X

BEFORE THE HON'BLE NATIONAL GREEN TRIBUNAL,
EASTERN ZONE BENCH AT KOLKATA

O.A. No. 189 OF 2024/EZ

In the Matter of:

Ranjit Chaudhary

...Applicant(s)

-Versus-

Department of Environment, Forest and Climate Change, Govt. of Bihar & Ors.

...Respondent(s)

INDEX

Date: 25/05/2025.
Place: Patna, Bihar.

Filed by:

Ms. Anamika Pandey,
Advocate,
"Hastings Chamber", 7C,
K. S. R. Road, 2nd Floor, Room
No. 206, Kolkata- 700 001.
M: 8336835229
E: legumjure@gmail.com

BEFORE THE HON'BLE NATIONAL GREEN TRIBUNAL,
EASTERN ZONE BENCH AT KOLKATA
O.A. No. 189 OF 2024/EZ

In the Matter of:

Ranjit Chaudhary

...Applicant(s)

-Versus-

Department of Environment, Forest and Climate Change, Govt. of Bihar & Ors.

...Respondent(s)

Counter Affidavit filed on behalf of Respondent no. 5
(i.e. SEIAA, Bihar)

I, Abhay Kumar s/o Late Sheodayal Sharma aged about 50 years old, by occupation- Government Service, presently posted as Member Secretary of the State Environment Impact Assessment Authority, (SEIAA) Bihar working for gain at the "Beltron Bhawan", 2nd Floor, Shastri Nagar, Bailey Road, Patna, Bihar- 800023, do hereby solemnly affirm and state as followed:

1. That I have made myself acquainted with the facts and circumstances of the Original Application filed by the applicant and I have thoroughly gone through all the documents pertaining

to the subject matter of this instant case and I am competent to file the instant Affidavit before this Hon'ble Tribunal.

2. That the respondent in compliance to the Solemn Order dated Hon'ble Tribunal vide an Order dated 25th March, 2025, directed the respondents to file their counter affidavit.

3. That it is stated that the State Environment Impact Assessment Authority (SEIAA in short) is an instrumentality of the Central Government being constituted under the Environment Impact Assessment Notification 2006 (as amended from time to time) (hereinafter referred to as '*the EIA notification*' for brevity) issued by the Central Government represented through the Ministry of Environment, Forest and Climate Change, Government of India, New Delhi (MoEF&CC in short). The said statutory notification was issued under the provisions of the Environment (Protection) Act, 1986.

4. That it is stated that role of the SEIAA is to consider and grant Environmental Clearances as per the *Schedule* mentioned in the EIA Notification as amended from time to time.

5. That the MoEF&CC had issued a notification on September 14, 2006, prescribing the requirements for prior environmental clearance (EC) for certain new projects, or the expansion/modernization of existing ones, based on their environmental impacts. These activities, listed in the notification's schedule, must receive a prior clearance from either the Central Government or the State Environment Impact Assessment Authority (SEIAA) before construction or land preparation begins. The notification also mandates the creation of SEIAAs in each state

NOTARY NAVAL Distt-PATNA Reg No-1883/ Exp.dt-09.05.2027 GOVT OF BIHAR

or Union Territory, which will consist of a Chairman, Member-Secretary, and two other experts. The authority's decisions must be unanimous. Additionally, projects are categorized into two groups (A and B) based on their environmental impact scope. This notification supersedes an earlier one from 1994, with the new provisions effective immediately.

Copy of the Notification dated 14.09.2006 issued by the MoEF& CC is annexed hereto and marked with the letter R/1.

6. That the answering respondent states that the SEIAA after carefully analysing granted EC for Category 'B1'only to various project proponents in the State of Bihar after carrying out comprehensive analysis and after adhering to the procedure prescribed under the EIA Notification viz. Compliance of the Terms of Reference (TORs), Environment Impact Assessment Study Report (EIA Report), public consultation/public hearing etc.

7. That the grant and timeline of EC was monitored by the Hon'ble Supreme Court from time to time in the matter of Civil Appeal No. 3661-3662 of 2022 State of Bihar and Ors Vs Pawan Kumar and Ors case.

8. That the answering respondent submits that the MoEF&CC has formulated the new guidelines i.e. "Enforcement & Monitoring Guidelines for Sand Mining" (EMGSM-2020) supplemental to the existing guidelines i.e. 'Sustainable Sand Management Guidelines 2016 (SSMG-2016)', which focus on the effective monitoring of the sand mining since from the identification of sand mineral sources to its dispatch and end-use by consumers and the general public.

NOTARY N.K. LAL Distt. PATNA Reg. No. 1883J Exp. dt. 24.05.2027 GOVT. OF BIHAR

9. That the answering respondent states that the Environmental Clearances were issued by the SEIAA after thorough assessment of environmental impacts and inclusion of appropriate conditions to ensure sustainable mining practices, as mandated by the Sustainable Sand Mining Management Guidelines, 2016 issued by the MoEF&CC and the subsequent Sustainable Sand Mining Management Guidelines, 2020 does not deal with Standard Environmental Conditions For Sand Mining and on the issues of Sustainable Sand Mining Management Guidelines, 2020guidelines are silent, the same has to be read with Sustainable Sand Mining Management Guidelines, 2016.

10. That the answering respondent states that the Environmental Clearances for sand mining in Bihar issued by SEIAA Bihar consistently include specific conditions restricting the depth of mining to 3 meters or water level, whichever is less, and mandate that mining be carried out in an environmentally sound manner.

11. That some ECs are brought on the records.

12. For example, in Specific Condition No. 5 of the EC it has been provided that semi-mechanized, preferably manual method shall be used for the river bed mining. In some of the ECs under Specific Condition No. 5 it has been provided that the project proponent shall undertake the sand mining limited to 03 meter (three meter) depth by semi mechanized method (without using any heavy machine), preferably by manual excavation.

13. In fact, the Joint Committee Report also mentions under Clause 6.4 (g) of the report that sand excavation is carried out using semi mechanized machinery in compliance with EC conditions. Thus,

NOTARY NAVAL KISHORE LAL Distt. PATNA Reg. No. 1883/ Exp. dt.-29.05.2027 GOVT OF BIHAR

there is no violation to this effect that has been pointed out by the Committee.

14. That the answering respondent states that the point 19 under the heading STANDARD ENVIRONMENTAL CONDITIONS FOR SAND MINING of the Sustainable Sand Mining Management Guidelines, 2016, states as follows:

STANDARD ENVIRONMENTAL CONDITIONS FOR SAND MINING

Impact Category	Sl. No.	Environmental Conditions
Sustainable Mining Practices	19	Depending upon the location, thickness of sand, deposition, agricultural land/Riverbed, the method of mining may be **manual, semi-mechanized or mechanized**; however, manual method of mining shall be preferred over any other method.

Therefore, it is apparent that even in the guidelines it is contemplated that mechanized, semi-mechanized are permitted however manual mining is to be preferred.

Copy of the extract from Sustainable Sand Mining Management Guidelines, 2016 particularly standard environmental conditions for sand mining is annexed hereto and marked with the Letter R/2.

15. That the answering respondent states that the Ministry's Office Memorandum regarding categorization of Category 'B' projects into Category 'B1' and 'B2' specifically addressed river sand mining and stated:

NOTARY A. K. LAL Distt.-PATNA Reg No-18831 Expdt.-19.05.2027 GOVT. OF BIHAR

"...No river sand mining project, with mine lease area less than 5 ha, may be considered for granting EC. The river sand mining projects with lease area more than equal to 5 ha but less than 25 ha will be categorized as 'B2'. In addition to the requirement of documents, as brought out above under sub-para (ii) above for appraisal, such projects will be considered subject to the following stipulations: (a) The mining activity shall be done manually. The depth of mining shall be restricted to 3 m / water level, whichever is less...".

16. That the answering respondent further states that sand mining is regulated in terms of the Mines and Minerals (Development and Regulation Act), 1957 [MMDR Act] and the Mineral Concession Rule framed by the concerned State Governments. The State Government is empowered to formulate the rules for preventing illegal mining, transportation and storage of minerals (including sand) by exercising the powers conferred by section 23(C) of the Mines and Minerals (Development and Regulation) Act, 1957.

17. That the answering respondent no.5 submits that as per the provisions of the Water (Prevention and Control of Pollution) Act, 1974, the Air (Prevention and Control of Pollution) Act, 1981 and the Environment (Protection) Act 1986. It is humbly submitted that the State Pollution Control Board is the Nodal Agency to deal with cases related to pollution or environment management.

18. That the respondent no. 5 states and submits that the answering respondent are ready and willing to abide by the order/s direction/s made by this Hon'ble Tribunal and has taken all possible steps to comply the directions of the Hon'ble Tribunal and the Inspection Committee.

NOTARY A. K. LAL Distt. PATNA Reg No. 1883 Exp. dt. 09.05.2027 GOVT OF BIHAR

19. That I have thoroughly gone through the contents of this counter affidavit and I have fully understood the same I am competent to file and sign the instant Affidavit before this Hon'ble Tribunal.

20. I state that the statements contained in Paragraphs no. 1 to 4 and are true to my personal knowledge, whereas those made in Paragraphs 5 to 17 are true to the best of my knowledge and belief and the rest are my humble submissions before this Hon'ble Court.

Identify the deponent signature/L.t. who has signed in my presence
Abhijeet Prakash BR/1520/2019
(Advocate)

Abhay Kumar
DEPONENT

Prepared in my office.

Identified by me

Advocate.

VERIFICATION

Verified at Patna, Bihar by the deponent above named on this the 29th day of May, 2025, and say that the contents of this affidavit made in paragraph nos. 1 to 5, and 15 are true to my knowledge, those made in paragraph no. 6 to 14 are information derived from records which I verily believe to be true and the rest are my respectful submissions before this Hon'ble Tribunal.

Abhay Kumar
Deponent

Identified by me

NOTARY A.K LAL Distt.-PATNA Reg No.-1883 Exp.dt.-29.05.2027 GOVT OF BIHAR

Advocate.

भारत सरकार

आधार

नामांकन क्रम/ Enrolment No.: 0013/66005/02993

To
अभय कुमार
Abhay Kumar
S/O: Sheo Dayal Sharma,
401,Ganga-4,
Jalalpur City,
Ramjaipal Road,
Beily Road Patna,
VTC: Dinapur-Cum-Khagaul,
PO: Danapur Cantt,
Sub District: Danapur,
District: Patna,
State: Bihar,
PIN Code: 801503,
Mobile: 7033039319

आपका आधार क्रमांक / Your Aadhaar No. :

3006 3965 3108

VID : 9131 5703 9008 4400

मेरा आधार, मेरी पहचान

भारत सरकार
Government of India

अभय कुमार
Abhay Kumar
जन्म तिथि/DOB: 17/03/1974
पुरुष/ MALE

Aadhaar no. issued: 23/02/2015

आधार पहचान का प्रमाण है, नागरिकता या जन्मतिथि का नहीं।
इसका उपयोग सत्यापन (ऑनलाइन प्रमाणीकरण, या क्यूआर कोड/ ऑफलाइन एक्सएमएल की स्कैनिंग) के साथ किया जाना चाहिए।

Aadhaar is proof of identity, not of citizenship or date of birth. It should be used with verification (online authentication, or scanning of QR code / offline XML).

3006 3965 3108

मेरा आधार, मेरी पहचान

Government of India

AADHAAR

सूचना / INFORMATION

- आधार पहचान का प्रमाण है, नागरिकता या जन्मतिथि का नहीं। जन्मतिथि आधार नंबर धारक द्वारा प्रस्तुत सूचना और विनियमों में विनिर्दिष्ट जन्मतिथि के प्रमाण के दस्तावेज पर आधारित है।
- इस आधार पत्र को यूआईडीएआई द्वारा नियुक्त प्रमाणीकरण एजेंसी के जरिए ऑनलाइन प्रमाणीकरण के द्वारा सत्यापित किया जाना चाहिए या ऐप स्टोर में उपलब्ध एमआधार या आधार क्यूआर कोड स्कैनर ऐप से क्यूआर कोड को स्कैन करके या www.uidai.gov.in. पर उपलब्ध सुरक्षित क्यूआर कोड रीडर का उपयोग करके सत्यापित किया जाना चाहिए।
- आधार विशिष्ट और सुरक्षित है।
- पहचान और पते के समर्थन में दस्तावेजों को आधार के लिए नामांकन की तारीख से प्रत्येक 10 वर्ष से कम या कम एक बार आधार में अपडेट कराना चाहिए।
- आधार विभिन्न सरकारी और गैर-सरकारी फायदों/सेवाओं का लाभ लेने में सहायता करता है।
- आधार में अपना मोबाइल नंबर और ईमेल आईडी अपडेट रखें।
- आधार सेवाओं का लाभ लेने के लिए एमआधार ऐप डाउनलोड करें।
- ऑफलाइन/बायोमेट्रिक्स का उपयोग न करने के समय सुरक्षा सुनिश्चित करने के लिए आधार/बायोमेट्रिक्स लॉक/अनलॉक सुविधा का उपयोग करें।
- आधार की मांग करने वाले सहमति लेने के लिए बाध्य हैं।

- Aadhaar is proof of identity, not of citizenship or date of birth (DOB). DOB recorded in Aadhaar is as provided by Aadhaar number holder.
- This electronic letter should be verified through either online authentication by UIDAI-appointed authentication agency or QR code scanning using mAadhaar or Aadhaar QR Scanner app available in app stores or using secure QR code reader app available on www.uidai.gov.in.
- Aadhaar is unique and secure.
- Documents to support identity and address should be updated in Aadhaar after every 10 years from date of enrolment for Aadhaar.
- Aadhaar helps you avail of various Government and Non-Government benefits/services.
- Keep your mobile number and email id updated in Aadhaar.
- Download mAadhaar app to avail of Aadhaar services.
- Use the feature of Lock/Unlock Aadhaar/biometrics to ensure security when not using Aadhaar/biometrics.
- Entities seeking Aadhaar are obligated to seek consent.

भारतीय विशिष्ट पहचान प्राधिकरण
Unique Identification Authority of India

AADHAAR

पता:
आत्मज: शिव दयाल शर्मा, 401,गंगा-4, जलालपुर नगर, रामजैपाल मार्ग, बेली रोड पटना, दीनापुर कम खगौल, दानापुर कैन्टत, पटना, बिहार - 801503

Details as on: 02/02/2024

Address:
S/O: Sheo Dayal Sharma, 401,Ganga-4, Jalalpur City, Ramjaipal Road, Beily Road Patna, Dinapur-Cum-Khagaul, PO: Danapur Cantt, DIST: Patna, Bihar - 801503

3006 3965 3108

VID : 9131 5703 9008 4400

1947 | help@uidai.gov.in | www.uidai.gov.in

Abhay Kumar

ANNEXURE -R/1

Published in the Gazette of India, Extraordinary, Part-II, and Section 3, Sub-section (ii)
MINISTRY OF ENVIRONMENT AND FORESTS

New Delhi 14th September, 2006

Notification

S.O. 1533 Whereas, a draft notification **under sub-rule (3) of Rule 5 of the Environment (Protection) Rules, 1986 for imposing** certain restrictions and prohibitions on new projects or activities, or on the expansion or modernization of existing projects or activities based on their potential environmental impacts as indicated in the Schedule to the notification, being undertaken in any part of India[1], unless prior environmental clearance has been accorded in accordance with the objectives of National Environment Policy **as approved by the Union Cabinet on 18th May, 2006** and the procedure specified in the notification, by the Central Government or the State or Union territory Level Environment Impact Assessment Authority (SEIAA), to be constituted by the Central Government in consultation with the State Government or the Union territory Administration concerned under sub-section (3) of section 3 of the Environment (Protection) Act, 1986 for the purpose of this notification, was published in the Gazette of India ,Extraordinary, Part II section 3, sub-section (ii) vide number S.O. 1324 (E) dated the 15th September ,2005 inviting objections and suggestions from all persons likely to be affected thereby within a period of sixty days from the date on which copies of Gazette containing the said notification were made available to the public;

And whereas, copies of the said notification were made available to the public on 15th September, 2005;

And whereas, all objections and suggestions received in response to the above mentioned draft notification have been duly considered by the Central Government;

Now, therefore, in exercise of the powers conferred by sub-section (1) and clause (v) of sub-section (2) of section 3 of the Environment (Protection) Act, 1986, read with clause (d) of sub-rule (3) of rule 5 of the Environment (Protection) Rules, 1986 and in supersession of the notification number S.O. 60 (E) dated the 27th January, 1994, except in respect of things done or omitted to be done before such supersession, the Central Government hereby directs that on and from the date of its publication the required construction of new projects or activities or the expansion or modernization of existing projects or activities listed in the Schedule to this notification entailing capacity addition with change in process and or technology shall be undertaken in any part of India only after the prior environmental clearance from the Central Government or as the case may be, by the State Level Environment Impact Assessment Authority, duly constituted by the Central Government under sub-section (3) of section 3 of the said Act, in accordance with the procedure specified hereinafter in this notification.

---

[1]Includes the territorial waters

NOTARY A. K LAL Distt.: PATNA Reg No -1883J Exp.dt.-29.05.2027 GOVT OF BIHAR

2. Requirements of prior Environmental Clearance (EC):- The following projects or activities shall require prior environmental clearance from the concerned regulatory authority, which shall hereinafter referred to be as the Central Government in the Ministry of Environment and Forests for matters falling under Category 'A' in the Schedule and at State level the State Environment Impact Assessment Authority (SEIAA) for matters falling under Category 'B' in the said Schedule, before any construction work, or preparation of land by the project management except for securing the land, is started on the project or activity:

(i) All new projects or activities listed in the Schedule to this notification;

(ii) Expansion and modernization of existing projects or activities listed in the Schedule to this notification with addition of capacity beyond the limits specified for the concerned sector, that is, projects or activities which cross the threshold limits given in the Schedule, after expansion or modernization;

(iii) Any change in product - mix in an existing manufacturing unit included in Schedule beyond the specified range.

3. State Level Environment Impact Assessment Authority:- (1) A State Level Environment Impact Assessment Authority hereinafter referred to as the SEIAA shall be constituted by the Central Government under sub-section (3) of section 3 of the Environment (Protection) Act, 1986 comprising of three Members including a Chairman and a Member – Secretary to be nominated by the State Government or the Union territory Administration concerned.

(2) The Member-Secretary shall be a serving officer of the concerned State Government or Union territory administration familiar with environmental laws.

(3) The other two Members shall be either a professional or expert fulfilling the eligibility criteria given in Appendix VI to this notification.

(4) One of the specified Members in sub-paragraph (3) above who is an expert in the Environmental Impact Assessment process shall be the Chairman of the SEIAA.

(5) The State Government or Union territory Administration shall forward the names of the Members and the Chairman referred in sub- paragraph 3 to 4 above to the Central Government and the Central Government shall constitute the SEIAA as an authority for the purposes of this notification within thirty days of the date of receipt of the names.

(6) The non-official Member and the Chairman shall have a fixed term of three years (from the date of the publication of the notification by the Central Government constituting the authority).

(7) All decisions of the SEIAA shall be unanimous and taken in a meeting.

4. Categorization of projects and activities:-

(i) All projects and activities are broadly categorized in to two categories - Category A and Category B, based on the spatial extent of potential impacts and potential impacts on human health and natural and man made resources.

NOTARY A. K LAL Distt.-PATNA Reg. No.-1863J Exp.dt.-29.05.2027 GOVT OF BIHAR

(ii) All projects or activities included as Category 'A' in the Schedule, including expansion and modernization of existing projects or activities and change in product mix, shall require prior environmental clearance from the Central Government in the Ministry of Environment and Forests (MoEF) on the recommendations of an Expert Appraisal Committee (EAC) to be constituted by the Central Government for the purposes of this notification;

(iii) All projects or activities included as Category 'B' in the Schedule, including expansion and modernization of existing projects or activities as specified in sub paragraph (ii) of paragraph 2, or change in product mix as specified in sub paragraph (iii) of paragraph 2, but excluding those which fulfill the General Conditions (GC) stipulated in the Schedule, *will* require prior environmental clearance from the State/Union territory Environment Impact Assessment Authority (SEIAA). The SEIAA shall base its decision on the recommendations of a State or Union territory level Expert Appraisal Committee (SEAC) as to be constituted for in this notification. In the absence of a duly constituted SEIAA or SEAC, a Category 'B' project shall be treated as a Category 'A' project;

5. Screening, Scoping and Appraisal Committees:-

The same Expert Appraisal Committees (EACs) at the Central Government and SEACs (hereinafter referred to as the (EAC) and (SEAC) at the State or the Union territory level shall screen, scope and appraise projects or activities in Category 'A' and Category 'B' respectively. EAC and SEAC's shall meet at least once every month.

(a) The composition of the EAC shall be as given in Appendix VI. The SEAC at the State or the Union territory level shall be constituted by the Central Government in consultation with the concerned State Government or the Union territory Administration with identical composition;

(b) The Central Government may, with the prior concurrence of the concerned State Governments or the Union territory Administrations, constitutes one SEAC for more than one State or Union territory for reasons of administrative convenience and cost;

(c) The EAC and SEAC shall be reconstituted after every three years;

(d) The authorised members of the EAC and SEAC, concerned, may inspect any site(s) connected with the project or activity in respect of which the prior environmental clearance is sought, for the purposes of screening or scoping or appraisal, with prior notice of at least seven days to the applicant, who shall provide necessary facilities for the inspection;

(e) The EAC and SEACs shall function on the principle of collective responsibility. The Chairperson shall endeavour to reach a consensus in each case, and if consensus cannot be reached, the view of the majority shall prevail.

6. Application for Prior Environmental Clearance (EC):-

An application seeking prior environmental clearance in all cases shall be made in the prescribed Form 1 annexed herewith and Supplementary Form 1A, if applicable, as given in Appendix II, after the identification of prospective site(s) for the project and/or activities to which the application relates, before commencing any construction activity, or preparation of land, at the site by the applicant. The applicant shall furnish, along with the application, a copy of the pre-feasibility project report except that, in case of construction projects or activities (item 8 of the Schedule) in addition to Form 1 and the Supplementary Form 1A, a copy of the conceptual plan shall be provided, instead of the pre-feasibility report.

NOTARY A. K. LAL Distt.-PATNA Reg No.-1885 Exp.dt.-29.05.2027 GOVT OF BIHAR

7. Stages in the Prior Environmental Clearance (EC) Process for New Projects:-

7(i) The environmental clearance process for new projects will comprise of a maximum of four stages, all of which may not apply to particular cases as set forth below in this notification. These four stages in sequential order are:-

- Stage (1) Screening (Only for Category 'B' projects and activities)
- Stage (2) Scoping
- Stage (3) Public Consultation
- Stage (4) Appraisal

I. **Stage (1) - Screening**:

In case of Category 'B' projects or activities, this stage will entail the scrutiny of an application seeking prior environmental clearance made in Form 1 by the concerned State level Expert Appraisal Committee (SEAC) for determining whether or not the project or activity requires further environmental studies for preparation of an Environmental Impact Assessment (EIA) for its appraisal prior to the grant of environmenta clearance depending up on the nature and location specificity of the project . The projects requiring an Environmental Impact Assessment report shall be termed Category 'B1' and remaining projects shall be termed Category 'B2' and will not require an Environment Impact Assessment report. For categorization of projects into B1 or B2 except item 8 (b), the Ministry of Environment and Forests shall issue appropriate guidelines from time to time.

II. **Stage (2) - Scoping**:

(i) "Scoping": refers to the process by which the Expert Appraisal Committee in the case of Category 'A' projects or activities, and State level Expert Appraisal Committee in the case of Category 'B1' projects or activities, including applications for expansion and/or modernization and/or change in product mix of existing projects or activities, determine detailed and comprehensive Terms Of Reference (TOR) addressing all relevant environmental concerns for the preparation of an Environment Impact Assessment (EIA) Report in respect of the project or activity for which prior environmental clearance is sought. The Expert Appraisal Committee or State level Expert Appraisal Committee concerned shall determine the Terms of Reference on the basis of the information furnished in the prescribed application Form1/Form 1A including Terns of Reference proposed by the applicant, a site visit by a sub- group of Expert Appraisal Committee or State level Expert Appraisal Committee concerned only if considered necessary by the Expert Appraisal Committee or State Level Expert Appraisal Committee concerned, Terms of Reference suggested by the applicant if furnished and other information that may be available with the Expert Appraisal Committee or State Level Expert Appraisal Committee concerned. All projects and activities listed as Category 'B' in Item 8 of the Schedule (Construction/Township/Commercial Complexes /Housing) shall not require Scoping and will be appraised on the basis of Form 1/ Form 1A and the conceptual plan.

(ii) The Terms of Reference (TOR) shall be conveyed to the applicant by the Expert Appraisal Committee or State Level Expert Appraisal Committee as concerned within sixty days of the receipt of Form 1. In the case of Category A Hydroelectric projects Item 1(c) (i) of the Schedule the Terms of Reference shall be conveyed along with the clearance for pre-construction activities .If the Terms of Reference are not finalized and conveyed to the applicant within sixty days of the receipt of Form 1, the Terms of Reference suggested by the applicant shall be deemed as the final Terms of Reference approved for the EIA studies. The approved Terms of

NOTARY
LAL
Distt.-PATNA
Reg No -1883J
Exp.dt.-29.05.2027
GOVT OF BIHAR

Reference shall be displayed on the website of the Ministry of Environment and Forests and the concerned State Level Environment Impact Assessment Authority.

(iii) Applications for prior environmental clearance may be rejected by the regulatory authority concerned on the recommendation of the EAC or SEAC concerned at this stage itself. In case of such rejection, the decision together with reasons for the same shall be communicated to the applicant in writing within sixty days of the receipt of the application.

III. **Stage (3) - Public Consultation:**

(i) "Public Consultation" refers to the process by which the concerns of local affected persons and others who have plausible stake in the environmental impacts of the project or activity are ascertained with a view to taking into account all the material concerns in the project or activity design as appropriate. All Category 'A' and Category B1 projects or activities shall undertake Public Consultation, except the following:-

(a) modernization of irrigation projects (item 1(c) (ii) of the Schedule).

(b) all projects or activities located within industrial estates or parks (item 7(c) of the Schedule) approved by the concerned authorities, and which are not disallowed in such approvals.

(c) expansion of Roads and Highways (item 7 (f) of the Schedule) which do not involve any further acquisition of land.

(d) all Building /Construction projects/Area Development projects and Townships (item 8).

(e) all Category 'B2' projects and activities.

(f) all projects or activities concerning national defence and security or involving other strategic considerations as determined by the Central Government.

(ii) The Public Consultation shall ordinarily have two components comprising of:-

(a) a public hearing at the site or in its close proximity- district wise, to be carried out in the manner prescribed in Appendix IV, for ascertaining concerns of local affected persons;

(b) obtain responses in writing from other concerned persons having a plausible stake in the environmental aspects of the project or activity.

(iii) the public hearing at, or in close proximity to, the site(s) in all cases shall be conducted by the State Pollution Control Board (SPCB) or the Union territory Pollution Control Committee (UTPCC) concerned in the specified manner and forward the proceedings to the regulatory authority concerned within 45(forty five) of a request to the effect from the applicant.

(iv) in case the State Pollution Control Board or the Union territory Pollution Control Committee concerned does not undertake and complete the public hearing within the specified period, and/or does not convey the proceedings of the public hearing within the prescribed period

NOTARY A. K. LAL Distt.-PATNA Reg No -1883J Exp.dt.-29.05.2027 GOVT OF BIHAR

directly to the regulatory authority concerned as above, the regulatory authority shall engage another public agency or authority which is not subordinate to the regulatory authority, to complete the process within a further period of forty five days,.

(v) If the public agency or authority nominated under the sub paragraph (iii) above reports to the regulatory authority concerned that owing to the local situation, it is not possible to conduct the public hearing in a manner which will enable the views of the concerned local persons to be freely expressed, it shall report the facts in detail to the concerned regulatory authority, which may, after due consideration of the report and other reliable information that it may have, decide that the public consultation in the case need not include the public hearing.

(vi) For obtaining responses in writing from other concerned persons having a plausible stake in the environmental aspects of the project or activity, the concerned regulatory authority and the State Pollution Control Board (SPCB) or the Union territory Pollution Control Committee (UTPCC) shall invite responses from such concerned persons by placing on their website the Summary EIA report prepared in the format given in Appendix IIIA by the applicant along with a copy of the application in the prescribed form , within seven days of the receipt of a written request for arranging the public hearing . Confidential information including non-disclosable or legally privileged information involving Intellectual Property Right, source specified in the application shall not be placed on the web site. The regulatory authority concerned may also use other appropriate media for ensuring wide publicity about the project or activity. The regulatory authority shall, however, make available on a written request from any concerned person the Draft EIA report for inspection at a notified place during normal office hours till the date of the public hearing. All the responses received as part of this public consultation process shall be forwarded to the applicant through the quickest available means.

(vii) After completion of the public consultation, the applicant shall address all the material environmental concerns expressed during this process, and make appropriate changes in the draft EIA and EMP. The final EIA report, so prepared, shall be submitted by the applicant to the concerned regulatory authority for appraisal. The applicant may alternatively submit a supplementary report to draft EIA and EMP addressing all the concerns expressed during the public consultation.

IV. Stage (4) - Appraisal:

(i) Appraisal means the detailed scrutiny by the Expert Appraisal Committee or State Level Expert Appraisal Committee of the application and other documents like the Final EIA report, outcome of the public consultations including public hearing proceedings, submitted by the applicant to the regulatory authority concerned for grant of environmental clearance. This appraisal shall be made by Expert Appraisal Committee or State Level Expert Appraisal Committee concerned in a transparent manner in a proceeding to which the applicant shall be invited for furnishing necessary clarifications in person or through an authorized representative. On conclusion of this proceeding, the Expert Appraisal Committee or State Level Expert Appraisal Committee concerned shall make categorical recommendations to the regulatory authority concerned either for grant of prior environmental clearance on stipulated terms and conditions, or rejection of the application for prior environmental clearance, together with reasons for the same.

(ii) The appraisal of all projects or activities which are not required to undergo public consultation, or submit an Environment Impact Assessment report, shall be carried out on the basis of the prescribed application Form 1 and Form 1A as applicable, any other relevant

NOTARY A. K. LAL Distt.-PATNA Reg No -18831 Exp.dt.-29.05.2027 GOVT OF BIHAR

validated information available and the site visit wherever the same is considered as necessary by the Expert Appraisal Committee or State Level Expert Appraisal Committee concerned.

(iii) The appraisal of an application be shall be completed by the Expert Appraisal Committee or State Level Expert Appraisal Committee concerned within sixty days of the receipt of the final Environment Impact Assessment report and other documents or the receipt of Form 1 and Form 1 A, where public consultation is not necessary and the recommendations of the Expert Appraisal Committee or State Level Expert Appraisal Committee shall be placed before the competent authority for a final decision within the next fifteen days .The prescribed procedure for appraisal is given in Appendix V ;

7(ii). Prior Environmental Clearance (EC) process for Expansion or Modernization or Change of product mix in existing projects:

All applications seeking prior environmental clearance for expansion with increase in the production capacity beyond the capacity for which prior environmental clearance has been granted under this notification or with increase in either lease area or production capacity in the case of mining projects or for the modernization of an existing unit with increase in the total production capacity beyond the threshold limit prescribed in the Schedule to this notification through change in process and or technology or involving a change in the product –mix shall be made in Form I and they shall be considered by the concerned Expert Appraisal Committee or State Level Expert Appraisal Committee within sixty days, who will decide on the due diligence necessary including preparation of EIA and public consultations and the application shall be appraised accordingly for grant of environmental clearance.

8.Grant or Rejection of Prior Environmental Clearance (EC):

(i) The regulatory authority shall consider the recommendations of the EAC or SEAC concerned and convey its decision to the applicant within forty five days of the receipt of the recommendations of the Expert Appraisal Committee or State Level Expert Appraisal Committee concerned or in other words within one hundred and five days of the receipt of the final Environment Impact Assessment Report, and where Environment Impact Assessment is not required, within one hundred and five days of the receipt of the complete application with requisite documents, except as provided below.

