IN THE HON'BLE NATIONAL GREEN TRIBUNAL

PRINCIPAL BENCH, NEW DELHI

Original Application No. 791 of 2024

IN THE MATTER OF:

AJIT PAL SINGH ...APPLICANT

VERSUS

UNION OF INDIA & ORS. ...RESPONDENTS

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Filed by:-

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Enroll No. D/1306/2005

Dated:-17.09.2025
Place:- New Delhi

BEFORE THE NATIONAL GREEN TRIBUNAL

PRINCIPAL BENCH, NEW DELHI

Original Application No. 791/2024

IN THE MATTER OF:

Ajit Pal Singh ...Applicant

Versus

Union of India & Ors. ...Respondent(s)

ADDITIONAL AFFIDAVIT ON BEHALF OF THE MINISTRY OF ENVIRONMENT, FOREST AND CLIMATE CHANGE.

MOST RESPECTFULLY SHOWETH:

I, Dr. Krishnendu Mondal, currently working as Scientist 'D' at the Indira Paryavaran Bhavan, Ministry of Environment, Forest and Climate Change (MoEF&CC), Jor Bagh, New Delhi, do hereby solemnly affirm and state as under:

1. That I, in my official capacity in the Ministry Environment, Forest and Climate Change, i.e., Respondent No.1 in the above mentioned matter, I am conversant with the facts and circumstances of the case on the basis of official records, and as such authorized and competent to swear this affidavit.

2. It is submitted that an additional affidavit is being filed by the answering respondent in compliance of Hon'ble Tribunal's order dated 19.08.2025

wherein the Hon'ble Tribunal inter alia directed to clarify the validity of EC of impugned project. A Copy of the order dated 19.08.2025 is marked and annexed herein as **ANNEXURE-R1/1**.

3. That, the applicant in the instant original application has stated that the environmental clearance was granted to Respondent No. 10 M/s P.S. Buildtech for mining over an area of 101.27 Ha in village Jathlana and Dhakwala, Tehsil, Radaur, District Yamuna Nagar, Haryana on 17.03.2017. Further, the Environmental Clearance, expired on 17.03.2022, as per the five-year validity stipulated in the Sustainable Sand Mining Guidelines (SSMG, 2016). Petitioner further contended that page 51 of the Sustainable Sand Mining Guidelines, 2016 deals with RIVER MINING and as per (iii) (d) of the same, EC will be valid for Mine lease period subject to a ceiling of 5 years.

4. It is submitted that **Letter of Intent/ mining lease** document is a prerequisite for grant of Environmental Clearance. In the instant mining project, Project Proponent (M/s P.S. Buildtech) submitted a Letter of intent dated 30.11.2015 issued by Directorate General, Mines and Geology Department, Government of Haryana for obtaining the Environmental Clearance. A Copy of the Letter of Intent dated 30.11.2015 is marked and annexed herein as **ANNEXURE-R1/2**.

NOTARY
R.K. Singh
Advocate
Regd. No. 22...
Commission
Expire on
24.10.2027
Area-Delhi
GOVT. OF INDIA

5. That, as per Letter of Intent (LOI) dated 30.11.2015, the Director General, Mines and Geology Department awarded the contract to the Project Proponent with certain terms and conditions. The condition number (i) is reproduced below:

> *" (i) The period of contract shall be 10 years and the same shall commence with the effect from the date of environmental clearance by competent authority or on expiry of a period of 12 months from the dated of this communication of acceptance of highest bid/ issuance of "Letter of Intent", whichever is earlier;"*

6. That, the Project Proponent submitted the application for Environment Clearance along with EIA/EMP, Approved Mining Plan and other related documents. In the EIA/EMP report under chapter 2 (project description) para 2.7.6, the Project Proponent has mentioned the following:-

> *"2.7.6 Life of Mine*
>
> *The period of contract for mining will be for 10 years commencing with effect from the date of grant of Environmental Clearance or an expiry of a period of 12 months from issuance of LOI."*

A Copy of the EIA/EMP is marked and annexed herein as **ANNEXURE R1/3**.

7. That, the mining plan was approved by the Department of Mines and Geology, Haryana on 10.06.2016. In the approved mining plan it has been stated that mine lease area is 101.27 ha and lease period is 10 years. Under para 7.5 of the approved mining plan it is mentioned that, *"Sequence of Mining contract period is only 10 years, some of the area will be left un-worked at the end of contract period".* Further at para 3.3.1 (E), it has been mentioned that, *"It is estimated that the entire mineral mined every year will be replenished . Therefore at the proposed rate of production the life of mine is 10 years".* Furthermore at para 2.2 (E) of Part-II Progressive Mine Closure Plan of the approved mining plan it is stated that, *"At the proposed rate of production the life of the mine is 10 years".* A Copy of the approved mining plan is marked and annexed herein as **ANNEXURE-R1/4**.

8. It is also submitted that the instant project at time of granting Environmental Clearance (EC) was of **Category 'A'** and as per amendment in EIA Notification, 2006, dated 20.04.2022, the project now comes under **Category 'B1'**. As per Page No. 51 of SSMG, 2016, the validity of EC for mining lease area 5 < Ha < 25 is five years (B2). The same is given below in explanation (d):

(a) .....

(b) .....

(c).....

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

9. That, Expert Appraisal Committee after considering the documents submitted by PP viz, LoI dated 30.11.2015, Mining Plan, EIA-EMP of the project,etc. recommended the project. Ministry granted the Environmental Clearance to the project on 17.03.2017. That as per the provisions of EIA Notification 2006, as applicable at the time of grant of EC, validity of EC, in case of mining projects was project life as estimated by the Expert Appraisal Committee or State Level Expert Appraisal Committee subject to a maximum of 30 years. In the instant case based on documents submitted by the Project Proponent viz. Letter of Intent (LoI), EIA/EMP and approved mining plan, the life of mine and lease period was 10 years, therefore EC cannot be valid beyond the life of mine. Further EAC had not restricted the PP to mine less than 10 years as can be seen from Minutes of the meeting. A Copy of the Minutes of meeting is marked and annexed herein as **ANNEXURE-R1/5.**

10. It is also submitted that the Project life of a mining project has different phases i.e. Exploration & Prospecting, Planning & Evaluation, Construction, Production and Rehabilitation & Mine Closure. Life of Mine refers to duration between initiating mine operation to closing mining operation on

exhaustion of mineable reserve within a defined lease area. It is pertinent to mention herein that, as per Section 3(i) (explanation) of Mines and Minerals (Development and Regulation) Act (MMDR Act), a mine continues to be a mine till exhaustion of its mineable mineral reserve and a mine may have different owners during different times from the grant of first mining lease till exhaustion of such mineable mineral reserve.

11. That in view of the aforementioned facts and circumstances, this Hon'ble Tribunal may kindly be pleased to pass appropriate order(s)/directions as the Hon'ble Tribunal may deem fit and proper in the interest of justice.

DEPONENT

VERIFICATION

17 Sep 2025

Verified at on this day of _________, 2025 that the contents of this affidavit based on official record(s) maintained and information available in the office are true and correct, no part of it is false and nothing has been concealed there from.

DEPONENT

Solemnly affirmed ... over & explained to the deponent

Notary Public, Delhi

17 SEP 2025

Item No. 09 Court No. 1

BEFORE THE NATIONAL GREEN TRIBUNAL
PRINCIPAL BENCH, NEW DELHI

Original Application No. 791/2024

Ajit Pal Singh Applicant

Versus

Union of India & Ors. Respondent(s)

Date of hearing: 19.08.2025

CORAM: **HON'BLE MR. JUSTICE PRAKASH SHRIVASTAVA, CHAIRPERSON**
HON'BLE DR. A. SENTHIL VEL, EXPERT MEMBER
HON'BLE MR. ISHWAR SINGH, EXPERT MEMBER

Applicant: Mr. Shalab Singhal, Mr. Gaurav Kumar Bansal, Ms. Nandita Bansal & Ms. Chandrika Upadhyay, Advs. for Applicant

Respondent: Mr. Rahul Khurana, Adv. for R - 3 to 7
Mr. Anshul Mangla, Adv. for R - 10
Ms. Soni Singh, Adv. for CPCB (Through VC)
Mr. Rahul Pratap, Adv. for MoEF & CC

ORDER

1. In this Original Application (OA), plea of the applicant is that Environmental Clearance (EC) dated 17.03.2017 granted to respondent no.10 which was valid for a period of five years and even after expiry of the EC on 17.03.2022, respondent no.10 is continuing with the sand mining.

2. During the course of argument today, a reference was made to the EC dated 17.03.2017 (page 237). This EC does not clearly states its expiry date, hence, issue arises till what date the EC remain/will remain valid.

3. Learned Counsel for MoEF&CC has referred to Clause 9 of EIA Notification dated 14.09.2006 which provides for the validity of EC and reads as under:-

"9. Validity of Environmental Clearance (EC):

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

4. It is not in dispute that the present project is not a river valley project. For the other mining projects, Clause 9 provides that "project life as estimated by the Expert Appraisal Committee or State Level Expert Appraisal Committee subject to a maximum of 30 years for mining projects."

5. Learned Counsel for MoEF&CC has referred to Clause 6 of EC dated 17.03.2017 which in one sentence states that "life of mine is 10 years".

6. Learned Counsel for MoEF&CC could not point out as to which authority or expert committee had fixed the life of mine as 10 years.

7. In terms of Clause 9 of EIA Notification, 2006 project life is to be estimated by Expert Appraisal Committee or State Level Expert Appraisal

Committee. No such appraisal of the expert committee fixing the project life has been placed on record.

8. Learned Counsel for MoEF&CC seeks 10 days' time to file the affidavit of competent authority along with document of fixing the project life by the Competent Authority/Committee.

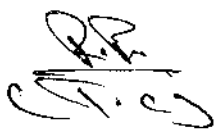
9. List on 02.09.2025.

Prakash Shrivastava, CP

Dr. A. Senthil Vel, EM

Mr. Ishwar Singh, EM

August 19, 2025
Original Application No. 791/2024
JG.



Director General, Mines and Geology Department Haryana
30-Bays Building, Sector-17, Chandigarh.

Registered

From

The Director General,
Mines & Geology Department, Haryana
30 Bays building, Sector-17,
Chandigarh.

To

Sh. Kulvinder Singh S/o Sh. Trilochan Singh,
Prop. of M/s P. S. Buildtech, 34-Vishal Nagar,
Yamuna Nagar-135001.

