IN THE HON'BLE NATIONAL GREEN TRIBUNAL, SOUTHERN ZONE BENCH, CHENNAI

ORIGINAL APPLICATION NO. 147 of 2021

IN THE MATTER OF: -

Kosgi Venkataiah **.... Applicant**

Versus

Union of India and Others **.... Respondent(s)**

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Place:
Dated:

Filed by:

Advocate for MoEF&CC

Mob. No.
Email Id:

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COUNTER AFFIDAVIT ON BEHALF OF RESPONDENT NO. 1, MINISTRY OF ENVIRONMENT, FOREST AND CLIMATE CHANGE

MOST RESPECTFULLY SHOWETH: -

MOST RESPECTFULLY SHOWETH:

I, DR. E. AROCKIA LENIN, S/o. **J. EMANUVEL**, aged about **34** working as '**SCIENTIST C**' in the Ministry of Environment, Forest and Climate Change, having office located 3rd Floor, Aranya Bhavan, Saifabad, Telangana, do hereby solemnly affirm on oath and state as under:

1. It is submitted that I am working as **SCIENTIST C** in the office of the Integrated Regional Office, Hyderabad, Respondent No. 1 and as such am well acquainted with the facts and circumstances of the case on the basis of the records available in my office and am thus duly authorized to file this Affidavit on behalf of the Respondent No. 1 herein, i.e. the Ministry of Environment, Forest & Climate Change (MoEF&CC). Specifically admitted hereunder:

2. It is submitted that the present Original Application has been filed on account of alleged illegal extraction of soil without environmental clearance for building massive earthen bund for Udandapur Reservoir under Palamuru

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Rangareddy Lift Irrigation Scheme, which has allegedly caused damage to lakes in Mahabub Nagar district of Telangana State.

The main grievance of the Applicant is pertaining to Lift-4, wherein the project authorities/contractors are allegedly extracting soil from a number of lakes, agriculture lands to build the bund of Udandapur Reservoir, resulting in changing the nature of the project from a Drinking Water Scheme to an Irrigation scheme leading to several other environmental violations.

3. It is submitted that the present application has been filed by the petitioner seeking relief:

   i. *To appoint an independent experts Committee consisting of NEERI/CSIR to verify the environmental violations and damage committed in the soil mining for Construction of Palamuru Rangareddy Lift Irrigation Project from the lakes such as Nasrullabad Cheruvu, Polepally Cheruvu in Jadcharla Mandal, Edgonpally Cheruvu, Boorgucheruvu of Rajapur, Nallacheruvu of Kucherla village, Roppukunta lake, Tunhakunta lake, Kothakunta lake of Chennavelly village in Rajapur Mandal, Kuchur Cheruvu, Yenmangla Cheruvu, Lokirevu Cheruvu, Lenkala Cheruvu in Chennareddypally village, Ippatur Cheruvu in Nawabpet Mandal of Mahabub Nagar district in Telangana State;*

   ii. *To direct Respondent no.1 to take action on Project Proponent for the violations of ToR/changes in the project and to submit a compliance report to this Hon'ble Tribunal;*

   iii. *To direct Respondent no. 5 to collect appropriate fees/penalty from the Project Contractors for extracting 2, 75,59,517 MT of soil from the lakes.*

4. That the matter came up for hearing on 09.07.2021 wherein the Hon'ble NGT, in order to ascertain the genuineness of the allegations made, appointed a joint

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Committee that consisted of *'Senior Officer from MoEF&CC, Integrated Regional Office, Chennai or its subsidiary office at Hyderabad, if any,'* amongst other member organizations. The relevant extract of the order dated 09.07.2021 is reproduced below:

> *"9. In the meantime, in order to ascertain the genuineness of the allegations made, we feel it appropriate to appoint a joint Committee consisting of 1) a Senior Officer from MoEF&CC, Integrated Regional Office, Chennai or its subsidiary office at Hyderabad, if any, 2) Senior Scientist from Central Pollution Control Board, Integrated Regional Office, Chennai, 3) District Collector, Mahabub Nagar, 4) Director, Geology and Mines or Senior Officer having sufficient knowledge and experience in soil technology deputed by the Director and 5) Senior Scientist from NEERI to inspect the areas in question mentioned above and submit a factual as well as action taken report, if there is any violations found.*
>
> *10. The Committee is directed to ascertain as to i) whether there were any violations of environmental laws committed by respondents 2 and 4 in carrying out the project in question, ii) whether they were doing illegal mining without obtaining necessary permission, if so, what is the quantum of minerals that had been extracted by doing such alleged illegal act and assess the value of the same and also assess damage caused to the environment on account of such alleged illegal activity and assess environmental compensation as well, iii)The Committee is also directed to suggest the remediation, if any required, iv) whether in executing the projects, any displacement of persons have taken place as against the undertaking given by them that they are limiting the scope of the project for drinking water purpose alone and v) Violations of the Terms of Reference issued*

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when they applied for environment clearance which was later withdrawn.

13. The Committee is directed to submit the report on or before 27.08.2021 by e-filing in the form of searchable PDF/OCR Support PDF and not in the form of Image PDF along with necessary hard copies to be produced as per rules."

5. That the matter was again listed on 01.10.2021 before the Hon'ble NGT wherein it passed an interim order. The relevant extract of the interim order is reproduced below:

"The above case has been posted to today along with O.A. No.148 of 2021 for consideration of advance hearing application viz., I.A. No. 148 of 2021 (SZ) filed in O.A. No.148 of 2021 (SZ). As far as this case is concerned, without getting a detailed report, it is not possible for this Tribunal to proceed further. So, there is no necessity to link this case with O.A. No.148 of 2021 (SZ), as the issues are different.

Post this case to its original date viz., 22.10.2021 for consideration"

6. That it would be relevant to mention here that the answering Respondent grants prior Environmental Clearance (hereinafter referred as 'EC') to Irrigation projects in accordance with the provisions laid down in Environment Impact Assessment Notification, 2006 and its amendments thereof. The categorization of all the projects and activities are based on the spatial extent of potential impacts and potential impacts on human health and natural and man-made resources.

7. Here it is pertinent to mention that only those projects which fall under Category 'A' require prior EC from the answering respondent. All projects or activities included under 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

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paragraph (iii) of paragraph 2, but excluding those which fulfil the General Conditions (GC) stipulated in the Schedule, will require prior environmental clearance from the State/Union Territory Environment Impact Assessment Authority (SEIAA). As per the Schedule appended to the said notification (as amended on), the Irrigation projects mentioned at item no. 1 (c) of the aforementioned Schedule are covered under Category A, if the culturable command area is more than 50,000 ha.

8. It is submitted that the process involved for grant of EC is as follows:

   - Stage (1) – Screening
   - Stage (2) - Scoping – i.e. prescribing Terms of Reference (TOR) or undertaking detailed Environment Impact Assessment Studies.
   - Stage (3) - Public Consultation – to be conducted by the respective State Pollution Control Board/UT Pollution Control Committee.
   - Stage (4) - Appraisal – by Expert Appraisal Committee (EAC).

   The process involving grant of EC is transparent & the EC issued is placed in the public domain including the application for grant of EC, submissions and supporting documents filed by the project proponent, the minutes of meeting of the EAC/SEAC and the EC issued in the case.

8. That it is submitted that the culturable command area of the instant project namely, the Palamuru Rangareddy Lift Irrigation Scheme (hereinafter referred as 'PRLIS') is 4, 97,976 ha; accordingly, it will be covered under Category 'A' under item no. 1(c) of the Schedule appended to the said Notification and thus, the project requires prior EC from the answering Respondent.

9. That the Project Proponent vide Proposal No. IA/TG/RIV/67770/2017 dated 04.09.2017 submitted the proposal for grant of Terms of Reference (hereinafter referred as 'ToR') to conduct EIA study for grant of Environmental Clearance to take up PRLIS for construction of Canal network for Phase II (Irrigation Project). Details of the said Project mentioned in the

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Pre-feasibility report as submitted to the answering Respondent are as follows:

i. The PRLIS is undertaken by Respondent no. 5 Project Proponent for the purpose of drinking, irrigation and industrial use. The scheme has been planned in 2 phases: Phase I (Water Supply Project) and Phase II (Irrigation Project).

ii. Phase I has been planned with 6 Nos. Of reservoir and 5 Nos. of lifts for basic human consumption. It was informed that the immediate purpose of the project is to provide water for drinking and industrial uses. Since, the water supply project does not fall under the purview of environmental clearance of EIA Notification, 2006, the project work was initiated.

iii. Phase II being an Irrigation Project, will require a total of 15,790 ha. land which will be acquired for the construction of various canal network reservoirs.

10. Thereafter, the above proposal was appraised by the Expert Appraisal Committee (hereinafter referred as EAC) for River Valley & Hydroelectric Power Projects (RV & HEP) in its Minutes of 8th Meeting held on 22.9.2017. After detailed deliberations and considering all the facts of the project as presented by Project Proponent, the EAC recommended for grant of scoping/ToR clearance on 11.10.2017 with public consultation for pre-construction activities at the proposed site as per the provisions of the EIA Notification, 2006 and subsequent amendments for the preparation of EPA/EMP report.

The copy of the Minutes of 8th Meeting of the EAC dated 22.09.2017 and copy of the Grant of ToR Letter dated 11.10.2017 is annexed as **Annexure R-2/2** and **Annexure R-2/3** respectively.

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11. That the said 'Irrigation Project' is still under consideration for Environmental Clearance before the answering Respondent. No Environmental Clearance has been granted for the project by the answering Respondent.

12. That w.r.t the issue pertaining to illegal extraction of soil, it is submitted that as per the provision of 23(C) of 'The Mines and Minerals (Regulation and Development) Act, 1957 (hereinafter referred as 'MMDR Act')' the 'Soil/Sand' is categorized as 'Minor' Mineral; hence, prior environmental clearance is required for mining of Minor Mineral under the provisions of EIA Notification, 2006, as amended. Moreover, the State Government is empowered to make rules for preventing illegal mining, and transportation & storage of Illegal minerals. All such mining which qualifies under illegal shall be dealt with in the provision of the MMDR Act by the concerned Authorities. Further, it is submitted that the State Pollution Control Board (SPCB) is the Nodal Authority in the State for dealing with cases related to pollution or environment management coming under the purview of the Water (Prevention and Control of Pollution) Act, 1974, the Air (Prevention and Control of Pollution) Act, 1981 and the Environment Protection Act 1986. SPCB is empowered to initiate appropriate action under the provision of these acts for non-compliance of violation of the provisions. The Ministry has issued 'Enforcement & Monitoring Guidelines for Sand Mining, 2020', with a view to ensure sustainable sand mining.

A copy of the sustainable sand mining guidelines 2020 is annexed as **Annexure R-2/4**.

13. Further, vide order dated 09.07.2021 Hon'ble Tribunal has directed for appointment of a Joint Committee to ascertain the contentions raised w.r.t the issue of illegal extraction of soil in Udandapur Reservoir under PRLIS and thereafter submission of a Report in that regard. The Joint Committee (comprising of a Sr. Officer from MoEF&CC, Regional Office, Hyderabad;

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has filed its Interim Report on 20.09.2021. The relevant portion of the Interim report is reproduced below:

"The Joint Committee visited some of the Minor Irrigation Tanks mentioned in the OA 147/2021 of Hon'ble NGT on 16.09.2021. Based on the site visit and the information provided by the Irrigation Department though the desilting of the tanks was taking place, however, it does not fall under the purview of illegal mining. The desilted materials from the tanks in question were used for the construction of bunds/embankments of the reservoirs. In view of this, the Committee opines that there are no illegal mining activities as claimed/alleged by the applicant.

The Chief Engineer of the project of Palamuru Rangareddy Lift Irrigation Scheme obtained the necessary permissions required for using the desilted materials from the tank. The Committee asked for supporting documents. After these are made available, the Committee will verify those documents and submit the final report.

The Hon'ble NGT is, therefore, requested to grant the Committee 4 (four) weeks' time for submitting the final report."

14. Thus, it is humbly submitted that suggestions/recommendations made in the Joint Committee Inspection Report may guide in deciding the factual status of violation committed by the project proponent regarding illegal extraction of soil and accordingly the Hon'ble Tribunal may issue appropriate directions as deemed fit. The Interim Report of the Joint Committee is not produced in the present affidavit for the sake of brevity. It is further submitted that this answering Respondent shall abide by any directions passed by this Hon'ble Tribunal.

15. It is submitted that the present reply affidavit may kindly be taken on record and into consideration and the Hon'ble Tribunal may pass appropriate

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Order(s), direction(s) as deemed fit and proper under the facts and circumstances of the present case.

16. That other/ancillary issues raised in the application under reply do not pertain to the answering respondent. The Answering Respondent seeks leave to make additional submissions, if required, during the course of the proceedings.

DEPONENT

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VERIFICATION

I, **E. AROCKIA LENIN** the above-named deponent do hereby solemnly affirm and state that the contents of the aforesaid affidavit are true and correct to my personal knowledge and have been derived from the official records maintained by the Respondent. No part of it is false nor has anything material been concealed therefrom.

Verified at **Hyderabad** on this **21 day of December, 2021**.

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ATTESTED

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21 DEC 2021

DEPONENT

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रजिस्ट्री सं० डी० एल०-33004/99 REGD. NO. D. L.-33004/99

भारत का राजपत्र
The Gazette of India

असाधारण
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अधिसूचना

नई दिल्ली, 14 अगस्त, 2018

का. आ. 3977 (अ).—भारत सरकार, पर्यावरण (संरक्षण) अधिनियम, 1986 की धारा 3 की उपधारा (1) और उपधारा (2) के खंड (v) के साथ पठित पर्यावरण (संरक्षण) नियम, 1986 के नियम 5 के उपनियम (3) के खंड (घ) के अधीन भारत सरकार के तत्कालीन पर्यावरण, वन और जलवायु परिवर्तन मंत्रालय की अधिसूचना सं. 1533(अ) तारीख 14 सितंबर, 2006 द्वारा निदेश दिया गया कि इसके प्रकाशन की तारीख से ही उक्त अधिसूचना में सूचीबद्ध नई परियोजनाओं या क्रियाकलापों का अपेक्षित संनिर्माण या विद्यमान परियोजनाओं या क्रियाकलापों का विस्तार या आधुनिकीकरण, जिसमें प्रक्रिया या प्रौद्योगिकी या उत्पाद मिश्रण में परिवर्तन सहित क्षमता वर्धन, इसमें विनिर्दिष्ट प्रक्रिया के अनुसार, यथास्थिति, केंद्रीय सरकार से या उक्त अधिनियम की धारा 3 की उपधारा (3) के अधीन केंद्रीय सरकार द्वारा सम्यकत: गठित राज्यस्तरीय पर्यावरण संघात निर्धारण प्राधिकरण द्वारा पूर्व पर्यावरण अनापत्ति के पश्चात् हो, भारत में किसी भी भाग में किया जाएगा ;

उक्त मंत्रालय ने राज्य पर्यावरण समाघात निर्धारण प्राधिकारी (एसईआईएए) और जिला पर्यावरण समाघात निर्धारण प्राधिकारी को पर्यावरण अनापत्ति को प्रदान करने के संबंध में और अधिक शक्तियों के प्रत्यायोजन के लिए अनुरोध को स्वीकार किया है ;

और पर्यावरण (संरक्षण) नियम, 1986 के नियम 5 के उपनियम (3) के खंड (क) उपबंध करता है कि जहां केंद्रीय सरकार का विचार है कि किसी उद्योग या किसी प्रक्रिया को चलाने या प्रचालन करने पर किसी क्षेत्र के प्रतिषेध या निर्बंधन अधिरोप किया जाना चाहिए तो ऐसे करने के अपने आशय का नोटिस देगी ;

और पर्यावरण (संरक्षण) नियम, 1986 के नियम 5 के उपनियम (3) के खंड (घ) के साथ पठित पर्यावरण (संरक्षण) अधिनियम, 1986 की धारा 3 की उपधारा (1) और उपधारा (2) के खंड (v) के अधीन प्रदत्त शक्तियों का प्रयोग करते हुए, जारी पर्यावरण समाघात निर्धारण अधिसूचना, 2006 में संशोधन करने के लिए ड्राफ्ट अधिसूचना संख्यांक का.आ. 3933(अ) तारीख 18 दिसंबर, 2017 को प्रकाशित की गई थी, जिसमें उन सभी व्यक्तियों से, जिनके उससे प्रभावित होने की संभावना है, उक्त अधिसूचना के भारत के राजपत्र में प्रकाशन की तारीख साठ दिन की अवधि के भीतर आक्षेप और सुझाव आमंत्रित किए गए थे ;