(ii) The regulatory authority shall normally accept the recommendations of the Expert Appraisal Committee or State Level Expert Appraisal Committee concerned. In cases where it disagrees with the recommendations of the Expert Appraisal Committee or State Level Expert Appraisal Committee concerned, the regulatory authority shall request reconsideration by the Expert Appraisal Committee or State Level Expert Appraisal Committee concerned within forty five days of the receipt of the recommendations of the Expert Appraisal Committee or State Level Expert Appraisal Committee concerned while stating the reasons for the disagreement. An intimation of this decision shall be simultaneously conveyed to the applicant. The Expert Appraisal Committee or State Level Expert Appraisal Committee concerned, in turn, shall consider the observations of the regulatory authority and furnish its views on the same within a further period of sixty days. The decision of the regulatory authority after considering the views of the Expert Appraisal Committee or State Level Expert Appraisal Committee concerned shall be final and conveyed to the applicant by the regulatory authority concerned within the next thirty days.

(iii) In the event that the decision of the regulatory authority is not communicated to the applicant within the period specified in sub-paragraphs (i) or (ii) above, as applicable, the

NOTARY A. K. LAL Distt.-PATNA Reg No - 1869 Exp.dt.-29.05.2027 GOVT OF BIHAR

applicant may proceed as if the environment clearance sought for has been granted or denied by the regulatory authority in terms of the final recommendations of the Expert Appraisal Committee or State Level Expert Appraisal Committee concerned.

(iv) On expiry of the period specified for decision by the regulatory authority under paragraph (i) and (ii) above, as applicable, the decision of the regulatory authority, and the final recommendations of the Expert Appraisal Committee or State Level Expert Appraisal Committee concerned shall be public documents.

(v) Clearances from other regulatory bodies or authorities shall not be required prior to receipt of applications for prior environmental clearance of projects or activities, or screening, or scoping, or appraisal, or decision by the regulatory authority concerned, unless any of these is sequentially dependent on such clearance either due to a requirement of law, or for necessary technical reasons.

(vi) Deliberate concealment and/or submission of false or misleading information or data which is material to screening or scoping or appraisal or decision on the application shall make the application liable for rejection, and cancellation of prior environmental clearance granted on that basis. Rejection of an application or cancellation of a prior environmental clearance already granted, on such ground, shall be decided by the regulatory authority, after giving a personal hearing to the applicant, and following the principles of natural justice.

9. Validity of Environmental Clearance (EC):

The "Validity of Environmental Clearance" is meant the period from which a prior environmental clearance is granted by the regulatory authority, or may be presumed by the applicant to have been granted under sub paragraph (iv) of paragraph 7 above, to the start of production operations by the project or activity, or completion of all construction operations in case of construction projects (item 8 of the Schedule), to which the application for prior environmental clearance refers. The prior environmental clearance granted for a project or activity shall be valid for a period of ten years in the case of River Valley projects (item 1(c) of the Schedule), project life as estimated by Expert Appraisal Committee or State Level Expert Appraisal Committee subject to a maximum of thirty years for mining projects and five years in the case of all other projects and activities. However, in the case of Area Development projects and Townships [item 8(b)], the validity period shall be limited only to such activities as may be the responsibility of the applicant as a developer. This period of validity may be extended by the regulatory authority concerned by a maximum period of five years provided an application is made to the regulatory authority by the applicant within the validity period, together with an updated Form 1, and Supplementary Form 1A, for Construction projects or activities (item 8 of the Schedule). In this regard the regulatory authority may also consult the Expert Appraisal Committee or State Level Expert Appraisal Committee as the case may be.

10. Post Environmental Clearance Monitoring:

(i) It shall be mandatory for the project management to submit half-yearly compliance reports in respect of the stipulated prior environmental clearance terms and conditions in hard and soft copies to the regulatory authority concerned, on 1st June and 1st December of each calendar year.

(ii) All such compliance reports submitted by the project management shall be public documents. Copies of the same shall be given to any person on application to the concerned regulatory authority. The latest such compliance report shall also be displayed on the web site of the concerned regulatory authority.

NOTARY A. K LAL Distt.-PATNA Reg No -1885 Exp.dt.-29.05.2027 GOVT OF BIHAR

11. Transferability of Environmental Clearance (EC):

A prior environmental clearance granted for a specific project or activity to an applicant may be transferred during its validity to another legal person entitled to undertake the project or activity on application by the transferor, or by the transferee with a written "no objection" by the transferor, to, and by the regulatory authority concerned, on the same terms and conditions under which the prior environmental clearance was initially granted, and for the same validity period. No reference to the Expert Appraisal Committee or State Level Expert Appraisal Committee concerned is necessary in such cases.

12. Operation of EIA Notification, 1994, till disposal of pending cases:

From the date of final publication of this notification the Environment Impact Assessment (EIA) notification number S.O.60 (E) dated 27th January, 1994 is hereby superseded, except in suppression of the things done or omitted to be done before such suppression to the extent that in case of all or some types of applications made for prior environmental clearance and pending on the date of final publication of this notification, the Central Government may relax any one or all provisions of this notification except the list of the projects or activities requiring prior environmental clearance in Schedule I , or continue operation of some or all provisions of the said notification, for a period not exceeding one year from the date of issue of this notification.

[No. J-11013/56/2004-IA-II (I)]

(R.CHANDRAMOHAN)
JOINT SECRETARY TO THE GOVERNMENT OF INDIA

NOTARY
A. K LAL
Distt.-PATNA
Reg No -1883J
Exp.dt.-29.05.2027
GOVT OF BIHAR

SCHEDULE

(See paragraph 2 and 7)

LIST OF PROJECTS OR ACTIVITIES REQUIRING PRIOR ENVIRONMENTAL CLEARANCE

Project or Activity		Category with threshold limit		Conditions if any
		A	B	
1		**Mining, extraction of natural resources and power generation (for a specified production capacity)**		
(1)	(2)	(3)	(4)	(5)
1(a)	Mining of minerals	≥ 50 ha. of mining lease area Asbestos mining irrespective of mining area	<50 ha ≥ 5 ha .of mining lease area.	General Condition shall apply Note Mineral prospecting (not involving drilling) are exempted provided the concession areas have got previous clearance for physical survey
1(b)	Offshore and onshore oil and gas exploration, development & production	All projects		Note Exploration Surveys (not involving drilling) are exempted provided the concession areas have got previous clearance for physical survey
1(c)	River Valley projects	(i) ≥ 50 MW hydroelectric power generation; (ii) ≥ 10,000 ha. of culturable command area	(i) < 50 MW ≥ 25 MW hydroelectric power generation; (ii) < 10,000 ha. of culturable command area	General Condition shall apply
1(d)	Thermal Power Plants	≥ 500 MW (coal/lignite/naphta & gas based); ≥ 50 MW (Pet coke diesel and all other fuels -)	< 500 MW (coal/lignite/naptha & gas based); <50 MW ≥ 5MW (Pet coke ,diesel and all other fuels)	General Condition shall apply

NOTARY
A. K LAL
Distt.-PATNA
Reg No - 1883
Exp.dt.-29.05.2027
GOVT OF BIHAR

(1)	(2)	(3)	(4)	(5)
1(e)	Nuclear power projects and processing of nuclear fuel	All projects	-	
2		**Primary Processing**		
2(a)	Coal washeries	≥ 1 million ton/annum throughput of coal	<1million ton/annum throughput of coal	General Condition shall apply (If located within mining area the proposal shall be appraised together with the mining proposal)
2 (b)	Mineral beneficiation	≥ 0.1million ton/annum mineral throughput	< 0.1million ton/annum mineral throughput	General Condition shall apply (Mining proposal with Mineral beneficiation shall be appraised together for grant of clearance)

NOTARY A. K LAL Distt.-PATNA Reg No -18830 Expdt.-29.05.2027 GOVT OF BIHAR

3		Materials Production		
(1)	(2)	(3)	(4)	(5)
3(a)	Metallurgical industries (ferrous & non ferrous)	a)Primary metallurgical industry All projects		
		b) Sponge iron manufacturing ≥ 200TPD	Sponge iron manufacturing <200TPD	General Condition shall apply for Sponge iron manufacturing
		c)Secondary metallurgical processing industry All toxic and heavy metal producing units ≥ 20,000 tonnes /annum	Secondary metallurgical processing industry i.)All toxic andheavymetal producing units <20,000 tonnes /annum	
		-	ii.)All other non –toxic secondary metallurgical processing industries >5000 tonnes/annum	
3(b)	Cement plants	≥ 1.0 million tonnes/annum production capacity	<1.0 million tonnes/annum production capacity. All Stand alone grinding units	General Condition shall apply

NOTARY
A. K LAL
Distt.-PATNA
Reg No -1883J
Exp.dt.-29.05.2027
GOVT OF BIHAR

4		**Materials Processing**		
(1)	**(2)**	**(3)**	**(4)**	**(5)**
4(a)	Petroleum refining industry	All projects	-	-
4(b)	Coke oven plants	≥2,50,000 tonnes/annum	<2,50,000 & ≥25,000 tonnes/annum	-
4(c)	Asbestos milling and asbestos based products	All projects	-	-
4(d)	Chlor-alkali industry	≥300 TPD production capacityor a unit located out side the notified industrial area/ estate	<300 TPD production capacity and located within a notified industrial area/ estate	Specific Condition shall apply No new Mercury Cell based plants will be permitted and existing units converting to membrane cell technology are exempted from this Notification
4(e)	Soda ash Industry	All projects	-	-
4(f)	Leather/skin/hide processing industry	New projects outside the industrial area or expansion of existing units out side the industrial area	All new or expansion of projects located within a notified industrial area/ estate	Specific condition shall apply
5		**Manufacturing/Fabrication**		
5(a)	Chemical fertilizers	All projects	-	-
5(b)	Pesticides industry and pesticide specific intermediates (excluding formulations)	All units producing technical grade pesticides	-	-

(1)	(2)	(3)	(4)	(5)
5(c)	Petro-chemical complexes (industries based on processing of petroleum fractions & natural gas and/or reforming to aromatics)	All projects -	-	-
5(d)	Manmade fibres manufacturing	Rayon	Others	General Condition shall apply
5(e)	Petrochemical based processing (processes other than cracking & reformation and not covered under the complexes)	Located out side the notified industrial area/ estate -	Located in a notified industrial area/ estate	Specific Condition shall apply
5(f)	Synthetic organic chemicals industry (dyes & dye intermediates; bulk drugs and intermediates excluding drug formulations; synthetic rubbers; basic organic chemicals; other synthetic organic chemicals and chemical intermediates)	Located out side the notified industrial area/ estate	Located in a notified industrial area/ estate	Specific Condition shall apply
5(g)	Distilleries	(i)All Molasses based distilleries (ii) All Cane juice/ non-molasses based distilleries ≥30 KLD	All Cane juice/non-molasses based distilleries – <30 KLD	General Condition shall apply
5(h)	Integrated paint industry	-	All projects	General Condition shall apply

NOTARY A. K LAL Distt.-PATNA Reg No -1883/ Exp.dt.-29.05.2027 GOVT OF BIHAR

(1)	(2)	(3)	(4)	(5)
5(i)	Pulp & paper industry excluding manufacturing of paper from waste paper and manufacture of paper from ready pulp with out bleaching	Pulp manufacturing and Pulp& Paper manufacturing industry -	Paper manufacturing industry without pulp manufacturing	General Condition shall apply
5(j)	Sugar Industry	- -	≥ 5000 tcd cane crushing capacity	General Condition shall apply
5(k)	Induction/arc furnaces/cupola furnaces 5TPH or more	- -	All projects	General Condition shall apply
6		**Service Sectors**		
6(a)	Oil & gas transportation pipe line (crude and refinery/ petrochemical products), passing through national parks /sanctuaries coral reefs /ecologically sensitive areas including LNG Terminal	All projects -		-

NOTARY A. K LAL Distt.-PATNA Reg No -1883J Exp.dt.-29.05.2027 GOVT OF BIHAR

(1)	(2)	(3)	(4)	(5)
6(b)	Isolated storage & handling of hazardous chemicals (As per threshold planning quantity indicated in column 3 of schedule 2 & 3 of MSIHC Rules 1989 amended 2000)	-	All projects	General Condition shall apply
7		**Physical Infrastructure including Environmental Services**		
7(a)	Air ports	All projects	-	-
7(b)	All ship breaking yards including ship breaking units	All projects	-	-
7(c)	Industrial estates/ parks/ complexes/ areas, export processing Zones (EPZs), Special Economic Zones (SEZs), Biotech Parks, Leather Complexes.	If at least one industry in the proposed industrial estate falls under the Category A, entire industrial area shall be treated as Category A, irrespective of the area. Industrial estates with area greater than 500 ha. and housing at least one Category B industry.	-Industrial estates housing at least one Category B industry and area <500 ha. Industrial estates of area> 500 ha. and not housing any industry belonging to Category A or B.	Special condition shall apply Note: Industrial Estate of area below 500 ha. and not housing any industry of category A or B does not require clearance.
7(d)	Common hazardous waste treatment, storage and disposal facilities (TSDFs)	All integrated facilities having incineration &landfill or incineration alone	All facilities having land fill only	General Condition shall apply

NOTARY A. K LAL Distt.-PATNA Reg No -18833 Expdt.-29.05.2027 GOVT OF BIHAR

(1)	(2)	(3)	(4)	(5)
7(e)	Ports, Harbours	≥ 5 million TPA of cargo handling capacity (excluding fishing harbours)	< 5 million TPA of cargo handling capacity and/or ports/ harbours ≥10,000 TPA of fish handling capacity	General Condition shall apply
7(f)	Highways	i) New National High ways; and ii) Expansion of National High ways greater than 30 KM, involving additional right of way greater than 20m involving land acquisition and passing through more than one State.	i) New State High ways; and ii) Expansion of National / State Highways greater than 30 km involving additional right of way greater than 20m involving land acquisition.	General Condition shall apply
7(g)	Aerial ropeways		All projects	General Condition shall apply
7(h)	Common Effluent Treatment Plants (CETPs)		All projects	General Condition shall apply
7(i)	Common Municipal Solid Waste Management Facility (CMSWMF)		All projects	General Condition shall apply

NOTARY A. K. LAL Distt.-PATNA Reg No.-1883/ Exp.dt.-29.05.2027 GOVT OF BIHAR

(1)	(2)	(3)	(4)	(5)
8		**Building /Construction projects/Area Development projects and Townships**		
8(a)	Building and Construction projects		≥20000 sq.mtrs and <1,50,000 sq.mtrs. of built-up area#	#(built up area for covered construction; in the case of facilities open to the sky, it will be the activity area)
8(b)	Townships and Area Development projects.		Covering an area ≥ 50 ha and or built up area ≥1,50,000 sq .mtrs ++	++All projects under Item 8(b) shall be appraised as Category B1

Note:-

General Condition (GC):

Any project or activity specified in Category 'B' will be treated as Category A, if located in whole or in part within 10 km from the boundary of: (i) Protected Areas notified under the Wild Life (Protection) Act, 1972, (ii) Critically Polluted areas as notified by the Central Pollution Control Board from time to time, (iii) Notified Eco-sensitive areas, (iv) inter-State boundaries and international boundaries.

Specific Condition (SC):

If any Industrial Estate/Complex / Export processing Zones /Special Economic Zones/Biotech Parks / Leather Complex with homogeneous type of industries such as Items 4(d), 4(f), 5(e), 5(f), or those Industrial estates with pre –defined set of activities (not necessarily homogeneous, obtains prior environmental clearance, individual industries including proposed industrial housing within such estates /complexes will not be required to take prior environmental clearance, so long as the Terms and Conditions for the industrial estate/complex are complied with (Such estates/complexes must have a clearly identified management with the legal responsibility of ensuring adherence to the Terms and Conditions of prior environmental clearance, who may be held responsible for violation of the same throughout the life of the complex/estate).

NOTARY A. K LAL Distt.-PATNA Reg No -1883J Exp.dt.-29.05.2027 GOVT OF BIHAR

APPENDIX I

(See paragraph – 6)

FORM 1

(I) Basic Information

Name of the Project:

Location / site alternatives under consideration:

Size of the Project: *

Expected cost of the project:

Contact Information:

Screening Category:

- *Capacity corresponding to sectoral activity (such as production capacity for manufacturing, mining lease area and production capacity for mineral production, area for mineral exploration, length for linear transport infrastructure, generation capacity for power generation etc.,)*

(II) Activity

1. **Construction, operation or decommissioning of the Project involving actions, which will cause physical changes in the locality (topography, land use, changes in water bodies, etc.)**

S.No.	Information/Checklist confirmation	Yes/No	Details thereof (with approximate quantities /rates, wherever possible) with source of information data
1.1	Permanent or temporary change in land use, land cover or topography including increase in intensity of land use (with respect to local land use plan)		
1.2	Clearance of existing land, vegetation and buildings?		
1.3	Creation of new land uses?		
1.4	Pre-construction investigations e.g. bore houses, soil testing?		
1.5	Construction works?		

NOTARY A. K LAL Distt.-PATNA Reg No -1883J Exp.dt.-29.05.2027 GOVT OF BIHAR

1.6	Demolition works?		
1.7	Temporary sites used for construction works or housing of construction workers?		
1.8	Above ground buildings, structures or earthworks including linear structures, cut and fill or excavations		
1.9	Underground works including mining or tunneling?		
1.10	Reclamation works?		
1.11	Dredging?		
1.12	Offshore structures?		
1.13	Production and manufacturing processes?		
1.14	Facilities for storage of goods or materials?		
1.15	Facilities for treatment or disposal of solid waste or liquid effluents?		
1.16	Facilities for long term housing of operational workers?		
1.17	New road, rail or sea traffic during construction or operation?		
1.18	New road, rail, air waterborne or other transport infrastructure including new or altered routes and stations, ports, airports etc?		
1.19	Closure or diversion of existing transport routes or infrastructure leading to changes in traffic movements?		
1.20	New or diverted transmission lines or pipelines?		
1.21	Impoundment, damming, culverting, realignment or other changes to the hydrology of watercourses or aquifers?		
1.22	Stream crossings?		
1.23	Abstraction or transfers of water form ground or surface waters?		
1.24	Changes in water bodies or the land surface affecting drainage or run-off?		

NOTARY A. K LAL Distt.-PATNA Reg No -1883J Exp.dt.-29.05.2027 GOVT OF BIHAR

1.25	Transport of personnel or materials for construction, operation or decommissioning?		
1.26	Long-term dismantling or decommissioning or restoration works?		
1.27	Ongoing activity during decommissioning which could have an impact on the environment?		
1.28	Influx of people to an area in either temporarily or permanently?		
1.29	Introduction of alien species?		
1.30	Loss of native species or genetic diversity?		
1.31	Any other actions?		

2. **Use of Natural resources for construction or operation of the Project (such as land, water, materials or energy, especially any resources which are non-renewable or in short supply):**

S.No.	Information/checklist confirmation	Yes/No	Details thereof (with approximate quantities /rates, wherever possible) with source of information data
2.1	Land especially undeveloped or agricultural land (ha)		
2.2	Water (expected source & competing users) unit: KLD		
2.3	Minerals (MT)		
2.4	Construction material – stone, aggregates, and / soil (expected source – MT)		
2.5	Forests and timber (source – MT)		
2.6	Energy including electricity and fuels (source, competing users) Unit: fuel (MT), energy (MW)		
2.7	Any other natural resources (use appropriate standard units)		

NOTARY A. K. LAL Distt.-PATNA Reg No -1883J Exp.dt.-29.05.2027 GOVT OF BIHAR

3. **Use, storage, transport, handling or production of substances or materials, which could be harmful to human health or the environment or raise concerns about actual or perceived risks to human health.**

S.No.	Information/Checklist confirmation	Yes/No	Details thereof (with approximate quantities/rates, wherever possible) with source of information data
3.1	Use of substances or materials, which are hazardous (as per MSIHC rules) to human health or the environment (flora, fauna, and water supplies)		
3.2	Changes in occurrence of disease or affect disease vectors (e.g. insect or water borne diseases)		
3.3	Affect the welfare of people e.g. by changing living conditions?		
3.4	Vulnerable groups of people who could be affected by the project e.g. hospital patients, children, the elderly etc.,		
3.5	Any other causes		

4. **Production of solid wastes during construction or operation or decommissioning (MT/month)**

S.No.	Information/Checklist confirmation	Yes/No	Details thereof (with approximate quantities/rates, wherever possible) with source of information data
4.1	Spoil, overburden or mine wastes		
4.2	Municipal waste (domestic and or commercial wastes)		
4.3	Hazardous wastes (as per Hazardous Waste Management Rules)		

NOTARY A. K LAL Distt.-PATNA Reg No -1883J Exp.dt.-29.05.2027 GOVT OF BIHAR

4.4	Other industrial process wastes		
4.5	Surplus product		
4.6	Sewage sludge or other sludge from effluent treatment		
4.7	Construction or demolition wastes		
4.8	Redundant machinery or equipment		
4.9	Contaminated soils or other materials		
4.10	Agricultural wastes		
4.11	Other solid wastes		

5. Release of pollutants or any hazardous, toxic or noxious substances to air (Kg/hr)

S.No.	Information/Checklist confirmation	Yes/No	Details thereof (with approximate quantities/rates, wherever possible) with source of information data
5.1	Emissions from combustion of fossil fuels from stationary or mobile sources		
5.2	Emissions from production processes		
5.3	Emissions from materials handling including storage or transport		
5.4	Emissions from construction activities including plant and equipment		
5.5	Dust or odours from handling of materials including construction materials, sewage and waste		

NOTARY A. K LAL Distt.-PATNA Reg No -1883J Exp.dt.-29.05.2027 GOVT OF BIHAR

5.6	Emissions from incineration of waste		
5.7	Emissions from burning of waste in open air (e.g. slash materials, construction debris)		
5.8	Emissions from any other sources		

6. Generation of Noise and Vibration, and Emissions of Light and Heat:

S.No.	Information/Checklist confirmation	Yes/No	Details thereof (with approximate quantities/rates, wherever possible) with source of information data with source of information data
6.1	From operation of equipment e.g. engines, ventilation plant, crushers		
6.2	From industrial or similar processes		
6.3	From construction or demolition		
6.4	From blasting or piling		
6.5	From construction or operational traffic		
6.6	From lighting or cooling systems		
6.7	From any other sources		

NOTARY A. K LAL Distt.-PATNA Reg No -1883J Exp.dt.-29.05.2027 GOVT OF BIHAR

7. **Risks of contamination of land or water from releases of pollutants into the ground or into sewers, surface waters, groundwater, coastal waters or the sea:**

S.No.	Information/Checklist confirmation	Yes/No	Details thereof (with approximate quantities/rates, wherever possible) with source of information data
7.1	From handling, storage, use or spillage of hazardous materials		
7.2	From discharge of sewage or other effluents to water or the land (expected mode and place of discharge)		
7.3	By deposition of pollutants emitted to air into the land or into water		
7.4	From any other sources		
7.5	Is there a risk of long term build up of pollutants in the environment from these sources?		

8. **Risk of accidents during construction or operation of the Project, which could affect human health or the environment**

S.No.	Information/Checklist confirmation	Yes/No	Details thereof (with approximate quantities/rates, wherever possible) with source of information data
8.1	From explosions, spillages, fires etc from storage, handling, use or production of hazardous substances		
8.2	From any other causes		
8.3	Could the project be affected by natural disasters causing environmental damage (e.g. floods, earthquakes, landslides, cloudburst etc)?		

NOTARY A. K LAL Distt.-PATNA Reg No -1883J Exp.dt.-29.05.2027 GOVT OF BIHAR

9. **Factors which should be considered (such as consequential development) which could lead to environmental effects or the potential for cumulative impacts with other existing or planned activities in the locality**

S. No.	Information/Checklist confirmation	Yes/No	Details thereof (with approximate quantities/rates, wherever possible) with source of information data
9.1	Lead to development of supporting. lities, ancillary development or development stimulated by the project which could have impact on the environment e.g.: • Supporting infrastructure (roads, power supply, waste or waste water treatment, etc.) • housing development • extractive industries • supply industries • other		
9.2	Lead to after-use of the site, which could havean impact on the environment		
9.3	Set a precedent for later developments		
9.4	Have cumulative effects due to proximity to other existing or planned projects with similar effects		

(III) Environmental Sensitivity

S.No.	Areas	Name/ Identity	Aerial distance (within 15 km.) Proposed project location boundary
1	Areas protected under international conventions, national or local legislation for their ecological, landscape, cultural or other related value		

NOTARY A. K. LAL Distt.-PATNA Reg No -18833 Exp.dt.-29.05.2027 GOVT OF BIHAR

2	Areas which are important or sensitive for ecological reasons - Wetlands, watercourses or other water bodies, coastal zone, biospheres, mountains, forests		
3	Areas used by protected, important or sensitive species of flora or fauna for breeding, nesting, foraging, resting, over wintering, migration		
4	Inland, coastal, marine or underground waters		
5	State, National boundaries		
6	Routes or facilities used by the public for access to recreation or other tourist, pilgrim areas		
7	Defence installations		
8	Densely populated or built-up area		
9	Areas occupied by sensitive man-made land uses *(hospitals, schools, places of worship, community facilities)*		
10	Areas containing important, high quality or scarce resources *(ground water resources, surface resources, forestry, agriculture, fisheries, tourism, minerals)*		
11	Areas already subjected to pollution or environmental damage. *(those where existing legal environmental standards are exceeded)*		
12	Areas susceptible to natural hazard which could cause the project to present environmental problems *(earthquakes, subsidence, landslides, erosion, flooding or extreme or adverse climatic conditions)*		

(IV). Proposed Terms of Reference for EIA studies

NOTARY A. K LAL Distt.-PATNA Reg No -1883J Exp.dt.-29.05.2027 GOVT OF BIHAR

APPENDIX II

(See paragraph 6)

FORM-1 A (only for construction projects listed under item 8 of the Schedule)

CHECK LIST OF ENVIRONMENTAL IMPACTS

(Project proponents are required to provide full information and wherever necessary attach explanatory notes with the Form and submit along with proposed environmental management plan & monitoring programme)

1. LAND ENVIRONMENT

(Attach panoramic view of the project site and the vicinity)

1.1. Will the existing landuse get significantly altered from the project that is not consistent with the surroundings? (Proposed landuse must conform to the approved Master Plan / Development Plan of the area. Change of landuse if any and the statutory approval from the competent authority be submitted). Attach Maps of (i) site location, (ii) surrounding features of the proposed site (within 500 meters) and (iii)the site (indicating levels & contours) to appropriate scales. If not available attach only conceptual plans.

1.2. List out all the major project requirements in terms of the land area, built up area, water consumption, power requirement, connectivity, community facilities, parking needs etc.

1.3. What are the likely impacts of the proposed activity on the existing facilities adjacent to the proposed site? (Such as open spaces, community facilities, details of the existing landuse, disturbance to the local ecology).

1.4. Will there be any significant land disturbance resulting in erosion, subsidence & instability? (Details of soil type, slope analysis, vulnerability to subsidence, seismicity etc may be given).

1.5. Will the proposal involve alteration of natural drainage systems? (Give details on a contour map showing the natural drainage near the proposed project site)

1.6. What are the quantities of earthwork involved in the construction activity-cutting, filling, reclamation etc. (Give details of the quantities of earthwork involved, transport of fill materials from outside the site etc.)

1.7. Give details regarding water supply, waste handling etc during the construction period.

1.8. Will the low lying areas & wetlands get altered? (Provide details of how low lying and wetlands are getting modified from the proposed activity)

1.9. Whether construction debris & waste during construction cause health hazard? (Give quantities of various types of wastes generated during construction including the construction labour and the means of disposal)

2. WATER ENVIRONMENT

2.1. Give the total quantity of water requirement for the proposed project with the breakup of requirements for various uses. How will the water requirement met? State the sources & quantities and furnish a water balance statement.

NOTARY A. K LAL Distt.-PATNA Reg No -18831 Exp.dt.-29.05.2027 GOVT OF BIHAR

2.2. What is the capacity (dependable flow or yield) of the proposed source of water?

2.3. What is the quality of water required, in case, the supply is not from a municipal source? (Provide physical, chemical, biological characteristics with class of water quality)

2.4. How much of the water requirement can be met from the recycling of treated wastewater? (Give the details of quantities, sources and usage)

2.5. Will there be diversion of water from other users? (Please assess the impacts of the project on other existing uses and quantities of consumption)

2.6. What is the incremental pollution load from wastewater generated from the proposed activity? (Give details of the quantities and composition of wastewater generated from the proposed activity)

2.7. Give details of the water requirements met from water harvesting? Furnish details of the facilities created.

2.8. What would be the impact of the land use changes occurring due to the proposed project on the runoff characteristics (quantitative as well as qualitative) of the area in the post construction phase on a long term basis? Would it aggravate the problems of flooding or water logging in any way?

2.9. What are the impacts of the proposal on the ground water? (Will there be tapping of ground water; give the details of ground water table, recharging capacity, and approvals obtained from competent authority, if any)

2.10. What precautions/measures are taken to prevent the run-off from construction activities polluting land & aquifers? (Give details of quantities and the measures taken to avoid the adverse impacts)

2.11. How is the storm water from within the site managed?(State the provisions made to avoid flooding of the area, details of the drainage facilities provided along with a site layout indication contour levels)

2.12. Will the deployment of construction labourers particularly in the peak period lead to unsanitary conditions around the project site (Justify with proper explanation)

2.13. What on-site facilities are provided for the collection, treatment & safe disposal of sewage? (Give details of the quantities of wastewater generation, treatment capacities with technology & facilities for recycling and disposal)

2.14. Give details of dual plumbing system if treated waste used is used for flushing of toilets or any other use.

3. VEGETATION

3.1. Is there any threat of the project to the biodiversity? (Give a description of the local ecosystem with it's unique features, if any)

NOTARY A. K. LAL Distt. PATNA Reg No. 1883/J Exp.dt. 09.05.2027 GOVT OF BIHAR

3.2. Will the construction involve extensive clearing or modification of vegetation? (Provide a detailed account of the trees & vegetation affected by the project)

3.3. What are the measures proposed to be taken to minimize the likely impacts on important site features (Give details of proposal for tree plantation, landscaping, creation of water bodies etc along with a layout plan to an appropriate scale)

4. FAUNA

4.1. Is there likely to be any displacement of fauna- both terrestrial and aquatic or creation of barriers for their movement? Provide the details.

4.2. Any direct or indirect impacts on the avifauna of the area? Provide details.

4.3. Prescribe measures such as corridors, fish ladders etc to mitigate adverse impacts on fauna

5. AIR ENVIRONMENT

5.1. Will the project increase atmospheric concentration of gases & result in heat islands? (Give details of background air quality levels with predicted values based on dispersion models taking into account the increased traffic generation as a result of the proposed constructions)

5.2. What are the impacts on generation of dust, smoke, odorous fumes or other hazardous gases? Give details in relation to all the meteorological parameters.

5.3. Will the proposal create shortage of parking space for vehicles? Furnish details of the present level of transport infrastructure and measures proposed for improvement including the traffic management at the entry & exit to the project site.

5.4. Provide details of the movement patterns with internal roads, bicycle tracks, pedestrian pathways, footpaths etc., with areas under each category.

5.5. Will there be significant increase in traffic noise & vibrations? Give details of the sources and the measures proposed for mitigation of the above.

5.6. What will be the impact of DG sets & other equipment on noise levels & vibration in & ambient air quality around the project site? Provide details.

6. AESTHETICS

6.1. Will the proposed constructions in any way result in the obstruction of a view, scenic amenity or landscapes? Are these considerations taken into account by the proponents?

6.2. Will there be any adverse impacts from new constructions on the existing structures? What are the considerations taken into account?

6.3. Whether there are any local considerations of urban form & urban design influencing the design criteria? They may be explicitly spelt out.

6.4. Are there any anthropological or archaeological sites or artefacts nearby? State if any other significant features in the vicinity of the proposed site have been considered.

7. SOCIO-ECONOMIC ASPECTS

7.1. Will the proposal result in any changes to the demographic structure of local population? Provide the details.

NOTARY A. K LAL Distt.-PATNA Reg No -18831 Exp.dt.-29.05.2027 GOVT OF BIHAR

7.2. Give details of the existing social infrastructure around the proposed project.

7.3. Will the project cause adverse effects on local communities, disturbance to sacred sites or other cultural values? What are the safeguards proposed?

