</b>	25	25	10	<b>60</b>	25	10	<b>35</b>	76	Orange		IPC-V	
9.3	<b>Battery</b> manufacturing without boiler (excluding lead acid battery)	0	0	0	<b>0</b>	0	25	0	<b>25</b>	25	10	<b>35</b>	43.1	Green		IPC-V	
10	<b>Briquette</b> manufacturing (coal/biomass/coke)	0	0	0	<b>0</b>	0	30	0	<b>30</b>	0	0	<b>0</b>	30	Green	The process involves mixing, mechanized compression and drying.	IPC-II	
11	Assembly of <b>Bicycles</b> , <b>Baby</b> carriages and other small non motorizing vehicles	0	0	0	<b>0</b>	0	0	0	<b>0</b>	0	0	<b>0</b>	0	White		IPC-V	
12	<b>Bailing</b> (hydraulic press) of waste papers	0	0	0	<b>0</b>	0	0	0	<b>0</b>	0	0	<b>0</b>	0	White		IPC-V	
13	<b>Bio fertilizer</b> and bio-pesticides without using inorganic chemicals	0	0	0	<b>0</b>	0	20	0	<b>20</b>	0	0	<b>0</b>	20	White		IPC-V	
14	<b>Block</b> making of printing without foundry (excluding wooden block making)	0	0	0	<b>0</b>	0	0	0	<b>0</b>	0	0	<b>0</b>	0	White		IPC-V	

S. No.	Sector	W1	W2	W3	PI <sub>w</sub>	A1	A2	A3	PI <sub>A</sub>	H1	H2	PI <sub>H</sub>	Pollution Index (PI)	Category	Remarks	Concerned Division
15	Flavoured <b>Betel</b> nuts production/ grinding (completely dry mechanical operations)	0	0	0	0	0	0	0	0	0	0	0	0	White		IPC-V
16	Manufacturing of shoe <b>Brush</b> and wire <b>Brush</b>	0	0	0	0	0	20	0	20	0	0	0	20	White		IPC-V
~C~																
<b>17.0</b>	<b>MANUFACTURING OF INDUSTRIAL CARBON INCLUDING ELECTRODES AND GRAPHITE BLOCKS, ACTIVATED CARBON, CARBON BLACK</b>															
17.1	Carbon black manufacturing	20	15	20	55	25	30	30	85	30	20	50	92.9	Red		IPC-I
17.2	Industrial carbon including electrodes & graphite blocks and calcined pet coke	20	15	20	55	25	25	25	75	30	10	40	86.9	Red		IPC-II
17.3	Activated carbon manufacturing (with steam activation)	20	15	20	55	25	25	15	65	0	0	0	74.6	Orange		IPC-V
<b>18.0</b>	<b>INORGANIC CHEMICALS</b>															
18.1	Basic inorganic chemicals and electro chemicals and its derivatives including manufacturing of acid	10	30	25	65	30	30	20	80	20	20	40	90.5	Red		IPC-I
18.2	Phosphorous and its compounds, including phosphorous rock processing	20	30	20	70	35	25	10	70	10	30	40	86.5	Red		IPC-I
18.3	Chlorates, per-chlorates & peroxides	20	30	20	70	30	20	25	75	20	20	40	88.8	Red		IPC-I
18.4	Chlorine, fluorine, bromine, iodine, and their compounds	10	30	25	65	35	20	10	65	20	20	40	83.4	Red		IPC-I
19	Coke oven plant, coal liquefaction, coal tar distillation and fuel gas-making	30	30	30	90	25	30	35	90	25	50	75	98.3	Red		IPC-II
<b>20.0</b>	<b>CEMENT PLANTS</b>															

S. No.	Sector	W1	W2	W3	PI <sub>w</sub>	A1	A2	A3	PI <sub>A</sub>	H1	H2	PI <sub>H</sub>	Pollution Index (PI)	Category	Remarks	Concerned Division
20.1	With co-processing with CPP (Captive Power Plant)	20	25	35	80	35	30	35	100	10	50	60	100	Red		IPC-II
20.2	With co-processing without CPP	20	0	20	40	35	30	35	100	30	20	50	100	Red		IPC-II
20.3	Without co-processing with CPP	10	25	35	70	35	30	35	100	10	50	60	100	Red		IPC-II
20.4	Without co-processing without CPP	0	0	0	0	25	30	35	90	30	10	40	92	Red		IPC-II
20.5	Stand-alone grinding units with CPP	20	25	35	80	25	30	35	90	10	50	60	97	Red		IPC-II
20.6	Stand-alone grinding units without CPP	0	0	0	0	25	30	0	55	30	10	40	64	Orange		IPC-II
20.7	Bulk terminals for storage and packaging of cement	0	0	0	0	0	30	0	30	0	0	0	30	Green		IPC-II
<b>21.0</b>	<b>CHLOR ALKALI</b>															
21.1	Chlor alkali	10	20	25	55	30	25	25	80	20	20	40	89.5	Red		IPC-I
21.2	Chlor alkali using washed salt	10	20	15	45	30	25	25	80	20	10	30	87.5	Red		IPC-I
21.3	Chlor alkali using cleaner/gaseous fuel	10	20	25	55	30	25	10	65	20	20	40	81.6	Red		IPC-I
21.4	Chlor alkali using cleaner/gaseous fuel and washed salt	10	20	15	45	30	25	10	65	20	10	30	78.1	Orange		IPC-I
22	Manufacturing of Compact disc Computer (CD/DVD) / cassette manufacturing / reel manufacturing	0	15	15	30	30	0	0	30	20	10	30	51	Green		IPC-V
<b>23.0</b>	<b>MANUFACTURING OF COIR/COIR PITH AND COIR PRODUCTS</b>															
23.1	Coir bleaching and dyeing/printing units	25	0	25	50	25	25	20	70	0	0	0	77.5	Orange		IPC-V
23.2	Coir fibre/pith processing units generating effluent	25	0	20	45	0	25	0	25	0	0	0	51.9	Green		IPC-V

S. No.	Sector	W1	W2	W3	PI <sub>w</sub>	A1	A2	A3	PI <sub>A</sub>	H1	H2	PI <sub>H</sub>	Pollution Index (PI)	Category	Remarks	Concerned Division
23.3	Coir fibre/pith processing and/or Manufacturing of coir products from coir (only dry process)	0	0	0	0	0	20	0	20	0	0	0	20	White		IPC-V
<b>24.0</b>	<b>CERAMICS</b>															
24.1	Ceramics/ Glass /Earthen potteries and tile manufacturing using coal/oil fired kilns (fuel consumption: 12 TPD and above)	0	0	0	0	25	25	30	80	0	0	0	80	Red		IPC-V
24.2	Ceramics/ Glass /Earthen potteries and tile manufacturing using coal/oil fired kilns (fuel consumption: less than 12 TPD)	0	0	0	0	25	25	25	75	0	0	0	75	Orange		IPC-V
24.3	Ceramics/ Glass /Earthen potteries and tile manufacturing (using gas fired kilns)/tunnel kiln	0	0	0	0	25	25	10	60	0	0	0	60	Orange		IPC-V
24.4	Ceramics/ Glass /Earthen potteries and tile manufacturing (using only electrical kiln)	0	0	0	0	0	25	0	25	0	0	0	25	Green		IPC-V
25	<b>Coal Washeries</b>	20	25	30	75	0	25	0	25	0	0	0	78.1	Orange		IPC-II
26	Liquid floor <b>Cleaner</b> , black phenyl, liquid soap, glycerol mono-stearate manufacturing	25	25	15	65	0	20	0	20	0	0	0	68.5	Orange		IPC-V
27	Phenyl/toilet <b>Cleaner</b> formulation and bottling	10	0	15	25	0	20	0	20	0	0	0	32.5	Green		IPC-V

S. No.	Sector	W1	W2	W3	PI <sub>w</sub>	A1	A2	A3	PI <sub>A</sub>	H1	H2	PI <sub>H</sub>	Pollution Index (PI)	Category	Remarks	Concerned Division
28	Cashew nut processing	20	0	15	35	25	20	15	60	0	0	0	67	Orange		IPC-III
<b>29.0</b>	<b>COFFEE SEEDS PROCESSING INDUSTRY</b>															
29.1	Coffee seeds processing (wet process)	35	0	20	55	25	0	15	40	0	0	0	64	Orange		IPC-III
29.2	Coffee seeds processing with eco-pulper	20	0	15	35	25	0	15	40	0	0	0	50.5	Green		IPC-III
30	Manufacturing of Candy	10	0	15	25	0	0	0	0	0	0	0	25	Green		IPC-V
31	Cardboard or corrugated box and paper products (excluding paper or pulp manufacturing and without using boilers)	0	0	0	0	0	20	0	20	0	0	0	20	White		IPC-V
32	Manufacturing of precast Cement products (without using asbestos/ boiler / steam curing) like pipe ,pillar, jafri, well ring, block/tiles etc.(should be done in closed covered shed to control fugitive emissions)	0	0	15	15	0	25	0	25	0	0	0	30.6	Green		IPC-V
33	Manufacturing of Ceramic Colour by mixing & blending only (not using boiler and wastewater recycling process)	0	0	0	0	0	25	0	25	0	0	0	25	Green		IPC-V
<b>34.0</b>	<b>CHILLING PLANT, COLD STORAGE AND ICE-MAKING</b>															
34.1	Chilling plant	20	15	15	50	0	0	0	0	0	0	0	50	Green		IPC-IV
34.2	Cold storage	0	15	15	30	0	0	0	0	0	0	0	30	Green		IPC-V
34.3	Ice Making	0	20	15	35	0	0	0	0	0	0	0	35	Green		IPC-V

S. No.	Sector	W1	W2	W3	PI <sub>w</sub>	A1	A2	A3	PI <sub>A</sub>	H1	H2	PI <sub>H</sub>	Pollution Index (PI)	Category	Remarks	Concerned Division
35	Decoration of <b>Ceramic Cups</b> and plates by electric furnace	0	0	0	0	0	25	0	25	0	0	0	25	Green		IPC-V
36	Ready mix <b>Cement Concrete</b>	0	0	0	0	0	30	0	30	0	0	0	30	Green		IPC-V
37	<b>CO2</b> recovery plant	0	0	0	0	0	0	0	0	20	10	30	30	Green	Exhausted molecular sieves are generated as hazardous waste.	IPC-V
38	Assembly of air <b>Coolers/Conditioners</b> , repairing and servicing	0	0	0	0	0	0	0	0	0	0	0	0	White		IPC-V
39	<b>Chalk</b> making from plaster of Paris ( only casting without boilers etc.(sun drying / electrical oven)	0	0	0	0	0	0	0	0	0	0	0	0	White		IPC-V
40	Standalone manufacturing of <b>Concrete</b> admixtures up to 1000 MT per Month capacity by physical mixing (without boiler and reactor and no generation of wastewater)	0	0	0	0	0	0	0	0	10	10	20	20	White	The sector may become green category if it generates wastewater. The unit needs to be re-classified as per the methodology in case the capacity exceeds 1000 MT per Month.	IPC-V
41	Used <b>Cooking</b> oil (UCO) collection centers	0	0	0	0	0	0	0	0	0	0	0	0	White		IPC-V

S. No.	Sector	W1	W2	W3	PI <sub>w</sub>	A1	A2	A3	PI <sub>A</sub>	H1	H2	PI <sub>H</sub>	Pollution Index (PI)	Category	Remarks	Concerned Division
~D~																
<b>42.0</b>	<b>DYES, DYE INTERMEDIATES AND PIGMENT PRODUCTIONS</b>															
42.1	Dyes, Dye Intermediates and Pigments produced by chemical synthesis	35	30	25	90	30	20	25	75	30	20	50	96.3	Red		IPC-I
42.2	Natural Dye and Pigments requiring acidic/ alkaline/ solvent extraction	30	30	20	80	25	20	25	70	20	10	30	90	Red		IPC-I
42.3	Natural Dye and Pigments not require acidic/ alkaline/ solvent extraction	30	20	20	70	25	0	25	50	0	0	0	77.5	Orange		IPC-I
<b>43.0</b>	<b>SYNTHETIC DETERGENT AND SOAPS</b>															
43.1	Synthetic detergents and soaps (wastewater generation ≥ 100 KLD)	20	20	30	70	25	0	25	50	25	10	35	82.8	Red		IPC-I
43.2	Synthetic detergents and soaps (wastewater generation < 100 KLD)	20	20	25	65	25	0	25	50	25	10	35	79.9	Orange		IPC-I
43.3	Synthetic detergents and soaps (only formulation)	0	0	0	0	25	0	25	50	0	0	0	50	Green		IPC-I
43.4	Soap manufacturing (handmade -without steam boiling / boiler)	0	0	0	0	0	0	0	0	0	0	0	0	White		IPC-V
<b>DISTILLERIES AND FERMENTATION SECTORS</b>																
<b>44.0</b>	<b>DISTILLERIES AND FERMENTATION INDUSTRIES</b>															
44.1	Distillery (Molasses based)	35	25	35	95	25	25	35	85	0	0	0	97.1	Red		IPC-III
44.2	Distillery (Grain based)	35	25	30	90	25	25	25	75	0	0	0	93.8	Red		IPC-III
44.3	Distillery (Grain based) with Distiller's Dried Grains with Soluble (DDGS) as by-product	25	25	20	70	25	25	25	75	0	0	0	83.8	Red		IPC-III
44.4	Standalone yeast manufacturing units	35	25	35	95	25	20	25	70	0	0	0	96.8	Red		IPC-III

S. No.	Sector	W1	W2	W3	PI <sub>w</sub>	A1	A2	A3	PI <sub>A</sub>	H1	H2	PI <sub>H</sub>	Pollution Index (PI)	Category	Remarks	Concerned Division
44.5	Breweries and malteries industry (with fermentation)- Wastewater generation ≥ 100 KLD	30	15	30	75	25	0	25	50	0	0	0	81.3	Red		IPC-III
44.6	Breweries and malteries industry (with fermentation)- Wastewater generation < 100 KLD	30	15	25	70	25	0	25	50	0	0	0	77.5	Orange		IPC-III
44.7	Potable alcohol by blending, bottling of alcohol products	20	0	25	45	0	0	0	0	0	0	0	45	Green		IPC-III
45	Diesel pump repairing and servicing (complete mechanical dry process)	0	0	0	0	0	0	0	0	10	10	20	20	White		IPC-V
~E~																
46	Manufacturing of <b>Explosives</b> , detonators, fuses, etc.	25	30	15	70	0	30	0	30	30	10	40	80.5	Red	Explosives manufacture contribute to release of hazardous pollutants, including generation of other toxic chemicals. Accident/safety hazard is also associated with such sector during manufacturing and usages.	IPC-I
47	Manufacturing of coated <b>Electrode</b>	0	15	15	30	0	25	0	25	0	0	0	38.8	Green	Process involves preparation of core wire / rod, preparation of dry mix, preparation of wet mix, application of coating by extrusion, baking of coated electrodes.	IPC-V
48	<b>Emery</b> powder (fine dust of sand) manufacturing	0	0	0	0	0	30	0	30	0	0	0	30	Green	Fugitive emissions from grinding operations.	IPC-V

S. No.	Sector	W1	W2	W3	PI <sub>w</sub>	A1	A2	A3	PI <sub>A</sub>	H1	H2	PI <sub>H</sub>	Pollution Index (PI)	Category	Remarks	Concerned Division
49	Electric lamp (bulb) and CFL manufacturing by assembling only	0	0	0	0	0	0	0	0	0	0	0	0	White		IPC-V
50	Electrical and electronic item assembling (completely dry process)	0	0	0	0	0	0	0	0	0	0	0	0	White		IPC-V
51	Engineering and fabrication units (dry process without any heat treatment / metal surface finishing operations / painting)	0	0	0	0	0	0	0	0	0	0	0	0	White		IPC-V
~F~																
<b>52.0</b>	<b>FIBRE GLASS (FIBRE REINFORCED PLASTIC) PRODUCTION</b>															
52.1	Fibre glass (containing lead) production and processing (excluding moulding)	0	0	0	0	35	0	25	60	25	20	45	69	Orange		IPC-V
52.2	Fibre glass (without lead) production and processing (excluding moulding)	0	0	0	0	30	0	25	55	25	20	45	65.1	Orange	The use of styrene in most methods of fibre glass production causes hazardous air pollution that is harmful to breathe at excessive levels.	IPC-V
53	Manufacturing of Firecrackers including improved crackers/green crackers, etc.	0	0	0	0	35	30	0	65	30	10	40	72	Orange	Various hazardous chemicals are used in the manufacturing process. Accident/safety hazard is also associated with such sector during manufacturing and usages.	IPC-V
<b>54.0</b>	<b>SYNTHETIC FIBRES MANUFACTURING</b>															
54.1	Synthetic fibres-PSF & PFY, generated from petrochemical	35	30	35	100	30	25	35	90	30	20	50	100	Red		IPC-I