Memo No. DMG/HY/Cont/Jathlana Block/YNR B 12/2015/**10070**
Dated Chandigarh, the **30.11.2015**

Subject: **Acceptance of the highest bid/ in respect of Sand minor mineral mines of "Jathlana Block/YNR B 12" having Tentative Area of 101.27 hectares in the district Yamuna Nagar, offered in e- auction held on 05- 06.11.2015 and issue of Letter of Intent (LoI) - regarding.**

You participated in the in the **e- auction** held on **05.11.2015 and 06.11.2015 on the State Government web portal https://haryanaeprocurement.gov.in after accepting the terms and conditions of the auction notice DMG/HY/e Auction/YNR/2015/8241 dated 30.09.2015 in order to obtain mining contracts of minor mineral mines/block of the district Yamuna Nagar.** You offered the highest bid of **Rs. 09,34,50,000/-** [Rs. Nine Crore thirty four lakhs fifty thousand only] per annum, against the Reserve Price of **Rs. 09,34,00,000/-** per annum, for obtaining the Mining Contract of Minor Mineral block namely **'Jathlana Block/YNR B 12'** for extraction of Sand having tentative area of **101.27** hectares. The details of the khasra numbers of the tentative area under above said Mining Block is attached as **Annexure 'A'**.

2. You are hereby informed that the State Government has accepted the highest bid of **Rs. 09,34,50,000/-** [Rs. Nine Crore thirty four lakhs fifty thousand only] per annum offered by you in respect of the above said minor mineral block of **'Jathlana Block/YNR B 12'** under the provisions of the Haryana Minor Mineral Concession, Stocking, Transportation of Minerals & Prevention of Illegal Mining Rules-2012 (State Rules). Accordingly, you have become the successful bidder in respect of **'Jathlana Block/YNR B 12'** of the district Yamuna Nagar.

3. The State Government having accepted the aforementioned highest bid offered by you, the Department is pleased to issue this Letter of Intent (LoI) in your favour in respect of the Mining Block/area namely **'Jathlana Block/YNR B 12'** subject to the following terms and conditions:

(i) The period of contract shall be **10 years** and the same shall commence with effect from the date of grant of environmental clearance by competent authority or on expiry of a period of 12 months from the date of this communication of acceptance of highest bid/ issuance of "**Letter of Intent**", whichever is earlier;

(ii) You may note that the detail of the area of the mining blocks is tentative and was notified "on as is where is basis" (**refer condition no. 4 of the notice**). In case of any inadvertent mistake, if any, the same would be rectified/ corrected before execution of the agreement (**refer condition no. 3 of the notice**).;

(iii) No request regarding reduction in bid amount on account of reduction in land/area of the Mining block, including due to change in description of khasra numbers/location etc. at any stage will be entertained on any ground including loss/reduction of area for mining on account of compliance of applicable laws/restrictions. Needless to state that this also includes the changes, if any, as per condition no. 3 of auction notice.

(iv) The amount of the highest successful bid i.e. **Rs. 09,34,50,000/-** [Rs. Nine Crore thirty four lakhs fifty thousand only] per annum shall be the "Annual Contract Money" payable by you as the contractor in the manner prescribed in the contract agreement to be executed on form MC-1 appended to State Rules;

(v) The above said annual contract money shall be increased at the rate of 25% on completion of each block of three years. Accordingly, the year-wise amount of the annual contract money shall be as per details given below:

Sr. No.	Year of the Contract Period	Annual contract Money
1	First Year	Rs. 09,34,50,000/-
2	Second Year	Rs. 09,34,50,000/-
3	Third Year	Rs. 09,34,50,000/-
4	Fourth Year	Rs. 11,68,12,500/-
5	Fifth Year	Rs. 11,68,12,500/-
6	Sixth Year	Rs. 11,68,12,500/-
7	Seventh Year	Rs. 14,60,15,625/-
8	Eighth Year	Rs. 14,60,15,625/-
9	Ninth Year	Rs. 14,60,15,625/-
10	Tenth Year	Rs. 18,25,19,535/-

(vi) As per the terms and conditions of the grant, you are liable to deposit **Rs. 02,33,62,500/-** i.e. equal to 25% of the annual bid amount as "security deposit" out of which you have already deposited an amount of **Rs. 93,45,000/-** (Rs. Ninty three lakh forty five thousand only) i.e. equal to 10% of the annual bid

amount as 'initial bid security' after the conclusion of e-auction. The balance amount of **Rs. 01,40,17,500/-** of the bid security i.e. 15% of the annual bid amount alongwith one month's advance contract money shall be deposited before commencement of the mining operations or before expiry of the period of 12 months, whichever is earlier;

(vii) You shall execute an Agreement Deed in Form MC-I appended to the Haryana Minor Mineral Concession, Stocking, Transportation of Mineral & Prevention of Illegal Mining Rules-2012 (the State Rules 2012) within a period of 90 days from the date of issuance of this communication/ grant of LoI;

(viii) It may be pointed out that as per existing applicable rates the contract agreement had to be executed on **Non Judicial Stamp papers worth Rs.37,54,100/- (Rs. Thirty Seven lakh fifty four thousand one hundred only).** However, you are aware that M/s Om Minerals, one of the LoI holders (who participated in the auctions held in December 2013) has filed a CWP No.7991 of 2014, before the Hon'ble Punjab & Haryana High Court. Further a few other similarly situated LoI holders have also filed separate CWP's before the Hon'ble Punjab and Haryana High Court challenging demand/ levy of Stamp Duty on execution of 'Contract Agreement'. The said matter is still pending for adjudication. Accordingly, the present auction was conducted subject to outcome of said cases. **Therefore, the charging of stamp duty for the execution of contract agreement shall be as per final outcome of the said CWP's.**

(ix) The Contract Agreement would also be required to be got Registered on payment of the applicable Registration fee;

(x) In case you fail to execute the Agreement Deed within the prescribed period of 90 days, this LoI shall be deemed to have been revoked and the amount of initial bid security deposited at the time of auction shall be forfeited. Further, the balance amount of 15% towards the bid security, amounting to **Rs. 01,40,17,500/-** being the 15% of the annual bid amount, shall be recovered as arrears of land revenue and, you, as the LoI holder/ defaulter, shall be debarred from participation in any future auctions for a period of 5 years;

(xi) You shall also furnish a solvent surety for a sum equal to the amount of the annual bid for execution of the Agreement. In case the surety offered by the contractor(s) during the subsistence of the contract is not found solvent, the

contractor(s) shall offer another solvent surety and a supplementary deed shall be executed to this effect;

(xii) After execution of Agreement, either before commencement of the mining operation or before expiry of the period of 12 months from the date of issuance of this LoI, whichever is earlier, in case of failure to deposit the balance 15% amount towards security [as required under clause (v) above] the acceptance of bid/issuance of LoI/execution of agreement shall be deemed to have been revoked and 10% amount deposited towards as initial bid security at the time of auction shall stand forfeited. Further, un-paid 15% amount towards security shall be recovered as arrears of land revenue and you shall debarred from participation in any subsequent bids for a period of 5 years;

(xiii) You shall be liable to deposit the contract money in advance at monthly intervals as per provisions of Contract Agreement i.e. from the date of commencement of the contract Agreement;

(xiv) You shall also deposit/ pay an additional amount equal to 10% of the due contract money along with the monthly installments towards the **'Mines and Minerals Development, Restoration and Rehabilitation Fund'**.

(xv) You shall also be liable to pay advance income tax as per provisions of Section 206(c) of income tax act in addition to contract money, payable as per terms and conditions of contract agreement.

(xvi) On enhancement of the contract money with the expiry of every three years period, you shall deposit the balance amount of security so as to upscale the security amount equal to 25% of the revised annual contract money as applicable for one year with respect to the next block of three years. No interest, whatsoever, shall be payable on the security amount deposited under the prescribed security head of the government;

(xvii) You shall prepare a Mining Plan along with the Mine Closure Plan (Progressive & Final) as per chapter 10 of the State Rules for the "Mining Block" and shall not commence mining operations in any area except in accordance with such Mining Plan duly approved by an officer authorised by the Director, mines & Geology, in this behalf.

(xviii) Further, the actual mining will be allowed to be commenced only after prior Environmental Clearance is obtained by you as the LoI holder/mining contractor

for the Mining Block from the Competent Authority as permitted by the competent Authority required under EIA notification dated 14/9/2006, as amended from time to time by the MoE&F, GoI and guidelines/ circulars issued in this behalf;

(xix) The Mining contractor to whom mining rights have been granted through this contract would also be liable to pay the following to the landowners to undertake mining operations:

(a) Annual rent in respect of the land area blocked under the concession but not being operated, and

(b) Rent plus compensation in respect of the area used for actual mining operations.

(xx) The amount of annual rent and the compensation shall be settled mutually between the landowner and the mining contractor. In case of non-settlement of the rent and compensation, the same shall be decided by the District Collector concerned in accordance with the provisions contained in Chapter 9 of the "Haryana Minor Mineral Concession, Stocking, and Transportation of Minerals and Prevention of Illegal Mining Rules, 2012";

(xxi) The total mineral excavated and stacked by the concession holder within the area granted on mining contract shall not exceed two times of the average monthly production as per approved Mining Plan at any point of time;

(xxii) The Mining Contractor shall not stock any mineral outside the concession area granted on mining contract, without obtaining a valid license as per provisions contained in Chapter 14 of the State Rules;

(xxiii) The contractor shall not carry out any mining operations in any reserved/ protected forest or any area prohibited by any law in force in India, or prohibited by any authority without obtaining prior permission in writing from such authority or officer authorized in this behalf. In case of refusal of permission by such authority or officer authorized in this behalf, contractor(s) shall not be entitled to claim any relief in payment of contract money on this account;

(xxiv) Following are the general/ special conditions applicable for excavation of minor mineral(s) from river beds in order to ensure safety of river-beds, structures and the adjoining areas:

Haryana Government
Department of Mines and Geology
Sector-17, Chandigarh
30th September, 2015

e -Auction Notice

DMG/HY/e Auction/YNR/2015/8241

It is hereby notified for the information of the General Public that mining contracts for extraction of minor mineral namely Boulder, Gravel and Sand/only Sand from the mines of district of **Yamunanagar** will be granted through the process of **e-Auction**. The e-Auction will be held on **05.11.2015 at 9:00 hours** and bids can be submitted from **05.11.2015 from 9:00 am to 06.11.2015 upto 12:00 Noon extendable maximum up to 4.00 PM.** The important instructions for participation in the online e-Auction are as under:

A. The bids shall be made online on the **e-procurement** website https://haryanaeprocurement.gov.in.

B. The intending bidders before participation in the e- auction/ bidding process will be required to create **their *user account online by selecting the option of e auction from discipline column* and obtain user-id / password** on the website **https://haryanaeprocurement.gov.in** (If already created user account, this step needs to be skipped). For necessary instructions regarding participation in e-Auction of mines/blocks, please visit the aforementioned website and click on the available link **"How to..."** at the Home Page.