और उक्त राजपत्र की प्रतियां जनता को 18 दिसंबर, 2017 को उपलब्ध करा दी गई थी ;

और केंद्रीय सरकार द्वारा पूर्वोक्त वर्णित प्रारूप अधिसूचना पर प्राप्त सभी आक्षेपों और सुझावों पर सम्यक्त: विचार किया गया था ;

केंद्रीय सरकार, पर्यावरण (संरक्षण) नियम, 1986 के नियम 5 के उपनियम (3) के खंड (घ) के साथ पठित पर्यावरण (संरक्षण) अधिनियम, 1986 की धारा 3 की उपधारा (1) और उपधारा (2) के खंड (v) द्वारा प्रदत्त शक्तियों का प्रयोग करते हुए, पर्यावरण समाघात निर्धारण अधिसूचना 2006 में निम्नलिखित और संशोधन करती है, अर्थात् :--

उक्त अधिसूचना की अनुसूची में, मद 1(क), 1(ग) और लघु खनिज के पर्यावरणीय अनापत्ति पर अपेक्षाओं का स्कीम संबंधी प्रस्तुति, जिसके अंतर्गत परिशिष्ट-XI में समूह स्थिति भी है और उससे संबंधित प्रविष्टियों के स्थान पर निम्नलिखित मद और प्रविष्टियां रखी जाएंगी, अर्थात् :--

<table>
<tr><td colspan="2" rowspan="2">परियोजना या कार्यकलाप</td><td colspan="2">प्रारंभिक सीमा सहित प्रवर्ग</td><td rowspan="2">शर्तें यदि कोई हों</td></tr>
<tr><td>क</td><td>ख</td></tr>
<tr><td colspan="2">1</td><td colspan="3">खनन, प्राकृतिक संसाधनों का निष्कर्षण तथा विद्युत उत्पादन (विनिर्दिष्ट उत्पादन क्षमता के लिए)</td></tr>
<tr><td>(क)
(1)</td><td>(2)</td><td>(3)</td><td>(4)</td><td>(5)</td></tr>
<tr><td>1(क)</td><td>(i) खनिजों का खनन

(ii) पिच्छल पाइप लाईने (कोयला लिग्नाइट और अन्य अयस्क) जो राष्ट्रीय उद्यानों/अभ्यारण्यों /कोरल रीफ, पारिस्थितिकी संवेदी क्षेत्रों से गुजरती है</td><td>गैर कोयला खनन पट्टे के संबंध में > हे. खनन पट्टा क्षेत्र
कोयला खनन पट्टे के संबंध में > 150 हे. खनन पट्टा क्षेत्र
खनन क्षेत्र पर विचार किए बिना अज़बेस्टो का खनन क्षेत्र

सभी परियोजनाएं ।</td><td>गैर कोयला खनन पट्टे के संबंध में < 100 हे. खनन पट्टा क्षेत्र
कोयला खनन पट्टे के संबंध में < 150 हे. खनन पट्टा क्षेत्र</td><td>सामान्य शर्तें लागू होंगी, सिवाय :
(i) प्रवर्ग 'ख2' लघु खनिजों के खनन (25 हेक्टेयर खनन पट्टा क्षेत्र तक) के लिए परियोजना का कार्यकलाप ;
(ii) खनन पट्टा क्षेत्र के समूह की दशा में 'ख1' प्रवर्ग के लघु खनिज के खनन की परियोजना और क्रियाकलाप के लिए ; और
(iii) अंतरराज्यीय सीमा के कारण नदी तल खनन परियोजनाएं ।
टिप्पण :
(1) खनिज के पूर्वेक्षण को छूट दी गई है ।
(2) लघु खनिजों, जिनके अंतर्गत समूह अवस्थिति है, के खनन के लिए पर्यावरणीय अनापत्ति की विहित प्रक्रिया परिशिष्ट XI में दी गई है ;</td></tr>
<tr><td>1(ग)</td><td>(i) नदी घाटी परियोजनाएं
(ii) सिंचाई परियोजना</td><td>(i) <50 मे.वा. जल विद्युत उत्पादन
(ii) >50,000 हे. खेती योग्य कमान क्षेत्र</td><td>(i) ≥25 मे.वा. और <50 मे.वा.जल विद्युत उत्पादन
(ii) >2000 हे और <50,000 हे.. खेती योग्य कमान क्षेत्र
सिंचाई प्रणाली | ईसी की अपेक्षा
(क) लघु सिंचाई प्रणाली (<2000 हे.) | छूट प्राप्त
(ख) मध्यम सिंचाई | इएमपी और राज्य स्तरीय</td><td>साधारण शर्तें लागू होंगी
टिप्पण :
(i) एक से अधिक राज्य में आने वाली प्रवर्क 'ख' नदी घाटी परियोजनाओं का मूल्यांकन केंद्रीय सरकार स्तर पर किया जाएगा ;
(ii) किसी विद्यमान परियोजना द्वारा पर्यावरणीय लाभयुक्त सिंचाई प्रौद्योगिकी में परिवतर्न किया जाना (उदाहरणार्थ बाढ़ सिंचाई से ड्रिप सिंचाई) जिसके फलस्वरूप खेती योग्य कमान क्षेत्र में वृद्धि हो, किंतु बांध की ऊंचाई और जलमग्नता में वृद्धि न हो, के लिए पर्यावरणीय स्वीकृति अपेक्षित नहीं होगी ।</td></tr>
</table>

			प्रणाली (>2000 <10,000 हे.)	(ख2 प्रर्वग) तैयार करना अपेक्षित।	
			(ग) महा सिंचाई प्रणाली (≥10000 से <50000 हे.)	इआईए/इएमपी और राज्य स्तरीय (ख1 प्रर्वग) तैयार करना अपेक्षित।	

लघु खनिज के पर्यावरणीय अनापत्ति पर अपेक्षाओं का स्कीम संबंधी प्रस्तुति, जिसके अंतर्गत परिशिष्ट-XI में समूह स्थिति भी है

पट्टे का क्षेत्र (हेक्टेयर)	परियोजना का प्रवर्ग	ईआईए/ ईएमपी की अपेक्षा	लोक सुनवाई की अपेक्षा	ईसी की अपेक्षा	कौन ईआईए/ ईएमपी तैयार कर सकता है	ईसी के लिए कौन आवेदन करेगा	ईसी का मूल्यांकन/ स्वीकृति देने के लिए प्राधिकारी	ईसी की अनुपालना की मानीटरी करने के लिए प्राधिकारी
व्यष्टिक खनन पट्टे के आधार पर बालू खनन और अन्य लघु खनिजों के खनन के लिए ईसी प्रस्ताव								
0-5 हे.	'ख2'	प्रारुप-1 एमपीएफआर,डीएसआर और अनुमोदित खनन योजना	नहीं	हां	परियोजना प्रस्तावक	परियोजना प्रस्तावक	डीईएसी/ डीईआईएए	डीईआईएए एसईआईएए एपीसीबी सीपीसीबी एमओईएफसीसी एमओईएफसीसी अभिकरण द्वारा नामनिर्देशिती
>5 हे. और <25 हे.	'ख2'	प्रारुप-1 पीएफआर और डीएसआर अनुमोदित खनन योजना और ईएमपी	नहीं	हां	परियोजना प्रस्तावक	परियोजना प्रस्तावक	एसईएसी/ एसईआईएए	
>25 हे. और <100 हे.	'ख1'	प्रारुप-1 पीएफआर और डीएसआर अनुमोदित खनन योजना और ईआईए तथा ईएमपी	हां	हां	परियोजना प्रस्तावक	परियोजना प्रस्तावक	एसईएसी/ एसईआईएए	
>100 हे.	'क'	प्रारुप-1 पीएफआर और डीएसआर अनुमोदित खनन योजना और ईआईए तथा ईएमपी	हां	हां	परियोजना प्रस्तावक	परियोजना प्रस्तावक	ईएसी/ एमओईएफसीसी	
समूह स्थिति में बालू खनन और अन्य लघु खनिज के लिए ईसी प्रस्ताव								
5 हे. तक खनन पट्टे का समूह क्षेत्र	'ख2'	प्रारुप-1 एमपीएफआर, डीएसआर और अनुमोदित खनन योजना	नहीं	हां	राज्य, राज्य अभिकरण, परियोजना प्रस्तावकों का समूह, परियोजना प्रस्तावक	परियोजना प्रस्तावक	डीईएसी/ डीईआईएए	डीईआईएए एसईआईएए एपीसीबी सीपीसीबी एमओईएफसीसी एंजेसी द्वारा नामनिर्देशिती
>5 हे. और <25 हे. के खनन पट्टे के समूह क्षेत्र, >5 हे. के बिना किसी व्यष्टिक पट्टे के	'ख2'	प्रारुप-1 पीएफआर, डीएसआर और अनुमोदित खनन योजना तथा समूह में सभी पट्टो के लिए एक ईएमपी	नहीं	हां	राज्य, राज्य अभिकरण, परियोजना प्रस्तावकों का समूह, परियोजना प्रस्तावक	परियोजना प्रस्तावक	डीईएसी/ डीईआईएए	

खनन पट्टे के समूह क्षेत्र, >5 हे. के किसी व्यष्टिक पट्टे के साथ	ख 2	प्रारुप-1 पीएफआर, डीएसआर और अनुमोदित खनन योजना तथा समूह में सभी पट्टो के लिए एक ईएमपी	नहीं	हां	राज्य, राज्य अभिकरण, परियोजना प्रस्तावकों का समूह, परियोजना प्रस्तावक	परियोजना प्रस्तावक	एसईएसी/ एसईआईएए	
व्यष्टिक पट्टा आकार <100 हे. के साथ >25 के खनन पट्टों का समूह	'ख1'	प्रारुप-1 पीएफआर, डीएसआर और अनुमोदित खनन योजना तथा समूह में सभी पट्टो के लिए एक ईआईए/ईएमपी	हां	हां	राज्य, राज्य अभिकरण, परियोजना प्रस्तावकों का समूह, परियोजना प्रस्तावक	परियोजना प्रस्तावक	सीईएसी/ एसईआईएए	
>100 हे. से किसी व्यष्टिक पट्टे के आकार का कोई समूह	'क'	प्रारुप-1 पीएफआर, डीएसआर और अनुमोदित खनन योजना तथा समूह में सभी पट्टो के लिए एक ईआईए/ईएमपी	हां	हां	राज्य, राज्य अभिकरण, परियोजना प्रस्तावकों का समूह, परियोजना प्रस्तावक	परियोजना प्रस्तावक	ईएसी/ एमओईएफसीसी	

[फा. सं. 19-2/2013-आईए.III (पार्ट. II)]

ज्ञानेश भारती , संयुक्त सचिव

टिप्पण : मूल नियम, भारत के राजपत्र, असाधारण, भाग II, खंड 3 उपखंड (ii) में का. आ. 1533(अ), तारीख 14 सितंबर, 2006 में प्रकाशित किए गए थे और तत्पश्चात् निम्नलिखित संख्याओं के द्वारा संशोधित किए गए :--

1. का.आ. 1949(अ), तारीख 13 नवम्बर, 2006;
2. का.आ. 1737(अ), तारीख 11 अक्तूबर, 2007;
3. का.आ. 3067(अ), तारीख 1 दिसंबर, 2009 ;
4. का.आ. 695(अ), तारीख 4 अप्रैल, 2011 ;
5. का.आ. 156(अ), तारीख 25 जनवरी, 2012 ;
6. का.आ. 2896(अ), तारीख 13 दिसंबर, 2012 ;
7. का.आ. 674(अ), तारीख 13 मार्च, 2013 ;
8. का.आ. 2204(अ), तारीख 19 जुलाई, 2013 ;
9. का.आ. 2555(अ), तारीख 21 अगस्त, 2013 ;
10. का.आ. 2559(अ), तारीख 22 अगस्त, 2013 ;
11. का.आ. 2731(अ), तारीख 9 सितंबर, 2013 ;
12. का.आ. 562(अ), तारीख 26 फरवरी, 2014 ;
13. का.आ. 637(अ), तारीख 28 फरवरी, 2014 ;
14. का.आ. 1599(अ), तारीख 25 जून, 2014;
15. का.आ. 2601(अ), तारीख 7 अक्तूबर, 2014 ;
16. का.आ. 2600(अ), तारीख 9 अक्तूबर, 2014 ;
17. का.आ. 3252(अ), तारीख 22 दिसंबर, 2014 ;
18. का.आ. 382(अ), तारीख 3 फरवरी, 2015 ;
19. का.आ. 811(अ), तारीख 23 मार्च, 2015 ;
20. का.आ. 996(अ), तारीख 10 अप्रैल, 2015 ;

21. का.आ. 1142(अ), तारीख 17 अप्रैल, 2015 ;
22. का.आ. 1141(अ), तारीख 29 अप्रैल, 2015 ;
23. का.आ. 1834(अ), तारीख 6 जुलाई, 2015 ;
24. का.आ. 2571(अ), तारीख 31 अगस्त, 2015,
25. का.आ. 2572(अ), तारीख 14 सितंबर, 2015,
26. का.आ. 141(अ) 15 जनवरी, 2016,
27. का.आ. 648(अ) तारीख 3 मार्च, 2016 ;
28. का.आ. 2269(अ) तारीख 1 जुलाई, 2016 ;
29. का.आ. 2944(अ), तारीख 14 सितम्बर, 2016;
30. का.आ. 3518(अ), तारीख 23 नवंबर, 2016 ;
31. का.आ. 3999(अ), तारीख 9 दिसंबर, 2016;
32. का.आ. 4241(अ), तारीख 30 दिसम्बर, 2016; और
33. का.आ. 3611(अ), तारीख 25 जुलाई, 2018 I

MINISTRY OF ENVIRONMENT, FOREST AND CLIMATE CHANGE

NOTIFICATION

New Delhi, the 14th August, 2018

S.O. 3977(E).— Whereas, by notification of the Government of India in the erstwhile Ministry of Environment and Forests vide number S.O.1533 (E), dated the 14th September, 2006 issued under 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, the Central Government directed that on and from the date of its publication, the required construction of new projects or activities or the expansion or modernisation of existing projects or activities listed in the Schedule to the said notification entailing capacity addition with change in process or technology or product mix shall be undertaken in any part of India only after 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 therein;

And whereas, the said Ministry has received requests, for delegation of more powers to State Environment Impact Assessment Authority (SEIAA) and District Environment Impact Assessment Authority (DEIAA) with respect to grant of Environment Clearances;

And whereas clause (a) of sub-rule (3) of rule 5 of the Environment (Protection) Rules, 1986 provides that, whenever the Central Government considers that prohibition or restrictions of any industry or carrying on any processes or operation in any area should be imposed, it shall give notice of its intention to do so;

And whereas, a draft notification for making amendments in the Environment Impact Assessment Notification, 2006 in exercise of the powers conferred under 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 was published, vide number S.O.3933 (E) dated the 18th December 2017, inviting objections and suggestions from all the persons likely to be affected thereby, within a period of sixty days from the date of publication of said notification in the Gazette of India;

And whereas, copies of the said notification were made available to the public on 18th December 2017;

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 powers conferred by sub-section (1) and clause (v) of sub-section (2) of section 3 of the Environment (Protection) Act, 1986 (29 of 1986), read with clause (d) of sub-rule (3) of rule 5 of the Environment (Protection) Rules, 1986, the Central Government hereby makes the following further amendments in the Environment Impact Assessment Notification, 2006 namely:-

In the said Notification, in the SCHEDULE, for item 1(a), 1(c), and the Schematic Presentation of Requirements on Environmental Clearance of Minor Minerals including cluster situation in Appendix-XI and entries relating thereto, the following item and entries shall be substituted, namely:

<table>
<tr><td colspan="2" rowspan="2">Project or Activity</td><td colspan="3">Category with threshold limit</td><td rowspan="2">Conditions if any</td></tr>
<tr><td>A</td><td colspan="2">B</td></tr>
<tr><td>1</td><td colspan="5">Mining, extraction of natural resources and power generation (for a specified production capacity)</td></tr>
<tr><td>(1)</td><td>(2)</td><td>(3)</td><td colspan="2">(4)</td><td>(5)</td></tr>
<tr><td>1 (a)</td><td>(i) Mining of minerals</td><td>> 100 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.</td><td colspan="2">≤ 100 ha of mining lease area in respect of non-coal mine lease.

≤ 150 ha of mining lease area in respect of coal mine lease.</td><td>General Conditions shall apply except:
(i) for project or activity of mining of minor minerals of Category ‘B2’ (up to 25 ha of mining lease area);

(ii) for project or activity of mining of minor minerals of Category ‘B1’ in case of cluster of mining lease area; and

(iii) River bed mining projects on account of inter-state boundary.