S. No.	Sector	W1	W2	W3	PI <sub>w</sub>	A1	A2	A3	PI <sub>A</sub>	H1	H2	PI <sub>H</sub>	Pollution Index (PI)	Category	Remarks	Concerned Division
54.2	Synthetic fibres including rayon, tyre cord, viscose filament yarn/staple fibre, acrylic fibres	25	20	25	70	30	20	25	75	20	10	30	87.5	Red		IPC-I
54.3	Synthetic fibres including rayon, tyre cord, viscose filament yarn/staple fibre, acrylic fibres using cleaner/gaseous fuel	25	20	25	70	30	20	10	60	20	10	30	83.5	Red		IPC-I
<b>55.0</b>	<b>FERTILIZERS PRODUCTION</b>															
55.1	Fertilizers (Urea)	10	30	35	75	30	30	20	80	20	30	50	92.5	Red		IPC-I
55.2	Fertilizers (Calcium Ammonium Nitrate/Ammonium Nitrate)	10	30	25	65	30	25	25	80	20	20	40	90.5	Red		IPC-I
55.3	Fertilizers (NPK)	10	30	25	65	30	25	25	80	20	20	40	90.5	Red		IPC-I
55.4	Fertilizers (Straight Phosphatic Fertilizers)	10	30	25	65	30	25	25	80	20	20	40	90.5	Red		IPC-I
55.5	Fertilizer (granulation /formulation / blending) generating wastewater through floor washings, cooling towers etc.	10	30	15	55	30	30	0	60	10	10	20	75	Orange		IPC-I
55.6	Fertilizer (granulation /formulation / blending) not generating wastewater	0	0	0	0	30	30	0	60	10	10	20	64	Orange		IPC-I
<b>56.0</b>	<b>FOOD AND FOOD PROCESSING INCLUDING FRUITS AND VEGETABLE PROCESSING</b>															
56.1	Wastewater generation ≥ 10 KLD	25	0	25	50	25	0	25	50	0	0	0	62.5	Orange		IPC-III
56.2	Wastewater generation < 10 KLD (without boiler)	25	0	15	40	0	0	0	0	0	0	0	40	Green		IPC-III
<b>57.0</b>	<b>FISH FEED, POULTRY FEED AND CATTLE FEED</b>															
57.1	Fish feed, poultry feed and cattle feed (with boiler)	0	20	15	35	25	25	25	75	0	0	0	79.4	Orange		IPC-V

S. No.	Sector	W1	W2	W3	PI <sub>w</sub>	A1	A2	A3	PI <sub>A</sub>	H1	H2	PI <sub>H</sub>	Pollution Index (PI)	Category	Remarks	Concerned Division
57.2	Fish feed, poultry feed and cattle feed (without boiler)	0	0	0	0	0	25	0	25	0	0	0	25	Green		IPC-V
58	Fish processing and packing (excluding chilling of fishes)	25	25	20	70	0	20	0	20	0	0	0	73	Orange		IPC-IV
<b>59.0</b>	<b>MANUFACTURING OF MODULAR WOODEN FURNITURE</b>															
59.1	Modular wooden furniture from particle board, MDF, swan timber etc, Ceiling tiles/ partition board from saw dust, wood chips etc., and other agricultural waste using synthetic adhesive resin, wooden box making (With boiler)	0	0	0	0	25	25	10	60	0	0	0	60	Orange		IPC-V
59.2	Modular wooden furniture from particle board, MDF, swan timber etc, Ceiling tiles/ partition board from saw dust, wood chips etc., and other agricultural waste using synthetic adhesive resin, wooden box making (Without boiler)	0	0	0	0	0	25	0	25	0	0	0	25	Green		IPC-V
<b>60.0</b>	<b>CARPENTRY &amp; WOODEN FURNITURE MANUFACTURING</b>															
60.1	Carpentry & wooden furniture manufacturing with spray painting (excluding saw mill) with the help of electrical (motorized) machines such as electrical wood planner, steel saw cutting circular blade, etc.	0	0	0	0	0	25	0	25	0	0	0	25	Green		IPC-V

S. No.	Sector	W1	W2	W3	PI <sub>w</sub>	A1	A2	A3	PI <sub>A</sub>	H1	H2	PI <sub>H</sub>	Pollution Index (PI)	Category	Remarks	Concerned Division
60.2	Carpentry & wooden furniture manufacturing without spray painting (excluding saw mill) with the help of electrical (motorized) machines such as electrical wood planner, steel saw cutting circular blade, etc.	0	0	0	0	0	0	0	0	0	0	0	0	White		IPC-V
61	<b>Foam</b> manufacturing	0	0	0	0	35	0	0	35	20	10	30	44.8	Green	Emissions of VOCs and HAPs. Raw materials are polyurethane, latex etc.	IPC-V
62	<b>Flour</b> mills (dry process)	0	0	0	0	0	25	0	25	0	0	0	25	Green	Separate classification for domestic flour mills may not require.	IPC-V
<b>63.0</b>	<b>STEEL FURNITURE INDUSTRY (Obnoxious gases from welding.)</b>															
63.1	Steel furniture with spray painting	0	0	0	0	0	25	0	25	0	0	0	25	Green		IPC-V
63.2	Steel furniture without spray painting	0	0	0	0	0	0	0	0	0	0	0	0	White		IPC-V
~G~																
<b>64.0</b>	<b>MANUFACTURING OF GLUE AND GELATIN</b>															
64.1	Manufacturing of glue and gelatin using coal/liquid fuel	25	20	15	60	25	20	25	70	10	10	20	82	Red		IPC-I
64.2	Manufacturing of glue and gelatin by using biomass/cleaner fuel	25	20	15	60	25	20	15	60	10	10	20	76	Orange		IPC-I
<b>65.0</b>	<b>MANUFACTURING OF GLASS (INCLUDING PRINTING OR ETCHING OF GLASS SHEET USING HYDROFLUORIC ACID)</b>															
65.1	Manufacturing of glass (Oil/coal fired)	0	15	15	30	25	25	25	75	0	0	0	78.8	Orange		IPC-V
65.2	Manufacturing of glass (gas fired)	0	15	15	30	25	25	10	60	0	0	0	66	Orange		IPC-V

S. No.	Sector	W1	W2	W3	PI <sub>w</sub>	A1	A2	A3	PI <sub>A</sub>	H1	H2	PI <sub>H</sub>	Pollution Index (PI)	Category	Remarks	Concerned Division
66	Producer Gas plant using conventional coal Gasification	20	25	15	60	25	0	25	50	30	10	40	78	Orange		IPC-V
<b>67.0</b>	<b>COMPRESSED BIOGAS (CBG)/BIO-CNG PLANTS</b>															
67.1	CBG plants based on Municipal Solid Waste (MSW) as feed	30	25	25	80	0	20	0	20	0	0	0	82	Red		UPC-II
67.2	CBG plants based on process waste (industrial/ process liquid effluent & solid waste like press mud, organic sludge, molasses, etc.) as feed	30	25	25	80	0	20	0	20	0	0	0	82	Red		IPC-III
67.3	CBG plants based on crop residue (paddy straw /wheat straw /corn sweet sorghum/ Napier grass, etc.) as feed	30	25	20	75	0	20	0	20	0	0	0	77.5	Orange		IPC-III
67.4	CBG plants based on animal waste (dairy farms, poultry farms, and other animal waste) as feed	30	25	20	75	0	20	0	20	0	0	0	77.5	Orange		IPC-III
67.5	CBG plants producing Fermented Organic Manure (FOM) & Liquid Fermented Organic Manure (LFOM) as by-products	0	0	0	0	0	20	0	20	0	0	0	20	White	CBG plants producing FOM & LFOM as by-products in conformity with requirements of Gazette Notification No. 2051 dated 14.07.2020 & No. 1972 dated 01.06.2021, respectively, and utilizing entire FOM & LFOM as a fertilizer or manure on land and also not discharging any waste-water, to be considered under White category, subject to verification by SPCB on case-to-case basis.	IPC-III

S. No.	Sector	W1	W2	W3	PI <sub>w</sub>	A1	A2	A3	PI <sub>A</sub>	H1	H2	PI <sub>H</sub>	Pollution Index (PI)	Category	Remarks	Concerned Division	
<b>68.0</b>	<b>STANDALONE PRODUCTION OF HYDROGEN AND/OR AMMONIA (WITHOUT CAPTIVE POWER PLANT USING FOSSIL FUEL)</b>																
68.1	Integrated unit for production of Ammonia through Hydrogen generated by pyrolysis/gasification	20	25	20	65	20	25	25	70	30	20	50	87.3	Red	<p>i. Pyrolysis of biomass will generate syn gas and other condensable gases having hydrocarbons and other impurities.</p> <p>ii. Purification of gas will generate wastewater having high organic content and tarry residue as hazardous waste.</p> <p>iii. The process will generate fugitive emissions and due to pyrolysis operation.</p>	IPC-I	
68.2	Integrated unit for production of ammonia through Hydrogen generated by electrolysis using renewable energy (capacity $\geq$ 15 TPD)	10	25	35	70	0	20	0	20	30	20	50	80.5	Red	<p>i. Ammonia manufacturing process (Haber process) and associated safety hazards remain same as per the chemical properties of ammonia.</p> <p>ii. Wastewater generation due to the production of hydrogen through electrolysis and condensation of ammonia, other scrubbed liquid etc.</p> <p>iii. Generation of ETP sludge, exhausted membranes, molecular sieves, spent catalysts, etc. as hazardous waste.</p>	IPC-I	

S. No.	Sector	W1	W2	W3	PI <sub>w</sub>	A1	A2	A3	PI <sub>A</sub>	H1	H2	PI <sub>H</sub>	Pollution Index (PI)	Category	Remarks	Concerned Division
68.3	Integrated unit for production of Ammonia through hydrogen generated by electrolysis using renewable energy (Capacity < 15 TPD)	10	25	20	55	0	20	0	20	30	10	40	68.5	Orange	<p>i. Ammonia manufacturing process (Haber process) and associated safety hazards remains same as per the chemical properties of ammonia.</p> <p>ii. Wastewater generation due to production of hydrogen through electrolysis and condensation of ammonia, other scrubbed liquid etc.</p> <p>iii. Generation of ETP sludge, exhausted membranes, molecular sieves, spent catalysts, etc. as hazardous waste.</p>	IPC-I
68.4	Hydrogen production through pyrolysis/gasification	20	25	20	65	20	25	25	70	30	10	40	85.8	Red	<p>i. Pyrolysis of biomass will generate syn gas and other condensable gases having hydrocarbons and other impurities.</p> <p>ii. Purification of gas will generate wastewater having high organic content and tarry residue as hazardous waste.</p> <p>iii. The process will generate fugitive emissions and due to pyrolysis operation.</p>	IPC-I

S. No.	Sector	W1	W2	W3	PI <sub>W</sub>	A1	A2	A3	PI <sub>A</sub>	H1	H2	PI <sub>H</sub>	Pollution Index (PI)	Category	Remarks	Concerned Division
68.5	Hydrogen production through electrolysis using raw/seawater and renewable energy (capacity ≥ 2.5 TPD)	0	20	35	55	0	0	0	0	30	10	40	64.0	Orange	<p>i. Type of electrolyzers may include Alkaline Water Electrolyser (AWE), Proton Exchange Membrane (PEM), Solid Oxide Electrolyser Cell (SOEC) and Anion Exchange Membrane (AEM), etc.</p> <p>ii. Generation of DM reject, cooling tower blowdown, draining of alkaline/electrolyser water during maintenance, etc. as wastewater.</p> <p>iii. Generation of ETP sludge, exhausted membranes, molecular sieves, spent catalysts, etc. as hazardous waste.</p>	IPC-I
68.6	Hydrogen production through electrolysis using raw/sea water and renewable energy (capacity < 2.5 TPD)	0	20	20	40	0	0	0	0	30	10	40	52.0	Green	<p>i. Type of electrolyzers may include Alkaline Water Electrolyser (AWE), Proton Exchange Membrane (PEM), Solid Oxide Electrolyser Cell (SOEC) and Anion Exchange Membrane (AEM), etc.</p> <p>ii. Generation of DM reject, cooling tower blowdown, draining of alkaline/electrolyser water during maintenance, etc. as wastewater.</p> <p>iii. Generation of ETP sludge, exhausted membranes, molecular sieves, spent catalysts, etc. as hazardous waste.</p>	IPC-I
68.7	Hydrogen production through electrolysis (using	0	0	0	0	0	0	0	0	0	10	10	10.0	White	<p>i. DM water as feed water for electrolyser and cooling/chilling</p>	IPC-I

S. No.	Sector	W1	W2	W3	PI <sub>w</sub>	A1	A2	A3	PI <sub>A</sub>	H1	H2	PI <sub>H</sub>	Pollution Index (PI)	Category	Remarks	Concerned Division
	renewable energy) on BOO/BOOT/BOT, mode etc., located in the premises of end user industry and directly using de-mineralized water & other utilities (cooling tower, ETP, etc.) sourced from end user industry														water requirement to be met by the end user industry.  ii. Wastewater and other waste generated during O&M shall also be managed by the end user industry.	
69	<b>Glue</b> from starch (physical mixing) with Gas/ electrically operated oven /boiler.	0	0	0	0	25	0	10	35	0	0	0	35	Green		IPC-V
70	<b>Gold</b> and silver smithy (purification with acid smelting operation and sulphuric acid polishing operation) (using less or equal to 1 litre of sulphuric acid/ nitric acid per month)	0	0	0	0	0	25	0	25	0	0	0	25	Green		IPC-V
71	Compressed oxygen <b>Gas</b> from crude liquid oxygen (without use of any solvents and by maintaining pressure & temperature only for separation of other <b>Gases</b> )	0	0	0	0	0	0	0	0	0	0	0	0	White		IPC-V
72	<b>Glass</b> and ampules and vials making from <b>Glass</b> tubes	0	0	0	0	0	0	0	0	0	0	0	0	White		IPC-V
73	<b>Ground</b> nut decorticating	0	0	0	0	0	0	0	0	0	0	0	0	White		IPC-V

S. No.	Sector	W1	W2	W3	PI <sub>w</sub>	A1	A2	A3	PI <sub>A</sub>	H1	H2	PI <sub>H</sub>	Pollution Index (PI)	Category	Remarks	Concerned Division
74	<b>Medical Oxygen</b>	0	0	0	0	0	0	0	0	10	10	20	20	White	The sector may become green category if it generates wastewater	IPC-V
~H~																
<b>75.0</b>	<b>HOT MIX PLANTS</b>															
75.1	Hot mix plants using oil as fuel	0	0	0	0	25	25	25	75	0	0	0	75	Orange		IPC-V
75.2	Hot mix plants using gaseous as fuel	0	0	0	0	25	25	10	60	0	0	0	60	Orange		IPC-V
76	<b>Hazardous</b> waste pre-processing/processing facility including spent acid processing, spent solvent recovery, etc.	25	30	15	70	25	25	15	65	30	20	50	87.3	Red		WM-II
77	<b>Handloom</b> / carpet weaving (without dyeing and bleaching operation)	0	0	0	0	0	0	0	0	0	0	0	0	White		IPC-V
~I~																
78	<b>Ice</b> cream manufacturing units	25	25	20	70	25	0	25	50	0	0	0	77.5	Orange		IPC-IV
79	Printing <b>Ink</b> Manufacturing	20	30	15	65	0	20	10	30	30	10	40	77.3	Orange	In the process pigments, binders and solvents are used. VOCs are generated.	IPC-I

S. No.	Sector	W1	W2	W3	PI <sub>w</sub>	A1	A2	A3	PI <sub>A</sub>	H1	H2	PI <sub>H</sub>	Pollution Index (PI)	Category	Remarks	Concerned Division
80	Manufacturing of scientific and mathematical <b>Instrument</b> (assembling only)	0	0	0	0	0	0	0	0	0	0	0	0	White		IPC-V
~J~																
<b>81.0</b>	<b>JUTE PROCESSING</b>															
81.1	Jute processing (with dyeing / with boiler)	25	20	25	70	25	0	25	50	0	0	0	77.5	Orange		IPC-III
81.2	Jute processing (without dyeing / without boiler)	20	0	20	40	0	0	0	0	0	0	0	40	Green		IPC-III
81.3	Manufacturing of products from jute (without dyeing/ without boiler)	0	0	0	0	0	0	0	0	0	0	0	0	White		IPC-III
~L~																
82	<b>Lime</b> manufacturing (using lime kiln)	0	0	0	0	25	0	30	55	0	0	0	55	Orange		IPC-V
83	<b>Leather</b> foot wear and <b>Leather</b> products (excluding tanning and hide processing)	0	0	0	0	0	20	0	20	0	0	0	20	White	Fumes due to use of adhesives / gums.	IPC-IV
84	Manufacturing of optical <b>Lenses</b> (using electrical furnace)	0	20	15	35	0	0	0	0	0	0	0	35	Green		IPC-V
85	<b>Leather</b> cutting and stitching (more than 10 machine and using motor)	0	0	0	0	0	0	0	0	0	0	0	0	White		IPC-V
~M~																