C. After getting the *user account created*, the prospective/ intending bidders shall upload following documents (in PDF format not exceeding limit of 10 MB for individual document) along with deposition of **earnest money (EMD)** and **e-service fee** in order to participate in the e-Auction latest **by 02.11.2015 till 05:00 PM** anytime after the publication of this document:

(i) **"No Dues Certificate"** from the concerned officer of district or an affidavit sworn before any Magistrate to the effect that no amount of contract money, royalty, dead rent or surface rent is due in respect of any mining lease/mining contract or mineral concession held by him earlier or in respect of any mineral concession currently held by him or his family members;

(ii) Copy of the **Partnership deed or Article of Association (in case of company),** or an affidavit (in case of sole proprietor). No transfer or addition or deletion of the partners/Directors will be permissible before execution of the agreement;

(iii) A copy of **authority letter** by the Partnership Firms or **Copy of resolution** of the Board of Directors (BoD) of the Company in favour of the person who shall be offering the bids online for such intending agency.

(iv) **Earnest Money** equal to 10% of the reserve price of the mining area/site for which bid has to be made, rounded by an amount of Rs.10,000/-, through online payment in due course of time i.e. up to **02.11.205 till 05:00 PM.** In case the intended bidder fails to pay online EMD fee under the stipulated time frame will not be allowed to enter in e-Auction of mine(s)/ block(s). The payment for EMD fee can be made by eligible bidders online through RTGS / NEFT or OTC. (Please refer to important Payment Guidelines under Annexure – 'A' provided by online payment gateway service provider i.e. ICICI Bank).

The payment shall be made against the beneficiary account number as mentioned in the challan to be generated online at the **e-Procurement portal https://haryanaeprocurement.gov.in.**

(v) Details of the bidding agency in case of requirement of **refund of EMD** (a) Refund Account Name (b) Refund Account No. (c) IFSC code of the Bank. Note: Please cross check the information to be submitted online before saving the same as the information in non editable.

(vi) The Bidders shall have to pay **e-Service Fee of Rs.1000/- online** by using the service of secure electronic payment gateway. The secure electronic payments gateway is an online interface between contractors and online payment authorization networks. The Payment for **e-Service Fee** can be made by eligible bidders/ contractors online directly through **Debit Cards & Internet Banking Accounts.**

Note: Any document uploaded as per **(i), (ii) and (iii)** above at later stage/ after auction found to be wrong/ false shall invite revocation /cancellation of bid and forfeiture of amount deposited at the time of auction apart from debarring the bidder from participation in any subsequent bids for a period of 5 years

D. In case of any query regarding process of **e-Auction**, the intended bidder can contact the service provider at below mentioned address:

M/s Nextenders (India) Pvt. Ltd. *O/o. Director Supplies and Disposal Haryana, SCO – 09, IInd Floor, Sector – 16, Panchkula – 134108 E - mail: Chandigarh@nextenders.com Help Desk: +91-172-2582008-09, 2618292 and* ***1800-180-2097*** *(Toll Free Number)*

Note- A training-cum-orientation program for the intending bidders will be held on **10th, 17th and 24th October, 2015** at Panchkula office of M/s Nextenders (India) Pvt. Ltd. from 11.00 A.M. to 1.00 P.M. Parties interested in attending the same are requested to contact/confirm participation to Sh. Kanwarjeet Singh Mobile 09592259876, Sh. Sat Dev Sharma 9872252144, Sh. Deepak Mobile – 9501176347, or the help desk on Toll Free No. 1800-180-2097 and 0172-2582008/2582009/2618292 or through E-mail: chandigarh@nextenders.com.

E. Any bidder interested to participate in the auction can submit his bid/s from date **05.11.2015 09:00 am to 06.11.2015 till 12:00 Noon.**

F. However, in case any bid in respect of any mine/ block is received 10 minutes prior to time fixed for closure for the bids i.e. bid received between **11:50 AM to 12 noon,** then the time for closure of the auction would be extended automatically by 10 minutes, so that equal opportunity is made available to the persons participating in the bidding process. Such extensions of ten minutes will continue till bids are received within next 10 minutes of last bid for any of the mine, otherwise the same would get concluded.

G. In case, the bidding would continue during such extensions of 10-10 minutes, the bidding process will finally conclude at **04:00 pm** and no further extension would be given thereafter.

H. The minimum bid incremental value during the initial time provided (i.e. **05.11.2015** from 9:00 AM to **06.11.2015** upto 12.00 noon) will be multiple of Rs. 50,000 (Fifty Thousand). However the increment during extended period (**06.11.2015** from 12:00 noon to 04:00 PM) will be multiple of 100000 (one lakh) instead of 50,000 (Fifty Thousand).

The details of the areas of the Mining Blocks along with reserve price and period of mining contract, which are to be granted on mining contracts and other terms and conditions of the auction, are given below:

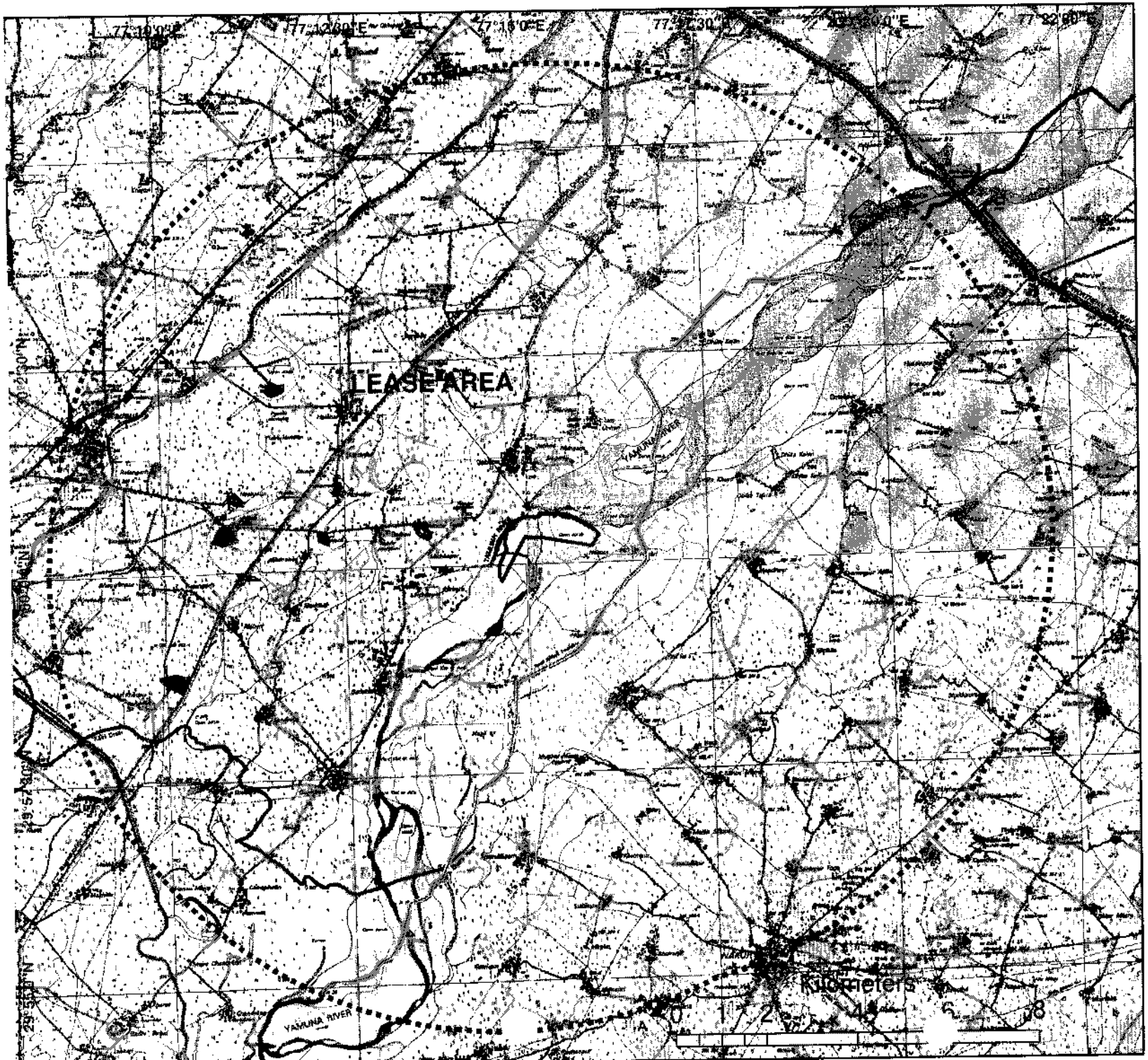
District Yamuna Nagar:

Sr. No.	Name of Block/ Block No.	Name of Village	Details of Khasra No/Killa No	Area (In hect.)	Reserve Price (In Rs. Crores per annum)	Period (In years)
River bed Mining Blocks						
1	Kanalsi Block/ YNR B 5	Kanalsi	**41//16,** 24, 25 **42//16 to 19,** 20, 21,22 to25 **43//16,** 17 to 24, 25 **44//1,** 10, 11, 12, 19, 20, 21, 22 **45//1,** 2, 3 to 8, 9, 10 to11, 12, 13 to 18, 19, 20 to 21, 22, 23 to 24,	44.14	04.08	9