Note:

(1) Mineral prospecting is exempted;

(2) The prescribed procedure for environmental clearance for mining of minor minerals including cluster situation is given in Appendix XI;</td></tr>
<tr><td></td><td>(ii)Slurry pipelines (coal, lignite and other ores) passing through national parks / sanctuaries / coral reefs, ecologically sensitive areas.</td><td>All projects.</td><td colspan="2"></td><td></td></tr>
<tr><td>1(c)</td><td>(i) River Valley projects

(ii) Irrigation projects</td><td>(i) ≥ 50 MW hydroelectric power generation;

(ii) ≥ 50,000 ha. of culturable command area</td><td colspan="2">(i) ≥ 25 MW and < 50 MW hydroelectric power generation;

(ii) > 2000 ha. and < 50,000 ha. of culturable command area.</td><td>General Condition shall apply.

Note:-
(i) Category ‘B’ river valley projects falling in more than one state shall be appraised at the central Government Level.

(ii) Change in irrigation technology having environmental benefits (eg. From flood irrigation to Drip irrigation etc.) by an existing project, leading to increase in Culturable Command Area but without increase in dam height and submergence, will not require amendment/ revision of EC.</td></tr>
<tr><td></td><td></td><td></td><td>Irrigation system</td><td>Requirement of EC</td><td></td></tr>
<tr><td></td><td></td><td></td><td>(a) Minor Irrigation system (≤ 2000 Ha)</td><td>Exempted</td><td></td></tr>
<tr><td></td><td></td><td></td><td>(b) Medium irrigation system (> 2000 and < 10,000 ha.)</td><td>Required to prepare EMP and to be dealt at State Level (B_2 category).</td><td></td></tr>
</table>

			(c) Major irrigation system (≥10,000 to < 50,000 ha.)	Required to prepare EIA/EMP and to be dealt at State Level (B_1 category).	

Schematic Presentation of Requirements on Environmental Clearance of Minor Minerals including cluster situation in Appendix-XI:

Area of Lease (Hectare)	Category of Project	Requirement of EIA / EMP/ DSR	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 and other Minor Mineral Mining on the basis of individual mine lease								
0 – 5ha	'B2'	Form –1M, PFR, DSR and Approved Mine Plan	No	Yes	Project Proponent	Project Proponent	DEAC/ DEIAA	DEIAA SEIAA SPCB CPCB MoEFCC Agency nominated by MoEFCC
> 5 ha and < 25 ha	'B2'	Form –I, PFR, DSR and Approved Mine Plan and EMP	No	Yes	Project Proponent	Project Proponent	SEAC / SEIAA	
≥ 25ha and ≤ 100ha	'B1'	Form –I, PFR, DSR and Approved Mine Plan and EIA and EMP	Yes	Yes	Project Proponent	Project Proponent	SEAC / SEIAA	
> 100 ha	'A'	Form –I, PFR, DSR and Approved Mine Plan and EIA and EMP	Yes	Yes	Project Proponent	Project Proponent	EAC/ MoEFCC	
EC Proposal of Sand Mining and other Minor Mineral Mining in cluster situation								
Cluster area of mine leases up to 5 ha	'B2'	Form –1M, PFR, DSR 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, DSR 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 area of Mine leases > 5 ha and < 25 ha with any individual lease > 5 ha	'B2'	Form –I, PFR, DSR 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	SEAC/ SEIAA	

Cluster of mine leases of area ≥ 25 hectares with individual lease size ≤ 100ha	'B1'	Form –I, PFR, DSR and Approved Mine Plan and one EIA/EMP forall leases in the Cluster	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 > 100ha	'A'	Form –I, PFR, DSR and Approved Mine Plan and one EIA/EMP for all leases in the Cluster	Yes	Yes	State, State Agency, Group of Project Proponents, Project Proponent	Project Proponent	EAC/ MoEFCC	

[F. No. 19-2/2013-IA.III (Pt.II)]

GYANESH BHARTI, Jt. Secy.

Note: The principal rules were published in the Gazette of India, Extraordinary, Part II, Section 3, Sub-section (ii) *vide* number S.O. 1533 (E), dated the 14th September, 2006 and subsequently amended *vide* the following numbers: -

1. S.O. 1949 (E) dated the 13th November, 2006
2. S.O. 1737 (E) dated the 11th October, 2007;
3. S.O. 3067 (E) dated the 1st December, 2009;
4. S.O. 695 (E) dated the 4th April, 2011;
5. S.O. 156 (E) dated the 25th January, 2012;
6. S.O. 2896 (E) dated the 13th December, 2012;
7. S.O. 674 (E) dated the 13th March, 2013;
8. S.O. 2204 (E) dated the 19th July 2013;
9. S.O. 2555 (E) dated the 21st August, 2013;
10. S.O. 2559 (E) dated the 22nd August, 2013;
11. S.O. 2731 (E) dated the 9th September, 2013;
12. S.O. 562 (E) dated the 26th February, 2014;
13. S.O. 637 (E) dated the 28th February, 2014;
14. S.O. 1599 (E) dated the 25th June, 2014;
15. S.O. 2601 (E) dated the 7th October, 2014;
16. S.O. 2600 (E) dated the 9th October, 2014
17. S.O. 3252 (E) dated the 22nd December, 2014;
18. S.O. 382 (E) dated the 3rd February, 2015;
19. S.O. 811 (E) dated the 23rd March, 2015;
20. S.O. 996 (E) dated the 10th April, 2015;
21. S.O. 1142 (E) dated the 17th April, 2015;
22. S.O. 1141 (E) dated the 29th April, 2015;
23. S.O. 1834 (E) dated the 6th July, 2015;
24. S.O. 2571 (E) dated the 31st August, 2015;
25. S.O. 2572 (E) dated the 14th September, 2015;
26. S.O. 141 (E) dated the 15th January, 2016;
27. S.O. 648 (E) dated the 3rd March, 2016;
28. S.O. 2269(E) dated the 1st July, 2016;
29. S.O. 2944(E) dated the 14th September, 2016;

30. S.O. 3518 (E) dated 23rd November 2016;
31. S.O. 3999 (E) dated the 9th December, 2016;
32. S.O. 4241(E) dated the 30th December, 2016; and
33. S.O. 3611(E) dated the 25th July, 2018.

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- Mining Risk Management
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Draft minutes of the 8th Meeting of the Expert Appraisal Committee for River Valley and Hydroelectric Projects held on 22.09.2017 at Teesta Meeting Hall, Indira Paryavaran Bhawan, Jor Bagh Road, New Delhi–3.

The 8th meeting of the re-constituted EAC for River Valley & Hydroelectric Projects was held with the Chairmanship of Dr. Sharad Kumar Jain on 22.09.2017 in the Ministry of Environment, Forest & Climate Change at Teesta Meeting Hall, 1stFloor, Vayu Wing, Ground Floor, Indira Paryavaran Bhawan, Jorbagh Road, New Delhi. The following members were present:

1.	Dr. Sharad Kumar Jain	-	Chairman
2.	Shri Sharvan Kumar	-	Representative of CEA
3.	Shri N. N. Rai	-	Representative of CWC
4.	Dr. Vijay Kumar	-	Rep. of MoES
5.	Dr. A. K. Sahoo	-	Representative of CIFRI
6.	Dr. R. Vasudeva	-	Member
~~7.~~	Shri Chetan Pandit	-	Member
8.	Dr. Poonam Kumria	-	Member
9.	Dr. D. M. More	-	Member
10.	Dr. S. Kerketta	-	Member Secretary

Dr. T.P. Singh, Dr. S.R. Yadav, Dr. J.A. Johnson, Dr. J.P. Shukla and Dr. Govind Chakrapani could not present due to pre-occupation. The deliberations held and the decisions taken are as under:

Item No. 8.0 Confirmation of minutes of 7th EAC meeting.

The Minutes of the 7th EAC (River Valley & Hydroelectric Projects) meeting held on 11.07.2017 were confirmed.

Item No. 8.1 Kynsi Stage-I (270 MW) in West Khasi Hills & South West Khasi Hills of Meghalaya, M/s Athena Kynsi Power Private Ltd. – **For consideration of Fresh TOR.**
Proposal No. IA/ML/RIV/67978/2017

The Project Proponent (PP) and the Consultant, M/s WAPCOS, Gurgaon and NEHU, Shillong, made a detailed presentation of the project and *inter-alia*, provided the following information:

Government of Meghalaya signed a Memorandum of Agreement (MOA) with M/s Athena Power Projects Ltd (APPL) (PP) on 11.12.2007, wherein PP has been entrusted to develop the Kynshi Stage I HEP. The PP has formed a SPV (Special Purpose Vehicle) namely Athena Kynshi Power Private Limited (AKPPL) as per terms and conditions of MoA for implementation of Kynshi - Stage I HEP. The MoA was amended on 11.02.2010. The project has been granted Concurrence by Central Electricity Authority (CEA) in March, 2015.

The Dam site is located at latitude 25^{0}26'46.81"N and longitude 91^{0}12'44.83"E on Kynshi river 3 km upstream of Nongmawpon village and about 25 km from Nongstoin, District Headquarters West Khasi Hills District. An underground Power House is located at latitude 25^{0}23'34"N and longitude 91^{0}08'46"E on Kynshi river near Nongummer village in South West Khasi Hills District and is about 65 km from Nongstoin.

Kynshi-I HEP (2x135 MW) has been contemplated as a ROR scheme with small reservoir capacity of 1.57 MCM situated in the West Khasi Hills district of Meghalaya. Dam site is located on River Kynshi, down streams of confluence of Umkyrtha River with Kynshi River. The Project will utilize a gross head of 581.00 m and design discharge of 54.86 cumecs for annual energy generation at 90% dependable year of 1078.22 million units (MU). The Project comprises a 58.10m high Concrete Gravity dam with a centrally located spillway comprising of five (5) NOF blocks and a centrally located Breast wall type Spillway having 5 bays each of size 8.50 m (w) x 11.00 m (h). All the bays have been provided with radial gates.

It is proposed to divert the Kynshi River during dam construction by using a 4.0 m diameter horse shoe shaped diversion tunnel of length 564.91 m on the right bank. The Water Conductor System (WCS) consists of an intake channel, which takes off from the left flank of the dam. The channel is 15.0 m high and has a base width of 5.0 m. The channel is designed to carry the design discharge in a slope of 1:824 over a length of 412.32 m. The intake channel feeds two surface de-silting basins of size 12.0 m (w) x 21.75 m (h) x 200.0 m (l). The de-silting basins will flush out the silt-laden water back to the river through flushing tunnels. The Head Race Tunnel measuring 4.5 m diameter horse shoe shape carries silt free water for power generation over a total length of 6,893.62 m. The headrace tunnel at its end has an 8.5 m diameter vertical simple surge shaft of over-flowing type of height 67.50 m. A 3.6 m diameter circular pressure shaft of length 1,855.29 m with a vertical shaft of 453.11 m takes water from the surge shaft to an underground powerhouse for power generation. The underground powerhouse complex comprises Machine Hall cavern and transformer-cum draft tube gate cavern. The machine hall (power house) cavern will be of 86.78 m (l) x 21.0 m (w) x 42.50 m (h) and will have 2 units of vertical axis Pelton turbines, each of 135 MW. The 166.66 MVA generator transformers (GT) and 420 kV Gas Insulated Switchgear (GIS) will be accommodated in a separate transformer cavern located 42.50m downstream of powerhouse cavern. The overall size of transformer cavern is 85.98 m (l) x 16.0 m (w) x 28.0 m (h). Main Access Tunnel (MAT) shall be of 8.0 m diameter, 1,369.28 m long to provide access to power house and transformer caverns. Two tail race tunnels of 7.6x5.0 m size of rectangular channels of length 42.50 m from draft tube to the gate and 5.25 m diameter horse shoe shaped tunnels till the junction of the two tail race tunnels. One 5.25 m diameter horse shoe shaped tunnel of length 2500.0 m from the junction point to outfall at left bank of Kynshi river. The generated energy will be pooled to CTU (Central Transmission Utility) designated pooling point through one dedicated 400 kV DC Transmission Line.

The catchment area up to the dam site has been estimated to be 615.4 km^2. The catchment falls between latitude $25^0$21'48"N to $25^0$36'15"N and longitude $91^0$12'12"E to $91^0$42'26"E. Long term rainfall data since 1980 is available at one station viz. Nongstoin only. The Long term run off series for Kynshi Stage- I Hydro Electric Project was formulated and the methodology and the series was cleared by CWC vide letter No. CWC No. 2/MEG/05/CEA/08-PAC/963-65 dated 08.02.2012. Based on the water availability series cleared by CWC, the 90% dependable year is 2006-07 and based on this, Power Potential studies have been carried out for the Project.

Since, the hydraulic head in case of Kynshi Stage I HEP is more than 30.0 m, accordingly it has been design to safely pass the probable maximum flood. The value of design flood is estimated to be 6,283cumecs. In view of the above, conservative value of design flood of 6,885 cumecs has been adopted and the design flood studies have been examined by CWC and design flood of 6,885 cumecs has been approved by CWC vide letter No. 2/MEG/05/CEA/08-PAC/5813-15 dated 18.07.2011.

A total of 246.71 ha of land to be required for the project. The detailed legal status of land to be acquired is not known. There is no National Park, Wildlife Sanctuary or nature/biosphere reserve within or in close proximity to the Project area of Kynshi Stage I HEP. Trees and shrubs are present in the proposed submergence area. Human settlements containing dwellings, houses or hamlets are scanty in the submergence area and in the location of project components. However, Relief & Rehabilitation measures to be adopted shall be in line with the established policies and norms of relevant authorities.

The project cost is estimated to about Rs. 2,020.47 Crores at September 2014 price level and the completed cost is about Rs. 3154.38 Crores. Kynshi Stage-I Hydro Electric Project shall be completed in 60 months time with the first unit to be commissioned at the end of the 59th month and the subsequent unit in the 60th month. The 1st year tariff and levelised tariff have been worked out to be Rs. 7.96 kWh and Rs. 7.16 kWh, respectively.

After deliberations and considering all the facts of the project as presented by the PP, the EAC ***recommended*** **for grant of scoping clearance/ToR** for the proposed project with the following additional conditions along with standards ToR:

i. The legal status of land is to be submitted including proof of application for diversion of forestland for non-forest purpose within three months from the date of grant of ToR, to the Ministry.
ii. Provision of e-flow as per standard ToR should be ensured for the sustenance of aquatic life in the downstream river.
iii. Land acquired for the project shall be suitably compensated in accordance with the law of the land with the prevailing guidelines.
iv. Information on species composition in particular to fish species from any previous study/literature should be included.
v. Solid waste management should be planned in details. Land filling of plastic waste shall be avoided and instead proposal for various uses may be proposed in the revised EIA/EMP report.
vi. Resettlement & Rehabilitation Plan – should be implemented in collaboration with the State Govt. as approved by the State Govt.
vii. Skill mapping be undertaken for the youths of the affected project area and based on the skill mapping, necessary trainings to the youths be provided for their appropriate engagements in the Project.

Item No. 8.2 Kaith Medium Irrigation Project (CCA 5,135 ha), Water Resources Department, Govt. of Madhya Pradesh - **For consideration of Fresh TOR.** Proposal No. IA/MP/RIV/67810/2017

The Project Proponent (PP) made a presentation of the project and *inter-alia*, provided the following information:

Kaith Medium Irrigation Project was started with a view to construct storage reservoir across Kaith River, a tributary of Sonar River in Dhasan-Ken Basin in the block Rehli of Sagar District. The project is planned to irrigate 5,135 ha of land with annual irrigation potential of 5,135 ha. It is a Category "B" project, but as the SEIAA in the state is not in operation, it is being appraised at Central level for grant of ToR.

The Kaith Gravity Dam is situated near Village Hanouta Khurd in Tehsil Rehli of District Sagar in Madhya Pradesh at Latitude 23^{0}40'35"N and Longitude 78^{0}55'25"E.The Kaith gravity dam is of length 600 m. The central concrete spillway is of 41 m long having capacity to pass the flood discharges of 1,164 Cumecs and routed flood discharge of 850.724 Cumecs. 3 Nos. of Radial gates of size 10×6m are proposed over the crest level and one will be standby. Non-over flow dam is 15.00 m on left and 15.00 m on right flank with maximum height 13.40 m above foundation. Similarly, another dam viz., Narayan storage earthen dam on Jharo nallah shall be constructed. The dam height is 18.14 m and length is 240 m. One Narayanpura subsidiary bund of height 14.21 m and length of 660 m has been proposed. Another Hanouta Khurd subsidiary bund has been proposed of height 7.16 m and length 630 m.