S. No.	Sector	W1	W2	W3	PI <sub>w</sub>	A1	A2	A3	PI <sub>A</sub>	H1	H2	PI <sub>H</sub>	Pollution Index (PI)	Category	Remarks	Concerned Division
86	Mobile towers using genset(s)	0	0	0	0	25	0	25	50	0	0	0	50	Green	i. The used oil/waste oil generated during repair and maintenance need to be disposed through authorized hazardous waste recycler by service provider/OEM.  ii. Order dated 24.08.2017 in the related matter with OA No. 83(THC) OF 2012 (Bharti Infratel Ltd.) may be referred for issuance of composite consent in case of mobile towers.	UPC-I
<b>87.0</b>	<b>MILK PROCESSES AND DAIRY PRODUCTS</b>															
87.1	Milk processes and dairy products (integrated project)	30	25	30	85	25	20	30	75	0	0	0	90.6	Red		IPC-IV
87.2	Dairy and dairy products (Small scale units), using coal/biomass as fuel (Wastewater generation ≥ 100 KLD)	25	25	30	80	25	0	25	50	0	0	0	85	Red		IPC-IV
87.3	Dairy and dairy products (Small scale units), using coal/biomass as fuel (Wastewater generation < 100 KLD)	25	25	20	70	25	0	25	50	0	0	0	77.5	Orange		IPC-IV
87.4	Dairy and dairy products, (Small scale units), using PNG as fuel	25	25	20	70	0	0	10	10	0	0	0	71.5	Orange		IPC-IV
<b>88.0</b>	<b>MINING AND ORE BENEFICIATION</b>															
88.1	Open-cast coal mining	10	25	35	70	25	30	35	90	10	70	80	97.5	Red		IPC-II
88.2	Underground coal mining	0	25	35	60	25	30	35	90	0	0	0	93	Red		IPC-II
88.3	Mining of major minerals and ore beneficiation	20	30	35	85	25	30	35	90	25	70	95	99.4	Red	Includes captive limestone mining.	IPC-II

S. No.	Sector	W1	W2	W3	PI <sub>w</sub>	A1	A2	A3	PI <sub>A</sub>	H1	H2	PI <sub>H</sub>	Pollution Index (PI)	Category	Remarks	Concerned Division
88.4	Mining of minor minerals (except Sand/riverbed material mining)	10	0	20	30	25	25	25	75	0	0	0	78.8	Orange		IPC-II
88.5	Grinding, processing, and screening of minor minerals	0	0	0	0	25	30	0	55	0	0	0	55	Orange		IPC-II
89	Manufacturing of <b>Mirror</b> from sheet glass	0	0	0	0	30	20	0	50	25	10	35	58.8	Orange		IPC-V
90	<b>Mineral</b> processing, industries involving ore sintering, pelletising, grinding & pulverization	0	0	0	0	25	25	25	75	0	0	0	75	Orange		IPC-II
91	<b>Malteries</b> (without fermentation)	30	15	25	70	25	0	25	50	0	0	0	77.5	Orange		IPC-III
92	Manufacturing of <b>Mosquito</b> repellent & coil	0	0	0	0	30	0	25	55	0	0	0	55	Orange	Toxic fumes may be released.	IPC-V
93	Organic <b>Manure</b> (physical mixing)	0	0	0	0	0	20	0	20	0	0	0	20	White		IPC-V
94	Packing of powdered <b>Milk</b>	0	0	0	0	0	0	0	0	0	0	0	0	White		IPC-V
<b>METALS AND METALLURGICAL SECTORS</b>																
<b>95.0</b>	<b>IRON &amp; STEEL (PRIMARY PROCESSING FROM ORE, INTEGRATED STEEL PLANTS AND SPONGE IRON UNITS)</b>															
95.1	Integrated iron and steel plants	25	30	35	90	25	30	35	90	25	50	75	98.3	Red		IPC-II
95.2	Stand-alone sintering/palletisation	0	0	0	0	25	30	35	90	0	0	0	90	Red		IPC-II
95.3	Sponge iron with CPP (Captive Power Plant)	20	25	35	80	25	30	35	90	10	50	60	97	Red		IPC-II
95.4	Sponge iron without CPP	20	15	30	65	25	30	35	90	10	50	60	96.3	Red		IPC-II

S. No.	Sector	W1	W2	W3	PI <sub>w</sub>	A1	A2	A3	PI <sub>A</sub>	H1	H2	PI <sub>H</sub>	Pollution Index (PI)	Category	Remarks	Concerned Division
95.5	Stand-alone coke oven gas plants	25	30	30	85	25	30	35	90	25	50	75	98	Red		IPC-II
<b>96.0</b>	<b>ALUMINIUM PROCESSING</b>															
96.1	Aluminium Refinery	10	30	35	75	25	25	35	85	10	70	80	96.6	Red		IPC-II
96.2	Aluminium Smelter	10	30	35	75	30	25	35	90	25	70	95	99.1	Red		IPC-II
97	<b>Copper Smelter</b>	10	30	35	75	30	25	35	90	10	70	80	97.8	Red		IPC-II
98	<b>Zinc smelter</b>	10	30	35	75	30	25	35	90	10	70	80	97.8	Red		IPC-II
<b>99.0</b>	<b>FERROUS AND NON-FERROUS METAL SECONDARY PROCESSING/REPROCESSING UNITS INVOLVING DIFFERENT FURNACES THROUGH MELTING, REFINING, CASTING, ALLOY-MAKING</b>															
99.1	All Ferrous and Non-ferrous metal secondary processing/reprocessing units involving different furnaces through melting, refining, casting, alloy-making (using coal/liquid fuels)	0	15	15	30	25	25	25	75	25	10	35	83.1	Red		IPC-V
99.2	Ferrous and Non-ferrous metal (excluding lead, nickel, and manganese) secondary processing/reprocessing units involving different furnaces through melting, refining, casting, alloy-making (using cleaner fuels/electricity)	0	15	15	30	25	25	10	60	10	10	20	70	Orange		IPC-V
100	Aluminium & copper extraction from scrap using an oil-fired furnace (dry process only)	0	0	0	0	25	25	25	75	0	0	0	75	Orange		IPC-V
<b>101.0</b>	<b>INDUSTRY OR PROCESS INVOLVING METAL SURFACE TREATMENT OR PROCESS/HEAT TREATMENT</b>															

S. No.	Sector	W1	W2	W3	PI <sub>w</sub>	A1	A2	A3	PI <sub>A</sub>	H1	H2	PI <sub>H</sub>	Pollution Index (PI)	Category	Remarks	Concerned Division
101.1	Industry or process involving metal surface treatment or process such as pickling/ electroplating/paint stripping/ heat treatment using cyanide bath/ phosphating or finishing and anodizing / enamellings/ galvanizing	25	30	20	75	30	25	0	55	25	30	55	88.8	Red		IPC-V
101.2	Plasma electrolytic polishing (electroplating)	25	30	15	70	30	25	0	55	0	0	0	78.3	Orange		IPC-V
101.3	Heat treatment using furnace ( without cyaniding)	0	0	0	0	25	0	25	50	0	0	0	50	Green		IPC-V
101.4	Heat treatment with any of the new technology like ultrasound probe, induction hardening, ionization beam, gas carburizing etc.	0	15	15	30	0	25	0	25	0	0	0	38.8	Green		IPC-V
<b>102.0</b>	<b>FORGING OF FERROUS AND NON- FERROUS METALS</b>															
102.1	Forging of ferrous and non-ferrous metals using liquid fuel	0	0	0	0	25	25	20	70	30	10	40	76	Orange		IPC-V
102.2	Forging of ferrous and non-ferrous metals using gaseous fuel	0	0	0	0	25	25	10	60	30	10	40	68	Orange		IPC-V
102.3	Forging of ferrous and non-ferrous metals using electricity	0	0	0	0	25	25	0	50	30	10	40	60	Orange		IPC-V
102.4	Forging of ferrous and non-ferrous metals (cold forging, without any heat treatment)	0	0	0	0	0	0	0	0	30	10	40	40	Green		IPC-V
<b>103.0</b>	<b>ROLLING MILLS</b>															
103.1	Rolling and pickling	25	30	15	70	25	30	25	80	25	10	35	90.5	Red		IPC-V
103.2	Rolling mills (oil and coal fired)	0	15	15	30	25	0	25	50	0	0	0	57.5	Orange		IPC-V
103.3	Rolling mills (gas fired)	0	15	15	30	25	0	10	35	0	0	0	44.8	Green		IPC-V

S. No.	Sector	W1	W2	W3	PI <sub>w</sub>	A1	A2	A3	PI <sub>A</sub>	H1	H2	PI <sub>H</sub>	Pollution Index (PI)	Category	Remarks	Concerned Division
103.4	Cold rolling mill (without heat treatment)	0	0	0	0	0	0	0	0	0	0	0	0	White		IPC-V
<b>104.0</b>	<b>FOUNDRY OPERATIONS</b>															
104.1	Cupola furnace	0	0	0	0	25	25	25	75	10	10	20	77.5	Orange		IPC-V
104.2	Induction furnace/arc furnace	0	0	0	0	25	30	0	55	10	10	20	59.5	Orange		IPC-V
<b>105.0</b>	<b>WIRE DRAWING AND WIRE NETTING</b>															
105.1	Wire drawing and wire netting (with pickling)	25	30	15	70	30	25	0	55	10	10	20	81.3	Red		IPC-V
105.2	Wire drawing and wire netting (without pickling and with heat treatment)	0	0	0	0	25	0	20	45	10	10	20	50.5	Green		IPC-V
105.3	Wire drawing and wire netting (without pickling and without heat treatment)	0	0	0	0	0	0	0	0	0	0	0	0	White		IPC-V
106	<b>Die-casting</b> /extrusion process only	0	0	0	0	25	0	25	50	0	0	0	50	Green		IPC-V
107	Manufacturing of aluminium utensils from aluminium circles pressing/ Brass and bell <b>Metal</b> utensils manufacturing from circles (dry mechanical operation only)	0	0	0	0	0	30	0	30	0	0	0	30	Green	Emissions during buffing	IPC-V
108	Manufacturing of <b>Metal</b> caps containers etc	0	0	0	0	0	0	0	0	0	0	0	0	White		IPC-V

S. No.	Sector	W1	W2	W3	PI <sub>w</sub>	A1	A2	A3	PI <sub>A</sub>	H1	H2	PI <sub>H</sub>	Pollution Index (PI)	Category	Remarks	Concerned Division
~N~																
109	Formulation/palletisation of camphor tablets, <b>Naphthalene</b> balls from camphor/ naphthalene powders.	0	0	0	0	35	20	0	55	0	0	0	55	Orange	Emissions of benzene, hydrocarbons etc. are expected.	IPC-V
110	Organic and inorganic <b>Nutrients</b> by physical mixing (without boiler and without any reactor)	0	0	0	0	0	0	0	0	10	10	20	20	White	The sector may become green category if it generates wastewater	IPC-V
<b>111.0</b>	<b>ORGANIC CHEMICALS INCLUDING HALOGENATED HYDROCARBONS</b>															
111.1	Organic chemicals including halogenated hydrocarbons (using solid/liquid fuel)	30	30	25	85	35	0	30	65	30	20	50	93.6	Red		IPC-I
111.2	Organic chemicals including halogenated hydrocarbons (using cleaner fuel)	30	30	25	85	35	0	10	45	30	20	50	92.1	Red		IPC-I
112	<b>Oil</b> and gas extraction (offshore & onshore extraction through drilling wells), Coal Bed Methane (CBM) drilling and shale gas, including group gathering stations (GGS), etc.	25	30	15	70	20	25	0	45	30	10	40	82.8	Red		IPC-I
<b>113.0</b>	<b>EDIBLE OIL MILLS</b>															
113.1	Vegetable oil manufacturing including solvent extraction and refinery /hydrogenated oils	25	25	20	70	25	0	20	45	0	0	0	76.8	Orange		IPC-III
113.2	Oil mills Ghani and extraction without boiler (no refining/ hydrogenation)	10	25	15	50	0	0	0	0	0	0	0	50	Green		IPC-III

S. No.	Sector	W1	W2	W3	PI <sub>w</sub>	A1	A2	A3	PI <sub>A</sub>	H1	H2	PI <sub>H</sub>	Pollution Index (PI)	Category	Remarks	Concerned Division	
~P~																	
<b>114.0</b>	<b>POWER GENERATION PLANTS</b>																
114.1	Power plants based on coal	0	15	35	50	35	25	35	95	10	70	80	98.3	Red		IPC-II	
114.2	Power plants based on liquid fuels	0	15	35	50	25	25	35	85	30	20	50	92.5	Red		IPC-II	
114.3	Biomass-based power plants	0	15	30	45	25	25	25	75	10	50	60	88.1	Red		IPC-II	
114.4	Nuclear energy-based power plants (> 220 MW)	0	30	35	65	25	0	25	50	25	20	45	81.6	Red	Overall safety aspects related with radioactivity is regulated by Atomic Energy Regulatory Board (AERB).	IPC-II	
114.5	Nuclear energy-based power plants (up to 220 MW)	0	30	35	65	25	0	25	50	25	10	35	79.9	Orange	Overall safety aspects related with radioactivity is regulated by Atomic Energy Regulatory Board (AERB).	IPC-II	
114.6	Gas-based power plants	0	15	35	50	25	0	20	45	0	0	0	61.3	Orange		IPC-II	
<b>115.0</b>	<b>PULP &amp; PAPER (AGRO &amp; WOOD)</b>																
115.1	Manufacturing of bleached chemical pulp, papers, and paperboards	30	30	35	95	30	0	35	65	30	30	60	98.1	Red		IPC-III	
115.2	Unbleached or Totally Chlorine Free (TCF) bleaching for manufacturing of chemical pulp, papers, and paperboards	30	20	35	85	30	0	35	65	10	30	40	92.9	Red		IPC-III	
115.3	Bleached grades of chemical pulp, paper, and paperboard having Totally Chlorine Free (TCF) bleaching	30	20	35	85	30	0	35	65	10	30	40	92.9	Red		IPC-III	
<b>116.0</b>	<b>PULP AND PAPER (RECYCLED FIBRE/WASTE PAPER BASED)</b>																
116.1	Pulp & Paper (With bleaching)	30	15	35	80	25	0	25	50	10	30	40	89	Red		IPC-III	
116.2	Pulp & Paper (Without bleaching, capacity ≥15 TPD)	25	15	35	75	25	0	25	50	10	30	40	86.3	Red		IPC-III	

S. No.	Sector	W1	W2	W3	PI <sub>w</sub>	A1	A2	A3	PI <sub>A</sub>	H1	H2	PI <sub>H</sub>	Pollution Index (PI)	Category	Remarks	Concerned Division
116.3	Pulp & Paper (Without bleaching; plant capacity <15 TPD)	25	15	20	60	25	0	25	50	10	10	20	74	Orange		IPC-III
<b>117.0</b>	<b>MANUFACTURING OF PAINTS, VARNISHES (The process may cause considerable emissions of volatile organic compounds (VOC).)</b>															
117.1	Manufacturing of solvent-based paints/varnish	35	30	20	85	25	20	25	70	25	30	55	94.4	Red		IPC-I
117.2	Manufacturing of water-based paints	25	30	20	75	25	20	25	70	20	20	40	88.8	Red		IPC-I
117.3	Manufacturing of powder coatings	0	15	15	30	20	30	25	75	10	20	30	82.5	Red		IPC-I
117.4	Manufacturing of paint and varnishes (only blending and mixing)	20	30	15	65	0	20	0	20	30	20	50	77.3	Orange		IPC-I
<b>118.0</b>	<b>PESTICIDE INDUSTRIES</b>															
118.1	Pesticide technical (organic chemicals based)	30	30	20	80	30	25	25	80	30	30	60	94	Red		IPC-I
118.2	Pesticide technical (inorganic chemicals based like Zinc Phosphide and Aluminium Phosphide)	20	30	20	70	30	25	25	80	20	20	40	91	Red		IPC-I
118.3	Pesticide formulation industries (Liquid formulation only) having boiler/thermopack	20	30	20	70	25	20	25	70	20	20	40	86.5	Red		IPC-I
118.4	Pesticide formulation industries (Liquid formulation only) without having boiler/thermopack	20	30	20	70	0	20	0	20	20	20	40	79	Orange	Considering that dry formulation industries can also generate effluent because of equipment cleaning, the water pollution score is given	IPC-I
118.5	Pesticide formulation industries (having both liquid and dry formulation or dry formulation only) without having boiler / thermopack	20	30	20	70	30	20	0	50	20	20	40	83.5	Red	Considering that dry formulation industries can also generate effluent because of equipment cleaning, the water pollution score is given	IPC-I

S. No.	Sector	W1	W2	W3	PI <sub>w</sub>	A1	A2	A3	PI <sub>A</sub>	H1	H2	PI <sub>H</sub>	Pollution Index (PI)	Category	Remarks	Concerned Division
118.6	Pesticide formulation industries (having both liquid and dry formulation or dry formulation only) having boiler / thermopack	20	30	20	70	30	20	25	75	20	20	40	88.8	Red	Considering that dry formulation industries can also generate effluent because of equipment cleaning, the water pollution score is given	IPC-I
119	<b>Photographic</b> film and its chemicals	20	20	15	55	30	0	25	55	20	10	30	74.1	Orange	Silver salts and other chemicals are used	IPC-I
120	<b>Petroleum</b> oil refineries	35	30	30	95	35	20	35	90	20	20	40	98.3	Red		IPC-I
<b>121.0</b>	<b>PETROCHEMICALS</b>															
121.1	Petrochemicals (Naphtha cracker.)	30	30	30	90	35	25	35	95	30	20	50	98.5	Red		IPC-I
121.2	Petrochemicals (Gas cracker)	30	30	30	90	35	25	25	85	30	20	50	96.8	Red		IPC-I
121.3	Petrochemicals (without cracker)	25	30	20	75	25	25	15	65	20	20	40	88.1	Red		IPC-I
121.4	Petrochemicals (without cracker and using cleaner/gaseous fuel)	25	30	20	75	25	25	10	60	20	20	40	87.5	Red		IPC-I
<b>122.0</b>	<b>MANUFACTURING OF LUBRICATING OILS, GREASE AND PETROLEUM-BASED PRODUCTS</b>															
122.1	Manufacturing of lubricating oils, grease, and petroleum-based products	20	15	15	50	25	20	10	55	30	10	40	75.3	Orange	Such unit uses distillation columns/ boilers etc	IPC-I
122.2	Manufacturing of lubricating oils, grease, and petroleum-based products (only blending)	0	0	0	0	0	25	0	25	10	10	20	32.5	Green		IPC-I
<b>123.0</b>	<b>PHARMACEUTICAL INDUSTRY</b>															
123.1	Pharmaceuticals manufacturing	35	30	30	95	35	25	35	95	30	20	50	98.6	Red		IPC-I
123.2	Pharmaceuticals manufacturing using cleaner/gaseous fuel	35	30	30	95	35	25	10	70	30	20	50	98	Red		IPC-I