Sr. No.	Name of Block/ Block No.	Name of Village	Details of Khasra No/Killa No	Area (In hect.)	Reserve Price (In Rs. Crores per annum)	Period (In years)
			25/1, 25/2 **46//1,** 2, 3, 4, 5, 6, 7, 8, 9 to 17, 18, 19, 20, 21, 24, 25 **47//3,**4,5,6,7/1,7/2,8,9 min,11 min,12 to 25 **48//16 min,** 24 min, 25 **52//4 min,** 5, 6, 7, 15 **53//1,** 2, 3,4/1, 4/2, 5, 7, 8 to 13, 19			
2	Jairampur Jagir Block/YNR B 6	Jairampur Jagir	**2//20,** 21, 22 **6//16min,** 25 **7//3,** 4/1, 4/2, 5/1, 5/2, 6/1, 6/2, 6/3, 7/1, 7/2, 7/3, 8/1, 8/2, 12/2, 12/3, 13/1, 13/2, 13/3, 14/1, 14/2, 14/3, 15/1, 15/2, 15/3, 16, 17/1, 17/2, 18 to 23, 24. **8//1,** 2, 10/1, 10/2, 10/3. **11//**1 to 3, 8, 9 to 12, 13, 19 to 22 **12//4,** 5, 6, 7, 14, 15, 16, 17, 24, 25. **15//3,** 4 to 7, 8, 13, 14, 15, 16, 17, 18, 23, 24/1, 24/2, 24/3, 24/4, 24/5, 24/6, 25/1, 25/2, 25/3, 25/4, 25/5, 25/6. **16//1,** 2, 9, 10, 11, 12, 20, 21/1, 21/2, 21/3, 21/4, 21/5. **19//1,** 10 min, 11min, 19min, 20, 21, 22. **20//**3 to 8, 13 to 16, 17, 25. **23//**1, 2, 8, 9, 13 min, 17 min.	33.58	03.10	10
3	Odhari North Block/ YNR B 8	Odhari	**16// 25 min** **17//**20min, 16, 17, 18, 19, 21, 22, 23, 24, 25 **27//3min**, 4min, 5min, 7min, 8min, 9min, 10min, 11min, 12min **28//14min,** 15min 18min, 19min, 21min, 25/1min, 16, 17, 22, 23, 24, 25	10.00	03.41	9
4	Odhari South Block/ YNR B 9	Odhari	**36//5min,** 7min, 14min,17min, 18min, 23min, 6, 15, 16, 24, 25 **37//1/1,** 1/2, 2/2, 3, 4, 5, 6, 7, 8, 9/1, 9/2, 10, 11, 12, 13/1,13/2, 14, 15, 16, 17/1, 17/2, 18, 19, 20, 21/1, 21/2, 22, 23, 24, 25/1, 25/2 **38//11,** 12/1, 12/2, 13/1,13/2, 14, 15/1, 15/2, 16, 17, 18,19/1, 19/2, 20, 21, 22/1, 22/2, 23,24, 25 **47//1/1,** 1/2, 2/1, 2/2, 3, 4, 5, 6, 7, 8/1, 8/2, 9/1, 9/2, 10, 11, 12, 13/1, 13/2, 14/1, 14/2, 15, 16, 17/1, 17/2, 18, 19, 20, 21, 22/1, 22/2, 23, 24, 25/1, 25/2 **48//3min,** 2min, 9min, 12min, 19min, 20min, 21min, 4, 5, 6, 7, 8, 13, 14, 15, 16, 17, 18, 22, 23,	56.98	05.26	10

Sr. No.	Name of Block/ Block No.	Name of Village	Details of Khasra No/Killa No	Area (In hect.)	Reserve Price (In Rs. Crores per annum)	Period (In years)
			24, 25 **53//1,** 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14/1, 14/2, 15, 16, 17, 18, 19, 24. 25 **54//1,** 2, 3, 4, 5, 6, 7, 8, 9, 10, 11. 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25 **58//1,** 2, 3, 4, 10/1, 10/2 **59//1,** 2, 3, 4, 5, 6, 7, 8, 15 **60//5**			
5	Jathlana Block/ YNR B 12	Jathlana	**103//11,** 19, 20, 21, 22 **104//7min,** 8min,9min, 10min, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21/1, 21/2, 22, 23 **105//6,** 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25/1, 25/2 **106//13,** 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 11, 12, **123//1 to 15,** 16, 17, 18, 19, 20, 21, 22, 23 **124//1,** 2, 3, 4/1, 4/2, 4/3, 5/1, 5/2, 5/3, 6/1, 6/2, 7, 8, 9/1/1, 9/1/2, 9/2, 9/3, 10, 11, 12/1, 12/2, 12/3, 13, 14,15,19,20, 21 **125//1,** 2, 3, 9/1, 9/2, 10,11,20 **107//14min,** 15min, 16,17, 18, 19min, 20min, 21, 22,23,24, 25 **108//25min** **121//5min,** 6, 7min, 14min, 13min, 15, 16 ,17, 18min, 23min, 24, 25 **122//1 to 23,** 24, 25 **126//1,** 2, 3, 4, 8, 9, 10, 11, 12, 21, 20 **127//3 to 8,**2min,9min,12min, 19min, 13, 14, 15, 16, 17, 18, 19, 25 **137//16,** 17, 18, 23, 24 ,25 **138//2,** 3 to 8, 9. 12, 13, 14, 15, 16 **139//1,** 2min, 8min, 9, 10, 11, 12, 20 **136//21min**	101.27	09.34	10
		Dhakwala	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 14, 15, 16, 17, 18, 19/1,19/2, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43 min, 44, 45, 46, 47, 48 min, 49 min, 50, 51, 52, 53, 54 min, 55 min, 56 min, 221, 222 min, 223 min, 224 min, 225 min, 226, 227, 228, 229, 230, 231, 232, 233/1,233/2, 234, 235, 236, 237, 238, 239, 240, 241, 242, 243, 244, 245, 246,			

Sr. No.	Name of Block/ Block No.	Name of Village	Details of Khasra No/Killa No	Area (In hect.)	Reserve Price (In Rs. Crores per annum)	Period (In years)
			247, 249 min, 251 min, 252, 253 min, 254 min, 340 min, 341, 342min, 343 min, 344, 345, 346, 347, 348, 349, 350, 351 min, 352 min			
6	M T Karhera Block/ YNR B 13	M T Karhera	**3//18,** 19min, 20min, 21min, 22, 23, **4//25min** **11//6,** 7, 8min,12, 13, 14, 15,16/1, 16/2, 17, 18, 19min, 20/1min, 21min, 22, 23, 24, 25 **12//1,** 2, 9, 10, 11, 20,21/1, 21/2 **13//1,** 10, 11, 20, 21, 22 **14//1 to 25** **15//5/2,** 6, 7, 14/2, 15, 16, 17, 18min, 23, 24, 25 **21//1 to 15,** 16min, 17, 18, 19, 20, 21,22, 23min, 24min. **22//1,** 2min, 9min, 10, 11 min, 20 min **26//1,** 10, 11, 20/2 **27//1,** 4, 5/1, 5/2, 6, 7, 8, 9/1, 9/2, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20/1, 20/2, 21, 22, 23, 24, 25. **28//5min,** 6min,15min, 16min, 25min **31//5,** 6, 7min, 14min, 15, 16, 17min, 24min, 25. **32//**1, 2, 3, 4, 5min, 6min, 7, 8, 9, 10, 11, 12, 13, 14, 15min, 17min, 18, 19, 20, 21, 22, 23, 24min. **37//**1, 2, 3, 4min, 8min, 9, 10, 11, 12, 13min, 19, 20, 21, 22. **38//**5, 6, 15. **42//**42	67.79	06.25	7
7	Nagla Rangran Block/ YNR B 14	Majri	31 min, 34, 35, 36, 32 min, 33, 37, 38, 70 min, 71 min, 42 min, 43, 133, 134, 135, 136 min, 142 min, 143, 144, 145, 152, 156, 157, 158 min, 153, 154, 155 min, 165 min, 166 min, 168, 169, 180, 184, 185 min, 177, 181, 182, 183, 206, 207, 208, 209, 210, 215, 219, 220, 221, 216, 218, 230, 231, 217, 229, 232, 233, 234, 238, 44, 36, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 146, 147, 148, 149, 150	89.48	08.25	9
		Nagla Rangran	**1//17min,** 18, 19, 21, 22/1, 23/1, 23/2, 24min **5//1,** 2, 3, 4min, 8min, 9, 10, 12, 13/1min, 19min, 22/2min, 6/5, 6, 7, 8, 13, 14/1, 14/2, 19, 20, 21, 22, 23, 24			



STUDY AREA MAP OF THE 10 KM RADIUS

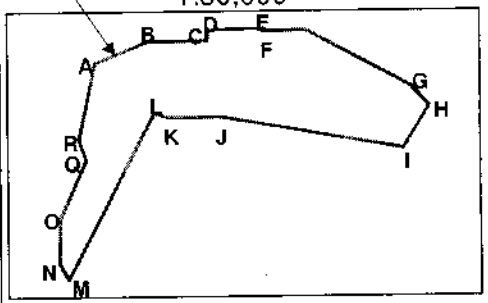
TOPOSHEET NO. (OSM NO.) H43L8 ,H43L12, H43R1,H43L4

-20-

N

Lease Area

1:80,000



Piller No.	Latitude	Longitude
A	30°00'30"N	77°14'46"E
B	30°00'34"N	77°14'58"E
C	30°00'34"N	77°15'11"E
D	30°00'36"N	77°15'11"E
E	30°00'36"N	77°15'23.5"E
F	30°00'35.5"N	77°15'23.5"E
G	30°00'35.5"N	77°15'33"E
H	30°00'24"N	77°15'56"E
I	30°00'20"N	77°16'00"E
J	30°00'12"N	77°15'54"E
K	30°00'19"N	77°15'13.5"E
L	30°00'19"N	77°15'02"E
M	30°00'20"N	77°14'59"E
N	30°59'48"N	77°14'39"E
O	30°59'51"N	77°14'37"E
P	30°00'00"N	77°14'37.5"E
Q	30°00'11"N	77°14'43.5"E
R	30°00'15"N	77°14'42"E

Legend

State Boundary

Study Area

Lease Area

Key Plan

Sand Minor Mineral
(101.27 Ha)
M/s P.S. Buildtech
Jaithlana Block/YNR B 12 ,
District Yamuna Nagar
(Haryana)
Prepared by Vardan Environet at Gurgaon

Annexure-IV

National Accreditation Board for Education & Training

Quality Council of India

CERTIFICATE OF ACCREDITATION

M/s Vardan EnviroNet

D-142, Sushant -Lok III, Sec- 57, Golf Course Extension Road, Gurgaon, Haryana

Is hereby accorded accreditation under the QCI-NABET Scheme for Accreditation of EIA Consultant Organizations (Rev. 09, August 2011) for the following scope:

Sl. No.	Name of the Sector	Cat.
1.	Mining of minerals including Open cast/ Underground mining	A
2.	Chemical Fertilizers	A
3.	Synthetic organic chemicals industry (dyes & dye intermediates; bulk drugs and intermediates excluding drug formulations; synthetic rubbers; basic organic chemicals, other synthetic organic chemicals and chemical intermediates)	A
4	Distilleries	A
5.	Pulp & paper industry excluding manufacturing of paper from waste paper and manufacture of paper from ready pulp without bleaching	A
6.	Sugar industry	B
7.	Highways, Railways, transport terminals, mass rapid transport systems	B
8.	Building and large construction projects including shopping malls, multiplexes, commercial complexes, housing estates, hospitals, institutions	B
9	Townships and Area Development projects	B

Name of approved EIA Coordinators & Functional Area Experts are given in minutes of AC Meeting dated January 22, 2014, March 26, 2014, April 23, 2014, Aug 7, 2014 & Sep 10, 2014 posted on QCI website

Accreditation to the above Sectors is subject to the EIA reports being prepared by the experts (EIA Coordinators & Functional Area Experts) mentioned in the above minutes and compliance to the Terms and Conditions of Accreditation.