It has been further submitted that the irrigation development of Sagar district is below the state's average figure. Crop cultivation is totally dependent on rainfall and on the vagaries of monsoon. Providing irrigation will improve the economic condition of the farmers and result in efficient utilization of soil and water resources of the region. State and region are experiencing erratic rainfall, which has further worsened the situation. Fertile land is available in Rehli Tehsil where reliable irrigation system can make a great difference and yield of crop may increase many fold. Thus, this will result in overall development of the region. Also, during summer season, the ground water table goes deep and the region suffers from the acute shortage of drinking water. Creation of water bodies and developing irrigation systems in the region will result in the recharge of groundwater and improvement in ecology and will have a great positive impact on the environment and wildlife of the region.

The catchment area of the Kaith Gravity Dam is 78.50 km^2. The Submergence area for Kaith gravity dam at FRL is 450.18 ha (Govt. land: 48 ha, Private land: 322.268 and Forest land: 79.912 ha). By considering the upstream, downstream uses, proposed irrigation demand and water for domestic and industrial use and sediment storage, etc. the gross storage of the Kaith gravity dam shall be 22.117 MCM. The live Storage capacity of the Kaith gravity dam is 21.967 MCM out of which 1 MCM is reserved for drinking water. The total utilization for the 75% dependable year (2004-05) shall be 20.967 MCM for irrigation and 1 MCM for drinking and industrial uses.

The estimated cost of the project is Rs. 162.47 crores. The project shall be completed in 24 months. The cost per hectare on CCA is Rs. 3.164 Lakhs and cost per hectare on annual irrigation is Rs. 2.38 Lakhs with a B.C. Ratio of 1.65. It will generate employment potential during construction period. 346 Nos. persons from 142 families in 3 villages are affected due to the project.

After deliberations and considering all the facts of the project as presented by the PP, the EAC ***recommended* for grant of scoping clearance/ToR** for the proposed project with the following additional conditions along with standards ToR:

i. A certificate will be submitted from CWC that utilization of water by this project will not affect the viability of the Ken-Betwa Link project, within six months from the date of grant of ToR.
ii. Provision of e-flow as per standard ToR should be ensured for the sustenance of aquatic life in the downstream river.
iii. Land acquired for the project shall be suitably compensated in accordance with the law of the land with the prevailing guidelines.
iv. Total power requirement to be provided and its firm linkage to be supported with documents.
v. Proof of application for diversion of forestland for non-forest purpose will be submitted to the Ministry within one month.
vi. Detailed information on species composition in particular to fish species from any previous study/literature should be included.
vii. A detailed irrigation management plan should be worked out so that at least 10% of the CCA would be covered by micro irrigation scheme.
viii. Resettlement & Rehabilitation Plan – should be implemented in collaboration with the State Govt. as approved by the State Govt.
ix. Energy Conservation Plan is to be implemented as envisaged in the EIA / EMP report.
x. Skill mapping be undertaken for the youths of the affected project area and based on the skill mapping, necessary trainings to the youths be provided for their appropriate engagements in the Project.
xi. Solid waste management should be planned in details. Land filling of plastic waste shall be avoided and instead proposal for various uses may be proposed in the revised EIA/EMP report.
xii. The possibility of conjunctive irrigation may also be considered in the project right from the formulation stage. A detailed irrigation management plan should be worked out so that mixed irrigation (lift and flow) scheme be taken up to reduce power consumption with water account.

Item No. 8.3 Extension, Remodeling and Modernization of Kosi Canal System, Rampur district, Utter Pradesh by M/s Water Resources Department, Government of Utter Pradesh –**for Fresh TOR**

The Project Proponent (PP) and the Consultant, M/s Enviro Infra Solutions Pvt. Limited, Ghaziabad, made a presentation of the project and *inter-alia*, provided the following information:

The project is for extension /remodeling /modernization of Kosi canal system taking off from Lalpur weir across Kosi river in Rampur district of Uttar Pradesh and is under jurisdiction of the Irrigation Department, Uttar Pradesh. Built in 1895, by the then Nawab of Rampur, it encompasses a 272m long weir structure on well foundation for diverting water into Kosi canal by means of falling wooden shutters. The canal, authorized head discharge 400 cusec,

comprises of 197.63 km long distribution system to cater to CCA of 24,250 ha with annual proposed Kharif and Rabi being 15% and 12%, respectively. The irrigation intensities were subsequently raised to 32% and 25% during 1975 when the supplies were augmented from Tumariya dam through Bhalla-Kosi Feeder to the tune of 250 cusec. A single lane steel road bridge, connecting to Tanda, was subsequently added to the weir in 1932.During 1988 the piers of few bays of the weir developed serious cracks since then the bridge has been closed for heavy vehicular traffic. The road bridge on the weir is vital lifeline between Rampur to Tanda. The falling shutters, which invariably drop during first flood during July, also lower the pond level and consequently render the weir unable to divert the required/authorized discharge into canal and the system does not get sufficient water for Kharif irrigation, although the flow passes over the crest to the downstream without being diverted. The shutters are again enacted only after monsoon during October when river supplies are low and water becomes available in canals. Thus, Rabi irrigation is also adversely affected.

Against the irrigation intensities of 32% and 25% during Kharif and Rabi, respectively, an average Kharif and Rabi potential achieved is 6,184 ha (26%) and 5,825 ha (24%), respectively. Being more than122 years old and after having withstood the on-slaught of fury of historical floods in 1924 (0.94 lakh cusec), in 1947 (0.69 lakh cusec) and 2010 (1.278lakh cusec) and many flash floods, the weir had been under severe stress with its few bays, wells and downstream floor getting scoured, damaged and cracks have appeared in the downstream floor and piers and frequent boiling was encountered in the downstream bays. Damages observed from1969 revealed that the structure of Lalpur weir has outlived its useful life because some of the damages cannot be repaired and are of permanent type. Therefore, immediate construction of a new replacement barrage on the downstream was vehemently and urgently required to obviate any unfortunate situation of the sudden failure of the structure, thereby dislodging altogether the irrigation facilities in the command area of the age old system and leaving the farmers hapless. The maintenance of the old weir had become quite costly proposition and the danger of its collapse was looming large. In the wake of aforementioned technical grounds and to ward of the most frightening exigency of the irrigation system being severely affected, it is, judicious and prudent to construct a new barrage on war footing in lieu of more than century old weir well in advance before any calamity happens.

The old weir had been in precarious condition for long and its sudden washing out would have created damage to the downstream, therefore, it has been dismantled in the year 2016 in a scientific and phased manner except for the wells which are below the riverbed level. The single lane bridge has also been razed to the ground and the work of construction of a new bridge at the same site by the PWD is in progress. The canal is being run by creating a temporary bund for diverting the water and shall be fed so till the ongoing work of diversion barrage on downstream, in such emergent situation, is completed. The project envisages construction of replacement barrage and appurtenant works in lieu of age-old Lalpur weir, which has been dismantled now. It also involves remodeling of canal and distribution system to cope of with the increase in discharge from 400 cusecs to 600 cusecs, with increase in FSL at existing head regulator from 194.127 m amsl to 194.600 m amsl, and by adopting to strengthening of banks and lining of bed and sides of canal and

distributaries. Due to remodeling/modernization of canal and distribution system the existing irrigation intensities of 32% (7,760 ha) and 25% (6,063 ha) during Kharif and Rabi, respectively shall be increased to 55% (13,337 ha) and 35% (8,487 ha), respectively. The ERM project shall comprise of the following components:

- 352.02 m long gated barrage comprising of two under sluices on left and right flank each with two bays of 18m width with crest level 191.25 m amsl and gate size18x5.35 m; 13 barrage bays of 18 m width each with crest level at 191.25 m amsl, with gate size18x4.35m, designed for PMF (5,313 cumec).
- A fish ladder (1.5x1.5 m) in the left side divide wall.
- Left bank head regulator with two bays of 3 m each separated by 1.5 m wide pier with overall waterways of 7.5 m designed for 600 cusecs (16.98 cumec).
- Right bank head regulator for 150 cusecs, for irrigating command on right bank in future, shall be concurrently constructed to obviate construction complexities in future.
- Guide bunds with top width 6m and side slope 2:1, with river face pitched with 0.5 m thick paneled boulder pitching over 0.15 m sand over geo-synthetic sheet with toe wall having 3rows of boulder filled G.I. wire crates (1.5x1.5x0.9 m) shall be provided.
- The existing Lalpur-Roohella bund on left flank shall function as left afflux bund. However, right afflux bund with top width of 8 m and side slope 2:1, shall be provided as double lane approach road.
- Construction of link canal (5 km) from left head regulator with canal bed level at head193 m amsl.
- C.C. (M-15) cast in-situ lining, over PCC laid on HDPE sheet, side and bed in full length of link channel and selective reaches of Upper Kosi canal, Lower Kosi canal, Khandia dy., Bagi dy., Param dy. And Patwai dy. shall be provided in 5.0, 5.9, 5.9, 8.2, 5.7, 2.23 and 7.3 km, respectively.

For construction of the new headwork and appurtenant works, afflux bunds at Nabiganj village, about 147.36 ha land will be required of which 119.85 ha shall be acquired from private owners and balance 27.51 ha shall be the revenue land. No diversion of forestland is involved. No archaeological monument of national importance either lies in the project area or in its submergence area. No National Park, Sanctuary, Defense Establishments, Archeological Monuments, Notified Eco-sensitive areas or protected area under Wildlife (Protection) Act exist within the project area or within 15 km distance from it. The water requirement (100 kld) for construction shall be mainly met from the river water and the domestic/drinking water from underground sources from nearby private tube well. The total raw material requirement for coarse and fine aggregate and boulder comes to 0.61 lakh cum, 0.37 lakh cum and 0.32 lakh cum, respectively, which shall be met from the approved stone crushers in nearby areas. About 200 persons shall be employed during peak construction phase. The project is likely to be completed in time frame of three years.

The competent authority has accorded technical sanction of INR 23,631.77 lakh to the project, while during appraisal the EFC has accorded sanction for Rs. 21,635.90 lakh only. Therefore, in pursuance of philosophy behind the EIA Notification, dated 14.09.2006 and its subsequent amendments, it is

imperative to bring the ERM project, an infra-structure project for irrigation of command of age-old Kosi canal system, which used to take off from old Lalpur weir which has been dismantled now, in compliance with the environmental laws at the earliest.

After deliberations and considering all the facts of the project as presented by the PP, the EAC ***recommended*** **for grant of scoping clearance/ToR** for the proposed project with the following additional conditions along with standards ToR:

i. As the proposed project is for extension, remodeling and modernization of existing Kosi Canal System, at least two seasons (including monsoon season) base line data shall be collected for various environmental parameters for preparation of the EIA/EMP report.
ii. As the barrage is 5 m height with minor pondage, dam break analysis of the barrage is not required.
iii. Provision of e-flow should be ensured for the sustenance of aquatic life in the downstream river.
iv. Land acquired for the project shall be suitably compensated in accordance with the law of the land with the prevailing guidelines.
v. Total power requirement to be provided and its firm linkage to be supported with documents.
vi. Information on species composition in particular to fish species from any previous study/literature should be included.
vii. The possibility of conjunctive irrigation may also be considered in the project right from the formulation stage. A detailed irrigation management plan should be worked out so that mixed irrigation (lift and flow) scheme be taken up to reduce power consumption with water account.
vi. Solid waste management should be planned in details. Land filling of plastic waste shall be avoided and instead proposal for various uses may be proposed in the revised EIA/EMP report.

Item No. 8.4 Palamuru Rangreddy Lift Irrigation Scheme, CAD and Irrigation Department, Government of Telengana, Telengana – **for fresh Scoping clearance**

The Project Proponent (PP) and the Consultant, M/s Voyants Solutions Pvt. Ltd, Gurgaon, made a presentation of the project and *inter-alia*, provided the following information:

The erstwhile Mahabubnagar, Rangareddy and Nalgonda Districts of Telangana State are the worst drought prone and distressed areas in the country. There is tremendous shortage of drinking water, as these areas are infested by fluoride. As a result, a large part of the population of the districts is being forced to migrate to other part of the country. In order to redress this situation, the Government of Telengana has taken up the Palamuru-Rangareddy Lift irrigation Scheme (PRILS) for alleviation the misery of these drought prone areas.

PRLIS is one of the foremost and largest welfare scheme being under taken by the Government to supply clean, potable water to the upland areas of Mahabubnagar, Rangareddy and Nalgonda districts by utilizing excess flood

water. The scheme in its first phase envisages lifting of 90 TMC of floodwater in 60 days during the flood season from the fore shore of the Srisailam project on Krishna river at Yellur (Village), Kollapur (Mandal) in Mahabubnagar (District) through five separate stages ending at K.P. Laxmidevipally (Village), Kondurg (Mandal) near Shadnagar town at the highest elevation. These five stages each comprise of a reservoir and conduit between each reservoir for taking the water forward with pump house being constructed wherever necessary. Water will then be drawn from selected reservoir through a separate canal and pipeline distribution network.

In view of the situation explained above, the scheme has been planned in two phases: Phase-I (Water supply project) and Phase-II (Irrigation project). The Phase-I project has been planned with 6 Nos. of reservoir and 5 Nos. of lifts for basic human consumption.

The immediate purpose for the project is to provide water for drinking and industrial uses to the enroute villages and Hyderabad city. Therefore, the 1st Phase of Palamuru-Rangareddy Lift irrigation Scheme envisages to provide drinking water facilities to enroute 1,428 villages in 74 mandals of Mahabubnagar, Rangareddy and Nalgonda district, Hyderabad city and water for industrial uses in Mahabubnagar, Rangareddy and Nalgonda districts by constructing approach channels, open channels, tunnels, pump houses and reservoirs by lifting 90 TMC of flood water in 60 days during flood season (i.e. 1.5 TMC of water per day) from foreshore of Srisailam reservoir located at Yellur (village), Kollapur Mandal in Mahabubnagar district which is the highest elevation in Mahabubnagar and Rangareddy districts with 5 stages of lifting and then utilizing water by gravity. Since, the water supply project does not fall under the purview of environmental clearance of EIA Notification, 2006, thus the project work has been initiated to resolve the drought situation on an immediate basis.

In 2nd phase, canal network will be developed from the reservoirs to create irrigation to up land areas of Mahabubnagar, Rangareddy and Nalgonda districts for an ayacut of 4.97,976 ha. Later on, this stored water shall be used for irrigation purposes in various districts through a network of canals. This irrigation project (Phase-II) is Category "A" of River Valley Projects under the provisions of EIA Notification, 2006. In addition to the drinking water facility, it is proposed to irrigate in 4,97,976 ha of CCA in the districts of Mahabubnagar, Rangareddy and Nalgonda. A total of 15,790 ha land (detailed legal status of the land on each category has not been provided) will be acquired for construction various canals network, reservoir, temporary labourers colonies, etc. No forestland is involved in the proposed project. During construction of the project, 2,700 KLD of water shall be consumed for both construction and drinking purposes and shall be drawn from surface body and groundwater. 2,944 MW of electricity will be required and M/s Telengana State Southern Power Distribution Company Limited (TSSPDCL) shall supply the same.

The Govt. of Telengana has accorded the administrative approval vide letter dated 10.06.2015 to both the projects i.e. Phase-I and Phase-II for Rs. 35,200 crores. The project is likely to be completed in 30 months including the pre-construction activities. Considering all the benefits and costs incurred on all components of the project, the BC Ratio works out to be 1.23.