S. No.	Sector	W1	W2	W3	PI <sub>w</sub>	A1	A2	A3	PI <sub>A</sub>	H1	H2	PI <sub>H</sub>	Pollution Index (PI)	Category	Remarks	Concerned Division
123.3	Pharmaceuticals (Formulation)	20	15	15	50	25	0	25	50	30	10	40	72.5	Orange		IPC-I
123.4	Pharmaceuticals (Formulation) using cleaner/gaseous fuel	20	15	15	50	25	0	10	35	30	10	40	68.8	Orange		IPC-I
123.5	Vaccine manufacturing	20	15	15	50	25	0	35	60	30	10	40	78	Orange		IPC-I
123.6	Vaccine manufacturing using cleaner/gaseous fuel	20	15	15	50	25	0	10	35	30	10	40	68.8	Orange		IPC-I
123.7	Pharmaceutical R&D facilities	20	15	15	50	25	0	25	50	30	10	40	72.5	Orange		IPC-I
123.8	Ayurvedic or Unani medicines manufacturing	20	15	15	50	25	0	25	50	30	10	40	72.5	Orange		IPC-I
123.9	Ayurvedic or unani medicines manufacturing using cleaner fuel	20	15	15	50	25	0	10	35	0	0	0	58.8	Orange		IPC-I
123.10	Ayurvedic or unani medicines manufacturing (Without boiler )	20	15	15	50	0	0	0	0	0	0	0	50	Green		IPC-I
124	Digital <b>Printing</b> on flex /vinyl, PVC etc. (more than 5 machines)	0	0	0	0	20	0	0	20	30	10	40	46	Green		IPC-V
125	Spray <b>Painting</b> , Paint baking, Paint shipping	0	0	0	0	0	25	0	25	30	10	40	47.5	Green	Emissions in the form of VOCs and HC are generated.	IPC-V
126	<b>Plywood</b> /board manufacturing ( including Veneer and laminate) with biomass fired boiler / thermic fluid heater (without resin plant)	20	20	15	55	25	20	25	70	0	0	0	78.3	Orange		IPC-V

S. No.	Sector	W1	W2	W3	PI <sub>w</sub>	A1	A2	A3	PI <sub>A</sub>	H1	H2	PI <sub>H</sub>	Pollution Index (PI)	Category	Remarks	Concerned Division
127	<b>Printing</b> press (newspaper, books, magazines, etc./ Gravure printing)	20	0	15	35	20	0	0	20	30	10	40	56.5	Orange		IPC-V
128	Manufacturing of bi-axially oriented <b>Polypropylene</b> (PP) film along with metalizing operations	0	15	15	30	0	0	0	0	0	0	0	30	Green	Mainly extrusion process involving	IPC-V
129	<b>Pulse/Dal</b> Mills	0	0	0	0	0	30	0	30	0	0	0	30	Green		IPC-V
130	Insulation and other coated <b>Papers</b> (excluding paper or pipe manufacturing)	0	0	0	0	0	25	0	25	0	0	0	25	Green		IPC-V
131	<b>Packaging</b> materials manufacturing from non-asbestos fibre, vegetable fibre yarn	0	0	0	0	0	25	0	25	0	0	0	25	Green		IPC-V
132	<b>Polythene</b> and plastic processed products manufacturing (virgin/compostable plastic)	0	15	15	30	0	20	0	20	0	0	0	37	Green		IPC-V
133	<b>Poultry</b> , piggery, and hatchery	0	0	0	0	30	20	0	50	0	0	0	50	Green		IPC-V
134	<b>Puffed</b> rice (muri) (using gas)	0	0	0	0	25	0	10	35	0	0	0	35	Green		IPC-V

S. No.	Sector	W1	W2	W3	PI <sub>w</sub>	A1	A2	A3	PI <sub>A</sub>	H1	H2	PI <sub>H</sub>	Pollution Index (PI)	Category	Remarks	Concerned Division
135	Biscuits trays etc from rolled <b>PVC</b> sheet (using automatic vacuum forming machines)	0	0	0	0	0	0	0	0	0	0	0	0	White		IPC-V
136	Fountain <b>Pen</b> manufacturing by assembling only	0	0	0	0	0	0	0	0	0	0	0	0	White		IPC-V
137	Glass <b>Putty</b> and sealant (by mixing with machine only)	0	0	0	0	0	0	0	0	0	0	0	0	White		IPC-V
138	Manufacturing of <b>Paper</b> Pins, U-clips, etc.	0	0	0	0	0	0	0	0	0	0	0	0	White		IPC-V
139	Solar <b>Power</b> generation through solar photovoltaic cell and wind power	0	0	0	0	0	0	0	0	0	0	0	0	White		IPC-V
~R~																
140	Synthetic <b>Rubber</b> excluding molding	20	15	15	50	20	0	25	45	20	10	30	68.8	Orange	Most synthetic rubber is created from two materials, styrene, and butadiene.	IPC-I
<b>141.0</b>	<b>REFRACTORIES</b>															
141.1	Refractories based on coal/liquid fuel (fuel consumption: 12 TPD and above)	0	0	0	0	25	25	30	80	0	0	0	80	Red		IPC-V
141.2	Refractories based on coal/liquid fuel (fuel consumption: less than 12 TPD)	0	0	0	0	25	25	25	75	0	0	0	75	Orange		IPC-V
141.3	Refractories based on cleaner fuels	0	0	0	0	25	25	10	60	0	0	0	60	Orange		IPC-V
<b>142.0</b>	<b>RUBBER PRODUCTS MANUFACTURING</b>															

S. No.	Sector	W1	W2	W3	PI <sub>w</sub>	A1	A2	A3	PI <sub>A</sub>	H1	H2	PI <sub>H</sub>	Pollution Index (PI)	Category	Remarks	Concerned Division
142.1	Tyre and tube manufacturing	0	15	15	30	25	25	25	75	0	0	0	78.8	Orange		IPC-V
142.2	Tyres and tubes vulcanization/ hot retreading	0	15	15	30	25	20	10	55	0	0	0	61.8	Orange	Emissions of PM, VOCs and obnoxious odour are generated.	IPC-V
142.3	Rubber goods industry (with solid fuel/oil-based boiler)	0	15	15	30	25	0	25	50	0	0	0	57.5	Orange		IPC-V
142.4	Rubber goods industry (with gas-based boiler)	0	15	15	30	25	0	10	35	0	0	0	44.8	Green		IPC-V
<b>143.0</b>	<b>SYNTHETIC RESINS</b>															
143.1	Synthetic resins manufacturing	20	15	15	50	25	20	25	70	20	10	30	82	Red		IPC-I
143.2	Synthetic resins manufacturing (using only gaseous fuel)	20	15	15	50	25	20	10	55	20	10	30	73	Orange		IPC-I
144	Blending of melamine Resins & different powder, additives by physical mixing, including phenolic resin (without boiler)	0	15	15	30	0	30	0	30	20	10	30	51	Green		IPC-I
<b>145.0</b>	<b>RICE MILLS</b>															
145.1	Parboiled rice mill (with soaking and steam/drier)	25	0	20	45	25	0	25	50	0	0	0	61.3	Orange		IPC-V
145.2	Raw rice mill (Without soaking and steam/drier)/ hullers)	0	0	0	0	0	30	0	30	0	0	0	30	Green		IPC-V
146	Repairing of electric motors and generators (dry mechanical process)	0	0	0	0	0	0	0	0	0	0	0	0	White		IPC-V
147	Manufacturing of plastic or cotton Rope	0	0	0	0	0	0	0	0	0	0	0	0	White		IPC-V

S. No.	Sector	W1	W2	W3	PI <sub>w</sub>	A1	A2	A3	PI <sub>A</sub>	H1	H2	PI <sub>H</sub>	Pollution Index (PI)	Category	Remarks	Concerned Division
148	Tyre <b>Retraders</b>	0	0	0	0	0	0	0	0	0	0	0	0	White		WM-III
<b>RECYCLING AND REPROCESSING SECTOR</b>																
<b>149.0</b>	INDUSTRIES ENGAGED IN <b>RECYCLING/REPROCESSING/ RECOVERY/REUSE</b> OF HAZARDOUS WASTE UNDER SCHEDULE IV OF H&OW(M & TBM) RULES, 2016 - ITEMS, NAMELY, SPENT CATALYSTS CONTAINING NICKEL, CADMIUM, ZINC, COPPER, ARSENIC, VANADIUM, AND COBALT, INCLUDING DRY BATTERY (EXCEPT LEAD), AND CLEARED METAL CATALYST.															
149.1	Hydro & pyro metallurgy	0	30	15	45	35	25	25	85	25	10	35	91	Red		WM-II
149.2	Hydro & pyro metallurgy (using cleaner/gaseous fuels & without crushing of materials)	0	30	15	45	35	25	10	70	25	10	35	82	Red		WM-II
149.3	Pyro metallurgy (using coal/liquid fuels)	0	0	0	0	35	25	25	85	20	10	30	87.3	Red		WM-II
149.4	Pyro metallurgy (using cleaner/gaseous fuels)	0	0	0	0	35	25	10	70	20	10	30	74.5	Orange		WM-II
149.5	Hydro metallurgy	0	30	15	45	30	25	0	55	25	10	35	73	Orange		WM-II
<b>150.0</b>	<b>E-WASTE DISMANTLING / RECYCLING</b>															
150.1	Industry engaged in recycling of e-waste generated from the electrical and electronic Equipment (EEE) listed in the E-Waste (Management) Rules 2022 using pyro/ hydro/ electro-metallurgical processing and recycling of plastic separated from Waste EEE	30	30	20	80	35	25	15	75	25	20	45	92	Red		WM-III

S. No.	Sector	W1	W2	W3	PI <sub>w</sub>	A1	A2	A3	PI <sub>A</sub>	H1	H2	PI <sub>H</sub>	Pollution Index (PI)	Category	Remarks	Concerned Division
150.2	Industry engaged in recycling of e-waste generated from the electrical and electronic equipment (EEE) listed in the E-Waste (Management) Rules 2022 (PCB processing limited to only mechanical processing and separation without pyro/hydro/ electro-metallurgical processing), production of Al, Cu, and other metals from non-PCB sources and/or recycling of plastic separated from Waste EEE.	0	15	15	30	20	25	15	60	25	10	35	73	Orange		WM-III
150.3	Industry engaged in dismantling (only) of e-waste, generated from the electrical and electronic equipment (EEE) listed in the E-Waste (Management) Rules 2022	0	0	0	0	0	25	0	25	25	10	35	43.1	Green		WM-III
150.4	E-waste refurbishing centres	0	0	0	0	0	25	0	25	25	10	35	43.1	Green		WM-III
<b>151.0</b>	<b>INDUSTRIES ENGAGED IN RECYCLING/REPROCESSING/ RECOVERY/REUSE OF HAZARDOUS WASTE (Items as per Schedule IV of H&amp;OW( M &amp; TBM) Rules, 2016.)</b>															
151.1	Lead Recycling ( Lead Acid Batteries with Acids; Lead Scrap Recycling) Rotary Furnace/ Pit Furnace (Mandir/Canopy Bhatti)	0	30	20	50	35	30	25	90	20	20	40	94.5	Red	This also includes battery scrap, namely: Lead battery plates covered by ISRI, Code word "Rails" Battery lugs covered by ISRI, Code word "Rakes." Scrap drained/dry while intact, lead batteries covered by ISRI, Code word "rains."	WM-II

S. No.	Sector	W1	W2	W3	PI <sub>w</sub>	A1	A2	A3	PI <sub>A</sub>	H1	H2	PI <sub>H</sub>	Pollution Index (PI)	Category	Remarks	Concerned Division
151.2	Lead Recycling ( Drained Lead Acid Batteries; Lead Scrap Recycling) Rotary Furnace/Mandir Bhatti on Cleaner Fuel	0	30	15	45	35	30	10	75	20	10	30	84.4	Red	This also includes, battery scrap, namely: Lead battery plates covered by ISRI, Code word "Rails" Battery lugs covered by ISRI, Code word "Rakes." Scrap drained/dry while intact, lead batteries covered by ISRI, Code word "rains."	WM-II
151.3	Isolated storages (as defined under Manufacture, Storage, and Import of Hazardous Chemicals Rules, 1989 as amended)	10	25	15	50	20	25	0	45	30	10	40	71.3	Orange		IPC-I
151.4	Paint and ink sludge / residues recycling	20	25	15	60	0	20	0	20	30	10	40	72	Orange		WM-II
151.5	Industries engaged in recycling / reprocessing/ recovery/reuse of Hazardous Waste, excluding lead, paint, and ink sludge	0	30	15	45	35	0	25	60	20	10	30	75	Orange	This includes items namely - Brass Dross, Copper Dross, Copper Oxide Mill Scale, Copper everts, Cake & Residues, Waste Copper and copper alloys in dispersible form, Slags from copper processing for further processing or refining, Insulated Copper Wire, Scrap/copper with PVC sheathing including ISRI-code material namely "Druid" Jelly filled Copper cables, Zinc Dross-Hot dip Galvanizers SLAB., Zinc Dross-Bottom Dross, Zinc ash/Skimming arising from galvanizing and die casting operations, Zinc ash/Skimming/other zinc bearing wastes arising from smelting and refining,, Zinc ash and residues including zinc alloy residues in dispersible form.	WM-II

S. No.	Sector	W1	W2	W3	PI <sub>w</sub>	A1	A2	A3	PI <sub>A</sub>	H1	H2	PI <sub>H</sub>	Pollution Index (PI)	Category	Remarks	Concerned Division
151.6	Refining of used oil by hydro-treating/using solvent extraction	10	25	25	60	25	0	25	50	20	20	40	78	Orange		WM-II
151.7	Refining of used oil by using thin film evaporation/vacuum distillation with clay treatment	10	25	15	50	25	0	15	40	20	10	30	67.5	Orange		WM-II
151.8	Recycling / reprocessing of waste oil	20	25	15	60	25	0	15	40	20	10	30	74	Orange		WM-II
<b>152.0</b>	<b>RECYCLING OF PLASTIC WASTE</b>															
152.1	Manufacturing of flakes/staple fibre/strip from the recycling of PET bottles	20	15	25	60	0	20	0	20	0	0	0	64	Orange		IPC-I
152.2	Plastic waste processing (manufacturing of flakes/granules)	20	15	15	50	0	20	0	20	0	0	0	55	Orange	Process using In-built heaters.Washwater and fugitive emission.	UPC-II
<b>153.0</b>	<b>SCRAPING FACILITIES FOR RECYCLING END-OF-LIFE VEHICLES, WAGONS, AND COACHES</b>															
153.1	Collection, Depollution and Dismantling Centers (Without shredding)	0	30	15	45	0	30	0	30	25	10	35	62.9	Orange		WM-II
153.2	Collection, Depollution, Dismantling and shredding Centers	0	30	15	45	0	30	0	30	25	10	35	62.9	Orange		WM-II
153.3	Common Shredders (Standalone)	0	0	0	0	0	30	0	30	25	10	35	44.8	Green		WM-II
153.4	Collection Centers (Without depollution, dismantling and shredding)	0	0	0	0	0	0	0	0	0	0	0	0	White		WM-II
~S~																
154	<b>Sugar</b> (excluding khandsari/jaggery)	30	25	35	90	25	0	25	50	30	10	40	94.5	Red	Generates large volume of wastewater.	IPC-III

S. No.	Sector	W1	W2	W3	PI <sub>w</sub>	A1	A2	A3	PI <sub>A</sub>	H1	H2	PI <sub>H</sub>	Pollution Index (PI)	Category	Remarks	Concerned Division
155	Ship breaking industries	0	0	0	0	0	30	0	30	30	20	50	57.5	Orange	Ship breaking releases a large number of pollutants, including toxic waste, used/waste oil, polychlorinated biphenyls, and heavy metals.	WM-III
156	Slaughterhouse / Slaughterhouse (with rendering plant)/ integrated slaughtering unit, meat processing units, bone mill, processing of animal horns, hoofs and other body parts	30	25	30	85	25	20	25	70	0	0	0	90.3	Red		IPC-IV
157	Manufacturing of Silica gel	10	25	20	55	30	0	20	50	25	10	35	74.1	Orange		IPC-I
158	Manufacturing of Iodized Salt from Crude / Raw Salt	10	20	15	45	25	0	25	50	0	0	0	61.3	Orange	Process may involve boiling in evaporators (multiple effect evaporators), centrifuging, iodization, mixing, etc.	IPC-V
159	Manufacturing of Starch / Sago / Sorbitol	20	25	25	70	25	0	25	50	0	0	0	77.5	Orange		IPC-III
160	Stone crushers	0	0	0	0	25	30	0	55	0	0	0	55	Orange		IPC-V
161	Stone crushing/grinding/washing & screening of riverbed material(s)	10	0	25	35	25	30	0	55	0	0	0	62.9	Orange		IPC-V