8. BUILDING MATERIALS

8.1. May involve the use of building materials with high-embodied energy. Are the construction materials produced with energy efficient processes? (Give details of energy conservation measures in the selection of building materials and their energy efficiency)

8.2. Transport and handling of materials during construction may result in pollution, noise & public nuisance. What measures are taken to minimize the impacts?

8.3. Are recycled materials used in roads and structures? State the extent of savings achieved?

8.4. Give details of the methods of collection, segregation & disposal of the garbage generated during the operation phases of the project.

9. ENERGY CONSERVATION

9.1. Give details of the power requirements, source of supply, backup source etc. What is the energy consumption assumed per square foot of built-up area? How have you tried to minimize energy consumption?

9.2. What type of, and capacity of, power back-up to you plan to provide?

9.3. What are the characteristics of the glass you plan to use? Provide specifications of its characteristics related to both short wave and long wave radiation?

9.4. What passive solar architectural features are being used in the building? Illustrate the applications made in the proposed project.

9.5. Does the layout of streets & buildings maximise the potential for solar energy devices? Have you considered the use of street lighting, emergency lighting and solar hot water systems for use in the building complex? Substantiate with details.

9.6. Is shading effectively used to reduce cooling/heating loads? What principles have been used to maximize the shading of Walls on the East and the West and the Roof? How much energy saving has been effected?

9.7. Do the structures use energy-efficient space conditioning, lighting and mechanical systems? Provide technical details. Provide details of the transformers and motor efficiencies, lighting intensity and air-conditioning load assumptions? Are you using CFC and HCFC free chillers? Provide specifications.

9.8. What are the likely effects of the building activity in altering the micro-climates? Provide a self-assessment on the likely impacts of the proposed construction on creation of heat island & inversion effects?

NOTARY A. K. LAL Distt.-PATNA Reg No -1883J Exp.dt.-29.05.2027 GOVT OF BIHAR

9.9. What are the thermal characteristics of the building envelope? (a) roof; (b) external walls; and (c) fenestration? Give details of the material used and the U-values or the R values of the individual components.

9.10. What precautions & safety measures are proposed against fire hazards? Furnish details of emergency plans.

9.11. If you are using glass as wall material provides details and specifications including emissivity and thermal characteristics.

9.12. What is the rate of air infiltration into the building? Provide details of how you are mitigating the effects of infiltration.

9.13. To what extent the non-conventional energy technologies are utilised in the overall energy consumption? Provide details of the renewable energy technologies used.

10. Environment Management Plan

The Environment Management Plan would consist of all mitigation measures for each item wise activity to be undertaken during the construction, operation and the entire life cycle to minimize adverse environmental impacts as a result of the activities of the project. It would also delineate the environmental monitoring plan for compliance of various environmental regulations. It will state the steps to be taken in case of emergency such as accidents at the site including fire.

NOTARY
A. K LAL
Distt.-PATNA
Reg No -1883J
Exp.dt.-29.05.2027
GOVT OF BIHAR

APPENDIX III

(See paragraph 7

GENERIC STRUCTURE OF ENVIRONMENTAL IMPACT ASSESSENT DOCUMENT

S.NO	EIA STRUCTURE	CONTENTS
1.	Introduction	• Purpose of the report • Identification of project & project proponent • Brief description of nature, size, location of the project and its importance to the country, region • Scope of the study – details of regulatory scoping carried out (As per Terms of Reference)
2.	Project Description	• Condensed description of those aspects of the project (based on project feasibility study), likely to cause environmental effects. Details should be provided to give clear picture of the following: • Type of project • Need for the project • Location (maps showing general location, specific location, project boundary & project site layout) • Size or magnitude of operation (incl. Associated activities required by or for the project • Proposed schedule for approval and implementation • Technology and process description • Project description. Including drawings showing project layout, components of project etc. Schematic representations of the feasibility drawings which give information important for EIA purpose • Description of mitigation measures incorporated into the project to meet environmental standards, environmental operating conditions, or other EIA requirements (as required by the scope) • Assessment of New & untested technology for the risk of technological failure

NOTARY A. K LAL Distt.-PATNA Reg. No -1883J Exp.dt.-29.05.2027 GOVT OF BIHAR

3.	Description of the Environment	• Study area, period, components & methodology • Establishment of baseline for valued environmental components, as identified in the scope • Base maps of all environmental components
4.	Anticipated Environmental Impacts & Mitigation Measures	• Details of Investigated Environmental impacts due to project location, possible accidents, project design, project construction, regular operations, final decommissioning or rehabilitation of a completed project • Measures for minimizing and / or offsetting adverse impacts identified • Irreversible and Irretrievable commitments of environmental components • Assessment of significance of impacts (Criteria for determining significance, Assigning significance) • Mitigation measures
5.	Analysis of Alternatives (Technology & Site)	• In case, the scoping exercise results in need for alternatives: • Description of each alternative • Summary of adverse impacts of each alternative • Mitigation measures proposed for each alternative and • Selection of alternative
6.	Environmental Monitoring Program	• Technical aspects of monitoring the effectiveness of mitigation measures (incl. Measurement methodologies, frequency, location, data analysis, reporting schedules, emergency procedures, detailed budget & procurement schedules)
7.	Additional Studies	• Public Consultation • Risk assessment • Social Impact Assessment. R&R Action Plans
8.	Project Benefits	• Improvements in the physical infrastructure • Improvements in the social infrastructure • Employment potential –skilled; semi-skilled and unskilled • Other tangible benefits

NOTARY A. K. LAL Distt.-PATNA Reg. No.-1883/ Exp.dt.-29.05.2027 GOVT OF BIHAR

9.	Environmental Cost Benefit Analysis	If recommended at the Scoping stage
10.	EMP	• Description of the administrative aspects of ensuring that mitigative measures are implemented and their effectiveness monitored, after approval of the EIA
11	Summary & Conclusion (This will constitute the summary of the EIA Report)	• Overall justification for implementation of the project • Explanation of how, adverse effects have been mitigated
12.	Disclosure of Consultants engaged	• The names of the Consultants engaged with their brief resume and nature of Consultancy rendered

NOTARY
A. K LAL
Distt.-PATNA
Reg No.-18831
Exp.dt.-29.05.2027
GOVT OF BIHAR

APPENDIX III A
(See paragraph 7)

CONTENTS OF SUMMARY ENVIRONMENTAL IMPACT ASSESSMENT

The Summary EIA shall be a summary of the full EIA Report condensed to ten A-4 size pages at the maximum. It should necessarily cover in brief the following Chapters of the full EIA Report: -

1. Project Description
2. Description of the Environment
3. Anticipated Environmental impacts and mitigation measures
4. Environmental Monitoring Programme
5. Additional Studies
6. Project Benefits
7. Environment Management Plan

APPENDIX IV

(See paragraph 7)

PROCEDURE FOR CONDUCT OF PUBLIC HEARING

1.0 The Public Hearing shall be arranged in a systematic, time bound and transparent manner ensuring widest possible public participation at the project site(s) or in its close proximity District -wise, by the concerned State Pollution Control Board (SPCB) or the Union Territory Pollution Control Committee (UTPCC).

2. 0 **The Process:**

2.1 The Applicant shall make a request through a simple letter to the Member Secretary of the SPCB or Union Territory Pollution Control Committee, in whose jurisdiction the project is located, to arrange the public hearing within the prescribed statutory period. In case the project site is extending beyond a State or Union Territory, the public hearing is mandated in each State or Union Territory in which the project is sited and the Applicant shall make separate requests to each concerned SPCB or UTPCC for holding the public hearing as per this procedure.

2.2 The Applicant shall enclose with the letter of request, at least 10 hard copies and an equivalent number of soft (electronic) copies of the draft EIA Report with the generic structure given in Appendix III including the Summary Environment Impact Assessment report in English and in the local language, prepared strictly in accordance with the Terms of Reference communicated after Scoping (Stage-2). Simultaneously the applicant shall arrange to forward copies, one hard and one soft, of the above draft EIA Report along with the Summary EIA report to the Ministry of Environment and Forests and to the following authorities or offices, within whose jurisdiction the project will be located:

(a) District Magistrate/s
(b) Zila Parishad or Municipal Corporation
(c) District Industries Office
(d) Concerned Regional Office of the Ministry of Environment and Forests

2.3 On receiving the draft Environmental Impact Assessment report, the above-mentioned authorities except the MoEF, shall arrange to widely publicize it within their respective jurisdictions requesting the interested persons to send their comments to the concerned regulatory authorities. They shall also make available the draft EIA Report for inspection electronically or otherwise to the public during normal office hours till the Public Hearing is over. The Ministry of Environment and Forests shall promptly display the Summary of the draft Environmental Impact Assessment report on its website, and also make the full draft EIA available for reference at a notified place during normal office hours in the Ministry at Delhi.

2.4 The SPCB or UTPCC concerned shall also make similar arrangements for giving publicity about the project within the State/Union Territory and make available the Summary of the draft Environmental Impact Assessment report (Appendix III A) for inspection in select offices or public libraries or panchayats etc. They shall also additionally

NOTARY A. K. LAL Distt.:PATNA Reg No-18833 Exp.dt.-29.05.2027 GOVT OF BIHAR

make available a copy of the draft Environmental Impact Assessment report to the above five authorities/offices viz, Ministry of Environment and Forests, District Magistrate etc.

3.0 Notice of Public Hearing:

3.1 The Member-Secretary of the concerned SPCE or UTPCC shall finalize the date, time and exact venue for the conduct of public hearing within 7(seven) days of the date of receipt of the draft Environmental Impact Assessment report from the project proponent, and advertise the same in one major National Daily and one Regional vernacular Daily. A minimum notice period of 30(thirty) days shall be provided to the public for furnishing their responses;

3.2 The advertisement shall also inform the public about the places or offices where the public could access the draft Environmental Impact Assessment report and the Summary Environmental Impact Assessment report before the public hearing.

3.3 No postponement of the date, time, venue of the public hearing shall be undertaken, unless some untoward emergency situation occurs and only on the recommendation of the concerned District Magistrate the postponement shall be notified to the public through the same National and Regional vernacular dailies and also prominently displayed at all the identified offices by the concerned SPCB or Union Territory Pollution Control Committee;

3.4 In the above exceptional circumstances fresh date, time and venue for the public consultation shall be decided by the Member –Secretary of the concerned SPCB or UTPCC only in consultation with the District Magistrate and notified afresh as per procedure under 3.1 above.

4.0 The Panel

4.1 The District Magistrate or his or her representative not below the rank of an Additional District Magistrate assisted by a representative of SPCB or UTPCC, shall supervise and preside over the entire public hearing process.

5.0 Videography

5.1 The SPCB or UTPCC shall arrange to video film the entire proceedings. A copy of the videotape or a CD shall be enclosed with the public hearing proceedings while forwarding it to the Regulatory Authority concerned.

6.0 Proceedings

6.1 The attendance of all those who are present at the venue shall be noted and annexed with the final proceedings.

6.2 There shall be no quorum required for attendance for starting the proceedings.

6.3 A representative of the applicant shall initiate the proceedings with a presentation on the project and the Summary EIA report.

6.4 Every person present at the venue shall be granted the opportunity to seek information or clarifications on the project from the Applicant. The summary of the public

NOTARY A. K. LAL Distt.-PATNA Reg No -1883J Exp.dt.-29.05.2027 GOVT OF BIHAR

hearing proceedings accurately reflecting all the views and concerns expressed shall be recorded by the representative of the SPCB or UTPCC and read over to the audience at the end of the proceedings explaining the contents in the vernacular language and the agreed minutes shall be signed by the District Magistrate or his or her representative on the same day and forwarded to the SPCB/UTPCC concerned.

6.5 A Statement of the issues raised by the public and the comments of the Applicant shall also be prepared in the local language and in English and annexed to the proceedings.

6.6 The proceedings of the public hearing shall be conspicuously displayed at the office of the Panchyats within whose jurisdiction the project is located, office of the concerned Zila Parishad, District Magistrate ,and the SPCB or UTPCC . The SPCB or UTPCC shall also display the proceedings on its website for general information. Comments, if any, on the proceedings which may be sent directly to the concerned regulatory authorities and the Applicant concerned.

7.0 Time period for completion of public hearing

7.1 The public hearing shall be completed within a period of 45 (forty five) days from date of receipt of the request letter from the Applicant. Therefore the SPCB or UTPCC concerned shall sent the public hearing proceedings to the concerned regulatory authority within 8(eight) days of the completion of the public hearing .The applicant may also directly forward a copy of the approved public hearing proceedings to the regulatory authority concerned along with the final Environmental Impact Assessment report or supplementary report to the draft EIA report prepared after the public hearing and public consultations.

7.2 If the SPCB or UTPCC fails to hold the public hearing within the stipulated 45(forty five) days, the Central Government in Ministry of Environment and Forests for Category 'A' project or activity and the State Government or Union Territory Administration for Category 'B' project or activity at the request of the SEIAA, shall engage any other agency or authority to complete the process, as per procedure laid down in this notification.

NOTARY A. K LAL Distt.-PATNA Reg No -1883J Exp.dt.-29.05.2027 GOVT OF BIHAR

APPENDIX –V
(See paragraph 7)

PROCEDURE PRESCRIBED FOR APPRAISAL

1. The applicant shall apply to the concerned regulatory authority through a simple communication enclosing the following documents where public consultations are mandatory: -

- Final Environment Impact Assessment Report [20(twenty) hard copies and 1 (one) soft copy)]
- A copy of the video tape or CD of the public hearing proceedings
- A copy of final layout plan (20 copies)
- A copy of the project feasibility report (1 copy)

2. The Final EIA Report and the other relevant documents submitted by the applicant shall be scrutinized in office within 30 days from the date of its receipt by the concerned Regulatory Authority strictly with reference to the TOR and the inadequacies noted shall be communicated electronically or otherwise in a single set to the Members of the EAC /SEAC enclosing a copy each of the Final EIA Report including the public hearing proceedings and other public responses received along with a copy of Form -1or Form 1A and scheduled date of the EAC /SEAC meeting for considering the proposal .

3. Where a public consultation is not mandatory and therefore a formal EIA study is not required, the appraisal shall be made on the basis of the prescribed application Form 1 and a pre-feasibility report in the case of all projects and activities other than Item 8 of the Schedule .In the case of Item 8 of the Schedule, considering its unique project cycle , the EAC or SEAC concerned shall appraise all Category B projects or activities on the basis of Form 1, Form 1A and the conceptual plan and stipulate the conditions for environmental clearance . As and when the applicant submits the approved scheme /building plans complying with the stipulated environmental clearance conditions with all other necessary statutory approvals, the EAC /SEAC shall recommend the grant of environmental clearance to the competent authority.

4. Every application shall be placed before the EAC /SEAC and its appraisal completed within 60 days of its receipt with requisite documents / details in the prescribed manner.

5. The applicant shall be informed at least 15 (fifteen) days prior to the scheduled date of the EAC /SEAC meeting for considering the project proposal.

6. The minutes of the EAC /SEAC meeting shall be finalised within 5 working days of the meeting and displayed on the website of the concerned regulatory authority. In case the project or activity is recommended for grant of EC, then the minutes shall clearly list out the specific environmental safeguards and conditions. In case the recommendations are for rejection, the reasons for the same shall also be explicitly stated.

NOTARY A. K LAL Distt.-PATNA Reg No -1883J Exp.dt.-29.05.2027 GOVT OF BIHAR

~~50~~

APPENDIX VI

(See paragraph 5)

COMPOSITION OF THE SECTOR/ PROJECT SPECIFIC EXPERT APPRAISAL COMMITTEE (EAC) FOR CATEGORY A PROJECTS AND THE STATE/UT LEVEL EXPERT APPRAISAL COMMITTEES (SEACs) FOR CATEGORY B PROJECTS TO BE CONSTITUTED BY THE CENTRAL GOVERNMENT`

1. The Expert Appraisal Committees (EAC(s) and the State/UT Level Expert Appraisal Committees (SEACs) shall consist of only professionals and experts fulfilling the following eligibility criteria:

Professional: The person should have at least (i) 5 years of formal University training in the concerned discipline leading to a MA/MSc Degree, or (ii) in case of Engineering /Technology/Architecture disciplines, 4 years formal training in a professional training course together with prescribed practical training in the field leading to a B.Tech/B.E./B.Arch. Degree, or (iii) Other professional degree (e.g. Law) involving a total of 5 years of formal University training and prescribed practical training, or (iv) Prescribed apprenticeship/article ship and pass examinations conducted by the concerned professional association (e.g. Chartered Accountancy),or (v) a University degree , followed by 2 years of formal training in a University or Service Academy (e.g. MBA/IAS/IFS). In selecting the individual professionals, experience gained by them in their respective fields will be taken note of.

Expert: A professional fulfilling the above eligibility criteria with at least 15 years of relevant experience in the field, or with an advanced degree (e.g. Ph.D.) in a concerned field and at least 10 years of relevant experience.

Age: Below 70 years. However, in the event of the non-availability of /paucity of experts in a given field, the maximum age of a member of the Expert Appraisal Committee may be allowed up to 75 years

2. The Members of the EAC shall be Experts with the requisite expertise and experience in the following fields /disciplines. In the event that persons fulfilling the criteria of "Experts" are not available, Professionals in the same field with sufficient experience may be considered:

- **Environment Quality Experts**: Experts in measurement/monitoring, analysis and interpretation of data in relation to environmental quality

- **Sectoral Experts in Project Management**: Experts in Project Management or Management of Process/Operations/Facilities in the relevant sectors.

- **Environmental Impact Assessment Process Experts**: Experts in conducting and carrying out Environmental Impact Assessments (EIAs) and preparation of Environmental Management Plans (EMPs) and other Management plans and who have wide expertise and knowledge of predictive techniques and tools used in the EIA process

- **Risk Assessment Experts**

- **Life Science Experts in floral and faunal management**

- **Forestry and Wildlife Experts**

NOTARY A. K. LAL Distt.-PATNA Reg No-1883J Exp.dt.-29.05.2027 GOVT OF BIHAR

- **Environmental Economics Expert with experience in project appraisal**

3. The Membership of the EAC shall not exceed 15 (fifteen) regular Members. However the Chairperson may co-opt an expert as a Member in a relevant field for a particular meeting of the Committee.

4. The Chairperson shall be an outstanding and experienced environmental policy expert or expert in management or public administration with wide experience in the relevant development sector.

5. The Chairperson shall nominate one of the Members as the Vice Chairperson who shall preside over the EAC in the absence of the Chairman /Chairperson.

6. A representative of the Ministry of Environment and Forests shall assist the Committee as its Secretary.

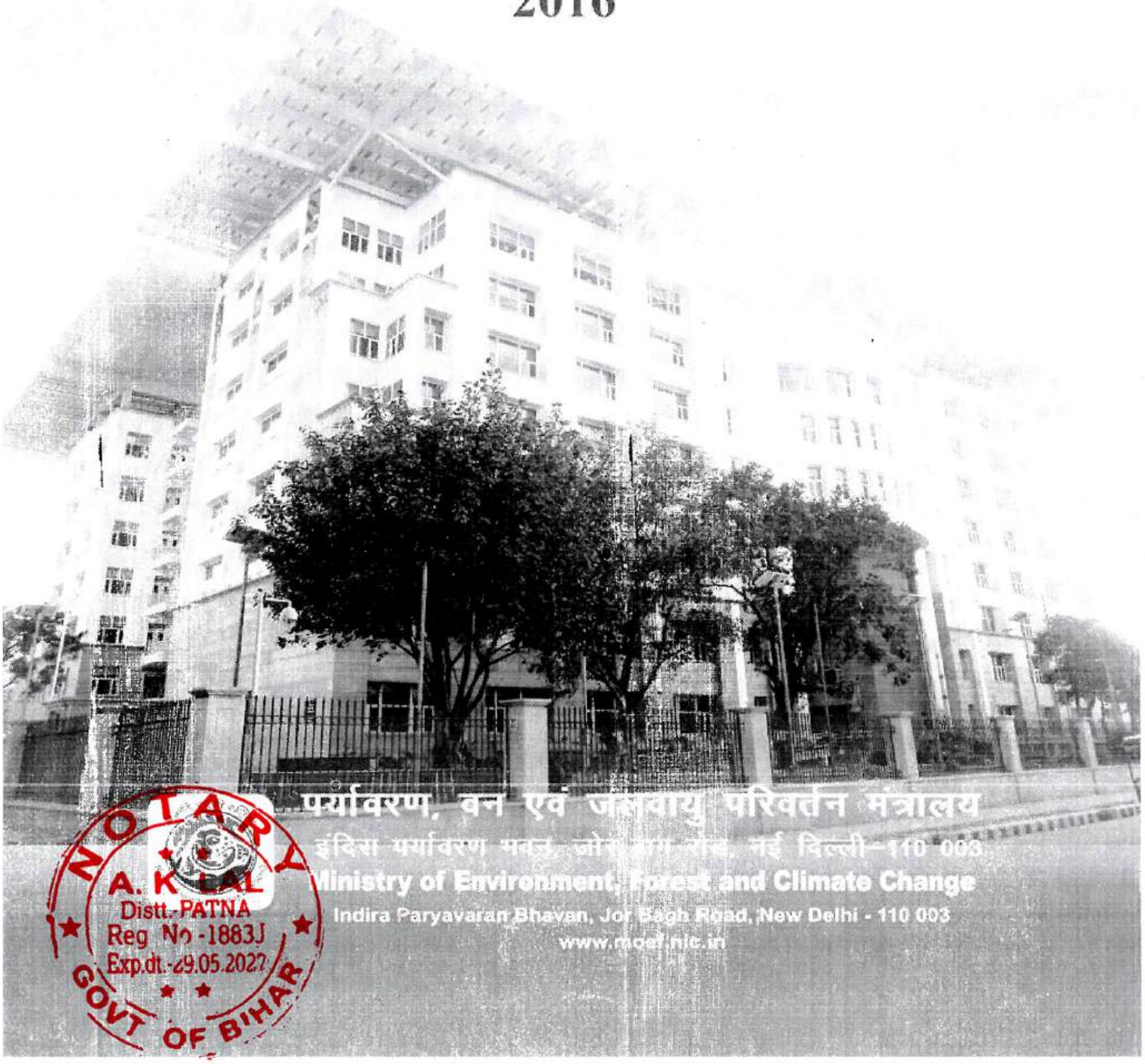
7. The maximum tenure of a Member, including Chairperson, shall be for 2 (two) terms of 3 (three) years each.

8. The Chairman / Members may not be removed prior to expiry of the tenure without cause and proper enquiry.

NOTARY
A. K LAL
Distt.-PATNA
Reg No -1883J
Exp.dt.-29.05.2027
GOVT OF BIHAR

ANNEXURE - R/2

SUSTAINABLE SAND MINING MANAGEMENT GUIDELINES 2016



पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय
इंदिरा पर्यावरण भवन, जोर बाग रोड, नई दिल्ली-110 003
Ministry of Environment, Forest and Climate Change
Indira Paryavaran Bhavan, Jor Bagh Road, New Delhi - 110 003
www.moef.nic.in

NOTARY
A. K. LAL
Distt. PATNA
Reg No -1883J
Exp.dt.-29.05.2027
GOVT OF BIHAR

Acknowledgment

The Sustainable Sand Mining Management Guidelines 2016, has been prepared after extensive consultation with the States and stakeholders over a period of last one year. The Guideline assimilates the knowledge and experience of stakeholder. The main objective of the Guidelines is to ensure sustainable sand mining and environment friendly management practices in order to restore and maintain the ecology of river and other sand sources. The team of the officers of Ministry of Environment, Forest and Climate Change who have worked for preparing these Guidelines comprised of following:

1. Shri Manoj Kumar Singh, Joint Secretary
2. Dr. U. Sridharan, Scientist 'F'
3. Dr. R.B. Lal, Scientist 'D'
4. Dr. Sonu Singh, Scientist 'D'

NOTARY
A. K LAL
Distt.-PATNA
Reg. No -1883J
Exp.dt.-29.05.2027
GOVT OF BIHAR

SUSTAINABLE SAND MINING MANAGEMENT GUIDELINES

TABLE OF CONTENTS

NOTARY A. K LAL Distt.-PATNA Reg No -1883J Exp.dt.-29.05.2027 GOVT OF BIHAR

APPENDIX

NOTARY
A. K LAL
Distt.-PATNA
Reg No -1883J
Exp.dt.-29.05.2027
GOVT OF BIHAR

प्रकाश जावडेकर
Prakash Javadekar

राज्य मंत्री (स्वतंत्र प्रभार)
MINISTER OF STATE (INDEPENDENT CHARGE)
पर्यावरण, वन एवं जलवायु परिवर्तन
ENVIRONMENT, FOREST & CLIMATE CHANGE
भारत सरकार / GOVERNMENT OF INDIA

FOREWORD

Environmental Protection and Sustainable Development have been the cornerstones of the policies and procedures governing the industrial and other developmental activities in India. The Ministry of Environment, Forest and Climate Change has taken several policy initiatives and enacted environmental and pollution control legislations to prevent indiscriminate exploitation of natural resources and to promote integration of environmental concerns in developmental projects. One such initiative is the Notification on Environmental Impact Assessment (EIA) of developmental projects issued on 14th September, 2006 under the provisions of Environment (Protection) Act, 1986 making EIA mandatory for certain categories of developmental projects.

Another land mark decision has been taken with the new notifications dated 15.01.2016 and 20.01.2016 on mining of minor minerals and constitution of District Level Environment Impact Assessment Authority and District Level Environment Appraisal Committee. This will ensure environmentally sustainable mining especially for sand and gravel under close supervision of district authorities. Use of information technology and information technology enabled services for scientific monitoring of mining and transportation of mined out material is another important feature of above notification.

Sand and gravel are one of the most important construction materials. Ensuring their availability is vital for the development of the infrastructure in the country. There are different sources of sand and gravel, the most important among them is the river. As the requirement of these construction materials is on rise, they also are very vital for the health, physical character of the river and the different important functions of the river. The extraction of sand and gravel from the river bodies has to be regulated and done with adoption of required environmental safeguards.

In view of evolving scenario in industry and development sector, My Ministry has prepared a "Sustainable Sand Mining Management Guidelines". The Guidelines *inter-alia* focus on preparation of District Survey Report; Management Plan; Marine Sand Mining and Impact on Marine Biodiversity; Issues and Management of Mining in Cluster; Management of Sand Deposited after Flood on Agricultural Field of Farmers; Mining of Sand from Agricultural Field; Monitoring System for Sustainable Sand Mining using Information Technology System; Creation of District Level Environment Impact Assessment Authority (DEIAA) and District Level Expert Appraisal Committee (DEAC) for granting Environment Clearance for Mining of Minor Minerals; Exemption of certain cases for requirement of Environment Clearance and Standard Environmental Conditions for Sustainable Sand Mining.

The Guidelines will help the Departments of Mines and Geology, State Pollution Control Boards/Committees, Industries, Regulators, Authorities and various Stakeholders to ensure environmentally sustainable mining in the Country.

(Prakash Javadekar)

NOTARY
A. K. LAL
Distt.-PATNA
Reg No -1883
Exp.dt.-29.05.2027
GOVT OF BIHAR

Paryavaran Bhawan, Jor Bagh Road, New Delhi-110 003
Tel.: 011-24695136, 24695132, Fax : 011-24695329
www.youtube.com/prakashjavadekar www.facebook.com/prakashjavadekar
www.twitter.com/prakashjavadekar e-mail :mefcc@gov.in
website : www.prakashjavadekar.com

NOTARY
A. K LAL
Distt.-PATNA
Reg No -1883J
Exp.dt.-29.05.2027
GOVT OF BIHAR

अशोक लवासा
ASHOK LAVASA, IAS

सचिव
भारत सरकार
पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय
Secretary
Government of India
Ministry of Environment, Forest and Climate Change

PREFACE

Sand is naturally occurring granular material composed of finely divided rock and mineral particles. Sand and gravel together known as aggregate, represent the highest volume of raw material used on earth. The mining of aggregate has been continuing for many years. Now the mining of aggregates has reached a level threatening the environment and ecosystem besides also reaching a level of scarcity that would threaten the economy. It is recommended that sand and aggregate mining, and quarrying should be done only after sound scientific assessment and adopting best practices to limit the impact on the environment.

The main objectives of the Guidelines, inter-alia, includes to ensure that sand and gravel mining is done in environmentally sustainable and socially responsible manner; availability of adequate quantity of aggregate in sustainable manner; improve the effectiveness of monitoring of mining and transportation of mined out material; conservation of the river equilibrium and its natural environment by protection and restoration of the ecological system; avoid aggradation at the downstream reach especially those with hydraulic structures such as jetties, water intakes etc.; to ensure the rivers are protected from bank and bed erosion beyond its stable profile; no obstruction to the river flow, water transport and restoring the riparian rights and in-stream habitats; to avoid pollution of river water leading to water quality deterioration; to prevent depletion of ground water reserves due to excessive draining out of ground water; and streamlining the process for grant of environmental clearance (EC) for sustainable mining.

The recommendations for management of sustainable sand extraction are the key objectives of the Guidelines. Emphasis is given to the setting up of monitoring plans that will provide data on profile changes and sediment transport capacity to enable the authorities to evaluate the long-term effect of the mining activities both upstream and downstream of sand extraction sites. Special emphasis is given on monitoring of the mined out material, which is key to the success of environment management plan. So use of IT and IT enabled services for effective monitoring of the quantity of mined out material and transportation along with process reengineering has been made a part of the Guideline. The Guidelines propose delegation of responsibility and authority to the cutting edge level i.e. the District Environment Impact Assessment Authority along with streamlining the process of impact assessment, environment management plan and environment clearance in cluster situation.

New Delhi
Date: 15-03-2016

Lavasa
(Ashok Lavasa)

NOTARY A. K. [illegible] Distt. Reg No-1883J Exp.dt.-29.05.2027 GOVT OF BIHAR

इंदिरा पर्यावरण भवन, जोर बाग रोड़, नई दिल्ली-110 003 फोन : (011) 24695262, 24695265, फैक्स : (011) 24695270
INDIRA PARYAVARAN BHAWAN, JOR BAGH ROAD, NEW DELHI-110 003 Ph. : (011) 24695262, 2469526S, Fax : (011) 24695270
E-mail : secy-moef@nic.in, alavasa@nic.in, Website : moef.gov.in

NOTARY
A. K LAL
Distt.-PATNA
Reg No -1883J
Exp.dt.-29.05.2027
GOVT OF BIHAR

EXECUTIVE SUMMARY

The sand and gravel are one of the most important construction materials. Ensuring their availability is vital for the development of the infrastructure in the country. There are different sources of sand and gravel, the most important among them is the river. As the requirement of these construction materials is on rise, they also are very vital for the health, physical character of the river and the different important functions of the river. The extraction of sand and gravel from the river bodies has to be regulated and done with adoption of required environmental safeguards.

For making available these resources, a mapping of these resources at the district level, identification of appropriate sites for extraction, appraisal of the extraction process, putting in place the required environmental safeguards, and rigorous monitoring of the volume of extracted material is required to ensure sustainability of the entire process.

The district is the unit of administration which is best placed to do the mapping of these resources, adopt the best environmental practices for extraction of these materials and monitor its extraction and movement. The large number of leases which are awarded, the scattered geographical location of the availability of these materials and decentralized requirement and usage of the sand and aggregates also places districts in a unique position to play a vital role in adoption of environmental safeguards needed for sustainable extraction of river sand and gravel.

Recommendations for management of sustainable sand extraction are the key objective of the Guidelines. Emphasis is given to the setting up of monitoring plans that will provide data on profile changes and sediment transport capacity to enable the authorities to evaluate the long-term effect of the mining activities both upstream and downstream of sand extraction sites.

Special emphasis is given on monitoring of the mined out material, which is key to the success of environment management plan. So use of IT and IT enabled services for effective monitoring of the quantity of mined out material and transportation along with process reengineering has been made a part of the Guideliness. The Guidelines proposes delegation of responsibility and authority to the cutting edge level i.e. the District Environment Impact Assessment Authority along with streamlining the process of impact assessment, environment management plan and environment clearance in cluster situation.

Promotion of manufactured sand, artificial sand and alternative technologies in construction materials and processes are also required for reducing the dependence and demand on naturally occurring sand and gravel. Development of slag sand, sand from stone chips and there certification under BIS is an important step in this direction.