After deliberations and considering all the facts of the project as presented by the PP, the committee had the concerns about Techno-Economic Viability of the project. However, the EAC ***recommended*** **for grant of scoping clearance/ToR** for the proposed project with the following additional conditions along with standards ToR:

i. The scheme in its first phase envisages lifting of 90 TMC of floodwater in 60 days during the flood season from the foreshore of the Srisailam project on Krishna river at Yellur village through five separate stages, ending at K.P. Laxmidevipally village. Therefore, water availability analysis at Yelluru village (point of drawl) during monsoon season is to be submitted to ascertain sufficiency of water available.
ii. As the area is on fluoride affected zone, therefore, provisions should also be made to recharge the groundwater through proposed reservoirs to dilute fluoride levels.
iii. Groundwater be treated for removal of fluoride and then the treated water be supplied to the villagers for drinking purposes.
iv. Provision of e-flow should be ensured for the sustenance of aquatic life in the downstream river.
v. Land acquired for the project shall be suitably compensated in accordance with the law of the land with the prevailing guidelines.
vi. Though, total power requirement has been provided, but its firm linkage is to be supported with documents.
vii. Proof of application for diversion of forestland for non-forest purpose will be submitted to the Ministry within one month, if any.
viii. Information on species composition in particular to fish species from any previous study/literature should be included.
ix. The clearance from Standing Committee of NBWL under the Wildlife (Protection) Act, 1972 should be obtained, as applicable.
x. Wildlife Conservation plan be prepared for the area located within the project and implemented by the project proponent in consultation with the State Forest Department. Wildlife Conservation plan also to be prepared for the impacted area due to construction of the project falling outside the project area and implemented by the local state Forest Department.
xi. Solid waste management should be planned in details. Land filling of plastic waste shall be avoided and instead proposal for various uses may be proposed in the revised EIA/EMP report.
xii. Resettlement & Rehabilitation Plan should be implemented as per the prevail guidelines of the Govt. of India .
xiii. Skill mapping be undertaken for the youths of the affected project area and based on the skill mapping, necessary trainings to the youths be provided for their appropriate engagements in the Project.

Item No. 8.5 Satdharu Medium lift irrigation project, Government of Madhya Pradesh – **For fresh ToR**

The Project Proponent (PP) made a detailed presentation of the project and *inter-alia*, provided the following information:

Satdharu Medium Tank projects proposed on river Satdharu, a tributary of river Byarma which finally joins river Ken. The Ken river is a tributary of

Yamuna river. The project is situated in Damoh block, Damoh district head and is 20 km away from the district headquarter at Latitude 23^{0}42'36''N and Longitude 79^{0}27'12"E.

The Satdharu dam envisages construction of 24.80 m high and 755 m long earthen dam including 64.5 m long side channel spillway on river Satdharu near village Badyau of Damoh district of Madhya Pradesh. It is designed to store 63.03 MCM lives storage of water to provide irrigation in 7,555 ha of CCA through a well-planned network of pressurized pipe irrigation network with an irrigation intensity of 100%. The project is located about 4.5 km distance from Noradehi Wildlife Sanctuary and therefore, it attracts General Condition of EIA Notification, 2006. Thus, it is categorized as Category "A" project.

Provisions of 3.00 MCM for upstream use, 24.03 MCM for Irrigation and 26.46 MCM for domestic water supply for Damoh and adjacent villages have been planned for this project. 9.54 MCM is taken for evaporation losses. There is no intercepted catchment area at Satdharu Dam site and full catchment i.e. 145.68 km^2 entirely lies in the State of Madhya Pradesh.

The total land of 11290.63 ha shall be submerged at FRL, of which Forestland is 969.19 ha, Culturable land is 117.92 ha, Un-culturable land is 176.85 ha and Revenue land is 26.67 ha. The cost of the project is Rs. 315.65 crore. B.C. ratio is 1.41. During construction of the project, 25 technical personnel and about 100 contractual labourers shall be employed. Total power consumption during construction shall be about 4.350 MW. A total 76 families from 4 villages will be rehabilitated due to this project.

After deliberations and considering all the facts of the project as presented by the PP, the EAC ***recommended*** **for grant of scoping clearance/ToR** for the proposed project with the following additional conditions along with standards ToR:

i. A certificate will be submitted from CWC that utilization of water by this project will not affect the viability of the Ken-Betwa Link project, within six months from the date of grant of ToR.
ii. Provision of e-flow as per standard ToR should be ensured for the sustenance of aquatic life in the downstream river.
iii. Though, total power requirement has been provided, but its firm power linkage to be supported with documents.
iv. Detailed information on species composition in particular to fish species from any previous study/literature should be included.
v. Land acquired for the project shall be suitably compensated in accordance with the law of the land with the prevailing guidelines.
vi. Proof of application for diversion of forestland for non-forest purpose will be submitted to the Ministry within one month.
vii. Wildlife clearance is to be obtained from the Competent Authority as per the Wildlife (Protection) Act, 1972, as applicable.
viii. Wildlife Conservation plan be prepared for the area located within the project and implemented by the project proponent in consultation with the State Forest Department. Similarly, wildlife Conservation plan is also to be prepared for the impacted area due to construction of the project falling outside the project area and implemented by the local state Forest Department.

ix. Solid waste management should be planned in details. Land filling of plastic waste shall be avoided and instead proposal for various uses may be proposed in the revised EIA/EMP report.
x. Resettlement & Rehabilitation Plan should be implemented as per the prevail guidelines of the Govt. of India.
xi. Skill mapping be undertaken for the youths of the affected project area and based on the skill mapping, necessary trainings to the youths be provided for their appropriate engagements in the Project.
xii. Solid waste management should be planned in details. Land filling of plastic waste shall be avoided and instead proposal for various uses may be proposed in the revised EIA/EMP report.
xiii. The possibility of conjunctive irrigation may also be considered in the project right from the formulation stage. A detailed irrigation management plan should be worked out so that mixed irrigation (lift and flow) scheme be taken up to reduce power consumption with water account.

Item No. 8.6 Rongnichu Hydroelectric Project (96 MW), East Sikkim, district Sikkim by M/s Madhya Bharat Power Corporation Ltd - **for reconsideration of Extension of Validity of Env. Clearance** Proposal No. IA/SK/RIV/10100/2006

The project was considered by EAC in its meeting held during 2-3rd March, 2017. The Project Proponent (PP) and the Consultant, M/s Pollution and Ecology Control Services, Nagpur, made a presentation of the project for an extension of validity of Environmental Clearance (EC) and *inter-alia*, provided the following information:

The proposed proposal envisages construction of 14 m high barrage on Rongnichu river (tributary of Teesta river) near Namli village in the district of East Sikkim, Sikkim state having Installed Capacity of 96 MW. This is a run-of-the river scheme. The EC was accorded on 04.04.2007 for a period of 10 years as per the provisions of EIA Notification, 1994 and 2006. The compliance status of the conditions stipulated in EC dated 04.04.2007 for Specific & General Conditions was presented in detailed along with present status of the project with the reasons for delay in its completion within the validity of EC.

The project proponent explained that the land acquisition; obtaining other mandatory clearances including Forest Clearance (FC), etc. and various pre-project activities like financial closure, award of contracts and building road & other infrastructures in mountainous terrain, etc. also took considerable time. Thus, there has been an initial delay of more than 3 years to start the actual construction work after obtaining the EC in April 2007. Further, during excavation of tunnel, extremely poor geology was encountered, this and other geological difficulties of lower Himalayan region resulted in slower pace of work.

The PP further assured the committee that problems have now been over-come and presently, the work is progressing smoothly in all fronts without any hindrance. About 85% underground excavation work and about 50% of concreting work is complete. Electro Mechanical (Power House) and Hydro-Mechanical (Barrage) & Steel lining will commence in April-June, 2017 and it was further mentioned that they are confident of meeting the Scheduled Commissioning date of December 2018 as approved by the Government of

Sikkim. After detailed deliberations and considering all the facts of the project as presented by the PP along the Consultant, the EAC observed that the minor deviations encountered while taking up the project and it may not be treated as violation. It was informed to the EAC that as per OM dated14.09.2016, a provision of 3 years of extension of validity in case of River Valley & Hydroelectric Power Projects exists.

During appraisal, the Committee observed that the request made by project proponent for validity of extension of EC appears to be reasonable, since the 85% of the underground excavation work and 50% concrete work is complete and the remaining works will be initiated during April-May, 2017, the EAC recommended for extension of validity of EC initially for a period of 6 months in order to facilitate the PP to submit compliance and monitoring report from RO, MoEF& CC, Shillong. Based on the report, the extension for remaining2 $^{1}/_{2}$ years could be granted. Accordingly, the Ministry granted 6 months extension of the validity of EC on 16.6.2017.

The PP submitted the monitoring report by RO, MoEF, Shillong (site inspection conducted on 11-12th August, 2017); modified application Form-I and six monthly compliance status report (for the period 1.1.2017 to 30.6.2017) on EC conditions granted for the project. During appraisal the Committee observed that the point-wise compliance conditions as reported by the RO, Shillong, MoEF& CC is found to be satisfactory. Further, now 85% of the underground excavation work and 50% concrete work is complete and the remaining works will be initiated during April-May, 2017. The balance work would now be completed in remaining 2½ years.

After deliberations and considering all the facts of the project as presented by the PP based on the monitoring report on the status of compliance of EC conditions submitted by the Regional Office, MoEF&CC, Shillong. The EAC ***recommended*** **for grant of** extension of the validity of EC for the remaining 2½ years with the following additional conditions:

i. Till the Primary Health Centre are established, a mobile van be provided. It will be equipped with medical health care facilities so that the people of Namil and Namchiong villages would transfer their patients to the nearby District Health Care Centers.
ii. A plan be prepared with a time-bound implementation programme (both Engineering and biological measures) for stabilization of inactive muck disposal sites and submitted to the Ministry and its Regional Office, Shillong.
iii. Solid waste management should be planned in details. Land filling of plastic waste shall be avoided and instead proposal for various uses may be proposed in the revised EIA/EMP report.

Item No. 8.7 Basaveshwara Lift Irrigation Scheme in Belagavi District of Karnataka by Karnataka Neeravari Ltd., Government of Karnataka - **Reconsideration of Env. Clearance**
Proposal No. IA/KA/RIV/63339/2015

In earlier meeting of EAC held on 12.04.2017, the Project Proponent (PP) and the Consultant, M/s Health and safety Consultant, Bengaluru had made a presentation of the project and *inter-alia*, provided the following information.

The project involves lifting of 4 TMC water from Krishna River in Belgaon District to provide irrigation facility to 27,462 ha benefiting 22 villages Kharif season. The 2. 5 TMC of water is proposed to draw through an intake canal for a length of 1.25 m on Krishna River near old Ainapura village in Athani Taluka, which is 20 km away from Athani town. Thereafter, water is to be pumped to the delivery chamber through MS rising main of 15.9 km long. The project has two major gravity canals viz. south canal of 3.68 km long to irrigate 1313 ha & North canal of 59.92 km long to irrigate 26,149 ha. The total land requirement is about 420 ha. No submergence is envisaged in the project. Interstate boundary with Maharashtra is located at a distance of 1 km from the boundary of the command area. The estimate project cost is about Rs. 1,120 Crores.

The Scoping/ToR clearance was granted on 17.11.2015 for a period of 3 years. The Public Hearing was conducted in Ainapur village, Athani Taluk, Bagalkot District on 10.2.2017. PP informed that all the issues raised during the Public Consultation have been incorporated in the EIA/EMP report. The socio-economic impact assessment was carried out separately and report was also submitted. Thereafter, the final EIA/EMP reports were submitted to the Ministry for environment clearance.

The project was earlier considered by EAC in its meetings held on 12.04.2017 and 24-25th August, 2017. The various environmental aspects covering catchment area, submergence area and project influence area, i.e. area within 10 km radius from main project components have been considered. The baseline data has been collected covering Physico-chemical aspects, biological aspects and socio-economic aspects. Three seasons' data have been collected for air, noise, water, soil and ecological aspects. Impacts during construction and operation phases have been assessed and mitigation measures suggested minimizing the anticipated impacts. The EMP has been prepared based on predicted impact, actual requirement and incorporating suggestions of local people, stakeholders with the details as under:

Table: Cost estimates for implementation of EMP

Sl. No.	EMP heads	Cost (Rs. in lakhs)
A.	**Construction Phase**	
1.	Air Pollution Control	26.00
2.	Noise Pollution Control	0.50
3.	Water Pollution Control	1.50
4.	Solid &Hazardous Waste Management	3.00
5.	Greenbelt Development	243.77

6.	Agro Forestry Activities		27.46
7.	Fisheries Development		10.00
8.	Socio-economic Environment		9395.00
9.	Environmental Monitoring		55.40
10.	Implementation of CAT plan		968.00
B. Operation Phase			
10.	Environmental Monitoring		11.52
11.	Greenbelt Maintenance		30.00
		Total	10,772.15

After detailed deliberations and considering all the facts of the project as presented by the PP, the EAC sought additional information and PP submitted the compliance report and the same and has been presented during 7th EAC meeting held on 24-25th August, 2017. The EAC satisfied with the report, however, EAC opined that the PP constructing a project from his own funds results in avoidance of examination by the CWC for hydrology, and for interstate aspect. Vetting by CWC for these two aspects is essential. Therefore, it was decided that even if the PP is to construct the project from his own funds, EC will be given only after PP produces the clearance from CWC for hydrology and interstate aspect. PP has not obtained the clearance from CWC for hydrology and inter-state aspect. Therefore, the Committee advised the PP to obtain the same.

Based on the query raised by EAC, the PP submitted a letter enclosing CWC guidelines of 2017 wherein, it has been mentioned that –

"*Environmental clearance is one the pre-requisite for examination of the DPR for issue of CWC clearance. Further, the Technical Advisory Committee (TAC) of CWC will not appraise the project for CWC clearance until submission of environmental clearance"*

After deliberations and considering the facts of the project as presented by the PP, the Committee again reiterated that since the PP is constructing this project from his own funds, it is not being examined by the CWC for hydrology, and for interstate aspect. The Committee opined that such examination by CWC for these two aspects is essential and would be helpful for all concerned. Therefore, it was decided that, even if, the PP is to construct the project from his own funds, EC will be given only after PP produces the clearance from CWC for hydrology and interstate aspect.

As clearances from CWC for hydrology and inter-state aspect have not been obtained, the Committee **deferred the proposal** and advised the PP to obtain the same. Thereafter, the proposal will be reconsidered in a subsequent EAC meeting.

Item No. 8.8 Veerabhadreshwara Lift Irrigation Scheme in Bagalkot District of Karnataka by Karnataka Neeravari Ltd., Government of Karnataka - **Reconsideration of Environment Clearance.**

In the meeting of EAC held on 12.04.2017, the Project Proponent (PP) and the Consultant, M/s Health and safety Consultant, Bengaluru made a presentation of the project and *inter-alia*, provided the following information:

The project involves lifting of 2.5 TMC water from Ghataprabha River in Bagalkot District (Karnataka), to provide irrigation to 17,377 ha of land. This project is likely to benefit 34 villages during Kharif season (June-September). The 2.5 TMC of water is proposed to draw through an intake canal for a length of 100m on Ghataprabha River. Thereafter, the water is proposed to be pumped to delivery chamber through MS raising main of 7.6 km length. The project has two major gravity canals, viz. Hosakoti canal of 13 km long to irrigate 5,900 ha & Sallahalli canal of 20 km long to irrigate11,477 ha. The project also proposes to fill 10 Minor Irrigation Tanks within the command area. The total land requirement is about 125 ha. The estimated project cost is Rs. 544 crores.

The Scoping/ToR clearance was granted on 17.11.2015 for a period of 3 years. The Public Hearing was conducted at Killa Hosakoti Village, Mudhol Taluk, Bagalkot District on 13.1.2017 and at Boodaanur Village, Belagavi District on 7.2.2017 of Karnataka state. PP informed that all the issues raised during the Public Consultation have been incorporated in the EIA/EMP report. The socio-economic impact assessment was carried out separately and report was also submitted. Thereafter, the final EIA/EMP reports were submitted to the Ministry for environment clearance.

The project was earlier considered by EAC in its meetings held on 12.04.2017 and 24-25th August, 2017. The various environmental aspects covering catchment area, submergence area and project influence area, i.e. area within 10 km radius from main project components have been considered. The baseline data has been collected covering Physico-chemical aspects, biological aspects and socio-economic aspects. Three seasons' data have been collected for air, noise, water, soil and ecological aspects. Impacts during construction and operation phases have been assessed and mitigation measures suggested minimizing the anticipated impacts. The EMP has been prepared based on predicted impact, actual requirement and incorporating suggestions of local people, stakeholders with the details as provided in the table below:

Table: Cost estimates for implementation of EMP

Sl. No.	Environmental Management Plan	Cost (Rs.in lakhs)
A.	**Construction Phase**	
1.	Air Pollution Control	28.6
2.	Noise Pollution Control	0.25
3.	Water Pollution Control	1.75
4.	Solid & Hazardous Waste Management	2.45
5.	Greenbelt Development	1273.00
6.	Agro Forestry Activities	17.40
7.	Fisheries Development	10.00
8.	Socio-economic Environment	1977.00

9.	Environmental Monitoring	45.88
10.	Implementation of CAT plan	1885.00
B.	**Operation Phase**	
10.	Environmental Monitoring	10.74
11.	Greenbelt Maintenance	30.00
Total		**5,282.00**

After detailed deliberations and considering all the facts of the project as presented by the PP, the EAC sought additional information and PP submitted the compliance report and the same and has been presented during 7th EAC meeting held on 24-25th August, 2017. The EAC was satisfied with the report. However, EAC opined that since the PP is constructing the project from his own funds, it results in avoidance of examination by the CWC for hydrology, and for interstate aspect. Vetting by CWC for these two aspects is important and essential. Therefore, it was decided that even if the PP is to construct the project from his own funds, EC will be given only after PP produces the clearance from CWC for hydrology and interstate aspect. PP has not obtained the clearance from CWC for hydrology and inter-state aspect. Therefore, the Committee advised the PP to obtain the same.