S. No.	Sector	W1	W2	W3	PI <sub>w</sub>	A1	A2	A3	PI <sub>A</sub>	H1	H2	PI <sub>H</sub>	Pollution Index (PI)	Category	Remarks	Concerned Division	
<b>162.0</b>	<b>MANUFACTURING OF SURGICAL AND MEDICAL PRODUCTS</b>																
162.1	Manufacturing of <b>Surgical</b> and medical products	10	25	15	<b>50</b>	25	0	10	<b>35</b>	0	0	<b>0</b>	58.8	Orange		IPC-V	
162.2	Surgical and medical products assembled only (with effluent-generating processes)	10	25	15	<b>50</b>	0	0	0	<b>0</b>	0	0	<b>0</b>	50	Green		IPC-V	
162.3	Surgical and medical products assembled only (without effluent-generating processes)	0	0	0	<b>0</b>	0	0	0	<b>0</b>	0	0	<b>0</b>	0	White		IPC-V	
<b>163.0</b>	<b>SEMICONDUCTOR MANUFACTURING INDUSTRIES</b> i. Toxic wastewater is generated due to presence of Hydrofluoric acid (HF), Mixed Nitric HF (HF + HNO <sub>3</sub> ), Phosphoric acid, Sulphuric acid (H <sub>2</sub> SO <sub>4</sub> ), Hydrogen Peroxide, Isopropyl alcohol (IPA) / Methanol (Methanol Only), Stripper EKC-265 /ACT N396 (ACT N396 Only), BHF – 63 U, Choline etchant, etc. ii. The air pollutants which are being emitted during the manufacturing process are SiH <sub>4</sub> , PH <sub>3</sub> , B <sub>2</sub> H <sub>6</sub> , HF, HBr, DCS, NF <sub>3</sub> , SF <sub>6</sub> , BC <sub>13</sub> , Cl <sub>2</sub> , HCL, NH <sub>3</sub> , C <sub>2</sub> F <sub>6</sub> , CHF <sub>3</sub> , CF <sub>4</sub> , C <sub>4</sub> F <sub>8</sub> , C <sub>2</sub> F <sub>6</sub> etc. iii. Process waste, used oil etc. are generated as hazardous waste.)																
163.1	Semiconductor fabs manufacturing	25	30	35	<b>90</b>	35	30	0	<b>65</b>	25	10	<b>35</b>	95	Red		WM-III	
163.2	Display fabs manufacturing	25	30	35	<b>90</b>	25	30	0	<b>55</b>	25	10	<b>35</b>	94.5	Red		WM-III	
163.3	Sensor fabs manufacturing/ Compound semiconductors/ silicon photonics	25	30	35	<b>90</b>	25	30	0	<b>55</b>	25	10	<b>35</b>	94.5	Red		WM-III	
163.4	Semiconductor Assembly, Testing, Marking and Packaging Facility (ATMP)	0	0	0	<b>0</b>	0	25	0	<b>25</b>	25	10	<b>35</b>	43.1	Green		WM-III	
<b>164</b>	<b>Saw mills</b>	0	0	0	<b>0</b>	0	30	0	<b>30</b>	0	0	<b>0</b>	30	Green		IPC-V	
<b>165</b>	<b>Spice grinding</b>	0	0	0	<b>0</b>	0	30	0	<b>30</b>	0	0	<b>0</b>	30	Green		IPC-V	
<b>166</b>	<b>Cutting, Sizing and polishing of marble, granite and other stones</b>	10	0	20	<b>30</b>	0	30	0	<b>30</b>	0	0	<b>0</b>	40.5	Green		IPC-V	

S. No.	Sector	W1	W2	W3	PI <sub>w</sub>	A1	A2	A3	PI <sub>A</sub>	H1	H2	PI <sub>H</sub>	Pollution Index (PI)	Category	Remarks	Concerned Division
167	Manufacturing of <b>Solar</b> module/ non-conventional energy apparatus	0	0	0	0	0	0	0	0	0	0	0	0	White		IPC-V
~T~																
<b>168.0</b>	<b>TANNERIES</b>															
168.1	Tanneries (Raw to finish)	35	30	25	90	0	20	0	20	25	30	55	93.8	Red		IPC-IV
168.2	Tanneries (Raw to wet blue)	35	30	25	90	0	20	0	20	25	30	55	93.8	Red		IPC-IV
168.3	Tanneries (Wet blue to finish)	35	30	20	85	0	20	0	20	25	30	55	90.6	Red		IPC-IV
168.4	Vegetable tanning	20	25	25	70	0	20	0	20	20	10	30	77.5	Orange		IPC-IV
<b>169.0</b>	<b>MANUFACTURING OF TOOTH POWDER, TOOTHPASTE, TALCUM POWDER AND OTHER COSMETIC ITEMS</b>															
169.1	Manufacturing of toothpaste and other cosmetic items	20	25	20	65	25	0	25	50	0	0	0	73.8	Orange		IPC-V
169.2	Manufacturing of tooth powder, talcum powder	0	0	0	0	0	25	0	25	0	0	0	25	Green		IPC-V
<b>170.0</b>	<b>THERMOMETER MANUFACTURING</b>															
170.1	Glass (mercury based) thermometer manufacturing	10	30	15	55	25	0	10	35	25	10	35	70.8	Orange	Process involves making of glass bulb, forming reservoir in the glass tube for fluid, inserting fluid, scale marking. Use of fuel to heat the glass tubes and hydrofluoric acid to seal the scaling. Small quantities of spent acids are generated.	IPC-V
170.2	Digital thermometer manufacturing	0	0	0	0	0	0	0	0	0	0	0	0	White		IPC-V
171	Manufacturing of <b>Teflon</b> -based products	10	0	15	25	25	25	25	75	0	0	0	78.1	Orange	Due to spraying applications, emissions (HC) are generated	IPC-V
172	<b>Thermocol</b> manufacturing (with boiler)	0	20	15	35	25	0	25	50	0	0	0	58.8	Orange		IPC-V

S. No.	Sector	W1	W2	W3	PI <sub>w</sub>	A1	A2	A3	PI <sub>A</sub>	H1	H2	PI <sub>H</sub>	Pollution Index (PI)	Category	Remarks	Concerned Division	
<b>173.0</b>	<b>MANUFACTURING OF TOBACCO PRODUCTS INCLUDING CIGARETTES AND TOBACCO PROCESSES</b>																
173.1	Manufacturing of tobacco products including cigarettes and tobacco processes (with boiler)	20	0	15	35	25	20	25	70	0	0	0	75.3	Orange		IPC-III	
173.2	Manufacturing of tobacco products including cigarettes and tobacco processes (without boiler)	20	0	15	35	0	20	0	20	0	0	0	41.5	Green		IPC-III	
174	<b>Transformer</b> repairing/manufacturing (dry process only)	0	0	0	0	0	25	0	25	30	10	40	47.5	Green		IPC-V	
175	<b>Tyre</b> Pyrolysis Oil Industries-Applicable for advanced batch automated process / continuous TPO units	10	0	15	25	25	25	25	75	0	0	0	78.1	Orange		WM-III	
176	<b>Tamarind</b> powder manufacturing	10	15	15	40	25	0	10	35	0	0	0	50.5	Green	Dried tamarind fruits are cleaned, soaked, and boiled in steam jacketed kettle. Then pulp is extracted in pulper and dried in drum type drier.	IPC-V	
<b>177.0</b>	<b>TEA PROCESSING AND BLENDING</b>																
177.1	Tea processing (with boiler)	10	0	15	25	25	0	25	50	0	0	0	56.3	Orange		IPC-III	
177.2	Tea processing (without boiler)	10	0	15	25	0	0	0	0	0	0	0	25	Green		IPC-III	
177.3	Blending and packing of tea	0	0	0	0	0	0	0	0	0	0	0	0	White		IPC-V	

S. No.	Sector	W1	W2	W3	PI <sub>w</sub>	A1	A2	A3	PI <sub>A</sub>	H1	H2	PI <sub>H</sub>	Pollution Index (PI)	Category	Remarks	Concerned Division
<b>TEXTILE SECTOR</b>																
<b>178.0</b>	<b>TEXTILE INDUSTRY</b>															
178.1	Yarn / Textile processing involving any effluent/emission generating processes including bleaching, dyeing, printing, and colouring, including the garment and apparel manufacturing industry	30	30	30	90	25	0	35	60	30	20	50	95.5	Red		IPC-III
178.2	Yarn to grey fabric manufacturing with water jet machines	20	25	25	70	0	0	0	0	0	0	0	70	Orange		IPC-III
178.3	Garment and apparel manufacturing industry including Doubling / Reeling / TFO-Two for one unit (dry process)-with boiler	0	0	0	0	25	0	25	50	0	0	0	50	Green		IPC-III
178.4	Garment and apparel manufacturing industry including Doubling / Reeling / TFO-Two for one unit (dry process)-without boiler	0	0	0	0	0	0	0	0	0	0	0	0	White		IPC-III
<b>179.0</b>	<b>SAREE/FABRIC PRINTING BY SCREEN / WOODEN BLOCK /HAND BLOCK</b>															
179.1	Saree/fabric printing by screen / wooden block/hand block	25	0	25	50	25	0	20	45	30	10	40	71.3	Orange		IPC-III
179.2	Hand block printing without effluent generation	0	0	0	0	25	0	20	45	0	0	0	45	Green		IPC-III
<b>180.0</b>	<b>TEXTILE SPINNING, SIZING AND WEAVING MILLS</b>															
180.1	Textile spinning, sizing and weaving mills (wastewater generation $\geq$ 10 KLD )	10	20	20	50	25	0	15	40	0	0	0	60	Orange		IPC-III
180.2	Textile spinning, sizing and weaving mills (wastewater generation <10 KLD)	10	20	15	45	25	0	10	35	0	0	0	54.6	Green		IPC-III

S. No.	Sector	W1	W2	W3	PI <sub>w</sub>	A1	A2	A3	PI <sub>A</sub>	H1	H2	PI <sub>H</sub>	Pollution Index (PI)	Category	Remarks	Concerned Division
181	<b>Power looms</b> (without dye and bleaching)	0	0	0	0	0	25	0	25	0	0	0	25	Green		IPC-III
<b>182.0</b>	<b>REPROCESSING OF WASTE TEXTILE FABRIC</b>															
182.1	Integrated facility for reprocessing of waste textile fabric (including washing, bleaching, dyeing etc.)	30	30	20	80	25	25	15	65	0	0	0	86.5	Red		IPC-III
182.2	Reprocessing of waste textile fabric (dry process)	0	0	0	0	0	25	0	25	0	0	0	25	Green		IPC-III
183	<b>Cotton and woollen Hosiers</b> making (Dry process only without any dyeing / washing operation)	0	0	0	0	0	0	0	0	0	0	0	0	White		IPC-V
~W~																
184	Seasoning of <b>Wood</b> in steam heated chamber	0	0	0	0	25	0	25	50	0	0	0	50	Green		IPC-V
185	Pulverization of bamboo and scrap <b>Wood</b>	0	0	0	0	0	25	0	25	0	0	0	25	Green		IPC-V
186	Distilled <b>Water</b> (without boiler) with electricity as source of heat	0	20	20	40	0	0	0	0	0	0	0	40	Green		IPC-V
187	Purification of <b>Water</b> and packaging (mineralized/non-mineralized water)	0	20	25	45	0	0	0	0	0	0	0	45	Green	RO Rejects.	IPC-V



**ANNEXURE-II**

**(LIST OF ESSENTIAL ENVIRONMENTAL SERVICES)**



**LIST OF ESSENTIAL ENVIRONMENTAL SERVICES****i. Essential Environmental Services for Industrial Waste Management**

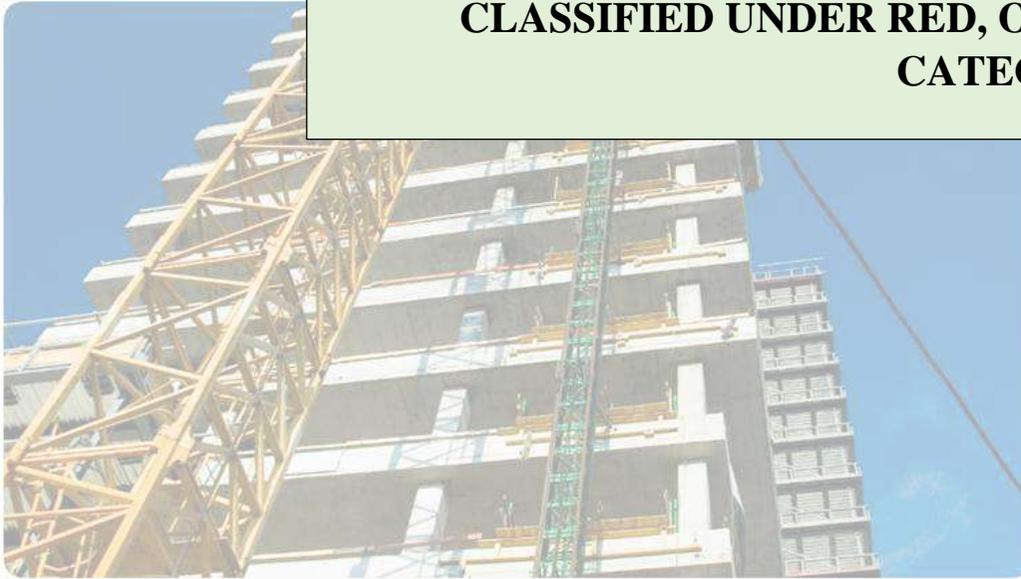
S. No.	Sector	W1	W2	W3	PI <sub>w</sub>	A1	A2	A3	PI <sub>A</sub>	H1	H2	PI <sub>H</sub>	Pollution Index (PI)	Category	Remarks	Concerned Division	
<b>1.0</b>	<b>COMMON EFFLUENT TREATMENT PLANT (CETP)</b>																
1.1	CETP having MEE/spray drier	30	30	35	95	25	0	25	50	25	50	75	98.1	Red		IPC-VII	
1.2	CETP (without having MEE/spray drier), Common MEE/common spray driers	25	30	30	85	0	0	0	0	25	30	55	89.1	Red		IPC-VII	
1.3	Common Sewage-Effluent Treatment Plant (CSETP)	25	30	30	85	0	0	0	0	25	20	45	88.4	Red		WQM-I & IPC-VII	
2.0	Effluent conveyance projects	20	30	35	85	0	0	0	0	25	10	35	87.6	Red	Such projects during O&M operation will generate deposited sludge, spillage etc. in addition regular operation of handling of effluent and its disposal.	IPC-VII	
<b>3.0</b>	<b>COMMON HAZARDOUS WASTE TREATMENT, STORAGE AND DISPOSAL FACILITY</b>																
3.1	Integrated facility (Secured landfill and incinerator)	35	30	15	80	25	25	15	65	30	70	100	100.0	Red		WM-II	
3.2	Only secured landfill	35	30	15	80	0	25	0	25	25	70	95	97.6	Red		WM-II	
3.3	Only incinerator	35	30	15	80	25	25	15	65	30	70	100	100.0	Red		WM-II	
<b>4.0</b>	<b>COMMON BIO-MEDICAL WASTE TREATMENT FACILITY (CBWTF)</b>																
4.1	CBWTF	20	25	20	65	35	20	25	80	20	20	40	90.5	Red		WM-I	
4.2	CBWTF using cleaner/gaseous fuel	20	25	20	65	35	20	10	65	20	20	40	83.4	Red		WM-I	

**ii. LIST OF BLUE CATEGORY SECTORS- Essential Environmental Services for Domestic/Household Activities:**

S. No.	Sector	W1	W2	W3	PI <sub>w</sub>	A1	A2	A3	PI <sub>A</sub>	H1	H2	PI <sub>H</sub>	Pollution Index (PI)	Category	Remarks	Concerned Division
<b>1.0 MUNICIPAL SOLID WASTE MANAGEMENT FACILITY</b>																
1.1	Municipal Solid Waste Management Facility (Sanitary landfill/ Integrated Sanitary landfill with material recycling facility/ refused derived fuel, etc.)	35	30	15	80	35	25	0	60	0	0	0	86.0	Blue		UPC-II
1.2	Waste to energy power plants	0	15	30	45	35	25	35	95	10	50	60	97.6	Blue		UPC-II
1.3	Bio-mining of legacy waste projects	35	30	25	90	35	25	0	60	0	0	0	93.0	Blue		UPC-II
1.4	Municipal Solid Waste Bio-methanation plant (Quantity of MSW $\geq$ 5 TPD)	30	25	25	80	0	20	0	20	0	0	0	82.0	Blue		UPC-II
1.5	Municipal Solid Waste Composting Facility (Quantity of MSW $\geq$ 5 TPD)	30	25	15	70	0	30	0	30	0	0	0	74.5	Blue		UPC-II
1.6	Municipal Solid Waste Material Recovery Facility (Quantity of MSW $\geq$ 5 TPD)	20	25	15	60	0	30	0	30	0	0	0	66.0	Blue		UPC-II
<b>2.0 Construction and Demolition (C&amp;D) Waste Processing Plants</b>																
2.0	Construction and Demolition (C&D) Waste Processing Plants	10	0	15	25	25	25	0	50	0	0	0	56.3	Blue	Wastewater of high TDS of inorganic nature is generated.	UPC-I
<b>3.0 SEWAGE TREATMENT PLANT</b>																
3.1	Sewage Treatment Plant (5 MLD and above)	20	0	35	55	0	20	0	20	0	0	0	59.5	Blue		WQM-I
3.2	Sewage Treatment Plant (less than 5 MLD)	20	0	25	45	0	20	0	20	0	0	0	50.5	Blue		WQM-I