NOTARY
A. K LAL
Distt.-PATNA
Reg No -1883J
Exp.dt.-29.05.2027
GOVT OF BIHAR

INTRODUCTION

Sustainable Development is built on three pillars - environmental, social and economic. Sustainable development cannot be achieved if the environment is protected but poverty is prevalent in a significant part of the population. Similarly, sustainable development cannot be achieved through inappropriate economic growth, if it undermines the environment in which people and businesses exists. These Guideliness support that fundamental concept, promoting environmental protection, limiting negative physiological, hydrological and social impacts under pinning sustainable economic growth.

Sand and gravel have long been used as aggregate for construction of roads and building. Today, the demand for these materials continues to rise. In India, the main sources of sand are river flood plain, coastal sand, paleo channel sand, and sand from agricultural fields.

River sand mining is a common practice as habitation concentrates along the rivers and the mining locations are preferred near the markets or along the transportation route, for reducing the transportation cost. River sand mining can damage private and public properties as well as aquatic habitats. Excessive removal of sand may significantly distort the natural equilibrium of a stream channel.

Removing sediment from the active channel bed in river interrupt the continuity of sediment transport through the river system, disrupting the sediment mass balance in the river downstream and induces channel adjustments (usually incision) extending considerable distances (commonly one kilometer or more) beyond the extraction site.

The magnitude of the impact basically depends on the magnitudes of the extraction relative to bed load sediment supply and transport through the reach. Implementation of the principles and processes outlined in this Guidelines will limit the negative externalities of sand and gravel mining.

NOTARY
A. K LAL
Distt.-PATNA
Reg No -1883J
Exp.dt.-29.05.2027
GOVT OF BIHAR

NEED FOR POLICY GUIDELINES

Sand is naturally occurring granular material composed of finely divided rock and mineral particles between 150 micron to 4.75 mm in diameter (IS 383-1970). Sand is formed due to weathering of rocks due to mechanical forces. In the process the weathered rocks forms gravel and then sand.

Sand and gravel together known as aggregate, represent the highest volume of raw material used on earth after water. The mining of aggregate has been continuing for many years. Now the mining of aggregates has reached a level threatening the environment and ecosystem besides also reaching a level of scarcity that would threaten the economy. It is recommended that sand & aggregate mining, and quarrying should be done only after sound scientific assessment and adopting best practices to limit the impact on the environment.

It is also felt that the greater use of substitute material (Manufactured Sand, artificial sand etc.) & construction technology, and sustainable use of the resource could drastically reduce adverse impact of mining on the environment.

OBJECTIVE OF THE GUIDELINES

The Guideliness has been based on the following principles:

- Uncontrolled sand mining is not sustainable.
- Compliance with present and future legislation and regulations on the subject is mandatory and not voluntary.
- Each lease holder should be given the opportunity to self-regulate to the extent that it can demonstrate compliance with legislation and regulations.
- Where self- regulation fails to deliver compliance with legislation and regulations, increased formal enforcement and monitoring should be implemented with punitive measures applied in line with the legal framework.
- There is a need to protect the environment and the right of the population to live in clean and safe surroundings, with the need to use natural resources in a way that will make a positive and sustainable contribution to the economy.

The main objectives of the Guidelines

- To ensure that sand and gravel mining is done in environmentally sustainable and socially responsible manner.
- To ensure availability of adequate quantity of aggregate in sustainable manner.
- To improve the effectiveness of monitoring of mining and transportation of mined out material.

NOTARY
A. K LAL
Distt.-PATNA
Reg No -1883J
Exp.dt.-29.05.2027
GOVT OF BIHAR

- Ensure conservation of the river equilibrium and its natural environment by protection and restoration of the ecological system.
- Avoid aggradation at the downstream reach especially those with hydraulic structures such as jetties, water intakes etc.
- Ensure that the rivers are protected from bank and bed erosion beyond its stable profile.
- No obstruction to the river flow, water transport and restoring the riparian rights and in-stream habitats.
- Avoid pollution of river water leading to water quality deterioration.
- To prevent depletion of ground water reserves due to excessive draining out of ground water.
- To prevent ground water pollution by prohibiting sand mining on fissures where it works as filter prior to ground water recharge.
- To maintain the river equilibrium with the application of sediment transport principles in determining the locations, period and quantity to be extracted.
- Streamlining and simplifying the process for grant of environmental clearance (EC) for sustainable mining.

NOTARY
A. K LAL
Distt.-PATNA
Reg No -1883J
Exp.dt.-29.05.2027
GOVT OF BIHAR

MINISTRY OF ENVIRONMENT, FOREST AND CLIMATE CHANGE - GOVERNMENT OF INDIA

THE EFFECT OF SAND AND GRAVEL MINING

Mining within or near riverbed has a direct impact on the stream's physical characteristics, such as channel geometry, bed elevation, substratum composition and stability, in-stream roughness of the bed, flow velocity, discharge capacity, sediment transport capacity, turbidity, temperature etc. Alteration or modification of the above attributes may cause hazardous impact on ecological equilibrium of riverine regime. This may also cause adverse impact on in-stream biota and riparian habitats. This disturbance may also cause changes in channel configuration and flow-paths.

The effects of sand and gravel mining are as follows:

a) Extraction of bed material in excess of replenishment by transport from upstream causes the bed to lower (degrade) upstream and downstream of the site of removal.

b) In-stream habitat is impacted by increase in river gradient, suspended load, sediment transport and sediment deposition. Excessive sediment deposition for replenishment increases turbidity which prevents penetration of light required for photosynthesis and reduces food availability of aquatic fauna.

c) Riparian habitat including vegetative cover on and adjacent to the river banks it controls erosion, provide nutrient inputs into the stream and prevents intrusion of pollutants in the stream through runoff. Bank erosion and change of morphology of the river can destroy the riparian vegetative cover.

d) Bed degradation are responsible for channel shifting, causing loss of properties and degradation of landscape, it can also undermine bridge supports, pipe lines or other structures.

e) Degradation may change the morphology of the river bed, which constitutes one aspect of the aquatic habitat.

f) Degradation can deplete the entire depth of gravelly bed material, exposing other substrates that may underlie the gravel, which could in turn affect the quality of aquatic habitat. Lowering of ground water table in the flood plain because of lowering of riverbed level as well as river water level takes place because of extraction and draining out of excessive ground water from the adjacent areas. So, if a floodplain aquifer drains to the stream, groundwater levels can be lowered as a result of bed degradation.

g) Lowering of the water table can destroy riparian vegetation.

h) Excessive pumping of ground water in the process of mining in abandoned channels depletes ground water causing scarcity of irrigation and drinking water. In extreme cases it may create ground fissures and subsidence in adjacent areas.

i) Flooding is reduced as bed elevations and flood heights decrease, reducing hazard for human occupancy of floodplains and the possibility of damage to engineering works.

j) The supply of overbank sediments to floodplains is reduced as flood heights decrease.

k) An un-scientific and unregulated sand and gravel mining tends to increase channel bank

NOTARY A. K. LAL Distt.-PATNA Reg. No -1883/ Exp.dt.-29.05.2027 GOVT OF BIHAR

scouring and erosion. This causes a large degree of meandering of rivers and sometimes it could be in kms.

l) Rapid bed degradation may induce bank collapse and erosion by increasing the heights of banks.

m) Polluting ground water by reducing the thickness of the filter material especially if mining is taking place at top of recharge fissures.

n) Choking of sand layer which acts as filter for ingress of ground water from river by dumping of finer material, compaction of filter zone due to movement of heavy vehicles. It also reduces the permeability and porosity of the filter material.

o) Removal of gravel from bars may cause downstream bars to erode if they subsequently receive less bed material than is carried downstream from them by fluvial transport.

p) Ecological effects on bird nesting, fish migration, angling, etc.

q) Indiscrete mining activities lead to increased concentration of suspended sediment in the river which in turn causes siltation of water resources projects.

r) Un-scientific and unregulated sand and gravel mining leads to the severe health hazards like air quality degradation and dust fog.

s) Direct destruction from heavy equipment operation; discharges from equipment and refueling.

t) Biosecurity and pest risks.

u) Impacts on coastal processes.

The other deleterious impacts of indiscrete mining include

Loss of riparian habitat resulting from direct removal of vegetation along the stream bank to facilitate the use of a dragline or through the process of lowering the water table, bank undercutting, and channel incision. The physical composition and stability of substrates are altered as a result of in-stream mining and most of these physical effects may exacerbate sediment entrainment in the channel.

Furthermore, the process of in-stream mining and gravel washing produces fine sediments under all flow conditions, resulting in a deposition of fine sediment in riffles as well as other habitats at low discharge. Excess sediment is considered the greatest pollutant in waters and constitutes one of the major environmental factors in the degradation of stream fisheries.

However, in-stream mining may contribute additional sediment to downstream reaches due to the disruption of substrate stability. Once sediment enters the stream, it is best to let natural geomorphological and hydrological processes reach a dynamic equilibrium, rather than further exacerbating the situation by additional disturbance.

NOTARY
A. K LAL
Distt.-PATNA
Reg No -1883J
Exp.dt.-29.05.2027
GOVT OF BIHAR

All other things being equal:

a) Extracting gravel from an excavation that does not penetrate the water table and is located away from an active stream channel should cause little or no change to the natural hydrological processes unless the stream captures the pit during periods of flooding.

b) In-stream extraction of gravel from below the water level of a stream generally causes more changes to the natural hydrologic processes than limiting extraction to a reference point above the water level.

c) In-stream extraction of gravel below the deepest part of the channel (the thalweg) generally causes more changes to the natural hydrological processes than limiting extraction to a reference point above the thalweg.

d) Excavating sand and gravel from a small straight channel with a narrow floodplain generally will have a greater impact on the natural hydrological processes than excavations on a braided channel with a wide floodplain.

e) Extracting sand and gravel from a large river or stream will generally create less impact than extracting the same amount of material from a smaller river or stream.

f) Over-extraction of gravel can destabilise channels and banks, and/or affect the ecologic functioning of rivers particularly if undertaken at the wrong time, or in the wrong place, or in a way that damages the river bed or margins.

NOTARY
A. K LAL
Distt.-PATNA
Reg No -1883J
Exp.dt.-29.05.2027
GOVT OF BIHAR

GENERAL APPROACH TO SUSTAINABLE SAND AND GRAVEL MINING

Following considerations should be kept in mind for sand / gravel mining:

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 river bed shall depend on the width of the river and replenishment rate of the river.

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

g) Segments of 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.

NOTARY
A. K LAL
Distt.-PATNA
Reg No -1883J
Exp.dt.-29.05.2027
GOVT OF BIHAR

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.

NOTARY
A. K LAL
Distt.-PATNA
Reg No -1883J
Exp.dt.-29.05.2027
GOVT OF BIHAR

THE WORLD SCENARIO

Sand and gravel are mined world-wide and account for the largest volume of solid material extracted globally. Formed by erosive processes over thousands of years, they are now being extracted at a rate far greater than their renewal. Furthermore, the volume being extracted is having a major impact on rivers, deltas and coastal and marine ecosystems, resulting in loss of land through river or coastal erosion, lowering of the water table and decrease in the amount of sediment supply. Despite the colossal quantities of sand and gravel being used, increasing dependence on them and the significant impact that their extraction has on the environment, this issue needs far better attention and awareness.

Globally, between 47 and 59 billion tonnes of material is mined every year of which sand and gravel, known as aggregates, account for both the largest share (from 68% to 85%) and the fastest growth in extraction increase. Although more sand and gravel are mined than any other material, reliable data on their extraction is not available. The absence of global data on aggregates mining makes environmental assessment very difficult and has contributed to the lack of awareness about this issue. One way to estimate the global use of aggregates indirectly is through the production of cement for concrete (concrete is made with cement, water, sand and gravel). The production of cement is reported by 150 countries and it reached 3.7 billion tonnes in 2012 (USGS, 2013a). For each tonne of cement, the building industry needs about six to seven times more tonnes of sand and gravel (USGS, 2013b). Thus, the world's use of aggregates for concrete can be estimated at 25.9 billion tonnes a year for 2012 alone.

Added to this are all the aggregates used in land reclamation, shoreline developments and road embankments (for which the global statistics are unavailable), added to this is the 180 million tonnes of sand used in industry (USGS, 2012). Aggregates also contribute to 90% of asphalt pavements and 80% of concrete roads (Robinson and Brown, 2002). Taking all these estimates into account, a conservative estimate for the world consumption of aggregates exceeds 40 billion tonnes a year.

This large quantity of material cannot be extracted and used without a significant impact on the environment. Extraction has an impact on biodiversity, water turbidity, water table levels and landscape and on climate through carbon dioxide emissions from transportation. There are also socio-economic, cultural and even political consequences. In some extreme cases, the mining of marine aggregates has changed international boundaries, such as through the disappearance of sand islands in Indonesia (New York Times, 2010; Guerin, 2003).

The impacts of sand mining can be mainly categorized as follows:

NOTARY
A. K LAL
Distt.-PATNA
Reg No -1883J
Exp.dt.-29.05.2027
GOVT OF BIHAR

IMPACTS ON	DESCRIPTION
Biodiversity	Impacts on related ecosystems (for example; fisheries)
Land losses	Both inland and coastal through erosion
Hydrological functions	Change in water flows, flood regulation and marine currents
Water supply	Through lowering of the water table and pollution
Infrastructures	Damage to bridges, river embankments and coastal infrastructures
Climate	Directly through transport emissions
Landscape	Coastal erosion, changes in deltaic structures, quarries, pollution of rivers
Extreme events	Decline of protection against extreme events (flood, drought, storm surge)

World over sand was until recently extracted in land quarries and riverbeds; however, a shift to marine and coastal aggregates mining has occurred due to the decline of inland resources. River and marine aggregates remain the main sources for building and land reclamation. For concrete, in-stream gravel requires less processing and produces high-quality material while marine aggregate needs to be thoroughly washed to remove salt. If the chloride is not removed from marine aggregate, a structure built with it might collapse after few decades due to corrosion of steel reinforced structures. Most sand from deserts cannot be used for concrete and land reclaiming, as the wind erosion process forms round grains that do not bind well.

NOTARY
A. K LAL
Distt.-PATNA
Reg No -1883J
Exp.dt.-29.05.2027
GOVT OF BIHAR

INDIAN SCENARIO

The data on consumption of sand and aggregate in country is not available with any source. It can be derived indirectly from the usage of cement, construction of roads and stowing of mines. The trend for aggregates extraction can be estimated using cement production as a proxy.

Cement production has multiplied three-fold in the last 20 years from 1.37 billion tonnes of cement in 1994 to 3.7 billion tonnes in 2012 (USGS, 2013a) mainly as a result of rapid economic growth in Asia (UNEP and CSIRO, 2011). Five countries: China (58%), India (6.75%), the United States (2%), Brazil and Turkey - produce 70% of the world's cement (USGS, 2013c). The consumption of cement is expected to reach 324 million tonnes, which equates to use of 2.2 billion tonnes of aggregates. This is in addition to sand and aggregates used in stowing of mines, industry and other allied usage.

In India the main sources of sand are:

(a) River (riverbed and flood plain).

(b) Lakes and reservoirs.

(c) Agricultural fields (Haryana).

(d) Coastal / marine sand.

(e) Palaeo-channels (Bikaner in Rajasthan).

NOTARY
A. K LAL
Distt.-PATNA
Reg No -1883J
Exp.dt.-29.05.2027
GOVT OF BIHAR

THE PRICE ELASTICITY FOR DEMAND OF SAND

As the price elasticity of demand for sand is inelastic (-0.88), any increase in price in absence of marketable alternative will not have any significant impact on demand. Use of crushed stones or other substitute material should be promoted. The regional context of aggregate resources, market demand, and the environmental impacts of various alternatives must be understood before any site-specific proposal for aggregate extraction can be reviewed.

Evaluation of aggregate supply and demand should be undertaken on the basis of production-consumption regions, encompassing the market for aggregate and all potential sources of aggregate within an economical transport distance. The finite nature of high-quality alluvial gravel resources must be recognized, and high-quality PCC-grade aggregates should be reserved only for the uses demanding this quality material (such as concrete). Alternative sources should be used in less demanding applications (such as road sub-base). Part replacement with fly ash in roads and embankments be promoted in place of sand and aggregates.

The environmental costs of sand mining should be incorporated into the price of the product so that alternative sources that require more processing but have less environmental impact become more attractive.

PROCESS OF SEDIMENT TRANSPORT

The loose boundary (consisting of movable material) of an alluvial channel deforms under the action of flowing water and the deformed bed with its changing roughness (bed forms) interacts with the flow. The resulting movement of the bed material (sediment) in the direction of flow is called sediment transport and a critical bed shear stress must be exceeded to start the particle movement.

Such a critical shear stress is referred as incipient (threshold) motion condition, below which the particles will be at rest and the flow is similar to that on a rigid boundary. Some sediment particles roll or slide along the bed intermittently and some others saltate (hopping or bouncing along the bed). The material transported in one or both of these modes is called 'bed load'.

Finer particles (with low fall velocities) are entrained in suspension by the fluid turbulence and transported along the channel in suspension. This mode of transport is called 'suspended load'. Sometimes finer particles from upland catchment (sizes which are not present in the bed material), called 'wash load' are also transported in suspension. The combined bed material and wash load is called 'total load'.

NOTARY
A. K LAL
Distt.-PATNA
Reg No -1883J
Exp.dt.-29.05.2027
GOVT OF BIHAR

Bed load ranges from a few percent of total load in lowland rivers to perhaps 15% in Mountain Rivers to over 60% in some arid catchments. Although a relatively small part of the total sediment load, the arrangement of bed load sediment constitutes the architecture of sand, and gravel-bed channels.

The rate of sediment transport typically increases as a power function of flow; that is, a doubling of flow typically produces more than a doubling in sediment transport and most sediment transport occurs during floods. The environmental impacts from in-stream mining can be avoided, if the annual bed load is calculated and aggregate extraction is restricted to that value or some portion of it. To accurately limit extraction to some portion of bed load, the amount of sediment that passes the in-stream mining site during a given period of time must be calculated.

There is a large amount of uncertainty in the process of calculating annual rates of bed load transport. How much coarse material is moved, how long it remains in motion as also how far it moves depends on the size, shape & packing of the material and the characteristics of the river flow.

Downstream movement commonly occurs as irregular bursts of short-distance movement separated by longer periods, when the particles remain at rest. Because bed load changes from hour-to-hour, day-to-day, and year-to-year, estimating annual bed load rates is a dynamic process involving careful examination.

Constant variations in the flow of the river make the channel floor and riverbanks a dynamic interface, where some materials are being eroded while others are being deposited. The net balance of this activity, on a short- term basis, is referred to as scour or fill.

On a long-term basis, continued scour results in erosion (degradation), while continued fill results in deposition (aggradation).

A general indicator of the stability of a stream relates to the amount of vegetation present. Gravel bars that are vegetated or where the gravel is tightly packed, generally indicate streams, where the gravel supply is in balance. Streams with excessive gravel generally have gravel bars with little or no vegetation, and are surfaced with loosely packed gravel.

NOTARY
A. K LAL
Distt.-PATNA
Reg No -1883J
Exp.dt.-29.05.2027
GOVT OF BIHAR

SUSTAINABLE SAND AND GRAVEL MINING GUIDELINES

The broad principle on which any sustainable sand mining Guidelines / policy can be based is that river/ natural resources must be utilized for the benefit of the present and future generation, so river resources should be prudently managed and developed. The preparation of District Survery Report is an important initial step.

The Processes under the Guidelines:

(a) Identification of areas of aggradation / deposition where mining can be allowed; and identification of areas of erosion and proximity to infrastructural structures and installations where mining should be prohibited. Use of satellite imagery for identifying areas of sand deposit and quantity be done.

(b) Calculation of annual rate of replenishment and allowing time for replenishment after mining in area.

(c) Identifying ways of scientific and systematic mining.

(d) Identifying measures for protection of environment and ecology.

(e) Determining measures for protection of bank erosion.

(f) A bench mark (BM) with respect to mean sea level (MSL) should be made essential to in-mining channel reaches (MCR). Below which no mining shall be allowed.

(g) Identifying steps for conservation of mineral.

(h) Permanent gauging facilities (for discharge and sediment both) should be made compulsory for the sites having excessive mining in consultation with Central Water Commission or any competent State Agency.

(i) Implementing safeguards for checking illegal and indiscrete mining.

Following the above processes, to begin with it is important to prepare a survey document mapping the status of sand sources in a district. This survey should be conducted and report be prepared for each district. Though it is an acceptable fact that rivers cut across districts and States and every river is an ecosystem in itself. But, keeping in view the fact that the district is the most established unit of administration at which this kind of survey, planning and monitoring can be ensured effectively, it is proposed that every district will prepare this document taking the river stretch in that district as an ecological unit and inventorising other sources of sand in the district.

Besides, the production of aggregate in a particular area is a function of availability of natural resources, the size of the population, the economy of the area and various developmental and infrastructural works being undertaken in the area.

NOTARY A. K. LAL Distt.-PATNA Reg No-18833 Exp.dt.-29.05.2027 GOVT OF BIHAR

The natural resources must be utilized in environment friendly manner in scientific and systematic way and with the objective of sustainable development the policy on the subject should have provisions for protection of environment & ecology. These factors can be accounted for in a most efficient manner at district level.

The sustainable mining plan needs to be dynamic. A survey should be carried out by the District Environment Impact Assessment Authority (DEIAA) with the assistance of Geology Department, Irrigation Department, Forest Department, Public Works Department, Ground Water Boards, Remote Sensing Department and Mining Department etc. in the district at regular intervals.

The survey shall contain:

1. District wise detail of river or stream and other sand source.
2. District wise availability of sand or gravel or aggregate resources.
3. District wise detail of existing mining leases of sand and aggregates.

Based on this survey document, the action plan shall divide the river/ stream/ other sources of the District into the following categories:

1. River / Stream beds sections / other sources suitable for extraction of sand and aggregates.
2. River / Stream beds sections / other sources prohibited for extraction of sand and aggregates.

The river/ streams/ other sources of sand and aggregate are studied on following parameters:

a) Geomorphological studies

i) Place of origin
ii) Catchment area.
iii) General profile of river stream.
iv) Annual deposition factor
v) Replenishment.
vi) Total potential of minor mineral in the river bed.

b) Geological studies

i) Lithology of catchment area.
ii) Tectonics and structural behavior of rocks.

c) Climatic Factors

i) Intensity of rainfall.
ii) Climate Zone.
iii) Temperature variation

NOTARY
A. K LAL
Distt.-PATNA
Reg No -18631
Exp.dt.-29.05.2027
GOVT OF BIHAR

The following points to be considered while selecting the river / stream for mining besides the above parameters:

i) A stable river is able to constantly transport the flow of sediments produced by watershed such that it's dimensions (width and depth) pattern and vertical profile are maintained without aggrading (building up) or degrading (scouring down).

ii) The amount of boulders, cobbles, pebbles, and sand deposited in river bed equals to the amount delivered to the river from catchment area and from bank erosion minus amount transported downstream each year.

iii) It is compulsive nature of river to meander in their beds and therefore they will have to be provided with adequate corridor for meandering without hindrance. Any attempt to diminish the width of the corridor (floodway) and curb the freedom to meander would prove counterproductive.

iv) Erosion and deposition is law of nature. The river stream has to complete its geomorphological cycles from youth, mature to old age.

v) River capturing is unavoidable.

vi) Fundamentally the lowest point of any stream is fixed by sea level.

This survey document should be prepared in the district based on direct and indirect benefits of mining and identification of the potential threats to the river / stream beds in the district.

Besides, calculating the carrying capacity of the river / stream beds / other sources to find out maximum quantity available to be allowed for removal each year from the sources, it should also provide various measures to regulate sand and aggregate mining in a systemic way.

It has to provide for environmentally safe depth of mining and safeguards of banks by prescribing safe distance from banks. It is required that there should be a Sub-Divisional Committee which should visit each site and make recommendation. The Committee should comprise of Sub-Divisional Magistrate, Officers from Irrigation department, State Pollution Control Board or Committee, Forest department, Geology or mining officer shall visit each site for which environmental clearance has been applied for and make recommendation on suitability of site for mining or prohibition thereof.

NOTARY
A. K LAL
Distt.-PATNA
Reg No -1883J
Exp.dt.-29.05.2027
GOVT OF BIHAR

THE STRUCTURE OF DISTRICT SURVEY REPORT

The report can have following structure:

1. Introduction
2. Overview of Mining Activity in the District
3. The List of Mining Leases in the District with location, area and period of validity
4. Details of Royalty or Revenue received in last three years
5. Detail of Production of Sand or Bajari or minor mineral in last three years
6. Process of Deposition of Sediments in the rivers of the District
7. General Profile of the District
8. Land Utilization Pattern in the district: Forest, Agriculture, Horticulture, Mining etc.
9. Physiography of the District
10. Rainfall: month-wise
11. Geology and Mineral Wealth

12. Drainage System with description of main rivers.

Sl.No.	NAME OF RIVER	AREA DRAINED (Sq. Km)	% AREA DRAINED

13. Salient Features of Important Rivers and Streams:

Sl.No.	Name of the River / Stream	Total Length in the District (in Km)	Place of origin	Altitude at Origin

14. Methodology Adopted for Calculating of Mineral Potential

The mineral potential is calculated based on field investigation and geology of the catchment area of the river/ streams. As per the policy of the State and location, depth of minable mineral is defined. The area for removal of mineral in a river or stream can be decided depending on geo-morphology

NOTARY A. K LAL Distt.-PATNA Reg No -1883J Exp.dt.-29.05.2027 GOVT OF BIHAR

and other factors, it can be 50% to 60% of the area of a particular river/stream, e.g. in Himachal Pradesh mineral constituents like boulders, river born bajari, sand up to a depth of one meter are considered as resource mineral. Other constituents like clay and silt are excluded as waste while calculating the mineral potential of particular river/ stream.

The specific gravity of each mineral constituent is different. While calculating the mineral potential, the average specific gravity is taken as 2.25. The percent of mineral constituent like boulder, river bajari, sand also varies for different river and streams. While calculating the mineral potential the percentage of each mineral constituent is taken as, Boulders 35-40%, Bajari - 30-35%, Sand 25-30% and 5-10% for silt and clay.

The quantum of deposition varies from stream to stream depending upon factors like catchment lithology, discharge, river profile and geomorphology of the river course. There are certain geomorphological features developed in the river beds such as channel bar, point bar etc. where annual deposition is more even two to three meters.

For illustration one example of Yamuna River in Sirmaour district of Himachal Pradesh is given below:

Portion of the River / Stream Recommended for Mineral Concession	Length of area recommended for mineral concession (in kilometer)	Average width of area recommended for mineral concession (in meters)	Area recommended for mineral concession (in square meter)	Mineable mineral potential (in metric tonne) (60% of total mineral potential)
From Downstream of confluence with Tons River to Behral near Haryana and Uttar Pradesh border	31	478	14818000	16803612

Note: Considering the density of river bed material to be **1.89 g/cm³**

Present Status of Mining

This gives the detail of mining leases already in operation in this stretch, area and production in last three years from these leases is calculated.

NOTARY
A. K LAL
Distt.-PATNA
Reg No -1883J
Exp.dt.-29.05.2027
GOVT OF BIHAR

Mineral Potential is calculated in following way:

Mineral Potential

Boulder (MT)	Bajari (MT)	Sand (MT)	Total Mineable Mineral Potential (MT)
5601204	6801462	4400946	16803612

Annual Deposition

336072	408088	264057	1008217

Recommendation:

From the above it is clear that about 16803612 metric tonnes of mineral is available up to depth of one meter in the river bed of Yamuna in Sirmaur district.
The annual deposition is 1008217 MT.
The average annual production is 80000 MT.
So, 16723612 MT of mineral can be safely removed.

In similar manner it should be calculated for each river and stream in the district and compiled in following format:

Sl.No.	River/ Stream	Portion of the river / stream recommended for mineral concession	Length of the recommended area for mineral concession (in kilometer)	Average width of the recommended area for mineral concession (in meters)	Area recommended for mineral concession (in sq.mtrs.)	Mineable mineral potential (in metric tonne) (60% of total mineral potential)
Total for the District						

About the size of the mining leases for the aggregates it should be borne in mind that a river / stream can be divided into two zones, which in-turn is dynamic i.e. the zone of erosion and

NOTARY
A. K LAL
Distt.-PATNA
Reg No -18831
Exp.dt.-29.05.2027
GOVT OF BIHAR

zone of deposition. These zones of deposition and erosion are extended in different patches in the river.

Any mining lease granted in larger tract can cover both the zones, and mining activity in zone of erosion can further aggravate the problem of erosion and as such the mining activity can be allowed only in the zone of the deposition. The mining leases of larger areas in rivers are neither in interest of environment nor in the interest of mineral conservation.

In Himalayan states the rivers and wasteland has been mostly classed as forest land and mining on that requires diversion of forest land and payment of compensatory afforestation and NPV etc. The land in river beds in hilly tracts and many small rivers at any one site seldom exceed 5 hectare, so not allowing sand mining leases less than 5 hectare on river beds further aggravates the situation. So the size of mining lease for river sand mining should be determined by the State as per the local situation.

NOTARY
A. K LAL
Distt.-PATNA
Reg No -1883J
Exp.dt.-29.05.2027
GOVT OF BIHAR

MANAGEMENT PLAN

1. **River Bed Mining Recommendations:**

a) Permit Mining Volume Based on Measured Annual Replenishment

In the first year following adoption of the management plan, a volume equal to the estimated annual replenishment could be extracted from the reach of channel. Replenishment (up to the elevation of the selected channel configuration) would need to occur before subsequent extraction could take place. The concept of annual replenishment accounts for the episodic nature of sediment transport. For example, during wet periods with high stream flows, and a high contribution of sediment from hill slopes and tributaries, monitoring data would show that sand and gravel bars are replenished quickly. During drought periods with low stream flow, and little sediment supply or transport, monitoring data would likely show that bars were replenished at a slower rate.

The use of monitoring data is essential in measuring when actual replenishment occurs. The use of the concept of annual replenishment protects long-term channel stability as well as aquatic and riparian habitat by extracting a volume sustainable by watershed processes.

b) Establish an Absolute Elevation below Which No Extraction May Occur (Minimum Enveloped Level or Redline).

The absolute elevation below which no mining could occur or "redline" would be surveyed on a site-specific basis in order to avoid impacts to structures such as bridges and to avoid vegetation impacts associated with down-cutting due to excessive removal of sediment. An extraction site can be determined after setting the deposition level at 1 m above natural channel thalweg elevation, as determined by the survey approved by mine plan approving authority.

c) Limit River Bed Extraction Methods to Bar Skimming

If mining is limited to the downstream end of the bar with a riparian buffer on both the channel and hill slope (or floodplain) side, bar skimming would minimise impacts. Other methods such as excavation of trenches or pools in the low flow channel lower the local base level, and maximise upstream (head cutting and incision) and downstream (widening and braiding) impacts. In addition, direct disturbance of the substrate in the low flow channel should be avoided. Trenching on bars may be beneficial in the future if the river becomes severely aggraded, flat, shallow and braided. Trenching of bars may initially impact a smaller area of riparian habitat than skimming - as a result of excavating deeper rather than shallow skimming of a large area. However, over the

NOTARY A. K LAL Distt.-PATNA Reg No -1883J Exp.dt.-29.05.2027 GOVT OF BIHAR

long-term, the upstream and downstream effects of a trench on the bar or in the channel may offset any short-term benefit derived from this method.

d) Extract Sand and Gravel from the Downstream Portion of the Bar:

Retaining the upstream one to two thirds of the bar and riparian vegetation while excavating from the downstream one to two third of the bar is accepted as a method to promote channel stability and protect the narrow width of the low flow channel necessary for aquatic life. Sand and gravel would be re-deposited in the excavated downstream one to two thirds of the bar (or downstream of the widest point of the bar) where an eddy would form during sediment transporting flows. In contrast, if excavation occurs on the entire bar after removing existing riparian vegetation, there is a greater potential for widening and braiding of the low flow channel.

e) Concentrate Activities to Minimise Disturbance:

River bed extraction activities should be concentrated or localised to a few bars rather than spread out over many bars. This localisation of extraction will minimise the area of disturbance of upstream and downstream effects. Skimming decreases habitat and species diversity - these effects should not be expanded over a large portion of the area.

f) Review Cumulative Effects of Sand and Gravel Extraction:

The cumulative impact of all mining proposals should be reviewed on an annual basis to determine if cumulative riverine effects or effects to the estuary are likely.

g) Maintain Flood Capacity:

Flood capacity in the river should be maintained in areas where there are significant flood hazards to existing structures or infrastructure.

h) Establish a Long-term Monitoring Program:

Monitoring of changes in bed elevation and channel morphology, and aquatic and riparian habitat upstream and downstream of the extraction would identify any impacts of sand and gravel extraction to biologic resources. Long-term data collected over a period of decades as sand and gravel extraction occurs will provide data to use in determining trends.

i) Minimise Activities That Release Fine Sediment to the River:

No washing, crushing, screening, stockpiling, or plant operations should occur at or below the streams "average high water elevation," or the dominant discharge. These and similar activities have the potential to release fine sediments into the stream, providing habitat conditions harmful to local fish.