Based on the query raised by EAC, the PP submitted a letter enclosing CWC guidelines of 2017 wherein, it has been mentioned that –

"*Environmental clearance is one the pre-requisite for examination of the DPR for issue of CWC clearance. Further, the Technical Advisory Committee (TAC) of CWC will not appraise the project for CWC clearance until submission of environmental clearance"*

After deliberations and considering the facts of the project as presented by the PP, the Committee again reiterated that the PP constructing a project from his own funds results in avoidance of examination by the CWC for hydrology, and for interstate aspect. The Committee opined that CWC gives clearances at various stages and vetting by CWC for these two aspects is helpful and essential. Therefore, it was decided that, even if, the PP is to construct the project from his own funds, EC will be given only after PP produces the clearance from CWC for hydrology and interstate aspect.

As clearances from CWC for hydrology and inter-state aspect have not been obtained, the Committee **deferred the proposal** and advised the PP to obtain these clearances from CWC. Thereafter, the proposal will be reconsidered in a subsequent EAC meeting.

Item No. 8.9 Additional Study for Cumulative Impact Assessment & Carrying Capacity Study (CIA & CCS) of Lower Subansiri Basin in Arunachal Pradesh – **Presentation before EAC**.

The Consultant, M/s IRGS who prepared the CIA and CCS report could not be present and sought leave of absence from the meeting. Therefore, the proposal has been deferred to the next EAC meeting.

Item No. 8.10 Standardization of Environmental Clearance conditions of River Valley projects - **Presentation before EAC**.

As per the decision taken in the Ministry, standardization of Specific EC conditions for River Valley Projects has been presented before the EAC by the EAC secretariat. After deliberations and considering the presentation made by the EAC Secretariat, the Committee decided that the standardization of Specific EC conditions for River Valley Projects may be circulated again to all the Members so that they may offer their comments. The matter shall be considered again in the next EAC meeting. The proposal has accordingly been **deferred.**

Item No. 8.11 Any other item with the permission of the Chair

As, there was no Agenda Item left for discussion, the meeting ended with thanks to the Chair.

****

Subject: **Approved minutes - 8th meeting (RVH)**
To: "Dr S. Kerketta" <s.kerketta66@gov.in>,
"Dr S. Kerketta" <suna1466@rediffmail.com>

Date: 09/29/17 09:33 AM
From: Sharad Jain <s_k_jain@yahoo.com>
Reply-To: Sharad Jain <s_k_jain@yahoo.com>

8th_EAC_Meeting_22.09.2017_Approved minutes.docx (95kB)

Dear Dr Kerketta,
I am sending the approved minutes of the 8th meeting of EAC (RVH). I assume that all the data and information reported in the minutes has been carefully checked by you and is correct.

Regards,

Sharad Jain

NIH Roorkee

No.- J-12011/31/2017-IA-I (R)
Ministry of Environment, Forests and Climate Change
Government of India
[IA-I Division]

Indira Paryavaran Bhawan
3rd Floor, Vayu Wing
Jor Bagh Road
New Delhi-110003
Dated: 11th October 2017

To
Shri V. Lingaraju
Chief Engineer
Irrigation and CAD Department
Government of Telangana,
5th Floor, Jalasoudha Building, Erramanzil,
Hyderabad - 500082

Subject: **Palamaru Rangareddy Lift Irrigation Scheme in Mahbubnagar, Rangareddy & Nalgonda Districts of Telangana by Irrigation and CAD Department, Government of Telangana - TOR - regd.**

Sir,

This has reference to your letter No. CE/PRLIS/DCE/O.T-1/T.S1/2215 dated 28.8.2017 on the above-mentioned subject.

2. The above proposal was appraised by the Expert Appraisal Committee (EAC) for River Valley & Hydroelectric Power Projects (RV & HEP) in its 8th meeting held on 22.9.2017. The comments and observations of EAC may be seen in the Minutes of the meeting that are available on the Ministry's website.

3. It was noted that the scheme in its first phase envisages lifting of 90 TMC of flood water in 60 days during the flood season from the fore shore of the Srisailam reservoir on Krishna river at Yellur (V), Kollapur (M) in Mahabubnagar (D) through 5 separate stages to provide drinking water facilities to enroute 1428 villages in 74 mandals of Mahabubnagar, Rangareddy and Nalgonda Districts, Hyderabad City and also envisages to provide water for industrial use in Mahabubnagar, Rangareddy and Nalgonda Districts. The Cultural Command Area (CCA) is 4,97,976 ha. The total land requirement for the project is 15,790 ha. There is no displacement as no habitation is coming under submergence.

4. In 2nd phase, canal network will be developed from the reservoirs to create irrigation to up land areas of Mahabubnagar, Rangareddy and Nalgonda districts for an ayacut of 4.97,976 ha. Later on, this stored water shall be used for irrigation purposes in various districts through a network

(1)

of canals. In addition to the drinking water facility, it is proposed to irrigate in 4,97,976 ha of CCA in the districts of Mahabubnagar, Rangareddy and Nalgonda. A total of 15,790 ha land will be acquired for construction various canals network, reservoir, temporary labourers colonies, etc. No forestland is involved in the proposed project.

5. The proposed project is located at a distance of 11.95 km from the core of Amrabad Tiger Reserve, 2.56 km from the buffer and 1.56 from the proposed Eco-Sensitive Zone (ESZ) of Amrabad Tiger Reserve. The total cost of the project is about Rs. 35,200 Crores and likely to be completed in 30 months.

6. Based on recommendations of the EAC, the Ministry of Environment, Forest & Climate Change, hereby accords a fresh clearance for pre-construction activities at the proposed site as per the provisions of the Environmental Impact Assessment Notification, 2006 and subsequent amendment, 2009 along with the following Terms of Reference (ToR) for the preparation of EIA/ EMP report:

a) The EIA/EMP report should contain the information in accordance with provisions & stipulations as given in the **Annexure-I**.

b) The consultant engaged for preparation of EIA/EMP report has to be registered with Quality Council of India (QCI/ NABET under the scheme of Accreditation & Registration of MoEF. This is a pre-requisite.

c) Consultant shall include a "Certificate" in EIA/EMP report regarding portion of EIA/EMP prepared by them and data provided by other organisation(s)/ laboratories including status of approval of such laboratories.

d) The draft EIAA/EMP report prepared as per **Annexure-I** should be submitted to the State Pollution Control Board Committee concerned for conducting Public Consultation as per the provisions stipulated in EIA Notification of 2006. Public Hearing, which is a component of Public Consultation, shall be held district wise at the site or in its close proximity as prescribed in Appendix (IV) of EIA Notification, 2006. The draft EIA/EMP report is to be submitted to SPCB etc. sufficiently before the expiry of the ToR validity so that necessary amendments in EIA/EMP can be undertaken based on public hearing and the same is submitted to MoEF&CC before expiry of validity.

e) The PP has disclosed during the TOR presentation that Monsoon season data has been collected in 2017 for this project and requested the EAC to accept the same for use in the EIA/EMP report. The committee accepts that the Monsoon data collected can be included in the EIA/EMP report.

f) All issues discussed in the Public Hearing / Consultations should be addressed and incorporated in the EIA/EMP report. Final EIA/EMP report should be submitted to the Ministry for Environmental

Clearance only after incorporating these issues before the expiry of validity of ToR.

g) The ToR will remain valid for a period of 4 years from the date of issue of this letter for submission of EIA/EMP report along with public consultation. The ToR will stand lapsed on completion of 4 years in case final EIA/EMP is not submitted and the validity is not extended.

h) In case of any change in the scope of the project such as capacity enhancement, change in submergence, etc., fresh scoping clearance has to be obtained by the project proponent.

i) The PP should submit a copy of TEC of the DPR along with EIA/EMP report.

j) Information pertaining to Corporate Environmental Responsibility and Environmental Policy shall be provided in the EIA/EMP Report as per this Ministry's OM No. J-11013/25/2014-IA-I dated 11.08.2014 (Reference as **Annexure-II**)

k) The EIA/ EMP report must contain an Index showing details of compliance of all TOR conditions. the Index will comprise of page no. etc., vide which compliance of a specific ToR is available. It may be noted that without this index, EIA/ EMP report will not be accepted.

l) In case the validity is to be extended, necessary application is to be submitted to Regulatory Authority before expiry of validity period together with an updated Form-I based on proper justification.

This has approval of the Competent Authority.

Yours faithfully,

(Dr. S. Kerketta)

Director

Copy to:

1. The Secretary, Ministry of Water Resources, Shram Shakti Bhawan, Rafi Marg, New Delhi – 1.
2. The Principal Secretary (Irrigation), Government of Telangana, Secretariat, Hyderabad – 500 001.
3. The Secretary, Department of Environment & Forest, Government of Telangana, Secretariat Hyderabad – 500 022.
4. The Chief Engineer, Project Appraisal Directorate, Central Water Commission, Sewa Bhawan, R. K. Puram, New Delhi – 110 066.
5. The Addl. PCCF (C), Ministry of Environment, Forest and Climate Change, Regional Office (SEZ), 1st and 2nd Floor, Handloom Expert Promotion Council, 34, Cathedral Garden Road, Nungambakkam, Chennai – 600 034.

6. The Member Secretary, Telangana State Pollution Control Board, Paryavaran Bhawan, Industrial Estate, Sanath Nagar, Hyderabad.
7. Guard File.

(Dr. S. Kerketta)
Director

Annexure-I

TERMS OF REFERENCE FOR CONDUCTING ENVIRONMENT IMPACT ASSESSMENT STUDY FOR 'A' CATEGORY RIVER VALLEY PROJECTS AND INFORMATION TO BE INCLUDED IN EIA/EMP REPORT

(1) Scope of EIA Studies

The EIA Report should identify the relevant environmental concerns and focus on potential impacts that may change due to the construction of proposed project. Based on the baseline data collected for three (3) seasons (Pre-monsoon, Monsoon and winter seasons), the status of the existing environment in the area and capacity to bear the impact on this should be analyzed. Based on this analysis, the mitigation measures for minimizing the impact shall be suggested in the EIA/EMP study.

(2) Details of the Project and Site

- General introduction about the proposed project.
- Details of project and site giving L.-sections of all U/S and D/S projects of River with all_ relevant maps and figures. Connect such information as to establish the total length of interference of Natural River and the committed unrestricted release from the site of diversion into the main river.
- A map of boundary of the project site giving details of protected areas in the vicinity of project location.
- Location details on a map of the project area with contours indicating main project features. The project layout shall be superimposed on a contour map of ground elevation showing main project features (viz, location of dam, Head works, main canal, branch canals, quarrying etc.) shall be depicted in a scaled map.
- Layout details and map of the project along with contours with project components clearly marked with proper scale maps of at least a 1:50,000 scale and printed at least on A3 scale for clarity.
- Existence of National Park, Sanctuary, Biosphere Reserve etc. in the study area, if any, should be detailed and presented on a map with distinct distances from the project components.
- Drainage pattern and map of the river catchment up to the proposed project site.
- Delineation of critically degraded areas in the directly draining catchment on the basis of silt Yield Index as per the methodology of All India Soil and Land Use Survey of India.
- Soil characteristics and map of the project area.
- Geological and seismo-tectonic details and maps of the area surrounding the proposed project site showing location of dam site and canal site.
- Remote Sensing studies, interpretation of satellite imagery, topographic sheets along with ground verification shall be used to develop the land use/land cover pattern of the study using overlaying mapping techniques viz. Geographic Information System (GIS), False Color composite (FCC) generated front satellite data of project area.
- Land details including forests, private and other land.

- Demarcation of snow fed and rain fed areas for a realistic estimate of the water availability.

(3) Description of Environment and Baseline Data

To know the present status of environment in the area, baseline data with respect to environmental components air, water, noise, soil, land and biology & biodiversity (flora & fauna), wildlife, socio-economic status etc. should be collected with 10 km radius of the main components of the project/site i.e. dam site and power house site. The air quality and noise are to be monitored at such locations which are environmentally & ecologically more sensitive in the study area. The baseline data should be collected for 3 seasons (Pre-Monsoon, Monsoon and Post Monsoon seasons). Flora/fauna in the catchment area and command area should be documented. The study area should comprise of the following:

- Catchment area up-to the darn site.
- Submergence Area
- Project area or the direct impact area should comprise of area falling within 10 km radius from periphery of reservoir, land coming under submergence and area downstream of dam

(4) Details of the Methodology

- The methodology followed for collection of base line data along with details of number of samples and their locations in the map should be included.
- Study area should be demarcated properly on the appropriate scale map.
- Sampling sites should be depicted on map for each parameter with proper legends.
- For forest classification, Champion and Seth (1968) classification should be followed.

(5) Methodology for collection of Biodiversity Data

- The number of sampling locations should be adequate to get a reasonable idea of the diversity and other attributes of flora and fauna. The guiding principles should be the size of the study area (larger area should have larger number of sampling locations) and inherent diversity at the location, as known from secondary sources (e.g. eastern Himalayan and low altitude sites should have a larger number of sampling locations owing to higher diversity).

- The entire area should he divided in grids of 5km X 5km preferably on a GIS domain. There after 25% of the grids should be randomly selected for sampling of which half should be in the directly affected area (grids including project components such as reservoir, clam, powerhouse, tunnel, canal etc.) and the remaining in the rest of the area (areas of influence in 10 km radius form project components). At such chosen location, the size and number of sampling units (e.g. quadrats in case of flora/transects in case of fauna) must be decided by species area curves and the details of the same (graphs and cumulative number of species in a tabulated form) should be provided in the EIA report. Some of the grids on the edges may not be completely overlapping with the study area boundaries. However these should be counted and considered for selecting 25% of the grids. The number of grids to be surveyed may come out as a

decimal number (i.e.it has an integral and a fractional part) which should he rounded to the next whole number.

- The conventional sampling is likely to miss the presence of rare, endangered and threatened (R.E.T.) species since they often occur in low densities and in case of faunal species are usually secretive in behavior. Reaching the conclusion about the absence of such species in the study area based on such methodology is misleading. It is very important to document the status of such species owing to their high conservation value. Hence likely presence of such species should be ascertained from secondary sources by a proper literature survey for the said area including referring to field guides which are now available for many taxonomic groups in India. Even literature from studies/surveys in the larger landscapes which include the study area for the concerned project must he referred to since most species from adjoining catchments is likely to be present in the catchments in question. In fact such literature form the entire state *can* be referred to. Once a listing of possible R.E.T. species form the said area is developed, species specific methodologies should he adopted to ascertain their presence in the study area which would be far more conclusive as compared to the conventional sampling. If the need *be,* modern methods like camera trapping can be resorted to, particularly for areas in the eastern Himalayas and for secretive/nocturnal species. A detailed listing of the literature referred to, for developing lists of R.E.T. species should be provided in the EIA reports.

- The R.E.T. species referred to in this point should include species listed in Schedule I and II of Wildlife (Protection) Act, 1.972 and those listed in the red data books (BSI, ZSI and IUCN).

(6) <u>Components of the EIA Study</u>

Various aspects to be studied and provided in the EIA/EMP report are as follows:

A. Physical and Chemical Environment

(i) Geographical, Geological & Geophysical Aspects and Seismo-Tectonics:

- Physical geography, Topography, Regional Geological aspects and structure of the Catchment.
- Tectonics, seisrnicitv and history of past earthquakes in the area. A site specific study of the earthquake parameters will be done. The results of the site specific earthquake design shall be sent for approval of the NCSDP (National committee of Seismic Design Parameters, Central water commission, New Delhi. for large dams.
- Landslide zone or area prone to landslide existing in the study area should be examined.
- Presence of important economic mineral deposit, if any.
- Justification for location & execution of the project in relation to structural components (darn height).
- Impact of project on geological environment.

(ii) Meteorology, Air and Noise:

- Meteorology (viz. Temperature, Relative humidity, wind speed/ direction etc.) to be collected from nearest IMD station.

- Ambient Air Quality with parameters viz. suspended particulate matter (SPM), respirable suspended particulate matter (RSPM) i.e. suspended particulate matter <10 microns, sulphur dioxide (SO_2) and oxide of Nitrogen (NO_x) in the study area at 6 locations.
- Existing noise levels and traffic density in the study area at 6 locations.