**ANNEXURE-III**  
**(LIST OF SERVICE/INFRASTRUCTURE DEVELOPMENT SECTORS**  
**CLASSIFIED UNDER RED, ORANGE, GREEN, AND WHITE**  
**CATEGORIES)**



**SERVICE/INFRASTRUCTURE DEVELOPMENT SECTORS**

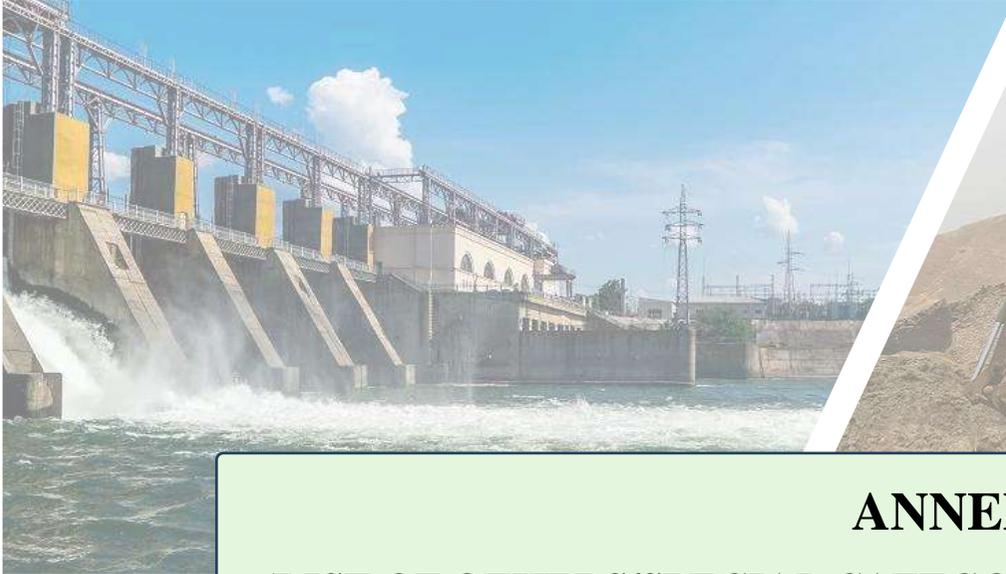
S. No.	Sector	W1	W2	W3	PI <sub>w</sub>	A1	A2	A3	PI <sub>A</sub>	H1	H2	PI <sub>H</sub>	Pollution Index (PI)	Category	Remarks	Concerned Division	
1.0	<b>STANDALONE GENERATOR SET (Genset)</b> ( i. Standalone genset(s) of total capacity less than 1000 KVA may not require additional classification. The used oil/waste oil generated during repair and maintenance need to be disposed through authorized hazardous waste recycler by service provider/OEM. ii. Projects such data centers etc. having pollution potential due to gensets only, may be classified based on the capacity and fuel used.)																
1.1	Genset(s) of total capacity $\geq$ 1 MVA, using liquid fuel	0	0	0	0	25	0	25	50	30	10	40	60.0	Orange		UPC-I	
1.2	Genset(s) of total capacity $\geq$ 1 MVA, using cleaner/gaseous fuel	0	0	0	0	25	0	10	35	30	10	40	50.5	Green		UPC-I	
2.0	Airports	20	0	35	55	25	0	25	50	30	10	40	75.3	Orange	Airports generates mainly domestic sewage as wastewater. Emissions and generation of hazardous waste due to overall operations in airport are considered.	UPC-I	
3.0	<b>HEALTH CARE FACILITIES (HCFs) (AS DEFINED UNDER BIO-MEDICAL WASTE MANAGEMENT RULES, 2016)</b> (Sectors generates bio-medical waste. As per methodology scores assigned to H.)																
3.1	HCFs with captive incinerator, irrespective of number of beds	20	0	15	35	35	20	25	80			50	88.5	Red		WM-I	
3.2	more than 1000 bedded HCFs	20	0	35	55	0	0	0	0			100	100.0	Red		WM-I	
3.3	501 to 1,000 bedded HCFs	20	0	30	50	0	0	0	0			80	85.0	Red		WM-I	
3.4	201 to 500 bedded HCFs	20	0	30	50	0	0	0	0			60	70.0	Orange		WM-I	
3.5	51 to 200 bedded HCFs	20	0	20	40	0	0	0	0			50	60.0	Orange		WM-I	
3.6	11 to 50 bedded HCFs	20	0	20	40	0	0	0	0			40	52.0	Green		WM-I	
3.7	Up to 10 bedded HCFs	20	0	15	35	0	0	0	0			30	44.8	Green		WM-I	
3.8	Non-bedded HCFs	0	0	0	0	0	0	0	0			25	25.0	Green		WM-I	
4.0	<b>HOTELS/BANQUET HALLS HAVING ROOM FACILITY</b>																
4.1	Hotels (above 3 star) or having 100 & above rooms	20	25	30	75	25	0	25	50	0	0	0	81.3	Red		UPC-I	

S. No.	Sector	W1	W2	W3	PI <sub>w</sub>	A1	A2	A3	PI <sub>A</sub>	H1	H2	PI <sub>H</sub>	Pollution Index (PI)	Category	Remarks	Concerned Division	
4.2	Hotels (above 3 star) or having 100 & above rooms (based on cleaner /gaseous fuel)	20	25	30	75	25	0	10	35	0	0	0	79.4	Orange		UPC-I	
4.3	Hotels (up to 3 star) or having more than 20 rooms but less than 100 rooms.	20	25	20	65	25	0	25	50	0	0	0	73.8	Orange		UPC-I	
4.4	Up to 20 rooms	10	25	15	50	0	0	10	10	0	0	0	52.5	Green		UPC-I	
5.0	<b>RAILWAY LOCOMOTIVE WORK SHOP/ INTEGRATED ROAD TRANSPORT WORKSHOP/ AUTHORIZED SERVICE CENTERS</b>																
5.1	Railway locomotive work shop/ Integrated road transport workshop/ Authorized service centers (wastewater generation ≥ 10 KLD)	20	25	25	70	30	25	0	55	30	10	40	84.3	Red		IPC-V	
5.2	Railway locomotive work shop/ Integrated road transport workshop/ Authorized service centers (wastewater generation <10 KLD)	20	25	15	60	30	25	0	55	30	10	40	79.0	Orange		IPC-V	
6.0	<b>RAILWAY STATIONS</b>																
6.1	Railway Stations (Wastewater Generation ≥ 5 MLD)	20	0	35	55	25	0	25	50	30	10	40	75.3	Orange	Wastewater generating from public toilets, public taps, platform, and apron washing, coach cleaning, laundry, restaurants etc.  Emissions and generation of hazardous waste due to overall operations are considered.	UPC-I	
6.2	Railway Stations (Wastewater Generation ≥ 100 KLD, but < 5 MLD)	20	0	15	35	0	0	0	0	0	0	0	35.0	Green	Wastewater generating from various domestic uses as public toilets, public taps, platforms, and apron washing, restaurants etc.	UPC-I	

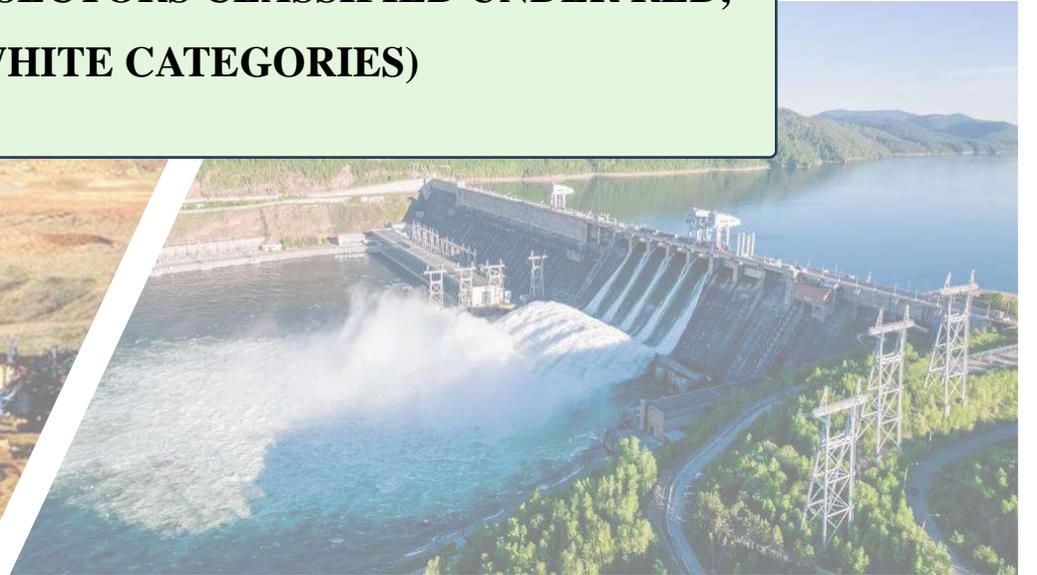
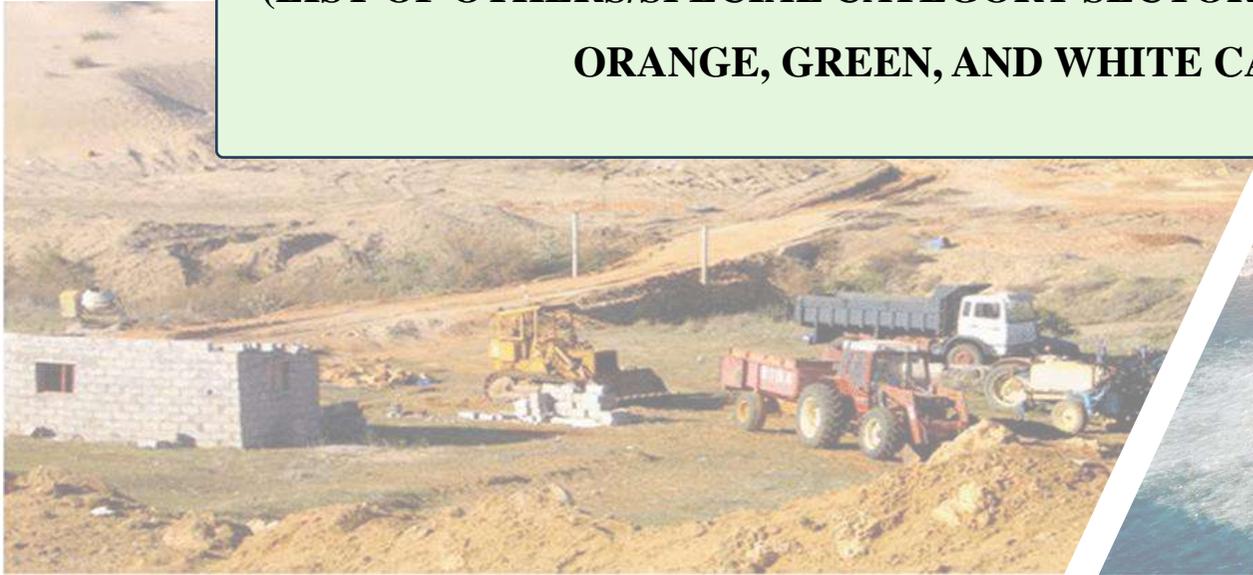
S. No.	Sector	W1	W2	W3	PI <sub>w</sub>	A1	A2	A3	PI <sub>A</sub>	H1	H2	PI <sub>H</sub>	Pollution Index (PI)	Category	Remarks	Concerned Division	
7.0	<b>RAILWAY SIDINGS</b> (Fugitive emissions due to loading, unloading, storage and transportation of the minerals.)																
7.1	Railway sidings / Mineral stock yard	0	0	0	0	0	25	0	25	0	0	0	25.0	Green		UPC-I	
7.2	Railway sidings only for defence purpose	0	0	0	0	0	0	0	0	0	0	0	0.0	White		UPC-I	
8.0	<b>PORTS AND HARBOURS</b>																
8.1	Ports and harbours, jetties and dredging operations	20	30	25	75	0	25	0	25	30	20	50	84.4	Red		WM-I	
8.2	Ports and harbours (only containers handling)/ Captive jetties	20	25	20	65	0	25	0	25	30	10	40	76.4	Orange		WM-I	
9.0	Automobile service stations/ workshops	20	25	20	65	20	0	0	20	30	10	40	75.5	Orange		IPC-V	
10.0	<b>BUILDING CONSTRUCTION PROJECTS</b> ( i. During the construction phase, the sector is mainly air polluting. However, in post construction phase it is mainly water polluting due to generation of sewage. Consent to Establish/Operate to be taken as per EC conditions, as applicable. ii. Building construction project $\geq 5,000$ sq. m., but $< 20,000$ sq. m. built-up area (with connectivity to terminal STP) may not require separate classification. iii. For projects $< 5000$ the wastewater shall be managed according to on-site sanitation methods as mentioned in the Manual on Sewerage and Sewage Treatment System (2013), published by the Central Public Health and Environmental Engineering Organisation (CPHEEO), and as amended from time to time.)																
10.1	Building construction project $\geq 20,000$ sq. m. built-up area	20	0	25	45	25	0	25	50	0	0	0	61.3	Orange		UPC-I	
10.2	Building construction project $\geq 5,000$ sq. m., but $< 20,000$ sq. m. built-up area (without connectivity to terminal STP)	20	0	20	40	0	0	0	0	0	0	0	40.0	Green		UPC-I	
11.0	Standalone mechanized laundry (using boiler)	20	0	20	40	25	0	25	50	0	0	0	60.0	Orange		IPC-V	
12.0	New highway construction project	0	0	0	0	25	25	25	75	0	0	0	75.0	Orange	Such projects involve use of hot mix plants, ready-mix concrete plants, construction activities generating fugitive emissions, etc.	UPC-I	

S. No.	Sector	W1	W2	W3	PI <sub>w</sub>	A1	A2	A3	PI <sub>A</sub>	H1	H2	PI <sub>H</sub>	Pollution Index (PI)	Category	Remarks	Concerned Division	
13.0	<b>DAIRY FARM</b> (Dairy farms having less than 15 animals do not require separate classification.)																
13.1	Dairy Farm (having more than 500 animals)	30	25	25	80	0	20	0	20	0	0	0	82.0	Red		IPC-IV	
13.2	Dairy Farm (having 101 to 500 animals)	30	25	20	75	0	20	0	20	0	0	0	77.5	Orange		IPC-IV	
13.3	Dairy Farm (having 15 to 100 animals)	30	25	15	70	0	20	0	20	0	0	0	73.0	Orange		IPC-IV	
14.0	Gold Assaying & Hallmarking Centres	0	0	0	0	35	0	0	35	25	10	35	46.4	Green	Lead oxide, nitrous fumes are generated during cupellation and parting acid treatment, respectively contributing to the air emissions. The hazardous waste is generated during fire assay in the form of spent cupels bearing lead, spent acid, scrubbed water etc.	IPC-V	
15.0	Facility of handling, storage, and transportation of food grains in bulk	0	0	0	0	0	25	0	25	0	0	0	25.0	Green		IPC-V	
16.0	Flyash export or disposal operations	0	0	0	0	0	25	0	25	0	0	0	25.0	Green		IPC-V	
17.0	Oil and gas transportation pipeline (excluding pipeline covered under definition of isolated storage of hazardous chemicals, as per Manufacture, Storage, and Import of Hazardous Chemicals Rules, 1989)	0	0	0	0	25	0	10	35	0	0	0	35.0	Green		IPC-I	
18.0	Gaushalas	20	0	15	35	0	20	0	20	0	0	0	41.5	Green		IPC-IV	

S. No.	Sector	W1	W2	W3	PI <sub>w</sub>	A1	A2	A3	PI <sub>A</sub>	H1	H2	PI <sub>H</sub>	Pollution Index (PI)	Category	Remarks	Concerned Division
19.0	Household bio-digesters/gobar-gas (cow-dung) plants based on biodegradable wastes, etc.	0	0	0	0	0	20	0	20	0	0	0	20.0	White		IPC-V



**ANNEXURE-IV**  
**(LIST OF OTHERS/SPECIAL CATEGORY SECTORS CLASSIFIED UNDER RED, ORANGE, GREEN, AND WHITE CATEGORIES)**



**OTHERS/SPECIAL CATEGORY SECTORS**

S. No.	Sector	W1	W2	W3	PI <sub>w</sub>	A1	A2	A3	PI <sub>A</sub>	H1	H2	PI <sub>H</sub>	Pollution Index (PI)	Category	Remarks	Concerned Division	
1.0	<b>HYDEL POWER PLANTS INCLUDING PUMPED STORAGE PROJECTS</b>																
1.1	Hydel power plants (Capacity > 50 MW)													Red	PI may be considered as 90.	IPC-II	
1.2	Mini Hydel power plants (Capacity from more than 25 MVA and up to 50 MW)													Orange	PI may be considered as 67.5.	IPC-II	
1.3	Mini Hydel power plants (Capacity ≤ 25 MW)													White	PI may be considered as 12.5.	IPC-II	
2.0	<b>SAND / RIVERBED MATERIAL MINING FROM RIVERBED AND ITS FLOODPLAINS</b> (excluding manual excavation) ( i. Sand / riverbed material mining from riverbed and its floodplains may cause ecological disturbances, erosion of riverbed, change in hydro-geological conditions & river ecosystem, etc. ii. Cluster mining means that the distance of mining lease area is less than 500 m from periphery of another lease area. iii. This categorization is made considering the ecological damages and not based on pollution potential/index. iv. Cluster mining as defined in 'Enforcement & Monitoring Guidelines for Sand Mining, 2020', issued by MoEF&CC.)																
2.1	Mining lease area more than 5 hectares or Mining lease area up to 5 hectares which is part of cluster mining													Red	PI may be considered as 90.	IPC-II	
2.2	Standalone mining lease area up to five hectares in areas (not a part of any cluster mining)													Orange	PI may be considered as 67.5.	IPC-II	

**FORMAT FOR SUBMISSION OF INFORMATION BY SPCBS/PCCS REGARDING SECTORS  
CLASSIFIED UNDER WHITE CATEGORY**

S. No.	Sector	Water Pollutant Score (PI <sub>w</sub> )				Air Pollutant Score (PI <sub>A</sub> )				Waste Pollutant Score (PI <sub>H</sub> )			Pollution Index (PI)	Remarks (including brief description of process and pollution potential)
		W1	W2	W3	W	A1	A2	A3	A	H1	H2	H		



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**Central Pollution Control Board**

"Parivesh Bhawan", East Arjun Nagar, Delhi - 110032

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## Annexure-VI

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

By Speed Post / E-mail

No. CPCB/Mining/CM-13011/13/2025/

10<sup>th</sup> February 2025

To,

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

**Sub.:** In reference to Hon'ble NGT (PB) OA No. 1391/2024 order dated-03.01.2025-reg.

Sir,

Please refer to Hon'ble NGT (PB) order dated-03.01.2025 (copy enclosed) in OA No. 1391/2024 registered suo-motu titled as *News Items titled "Vishaw stream gasps for breath amid mining, pollution"* on the basis of news item appearing in Greater Kashmir dated 16.12.2024. The copy of news item is enclosed for kind information.