NOTARY A. K. LAL Distt.-PATNA Reg No-1883J Exp.dt.-29.05.2027 GOVT OF BIHAR

j) Retain Vegetation Buffer at Edge of Water and Against River Bank:

Riparian vegetation performs several functions essential to the proper maintenance of geomorphic and biological processes in rivers. It shields river banks and bars from erosion. Additionally, riparian vegetation, including roots and downed trees, serves as cover for fish, provides food source, works as a filter against sediment inputs, and aids in nutrient cycling. More broadly, the riparian zone is necessary to the integrity of the ecosystem providing habitat for invertebrates, birds and other wildlife.

k) The River Bed mining should only be allowed during the dry season.

No River bed mining should be permitted during rainy season (see Appendix 9).

l) An Annual Status and Trends Report:

This report should review permitted extraction quantities in light of results of the monitoring program, or as improved estimates of replenishment become available. The report should document changes in bed elevation, channel morphology, and aquatic and riparian habitat. The report should also include a record of extraction volumes permitted, and excavation location. Finally, recommendations for reclamation, if needed should be documented.

2. Off-Channel or Floodplain Extraction Recommendations

a) Floodplain Extraction should be set back from the Main Channel

In a dynamic alluvial system, it is not uncommon for meanders to migrate across a floodplain. In areas where sand and gravel occurs on floodplains or terraces, there is a potential for the river channel to migrate toward the pit. If the river erodes through the area left between the excavated pit and the river, there is a potential for "river capture," a situation where the low flow channel is diverted though the pit. In order to avoid river capture, excavation pits should set back from the river to provide a buffer, and should be designed to withstand the 100-year flood (100-year ARI). Adequate buffer widths and reduced pit slope gradients are preferred over engineered structures which require maintenance in perpetuity. Hydraulic, geomorphic, and geotechnical studies should be conducted prior to design and construction of the pit and bund. In addition to river capture, extraction pits create the possibility of stranding fish.

b) The maximum depth of Floodplain Extraction should remain above the Channel Thalweg

Floodplain pits should not be excavated below the elevation of the thalweg in the adjacent channel. This will minimise the impacts of potential river capture by limiting the potential for head cutting and the potential of the pit to trap sediment. A shallow excavation (above the water table) would provide a depression that would fill with

NOTARY A. K LAL Distt.-PATNA Reg No -1883J Exp.dt.-29.05.2027 GOVT OF BIHAR

water part of the year, and develop seasonal wetland habitat. An excavation below the water table would provide deep water habitat.

c) Side Slopes of Floodplain Excavation Should Range from 3:1 to 10:1

Side slopes of a floodplain pit should be graded to a slope that ranges from 3:1 to 10:1. This will allow for a range of vegetation from wetland to upland. Steep side slopes excavated in floodplain pits on other systems have not been successfully reclaimed, since it is difficult for vegetation to become stabilised. Terrace pits should be designed with a large percentage of edge habitat with a low gradient which will naturally sustain vegetation at a variety of water levels.

d) Place Stockpiled Topsoil above the 25-year Return Period or ARI Level

Stockpiled topsoil can introduce a large supply of fines to the river during a flood event and degrade fish habitat. Storage above the 25-year flood (25-year ARI) inundation level is sufficient to minimise this risk.

e) Floodplain Pits Should Be Restored to Wetland Habitat or Reclaimed for Agriculture

The key to successful restoration or reclamation is to conserve or import adequate material to re-fill the pit, while ensuring that pit margins are graded to allow for development of significant wetland and emergent vegetation.

f) Establish a Long-term Monitoring Program

A long-term monitoring program should provide data illustrating any impacts to river stability, groundwater, fisheries, and riparian vegetation. The monitoring program should assess the success of any reclamation or restoration attempted.

g) An Annual Status and Trends Report

The status and trends report described previously should include a section on the hydrologic and biologic components of floodplain pit reclamation.

3. Extraction Methods

The important methods of sand and gravel mining operations are as below:

a) Bar scalping or skimming is extraction of sand and gravel from the surface of bars. This method generally requires that surface irregularities be smoothed out and that the extracted material be limited to what could be taken above an imaginary line sloping upwards and away from the water from a specified level above the river's water surface at the time of extraction (typically 0.3 - 0.6 m (1-2 ft). Bar scalping is commonly repeated year after year. To maintain the hydraulic control provided to upstream by the Riffle head, the preferred method of bar scalping is now generally to leave the top one-third (approximately) of the bar undisturbed, mining only from the downstream two-

NOTARY
A. K. LAL
Distt.-PATNA
Reg No -1883J
Exp.dt.-29.05.2027
GOVT OF BIHAR

thirds.

b) Dry-Pit Channel Mining

Dry-pit channel mines are pits excavated within the active channel on dry intermittent or ephemeral stream beds. Dry pits are often left with abrupt upstream margins, from which head cuts are likely to propagate upstream.

c) Wet-Pit Channel Mining

Wet-pit mining involves excavation of a pit in the active channel below the surface water in a perennial stream or below the alluvial groundwater table.

d) Bar Excavation

A pit is excavated at the downstream end of the bar as a source of aggregate and as a site to trap sand and gravel. Upon completion, the pit may be connected to the channel at its downstream end to provide side channel habitat.

e) Channel-wide River bed Mining

In rivers with a highly variable flow regime, sand and gravel are commonly extracted across the entire active channel during the dry season. The bed is evened out and uniformly (or nearly so) lowered.

4. Reclamation Plans

Reclamation plans should include:

a) A baseline survey consisting of existing condition cross-section data: Cross-sections must be surveyed between two documented endpoints set back from the top of bank, and elevations should be referenced to bench mark;

b) The proposed mining cross-section data should be plotted over the baseline data to illustrate the vertical extent of the proposed excavation;

c) The cross-section of the replenished bar should be the same as the baseline data. This illustrates that the bar elevation after the bar is replenished will be the same as the bar before extraction;

d) A planimetric map showing the aerial extent of the excavation and extent of the riparian buffers;

e) A planting plan developed by a plant ecologist familiar with the flora of the river for any areas such as roads that need to be restored;

f) A monitoring plan: The appropriate reclamation plans can turn river-bed and floodplain sand and gravel mining operations into something perceived by the public as desirable.

NOTARY
A. K LAL
Distt.-PATNA
Reg No -1883J
Exp.dt.-29.05.2027
GOVT OF BIHAR

MARINE SAND MINING AND IMPACT ON MARINE BIODIVERSITY

The mining of marine aggregates is increasing significantly. Marine sand mining has had an impact on seabed flora and fauna. Dredging and extraction of aggregates from the benthic (sea bottom) zone destroys organisms, habitats and ecosystems and deeply affects the composition of biodiversity, usually leading to a net decline in faunal biomass and abundance or a shift in species composition. Aggregate particles that are too fine to be used are rejected by dredging boats, releasing vast dust plumes and changing water turbidity, resulting in major changes to aquatic and riparian habitats over large areas.

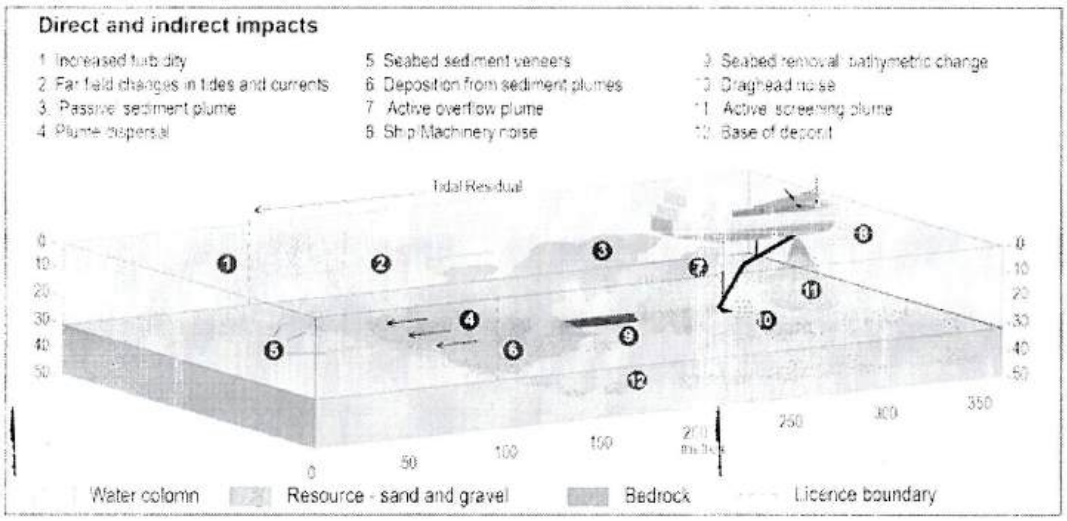


Figure: Direct and indirect consequences of aggregates dredging on the marine environment.

Source: Tillin, H.M., Houghton, A.J., Saunders, J.E., Drabble, R. and Hull, S.C., 2011. Direct and Indirect Impacts of Aggregate Dredging, Marine Aggregate Levy Sustainability Fund (MALSF). Science Monograph Series 1, 1-46.

NOTARY
A. K LAL
Distt.-PATNA
Reg No -1883J
Exp.dt.-29.05.2027
GOVT OF BIHAR

REDUCING CONSUMPTION OF SAND

Because sand is still very cheap - sand itself is freely accessible; only extraction and transportation costs need to be covered - there is little or no incentive to induce a change in our consumption. Despite the very high value of minerals found in the sand, it is mostly used for concrete or is buried under highways. Recycled building and quarry dust material can be a substitute for sand. Concrete rubble should be recycled to avoid using aggregates, at least for low-quality uses.

Substitutes for sand are available. Quarry dust could be used to replace sand in general concrete structures. The replacement of sand by up to 40% of incinerator ash exhibits higher compressive strength than regular cement mortars. Some desert sand can be used if mixed with other material. There are alternatives for building houses, including wood, straw and recycled material. However, the current building industry is geared toward concrete know-how and equipment.

Training of architects and engineers, new laws and regulations, and positive incentives are needed to initiate a shift for lowering our dependency on sand. Renewable and recycled materials need to be targeted for building houses and roads. Use of Manufactured Sand (M-Sand) also needs to be promoted.

Alternative sources of sand and gravel, which accumulate at the bottom of dams, can also be targeted. Their use would address the problem of these aggregates accumulating which leads to a reduced capacity of dams to store water and could result in the dams' water intakes being blocked. Dams regularly release large amounts of water to flush out aggregates.

The important standard setting bodies in India are taking steps to promote the usage of alternatives to sand and gravel. Bureau of Indian Standards, the National Standards Body of the country, considering the scarcity of sand and coarse aggregates from natural sources, has evolved number of alternatives which are ultimately aimed at conservation of natural resources apart from promoting use of various waste materials without compromising in quality.

These measures include permitting in the Concrete Code (IS 456) as also in the National Building Code of India, the use of slag - a waste from steel industry, fly ash - a waste from thermal power plants, crushed over-burnt bricks and tiles - waste from clay brick and tile industry, in plain cement concrete as an alternative to sand/natural aggregate, subject to fulfilling the requirements of the Code. This Code, further, encourages use of fly ash and ground granulated blast furnace slag as part replacement of ordinary Portland cement in plain as well as reinforced cement concrete.

The Indian Standard on concrete mix design (IS 10262) has been upgraded to include guidance and examples of designing concrete mixes using fly ash and slag. Provisions for compliance for requisite quality of concrete made using fly ash and slag have been duly covered for the manufacturers of ready-mixed concrete in the Indian Standard Code of practice for RMC (IS 4926).

BIS has also formulated an Indian Standard Specification for artificial lightweight aggregates covering manufactured aggregates, such as foamed blast furnace slag, bloated clay aggregate, sintered fly ash aggregate and cinder aggregate (IS 9142).

A series of Indian Standards has also been formulated on various precast concrete products such as solid and hollow concrete blocks, light weight concrete blocks, autoclaved aerated concrete blocks, preformed foam concrete blocks, partial prefabricated concrete flooring and roofing units, concrete pipes, etc, all permitting use of fly ash and slag.

NOTARY A. K LAL Distt.-PATNA Reg No -1883J Expdt.-29.05.2027 GOVT OF BIHAR

THE REPORT OF THE COMMITTEE HEADED BY SECRETARY, MoEF - 2010

A Committee headed by Secretary, Ministry of Environment and Forest was set up on the subject in 2010. The Committee considered this subject in detail and prepared a report. The important parts of the report are as follows:

Definition of Minor Mineral:

The term 'minor mineral' is defined in clause (e) of Section 3 of MMDR Act, 1957: '3 (e) "minor minerals" means building stones, gravel, ordinary clay, ordinary sand other than sand used for prescribed purposes and any other material which the Central Government may, by Notification in the Gazette of India declare to be a minor mineral;'

The term `ordinary sand' used in clause (e) of Section 3 of the MMDR Act, 1957 has been further clarified in rule 70 of the MCR, 1960 as:

(iv) Purposes of stowing in coal mines,
(v) For manufacture of silvicrete cement,
(vi) Manufacture of sodium silicate and for
(vii) Manufacture of pottery and glass.

Additionally, the Central Government has declared the following minerals as minor minerals:

Sl.No.	Minor Minerals
i)	Boulder
ii)	Shingle
iii)	Chalcedony pebbles used for ball mill purposes only
iv)	Lime shell, kankar and limestone used in kilns for manufacture of lime used as building material
v)	Murrum

Sl.No.	Minor Minerals
vi)	Brick-earth
vii)	Fuller's earth
viii)	Bentonite
ix)	Road metal
x)	Reh-matti

Sl.No.	Minor Minerals
xi)	Slate and shale when used for building material
xii)	Marble
xiii)	Stone used for making household utensils
xiv)	Quartzite and sandstone when used for purposes of building or for making road metal and household utensils
xv)	Saltpetre, and

xvi)	Ordinary earth (Used for filling or leveling purposes in construction or embankments, roads, railways building).

NOTARY
A. K LAL
Distt. PATNA
Reg No -1883J
Expdt.-29.05.2027
GOVT OF BIHAR

It may thus be observed that minerals have been classified into major and minor minerals based on their end use rather than level of production, level of mechanization, export and import etc. There do exist some minor mineral mines of silica sand and limestone where the scale of mechanization and level of production is much higher than those of industrial mineral mines. Further, in terms of the economic cost and revenue, it has been estimated that the total value of minor minerals constitutes about 10% of the total value of mineral production whereas the value of non- metallic minerals comprises only 3%. It is, therefore, evident that the operations of mines of minor minerals need to be subject to some regulatory parameters as that of mines of major minerals. Further, unlike India there does not exist such system in any other country where minerals are classified as major and minor based on end usage. Thus, there is a need to re-look at the definition of 'minor minerals' per se. It is, therefore, recommended that Ministry of Mines along with Indian Bureau of Mines, in consultation with the State Governments may re-examine the classification of minerals into major and minor categories so that the regulatory aspects and environment mitigation measures are appropriately integrated for ensuring sustainable and scientific mining with least impacts on environment.

Size of the Mine Lease:

Area for grant of mine lease varies from State to State. Maximum area which can be held under one or more mine lease is 2590 ha or 25.90 sq. miles in Jammu and Kashmir. Rajasthan prescribed a minimum limit of 1 ha for a lease. Maximum area prescribed for permit is 50x50 m. In most of the States area of permit is not specified in the rules.

It has recently been observed by Punjab and Haryana High Court in its order dated 15.05.2009 that State Government are apparently granting short term permits by dividing the mining area into small zones in effect to avoids environmental norms. There is, thus a need to bring uniformity in the extent of area to be granted for mine lease so as to ensure that eco- friendly scientific mining practices can be adopted. It is recommended that the minimum size of mine lease should be 5 ha. Further, preparation of comprehensive mine plan for contiguous stretches of mineral deposits by the respective State Governments may also be encouraged. This may suitably be incorporated in the Mineral Concession Rules, 1960 by Ministry of Mines.

Period of Mine Lease:

The period of lease varies from State to State depending on type of concessions, minerals and its end use. The minimum lease period is one year and maximum 30 years. Minerals like granite where huge investments are required, a period of 20 years is generally given with the provisions of renewal. Permits are generally granted for short periods which vary from one month to a maximum one year. In States like Haryana, minor mineral leases are auctioned for a particular time period. Mining is considered to be capital intensive industry and considerable time is lost for developing the mine before it attains the status of fully developed mine. If the tenure of the mine lease is short, it would encourage the lessee to concentrate more on rapid exploitation of mineral without really undertaking adequate measures for reclamation and rehabilitation of mined out area, posing thereby a serious threat to the environment and health of the workers and public at large.

NOTARY A. K. LAL Distt.-PATNA Reg No.-1883J Exp.dt.-29.05.2027 GOVT OF BIHAR

There is thus, a need to bring uniformity in the period of lease. It is recommended that a minimum period of mine lease should be 5 years, so that eco- friendly scientific and sustainable mining practices are adopted However, under exceptional circumstances arising due to judicial interventions, short term mining leases / contracts could be granted to the State Agencies to meet the situation arising there from.

Cluster of Mine Approach for Small Sized Mines:

Considering the nature of occurrence of minor mineral, economic condition of the lessee and the likely difficulties to be faced by Regulatory Authorities in monitoring the environmental impacts and implementation of necessary mitigation measures, it may be desirable to adopt cluster approach in case of smaller mine leases being operated presently. Further, these clusters need be provided with processing/crusher zones for forward integration and minimizing excessive pressure on road infrastructure. The respective State Governments / Mine Owners Associations may facilitate implementation of Environment Management Plans in such cluster of mines.

Requirement of Mine Plan for Minor Minerals:

At present, most of the State Governments have not made it mandatory for preparation of mining plan in respect of minor minerals. In some States like Rajasthan, eco- friendly mining plans are prepared, which are approved by the State Mining Department. The eco- friendly mining plans so prepared, though conceptually welcome, are observed to be deficient and need to be made comprehensive in a manner as is being done for major minerals. Besides, the aspects of reclamation and rehabilitation of mined out areas, progressive mine closure plan, as in vogue for major minerals could be introduced for minor minerals as well.

It is recommended that provision for preparation and approval of mine plan, as in the case of major minerals may appropriately be provided in the Rules governing the mining of minor minerals by the respective State Governments. These should specifically include the provision for reclamation and rehabilitation of mined out area, progressive mine closure plan and post mine land use.

Creation of Separate Corpus for Reclamation / Rehabilitation of Mines of Minor Minerals:

Mining of minor minerals, in our country, is by and large unorganized sector and is practiced in haphazard and unscientific manner. At times, the size of the leasehold is also too small to address the issue of reclamation and rehabilitation of mined outs areas. It may, therefore, be desirable that before the concept of mine closure plan for minor minerals is adopted, the existing abandoned mines may be reclaimed and rehabilitated with the involvement of the State Government. There is thus, a need to create a separate corpus, which may be utilized for reclamation and rehabilitation of mined out areas. The respective State Governments may work out a suitable mechanism for creation of such corpus on the `polluter pays' principle. An organizational structure may also need to be created for undertaking and monitoring these activities.

Depth of Mining:

Mining of minerals, whether major or minor have a direct bearing on the hydrological regime of the

NOTARY
A. K. LAL
Distt.-PATNA
Reg No-1883/
Exp.dt.-29.05.2027
GOVT OF BIHAR

area. Besides, affecting the availability of water as a resource, it also affects the quality of water through direct run of going into the surface water bodies and infiltration / leaching into groundwater. Further, groundwater withdrawal, dewatering of water from mine pit and diversion of surface water may cause surface and sub- surface hydrologic systems to dry up. An ideal situation would require that quarrying should be restricted to unsaturated zone only above the phreatic water table and should not intersect the groundwater table at any point of time. However, from the point of view of mineral conservation, it may not be desirable to impose blanket ban on mining operation below groundwater table. It is, therefore, recommended that detailed hydro-geological report should be prepared in respect of any mining operation for minor minerals to be undertaken below groundwater table. Based on the findings of the study so undertaken and the comments/ recommendations of Central Ground Water Authority/ State Ground Water Board, a decision regarding restriction on depth of mining for any area should be taken on case to case basis.

Uniform Minor Mineral Concession Rules:

The economic value of the minor minerals excavated in the country is estimated to contribute to about 9% of the total value of the minerals whereas the non- metallic minerals contribute to about 2.8%. Keeping in view the large extent of mining of minor minerals and its significant potential to adversely affect the environment, it is recommended that Model Mineral Concession rules may be framed for minor minerals as well and the minor minerals may be subjected to a simpler regulatory regime, which is, however, similar to major minerals regime.

River Bed Mining:

1. Environment damage being caused by unregulated river bed mining of sand, bajri and boulders is attracting considerable attention including in the courts. The following recommendations are therefore made for the river bed mining.

   (a) In the case of mining leases for riverbed sand mining, specific river stretches should be identified and mining permits/lease should be granted stretch wise, so that the requisite safeguard measures are duly implemented and are effectively monitored by the respective Regulatory Authorities.

   (b) The depth of mining may be restricted to 3m / water level, whichever is less.

   (c) For carrying out mining in proximity to any bridge and / or embankment, appropriate safety zone should be worked out on case to case basis, taking into account the structural parameters, locational aspects, flow rate etc. and no mining should be carried out in the safety zone so worked out.

Conclusion:

Mining of minor minerals, though individually, because of smaller size of mine leases is perceived to have lesser impact as compared to mining of major minerals. However, the activity as a whole is seen to have significant adverse impacts on environment. It is, therefore, necessary that the mining of minor minerals is subjected to simpler but strict regulatory regime and carried out only under an

NOTARY A. K LAL Distt.-PATNA Reg No -1883J Exp.dt.-29.05.2027 GOVT OF BIHAR

approved framework of mining plan, which should provide for reclamation and rehabilitation of the mined out areas. Further, while granting mining leases by the respective State Governments "location of any eco-fragile zone (s) within the impact zone of the proposed mining area, the linked Rules/ Notifications governing such zones and the judicial pronouncements, if any, need be duly noted.

The Union Ministry of Mines along with Indian Bureau of Mines and respective State Governments should therefore make necessary provisions in this regard under the Mines and Minerals (Development and Regulation) Act, 1957, Mineral Concession Rules, 1960 and adopt model Guideliness to be followed by all States (emphasis supplied)".

NOTARY
A. K LAL
Distt.-PATNA
Reg No -1883J
Exp.dt.-29.05.2027
GOVT OF BIHAR

REGIME OF LAW AND ADMINISTRATIVE ORDERS RELATING TO MINING OF MINOR MINERALS

The Entry 54 of List 1 in Schedule VII to the Constitution of India is the entry which empowers the Parliament in respect of 'Regulation of Mines and Minerals Development. Entry 23 of List 2 of the same Schedule, read with Article 246 (3) of the Constitution confers legislative powers on the State Legislature in respect of Regulation of Mines and Mineral Development, but, this power is subject to the provisions of List 1 with respect to the regulation and development under the control of the Union. The Parliament, with the object to amend and consolidate the law relating to the regulation of labour and safety in mines enacted the Mines Act, 1952. Section 2 (JJ) of the Mines Act, 1952 defines "minerals" to mean. all substances which can be obtained from the earth by mining, digging, drilling, dredging, hydraulicing, quarrying or by any other operation and includes mineral oils (which, in turn, include natural gas and petroleum). On 1st June, 1958, the Mines and Minerals (Development and Regulation) Act, 1957 was promulgated. This Act provides, inter alia, for general restrictions on undertaking prospecting and mining operations, the procedure for obtaining prospecting licenses or mining leases in respect of the land in which the minerals vests in the Government, the rule making power for regulating the grant of prospecting licenses and mining leases, special powers of Central Government to undertake prospecting or mining operations in certain cases, and for development of minerals.

The protection of natural environment is one of the fundamental duties of every citizen under Article 51-A of the Constitution of India. Article 48-A of the Constitution, obliged the State to endeavor to protect and improve the environment and to safeguard the forests and wild life of the country. The Environment (Protection) Act and Rules, 1986 were enacted and came into force on 19th November, 1986. The object of this Act is to provide for the protection and improvement of environment and for matters connected therewith. Under provisions of the Act and Rules of 1986, MoEFCC has issued various Notifications regulating the mining of minor minerals, specifically stating the procedures that were required to be complied by persons intending to carry on such mining activity and for the authorities to regulate the same.

Prior to 1994, there was no specific regime in place in relation to mining activity being carried out. The Notification issued by MoEF on 27th January, 1994, in exercise of the powers vested in it under Sub-Rule 3 of Rule 5 of the Rules of 1986 and Sub Section (1) and Clause (v) of Sub-Section (2) of Section 3 of the Act of 1986, prescribed the requirement and procedure for seeking Environmental Clearance for the projects listed in Schedule I. Schedule I of this Notification did not list mining projects of minor minerals. On the contrary, the projects covered under S. No. 20 of Schedule I of this Notification were only "mining projects (major mineral) with leases more than 5 hectares".

It provided for the constitution of Expert Committees and preparation of Environmental Impact Assessment Report which was to be evaluated and assessed by the Impact Assessment Agency. In exercise of the statutory powers afore-indicated, the Central Government on 14th September, 2006,

NOTARY A. K LAL Distt.-PATNA Reg No -1883J Expdt.-29.05.2027 GOVT OF BIHAR

issued a Notification, i.e., Environment Impact Assessment Notification, 2006'. In terms of this Notification, the projects as stated in the Schedule to this Notification required prior Environmental Clearance as per the procedure. The projects have been categorised into two kinds, i.e., Category 'A' and Category 'B' under Clause 2 of the Notification. Projects under Category 'A' were required to take prior Environmental Clearance by MoEFCC. For Category 'B' projects, Environmental Clearance was to be given by State Environment Impact Assessment Authority (SEIAA).

The mining of minerals (both major and minor) were brought under the ambit of the EIA Notification, 2006. The mine lease area of more than equal to 50 ha was Category 'A' and mine lease area less than 50 ha and more than equal to 5 ha was category 'B' project. Mine lease area of less than 5 ha (both major and minor) was kept out of EIA Notification purview.

The Notification of 2006 came to be amended by Notification dated 1st December, 2009. It included the category of non-coal mine and coal mine lease and provided that non-coal mine lease of area more than equal to 5 ha and less than 50 ha will be category 'B' and mine lease area more than equal to 50 ha will be category 'A'. Similarly, mine lease area of more than equal to 5 ha and less than 150 ha for coal mine lease will be category 'B' and mine lease area of coal mine more than 150 ha will be category 'A'. Here again mining lease area of less than 5 ha (both coal and non-coal mine) was kept out of EIA Notification purview.

The Hon'ble Supreme Court, vide its order dated 27.2.2012 in I.A. No.12-13 of 2011 in SLP (C) No.19628-19629 of 2009 titled Deepak Kumar etc. v/s State of Haryana & Ors. has inter alia ordered *"We, in the meanwhile, order that leases of minor mineral including their renewal for an area of less than five hectares be granted by the States/Union Territories only after getting environmental clearance from the MoEF."*

Hon'ble Apex Court in Deepak Kumar's case (supra) extensively examined the environmental concerns, in the context of mining of minor minerals, considering its impact on the environment. The Apex Court observed that Extraction of alluvial material from within or near a streambed has a direct impact on the stream's physical habitat characteristics. These characteristics include bed elevation, substrate composition and stability, in-stream roughness elements, depth, velocity, turbidity, sediment transport, stream discharge and temperature. Altering these habitat characteristics can have deleterious impacts on both in-stream biota and the associated riparian habitat. The demand for sand continues to increase day by day as building and construction of new infrastructures and expansion of existing ones is continuous thereby placing immense pressure on the supply of the sand resource and hence mining activities are going on legally and illegally without any restrictions. Lack of proper planning and sand management cause disturbance of marine ecosystem and also upset the ability of natural marine processes to replenish the sand. Quarrying, mining and removal of sand from in-stream and upstream of several rivers, which may have serious environmental impact on ephemeral, seasonal and perennial rivers and river beds and sand extraction may have an adverse effect on bio-diversity as well. Further it may also lead to bed degradation and sedimentation having a negative effect on the aquatic life.

Apex Court observed that without conducting any study on the possible environmental impact on/

NOTARY A. K LAL Distt.-PATNA Reg No.-1883J Exp.dt.-29.05.2027 GOVT OF BIHAR

in the river beds and else- where the auction notices have been issued. Hon'ble Apex Court observed that "We are of the considered view that when we are faced with a situation where extraction of alluvial material within or near a river bed has an impact on the rivers physical habitat characteristics, like river stability, flood risk, environmental degradation, loss of habitat, decline in biodiversity, it is not an answer to say that the extraction is in blocks of less than 5 hectares, separated by 1 kilo meter, because their collective impact may be significant, hence the necessity of a proper environmental assessment plan".

In order to ensure compliance of the aforesaid order of the Hon'ble Supreme Court, MoEF issued an OM No.L-11011/47/2011-IA.II(M) dated 18.05.2012 stating inter alia that all mining projects of minor minerals including their renewal, irrespective of the size of the lease would henceforth require prior EC and that the projects of minor minerals with lease area less than 5 ha would be treated as Category "B" as defined in EIA Notification, 2006 and will be considered by the respective State Environment Impact Assessment Authorities (SEIAAs) notified by MoEF and following the procedure prescribed under the EIA Notification, 2006.

On 24th June, 2013, MoEF issued another Office Memorandum stating Guidelines for consideration of proposals for grant of Environmental Clearance under the Notification of 2006 for mining of 'brick earth' and 'ordinary earth' having lease area of less than 5 hectares. Referring to the judgment of the Hon'ble Supreme Court in the case of Deepak Kumar (supra) and its Office Memorandum dated 18th May, 2012, it further considered that the 'brick kiln' manufactures had stated that it was a small scale activity requiring that certain depth should be kept outside the purview of Environmental Clearance. Having considered various aspects, examining the recommendations of the Expert Committee, constituted by MoEF, finally it was directed as follows:

"(a) The activities of borrowing / excavation of 'brick earth' and ordinary earth', upto an area of less than 5 ha, may be categorized under 'B2' Category subject to the following Guidelines in terms of the provisions under '7.I Stage(1)-Screening' of EIA Notification, 2006:

(i) The activity associated with borrowing/excavation of 'brick earth' and 'ordinary earth' for purpose of brick manufacturing, construction of roads, embankments etc. shall not involve blasting.

(ii) The borrowing/excavation activity shall be restricted to a maximum depth of 2 m below general ground level at the site.

(iii) The borrowing/excavation activity shall be restricted to 2 m above the ground water table at the site.

(iv) The borrowing/excavation activity shall not alter the natural drainage pattern of the area.

(v) The borrowed/excavated pit shall be restored by the project proponent for useful purpose(s).

(vi) Appropriate fencing all around the borrowed/excavated pit shall be made to prevent any mishap.

NOTARY A. K LAL Distt.-PATNA Reg. No.-1883J Exp.dt.-29.05.2027 GOVT OF BIHAR

(vii) Measures shall be taken to prevent dust emission by covering of borrowed/excavated earth during transportation.

(viii) Safeguards shall be adopted against health risks on account of breeding of vectors in the water bodies created due to borrowing/excavation of earth.

(ix) Workers / labourers shall be provided with facilities for drinking water and sanitation.

(x) A berm shall be left from the boundary of adjoining field having a width equal to at least half the depth of proposed excavation.