(iii) Soil Characteristics

- Soil classification, physical parameters (viz., texture, porosity, bulk density and water holding capacity) and chemical parameters (viz. pH, electrical conductivity, magnesium, calcium, total alkalinity, chlorides, sodium, potassium, organic carbon, available potassium, available phosphorus, SAR, nitrogen and salinity, etc.) (6 locations).

(iv) Remote sensing and GIS Studies

- Generation of thematic maps viz., slope map, drainage map, soil map, land use and land cover map, etc. Based on these, thematic maps, an erosion intensity map should be prepared.
- New configuration map to be given in the EIA Report.

(v) Water Quality

- History of the ground water table fluctuation in the study area.
- Water quality for both surface water and ground water for (i) Physical parameters (pH, temperature, electrical conductivity, TSS); (ii) Chemical parameters (Alkalinity, Hardness, BOD, COD, NO2, PO4, CI, SO4, Na, K, -Ca, Mg, Silica, Oil & Grease, phenolic compounds, residual sodium carbonate); (iii) Bacteriological parameter (MPN, Total conform) and (iv) Heavy Metals (Pb, As, Fig, Cd, Cr-6, total Cr, Cu, Zn, Fe) (6 locations).
- Delineation of sub and micro-watersheds, their locations and extent based on the All India Soil and Land Use Survey of India (AISLUS), Department of Agriculture, Government of India. Erosion levels in each micro-watershed and prioritization of micro-watershed through silt yield index (SYI) method of AISLUS

B. Water Environment and Hydrology

- Hydro-Meteorology of the project viz. precipitation (snowfall, rainfall), temperature, relative humidity, etc. Hydro-meteorological studies in the catchment area should be established along-with real time telemetry and data acquisition system for inflows monitoring.
- Run off, discharge, water availability for the project, etc.
- Basin characteristics.
- Catastrophic events like cloud bursts and flash floods, if any, should be documented.
- For estimation of Sedimentation Rate, direct sampling of river flow is to be done during the EIA study. The study should be conducted for minimum 1 year actual silt flow rate to be expressed in ha-in km^2 year-1.
- Sedimentation data available with CWC may be used to find out the loss in storage over the years.
- Set-up G&D monitoring station in the catchment area for collecting data during the investigation.
- Flow series, 10 daily with 90%, 75%,and 50% dependable years discharges.

- A table of 10 daily water discharge in 75% dependable year showing the intercepted discharge at the barrage, diversion for irrigation, environmental and other flow releases downstream of the barrage shall be included in the EIA report.
- Environmental flow release would be 20% of average of four consecutive months of 90% dependable year in lean season, 25% in non-monsoon & non-lean season and 30% in monsoon to be followed corresponding to 90%dependable year. A site specific study on minimum environment flow should be carried out
- Hydrological studies/data as approved by CWC shall be utilized in the preparation of ETA/EMP report. Actual hydrological annual yield may also be given in the report.
- A minimum of 1 km distance from the tip of the reservoir to the tail race tunnel should be maintained between upstream and downstream projects.

C Biological Environment

Besides primary studies, review of secondary data/literature published for project area on flora & fauna including RET species shall be reported in EIA/EMP report

(i) Flora

- Characterization of forest types (as per Champion and Seth method) in the study area and extent of each forest type as per the Forest Working Plan.
- Documentation of all plant species i.e. Angiosperm, Gymnosperm, Pteriodophytes, Bryophytes (all groups). All species list should be provided.
- General vegetation profile and floral diversity covering all groups of flora including *lichens* and orchids. A species wise list may be provided.
- Assessment of plant species with respect to dominance, density, frequency, abundance, diversity index, similarity index, importance value index (WI) , Shannon Weiner index etc. of the species to be provided. Methodology used for calculating various diversity indices along with details of locations of quadrates, size of quadrates etc. to be reported within the study area in different ecosystems.
- Existence of National park, Sanctuary, Biosphere Reserve etc in the study area, if any, should be detailed.
- Economically important species like medicinal plants, timber, fuel wood etc.
- Details of endemic species found hi the project area.
- Flora under RET categories should be documented using International Union for the Conservation of Nature and Natural Resources (IUCN) criteria and Botanical Survey of India's Red Data list along-with economic significance. Species diversity curve for RET species should be given.
- Cropping pattern and Horticultural Practices in the study area.
- Biodiversity study shall be carried out by associating a reputed organization as per the list of such institutes is available on Moef & CC website.

(ii) Fauna:

- Fauna study and inventorisation should be carried out for all groups of animals in the study area. Their present status along with Schedule of the species.
- Information (authenticated) on Avi-fauna and wildlife in the study area.
- Status of avifauna their resident/ migratory/ passage migrants etc.
- Documentation of butterflies, if any, found in the area.

- Details of endemic species found in the project area.
- RET species-voucher specimens should be collected along-with GPS readings to facilitate rehabilitation. RET faunal species to be classified as per IUCN Red Data list and as per different schedule of Indian Wildlife (Protection) Act, 1972.
- Existence of barriers and corridors, if any, for wild animals.
- Compensatory afforestation to compensate the green belt area that will be removed, if any, as part of the proposed project development and loss of biodiversity.
- Collection of primary data on agricultural activity, crop and their productivity and irrigation facilities components.

D Aquatic Ecology

- Documentation of aquatic fauna like macro-invertebrates, zooplankton, phytoplantkton, benthos etc.
- Fish and fisheries, their migration and breeding grounds.
- Fish diversity composition and maximum. length & weight of the measured populations to be studies for estimation of environmental flow.
- Conservation status of aquatic fauna.
- Sampling for aquatic ecology and fisheries must be conducted during the 3 seasons – Pre-monsoon (summer), monsoon and winter. Sizes (length & weight) of important fish species need to be collected and breeding and feeding grounds should be identified along the project site or in vicinity.

E Socio-Economic

- Collection of baseline data on human settlements, health status of the community and existing infrastructure facilities for social welfare including sources of livelihood, job opportunities and safety' and security of workers and surroundings population.
- Collection of information with respect to social awareness about the developmental activity in the area and social .welfare measures existing and proposed by project proponent.
- Collection of information on sensitive habitat of historical, cultural and religious and ecological importance.
- The socio-economic survey/ profile within 10 km of the study area for demographic profile; Economic Structure; Developmental Profile; Agricultural Practices; Infrastructure, education facilities; health and sanitation facilities; available communication network etc.
- Documentation of demographic, Ethnographic, Economic Structure and development profile of the area.
- Information on Agricultural Practices, Cultural and aesthetic sites, Infrastructure facilities etc.
- Information on the dependence of the local people on minor forest produce and their cattle grazing rights in the forest land.
- List of all the Project Affected Families with their name, age, educational qualification, family size, sex, religion, caste, sources of income, land & house holdings, other properties, occupation, source of income., house/land to be acquired for the project and house/land left with the family, any other property, possession of cattle, type of house etc.
- In addition to socio-economic aspects of the study area, a separate chapter on socio-cultural aspects based upon study on Ethnography of the area should be provided.

(7) Impact Prediction and Mitigation Measures

The adverse impact due to the proposed project should be assessed and effective mitigation steps to abate these impacts should be described,

(i) Air Environment

- Changes in ambient and ground level concentrations due to total emissions from point, line and area sources.
- Effect on soil, material, vegetation and human health.
- Impact of emissions from DG set used for power during the construction, if any, on air environment.
- Pollution due to fuel combustion in equipment and vehicles
- Fugitive emissions from various source

(ii) Water Environment

- Changes in surface and ground water quality
- Steps to develop pisci-culture and recreational facilities
- Changes in hydraulic regime and downstream flow.
- Water pollution due to disposal of sewage
- Water pollution from labour colonies/ camps and washing equipment.

(iii) Land Environment

- Adverse impact on land stability, catchment of soil erosion, reservoir sedimentation and spring flow (if any) (a) due to considerable road construction / widening activity (b) interference of reservoir with the inflowing stream (c) blasting_ for commissioning of HRT, TRT and some other structures.
- Changes in land use / land cover and drainage pattern
- Immigration of labour population
- Quarrying operation and muck disposal
- Changes in land quality including effects of waste disposal
- River bank and their stability
- Impact clue to submergence.

(iv) Biological Environment

- Impact on forests, flora, fauna including wildlife, migratory avi-fauna, rare and endangered species, medicinal plants etc.
- Pressure on existing natural resources
- Deforestation and disturbance to wildlife, habitat fragmentation and wild animal's migratory corridors
- Compensatory afforestation-identification of suitable native tree species for compensatory afforestation and green belt.
- Impact on fish migration and habitat degradation due to decreased flow of water
- Impact on breeding and nesting grounds of animals and fish.

(v) Socio-economic aspects

- Impact on local community including demographic profile.
- Impact on socio-economic status
- Impact on economic status.
- Impact on human health due to water / vector borne disease

- Impact on increase traffic
- Impact on Holy Places and Tourism
- Impacts of blasting activity during project construction which generally destabilize the land mass and. leads to landslides, damage to properties and drying up of natural springs and cause noise population will be studies. Proper record shall be maintained of the baseline information in the post project period.
- Positive and negative impacts likely to be accrued due to the project are listed.

(8) **Environmental Management Plans**

- **Catchment Area Treatment (CAT)** Plan should be prepared micro-watershed wise. Identification of free draining/ directly draining catchment based upon Remote Sensing and. Geographical Information System (GIS) methodology and Sediment Yield Index (SYI) method of SLUSOI coupled with ground survey. Areas or watersheds falling under 'very severe' and 'severe' erosion categories are required to be treated. Both biological as well as engineering measures should be proposed in consultation with State Forest Department. Year-wise schedule of work and monetary allocation should be provided. Mitigation measures to check shifting cultivation in the catchment area with provision for alternative and better agricultural practices should be included.
- **Command Area Development (CAD) Plan** giving details of implementation schedule with a sample CAD plan.
- **Compensatory Afforestation** shall be prepared by the State Forest. Department in lieu of the forest land proposed to be diverted for construction of the project as per the Forest (Conservation) .Act, 1980. Choice of plants for afforestation should include native and RET species, if any.
- **Biodiversity and Wildlife Conservation and Management Plan** for the conservation and preservation of rare, endangered or endemic floral/ faunal species or some National Park/Sanctuary/ Biosphere Reserve or other protected area is going to get affected directly or indirectly by construction of the project, then suitable conservation measures should be prepared in consultation with the State Forest Department.
- **Resettlement and Rehabilitation** (R&R) **Plan** need to be prepared with consultation of the project affected families and the State Government: Detailed budgetary estimates are to be provided. Resettlements site should be identified. The plan will also incorporate community development strategies. *Land acquisition for the project whose land is to be acquired should be suitably compensated in accordance with the law of the land and prevailing guidelines. R&R Plan is to be formulated as per new Act, 2013 which came into force w.e.f. 1.1.2014.*
- **Green Belt Development Plan** along the periphery of the reservoir, approach roads around the colonies and other project components, local plant species must be suggested with physical and financial details. Local plant species suitable for greenbelt should be selected.
- **Fisheries Conservation and Management Plan** – Fish fauna inhabiting the affected stretch of river, a specific fisheries management plan should be prepared for river and reservoir. If any migratory fish species is getting affected then the migratory routes, time/season of upstream and downstream migration, spawning grounds etc will be discussed in details.

- **Reservoir Rim Treatment Plan** for stabilization of land slide/ land slip zones, if any, around the reservoir periphery is to be prepared based on detailed survey of geology of the reservoir rim area. Suitable engineering and biological measures for treatment of identified slip zones to be suggested with physical and financial schedule.
- **Muck Disposal Plan** suitable sites for dumping of excavated materials should be identified in consultation with State Pollution Control Board and State Forest Department. All muck disposal sites should be minimum 30 in away from the HFL of river. Plan for rehabilitation of muck disposal sites should also be given. The L-section/cross section of muck disposal sites and approach roads should be given. The plan shall have physical and financial details of the measures proposed.
- **Plan for Restoration of quarry sites** and landscaping of colony areas, working areas, roads etc. Details of the coarse/fine aggregate/clay etc. required for construction of the project and the rock/clay quarries/river shoal sites identified for the project should be discussed along-with the engineering and Biological measures proposed for their restoration with physical and financial details.
- **Study of Design Earthquake Parameters**: A site specific study of earthquake parameters should be done. Results of the site specific earthquake design parameters should be approved by National Committee of Seismic Design Parameters, Central Water commission (NCSDP), New Delhi.
- **Dam Break Analysis and Disaster Management Plan** The outputs of dam break model should be illustrated with appropriate graphs and maps clearly bringing out the impact of Dam Break scenario. The action plan will include Emergency Action and Management plan including measures like preventive action notification, warning procedure and action plan for co-ordination with various authorities.
- **Water, Air and Noise Management Plans** to be implemented during construction and post-construction periods.
- Mitigation measures due to blasting on the structures in the vicinity
- **Groundwater management plan**
- **Public Health Delivery Plan** including the provisions of drinking water supply for local community.
- **Sanitation and Solid waste management plan** for domestic waste from colonies and labour camps etc.
- **Local Area Development Plan** to be formulated in consultation with the Revenue Officials and. Village Pancahayats. Local skill development schemes should be given. Details of various activities undertaken along with its financial outlay should be provided.
- Environmental safeguards during construction activities including Road Construction.
- **Energy Conservation Measures**
- **Environmental Monitoring Programme** with physical & financial details covering all the aspects of EMP. A summary of cost e estimates for all the plans, cost of implementing all the Environmental Management Plans.

(9) In the EMP, please include a sample CAD plan for a distributary outlet command. Such plan is to show the alignment of irrigation and drainage channels. The components of the OFD works to be undertaken may be clearly mentioned along with a time schedule for their completion vis-&-vis the progress of irrigation development.

Additional TOR

i. The scheme in its first phase envisages lifting of 90 TMC of floodwater in 60 days during the flood season from the foreshore of the Srisailam project on Krishna river at Yellur village through five separate stages, ending at K.P. Laxmidevipally village. Therefore, water availability analysis at Yelluru village (point of drawl) during monsoon season is to be submitted to ascertain sufficiency of water available.
ii. As the area is on fluoride affected zone, therefore, provisions should also be made to recharge the groundwater through proposed reservoirs to dilute fluoride levels.
iii. Groundwater be treated for removal of fluoride and then the treated water be supplied to the villagers for drinking purposes.
iv. Provision of e-flow should be ensured for the sustenance of aquatic life in the downstream river.
v. Land acquired for the project shall be suitably compensated in accordance with the law of the land with the prevailing guidelines.
vi. Though, total power requirement has been provided, but its firm linkage is to be supported with documents.
vii. Proof of application for diversion of forestland for non-forest purpose will be submitted to the Ministry within one month, if any.
viii. Information on species composition in particular to fish species from any previous study/literature should be included.
ix. The clearance from Standing Committee of NBWL under the Wildlife (Protection) Act, 1972 should be obtained, as applicable.
x. Wildlife Conservation plan be prepared for the area located within the project and implemented by the project proponent in consultation with the State Forest Department. Wildlife Conservation plan also to be prepared for the impacted area due to construction of the project falling outside the project area and implemented by the local state Forest Department.
xi. Solid waste management should be planned in details. Land filling of plastic waste shall be avoided and instead proposal for various uses may be proposed in the revised EIA/EMP report.
xii. Resettlement & Rehabilitation Plan should be implemented as per the prevail guidelines of the Govt. of India .
xiii. Skill mapping be undertaken for the youths of the affected project area and based on the skill mapping, necessary trainings to the youths be provided for their appropriate engagements in the Project

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Annexure -II

No.J-11013/25/2014-IA.I
Government of India
Ministry of Environment & Forests

Indira ParyavaranBhawan,
JorBagh Road, Ali Ganj,
New Delhi-11003

Dated the 11th August, 2014

OFFICE MEMORANDUM

Subject: Environment sustainability and CSR related issues-guidelines

The Environment Impact Assessment (EIA) Notification 2006, issued under the Environment (Protection) Act 1986, as amended from time to time, prescribes the process for granting prior environment clearance (EC) in respect of certain development projects / activities listed out in the Schedule to the notification.

2. Sustainable development has three components, viz., social, economic and environmental. All the three components are closely inter-related and mutually re-enforcing. Considering this, the general structure of EIA document, under Appendix-III to the notification, prescribes inter-alia public consultation, social impact assessment and R&R action plan besides environment management plan (EMP).