Hon'ble NGT (PB) has impleaded 05 respondents - J&K PCC, CPCB, MoEF&CC IRO, Directorate of Fisheries (Jammu & Kashmir) and Deputy Commissioner (District Magistrate) Kulgam and directed the respondents to submit their response at least one week before the next date of hearing i.e., 23.04.2025.

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

Yours faithfully,

(Nazimuddin)

Scientist-'F' & Head  
IPC-II Division

Encl.: As above

‘परिवेश भवन’ पर्वी अर्जुन नगर, दिल्ली-110032

Parivesh Bhawan, East Arjun Nagar, Delhi-110032

दूरभाष/Tel : 43102030, 22305792, वेबसाइट/Website : [www.cpcb.nic.in](http://www.cpcb.nic.in)

261

**Fwd: In reference to Hon'ble NGT OA No. 1391/2024 order dated 03.01.2025-reg.**

**Me** Arvind Kumar <arvindkumar01.cpcb@gov.in>  
Fri, 21 Feb 2025 6:11:17 PM +0530 •  
To "membersecretaryjkspcb" <membersecretaryjkspcb@gmail.com>  
Cc "Narender Sharma" <narendersharma.cpcb@gov.in>, "VINAY UPADHYAY" <vkupadhyay.cpcb@gov.in>, "Gaurav Gehlot" <gehlot.cpcb@gov.in>

Sir,  
With reference to trailing mail, it is requested to provide the report to CPCB positively by 28.02.2025 in the matter.

Regards,  
अरविन्द कुमार / Arvind Kumar  
वैज्ञानिक 'ख' / Scientist 'B'  
INDUSTRIAL POLLUTION CONTROL - II Division  
केंद्रीय प्रदूषण नियंत्रण बोर्ड / Central Pollution Control Board  
पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय, भारत सरकार / Ministry of Environment, Forest & Climate Change, Govt. of India.

==== Forwarded message =====  
From: Gaurav Gehlot <gehlot.cpcb@gov.in>  
To: "membersecretaryjkspcb" <membersecretaryjkspcb@gmail.com>  
Cc: "Nazim Uddin" <nazim.cpcb@nic.in>, "Narender Sharma" <narendersharma.cpcb@gov.in>, "Arvind Kumar" <arvindkumar01.cpcb@gov.in>  
Date: Mon, 10 Feb 2025 16:20:45 +0530  
Subject: In reference to Hon'ble NGT OA No. 1391/2024 order dated 03.01.2025-reg.  
==== Forwarded message =====



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NGT order.pdf  
104.9 KB • 📄



Application copy.pdf  
156.1 KB • 📄



CPCB letter.pdf  
384 KB • 📄

268

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Fwd: In reference to Hon'ble NGT (PB) OA No. 1391/2024 order dated 03.01.2025-  
reg.

**Me**

Nikita Grover &lt;nikitag.cpcb@gov.in&gt;

Mon, 07 Apr 2025 10:56:32 AM +0530 •

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

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

Sir,

With reference to the trailing email on the above subject, it is once again requested to coordinate with the concerned department and arrange a report in the matter to CPCB at [rdchandigarh.cpcb@nic.in](mailto:rdchandigarh.cpcb@nic.in) at the earliest, as the matter is listed for hearing on 23.04.2025

महोदय,

उपर्युक्त विषय पर पिछली ईमेल के संदर्भ में, एक बार फिर अनुरोध है कि संबंधित विभाग के साथ समन्वय स्थापित करें और मामले में CPCB को [rdchandigarh.cpcb@nic.in](mailto:rdchandigarh.cpcb@nic.in) पर जल्द से जल्द रिपोर्ट की व्यवस्था करें, क्योंकि मामला 23.04.2025 को सुनवाई के लिए सूचीबद्ध है।

सादर/Regards

निकिता ग्रोवर/Nikita Grover

वैज्ञानिक-ख/Scientist-B

केंद्रीय प्रदूषण नियंत्रण बोर्ड/Central Pollution Control Board

क्षेत्रीय निदेशालय, चंडीगढ़/Regional Directorate, Chandigarh

बीएसएनएल टेलीफोन एक्सचेंज, दूसरी मंजिल, सेक्टर 49-सी, चंडीगढ़-160047/BSNL Telephone Exchange, 2nd Floor, Sector 49-C, Chandigarh-160047

==== Forwarded message =====

From: Nikita Grover <[nikitag.cpcb@gov.in](mailto:nikitag.cpcb@gov.in)>To: "Member JKPC" <[membersecy.pcb@jk.gov.in](mailto:membersecy.pcb@jk.gov.in)>, "membersecretaryjkspcb"  
<[membersecretaryjkspcb@gmail.com](mailto:membersecretaryjkspcb@gmail.com)>Cc: "Narender Sharma" <[narendersharma.cpcb@gov.in](mailto:narendersharma.cpcb@gov.in)>, "R D Chandigarh"  
<[rdchandigarh.cpcb@nic.in](mailto:rdchandigarh.cpcb@nic.in)>, "PRASOON GARGAVA" <[prasoon.cpcb@nic.in](mailto:prasoon.cpcb@nic.in)>, "Arvind Kumar"  
<[arvindkumar01.cpcb@gov.in](mailto:arvindkumar01.cpcb@gov.in)>

Date: Mon, 17 Mar 2025 10:59:51 +0530

Subject: In reference to Hon'ble NGT (PB) OA No. 1391/2024 order dated 03.01.2025- reg.

==== Forwarded message =====

Sir,

This is in reference to CPCB letter vide no. CPCB/Mining/CM-13011/13/2025/9144 dated 10.02.2025 and reminder dated 21.02.2025 regarding the Hon'ble NGT Order dated 03.01.2025 in the matter of OA No. 1391/2024; News item titled as "*Vishaw steam gasps*

for breath amid mining, pollution" appear **264** Greater Kashmir dated 16.12.2024 (copy attached) **269**

In this regard, it is once again requested to coordinate with the concerned department and arrange a report in the matter to CPCB at [rdchandigarh.cpcb@nic.in](mailto:rdchandigarh.cpcb@nic.in) at the earliest. The matter is listed for hearing on **23.04.2025**.

महोदय,

यह सीपीसीबी के पत्र क्रमांक CPCB/Mining/CM-13011/13/2025/9144 दिनांक 10.02.2025 और अनुस्मारक दिनांक 21.02.2025 (प्रतिलिपि संलग्न) से संबंधित है। यह ग्रेटर कश्मीर में 16.12.2024 को प्रकाशित "Vishaw steam gasps for breath amid mining, pollution" शीर्षक वाली खबर के संबंध में माननीय एनजीटी के आदेश OA No. 1391/2024 दिनांक 03.01.2025 के संदर्भ में है।

इस संबंध में, एक बार फिर अनुरोध है कि संबंधित विभाग के साथ समन्वय करें और मामले में जल्द से जल्द सीपीसीबी को [rdchandigarh.cpcb@nic.in](mailto:rdchandigarh.cpcb@nic.in) पर रिपोर्ट भेजने की व्यवस्था करें। मामला **23.04.2025** को सुनवाई के लिए सूचीबद्ध है।

सादर/Regards

निकिता ग्रोवर/Nikita Grover

वैज्ञानिक-ख/Scientist-B

केंद्रीय प्रदूषण नियंत्रण बोर्ड/Central Pollution Control Board

क्षेत्रीय निदेशालय, चंडीगढ़/Regional Directorate, Chandigarh

बीएसएनएल टेलीफोन एक्सचेंज, दूसरी मंजिल, सेक्टर 49-सी, चंडीगढ़-160047/BSNL Telephone Exchange, 2nd Floor, Sector 49-C, Chandigarh-160047

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Government of Jammu & Kashmir  
**J&K POLLUTION CONTROL COMMITTEE**  
**OFFICE OF THE REGIONAL DIRECTOR - KASHMIR**  
 Sheikh-ul-Alam Campus, Rajbagh, Near Government Silk Factory, Srinagar-190008  
[www.jkspcb.in](http://www.jkspcb.in) Email: [regionaldirectorkmr@gmail.com](mailto:regionaldirectorkmr@gmail.com), Tel/fax 0194-2311842

✓ The Member Secretary,  
 J & K Pollution Control Committee,  
 Jammu.

No: PCC/ROK/LS (NGT)/2025/ 100-101

Date:- 20-03-2025

**Subject: - O.A No. 1391/2024 News item titled, "Vishaw stream gasps for breath amid mining pollution" appearing in Greater Kashmir dated 16-12-2024.**

**Reference: - Your letter No. JKPC/Sc./OA 1391/2024/2256 dated 15-03-2025.**

Sir,

A comprehensive report in accordance with the specifications as mentioned in the letter under reference with corroborative evidences/& supportive materials and recommendation relating to the subject matter as shared by the Lab Coordinator, PCC, Srinagar and the Divisional Officer, PCC, Kulgam is enclosed hereto for kind perusal and further course of necessary action required in the afore-titled OA please.

Encls: - 10.

Copy to:-

1. Lab Coordinator, PCC, Srinagar for information. This takes reference to the report submitted vide No. PCC/ROK/Lab Coord/insp/24-25/172 dated 13-03-2025.

SC(A)(AN)

26/3/25  
 29.3.25



*[Signature]*  
 Regional Director,  
 Kashmir, 20.03.2025



Government of Jammu & Kashmir  
J&K POLLUTION CONTROL COMMITTEE  
Rajbagh, near Government Silk Factory, Srinagar-190008



**Inspection Report in compliance to Hon'ble NGT Order in OA 1391/2024 regarding News Item Appearing Titled "Vishaw Stream Gasps for Breath amid Mining Pollution" Appearing in Greater Kashmir dated 16/12/2024**

In compliance to the directions vide letter no No. PCC/RDK/PS/2024/549-553 Dated: 28/08/2024. Vishaw Stream was inspected on 20/02/2025 and 08/03/2025 during inspection eight minor mineral blocks viz, **block no. 14,15,18,19,20,25,26, and 28** were also inspected. The inspection was carried out to ascertain the factual position on ground with respect points.

- i) Status and Impact of Illegal Mining of Vishaw Stream .
- ii) Status of water quality in Vishaw Stream on the basis of samples collected Upstream/Downstream.
- iii) Status of Agricultural runoff in Vishaw Stream.
- iv) Other sources of Pollution in stream.

During inspection following observations were made:-

**Overview:-**

The Vishaw originates from an oligotrophic Lake "Kousarnag" located at an elevation of 3,962.4 meters above sea level in District Kulgam. The river forms a water fall in "Aharbal" and passes through Adabal, Nehama, Adijen, Laisoo, Guddr, Brazloo, Ashmuji, Kelam, Nawpora, Qaimohand and finally joins with River Jhelum at Sangam (approx. 62 kms length). The Vishaw Nallah is considered one of the dangerous tributary of Jhelum River because of its steep gradient, fast flow and frequent flash floods .

During inspection following observations were made:-

**i). Status and Impact of Illegal Mining of Vishaw Stream**

In District Kulgam, total 19 Mineral Blocks are found operating along the Vishaw River. Out of 19 mineral blocks, 11 Mineral Blocks are operating without valid consent under Air(Prevention & Control of Pollution) Act, 1981 and Water (Prevention & Control of Pollution) Act, 1974 from Jammu & Kashmir Control Committee. Their details have already been shared to Geology & Mining Department by District Officer Kulgam Vide No.PCC/DO/KUL/BK/25/119-21 dated 19/02/2025 the detailed status of each mineral block is enclosed as Annexure-I.

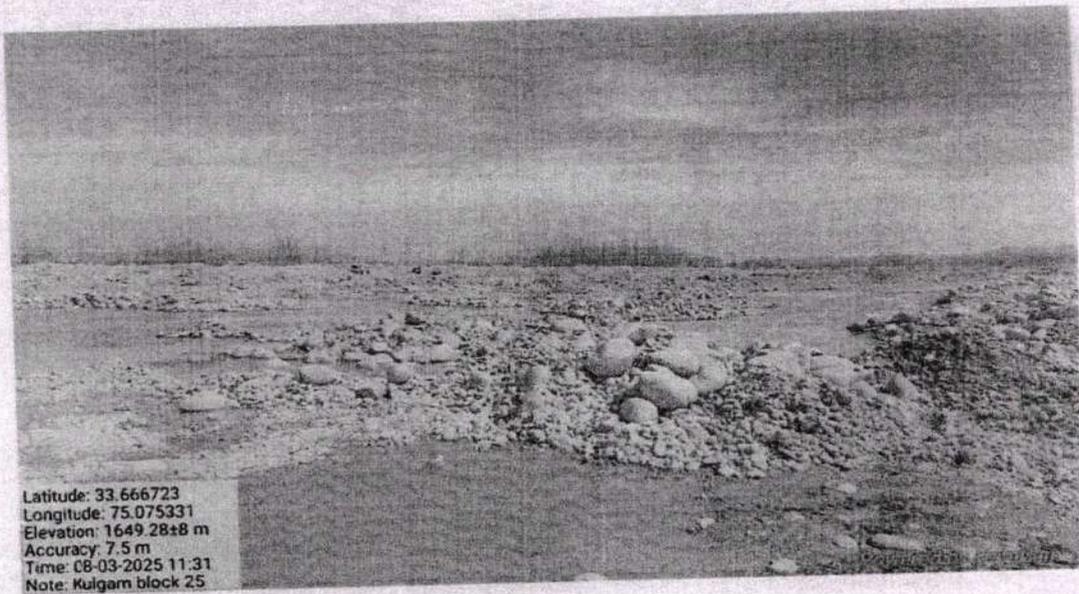
During inspection of these Mineral Blocks, following observations are made:-

- i. Mining operations were found in operation in most of the minor mineral blocks. JCBs, Tippers and Tractors were found in use for extraction of boulders etc from the leased mining areas.
- ii. No demarcation boundary has been made/provided in the leased mining area.

*[Handwritten signatures]*

- iii. The River bed where mining is occurring has been observed with presence of large heaps/mounds of mineral and pits/trenches are also been observed in the river bed where mining is in operation.
- iv. These heaps of boulders were found disrupting the natural flow of water and also has changed the route of natural water at many places particularly at Block 14 ,15 25,20 &26 near the bridge.

Taking into consideration the above observation it is concluded that illegal and unscientific mining is occurring which is detrimental to the health of river ecosystem particularly disrupting the natural flow and course of water ,that creates unsuitable condition for the growth of aquatic fauna.



**Mining carried out at Vishow Nallah and condition of area**

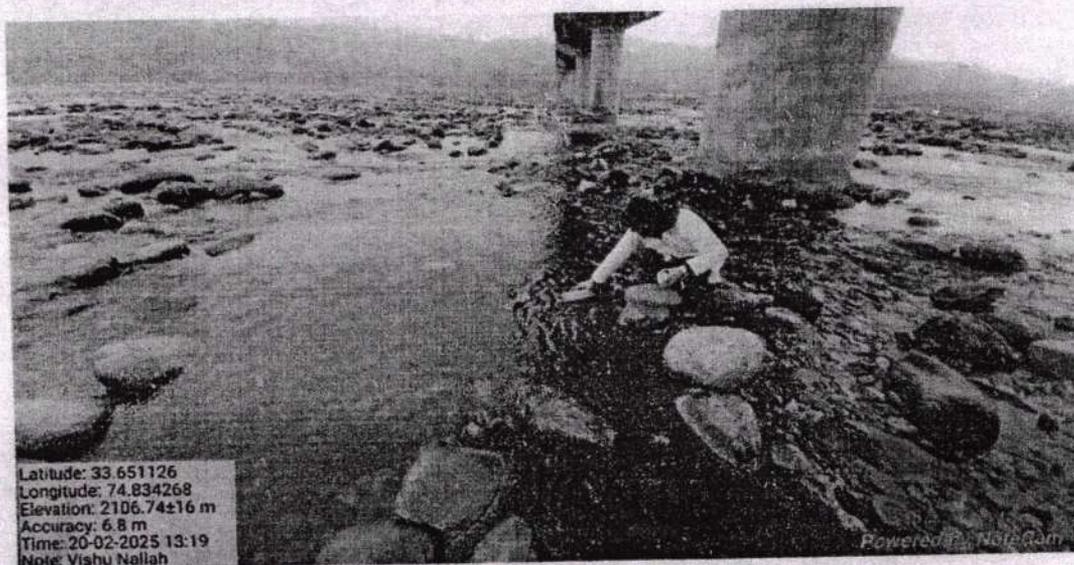
*Handwritten signatures*

## ii). Status of water quality in Vishaw Stream on the basis of samples collected US/DS

- During the inspection water samples were collected at 7 locations from Vishaw Stream (from upstream to downstream) viz.