Certificate No: NABET/ EIA/ 1316/ IA001

Valid up to: Nov. 8, 2016

C.E.O.

(Please refer http://nabet.qcin.org/recognitions for latest status of accreditation)

Note

- *Subject to continual compliance to NABET Scheme including Surveillance Assessment*
- *Updated status of accreditation available at www.qcin.org every 5th of the month*

ENVIRONMENTAL IMPACT ASSESSMENT AND ENVIRONMENTAL MANAGEMENT PLAN

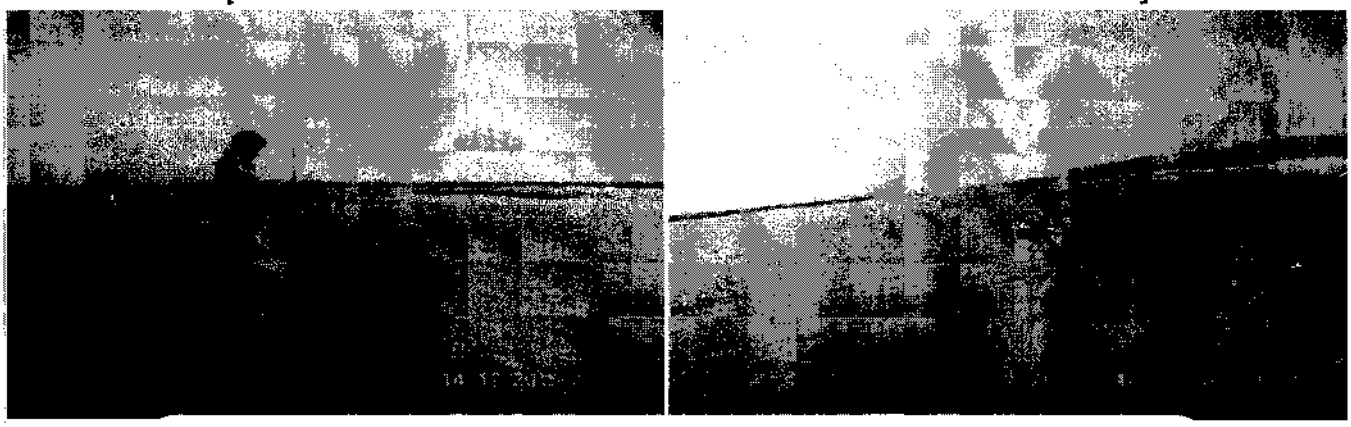
FOR

MINING OF SAND/BALU (RIVER BED MINING AT YAMUNA RIVER)

AT

JATHLANA BLOCK YNR B-12
VILLAGE-JATHLANA, TEHSIL-RADAUR,
DISTRICT-YAMUNA NAGAR, HARYANA
MINE LEASE AREA-101.27 HA
MINE LEASE PERIOD-10 YEARS
PRODUCTION CAPACITY-45,00,000 TONS PER ANNUM
STUDY PERIOD: DECEMBER 2015-FEBRUARY 2016

MONITORING DONE BY VARDAN ENVIROLAB; NABL ACCREDITATION No. T-2629
[CATEGORY 'A' DUE TO MINING AREA IS MORE THAN 50 HECTARES]



APPLICANT

SH. KULVINDER SINGH S/O SH. TRILOCHAN SINGH,
M/S P.S. BUILDTECH
34- VISHAL NAGAR,YAMUNA NAGAR-135001, HARYANA
MOB: 08397800000

ENVIRONMENT CONSULTANT
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(QCI/NABET ACCREDITED NO. NABET/EIA/1316/IA001)
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Document No. 2015_VM_10102_Final EIA
(June 2016)

REVIEW AND REVISION HISTORY

History of revisions of the present report:

Table I: History of the Revisions

S.No.	Rev.	Date	Modifications	Remarks
1.	Rev.00 Draft	05.03.2016	Draft EIA /EMP Report	Report has been prepared by Team Vardan and all the comments of reviewers have been incorporated in Draft EIA/EMP Report.
2.	Rev.01 Final	11.06.2016	Final EIA /EMP Report	Report has been prepared by Team Vardan and all the comments of reviewers have been incorporated in Final EIA/EMP report.

Document No. 2015_VM_101002

Table II: Record of Review

Rev.	Date	Description	Review-1	Review-2	Approval
Rev.00	05.03.2016	Draft EIA /EMP Report	Dr. Ashok K. Rathoure	Mr. S.K. Sharma	Mr. R.S. Yadav
-	-	-			

Table III: Record of Review

Rev.	Date	Description	Review-1	Review-2	Approval
Rev.01	11.06.2016	Final EIA /EMP Report	Dr. Ashok K. Rathoure	Mr. S.K. Sharma	Mr. R.S. Yadav
-	-	-			

This Report has been prepared by **Vardan EnviroNet** on behalf of and for the use of **Sh. Kulvinder Singh Prop. M/s P.S. Buildtech** with due consideration and skill as per our general terms and conditions of business and terms of agreement with the **Sh. Kulvinder Singh Prop. M/s P.S.Buildtech**.

DISCLAIMER

Vardan EnviroNet has taken all reasonable precautions in the preparation of this report as per its auditable quality plan. Vardan EnviroNet also believes that the facts presented in the report are accurate as on the date it was written. However, it is impossible to dismiss absolutely, the possibility of errors or omissions. Vardan EnviroNet therefore specifically disclaims any liability resulting from the use or application of the information contained in this report. The information is not intended to serve as legal advice related to the individual situation.

TABLE OF CONTENTS

LIST OF TABLE

LIST OF FIGURE

ABBREVIATIONS

AAQM	Ambient Air Quality Monitoring
amsl	Above Mean Sea Level
bgl	Below Ground Level
CPCB	Central Pollution Control Board
dB	Decibel
DG	Diesel Generator
E	East
EIA	Environmental Impact Assessment
EMC	Environmental Management Cell
EMP	Environmental Management Plan
ENE	East of North- East
EPA	Environmental Protection Agencies
ESE	East of South East

ABBREVIATIONS	
FCC	False Colour Composite
GIS	Geological Information System
GPS	Global Positioning System
HP	Horse Power
Hr	Hour
IMD	Indian Meteorological Department
IRS	Indian Remote Sensing Satellite
ISCST	Industrial Source Complex, Short Terms
ISO	International Organization Of Standardization
ISS	Indian Standard Specification
KLD	Kilo Litre Per Day
Km	Kilometer
KW	Kilo Watt
LOS	Level of Service
m	Meter
MCDR	Mining Conservation & Development Rules
mg	Milligram
MoEF&CC	Ministry Of Environment Forest and Climate Change
N	North
NE	North-East
NNE	North of North-East
NNW	North of North-West
NO_2	Nitrogen Dioxides
NTU	Naphelo Turbidity Unit
NW	North-West
OB	Over Burden
OH&S	Occupational Health and Safety
PCU	Passenger Car Unit
PM	Particulate Matter
PPE	Personal Protective Equipment
PPM	Part Per Million
Pvt.	Private
R&R	Rehabilitation and Resettlement
RDS	Respirable Dust Sampler
SE	South- East
SEIAA	State Level Environmental Assessment Authority
SO_2	Sulphur-di-Oxide
SOI	Survey of India
SOPs	Standard Operating Procedures
SPCB	State Pollution Control Board
SPM	Suspended Particulate Matter
SSE	South of South-East
SSW	South of South-West
TDS	Total Dissolve Solid
TOR	Terms of Reference
TPA	Ton s Per Annum
TPA	Tone Per Hour
TPH	Tons Per Hour

ABBREVIATIONS	
TS	Total Solid
US EPA	United State Environmental Protection Agencies
w.e.f.	With Effective From
w.r.t.	With Reference To
W/W	Weight By Weight
WNW	West of North-West
WSW	West of South-West

Declaration of consultants

NABET Annexure–VII

Declaration by Experts contributing to the EIA of "Jathlana Block/YNR B-12" by Kulvinder Singh, Prop. M/s P.S. Buildtech.

I, hereby, certify that I was a part of the EIA team in the following capacity that developed the above EIA.

EIA Coordinator: Mr. Kuldipak Ahuja

Signature

Date: 11.06.2016

I, hereby, certify that I was a part of the EIA team in the following capacity that developed the above EIA.

Team Member: Mr. Aman Sharma

Signature

Date: 11.06.2016

D-142, Sector-57, Sushant Lok-III, Golf Course Extension Road,
Gurgaon (Haryana)

Contact: 09953147268

Email: vardanenviro165@gmail.com

Functional Area Experts (FAEs):

S.No.	FAs	Name of Expert/s	Involvement (period)	Signature
1.	AP	Mr. S.K.Sharma	Dec.2015-June 2016	
2.	SHW	Mr. S.K.Sharma	Dec.2015-June 2016	
3.	WP	Mr. S.K.Sharma	Dec.2015-June 2016	
		Dr. Ashok Kumar	Dec.2015-June 2016	

4.	SE	Mrs. Shilpa Mishra	Dec 2015-Feb 2016	
5.	EB	Dr. Ashok Kumar	Dec.2015-June 2016	
6.	HG	Mr. R.S Yadav	Dec.2015-June 2016	
7.	GEO	Mr.R.S Yadav	Dec.2015-June 2016	
8.	AQ	Mr. Asif Hussain	Dec 2015-Feb 2016	
9.	NV	Mr. Asif Hussain	Dec 2015-Feb 2016	
10.	LU	Mr. Joshua Anand	Dec 2015-Feb 2016	
11.	RH	Mr. Kuldipak Ahuja	Dec 2015-Feb 2016	
12.	SC	Mr. S.K. Sharma	Dec.2015-June 2016	

TM and FAA are included in chapter 12 as Team for EIA preparation.