3. It is noticed that while there is clarity on the guidelines on EMP, as regards sustainability related issues, different formulations have been prescribed in the conditions in EC letters for the projects under different sectors listed out in Schedule to the EIA Notification, 2006. Thus, there is a need to issue guidelines on the subject.

4. Section 135 of the Companies Act, 2013 deals with corporate social responsibility and Schedule-VII of the Act lists out the activities which may be included by companies in their CSR Policies. The activities relating to "ensuring environmental sustainability", are listed in this schedule. Further, Ministry of Corporate Affairs has also notified the Companies (Corporate Social Responsibility Policy) Rules, 2014.

5. The concept of CSR as provided for in the Companies Act, 2013 and covered under the Companies (Corporate Social Responsibility Policy) Rules, 2014 comes into effect only in case of companies having operating projects and making net profit as also subject to other stipulations contained in the aforesaid Act and Rules. The environment clearance given to a project may involve a situation where the concerned company is yet to make any net profit and / or is not covered under the purview of the aforesaid Act and Rules. Obviously, in such cases, the provisions of aforesaid Act and Rules will not apply.

6. The matter has been further examined in the Ministry of Environment Forests & Climate Change (MoEF&CC). It has been decided that in respect of valid concerns expressed during the public consultations, mitigation issues emerging from social impact assessment and R&R Plan, the project proponents, in EIA / EMP report will clearly state the activity-wise cost involved (both capital as well as recurring costs), the phasing of these activities along with costs and also as to how such expenditure would be met. The costs and the timelines for various activities as prepared by the project proponent may be looked into by the concerned Expert Appraisal Committee (EAC) for their reasonableness and appropriate recommendations in the matter reflected in the minutes of EAC meeting. In case these activities (or some of these activities) are proposed to be covered by the project proponent under CSR activities, the project proponent should commit providing for the same. In either case, the position regarding the agreed activities, their funding mechanism and the phasing should be clearly reflected in the EC letter.

7. The obligation on part of the project proponents, as mentioned in para5 above, should be stated at the TOR stage itself as one of the TORs for the project.

8. All Sectoral EACs will follow the aforesaid procedure on environment sustainability and CSR related issues while appraising the projects and do away with the existing practices being followed on the subject, if any.

9. These guidelines will apply mutatis mutandis to SEACs/SEIAAs.

10. This issues with the approval of the Component Authority.

(Dr. Satish C.Garkoti)
Scientist 'F'

To

1. All the Officers of IA Division
2. Chairpersons / Member Secretaries of all the SEIAAs / SEACs
3. Chairman, CPCB
4. Chairpersons / Member Secretaries of all SPCBs / UTPCCs

Copy to:

1. PS to MEF
2. PPS to Secretary (EF&CC)
3. PPS to AS(SS)
4. PPS to JS(AT)
5. Website of MoEF&CC
6. Guard File

Enforcement & Monitoring Guidelines for Sand Mining

Ministry of Environment, Forest and Climate change

January, 2020

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1.0 INTRODUCTION

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

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

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

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

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

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

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

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

2.0 NEED FOR POLICY GUIDELINES

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

The Hon'ble NGT in its order dated 04.09.2018 in O.A. 173/2018 in the matter of Sudarsan Das vs. State of West Bengal & Ors. Inter-alia observed that "***There can be no two views that an effective institutional monitoring mechanism is required not only at the stage when Environmental Clearance is granted but also at subsequent stages". "The guidelines focus on the preparation of District Survey Report and the Management Plan" … We are of the view that all the safeguards which are suggested***

in sustainable sand mining guidelines as well as notification dated 15.01.2016 ought to be scrupulously followed."...It is a known fact that in spite of the above-suggested guidelines being in existence, on the ground level, illegal mining is still going on. The existing mechanism has not been successful and effective in remedying the situation." ..." Since there is an utter failure in the current monitoring mechanism followed by the State Boards, SEIAAs and DEIAAs, it is required to be revised for effective monitoring of sand and gravel mining and a dedicated monitoring mechanism be set up."

The Hon'ble NGT in its order dated 04.09.2018 in O.A. 173/2018 in the matter of Sudarsan Das vs. State of West Bengal & Ors. directed that ***MoEF&CC has issued directions from time to time under Section 3 and 5 of the Environment (Protection) Act, 1986. The MoEF&CC needs to revise its directions keeping in mind the following:***

- *Mining Surveillance System discussed in para 23 above be finalized in consultation with ISRO Hyderabad.*
- *Safeguards suggested in Sustainable Sand Mining Guidelines published by the MoEF&CC in the year 2016.*
- *Suggestions in the High Power Committee Report.*
- *The requirement of demarcation of boundaries being published in respect of different leases in the public domain.*
- *Need to issue SOP laying down mechanism to evaluate loss to the ecology and to recover the cost of restoration of such damage from the legal or illegal miners. Such evaluation must include the cost of mining material as well as the cost of ecological restoration and the net present value of future ecosystem services forgone.*
- *Need to set up a dedicated institutional mechanism for effective monitoring of sand and gravel mining which may also take care of mining done without any Environmental Clearance as well as mining done in violation of Environmental Clearance conditions.*

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

3.0 OBJECTIVE OF GUIDLINES

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

4.0 REQUIREMENTS FOR MONITORING & ENFOCEMENT

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

4.1.1 Preparation of District Survey Report.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

4.3 Mining Plan

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

4.4 Obtaining Environmental & Other Statutory Clearance

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

4.5 Baseline date before Commencement of Mining Operations

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

4.6 Additional measures where project proponent is selected by a bidding

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

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

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

5.0 REPLENISHMENT STUDY

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

5.1 Generic Structure of Replenishment Study

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

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

5.2 Methodology for Replenishment Study

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

5.2.1. Physical survey of the field by the conventional method

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

5.2.3 Accuracy Assessment of Aerial Data:

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

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

5.2.4 Replenishment study shall have the details of

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

6.0 ENFORCEMENT

6.1 Mining Operation:

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

6.2 Post Environment Clearnace Monitoring:

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

6.3 Environment Audit:

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

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

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

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

6.4 Monitoring of Sale & Purchase of Sand:

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

Para 1.2.12.2 Under the market model

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

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

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

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

Para 1.2.12.3 Controlled market prices

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

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

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

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

Para 1.2.13.1 Level 1- Reach/ Stockyard level monitoring

For monitoring of the active reaches:

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

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

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

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

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

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

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

Para 1.2.13.2 Level 2 - Transportation monitoring

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

Para 1.2.13.3 Level 3 - End consumer monitoring/ bulk consumer

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

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

Para 1.2.13.4 Level 4 - Indirect monitoring

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

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

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

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

7.0 Recommendations of High Power Committee:

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

7.1 Recommendations of High Power Committee (HPC)

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

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

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

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

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

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

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

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

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

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

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

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

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

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

8.0 GENERAL APPROACH TO SUSTAINABLE SAND MINING

8.1 Pre-requisite for starting sand mining operation

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

ii) Replenishment study should be conducted on regular basis.

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

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

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

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

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

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

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

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

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

8.2 Mining of Sand from Agricultural Fields

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

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

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

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

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

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

9.0 MONITORING MECHANISM

9.1 Illegal Mining

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

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

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

As per the provision of 23(C) of MMDR Act, the State Government is empowered to make rules for preventing illegal mining, and transportation

& storage of Illegal minerals. All such mining which qualifies under illegal, shall be dealt with in the provision of MMDR Act by the concern authorities.

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

9.2 Environmental Damage due to illegal mining

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

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

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

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

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

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

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

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

Suggestive standard Practice for assessing illegal mining

Step 1	The assessment team should collect the information and documents prescribed in the Pre-Requisite section.
Step 2	The assessment team should verify the applicability/validity of statutes under EPA-1986, Air and Water Act, MMDR 1957, State Mines and Mineral Rules, etc.
Step 3	Field visit should be conducted for identification of mining lease area (in hectare) and boundary pillar constructed to indicate the same.
Step 4	With the help of GPS instrument, the team should assess the area where any extraction or mining have been carried out on the day of visit and calculate the mined-out area in a hectare.
Step 5	If available, the team may avail the use of latest satellite images for calculating the total mined out area.
Step 6	The team should verify the Ground / Surface Level (in meter above MSL) of at least 04 highest points in or around the area where mining has been done. The Ground/surface level will then be computed based on averaging of 04 highest points verified by the team.
Step 7	With the help of Depth Measurement kit or any depth measuring instruments, the depth should be measured for at least 04 points in the mined-out area. For computing, the depth, averaging of the value obtained at 04 points should be done.
Step 8	Verification of compliance conditions of Environmental Clearance and Consent to operate, mining methodology under Mining Plan
Step 9	Identification of vulnerable impacts observed on the field and non-compliance of conditions of Environmental Clearance and Consent to Operate.

Step 10	Field Survey for identification, monitoring and verification of ecological species based on the information available and documents mentioned in the Pre-requisite section.
Step 11	Preparation of inventory of machinery used/observed on the field (optional)
Step 12	Preparation of inventory of hydraulic structures observed on the field (optional)
Step 13	Water sampling for assessment of water quality including physical and biological parameters. (optional)
Step 14	Reconciliation collation of data/information and compilation to maintain violation.
Step 15	Identification of restoration plan and computation of cost of the restoration plan.

9.4 Monitoring Mechanism

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

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

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

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

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

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

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

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

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

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

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

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

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

12. The movement of minerals shall be reconciled with the data collected from the mines and various Naka/check posts. Other measures may also include a general survey of the potential mineable area in the district

which has not been leased/auctioned or permitted for mining due to regulatory or other reasons.

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

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

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

the compliance status with respect to the conditions imposed by the regulatory authorities including conditions of Environmental clearance.

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

9.5 Suggestive additional requirements are

i. The requirement at the Mine Lease Site:

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

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

a. Website: Scanning of receipt on mining site can be done through barcode scanner and computer using the software;

b. Android Application: Scanning on mining site can be done using Android Application using a smartphone. It will require internet availability on SIM card;

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

iii. Proposed working of the system:

The State Mining Department should print the Transport Permit or Receipt with security features and issue them to the mining leaseholder through the District Collector. Once these Transport Permits or Receipts are issued, they would be uploaded on the server against that mine lease area. Each receipt should be preferable with pre-fixed quantity, so the total quantity gets determined for the receipts issued. When the

Transport Permit or Receipt barcode gets scanned and invoice is generated, that particular barcode gets used and its validity time is recorded on the server. So all the details of transporting of mined out material can be captured on the server and the Transport Permit or Receipt cannot be reused.

iv. Checking On Route:

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

v. Breakdown of Vehicle:

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

vi. Tracking of Vehicles:

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

vii. Alerts or Report Generation and Action Review:

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

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

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

9.6 Actions against illegal excavation and transport

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

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

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

simultaneously for one offence. What is prohibited in law is an action under the same law for the same act more than once.

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

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

4. It is emphasized that actions, as stated above, are most important to ensure that the IT-based system works. If these exemplary actions are not taken against everyone, it shall create a strong disincentive to those

involved in legal excavation and transportation. For IT-based (or any other) legal system to work, it is necessary to ensure that illegal system stops working altogether.

Annexure-I

Details of Sand/M-Sand Sources

a) Rivers:

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

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

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

c) Patta Lands/Khatedari Land:

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

d) M-Sand Plants:

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

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

Annexure-II

List of Potential Mining Leases (existing & proposed)

Rivers

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

Patta Lands/Khatedari Land: (existing & proposed)

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

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

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

M-Sand Plants :(existing & proposed)

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

Annexure-III

Cluster & Contiguous Cluster details

Clusters:

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

Contiguous Clusters:

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

Annexure-IV

Transportation Routes for individual leases and leases in Cluster

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

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

Annexure-V

Final List of Potential Mining Leases (existing & proposed)

Rivers

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

Patta Lands/Khatedari Land: (existing & proposed)

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

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

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

M-Sand Plants :(existing & proposed)

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

Annexure-VI

Final List of Cluster & Contiguous Cluster

Clusters:

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

Contiguous Clusters:

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

Annexure-VII

Final Transportation Routes for individual leases and leases in Cluster

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

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

Annexure VIII

Salient provision for sand mining in the state of Tamil Nadu

STEPS TO BE FOLLOWED BEFORE EXECUTION:

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

II. STEPS TO BE FOLLOWED DURING EXECUTION:

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

- The loading of sand from the depots shall be carried out by booking through the online portal "www.tnsand.in" as done presently. Online transit passes will also be issued to the loaded vehicles which could be verified by using an Android app "TNsand Investigator".

- During operation of the quarries, the PWD officers shall ensure that at no point in time, the depth of quarry exceeds 1 m depth from the river bed level and quarrying is done in a uniform manner over the entire mining area to avoid overexploitation and formation of pits at fixed places.

- Proper registers may be maintained at the entry and exit points of the sand quarry/depot sites and a Loading Register may be made available during inspection. An Inspection Register and a Complaint Register may be made available at the sand quarry/depot site.

- The functioning time of quarries/depots shall be from 7.00 AM to 6.00 PM. No sand transporting vehicles to be parked inside the quarry/depot site during night time.

- A copy of the approved mining plan may be kept at the quarry site for ready reference.

- Photographs and sketch showing the pit dimensions, depth etc. may be recorded every week and maintained in the sand quarry. The Executive Engineer, PWD may inspect each sand quarry on a weekly basis and ensure that mining activities are taking place within the approved boundaries/depth.

- The sand quarrying activity shall be stopped if the entire quantity is quarried even before the expiry of the sand quarry lease period and the same shall be mentioned by the PWD authorities.

- The Taluk Level Taskforce shall inspect the quarries every fortnight, as per G.O. (Ms) No. 135 of Industries Department, dated 13.11.2009 and record the status of the compliance in the registers maintained at the sand quarry site.

- The Taluk Level Task Force has to submit its inspection report to the District Level Task Force chaired by the District Collector. The District Level Task Force has to be convened every month to discuss cases of illegal quarrying. An Environmentalist from reputed State / Central Institution and a legal expert on environmental matters may be part of the District Level Task Force. The District Level Task Force shall also dispose of the petitions on illegal sand quarrying after due enquiry and scrutiny, and pass orders within a period of two months from the date of receipt of the complaint. If any person is aggrieved with the orders passed by the District Level Task Force, an appeal may be preferred before the Appellate Forum.

- The District Collector shall take necessary steps to strengthen the existing District and Taluk Level Committees and act on the complaints received, if any, on illegal sand quarrying and take strict remedial measures to rectify the same in a time-bound manner. The District Level Task Force may send its monthly report to the Appellate Forum formed as per G.O. (Ms) No. 27 of Industries Dept. dated 17.02.2015.

- The Appellate Forum shall hear the appeals filed against the orders passed by the District Level Task Force. The Appellate Forum comprises

of the Secretaries to Government from Industries Department, Public Works Department, Revenue Department, Environment and Forests Department, Commissioner of Geology and Mining and an Expert from a reputed Government Institution.

- The Appellate Forum may convene once in 2 months to deliberate on the reports from the District Level Task Force and shall dispose of the appeals made by the petitioners aggrieved with the orders passed by the District Level Task Force.

- Periodical Capacity building and sensitization of PWD officials on the environmental and legal aspects of sand quarrying may be made mandatory. Continuous training and awareness programs shall be scheduled and conducted by IIT/Anna University for the PWD staff to keep themselves aware of the best practices in this field. It may be ensured that the enforcement officials from the Departments of Revenue, Police, Geology and Mining and Transport in the districts where quarries are situated are given adequate training and capacity building on their duties and responsibilities with respect to inspection of sand quarries and sand transporting vehicles at specified time intervals.

- No blasting shall be carried out any point in time.

- It is the obligation of the Public Works Department to run the quarry in an environmentally friendly and ecologically sustainable manner.

- The Hon'ble High Court-appointed Monitoring Committee shall inspect the sand quarries periodically and submit a report to the Hon'ble High Court.

- The PWD should explore/take necessary steps to introduce Mining Surveillance System (MSS) in line with MSS evolved by the Indian Bureau of Mines and Bhaskaracharya Institute for Space Applications and Geo-informatics (BISAG).

III. STEPS TO BE FOLLOWED AFTER EXECUTION:

- A Judicious mine closure plan may be formulated once the quarry is closed after exhaustion of the quantity of sand.

- Reclamation works may be factored into the contract agreement and strict monitoring by the PWD officials may be initiated to scrupulously follow up the mine closure plan.

- It may be ensured that the total quantity of sand permitted in the EC shall not be exceeded in any case.

- After the exhaustion of the quantity of sand, the sheds constructed at the quarry site may be removed. All the roads and pathways may be levelled so that there is no obstruction for the normal flow in the river.

- All the records/registers may be carefully maintained by the PWD for future reference.