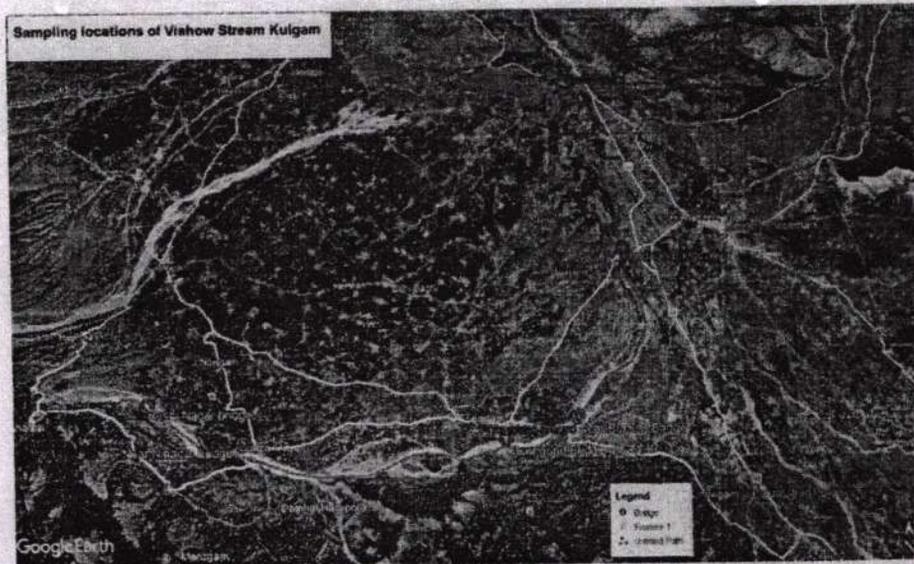
1. Aharbal (near Reshi Nagar Bridge)	Upstream of Vishow
2. Nihama (Near Bridge)	Upstream of Vishow
3. Chamgund (Near Bridge)	Kulgam Municipal area
4. Brazloo (Near Bridge).	Kulgam Municipal area
5. Kudwan (Near Bridge).	Downstream of Vishow
6. Niyana (Near Bridge)	Downstream of Vishow
7. Arapora Aamnu	Tributary of Vishow

- The water samples of the aforementioned locations were analysed for various Physico-chemical and Microbiological parameters which include some key parameters such as pH, DO, BOD, Faecal coliform and Total Coliform which are critical to ascertain the status and water quality. The water quality analysis data is enclosed as **Annexure-II**.
- The analysis of samples collected from Vishow stream at different locations indicate that **water quality in all monitoring locations meet the prescribed permissible limit for primary water quality (Out door Bathing Organised) criteria** in terms physico chemical parameters. The values of faecal coliform for all the sampling spots falls within the prescribed Maximum permissible norm i.e 2500 however in terms of desirable limit for Faecal coliform i.e 500 three sites viz. Khudwani, Niyana and Aarpora do not qualify the desirable limit. **In the lower course of stream i.e. Kudwan (Near Bridge) and Niyana the water quality in terms of Total Coliform and fecal Coliform is Comparatively inferior than upstream which can be attributed to addition of agricultural runoff, untreated waste water and solid waste into the water body.**



Sampling for water quality analysis

for [Signature] [Signature]



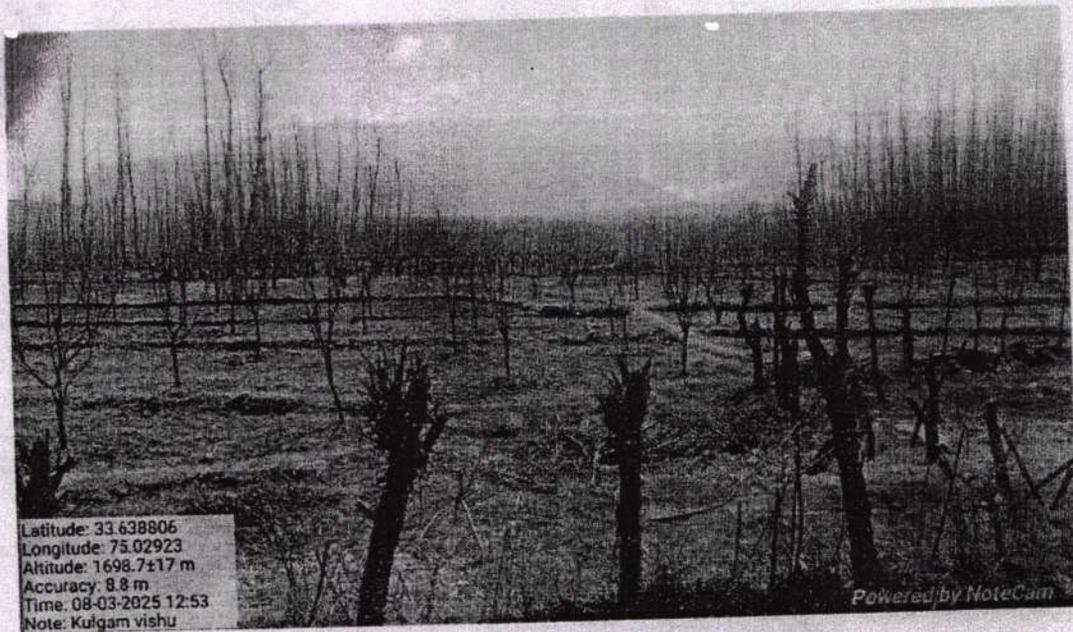
**Sampling locations of Vishow Nallah**

**iii). Status of Agricultural runoff in Vishaw Stream**

- Agriculture / Horticultural lands mostly lie off the shore of Vishaw Nallah. However, the impact of farming and horticulture activities on the water body cannot be ruled out as such activities can affect the water body by means of agricultural run-off. Small water channels flowing along the agricultural fields / orchards can be recipient of agricultural run-off. These water channels ultimately amalgamate with Vishaw Nallah and can thus affect the water quality. Extreme precipitation events significantly increase the amount of agricultural run-off and can exacerbate the water quality scenario
- Due to off season no agricultural practices were witnessed at the time of inspection.



*finds - Anand*



### Agriculture and Horticulture area near Vishow Nallah

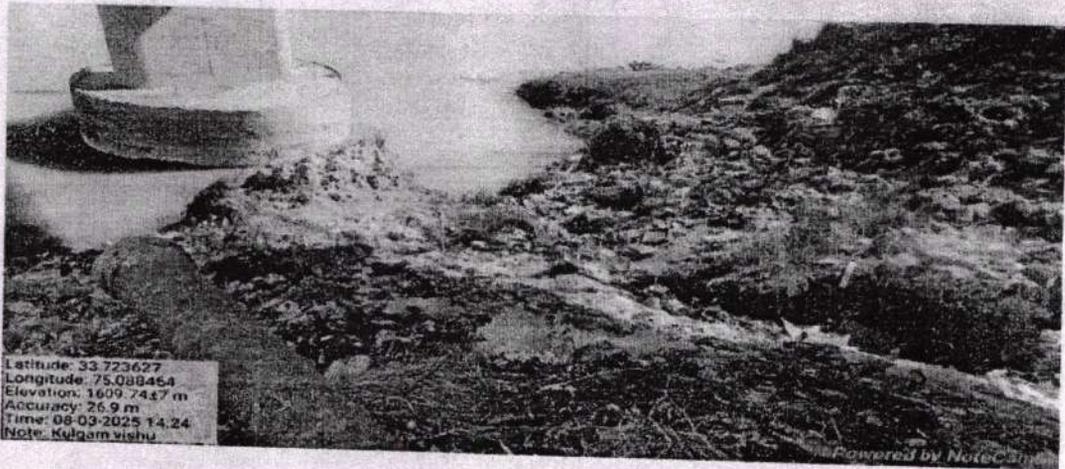
#### iv). Other sources of Pollution in stream.

- At many locations along the course of river solid waste was found dumped on the banks of Vishaw Nallah which was mostly composed of non-biodegradable plastic. These locations include Khudwani, Bungam Kulgam, Arapora Road, Arapora Aamnoo, Brazloo and Ashmuji. This unscientific and improper disposal of solid waste can lead to obstruction in water flow, contamination of water, depletion in dissolved oxygen level and can disturb aquatic ecosystem.
- In the main town of Kulgam there are many water channels that flow along the dwelling. One such water channel flow via Bungam Kulgam. The residential houses situated on the fringe of channel discharge waste water into this water channel by means of PCV pipes. This water channel ultimately combines with Vishaw Nallah. Similarly at Khudwani near bridge waste water generated by the surrounding residential areas gets directly discharged into this water body. It was observed that the tributaries of Vishaw Nallah receive waste water from adjoining areas along their course of flow and ultimately carry it into the main water body i.e. Vishaw Nallah.
- Rural development Department have constructed many solid waste segregation sheds at many location near the bank of Vishow Nallah ,however these segregation sheds were found unattended Without further scientific waste management, as a result these sheds are becoming open garbage dumps thus poses further threat to Vishow Nallah .

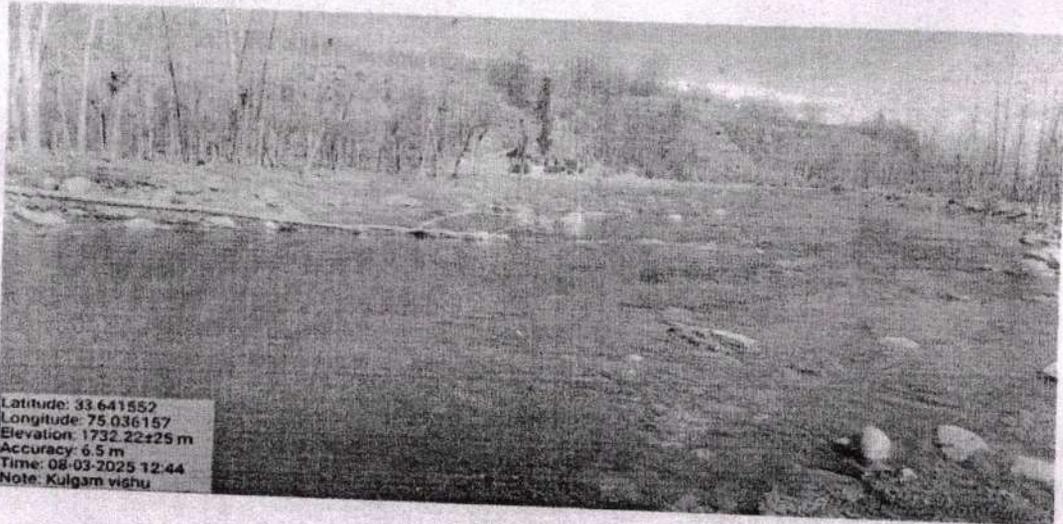
*for [unclear] - [unclear]*



Inhabitants on the fringe of riverlet discharge waste water which finally goes into Vishow Nallah.



Solid waste dump near Khudwani Bridge on the fringe of stream



Solid waste segregation sheds at many near the bank of Vishow Nallah

*for the ...*

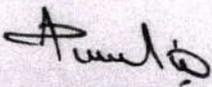
**Recommendations:**

- Mining and Geology Department should ensure that mining activity should be carried out as per mining plan and as per conditions stipulated in EC. Regular surprise vigilance is required by District Administration and Mining Department to check illegal mining in areas.
- Warning boards intimating the penalty for illegal mining and transportation of mining material should be placed by the mining department.
- All precautions shall be taken to ensure that water stream flows unhindered and process of natural river meandering does not get effected.
- Detailed information about mining which include lease area, geo- coordinates of lease area and mineral area should be displayed on the board near mining area.
- Department of Geology and Mining has to identify illegal miners and necessary action need to be taken against them as per law.
- Illegal mining within the cluster i.e. mining beyond the permissible capacity and mining excavation beyond allotted lease area required strict vigilance by the department who area at the helm of affairs.
- Solid waste dumped particularly along the fringes of Stream must be promptly removed and disposed off as per Solid Waste Management rules 2016 .

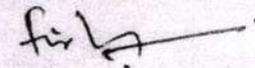
Submitted for favour of information and further necessary action .

NO:- PCC/ROK/Lab.Coord/insp/24-25/172

Dt:- 13/03/2025

  
Scientist -A

Lab Coordinator PCC Srinagar

  
F. A. Khanday  
Divisional Officer PCC

Kulgam

Item No. 04

Court No. 1

**BEFORE THE NATIONAL GREEN TRIBUNAL  
PRINCIPAL BENCH, NEW DELHI**

Original Application No. 1391/2024

News Item titled "Vishaw stream gasps for breath amid mining pollution" appearing in Greater Kashmir dated 16.12.2024

Date of hearing: 03.01.2025

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

Applicant :     None

**ORDER**

1. This original application is registered *suo motu* based on the news item titled "Vishaw stream gasps for breath amid mining, pollution" appearing in Greater Kashmir dated 16.12.2024.
2. The news item relates to the deteriorating condition of the trout population in the Vishaw stream, a vital tributary of the River Jhelum in south Kashmir's Kulgam district allegedly due to rising pollution and unregulated mining activities. As per the news item, this degradation threatens trout and other environmentally sensitive fish species.
3. The news item highlights that the stream supplies over 6 million gallons of drinking water daily to more than 100 villages in Kulgam. Experts attribute the decline in fish populations to unscientific mining practices, especially during critical breeding seasons, October to December for trout and April to June for indigenous species like Schizothorax. It is alleged that such disruptions harm natural biodiversity and reduce the fertility of breeding grounds.

4. News item further alleged that historically, extraction during breeding seasons was prohibited, but current practices involving heavy machinery disrupt water flow and destroy habitats, adversely affecting species diversification and fish production. Locals report rampant illegal extraction of boulders and sand along the stream, increasing flood risks for nearby villages. It is also alleged that the river's water was once so pure that people drank directly from it, but today, it's polluted with drainage and agricultural waste.

5. News item reports that fishermen have also witnessed a drastic reduction in daily catches, jeopardizing their livelihoods. Environmentalists also point to agricultural runoff containing fertilizers and pesticides as contributors to the stream's pollution, leading to eutrophication and diminished water quality

6. The news item raises substantial issues relating to compliance of the provisions of Water (Prevention and Control of Pollution) Act, 1974 and the Environment Protection Act, 1986.

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

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

- (i) Respondent no.1- Member Secretary, Jammu & Kashmir Pollution Control Committee (JKPCC), Parivesh Bhavan, Transport Nagar, Narwal, Jammu, Jammu & Kashmir, India;

- (ii) Respondent no.2- Central Pollution Control Board (CPCB) through its Member Secretary, Parivesh Bhawan, East Arjun Nagar, Delhi - 110032, India;
  - (iii) Respondent no.3-Ministry of Environment, Forest and Climate Change (MoEF&CC) through its Regional Office, IWDP Complex, Narwal, Jammu-180010, Union Territory of Jammu & Kashmir, India;
  - (iv) Respondent no.4-Directorate of Fisheries, Jammu & Kashmir, Tourist Reception Centre (TRC), Srinagar - 190001, Union Territory of Jammu & Kashmir, India;
  - (v) Respondent no.5-Deputy Commissioner (District Magistrate), Kulgam, Deputy Commissioner Kulgam, DC Office Cum Mini Secretariat Building, Kulgam, Jammu and Kashmir, Pin - 192231, India.
- (vi) Let notice be issued to the respondents for filing their response/reply by way of affidavit before the Tribunal at least one week before the next date of hearing. If any respondent directly files the reply without routing it through his advocate then the said respondent will remain virtually present to assist the Tribunal.
- (vii) List on 23.04.2025.

Prakash Shrivastava, CP

Arun Kumar Tyagi, JM

Dr. A. Senthil Vel, EM

January 03, 2025  
Original Application No.1391/2024  
JG..

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**Reply O.A. No. 1391/2024 on behalf of Respondent No. CPCB**

1 message

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**dhanenjay Pandey** <dpandey8376@gmail.com>

Mon, Apr 21, 2025 at 7:32 PM

To: iro.jammu-mefcc@gov.in, mscb.cpcb@nic.in, dckulgam-jk@gov.in, jkfdkmr@gmail.com, membersecy.pcb@jk.gov.in

I am Serve Reply on behalf of Anuj Bhandari Adv. Matter List On 23.4.2025

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 **Reply in OA no. 1391 of 2024 Final.pdf**  
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