Declaration by the Head of the accredited consultant organization/ authorized person

I, R.S. Yadav, hereby, confirm that the above mentioned experts prepared the EIA for sand mine of **M/s P.S. Buildtech.** I, hereby, certify that I was a part of the EIA team in the following capacity that developed the above EIA.

I also confirm that I shall be fully accountable for any mis-leading information mentioned in this statement.

Name: **R.S.Yadav**

Signature

Designation: **Managing Director**

Name of the EIA Consultant Organization: **M/s Vardan Environet**, QCI/NABET Accredited Environment Consultancy.

NABET Certificate No. & Issue Date: NABET/EIA/1316/IA001 valid upto 08.11.2016.

COMPLIANCE TO TOR CONDITIONS

Point wise compliance of ToR issued by Ministry of Environment & Forests, New Delhi vide file No. **J-11015/5/2016-IA.II (M)** on dated 08.02.2016 for the project Mining of Sand (minor mineral) Mine-"Jathlana Block/YNR B-12" Mine Lease Area –101.27 Ha. Capacity **45,00,000 TPA** by **Sh. Kulvinder Singh** Prop. M/s P.S. Buildtech.

ToR	Description	Reply	Citation
1	Year-wise production details since 1994 should be given, clearly stating the highest production achieved in any one year prior to 1994. It may also be categorically informed whether there had been any increase in production after the EIA Notification, 1994 came into force w.r.t. the highest production achieved prior to 1994.	This is a fresh Mining Lease area auctioned by Govt. of Haryana and LoI was issued vide letter.**DMG/HY/Cont/Jathlana Block/YNR B-12//2015/10070** dated **30.11.2015** attached as **Annexure I,** no production is started yet.	**Annexure-I.**
2	A copy of the document in support of the fact that the Proponent is the rightful lessee of the mine should be given.	The copy of letter of intent (LOI) of mining lease issued by Director of Mines & Geology Department, Chandigarh, Haryana, vide letter no. **DMG/HY/Cont/Jathlana/YNR B-12/2015/10070** dated **30.11.2015** was issued in favor of **Sh. Kulvinder Singh** Prop. M/s P.S. Buildtech who has applied for Environmental Clearance, is enclosed as **Annexure-I.**	**Annexure-I.**
3	All documents including approved mine plan, EIA and public hearing should be compatible with one another in terms of the mine lease area, production levels, waste generation and its management and mining technology and should be in the name of the lessee.	Contents in all documents are synchronizing with one another in terms of mine lease area, production levels, waste generation, its management and mining technology. Both the Final mining plan and ML area in the name of **Sh. Kulvinder Singh** Prop. **M/s P.S. Buildtech** who is the lessee of this project. Copy of LoI and the Approval Letter of Mining Plan vide memo no. DMG/HY/MP/Jathlana Block/YNR B-12 /2015/3110 dated 10/06/2016 is enclosed as **Annexure I** and **II** respectively.	**Annexure-I. Annexure-II.**
4	All corner coordinates of the mine lease area, superimposed on a High Resolution Imagery/toposheet should be provided. Such an Imagery of the proposed area should clearly show the land use and other ecological features of the study area (core and buffer zone).	All corners of the coordinates of ML area are superimposed on topo sheet of survey of India Toposheet (OSM) No. **H43L8, H43L12, H43R1, H43L4.** Coordinates of the mine lease area.	**Chapter-1, Figure 1.1 at Page 4** **Chapter-4, Figure 4.1 & 4.2 at Page 30**

Pillar no	Latitudes	Longitudes
A	N 30° 00' 30"	E77° 14' 46"
B	N 30° 00' 34"	E77° 14' 58"
C	N 30° 00' 34"	E77° 15' 11"
D	N 30° 00' 36"	E77° 15' 11"
E	N 30° 00' 36"	E77° 15' 23.5"
F	N 30° 00' 35.5"	E77° 15' 23.5"

		<table><tr><td>G</td><td>N 30° 00' 35.5"</td><td>E77° 15' 33"</td></tr><tr><td>H</td><td>N 30° 00' 24"</td><td>E77° 15' 56"</td></tr><tr><td>I</td><td>N 30° 00' 20"</td><td>E77° 16' 00"</td></tr><tr><td>J</td><td>N 30° 00' 12"</td><td>E77° 15' 54"</td></tr><tr><td>K</td><td>N 30° 00' 19"</td><td>E77° 15' 13.5"</td></tr><tr><td>L</td><td>N 30° 00' 19"</td><td>E77° 15' 02"</td></tr><tr><td>M</td><td>N 30° 00' 20"</td><td>E77° 14' 59"</td></tr><tr><td>N</td><td>N 29° 59' 48""</td><td>E77° 14' 39"</td></tr><tr><td>O</td><td>N 29° 59' 51"</td><td>E77° 14' 37"</td></tr><tr><td>P</td><td>N 30° 00' 00"</td><td>E77° 14' 37.5"</td></tr><tr><td>Q</td><td>N 30° 00' 11"</td><td>E77° 14' 43.5"</td></tr><tr><td>R</td><td>N 30° 00' 15"</td><td>E77° 14' 42"</td></tr></table> Imagery of the proposed area clearly shows the land use and other ecological features of the study area (core and buffer zone) for Land use and High resolution Imagery FCC maps are prepared with use a RS–GIS technique.	
5	Information should be provided in Survey of India Toposheet in 1:50,000 scale indicating geological map of the area, geomorphology of land forms of the area, existing minerals and mining history of the area, important water bodies, streams and rivers and soil characteristics.	All maps are provided superimposed on toposheet of survey of India in 1:50,000 scale showing all land forms of the area, important water bodies, streams and rivers etc. Geological and Mineral Map of Haryana is incorporated in this report.	**Chapter-1, Figure 1.1 at Page 4** **Chapter-2, Figure 2.6 and Page 26**
6	Details about the land proposed for mining activities should be given with information as to whether mining conforms to the land use policy of the State; land diversion for mining should have approval from State land use board or the concerned authority.	The Mines and Geology department of Haryana Government has auctioned this sand unit in the dry riverbed. Land riverbed land Gair Mumkin Nadi/Nallah and as per terms and conditions of LoI the lease holder will settle compensation with land (gair mumkin nadi/nallah) owner before starting the mining operation. Mineral rights in both kind of land vest with the Haryana State Government. There is no need of land diversion in this case.	**Annexure-I.**
7	It should be clearly stated whether the proponent company has a well laid down Environment Policy approved by its Board of Directors? If so, it may be spelt out in the EIA report with description of the prescribed operating process/ procedures to bring into focus any infringement/deviation/violation of the	Yes, The company has formulated Environmental policy which is approved by **Sh. Kulvinder Singh** Prop M/s P.S. Buildtech. The operating process or the implementation of policy will be as follows: ▪ Compliance with all applicable environmental laws and regular maintenance of their records. ▪ Acquaintance of all employees and contractors with their environmental responsibilities. ▪ Focus on continuous improvement.	**Chapter-6, Item 6.1 at Page 88**

	environmental or forest norms/ conditions? The hierarchical system or administrative order of the Company to deal with the environmental issues and for ensuring compliance with the EC conditions may also be given. The system of reporting of non-compliances/ violations of environmental norms to the Board of Directors of the Company and/or shareholders or stakeholders at large may also be detailed in the EIA report.	▪ Continuous review of environmental achievements. ▪ Half yearly submission of Compliance reports. • Closing of NCs and Conducting MRM. The Policy contains the hierarchical system of the company to deal with the environmental issues and for ensuring the compliance with EC conditions. All the non compliances/violations of environmental laws will as per QMS.	**Annexure XIV**
8	Issues relating to Mine Safety, including subsidence study in case of underground mining and slope study in case of open cast mining, blasting study etc. should be detailed. The proposed safeguard measures in each case should also be provided.	Mines safety for workers working at the site has been taken care of. Safety measures related to risks during mining activity, natural disasters, etc has been proposed. The details are incorporated in the EIA/EMP Report. This is an inside riverbed mining. There will be no underground mining; hence subsidence study is not required. **Slope Study** As working will be done in the river bed to maximum depth of 3.0 m only, thus slope study is not required. **Blasting Study** This is a Sand (minor mineral) mining project, no blasting is proposed.	**Chapter 7, Item 7.4 at Page 106**
9	The study area will comprise of 10 km zone around the mine lease from lease periphery and the data contained in the EIA such as waste generation etc should be for the life of the mine/ lease period.	Study area comprises of 10 Km radius around the mine lease boundary. Map showing 10 Km radius of the ML area has been furnished in the EIA report and 10 Km radius of mine lease. All the data contained in the EIA/EMP Report are for lease period of mine. There is no generation of Overburden/ waste material in case of river bed mining. Lease period is **10 years.**	**Chapter-1, Figure 1.1 and Page 4** **Chapter-2, Item 2.12 and Page 22**
10	Land use of the study area delineating forest area, agricultural land, grazing land, wildlife sanctuary, national park, migratory routes of fauna, water bodies, human settlements and other ecological features should be indicated. Land use plan of the mine lease area should be	Land Use of the study area delineating forest area, agricultural land, grazing land, wildlife sanctuary, National park, migratory routes of fauna, water bodies, human settlements and other ecological features has been incorporated.	**Chapter-4, Table 4.1, Figure 4.1 at Page 29-30**