(xi) A minimum distance of 15 m from any civil structure shall be kept from the periphery of any excavation area.

2. (a) The concerned SEIAA while considering granting environmental clearance for such activity for brick earth / ordinary earth will prescribe the Guideliness as stated at (i) to (xi) above and specify that the clearance so granted shall be liable to be cancelled in case of any violation of above Guideliness.

(b) Notwithstanding what has been stated at (a) above, the following will apply:

(i) No borrowing of earth / excavation of 'brick earth' or 'ordinary earth' shall be permitted in case the area of borrowing/ excavation is within 1 km of boundary of national parks and wild life sanctuaries.

(ii) In case the area of borrowing / excavation is likely to result into a cluster situation i.e. if the periphery of one borrow area is less than 500 m from the periphery of another borrow area and the total borrow area equals or exceeds 5 ha, the activity shall become Category 'B 1' Project under the EIA Notification, 2006. In such a case, mining operations in any of the borrow areas in the cluster will be allowed only if the environmental clearance has been obtained in respect of the cluster. This issues with the approval of the Competent Authority."

These directions which were specific only to 'brick earth' and 'ordinary earth' activities for areas less than 5 hectares, as decided to be categorised as 'B 2' Category projects, subject to the restrictions stated in the memorandum, provided that if the cluster area exceeded 5 hectares, then it would become Category 'B 1' and would not be treated as Category 'B 2' projects. The above Office Memorandum was not dealing with the issues of sand mining or any other minor mineral activity except 'brick earth' and 'ordinary earth'. Further, MoEF has issued an amendment to EIA Notification vide Notification S O. 2731 (E) dated 9th September 2013 and amended the EIA Notification, 2006 for item 1 (a) as follows:

NOTARY A. K LAL Distt.-PATNA Reg No -1883J Exp.dt.-29.05.2027 GOVT OF BIHAR

(1)	(2)	(3)	(4)	(5)
"1(a)	(i) Mining of minerals.	≥ 50 ha of mining lease area in respect of non-coal mine lease	<50 ha of mining lease area in respect of minor minerals mine lease ; and < 50 ha ≥5 ha of mining lease area in respect of other non-coal mine lease.	General Conditions shall apply except for project or activity of less than 5 ha of mining lease area for minor minerals: Provided that the above exception shall not apply for project or activity if the sum total of the mining lease area of the said project or activity and that of existing operating mines and mining projects which were accorded environment clearance and are located within 500 metres from the periphery of such project or activity equals or exceeds 5 ha.
		>150 ha of mining lease area in respect of coal mine lease.	≤ 150 ha ≥ 5 ha of mining lease area in respect of coal mine lease.	(i) Prior environmental clearance is required at the stage of renewal of mine lease for which an application shall be made up to two years prior to the date due for renewal. Further, a period of two years with effect from the 4th April, 2011 is provided for obtaining environmental clearance for all those mine leases, which were operating as

NOTARY
A. K LAL
Distt.-PATNA
Reg No -1883J
Exp.dt.-29.05.2027
GOVT OF BIHAR

(1)	(2)	(3)	(4)	(5)
				on the 4th April, 2011 with requisite valid environmental clearance and which have fallen due for renewal on or after the 4th November, 2011: Provided that no fresh environmental clearance shall be required for a mining project or activity at the time of renewal of mining lease, which has already obtained environmental clearance under this notification.
	(ii) Slurry pipelines (coal lignite and other ores) passing through national parks or sanctuaries or coral reefs, ecologically sensitive areas.	All projects.		(ii) Mineral prospecting is exempted.

NOTARY A. K. LAL Distt.-PATNA Reg No-1883/ Exp.dt.-29.05.2027 GOVT OF BIHAR

In this Notification a new category of minor mineral was introduced and it was provided that mining lease area of minor mineral less than 50 ha will be category 'B' and will require EC. Accordingly the minor mineral mining projects having less than 5 hectare of lease area are required to be appraised by the SEIAA/SEAC of respective State for granting environment clearance. It was provided that the project or activity of less than 5 ha of mining lease area for minor minerals will be exempt from the General Conditions. Simultaneously the concept of cluster was introduced and it was provided that the exemption of applicability of General Conditions shall not apply for project or activity if the sum total of the mining lease area of the said project or activity and that of existing operating mines and mining projects which were accorded EC and are located within 500 m from the periphery of such project or activity equal or exceeds 5 ha.

The Ministry, on 24th December, 2013, issued another Office Memorandum for consideration of proposals for grant of Environmental Clearance regarding categorisation of Category 'B' projects into Category 'B (1)' and 'B (2)'. Mining of minor minerals had been separately dealt with in this Office Memorandum. This Office Memorandum stated that no river sand mining project with mining lease area of less than 5 hectares may be considered for grant of Environmental Clearance. Such area up to 25 hectares would be categorised as 'B (2)' and such projects were to be considered, subject to the stipulations stated therein. This Office Memorandum stated that no Environmental Clearance would be granted for extraction of minor minerals from any riverbed where the area is less than 5 hectares. Sand mining, in area other than riverbeds, would be permitted, only if the Project Proponent takes Environmental Clearance.

The Ministry vide Notification No. S.O. 1599 (E) dated 25.06.2014 reduced the area of 10 kilo meter to 5 kilo meters for applicability of General Conditions increasing the delegation to States by taking out projects located in 5 to 10 kilo meter of interstate boundary, CEPI, and, PAs from category 'A'.

The anomaly created by the Notification dated 09.09.2013 was corrected vide Notification No. S.O. 2601 (E) dated 7th October 2014, and category of minor mineral was deleted and mining leases were again classed as non-coal mine and coal mine and mining lease area of less than 50 ha was made category 'B' for non-coal mine and mine lease area of less than equal to 150 ha for coal mine was made category 'B'. The mine lease area of less than 5 ha was exempt from the applicability of General Conditions and cluster concept of Notification dated 09.09.2013 was retained.

NOTARY
A. K LAL
Distt.-PATNA
Reg No -1883J
Exp.dt.-49.05.2027
GOVT OF BIHAR

Notification S.O. 2601 (E) dated 7th October 2014 provides as follows:

(1)	(2)	(3)	(4)	(5)
"1(a)	(i) Mining of minerals.	≥ 50 ha of mining lease area in respect of non-coal mine lease. >150 ha of mining lease area in respect of coal mine lease. Asbestos mining irrespective of mining area.	<50 ha of mining lease area in respect of non-coal mine lease. ≤ 150 ha of mining lease area in respect of coal mine lease.	General Conditions shall apply except for project or activity of less than 5 ha of mining lease area: Provided that the above exception shall not apply for project or activity if the sum total of the mining lease area of the said project or activity and that of existing operating mines and mining projects which were accorded environment clearance and are located within 500 metres from the periphery of such project or activity equals or exceeds 5 ha. Note: (i) Prior environmental clearance is required at the stage of renewal of mine lease for which an application shall be made up to two years prior to the date due for renewal. Provided that no fresh environmental clearance shall be required for a mining project or activity at the time of renewal of mining lease, which has already obtained environmental clearance under this notification. (ii) Mineral prospecting is exempted. "
	(ii) Slurry pipelines (coal lignite and other ores) passing through national parks or sanctuaries or coral reefs, ecologically sensitive areas	All projects.		

NOTARY
A. K LAL
Distt.-PATNA
Reg No -1883J
Exp.dt.-29.05.2027
GOVT OF BIHAR

The NGT vide order dated 13.01.2015 (O.A. No. 123 of 2014 and M.A. No. 419 of 2014) has declared the Notification dated 09.09.2013 as invalid, inoperative and quashed it. The above order has also quashed the paragraph 4 (b) (i) of O.M. dated 24th June 2013 which provided that "No borrowing of earth / excavation of 'brick earth' or 'ordinary earth' shall be permitted in case the area of borrowing / excavation is within 1 km of boundary of national parks and wild life sanctuary." Though this provision was taken from the observation of Hon'ble Supreme Court in W.P. No. 435 of 2012 (Goa Foundation Vs. Union of India) and order dated 04.08.2006 of Supreme Court in *T.N. Godavarman Thirumulpad v. Union of India & Ors.* Supreme Court has taken a view that 1 km. from the boundaries of National Parks and Sanctuaries would be a safety zone, subject to the orders that may be made in IA No.1000 regarding Jamua Ramgarh Sanctuary and the State will not grant any Temporary Working Permit (TWP) in these safety zones comprising 1 km. from the boundaries of National Parks and Sanctuaries.

Similarly the proviso at paragraph 2 (iii) of O.M. dated 24.12.2013 which says that "No river sand mining project, with mine lease area less than 5 ha, may be considered for granting EC" has been quashed. This condition was taken from the recommendations of the Committee headed by the Secretary, MoEF constituted in 2010. The above proviso were quashed on the ground that as EIA Notification places no such restriction, so same cannot be imposed by an executive order and many hill States find it very difficult to get an area equal to or more than 5 ha. in riverbed. The information made available by the States also makes it clear that majority of the mining leases of sand are of area less than 5 hectares.

NOTARY A. K LAL Distt.-PATNA Reg No-1883J Exp.dt.-29.05.2027 GOVT OF BIHAR

THE ISSUES AND MANAGEMENT OF MINING IN CLUSTER

In I.A. No. 12-13 of 2011 in SLP Nos. 729-731 / 2011, 21833 / 2009, 12498-499 / 2010, SLP (C) CC ... 16157 / 2011 & CC 18235 / 2011 (Deepak Kumar and Ors. Vs. State of Haryana and Ors. etc.) Hon'ble Supreme Court in its order dated 27.02.2012 on the subject of cluster has quoted the submission of affidavit dated 23.11.2011 of MOEFCC. It says that "The Ministry is of the opinion that where the mining area is homogeneous, physically proximate and on identifiable piece of land of 5 ha. or more, it should not be broken into smaller sizes to circumvent the EIA Notification, 2006 as the EIA Notification, 2006 is not applicable to the mining projects having lease area of less than 5 ha. The Report of Committee on Minor Minerals, under the Chairmanship of Secretary (E&F) with representatives of various state governments as members including the State of Haryana and Rajasthan recommended a minimum lease size of 5 ha for minor minerals for undertaking scientific mining for the purpose of integrating and addressing environmental concerns. Only in cases of isolated discontinued mineral deposits in less than 5 ha, such mining leases may be considered keeping in view the mineral conservation".

The order further quotes that "Cluster of Mine Approach for Small Sized Mines: Considering the nature of occurrence of minor mineral, economic condition of the lessee and the likely difficulties to be faced by Regulatory Authorities in monitoring the environmental impacts and implementation of necessary mitigation measures, it may be desirable to adopt cluster approach in case of smaller mine leases being operated presently. Further these clusters need be provided with processing / crusher zones for forward integration and minimizing excessive pressure on road infrastructure. The respective State Governments / Mine Owners Association may facilitate implementation of Environment Management Plans in such cluster of mines." The order has further quoted the letter dated 1.06.2010 written by the then Minister of Environment, Forest and Climate Change which says on the subject that "A cluster approach to mines should be taken in case of smaller mines leases operating currently". The Hon'ble Court has ordered that "The State of Haryana and various other States have not so far implemented the above recommendations of the MoEF or the Guideliness issued by the Ministry of Mines before issuing auction notices granting short term permits by way of auction of minor mineral boulders gravel, sand etc., in the river beds and elsewhere of less than 5 hectares. We therefore, direct to all the States, Union Territories, MoEF and the Ministry of Mines to give effect to the recommendations made by MoEF in its report of March 2010 and the model Guideliness framed by the Ministry of Mines, within a period of six months from today and submit their compliance reports."

"We in the meanwhile, order that leases of minor mineral including their renewal for an area of less than five hectares be granted by the States/ Union Territories only after getting environmental clearance from the MoEF."

NOTARY A. K LAL Distt.-PATNA Reg No -1883J Exp.dt.-29.05.2027 GOVT OF BIHAR

The Ministry vide O.M. No. L-11011/47/2011-IA.II (M) dated 18th May 2012 said that "In order to ensure compliance of the above referred order of the Hon'ble Supreme Court dated 27.02.2012, it has now been decided that all mining projects of minor minerals including their renewal, irrespective of the size of the lease would henceforth require prior environment clearance. Mining projects with lease area up to less than 50 ha including projects of minor mineral with lease area less than 5 ha would be treated as Category 'B' as defined in EIA Notification, 2006 and will be considered by the respective SEIAAs notified by MoEF and following the procedure prescribed under EIA Notification, 2006."

On the issue of cluster, the Notifications No. S.O. 2731 (E) dated 09.09.2013 and Notification No. S.O. No. 2601 (E) of 07.10.2014 were issued.

The above Notifications in Schedule at Item No. 1 (a) in Conditions mentions that "General Conditions shall apply except for projects or activity of less than 5 ha of mining lease area:

Provided that the above exception shall not apply for project or activity if the sum total of the mining lease area of the said project or activity and that of existing operating mines and mining projects which were accorded environment clearance and are located within 500 meters from the periphery of such projects or activity equals or exceeds 5 ha. The Office Memorandum No. J-13012/12/2013-IA-II (1) dated 24.12.2013 is about Guideliness for consideration of proposals for grant of environment clearance under Environment Impact Assessment Notification 2006 and its amendments - regarding categorization of Category 'B' projects/ activities into Category 'B1' & 'B2'.

The above O.M. besides categorizing the Category B into Category B1 & B2 also has directions on mining of brick earth / ordinary earth and river sand mining. These provisions are as follows:

"Mining of minor minerals:

As of now, mining projects of minor minerals with less than 50 hectare of mining lease areas are categorized as Category 'B' as per Notification S.O. 2731 (E) dated 9th September 2013. Also vide O.M. No. L-11011/47/2011-IA-II (M) dated 24.06.2013, Guideliness has been issued regarding categorization of mining projects of brick earth and ordinary earth having lease areas less than 5 hectare as Category 'B2' subject to stipulations stated therein.

In the above backdrop, the projects of mining of minor minerals, categorized as Category 'B' are hereby categorized as 'B2' as per the following:

(i) 'Brick Earth' / 'Ordinary Earth' mining projects having lease area less than 5 ha will be considered for granting EC as per the aforesaid Guideliness issued by MOEF on 24.06.2013.

(ii) 'Brick Earth' / 'Ordinary Earth' mining projects with mining lease area more than equal to 5 ha but less than equal to 25 ha and all other minor , mineral mining projects with mining lease area < 25 ha, except for river sand mining projects will be appraised as Category 'B2' projects.

NOTARY A. K LAL Distt.-PATNA Reg No -1883J Exp.dt.-29.05.2027 GOVT OF BIHAR

These projects will be appraised based on the following documents:

(a) Form-1 as per the Appendix-I under the EIA Notification 2006

(b) Pre-feasibility report of the project

(c) Mining plan approved by the authorized agency of the concerned State Government.

Provided in case the mining lease area is likely to result into a cluster situation, i.e. if the periphery of one lease area is less than 500 meter from the periphery of another lease area and the total lease area equals or exceeds 25 ha, the activity shall become Category 'B1' Project under the EIA

Notification, 2006. In such a case, mining operations in any of the mine lease areas in the cluster will be allowed only if the environmental clearance has been obtained in respect of the cluster.

About river sand mining it says that:

(iii) No river sand mining project, with mine lease area less than 5 ha, may be considered for granting EC. The river sand mining projects with lease area more than equal to 5 ha but less than 25 ha will be categorized as 'B2'. In addition to the requirement of documents, as brought out above under sub-para (ii) above for appraisal, such projects will be considered subject to the following stipulations:

(a) The mining activity shall be done manually. The depth of mining shall be restricted to 3 m / water level, whichever is less.

(b) For carrying out mining in proximity to any bridge and / or embankment, appropriate safety zone shall be worked out on case to case basis to the satisfaction of SEAC / SEIAA, taking into account the structural parameters, locational aspects, flow rate etc., and no mining shall be carried out in the safety zone so worked out. No in-stream mining shall be allowed.

(c) The mining plan approved by the authorized agency of the State Government shall inter-alia include study to show that the annual replenishment of sand in the mining lease area is sufficient to sustain mining operations at levels prescribed in the mining plan and that the transport infrastructure is adequate to transport the mines material. In case of transportation by road the transport vehicles will be covered with the tarpaulin to minimize dust/ sand particle emissions.

(d) EC will be valid for mine lease period subject to a ceiling of 5 years.

Provided, in case the mining lease area is likely to result into a cluster situation i.e. if the periphery of one lease area is less than 1 km from the periphery of another lease area and total lease area equals to or exceeds 25 ha., the activity shall become Category 'B1' Projects under EIA Notification, 2006. In such a case, mining operation in any of the mine lease area in the cluster will be allowed only if the environment clearance has been obtained in respect of the cluster.

NOTARY A. K LAL Distt.-PATNA Reg No -1883J Exp.dt.-29.05.2027 GOVT OF BIHAR

The NGT order dated 13.01.2015 in O.A. No. 123 of 2014 and M.A. No. 419 of 2014 has following directions on the issue of cluster: "In light of the judgment of the Supreme Court and what has emerged from the various cases that are subject matter of this Judgment, we direct the Ministry of Environment and Forest to formulate a uniform cluster policy in consultation with the States for permitting minor mineral mining activity including its regulatory regime, in accordance with law.

Notification S.O. 1559 (E) dated 25th June 2014 provides that "Any project or activity specified in Category 'B' will be appraised at the Central Level as Category 'A', if located in whole or in part within 5 km. from the boundary of: (i) Protected Areas; (ii) CEPI; (iii) ESA; (iv) Inter-state boundaries or international boundaries ……..".

The NGT vide its order dated 13.01.2015 has quashed the Notification dated 9th September 2013, but similar provision on clusters exists in Notification dated 7th October 2014.

The EIA Notification 2006, as amended makes it clear that projects in respect of non-coal mine leases, where the area is more than equal to 50 hectares would require prior Environmental Clearance from MoEFCC, while the projects of area less than 50 hectares would be appraised for prior Environmental Clearance at the level of SEIAA.

The EIA Notification of 2006 in Clause 7 specifies the stages through which projects for grant of Environmental Clearance are required to be passed and processed. The stages include Screening, Scoping, Public Consultation and Appraisal, upon which, the Expert Appraisal Committee makes recommendation to the MoEF/SEIAA. Under 'Screening', this Clause 7 also provides for a further bifurcation of projects falling under category 'B' into 'B 1' and 'B 2'. The relevant part of Clause 7, dealing with this aspect, reads as under: "Stage (1) - Screening (Only for Category 'B' projects and activities): In case of Category 'B' projects or activities, this stage will entail the scrutiny of an application seeking prior environmental clearance made in Form 1 by the concerned State level Expert Appraisal Committee (SEAC) for determining whether or not the project or activity requires further environmental studies for preparation of an Environmental Impact Assessment (EIA) for its appraisal prior to the grant of environmental clearance depending up on the nature and location specificity of the project . The projects requiring an Environmental Impact Assessment report shall be termed Category 'B1' and remaining projects shall be termed Category 'B2' and will not require an Environment Impact Assessment report. For categorization of projects into B1 or B2 except item 8 (b), the Ministry of Environment and Forests shall issue appropriate Guideliness from time to time."

The Ministry on 24th December, 2013, issued Office Memorandum for consideration of proposals for grant of Environmental Clearance regarding categorisation of Category 'B' projects into Category 'B1' and 'B2'. Mining of minor minerals had been separately dealt with in this Office Memorandum. Such area up to 25 hectares would be categorised as 'B 2' and such projects were to be considered, subject to the stipulations stated therein.

NOTARY A. K LAL Distt.-PATNA Reg No -1883J Exp.dt.-29.05.2027 GOVT OF BIHAR

The EIA Notification, 2006 does not provide for issuance of Environment Clearance to Cluster of mines. It provides for EC to individual lease holders / project proponents. This position has also been upheld by the Hon'ble Supreme Court in its judgment of Vivek Bansal Vs. State of Haryana that EC should be applied for and granted to the individual lease holder.

There has been rising concerns about adverse impact of mining on small leases (less than 5 hectare) in case the numbers of such leases are large and they are located in close proximity to each other. This leads to the definition of Cluster. To avoid the rigors of environment impact assessment studies, environment management plan and the environment clearance there has been a tendency to break the leases into size which does not attract the provisions of environment impact assessment studies, environment management plan, public consultation and the environment clearance. In Deepak Kumar's case Hon'ble Supreme Court also encountered this situation and in its order dated 27.02.2012 mandated that no mining lease or renewal be done without environment clearance irrespective of size.

It is seen that the categorization of mines into 'B1' and 'B2' category in which Category 'B2' leases are being exempted from the requirement of Environment Impact Assessment, Environment Management Plan, and Public Consultation for grant of EC, in many cases now the mining leases are being given for 25 hectares or less. This defeats the purpose and intent of Hon'ble Supreme Court Judgment which orders environment clearance for all mining leases irrespective of size. The environment clearance without Environment Impact Assessment, Environment Management Plan, and Public Consultation does not serve the purpose of environment clearance which is to ensure environmentally sustainable and socially responsible mining. So if a cluster or individual lease size exceeds 5 hectare, the EIA/ EMP should be completed in the process of grant of prior environment clearance.

The EIA Notification, 2006 and subsequent amendments to that or any O.M. issued by the Ministry do not provide for procedures and Competent Authority for environment clearance for cluster. In a cluster there will mostly be situation where there are a number of different lease holders and as per the settled law the lease holder has to do the working of mine and the lease holder is the one who can apply for and get the environment clearance. The conditions stipulated in the environment clearance have to be complied by the EC holder and any violation of that empowers the authority to cancel the environment clearance or prosecute the EC holder if necessitated by the circumstances.

For cluster there is no mechanism about who will apply for EC, EC will be issued in whose name, and who will be responsible for compliance of EC conditions.

The intent of cluster assessment is to have a holistic knowledge of the impact on environment by different mines operating in close proximity of each other. There are also requirement of mitigative measures which need implementation in concerted manner by different EC holders of that cluster. To ensure that it is important that there should be an integrated Environment Impact Assessment /

NOTARY A. K LAL Distt.-PATNA Reg No.-1883J Exp.dt.-29.05.2027 GOVT OF BIHAR

Environment Management Plan for the cluster to be presented before the authority appraising the projects and considering the proposals for grant of EC. This integrated EIA/ EMP can be prepared by either the lease holder, group of lease holders, State or the State Agencies. This EIA/ EMP need to be prepared by the accredited consultants / Registered Qualified Persons of the State Governments. The application for EC and grant of EC should be done in the name of individual lease holders in the background of the integrated EIA/EMP report. The Competent Authority (SEIAA/ SEAC / EAC) will entertain individual lease holder's application for grant of EC to individual mining lease projects in that cluster in the name of lease holders. The conditions related to mitigative measures necessitated by the integrated EIA/EMP may run across more than one lease holder or EC holders, that should figure in each EC accordingly and its compliance be ensured by the individual EC holders.

The Hon'ble Supreme Court, NGT, SEAC/EAC and the Project Proponents have raised issue of cluster in mine lease allotment and environment clearance for the same, so following conditions need to be ensured for cluster of mines:

1. To address the concern of adverse impact of minor mineral mining on environment it is proposed that all mining activity including river sand mining (above 5 hectare individual or cluster) will need to prepare Environment Impact Assessment Report and Environment Management Plan before grant of environment clearance. These reports (EIA /EMP) can be prepared by the State or State nominated Agency / the Project Proponent (s).
2. As can be seen from the data provided by the States most of the mining leases for minor minerals are of lease area less than 5 hectare. It is also reported that in hill states getting a stretch in river with area more than 5 hectare is very uncommon. So the size of lease for minor minerals including river sand mining will be determined by the States as per their circumstances.
3. The EIA Notification, 2006 does not provide for cluster EC, it provides for issuance of EC to individual project proponents and the same has also been upheld in the judgment of Hon'ble Supreme Court in Vijay Bansal vs. State of Haryana case. So EC will have to be applied for and issued to the individual project proponent.
4. A cluster shall be formed when the distance between the peripheries of one lease is less than 500 meters from the periphery of other lease in a homogeneous mineral area.
5. The mining of minor minerals is mostly in clusters. The Environment Impact Assessment or Environment Management Plan are required to be prepared for the entire cluster in order to capture all the possible externalities. These reports shall capture carrying capacity of the cluster, transportation and related issues, replenishment and recharge issues, geo-hydrological study of the cluster area. The Environment Impact Assessment or Environment Management Plan shall be prepared by the State or State nominated Agency or group of project proponents

NOTARIAL A. K LAL Distt.-PATNA Reg No -1863J Exp.dt.-29.05.2027 GOVT OF BIHAR

in the Cluster or the project proponent in the cluster.

6. The individual lease holders in cluster can use the same Environment Impact Assessment or Environment Management Plan for application for environmental clearance. The cluster Environment Impact Assessment or Environment Management Plan shall be updated as per need keeping in view any significant change.

7. There shall be one public consultation for entire cluster after which the final Environment Impact Assessment or Environment Management Plan report for the cluster shall be prepared.

8. The details of cluster Environment Impact Assessment or Environment Management Plan shall be reflected in each environmental clearance in that cluster and District Expert Appraisal Committee (DEAC), SEAC, and EAC shall ensure that the mitigative measures emanating from the Environment Impact Assessment or Environment Management Plan study are fully reflected as environmental clearance conditions in the environmental clearance's of individual project proponents in that cluster.

9. As the sand is mostly mined from rivers and majority of the rivers which are important source of sand also form boundary between States, so because of General Conditions most of the sand mining projects become Category 'A' project. So the General Conditions will not apply in case of river sand and gravel mining projects on account of being in 5 kilometer of inter-state boundary.

10. The Committee headed by the District Magistrate or District Collector will be empowered to appraise and grant EC for mining leases up to 5 ha in case of individual lease and up to 25ha in case of cluster for sand mining.

11. In case the mining leases are in cluster (if periphery of one lease is within 500 meters), fowling are the categorization of projects:-

- Category 'B2'Project: Cluster area of mine leases up to 5 ha and to be dealt at DEIAA/ DEAC level
- Category 'B2'Project: Cluster area of Mine leases > 5 ha and < 25 ha with no individual lease > 5 ha and to be dealt at DEIAA/DEAC level
- Category 'B1'Project: Cluster of mine leases of area > 25 hectares with individual lease size < 50ha and to be dealt at SEIAA/SEAC level
- Category 'A' Project: Cluster of any size with any of the individual lease >50ha and to be dealt at MoEFCC/EAC level

NOTARY A. K LAL Distt.-PATNA Reg. No -1883J Exp.dt.-29.05.2027 GOVT OF BIHAR

The schematic presentation of requirements on Environmental Clearance of Sand Mining including cluster situation is detailed as below:-

Area of Lease (Hectare)	Category of Project	Require-ment of EIA / EMP	Require-ment of Public Hearing	Require-ment of EC	Who can prepare EIA/ EMP	Who will apply for EC	Authority to appraise/ grant EC	Authority to monitor EC compliance
EC Proposal of Sand Mining in cluster situation								
Cluster area of mine leases up to 5 ha	**'B2'**	Form-1M, PFR and Approved Mine Plan	No	Yes	State, State Agency, Group of Project Proponents, Project Proponent	Project Proponent	DEAC/ DEIAA/	DEIAA SEIAA SPCB CPCB MoEFCC Agency nominated by MoEFCC
Cluster area of Mine leases > 5 ha and < 25 ha with no individual lease > 5 ha	**'B2'**	Form-I, PFR and Approved Mine Plan and one EMP for all leases in the Cluster	No	Yes	State, State Agency, Group of Project Proponents, Project Proponent	Project Proponent	DEAC/ DEIAA/	
Cluster of mine leases of area > 25 hectares with individual lease size < 50ha	**'B1'**	Yes	Yes	Yes	State, State Agency, Group of Project Proponents, Project Proponent	Project Proponent	SEAC/ SEIAA	

NOTARY A. K. LAL Distt.-PATNA Reg No.-1883J Exp.dt.-29.05.2027 GOVT OF BIHAR

Cluster of any size with any of the individual lease > 50ha	**'A'**	Yes	Yes	Yes	State, State Agency, Group of Project Proponents, Project Proponent	Project Proponent	EAC/ MoEFCC	

NOTARY
A. K LAL
Distt.-PATNA
Reg No - 1883J
Exp.dt-29.05.2027
GOVT OF BIHAR

MANAGEMENT OF SAND DEPOSITED AFTER FLOOD ON AGRICULTURAL FIELD OF FARMERS

The Standing Committee on Water Resources on issues, concerning flood management, compensation, and status of ownership of submerged and eroded land in the country including compensation to farmers for loss of their crops destroyed by floods and right to disposal of the sand left in the fields of farmers in its meeting held on 29.04.2015 made observations on this subject.

The Committee observed that pursuant to Hon'ble Supreme Court of India decision in "Deepak Kumar Case" in 2012, regulations were framed by the Ministry of Mines to guide environmental clearance of minor minerals. ... The Committee, therefore, desires the Ministry of Water Resources, River Development and Ganga Rejuvenation to work in close coordination with the Ministry of Mines and Environment, Forest and Climate Change to frame regulations / Guideliness in this regard expeditiously.

Mining of Sand

The Committee further observed that due to the floods, the agricultural land of farmer is destroyed and rendered infertile. Further the farmer loses his livelihood as the produce of his land is destroyed by flood and become unsalable. The farmer is also deprived of the right of lifting sand from his land. He is therefore, left helpless and destitute and leave their land in search of job.

The Committee observes that "mining operation" means any operation undertaken for the purpose of winning any mineral. Accordingly, if desilting is undertaken perse with the objective of winning a mineral then only it will be construed as a mining operation. Apparently, if the desilting is undertaken not for winning any mineral, it will not be construed as mining operation and therefore, the farmer can remove the sand from the land without requiring the requisite permits. However, the Committee strongly feels that the farmer be given the right to use and dispose-off the sand accumulated over their land post flood, by incorporating the necessary provisions in the Mines and Mineral (Development and Regulation) Act, 1957".

Removal of sand from the agricultural field by the owner farmer of the land from environment point of view will not be considered as mining operation and its removal and disposal can be allowed without the requirement of environment clearance till it is done only to the extent of reclaiming the agricultural land. The sand deposited after flood only be removed, so no mining / digging below the ground level is allowed. For removing sand in case where private land has gone into the river due to erosion, the requirement of mining lease and environment clearance will continue. This operation

NOTARY A.K LAL Distt.-PATNA Reg No -1883J Exp.dt.-29.05.2027 GOVT OF BIHAR

of removal of sand deposited on agricultural field should be done after a mapping of deposition is done by the Land Management Committee of the Gram Panchayat. The sand so deposited post flood can be removed by the farmer owning the land / group of farmers affected by this post flood sand deposition or the Gram Panchayat. Customary rights to remove and dispose off the sand should be given to the farmer affected by deposition of sand on account of sudden flood in his agricultural land.

NOTARY A. K LAL Distt.-PATNA Reg No -1883J Exp.dt.-29.05.2027 GOVT OF BIHAR

MINING OF SAND FROM AGRICULTURAL FIELD

This practice is prevalent in Haryana, where the top layer of soil varying between 1 and 2 meters is removed and stacked separately and thereafter the sand deposit which may be 10-15 meter deep is mined. After removing the sand layer up to a maximum depth of 09 meters, the top soil stacked is spread out on the field and the same is brought under the cultivation. Though the level of this land (mined out area) is lowered to the depth of the excavation and in initial years of cultivation the productivity is low, but the productivity of the fields improves with continued cultivation and addition of organic manure in the field. In Haryana some leases are of large area (ranging from 1000 hectare to 2000 hectare) the agricultural fields and river bed both are included in the same lease for mining.

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

1. Mining of sand in such mine leases will require environment clearance.
2. The lease should be of sand mining either from the agricultural field or river. In same lease both type of area should not be included.
3. The sand mining from agricultural field is being done in Haryana for a long time and it can be done in a more sustainable manner without adverse impact on agricultural productivity, if proper environmental safeguards are taken.
4. The slope of mining area adjacent to agricultural fields should be proper (preferably 45-60 degree) and adequate gap (minimum 10 feet) be left from adjacent agricultural field to avoid erosion and scouring.

CUSTOMARY RIGHT ON SAND MINING

The native people have their long held customary rights to take silt, sand & soil from their tanks and nearby rivers for their use or community works in the village in almost all the States in some form or the other.