Land use	Area (Hectares)	% Area
Water Body	1092.78	3.20
Grass Land	18801.25	55.01

	prepared to encompass preoperational, operational and Post-operational phases and submitted. Impact, if any, of change of land use should be given.	<table><tr><td>Dense Forest</td><td>4225.3</td><td>12.36</td></tr><tr><td>Open Scrub</td><td>1718.777</td><td>5.03</td></tr><tr><td>Agricultural Land</td><td>4046.48</td><td>11.84</td></tr><tr><td>Fallow Land</td><td>1945.35</td><td>5.69</td></tr><tr><td>Sand/River Bank</td><td>1203.3</td><td>3.52</td></tr><tr><td>Settlement</td><td>1144.4</td><td>3.35</td></tr><tr><td>Total Area</td><td>34177.64</td><td>100.00</td></tr></table> Land use plan of the mine lease area showing the preoperational, operational and post operational phases is incorporated in the EIA/EMP Report.	**Chapter-2, Table-2.14 at Page 23**
11	Details of the land for any Over Burden Dumps outside the mine lease, such as extent of land area, distance from mine lease, its land use, R&R issues, if any, should be given.	**River Bed:** There is no generation of Overburden / waste material in case of river bed mining. There is no human settlement and Gair Mumkin Nadi/Nallah. Hence R&R is not applicable on this project.	**Chapter-2, Item 2.12 at Page 22** **Chapter-1, figure 1.1 at Page 4**
12	A Certificate from the Competent Authority in the State Forest Department should be provided, confirming the involvement of forest land, if any, in the project area. In the event of any contrary claim by the Project Proponent regarding the status of forests, the site may be inspected by the State Forest Department along with the Regional Office of the Ministry to ascertain the status of forests, based on which, the Certificate in this regard as mentioned above be issued. In all such cases, it would be desirable for representative of the State Forest Department to assist the Expert Appraisal Committees.	The Mining Lease area does not involve any forest land. The land of the Mining riverbed of Yamuna and this area is free from any reservation of forest department Haryana Government. Letter from DFO, Yamuna Nagar via letter No. 3816 on dated 24.12.2015 is attached as **Annexure IV.**	**Annexure-1V**
13	Status of forestry clearance for the broken up area and virgin forestland involved in the Project including deposition of net present value (NPV) and compensatory afforestation (CA) should be indicated. A	The land of the Mining lease area is Government land on the river bed of Yamuna and this area is free from any reservation of Forest Department Haryana Government. Letter from DFO, Yamuna Nagar via letter No. 3816 on dated 24.12.2015 is attached as **Annexure IV.**	**Annexure-IV**

	copy of the forestry clearance should also be furnished.		
14	Implementation status of recognition of forest rights under the Scheduled Tribes and other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006 should be indicated.	Not Applicable. There is no involvement of forest land in the project area. Letter from No. 3816 on dated 24.12.2015 is attached as **Annexure IV.**	**Annexure-IV**
15	The vegetation in the RF/ PF areas in the study area, with necessary details, should be given.	Project area not falling under forest reserve. So, no approval is required. Only, Reserve and Protected Forest present within the 10 Km of the project area which are as follows: • Kalanaur Reserve Forest 8.5 Km NE. There is no National Park, Wild Life Sanctuary Biosphere Reserve within 10 km of project site. Letter from DFO, Yamuna Nagar via letter No. 3816 on dated 24.12.2015 is attached as **Annexure IV.**	**Annexure IV**
16	A study shall be got done to ascertain the impact of the Mining Project on wildlife of the study area and details furnished. Impact of the project on the wildlife in the surrounding and any other protected area and accordingly detailed mitigative measures required, should be worked out with cost implications and submitted.	EB Study has been carried out by the Ecology and Biodiversity Expert (NABET/QCI Approved) in and around the lease area to study the wild life of the area. 1 species of Schedule I and 2 species of Schedule II species were recorded. The conservation plan has been prepared along with budgetary provision of **Rs. 9.10** Lakhs to conserve wildlife. The proper mitigation measures have been proposed to mitigate negative impacts.	**Chapter 7, Table 7.4(a) at Page 123** **Chapter 5, Item 5.4 to Item 5.14 at Page 73-85**
17	Location of National Parks, Sanctuaries, Biosphere Reserves, Wildlife Corridors, Tiger/ Elephant Reserves/ (existing as well as proposed), if any, within 10 km of the mine lease should be clearly indicated, supported by a location map duly authenticated by Chief Wildlife Warden. Necessary clearance, as may be applicable to such projects due to proximity of the ecologically sensitive areas as mentioned above, should be obtained from the State Wildlife	No National Parks, Sanctuaries, Biosphere Reserves Wildlife Corridors, Tiger/Elephant Reserves/Critically Polluted areas/Aravali are falling within 10 Km of the study area. The location map has been prepared on SOI Toposheet is shown figure 1.1.	**Chapter-1, Figure 1.1 at Page 4**

	Department/ Chief Wildlife Warden under the Wildlife (Protection) Act, 1972 and copy furnished.		
18	A detailed biological study of the study area [core zone and buffer zone (10 km radius of the periphery of the mine lease)] shall be carried out. Details of flora and fauna, duly authenticated, separately for core and buffer zone should be furnished based on such primary field survey, clearly indicating the Schedule of the fauna present. In case of any scheduled-I fauna found in the study area, the necessary plan for their conservation should be prepared in consultation with State Forest and Wildlife Department and details furnished. Necessary allocation of funds for implementing the same should be made as part of the project cost.	A detailed biological study (of 10 Km radius study area) was conducted by Ecology and Biodiversity Expert and the details are incorporated in the EIA/EMP Report. Authenticated List of Flora and Fauna was obtained from District Forest Officer and is enclosed as **Annexure XI** with the EIA/EMP Report. 1 Species of Schedule I and 2 Species of Schedule II Species were recorded within 10 Km distance from the boundary of project site and conservation plan will be submitted to APPCF Panchkula.	**Chapter 4, Item - 4.10 and Chapter 7, Table 7.4(a) and Page 48** **Annexure XI**
19	Proximity to Areas declared as 'Critically Polluted' or the Project areas likely to come under the 'Aravali Range', (attracting court restrictions for mining operations), should also be indicated and where so required, clearance certifications from the prescribed Authorities, such as the SPCB or State Mining Dept. Should be secured and furnished to the effect that the proposed mining activities could be considered.	The project site is neither falling in proximity to area declared as Critically Polluted. The proposed mining area of sand (minor mineral) is located on the river bed and inside river bed of Yamuna River. The valid and lawful LoI of this project site has been granted to the lease holder by the Mining Department of Haryana Government as enclosed in **Annexure-I**. Letter from DFO, Yamuna Nagar vide letter No 3816 on dated 24.12.2015 is attached as **Annexure IV** stating that the mine lease area is neither falling under Aravali Plantation nor in forest under section 4 and 5 PLPA 1900 as per record of Forest Department, Govt. of Haryana.	**Annexure-I** **Annexure-IV**
20	Similarly, for coastal projects, A CRZ map duly authenticated by one of the authorized agencies demarcating LTL, HTL, CRZ area, location of the mine lease w.r.t. CRZ, coastal features such as	Not Applicable, since the project site does not comes under coastal area.	**Chapter-1, Table 1.1 at Page 2**

	mangroves, if any, should be furnished. (Note: The Mining Projects falling under CRZ would also need to obtain approval of the concerned Coastal Zone Management Authority).		
21	R&R Plan/compensation details for the Project Affected People (PAP) should be furnished. While preparing the R&R Plan, the relevant State/ National Rehabilitation & Resettlement Policy should be kept in view. In respect of SCs /STs and other weaker sections of the society in the study area, a need based sample survey, family-wise, should be undertaken to assess their requirements, and action program prepared and submitted accordingly, integrating the sectoral program of line departments of the State Government. It may be clearly brought out whether the village located in the mine lease area will be shifted or not. The issues relating to shifting of Village including their R&R and socio-economic aspects should be discussed in the report.	There is no Project Affected Person (PAP) by mining activities. Hence, there is no need of R&R Plan. However, as per the point xiv of LoI the lease holder will deposit 10% of the annual contract money *i.e.* **93.45 Lakhs** to the **Mines and Minerals Development, Restoration and Rehabilitation Fund.** This amount will be spent by lease holder for the protection of environment in the nearby surrounding area. The officers of the State Government Haryana will strictly monitor the compliance of lease holder in this regard.	**Chapter-1 , Table 1.1 at Page 4** **Chapter -7 Item 7.10 at page 131-132**
22	One season (non-monsoon) [i.e. March-May (Summer Season); October-December (post monsoon season); December-February (winter season)] primary baseline data on ambient air quality as per CPCB Notification of 2009, water quality, noise level, soil and flora and fauna shall be collected and the AAQ and other data so compiled presented date-wise in the EIA and EMP Report. Site-specific meteorological data	Baseline data of study area within 10 Km radius of the project site was collected during Winter season (1st December, 2015- 29th February, 2016) as per ToR no. J-11015/5/2016-IA.II(M) approved from MoEF&CC dated 08.02.2016.	**Chapter-4 Item 4.10 at Page 48-63**
		Ambient Air: PM 10 – 50.3 $\mu g/m^3$ and 80.2 $\mu g/m^3$ PM 2.5 – 30.1$\mu g/m^3$ and 50.6$\mu g/m^3$ SO_2 – 5.9 $\mu g/m^3$ and 16.1 $\mu g/m^3$ NOx – 11.3 $\mu g/m^3$ and 30.1 $\mu g/m^3$ **Ground Water:** pH varies from to 7.52 to 7.91	**Chapter 4, Page 33-47** **Annexure-VI** **Annexure-VII**

	should also be collected. The location of the monitoring stations should be such as to represent whole of the study area and justified keeping in view the pre-dominant Downwind direction and location of sensitive receptors. There should be at least one monitoring station within 500 m of the mine lease in the pre-dominant downwind direction. The mineralogical composition of PM_{10}, particularly for free silica, should be given.	TDS - 166.00 to 252.00 mg/L Total Hardness -145.00 to 254.23 mg/L Fluoride varies from 0.08 to 0.25 mg/L Chloride varies from 1.97 to 12.10 mg/L EC varies from 0.280 to 0.593 mS/cm **Surface Water:** pH varies from to 8.11 to 8.39 TDS - 149.00to 204.00 mg/L Total Hardness - 140.00 to 196mg/L EC varies from 0.246 to 0.346 mS /cm Fluoride varies from 0.09 to 0.19 mg/L Chloride varies from 2.50 to 5.91mg/L COD varies from 9.80 to 12.05 mg/L BOD varies from 3.40 to 5.0 mg/L **Soil Quality:** pH –7.96 to 8.22 Texture – Silty to Sandy Organic Matter – 0.53 % to 0.70 % Nitrogen- 197.0 kg/hec to 251.0 kg/hec Phosphorus-26.07 kg/hec to 47.10kg/hec Potassium-83.70 kg/hec to 103.6 kg/hec **Noise level:** During Day Time –51.6 Leq dB and 53.8 Leq dB During Night Time –41.02 Leq dB and 43.25 Leq dB	**Annexure-VIII** **Annexure-IX**
		Site specific meteorology data was collected and incorporated in EIA/EMP Report.	**Chapter 4, Table 4.3 at Page 31**
		The location of Air Monitoring stations was selected to represent the whole mine lease area (10 Km radius). One Location is also selected in 500 m of dominant downwind direction.	**Chapter 4, Table 4.5 at Pg 33, Figure 4.5 at Pg 35**
		Mineralogical composition of PM10 particularly for Free silica is incorporated in the EIA/EMP Report. The range of Free Silica in PM_{10} was found to be 1.8% to 3.9%.	**Chapter 4, Table 4.8 at Page 34**
23	Air quality modeling should be carried out for prediction of impact of the project on the air quality of the area. It should	Air quality modeling was carried out and impact of Air quality has been incorporated in the EIA/EMP report. Max predicted GLC was 1.59 ($\mu g/m^3$) and cumulative GL of PM_{10} was to be 82.57 ($\mu g/m^3$).	**Chapter 5, Item 5.3 at Page 68-72**