Next to the reserved forests, tanks and rivers are the biggest common properties in India. Most of the village tanks are 'government properties' with some exceptions of privately held tanks. Land revenue department, irrigation department and forest department is given powers to deal with property right' and hence protecting all tanks and rivers preventing damages including encroachments is their responsibility. The local villagers were given 'customary rights' under the Revenue Department Orders, and other laws related to Panchayats and Easements to take sand, soil and earth for agricultural and domestic purposes without seeking any permission from anyone. The States strive to keep these customary rights to use such resources like soil and sand for individuals work and community work in the village intact without requirement of any permit and clearance. These customary rights need to be protected and respected.

NOTARY A. K LAL Distt.-PATNA Reg No -1863J Exp.dt.-29.05.2027 GOVT OF BIHAR

DESILTING OF RESERVOIRS / BARRAGES / ANNECUTS / LAKES / CANALS

These structures are generally in possession and maintenance of Irrigation Department / Minor Irrigation Department / PHED of State Governments. The dams and reservoirs can be a significant source of sand. Many such structures are silted and their water holding capacity has gone down considerably. In some instances to compensate for silted capacity raising of height of dam or construction of new structures is proposed which further leads to submergence of new areas of agricultural field and forests. Taking up desilting of such projects can serve dual purpose of increasing the water holding capacity and making available the sand for other usage. In some States the Irrigation Department is permitted to use it for the departmental works free of charge and balance can be disposed of in market after paying the due royalty. A detailed study is required to be carried out to verify economic viability and environmental sustainability before contemplating dredging of storage reservoirs for sand / gravel mining.

The de-silting of reservoir dredging for upkeep and maintenance of structures, channels and averting natural disasters will not be treated as mining for the purpose of environmental clearance.

The Ministry of Water Resources (MoWR) view on desiltation from flood control point of view is as follows:

A multidisciplinary Committee (Mittal Committee) under the chairmanship of Dr. B.K. Mittal, former Chairman, Central Water Commission was constituted by MoWR, vide letter dated 08.10.2001 to identify cause and extent of siltations in rivers, suggest measures to minimize siltation, examine as to whether desilting is a technically feasible means to minimize magnitude of flood in rivers, suggest appropriate technology/ methods of desilting of rivers, propose a realistic operational programme in a time bound manner and other related aspects. The committee studied in respect of few sites on Ganga, Brahmputra, Godavari, Krishna etc., and inter-alia concluded that:

i) Siltation in river is not pronounced and alarming;

ii) Desilting of rivers for flood control is not an economically viable solution;

iii) Dredging in general has been found to be inadequate and should not be resorted to, particularly in major rivers;

iv) There are, of course, some locations such as tidal rivers, confluence points with narrow constrictions and the like which can be tackled by desilting after thorough examination and techno-economic justification;

v) Selective dredging is suggested depending upon local conditions; and

vi) Desilting of rivers can marginally minimize the magnitude of floods and be effective only for a short period.

Thus, desilting in general is not feasible technically, due to several reasons like non-sustainability, non- availability of vast land required for disposal of dredged material etc. This cannot be viewed in isolation of other approaches to manage floods. Desilting of rivers in vulnerable reaches may be suggested based on model study, if it is found techno-economically viable. For navigation purposes, the river reaches in the water ways path may be dredged to have minimum depth of water.

NOTARY A. K. LAL Distt.-PATNA Reg No -1883J Exp.dt.-29.05.2027 GOVT OF BIHAR

MINING PLAN

The Environment Clearance shall be given to only those mining leases which have mine plan approved by the Competent Authority designated by the States. Modification of the mining plan during operation will also need approval of the Competent Authority. The Mining Plan shall be prepared by the Recognised Qualified Persons (RQP). The person to be recognized for preparing the mining plan should be a holding a degree of Mining Engineering, Environmental Engineering or a post graduate degree in Geology granted by a University established or incorporated by or under a Central Act or a State Act including any institutions recognized by the UGC or any equivalent qualification granted by any University or institution outside India and have a professional experience of three years of working in a supervisory capacity in the field of mining after obtaining a degree. The States will devise their own mechanism of selection and empanelment of RQPs. A mining plan should be valid for a period of 5 years, which can be renewed further.

EVALUATING THE IMPACT OF SAND MINING

To assess the impact of mining and effect of remedial measures can be assessed through monitoring. This is also required for mid-course corrections. Monitoring will provide data to evaluate the upstream and downstream effects of sand and gravel extraction activities, and long-term changes. A brief report summarizing the annual results of the physical and biological monitoring should document the evolution of the sites over time, and the cumulative effects of sand and gravel extraction. The summary should also recommend any modification of extraction rates needed to minimize impacts of extraction.

Sand Replenishment, Geomorphology and Hydrology:

Physical monitoring requirements of sand and gravel extraction activities should include surveyed channel cross-sections, longitudinal profiles, bed material measurements, geomorphic maps, and discharge and sediment transport measurements. The physical data will illustrate bar replenishment and any changes in channel morphology, bank erosion, or particle size.

In addition to local monitoring for replenishment at specific mining sites, monitoring of the entire reach through the estuary will provide information on the cumulative response of the system to sand and gravel extraction. For example, it is important for downstream bars and the estuary to receive sufficient sand and gravel to maintain estuarine structure and function. Because the elevation of the bed of the channel is variable from year to year, a reach-based approach to monitoring will provide a larger context for site-specific changes. If long-term monitoring data show that there is a reach-scale trend of bed lowering (on bars or in the thalweg), the extraction could be limited.

Cross-sections:

Surveyed channel cross-sections should be located at permanently documented sites upstream, downstream and within the extraction area. Cross-sections intended to show reach- scale changes

NOTARY A. K LAL Distt.-PATNA Reg No -1883J Exp.dt.-29.05.2027 GOVT OF BIHAR

should be consistently located over geomorphic features such as at the head of riffles, across the deepest part of pools, or across particular types of channel bars.

Cross-section spacing should be close enough to define the morphology of the river channel. Cross-section data should be surveyed in March or April to evaluate changes that may occur during the flooding season.

Cross-section data should be collected over the reach to the estuary, and locally upstream, downstream, and within each mining site. This long-term monitoring data should be collected and analyzed even if no mining occurs in order to understand and estimate the sand budget of the river reach.

Photo-documentation:

Photographs of the project sites should be taken prior to excavation to document the baseline conditions, and again during each monitoring session. Photos should be taken twice a year. Photos of structures nearby like outfalls / off-takes, intakes, bridges and other structures may also be regularly taken.

Groundwater Level:

Monitoring wells should be established adjacent to each off-channel floodplain excavation to record changes in ground water levels. Measurements should be taken monthly. This should help analyse surface water and ground water interaction along the reach.

Extent and Quality of Riparian Vegetation:

Document the extent and quality of riparian vegetation, including successional status, and any increase in disturbance indicators (non-native plants). The extent of riparian habitat can be determined utilising aerial photos. Habitat quality data, i.e., successional status and species composition, must be determined through field reconnaissance.

Riparian Vegetation Maps:

Develop yearly maps of the sensitive habitat areas and document their aerial extent over time. These maps may be combined with the geomorphic maps. Monitor sites identified as sensitive for disturbance in excess of expected geomorphic trends - i.e., massive bank wasting up or downstream from an active mine site. Monitor sand and gravel mining impacts which may translate up and downstream, causing accelerated erosion of sensitive zones and impacting the ability of new habitat to form due to excessive scour or sedimentation.

This monitoring / documentation should be done by the EC holders and will be regularly checked and assessed by the DEIAA for corrective steps in time. The DEIAA should review the status of monitoring and documentation data of each mining site especially for sand mining once in a year.

NOTARY
A. K. LAL
Distt.-PATNA
Reg No -1883J
Exp.dt.-29.05.2027
GOVT OF BIHAR

MONITORING SYSTEM FOR SUSTAINABLE SAND MINING

The implementation of these Guideliness on Sustainable Sand Mining is not possible till States create a robust mechanism to monitor the mining operation and measure the mined out mineral. The entire exercise of Environment Impact Assessment and Environment Management Plan aims towards making the mining process environmentally sustainable. The Environment Clearance letter indicates the EC capacity that is the quantity of material which can be mined in a year. If this quantity is not measured, and much more mineral than envisaged in the EC is mined out then the entire process of EC is rendered futile. Keeping above objective in mind it is required of the State / State Agencies to create and establish a robust system to monitor and measure the mined out mineral at each lease location and its transportation in State.

The State Governments have t ied various methods for monitoring the sand mining in their are.s, the main feature of which generally has been through Transport Permits (T.P.). The printing of Transport Permits on security paper, invisible ink mark, fugitive ink background, VOID pantograph and Unique Barcode are some of the tools used by the States. These tools need to be backed by suitable software and dedicated websites with security certifications at different levels.

The system proposed is that States should issue Transport Permit. Bar code on the T.P. when scanned using the system, will generate a unique invoice number. The bidder has to enter destination, distance between plot and destination, vehicle number etc in the system. After scanning, unique bar code number; invoice date & time and validity date & time is sent to the bidder, which need to be written on T.P. Validity of T.P. is calculated based on distance between plot and destination. After validity time is over the T.P. stands invalid. The officers involved in monitoring should be provided with the android application using which the T.P. can be checked anywhere on road. As soon as the bar code on T.P. gets scanned through using android application, all details of T.P. such as plot details, vehicle details, validity time etc. should get fetched from server. This means, if anything is re-written on T.P. and attempt is made to reuse the same, it can be traced immediately. Registering of T.P. on server can be done using website, using android application (smartphone with internet) or even through SMS (smartphone without internet). This implies that TP can be registered on server even if only mobile phone range is available on plot. Various reports can be generated using the system showing daily lifting reports and user performance report. This way the vehicles carrying sand can be tracked from source to destination.

NOTARY
A. K LAL
Distt.-PATNA
Reg No -1883J
Exp.dt.-29.05.2027
GOVT OF BIHAR

MONITORING SYSTEM FOR SUSTAINABLE SAND MINING

PROCEDURE FOR MONITORING OF SAND MINING OR RIVER BED MINING

1. The security feature of Transport Permit shall be as under:

(a) Printed on Indian Banks' Association (IBA) approved Magnetic Ink Character Recognition (MICR) Code paper.

(b) Unique Barcode.

(c) Unique Quick Response (QR) code.

(d) Fugitive Ink Background.

(e) Invisible Ink Mark.

(f) Void Pantograph.

(g) Watermark.

2. Requirement at Mine Lease Site:

(a) Small Size Plot (Up to 5 hectare): Android Based Smart Phone.

(b) Large Size Plots (More than 5 hectare): CCTV camera, Personal Computer (PC), Internet Connection, Power Back up.

(c) Access control of mine lease site.

(d) Arrangement for weight or approximation of weight of mined out mineral on basis of volume of the trailer of vehicle used.

3. 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 smart phone. It will require internet availability on SIM card;

(c) SMS: Transport Permit or Receipt shall be uploaded on server even by sending SMS through mobile. Once Transport Permit or Receipt get uploaded, an unique invoice code gets generated with its validity period.

NOTARY A. K LAL Distt.-PATNA Reg. No.-1883J Exp.dt.-29.05.2027 GOVT OF BIHAR

4. Proposed working of the system:

The State Mining Department should print the Transport Permit or Receipt with security features enumerated at Paragraph 1 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, 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.

5. 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 website, Android Application and SMS.

6. Breakdown of Vehicle:

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 or call centre.

7. Tracking of Vehicles:

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

8. Alerts or Report Generation and Action Review:

The system will enable the authorities to develop 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 DEIAA, SEIAA 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.

NOTARY A. K LAL Distt.-PATNA Reg. No.-1883/ Exp.dt.-29.05.2027 GOVT OF BIHAR

ADMINISTRATIVE STRUCTURE FOR ENVIRONMENT CLEARANCE AND ENSURING COMPLIANCE OF EC CONDITIONS

An no mining in allowed without Envirnomental Clearance. The process of EC involves preparation of EIA/EMP, PER and mine plan.

The EIA/EMP can be prepared by the State Government or any agency of the State, group of project proponents in the cluster or the individual project proponent. The EIA / EMP can be prepared by the accredited consultants or the Registered Qualified Person(s) / agencies selected by the States.

DISTRICT ENVIRONMENT IMPACT ASSESSMENT AUTHORITY

The Central Government has constitu ted the District Level Environment Impact Assessment Authority (DEIAA), for grant of environmental clearance for Category 'B2' Projects for mining of minor minerals, for all the districts in the country.

For, minor minerals including sand and gravel mining lease of area up to 5 hectare in case of individual lease and up to 25 ha in case of cluster for sand mining, the grant of EC will be done by the District Environment Impact Assessment Authority (DEIAA) headed by the District Magistrate or District Collector. This Authority will be responsible for proper and sustainable management of sand mining in the district. The Authority will be responsible for designating the area / stretch in river suitable for mining in the district and also identifying the area / stretch in river prohibited for sand mining. The Authority will ensure clear demarcation of mining site, its documentation, and ensuring that no mining takes place without EIA / EMP and EC of the mining site.

The Chairperson and official members of the Authority for the districts should hold office during their tenure in the district on said posts and the expert member shall hold office for a period of three years from the date of nomination by the Competent Authority. The Committee shall meet at least once in a month.

The District Environment Impact Assessment Authority (DEIAA) :

The DEIAA will have following composition :

1.	District Magistrate or District Collector of the district	Chairperson
2.	Senior most Divisional Forest Officer in the district	Member
3.	An expert member to be nominated by the Divisional Commissioner or Chief Conservator of the Forest	Member
4.	Sub-Divisional Magistrate or Sub-Divisional Officer of the district head quarter	Member-Secretary

NOTARY A. K. LAL Distt.-PATNA Reg No-1883/ Exp.dt.-29.05.2027 GOVT OF BIHAR

DISTRICT LEVEL EXPERT APPRAISAL COMMITTEE:

The District Level Expert Appraisal Committee (DEAC) will appraise the cases and make recommendations to the District Environment Impact Assessment Authority for environmental clearance. This Committee will also make recommendations / suggestions on the District Survey Report to the DEIAA. The DEAC will have following composition:

1.	Senior most Executive Engineer, Irrigation Department	Chairperson
2.	Senior most Sub-Divisional Officer (Forest)	Member
3.	A representative of Remote Sensing Department or Geology Department or State Ground Water Department to be nominated by the District Magistrate or District Collector	Member
4.	Occupational health expert or Medical Officer to be nominated by the District Magistrate or District Collector	Member
5.	Engineer from Zila Parishad	Member
6.	A representative of State Pollution Control Board or Committee	Member
7.	An expert to be nominated by the Divisional Commissioner or Chief Conservator of Forest	Member
8.	An expert to be nominated by the Divisional Commissioner or Chief Conservator of Forest	Member
9.	An expert to be nominated by the Divisional Commissioner or Chief Conservator of Forest	Member
10.	Senior most Assistant Engineer, Public Works Department	Member
11.	Assistant Director or Deputy Director or District Mines Officer or Geologist in the district in that order	Member- Secretary

The DEAC will meet at least once a month. depending on the work load the frequency of meetings can be decided by the Chairperson of DEAC and Chairperson, DEIAA.

Each proposal for the mining lease under consideration for environmental clearance in the district will be inspected on-site by the Sub-Divisional Level Committee headed by the SDM.

NOTARY A. K LAL Distt.-PATNA Reg No -1883J Exp.dt.-29.05.2027 GOVT OF BIHAR

The Sub-Divisional Committee should comprise of following officers:

Sub-Divisional Magistrate	Chairperson
Sub-Divisional Officer, Forest/ Assistant Conservator of Forest/ Forest Range Officer	Member
Representative of State Pollution Control Board	Member
SDO, Irrigation Department	Member
Geologist or Assistant Geologist or Mining Officer / Mining Inspector	Member

The presence of at least three members will be needed for inspection. This Committee shall submit its report within 15 days from the receipt of the proposal.

The monitoring of EC conditions and enforcement of EMP will be ensured by the District Collector and the, State Pollution Control Board. The monitoring of enforcement of EC conditions can also be done by the Central Pollution Control Board, Ministry of Environment, Forest & Climate Change and the agency nominated by the Ministry for the purpose.

Schematic Presentation of Requirements on Environmental Clearance of Sand Mining including cluster situation

Area of Lease (Hectare)	Category of Project	Requirement of EIA / EMP	Requirement of Public Hearing	Requirement of EC	Who can prepare EIA/ EMP	Who will apply for EC	Authority to appraise/ grant EC	Authority to monitor EC compliance
EC Proposal of Sand Mining on the basis of individual mine lease								
0 - 5ha	**'B2'**	Form - 1M, PFR and Approved Mine Plan	No	Yes	Project Proponent	Project Proponent	DEAC/ DEIAA	DEIAA SEIAA SPCB CPCB MoEFCC Agency nominated by MoEFCC

NOTARY A. K LAL Distt.-PATNA Reg No -1883J Exp.dt.-29.05.2027 GOVT OF BIHAR

> 5 ha and < 25 ha	**'B2'**	Form-I, PFR and Approved Mine Plan and EMP	No	Yes	Project Proponent	Project Proponent	SEAC / SEIAA	DEIAA SEIAA SPCB CPCB MoEFCC Agency nominated by MoEFCC
≥ 25ha and < 50ha	**'B1'**	Yes	Yes	Yes	Project Proponent	Project Proponent	SEAC / SEIAA	
≥ 50 ha	**'A'**	Yes	Yes	Yes	Project Proponent	Project Proponent	SEAC / SEIAA	
EC Proposal of Sand Mining in cluster situation								
Cluster area of mine leases up to 5 ha	**'B2'**	Form - 1M, PFR and Approved Mine Plan	No	Yes	State, State Agency, Group of Project Proponents, Project Proponent	Project Proponent	DEAC/ DEIAA/	DEIAA SEIAA SPCB CPCB MoEFCC Agency nominated by MoEFCC
Cluster area of Mine leases > 5 ha and < 25 ha with no individual lease > 5 ha	**'B2'**	Form -I, PFR and Approved Mine Plan and one EMP for all leases in the Cluster	No	Yes	State, State Agency, Group of Project Proponents, Project Proponent	Project Proponent	DEAC/ DEIAA/	

NOTARY A. K LAL Distt.-PATNA Reg No -1883J Exp.dt.-29.05.2027 GOVT OF BIHAR

Cluster of mine leases of area ≥ 25 hectares with individual lease size < 50ha	**'B1'**	Yes	Yes	Yes	State, State Agency, Group of Project Proponents, Project Proponent	Project Proponent	SEAC/ SEIAA	
Cluster of any size with any of the individual lease ≥ 50ha	**'A'**	Yes	Yes	Yes	State, State Agency, Group of Project Proponents, Project Proponent	Project Proponent	EAC/ MoEFCC	

General Conditions will not apply on account of inter- state boundaries for river sand mining leases.

NOTARY
A. K LAL
Distt.-PATNA
Reg No -1883J
Exp.dt.-29.05.2027
GOVT OF BIHAR

EXEMPTION OF CERTAIN CASES FROM BEING CONSIDERED AS MINING FOR THE PURPOSE OF REQUIREMNT OF ENVIRONMENTAL CLEARANCE

Keeping in view the purpose, maintenance of infrastructure, abatement of disasters, customary easement and property rights, it is felt that following cases may not be treated as mining for the purpose of requirement of environmental clearance. The following cases shall not require prior environmental clearance, namely:-

1. Extraction of ordinary clay or sand, manually, by the Kumhars (Potter) to prepare earthen pots, lamp, toys, etc. as per their customs.
2. Extraction of ordinary clay or sand, manually, by earthen tile makers who prepare earthen tiles.
3. Removal of sand deposits on agricultural field after flood by farmers.
4. Customary extraction of sand and ordinary earth from sources situated in Gram Panchayat for personal use or community work in village.
5. Community works like de-silting of village ponds or tanks, construction of village roads, ponds, bunds undertaken in Mahatama Gandhi National Rural Employment and Guarantee Schemes, other Government sponsored schemes, and community efforts.
6. Dredging and de-silting of dams, reservoirs, weirs, barrages, river, and canals for the purpose of their maintenance, upkeep and disaster management.
7. Traditional occupational work of sand by Vanjara and Oads in Gujarat vide notification number GU/90(16)/MCR-2189(68)/5-CHH, dated the 14th February, 1990 of the Government of Gujarat.
8. Digging of well for irrigation or drinking water.
9. Digging of foundation for buildings not requiring prior environmental clearance.
10. Excavation of ordinary earth or clay for plugging of any breach caused in canal, nala, drain, water body, etc., to deal with any disaster or flood like situation upon orders of District Collector or District Magistrate.
11. Activities declared by State Government under legislations or rules as non- mining activity with concurrence of the Ministry of Environment, Forest and Climate Change, Government of India.

NOTARY
A. K LAL
Distt.-PATNA
Reg No -1883J
Exp.dt.-29.05.2027
GOVT OF BIHAR

STANDARD ENVIRONMENTAL CONDITIONS FOR SAND MINING

Impact Category	S.No.	Environmental Conditions
Stakeholder Engagement	1	In the case of private land not owned by the lease holder an affidavit should be obtained regarding consent of the concerned land owner (s) for carrying out the mining operation.
	2	Stakeholder awareness and ability to raise concerns and getting it to be addressed.
	3	Implementation of Action Plan on the issues raised during the Public Hearing. The Proponent shall complete all the tasks as per the Action Plan submitted with the budgetary provisions during the Public Hearing.
	4	Having valid lease and all the permits is very much needed.
	5	To establish a Monitoring Committee including Local Panchayat, to check on traffic due to transportation and submit an annual report on the same.
	6	The directions given by the Hon'ble Supreme Court of India vide order dated 27.02.2012 in Deepak Kumar case [SLP(C) Nos. 19628-19629 of 2009] and order dated 05.08.2013 of the Hon'ble National Green Tribunal in application No. 171/2013 may be strictly followed.
	7	All the provisions made and restrictions imposed as covered in the Minor Mineral Rule, shall be complied with, particularly regarding Environment Management Practices and its fund management and Payment of compensation to the land owners.
Sustainable Mining Practices	8	District level Survey Report should be prepared and area suitable for mining and area prohibited for mining be identified.
	9	The depth of mining in Riverbed shall not exceed one meter or water level whichever is less, provided that where the Joint Inspection Committee certifies about excessive deposit or over accumulation of mineral in certain reaches requiring channelization, it can go up to 3 meters on defined reaches of the River.
	10	No River sand mining be allowed in rainy season.
	11	To submit annual replenishment report certified by an authorized agency. In case the replenishment is lower than the approved rate of production,

NOTARY A. K. LAL Distt.-PATNA Reg No -1883J Expire-29.05.2027 GOVT OF BIHAR

		then the mining activity / production levels shall be decreased / stopped accordingly till the replenishment is completed.
	12	Ultimate working depth shall be up to 3.0 m from Riverbed level and not less than one meter from the water level of the River channel whichever is reached earlier. In hilly terrain this depth be preferably restricted to one meter.
	13	In River flood plain mining a buffer of 3 meter to be left from the River bank for mining.
	14	In mining from agricultural field a buffer of 3 meter to be left from the adjacent field.
	15	Mining shall be done in layers of 1 meter depth to avoid ponding effect and after first layer is excavated, the process will be repeated for the next layers.
	16	To maintain safety and stability of Riverbanks i.e. 3 meter or 10% of the width of the River whichever is more will be left intact as no mining zone.
	17	No stream should be diverted for the purpose of sand mining. No natural water course and/ or water resources are obstructed due to mining operations.
	18	No blasting shall be resorted to in River mining and without permission at any other place.
	19	Depending upon the location, thickness of sand, deposition, agricultural land/Riverbed, the method of mining may be manual, semi-mechanized or mechanized; however, manual method of mining shall be preferred over any other method.
Identification and Preparation of Mining Site	20	Mining should be done only in area / stretch identified in the District Level Survey Report suitable for mining and so certified by the Sub-Divisional Level Committee after site visit.
	21	Mining should begin only after pucca pillar marking the boundary of lease area is erected at the cost of the lease holder after certification by the mining official and its geo coordinates are made available to the District Level Committee.
	22	The top soil in case of surface land mining shall be stored temporarily in an earmarked site and concurrently used for land reclamation.

NOTARY A.K LAL Distt.-PATNA Reg No-1883J Exp.dt.-29.05.2027 GOVT OF BIHAR

Monitoring the Mining of Mineral and its Transportation	23	The EC holder shall keep a correct account of quantity of mineral mined out, dispatched from the mine, mode of transport, registration number of vehicle, person in-charge of vehicle and mine plan. This should be produced before officers of Central Government and State for inspection.
	24	For each mining lease site the access should be controlled in a way that vehicles carrying mineral from that area are tracked and accounted for.
	25	The State / District Level Environment Committee should use technology like Bar Coding, Information and Communications Technology (ICT), Web based and ICT enabled services, mobile SMS App etc. to account for weight of mineral being taken out of the lease area and the number of trucks moving out with the mineral.
	26	There should be regular monitoring of the mining activities in the State to ensure effective compliance of stipulated EC conditions and of the provisions under the Minor Mineral Concessions Rules framed by the State Government.
Noise Management	27	Noise arising out of mining and processing shall be abated and controlled at source to keep within permissible limit.
	28	Restricted working hours. Sand mining operation has to be carried out between 6 am to 7 pm.
Air Pollution and Dust Management	29	The pollution due to transportation load on the environment will be effectively controlled and water sprinkling will also be done regularly.
	30	Air Pollution due to dust, exhaust emission or fumes during mining and processing phase should be controlled and kept in permissible limits specified under environmental laws.
	31	The mineral transportation shall be carried out through covered trucks only and the vehicles carrying the mineral shall not be overloaded. Wheel washing facility should be installed and used.
Management of Visual Impact	32	The mining operations are to be done in a systematic manner so that the operations shall create a major visual impact on the site.
Bio-Diversity Protection	33	Restoration of flora affected by mining should be done immediately. Twice the number of trees destroyed by mining to be planted preferably of indigenous species. Each EC holder should plant and maintain for lease period at least 5 trees per hectare in area near lease.
	34	No mining lease shall be granted in the forest area without forest clearance in accordance with the provisions of the Forest Conservation Act, 1980 and the rules made thereunder.

NOTARY A. K LAL Distt.-PATNA Reg No -18831 Exp.dt.-29.05.2027 GOVT OF BIHAR

	35	Protection of turtle and bird habitats shall be ensured.
	36	No felling of tree near quarry is allowed. For mining lease within 10km of the National Park / Sanctuary or in Eco-Sensitive Zone of the Protected Area, recommendation of Standing Committee of National Board of Wild Life (NBWL) have to be obtained as per the Hon'ble Supreme Court order in I.A. No. 460 of 2004.
	37	Spring sources should not be affected due to mining activities. Necessary Protection measures are to be incorporated.
Management of Instability and Erosion	38	Removal, stacking and utilization of top soil in mining are should be ensured. Where top soil cannot be used concurrently, it shall be stored separately for future use keeping in view that the bacterial organism should not die and should be spread nearby area.
	39	The EC should stipulate conditions for adequate steps to check soil erosion and control debris flow etc. by constructing engineering structures
	40	Use of oversize material to control erosion and movement of sediments
	41	No overhangs shall be allowed to be formed due to mining and mining shall not be allowed in area where subsidence of rocks is likely to occur due to steep angle of slope.
	42	No extraction of stone / boulder / sand in landslide prone areas.
	43	Controlled clearance of riparian vegetation to be undertaken
Waste Management	44	Site clearance and tidiness is very much needed to have less visual impact of mining.
	45	Dumping of waste shall be done in earmarked places as approved in Mining Plan.
	46	Rubbish burial shall not be done in the Rivers.
Pollution Prevention	47	The EC holder shall take all possible precautions for the protection of environment and control of pollution.
	48	Effluent discharge should be kept to the minimum and it should meet the standards prescribed.
Protection of Infrastructure	49	Mining shall not be undertaken in a mining lease located in 200-500 meter of bridge, 200 meter upstream and downstream of water supply / irrigation scheme, 100 meters from the edge of National Highway and railway line, 50 meters from a reservoir, canal or building, 25 meter from the edge of State Highway and 10 meters from the edge of other

NOTARY A. K LAL Distt.-PATNA Reg No -1883J Exp.dt.-29.05.2027 GOVT OF BIHAR

		roads except on special exemption by the Sub-Divisional level Joint Inspection Committee.
	50	For carrying out mining in proximity to any bridge or embankment, appropriate safety zone (not less than 200 meters) should be worked out on case to case basis, taking into account the structural parameters, location aspects and flow rate, and no mining should be carried out in the safety zone so worked out.
	51	Mining activities shall not be done for mine lease where mining can cause danger to site of flood protection works, places of cultural, religious, historical, and archeological importance.
Enhancement Road Safety	52	Vehicles used for transportation of sand are to be permitted only with **of** fitness and PUC Certificates.
	53	Junction at takeoff point of approach road with main road be properly developed with proper width and geometry required for safe movement of traffic by concession holder at his own cost.
	54	Project Proponent shall ensure that the road may not be damaged due to transportation of the mineral; and transport of minerals will be as per IRC Guideliness with respect to complying with traffic congestion and density.
	55	No stacking allowed on road side along National Highways.
Closure and Reclamation of Mined Out Area	56	The Project Proponent shall undertake phased restoration, reclamation and rehabilitation of land affected by mining and completes this work before abandonment of mine.
	57	Restoration, reclamation and rehabilitation in cluster should be done systematically and jointly by each EC holder in that cluster. This should be appropriately reflected as EC condition in each EC in cluster.
	58	Site specific plan with eco-restoration should be in place and implemented.
Health and Safety	59	Health and safety of workers should be taken care of.
	60	Transport of mineral will not be done through villages / habitations.
	61	The Project Proponent shall make arrangement for drinking water, first aid facility (along with species specific anti-venom provisioning) in case of emergency for the workers.

NOTARY A. K. LAL Distt. PATNA Reg No -18835 Exp.dt.-29.05.2027 GOVT OF BIHAR

	62	Project Proponent shall implement the Disaster Management Plan if the mine lease area is located in Seismic Zone-IV. Project Proponent shall appoint a Committee to have a check over any disaster to warn workers well before for the safety of the workers. Emergency helpline number will be displayed at all levels.
	63	Project Proponent shall appoint an Occupational Health Specialist for Regular and Periodical medical examination of the workers engaged in the Project and records maintained; also, Occupational health check-ups for workers having some ailments like BP, diabetes, habitual smokers, etc. shall be undertaken once in six months and necessary remedial/preventive measures taken accordingly. Recommendations of National Institute for Labour for ensuring good occupational environment for mine workers would also be adopted.
Monitoring the Impact of Mining	64	The Project Proponent shall report monitoring data on replenishment, traffic management, levels of production, River Bank erosion and maintenance of Road etc.
Mineral Conservation	65	Use of alternate material such as M-sand in place of natural River sand shall be encouraged in order to reduce stress on natural eco-system.

NOTARY
A. K LAL
Distt.-PATNA
Reg No -1883J
Exp.dt.-29.05.2027
GOVT OF BIHAR

APPENDIX: TABLE - 1

REVENUE FROM SAND MINING IN STATES / UTs

(Rs. in crores)

Sl.No.	STATE / U.T	2012 - 2013	2013 - 2014	2014 - 2015
01	Andaman & Nicobar	0.073	0	0
02	Arunachal Pradesh	7	8	5
03	National Capital Territory of Delhi	0	0	
04	Himachal Pradesh	0.70	0.35	0.07
05	Jharkhand	4.25	3.04	0.07
06	Karnataka	23.74	15.33	25.99
07	Madhya Pradesh	184.93	179.41	172.53
08	Meghalaya	14.50	15.88	15.50 (as forest royalty from govt. contractors)
09	Mizoram	0.018	0.0475	0.0861
10	Puducherry	0.80	0.20	0.03
11	Rajasthan	173.36	252.06	134
12	Tamil Nadu	188.50	117.73	109.10
13	Uttar Pradesh	97.27	166.45	168.38

* States/UTs not mentioned have not provided the data.

NOTARY A. K LAL Distt.-PATNA Reg No -1883J Exp.dt.-29.05.2027 GOVT OF BIHAR

APPENDIX: TABLE - 2

NUMBER OF MINING LEASES IN STATE

Sl.No.	STATE / U.T	In stream	Flood Plain	Sea Shore	Agricul-tural field	River	Total
01	Andaman & Nicobar						Nil
02	Andhra Pradesh						Nil
03	Haryana	5	12		7		31
04	Jammu & Kashmir					650	650
05	Jharkhand	10				387	397
06	Lakshadweep					1090	1090
07	Manipur						NIL
08	Meghalaya						NIL
09	Odisha						NIL
10	Punjab	2 + 80 Temporary Working Permit				73	155
11	Sikkim		85				85
12	Tripura	21	244		5		270

* States/UTs not mentioned have not provided the data.

NOTARY A. K LAL Distt.-PATNA Reg No -1883/ Exp.dt.-29.05.2027 GOVT OF BIHAR

APPENDIX: TABLE - 3

AVERAGE SIZE OF SAND MINING LEASES IN STATE / UT: 2014-15

(In Hectare)

Sl.No.	STATE / U.T	AVERAGE SIZE	SMALLEST MINING LEASE AREA	LARGEST MINING LEASE AREA
01	Andaman & Nicobar	NOT APPLICABLE		
02	Arunachal Pradesh	ONLY MINING PERMITS		
03	Himachal Pradesh	1.20	0.25	4.09
04	Jharkhand	0.25	0.13	87.38
05	Karnataka	5	5	19.42
06	Madhya Pradesh	8.52	0.30	306.98
07	Meghalaya	Mostly < 1.5 ha.		
08	Mizoram	NA		
09	Puducherry	NA		
10	Rajasthan	2 5 in Bikaner	24.82 2 in Bikaner	1901.89 5 in Bikaner
11	Tamil Nadu	29 leases < 10 ha.	14 leases of 10 - 15 ha.	42 leases > 15 ha.
12	Uttar Pradesh	25	5	200

* States/UTs not mentioned have not provided the data.

NOTARY A. K LAL Distt.-PATNA Reg No -1883J Exp.dt.-29.05.2027 GOVT OF BIHAR

APPENDIX: TABLE - 4

AVERAGE PERIOD OF SAND MINING LEASES IN STATE / UT

(In Hectare)

Sl.No.	STATE / U.T	AVERAGE MINING LEASE PERIOD (YEARS)
01	Andaman & Nicobar	Not Applicable
02	Arunachal Pradesh	Only mining permit is given
03	Himachal Pradesh	5
04	Jharkhand	3
05	Karnataka	2
06	Madhya Pradesh	5 to 10
07	Meghalaya	No lease in operation currently
08	Mizoram	No mining lease in operation currently
09	Puducherry	One year permit
10	Rajasthan	5 20-30 years in Bikaner
11	Tamil Nadu	3
12	Uttar Pradesh	3

* States/UTs not mentioned have not provided the data.

NOTARY A. K LAL Distt.-PATNA Reg No -1863J Exp.dt.-29.05.2027 GOVT OF BIHAR

APPENDIX: TABLE - 5

COMMON METHOD AND PRACTICE OF SAND MINING IN STATE / UT

Sl.No.	STATE / U.T	COMMON METHOD AND PRACTICE OF SAND MINING
01	Andaman & Nicobar	1. The Apex Court in its order dated 7.5.2002 in I.A. No. 502 in WP (C) No. 202 of 1995, had directed that extraction of sand be phased out @ minimum 20% per year on reducing balance basis to bring the sand mining to a level of 33% of the present level of mining within a maximum period of five years. 2. Since the level of extraction of sand in the territory in the year 2001-02 i.e. the base year, was 68909 cubic meter, the quantity of extractable sand is fixed at 22581 cubic meter. 3. The quantity of sea sand so allowed by MoEF is extracted from the identified and approved sites having such deposits on the sea beaches (identified accreting area) with adequate environmental safeguards so as to prevent any damage to the sensitive coastal eco-system including corals, turtle/ bird nesting sites and the protected areas. 4. The allotment of sea sand is made to the individuals by the Sand Allotment Committee constituted by the Lieutenant Governor under the Chairmanship of Chief Secretary who also heads the A&N CZMA. The quantum of sea sand allotted is fixed by the Committee on the basis of availability of sea sand and the number of applicants (local) applied for their bonafide use.
02	Arunachal Pradesh	1. Mining of sand restricted to foothills only that too for a very short period. Grant of mining lease is kept in abeyance, short term mining permits are issued to various Central and State agencies for carrying out developmental works under the strict supervision of the departmental officers.

* States/UTs not mentioned have not provided the data.

NOTARY A. K. LAL Distt.: PATNA Reg. No.-1883J Exp.dt.-29.05.2027 GOVT OF BIHAR

Sl.No.	STATE / U.T	COMMON METHOD AND PRACTICE OF SAND MINING
03	Himachal Pradesh	Manual. The mining lease areas are sanctioned on the river bed if the area is approved in survey document. The mining activities are allowed strictly in accordance with the approved working cum Environment Management Plan and after the environment clearance.
04	Jharkhand	Manual
05	Karnataka	Manual
06	Madhya Pradesh	Manual
07	Meghalaya	Hill quarrying in private areas
08	Mizoram	Extraction of sand limited mainly for domestic purpose in the state. The produce extracted illegally is seized as per the Mizoram Forest Act, 1955. Mining is only limited to river banks and riverbeds with improvised equipments like spade, shovel, small canoes, etc.
09	Puducherry	Manual
10	Rajasthan	In Rajasthan sand is available in seasonal streams and rivers except Chambal which is perennial but mining is banned because of Chambal Crocodile Sanctuary. Mining is done up to 3 meters and is open cast. It is filled in trucks either manually or semi mechanized method. In Bikaner no river exists and mining for sand is being done from palaeo-channel. In this palaeo-channel the sand deposit occurs at the depth of 5 meter to 20 meter below ground level with an over burden of 5 to 20 meters. The mining here is done open cast benching method, where overlying blown sand, gravel, pebble etc. is removed. the sand is further sieved, graded and washed upto 12 to 18 mesh size.
11	Tamil Nadu	Manual mining is carried out in certain quarries. In most of the sand quarries two poclains are used by the PWD.
12	Uttar Pradesh	Manual and Semi-mechanised

* States/UTs not mentioned have not provided the data.

NOTARY A. K LAL Distt.-PATNA Reg No.-1883J Exp.dt.-29.05.2027 GOVT OF BIHAR

APPENDIX: TABLE - 6

SUGGESTIONS / RECOMMENDATIONS FROM STATES / UTs FOR ENVIRONMENTALLY SUSTAINABLE SAND MINING

Sl.No.	STATE / U.T	SUGGESTIONS / RECOMMENDATIONS FOR ENVIRONMENTALLY SUSTAINABLE SAND MINING
01	Andaman & Nicobar	The quantum of extractable sand fixed at 22581 cubic meter should be enhanced. This limit has been fixed by the orders of Hon'ble Supreme Court subject to study by National Institute of Oceanography.
02	Arunachal Pradesh	1. For environmentally sustainable sand mining a strict and comprehensive sand mining policy need to be framed.
		2. River sand is becoming a scarce commodity and hence exploring alternative to it has become imminent. Manufactured sand is a good alternative both for fine as well as coarse sand used in concrete.
		3. Sand mining should be restricted to surface collection only without the use of heavy machinery.
		4. Due to turbulent and inaccessible nature of rivers flowing in the hilly terrains of the state, deposition of the sand in the river bed is very negligible and except for few quarries in the foothills and plains, most of the notified quarries are boulders and mining of sand is very negligible.
		5. In view of environment related issues the grant of mining lease for river bed minor mineral viz. sand, gravel, shingle, aggregate, boulder are kept in abeyance and extraction of these minerals is regulated only by grant of mining permits, that too not exceeding 3000 cubic meter in one permit.
		6. For scientific mining of sand and other minor minerals Guideliness has been prepared and accordingly Geo-Technical Committee has been constituted under the chairmanship of ADC/SDO in the district level to determine the quantity of quarriable mineral that can be safely removed and also to give technical clearance for notification of quarries of smaller size, preferably within one hectare.
03	Chhattisgarh	1. While attempting to prepare a model Guidelines / policy for the country, the differences that exist in different states may be taken into account. It may be tried to take all stakeholders along.

* States/UTs not mentioned have not provided the data.

NOTARY A.K.LAL Distt.-PATNA Reg. No.-1883J Exp.dt.-29.05.2027 GOVT OF BIHAR

Sl.No.	STATE / U.T	SUGGESTIONS / RECOMMENDATIONS FOR ENVIRONMENTALLY SUSTAINABLE SAND MINING
		2. To ease the process of EC granting, SEIAA may have benches across the State with each bench having a SEAC under it. Time bound clearance with ease of access and grant.
		3. Sand mining with use of machinery should be allowed.
		4. Road construction material like murram should be exempted from EC considering their local / pocket occurrences and impossibility of obtaining EC.
		5. Considering the traffic issue at urban areas and to reduce intermediaries like storage point dealers, night mining with adequate lighting should be allowed.
		6. To make the availability of sand from local rivulet / streams the river bank to in-stream mine area distance should be reduced from 10 meter to 3 meters.
04	NCT of Delhi	1. Location of sand mining should be identified by a committee comprising of revenue deptt., Irrigation Deptt., CGWB, SPCB, Forest Department and mining department. Mining area should distinctly be marked at site, before allowing mining.
		2. Depth of mining should be restricted to 3 mtrs or water level, whichever is less and that to from aggradation areas. The side slope of excavation should be less than 3:1.
		3. Requirement of sand and gravel should be reduced by utilization of construction and demolition waste. It requires not only legislative support but also awareness campaign among the society.
		4. Guidelines should be distinctly clear and easy to understand covring do's and don't during mining operation.
		5. Sufficient safe distance should be left between mining site and adjoining engineering structures like embankment, spurs, bed bars, bridges, reservoir and regulator etc.
		6. Security amount should be sufficient enough to compel the agency to carry out rehabilitation, corrective measures and to ensure strict compliance of conditions of lease. S.D. should be released after inspection of committee and recording of certificate that agency complied with the lease conditions.
		7. Mining may be carried out by state agency instead of private agaencies.

* States/UTs not mentioned have not provided the data.

NOTARY A. K LAL Distt.-PATNA Reg No -1883 Exp.dt.-29.05.2027 GOVT OF BIHAR

Sl.No.	STATE / U.T	SUGGESTIONS / RECOMMENDATIONS FOR ENVIRONMENTALLY SUSTAINABLE SAND MINING
05	Himachal Pradesh	1. Working cum Environment Management Plan has been made mandatory. The mining activities are allowed after submission of environment clearance.
		2. In compliance of order of Hon'ble Supreme Court dated 27.02.2012 in Deepak Kumar case, the Himachal Pradesh has repealed its rules called the Himachal Pradesh Minor Mineral (Concession) and Mineral (Prevention of illegal mining, transportation and Storage) Rule, 2015 in accordance to the recommendation of the Ministry of Environment & Forest and rules circulated by the Ministry of Mines. Hence the State of Himachal Pradesh has complied with the above directions of the Hon'ble Apex Court,
		3. Therefore the condition of applicability of Environment Clearance on the area less than 5 hectare shall be exempted.
		4. Further keeping in view, the peculiar topography, geography and socio-economic fabric of the State, the condition for the minimum size of the lease should be exempted as the rivers are in youth stage forming different land forms, land holdings are less, population is thin and scattered and the demand of minor mineral is limited, which could be met out locally by exploiting local resources on the small scale.
06	Jammu & Kashmir	1. Uniform Guidelines be framed for sand mining and river bed mining as they cannot be segregated.
		2. Identification of sand belts be made in consultation with CGWB and while framing Guideliness CGWB may be taken on board.
		3. Sand mining leases less than 5 hectare be exempted from EC and comprehensive policy may be made for hilly states for easing the process of grant of lease.
07	Jharkhand	1. Machine should not be used in sand mining. Only manual mining should be done.
		2. The depth of mining shall be restricted to 3 meter / water level whichever is less.
		3. No mining should be carried out in proximity of any bridge / embankment.
		4. In-stream mining should not be allowed.
		5. Mining should be done in accordance with an approved mining plan.

* States/UTs not mentioned have not provided the data.

NOTARY
A. K LAL
Distt.-PATNA
Reg No -1883J
Exp.dt.-29.05.2027
GOVT OF BIHAR

Sl.No.	STATE / U.T	SUGGESTIONS / RECOMMENDATIONS FOR ENVIRONMENTALLY SUSTAINABLE SAND MINING
		6. EC should be valid for settlement period subject to ceiling of five years.
08	Karnataka	1. Undertaking sand mining activity through a Government agency to be governed by District Level Sand Monitoring Committee headed by Deputy Commissioner.
		2. The area should be properly surveyed and mapped with the help of GPS to assign geo coordinates and accordingly erect boundary pillars so as to avoid illegal and unscientific mining.
		3. Depth of sand available may be indicated in a contour map using suitable drilled holes to ensure sand mining do not exceed one meter depth.
		4. Once thickness is established sand mining may be permitted to one meter depth where the thickness of sand is more than three meter deep. If the thickness of sand is less than three meter, sand mining shall not be permitted.
		5. Sufficient spacing shall be ensured from one block to another block and sufficient time gap shall be provided for replenishment before undertaking mining activity in the same block.
		6. Mining activity shall be restricted to only non-monsoon season and in the area that is exposed.
		7. No in-stream mining shall be permitted.
		8. No stream should be diverted for the purpose of sand mining. No natural water course and/ or water resources are obstructed due to mining operations.
		9. Site specific plan with eco-restoration should be in place.
		10. Sand mining shall be undertaken only by manual method without use of earth moving equipment such as JCB etc. Use of mechanized boats for sucking sand from in-stream area shall be strictly prohibited.
		11. Appropriate safety zones shall be maintained in proximity to any bridge / and / or embankment and other permanent structures. No sand mining shall be undertaken in such safety / buffer zones. Guideliness issued by the Ministry of Mines in this regard shall also be adhered to.
		12. The quarrying activity shall not intersect subterranean water level and ground water table.

* States/UTs not mentioned have not provided the data.

NOTARY A. K LAL Distt.-PATNA Reg No -1883J Exp.dt.-29.05.2027 GOVT OF BIHAR

MINISTRY OF ENVIRONMENT, FOREST AND CLIMATE CHANGE - GOVERNMENT OF INDIA

Sl.No.	STATE / U.T	SUGGESTIONS / RECOMMENDATIONS FOR ENVIRONMENTALLY SUSTAINABLE SAND MINING
		13. The top soil in case of surface land mining shall be stored temporarily in an earmarked site and concurrently used for land reclamation.
		14. Use of alternate material such as M-sand in place of natural river sand shall be encouraged in order to reduce stress on natural eco-system.
09	Madhya Pradesh	1. Geographical location of the state should be taken care of.
		2. Keep provision for extraction of sand from forest areas.
		3. Expedite the EC process.
		4. In inter-state boundary leases sand mining EC be given by the SEIAA.
		5. Clear Guidelines for B-1, B2 be issued.
		6. Simplify cluster cases.
		7. Exempt mining leases of less than 5 hectare from EC.
10	Meghalaya	1. No sand mining within 3 kilometer from Protected area and Reserved Forest area.
		2. Advance royalty etc for entire quantity of mineral be realized in full.
		3. Only loose boulder and sand are allowed to be removed from the mid river stream leaving 15 meter on either side untouched.
		4. No collection of sand is allowed on 15 meter of either side of structures like bridge, culvert etc.
		5. No blasting allowed.
		6. No extraction of stone / boulder / sand in landslide prone areas.
		7. No stacking allowed on road side along national highways.
		8. No felling of tree near quarry is allowed.
		9. No transportation of forest produce (sand from forest area) is allowed after sunset.
		10. Export fee realized if sand is sent outside the state.
		11. Stone crusher cannot be installed without permission of DFO.
		12. Tree should be planted at quarry after completion of mining.
		13. Violation of above conditions will result in cancellation of permit and forfeiture of advance royalty already paid.
11	Mizoram	1. Extraction of sand from the forest may be permitted strictly as per mining plan approved by the Competent Authority and after getting necessary clearance under various acts related to the forest and environment.

* States/UTs not mentioned have not provided the data.

NOTARY A. K LAL Distt.-PATNA Reg No -1883J Exp.dt.-29.05.2027 GOVT OF BIHAR

Sl.No.	STATE / U.T	SUGGESTIONS / RECOMMENDATIONS FOR ENVIRONMENTALLY SUSTAINABLE SAND MINING
12	Odisha	1. EC may be exempted for leases less than 5 hectare.
		2. EC should not be required for earth mining.
		3. Minor minerals even close to inter-state borders should be allowed to be cleared by the SEIAA.
		4. In case a river is forming boundary of states and mechanized mining of sand is causing tension in states it should be resolved at the national level.
13	Puducherry	1. Environment Clearance is issued by SEIAA, Puducherry strictly under the provisions of the EIA Notification, 2006 and subsequent amendments.
14	Rajasthan	1. The bajari mined out from river bed is filled back by the river itself during the next rainy season. So, nature itself reclaims the mined out area every year. The formation of bajari is a natural process in the river and it is also essential to remove bajari from the river bed to avoid silting. If the sand deposited in the river bed is not removed, it may cause change of river course and may also results in flood plains will be developed.
		2. Price control system adopted in Rajasthan. Sand is a essential commodity.
		3. The depth of mining should be restricted to 3 meters or above water table.
		4. Machinery having boom height more than 3 meter shall not be allowed in extraction of bajari.
		5. Size of mining leases be allowed below 5 hectare.
		6. In streams with low deposit of sand and if use is mostly local no mechanized mining should be allowed and EC should not be required.
		7. In larger deposits there should be semi-mechanised mining with EC.
		8. The sand (river and stream) in different categories, with their availability, use and size of the deposit. **Category A:** Small deposits in river and stream where thickness of sand bed is very less and sand is used locally in villages and towns only and no mechanical mining is done, in such areas restriction of obtaining Environment Clearance can be relaxed for manual mining.

* States/UTs not mentioned have not provided the data.

NOTARY A. K LAL Distt.-PATNA Reg. No.-1863J Exp.dt.-29.05.2027 GOVT OF BIHAR

MINISTRY OF ENVIRONMENT, FOREST AND CLIMATE CHANGE - GOVERNMENT OF INDIA

Sl.No.	STATE / U.T	SUGGESTIONS / RECOMMENDATIONS FOR ENVIRONMENTALLY SUSTAINABLE SAND MINING
		Category B: Large deposits, where in rivers and streams having thickness of sand bed is medium to large, sand mining, shall be allowed with semi mechanized manner after obtaining Environment Clearance. **Bikaner District:** Bikaner district is a desert terrain where ground water table is very deep. Bajari is excavated above water table and it does not affect the water table. In addition to this boulder, gravel and waste generated due to bajari mining is used in reclamation of pits. Hence environment is not adversely affected due to bajari mining.
15	Sikkim	1. Forest department is the nodal department for sand and stone extraction from the riverbed.
		2. Use of machines is prohibited.
		3. Quarrying sites are allotted to village youth cooperatives.
		4. For bigger companies quarry sites in forest area are allotted after FC.
		5. State Government has considerations for allotment of quarries for Border Road Organization and MoD.
		6. GoI can monitor mining in states through GIS.
16	Tamil Nadu	1. Excess sand deposits identified in the flood plains and in-stream areas only to be mined in order to safeguard and maintain ground water table.
		2. Sand mining operation has to be carried out between 6 am to 7 pm.
		3. Mining operation should be carried out in a systematic manner without affecting environment and ecology of the area.
17	Uttar Pradesh	1. Depth of mining cannot be more than 3 meter or water table whichever is less.
		2. Mining can be done in slices forming benches where bench height cannot be more than 1 meter and bench width cannot be less than 10 meter.
		3. A width of not less than 50 meter or 10% width of river can be restricted for mining activities from river bank. A condition can be imposed that mining will be done from river activities from river bank.
		4. SEIAA should be decentralized to expedite EC process. It can be decentralized to district or zonal level.

* States/UTs not mentioned have not provided the data.

NOTARY
A. K. LAL
Distt.-PATNA
Reg. No.-1883/
Exp.dt.-29.05.2021
GOVT OF BIHAR

Sl.No.	STATE / U.T	SUGGESTIONS / RECOMMENDATIONS FOR ENVIRONMENTALLY SUSTAINABLE SAND MINING
		5. Make EC conditions practical.
		6. Requirement of mining plan in river bed mining be done away with.
		7. There should not be requirement of EC for short term permit.
		8. The quantity of sand should not be fixed in EC as it leads to loss in revenue and illegal mining.
		9. Semi-mechanised form of sand mining be allowed.
		10. Sand mining to be exempted from EC as it takes 6-8 months and environment department do not have requisite work force to enforce EC conditions. A Guidelines for environmentally sustainable sand mining be framed and it can be complied by imposing it in the lease condition.
18	Uttarakhand	1. Area less than 5 hectare be exempted from EC.
		2. Use of machine be allowed for scientific mining and reducing the cost of production.
		3. RBM deposition in the lease should not be fixed for the entire lease period. RBM in lease area be assessed after rains every year.
		4. 70% of leases in state not operating for want of EC and these vacant lots are source of illegal mining.

* States/UTs not mentioned have not provided the data.

NOTARY A. K LAL Distt.-PATNA Reg No-1883J Exp.dt.-29.05.2027 GOVT OF BIHAR

MINISTRY OF ENVIRONMENT, FOREST AND CLIMATE CHANGE - GOVERNMENT OF INDIA

APPENDIX: TABLE - 7

BEST PRACTICE OF SAND MINING ADOPTED IN DISTRICT / STATE / UT

Sl.No.	STATE / U.T	DESCRIPTION OF BEST PRACTICES
01	Andaman & Nicobar	Institute of Ocean Management has been entrusted the task of identification of sand accreting sites.
02	Arunachal Pradesh	Mining of sand is restricted to foothills only that too for a very short period.
03	National Capital Territory of Delhi	In Delhi sand mining lease is granted by Revenue department. NOC from I&FC Deptt. Were issued with condition of limitation of depth, area of mining, operation timing limitation and limited period of NOC. Compliance of laid down conditions and monitoring is ensured by collector.
04	Himachal Pradesh	1. The mining activities on river beds are allowed strictly as per the provisions of river / stream bed mining policy as under.
		2. No river / stream bed mining shall be allowed without the recommendation of the Sub Divisional Level Committee constituted under the Chairmanship of Sub Divisional Magistrate having XEN PWD, Irrigation and Public Health, SPCB, DFO and Mining Officer as its member.
		3. Nor river / stream bed mining shall be allowed within 75 meter from the periphery of soil conservation works, nursery plantations, check dams or within the distance as recommended by the Sub-Divisional Committee whichever is more.
		4. No river / stream bed mining shall be allowed within 1/10th of its span or 5 meters from the banks or as specified by the Sub-Divisional Level Committee, whichever is more.
		5. Nor river / stream bed mining shall be allowed within 200 meters upstream and downstream of water supply scheme or as specified by the Committee whichever is more.
		6. Nor river / stream bed mining shall be allowed within 200 meters upstream and 200 to 500 meters downstream of bridges depending upon the site specific conditions.

* States/UTs not mentioned have not provided the data.

NOTARY A. K. LAL Dist. PATNA Reg. No. -1883 Exp.dt.-29.05.2027 GOVT OF BIHAR

Sl.No.	STATE / U.T	DESCRIPTION OF BEST PRACTICES
		7. No approach road from PWD road shall be allowed to lease area unless lessee / contractor obtains written permission from XEN, PWD for making road leading to all intake places from the PWD road. 8. No boulders/ cobbles/ hand broken road ballast shall be allowed to be transported outside the State from river/stream beds. 9. No digging for more than 3 feet shall be allowed in river/ stream beds. 10. No blasting shall be allowed in river/stream beds.
05	Madhya Pradesh	1. In some districts the Cooperative Societies of Labour are doing the sand collection, loading and unloading work.
06	Tamil Nadu	Permission has been granted in favour of PWD for quarrying sand in the river Poramboke lands in 16 districts in the state of Tamil Nadu. Sand mining is being carried out by the PWD in the entire State.
07	Uttar Pradesh	U.P. Minor Mineral Concession Rules, 1963.

* States/UTs not mentioned have not provided the data.

NOTARY
A. K LAL
Distt.-PATNA
Reg No -1883J
Exp.dt.-29.05.2027
GOVT OF BIHAR

APPENDIX: TABLE - 8

STATUS OF PROMULGATION OF RULE ON SAND MINING IN THE STATE / UT

Sl.No.	STATE / U.T	NAME OF RULE WITH YEAR OF PROMULGATION
01	Andaman & Nicobar	Indian Forest Act, 1927 as sand has been included as forest produce.
02	Arunachal Pradesh	APMMCR 2002 and made effective from 1.01.2003
03	Himachal Pradesh	1. River/Stream bed Mining Policy-2004.
		2. Himachal Pradesh Minor Mineral Policy-2013.
		3. Himachal Pradesh Minor Mineral (Concession) and Mineral (Prevention of illegal mining, transportation and storage) Rule, 2015.
04	Jharkhand	Rule 12 of Jharkhand Minor Mineral Concession (Amendment) Rule 2014.
05	Karnataka	Karnataka Sand Policy was brought out in the year 2011 and as such amendment to the Karnataka Minor Mineral Concession Rule 1994 were made in the year 2011 and a separate chapter IV B for sand mining was introduced under Rule 31-R. Further, as per the Hon'ble Supreme Court orders sated 27.02.2012 in SLP No. 19628-19629 between Deepak Kumar and State of Haryana and others and as per the model Guidelines issued by the Government of India for Environmental Management of Mining of Minor Minerals, amendment to the Karnataka Minor Mineral Concessions Rule 1994 were brought out on 16.12.2013 incorporating a new chapter II A applicable to all minor minerals on Systematic, Scientific Mining and Protection of Environment, wherein Quarrying Plan, Environmental Management Plan and Environment Clearance was made mandatory. Amendments to Rule 31- R were also made wherein the Government, PWD Department was entrusted with sand mining, storage and transportation, under the District Sand Monitoring Committee and Taluk Sand Monitoring Committee.
06	Madhya Pradesh	Rules have been framed as per the orders of Hon'ble Supreme Court for sand mining under M.P. Minor Mineral Rules 1996 and Sand Mining Policy 2015 is also formulated in the State.

* States/UTs not mentioned have not provided the data.

NOTARY A. K LAL Distt.-PATNA Reg No -1883J Exp.dt.-29.05.2027 GOVT OF BIHAR

Sl.No.	STATE / U.T	NAME OF RULE WITH YEAR OF PROMULGATION
07	Meghalaya	No rules notified by the state on sand mining
08	Mizoram	Mizoram Forest Act, 1955, which came into force on 1.01.1956.
09	Puducherry	Puducherry Minor Minerals (Concession) Rules, 1977.
10	Rajasthan	RMMCR, 1986 Notification dated 2.11.2012: 1. First proviso of Rule 8(2) and first proviso of 17 (1) - Renewal of Bajari Mining Leases is not allowed. 2. Rule 16 (3) - Mining Leases of Bajari to be granted for 5 years. 3. Rule 18 (18) - Part surrender of lease area of Bajari not allowed. Notification dated 3.4.2013 - (First proviso Rule 7 (1)- Mining leases of Bajari to be granted only by way of tender or auction. Notification dated 12.07.2013 - (First proviso Rule 11 (2)) - Maximum area limit of 10 sq. km. not applicable for Bajari Mining Leases. Bikaner District: Chapter II of RMMCR, 1986 (last amended 12.07.2013).
11	Sikkim	Sikkim Forest (Allotment of Areas for Quarrying of Sand and Stone), 2006.
12	Tamil Nadu	1. As per G.O. Ms. No. 95 Industries (MMCI) Department dated 1.10.2003, a new Rule 38 A has been introduced in the Tamil Nadu Minor Mineral Concession Rules, 1959. Accordingly quarrying and sale of sand is being carried out by PWD in the state of Tamil Nadu since October 2003. 2. As per G.O. Ms. No. 158 Industries (MMIC) Department dated 25.08.2008, a new Rule 38 B has been introduced in the Tamil Nadu Minor Mineral Concession Rules, 1959. Accordingly transportation of sand outside the state not to be made. To regulate storage and transportation of sand a new Rule 38 C B has been introduced in the Tamil Nadu Minor Mineral Concession Rules, 1959 vide G.O. No. 32 Industries (MMIC) Department dated 11.02.2011.

* States/UTs not mentioned have not provided the data.

NOTARY A. K LAL Distt.-PATNA Reg No.-1883J Exp.dt.-29.05.2027 GOVT OF BIHAR

APPENDIX: TABLE -9

NORMAL DATES OF ONSET AND WITHDRAWAL OF SOUTH-WEST MONSOON

The India Meteorological Department, Nagpur, vide letter No. NAGPUR RMC /CS-312, dated 18th January,2016 has provided the period of Rainy Season viz. Normal dates of Onset and Withdrawal of Southwest Monsoon over India as state-wise and union territory- wise which are as below:-

States	Normal date of Onset of SW-Monsoon	Normal date of Withdrawal of SW-Monsoon
Andhra Pradesh	1st June	15th October
Arunachal Pradesh	5th June	15th October
Assam	5th June	15th October
Bihar	10th June	15th October
Chhattisgarh	10th June	15th October
Goa	5th June	15th October
Gujarat	15th June	15th September
Haryana	1st July	15th September
Himachal Pradesh	1st July	15th September
Jammu & Kashmir	1st July	15th September
Jharkhand	10th June	15th October
Karnataka	5th June	15th October
Kerala	1st June	15th October
Madhya Pradesh	15th June	1st October
Maharashtra	10th June	1st October
Manipur	1st June	15th October
Meghalaya	1st June	15th October
Mizoram	1st June	15th October
Nagaland	5th June	15th October
Odisha (Orissa)	5th June	15th October
Punjab	1st July	15th September
Rajasthan	1st July	1st September
Sikkim	5th June	15th October
Tamil Nadu	1st June	15th October
Telangana	5th June	15th October
Tripura	1st June	15th October

NOTARY
A. K LAL
Distt.-PATNA
Reg No -1883J
Exp.dt.-29.05.2027
GOVT OF BIHAR

States	Normal date of Onset of SW-Monsoon	Normal date of Withdrawal of SW-Monsoon
Uttar Pradesh	15th June	1st October
Uttarakhand	15th June	1st October
West Bengal	10th June	15th October
Union territory	**Normal date of Onset of SW-Monsoon**	**Normal date of Withdrawal of SW-Monsoon**
Andaman and Nicobar Islands	20th May	15th October
Dadra and Nagar Haveli	10th June	1st October
Daman and Diu	10th June	1st October
Lakshadweep	1st June	15th October
Delhi	1st July	15th September
Puducherry	1st June	15th October

Note: The District Environment Impact Assessment Authority (DEIAA) in consultation with District Expert Appraisal Committee (DEAC) can make necessary changes as per local meteorological variations in this period of rainy season with respect to prohibition of River Sand Mining in the District.

NOTARY A. K LAL Distt.-PATNA Reg No -1883J Exp.dt.-29.05.2027 GOVT OF BIHAR

ENSURING SUSTAINABLE SAND MINING FOR SUSTAINABLE DEVELOPMENT

A Major Initiative of Ministry of Environment, Forest and Climate Change for ensuring Environmentally Sustainable Sand Mining and Prevention of illegal Sand Mining.

(Notification No: SO No. 141 (E) dated 15.01.2016 and S.O. No. 190 (E) dated 20.01.2016 available at www.envfor.nic.in)

- Use of Satellite imagery to decide the site suitable for mining and quantity of sand which can be mined.
- Transit permit with tamper proof security features and tracking of mined out mineral.
- Monitoring of mined out mineral to prevent mining in excess of environmental clearance capacity.

- Delegation of power to grant environmental clearance for sand mining to an authority headed by District Magistrate.

- Intergration of power with District Authorities to grant environmental clearance and prevent illegal mining.

NOTARY A. K LAL Distt.-PATNA Reg No -1883/ Expdt.-29.05.2027 GOVT OF BIHAR

Note : Any information of mining without environmental clearance or against the norms prescribed in these notifications be reported at e-mail id: sandmining-moef@gov.in