	also take into account the impact of movement of vehicles for transportation of mineral. The details of the model used and input parameters used for modeling should be provided. The air quality contours may be shown on a location map clearly indicating the location of the site, location of sensitive receptors, if any, and the habitation. The wind roses showing predominant wind direction may also be indicated on the map.	The predominant wind direction recorded during study period was from WWN to EES Direction as per Wind rose diagram.	**Chapter 4, Figure 4.4 at Page 33.**
24	The water requirement for the Project, its availability and source should be furnished. A detailed water balance should also be provided. Fresh water requirement for the Project should be indicated.	Water requirement in this project site is 70 KLD. Water will be taken from existing water sources from nearby villages or tanker supplier. The details are incorporated in the EIA/EMP report. **Total Water Requirement= 70 KLD** Dust Suppression = 48 KLD Plantation= 16 KLD Domestic Purpose= 6 KLD	**Chapter 2 Figure 2.15.1 at Page 23**
25	Necessary clearance from the Competent Authority for drawl of requisite quantity of water for the Project should be provided.	Not Applicable Water will be taken from near villages through tankers.	**Chapter 2 Figure 2.15.1 at Page 23**
26	Description of water conservation measures proposed to be adopted in the Project should be given. Details of rainwater harvesting proposed in the Project, if any, should be provided.	The project do not consume any process water except for drinking, dust suppression and plantation. Plantation is proposed, which will increase the water holding capacity and help in recharging of ground water. No artificial rainwater harvesting is proposed for the present project.	**Chapter 10, Table-10.1 & 10.2, at Page -143**
27	Impact of the project on the water quality, both surface and groundwater, should be assessed and necessary safeguard measures, if any required, should be provided.	**Surface Water** No permanent infrastructure will be developed which may obstruct the river flow, the proposed sand (minor mineral) mining will not be done in rainy days hence there will not be any adverse impact on the surface water. **Ground Water** The ground water quality will not be changed because mining activity will not intersect the ground water table as it is restricted to 3m depth in river bed. Impact of the project on the water quality and its mitigation measures has	**Chapter 5, Item 5.5 Figure 5.4 at Page 74-75**

		been incorporated in the EIA/EMP report.	
28	Based on actual monitored data, it may clearly be shown whether working will intersect groundwater. Necessary data and documentation in this regard may be provided. In case the working will intersect groundwater table, a detailed Hydro Geological Study should be undertaken and Report furnished. Necessary permission from Central Ground Water Authority for working below ground water and for pumping of ground water should also be obtained and copy furnished.	The maximum working depth of mining will be 3 m bgl in river bed where the groundwater table exists at an average depth of 5-10 m bgl. So mining depth will not intersect the ground water table. Hence permission is not required from CGWA. Systematic diagram of mining depth also incorporated in the EIA/EMP report. Water will be sourced from the hired tankers; hence permission from CGWA is not applicable.	**Chapter 5, Table 5.6 Figure 5.4 at Page 74-75**
29	Details of any stream, seasonal or otherwise, passing through the lease area and modification /diversion proposed, if any, and the impact of the same on the hydrology should be brought out.	There is no stream modification/ diversion. It is opencast mining of sand (minor mineral) located on the river bed and mining is permitted only up to depth of 3 meter; hence there will be no stream diversion/ modifications.	----
30	Information on site elevation, working depth, groundwater table etc. Should be provided both in AMSL and bgl. A schematic diagram may also be provided for the same.	Maximum Working Depth : 3m bgl Ground water Table: 5-10 m bgl Site elevation: 261 to 266 m amsl Schematic diagram of mining depth also incorporated in **Chapter-5**.	**Chapter 2, Table 2.4 and Page 14 Chapter 5, Item 5.6 Figure 5.4 at Page 74-75**
31	A time bound Progressive Greenbelt Development Plan shall be prepared in a tabular form (indicating the linear and quantitative coverage, plant species and time frame) and submitted, keeping in mind, the same will have to be executed up front on commencement of the project. Phase-wise plan of plantation and compensatory afforestation should be charted clearly indicating the area to be covered under plantation and the species	A suitable combination of trees that can grow fast and also have good leaf cover shall be adopted to develop the greenbelt. It is proposed to plant **1000** number/annum of native species along with some fruit bearing and medicinal trees during the plan period Schedule of Plantation for the Five Years	**Chapter 10, Table-10.1 & 10.2, Page - 143**

Year	Saplings	Survival 80%	Species	Place of Plantation
I	2000	1600	Neem, Mango, Shisham, Sirish,	Along the roads, in schools and public building and other social
II	2000	1600		
III	2000	1600		
IV	2000	1600		

	to be planted. The details of plantation already done should be given. The plant species selected for green belt should have greater ecological value and should be of good utility value to the local population with emphasis on local and native species and the species which are tolerant to pollution.	<table><tr><td>V</td><td>2000</td><td>1600</td><td>Babool, Gulmohar, etc and as per DFO Yamuna nagar.</td><td>forestry program.</td></tr><tr><td>**Total**</td><td>**10,000**</td><td>**8000**</td><td></td><td></td></tr></table> ***Source: Mine Plan***	
32	Impact on local transport infrastructure due to the Project should be indicated. Projected increase in truck traffic as a result of the Project in the present road network (including those outside the Project area) should be worked out, indicating whether it is capable of handling the incremental load. Arrangement for improving the infrastructure, if contemplated (including action to be taken by other agencies such as State Government) should be covered. Project Proponent shall conduct Impact of Transportation study as per Indian Road Congress Guidelines.	Impact on local transport infrastructure due to the project has been assessed. There will not be much impact on local transport. **450 PCU/hr** will be increased in current traffic Scenario. Traffic density from the proposed mining activity has been incorporated in the EIA/EMP report and traffic study detailed enclosed as **Annexure-X.**	**Chapter 4, Item 4.8 an Figure 4.14 Page 44** **Annexure X**
33	Details of the onsite shelter and facilities to be provided to the mine workers should be included in the EIA report.	Adequate infrastructure and other facilities will be provided to mine worker. Information about onsite shelter and facilities for workers has been incorporated in the EIA/EMP Report.	**Chapter 2 , Item 2.15 at Page 41-43**
34	Conceptual post mining land use and Reclamation and Restoration of mined out areas (with plans and with adequate number of sections) should be given in the EIA report.	Conceptual post mining Land use is incorporated in the EIA/EMP Report. The land use of the lease area will remain same as the proposed activity is extraction of deposited Sand (minor mineral) from river bed which will get replenished during succeeding monsoon season. In inside Riverbed, top soil will be removed in advance of the actual mining and will be stacked in a temporary stack yard and will be used for reclamation simultaneously. The amount of sediment regenerated every year derived hypothetically by Dandy-Bolton's equation will be **45,33785.5 Tons/Annum** for the proposed	**Chapter 2, Table 2.12 at Page 23** **Chapter-7, Table 7.5 Page -157**

		lease area. Hence, there will be more than 100% replenishment in the riverbed area of the lease.	
35	Occupational Health impacts of the Project should be anticipated and the proposed preventive measures spelt out in detail. Details of pre-placement medical examination and periodical medical examination schedules should be incorporated in the EMP. The project specific occupational health mitigation measures with required facilities proposed in the mining area May be detailed.	The impact on OHS of employee and proper mitigation along with budgetary provision incorporated in the EIA/EMP Report. Person protective measures, pre-placement medical examination and periodical medical examination schedules, management plan have been furnished in the EIA/EMP Report.	**Chapter 5, Item 5.12 and Page-81** **Chapter-7, Table 7.4, Page 111**
36	Public health implications of the Project and related activities for the population in the impact zone should be systematically evaluated and the proposed remedial measures should be detailed along with budgetary allocations.	Public health implication like respiratory disorder, noise induced problems are major issues which will be addressed properly. Study has been performed which includes to gain an understanding of the source, identification of exposure pathway and determination of likely receptor. The impact will not be concentrated and confined to particular zone. Periodic health camps will be undertaken under ESR activities in the villages. **Rs 14.00 Lakhs** per year will be spent on Health check up camps, Surveillance program for the Public, Sanitation and drinking water facilities. The budgetary allocations for public health implication are incorporated in the EIA/EMP Report.	**Chapter 7, Table 7.6, Page. 111**
37	Measures of socio economic significance and influence to the local community proposed to be provided by the Project Proponent should be indicated. As far as possible, quantitative dimensions may be given with time frames for implementation.	Socio economic measures for the local people have been proposed under the component of the Environmental Social Responsibility along with the budgetary allocation have been incorporated in the EIA/EMP Report. Proposed project will provide the employment opportunity to the local community hence project will have positive impact on the surrounding local community. An amount of **Rs. 30.00 Lakhs** per year is allocated for ESR activities. Detailed break up is incorporated in the EIA/EMP Report.	**Chapter 7, Table 7.8, Page 124**
38	Detailed environmental management plan to mitigate the environmental impacts which, should inter-alia include the impacts of change of land use, loss of	Environmental management plan to mitigate the environmental impacts which inter-alia included the impacts of change of land use, loss of agricultural and grazing land, occupational health, air, water soil, noise, Socioeconomic and ecology; incorporated in chapter 5 and 10 of EIA/EMP.	**Chapter-10, Table 10.9 at Page 148** **Chapter 5, Item**

	agricultural and grazing land, if any, occupational health impacts besides other impacts specific to the proposed Project.		**5.12 and Page 111**
39	Public hearing points raised and commitment of the project proponent on the same along with time bound action plan to implement the same should be provided and also incorporated in the final EIA/EMP Report of the Project.	The Public Hearing was conducted on 24.05.2016 at 10.00 pm at Mine Site in village-Jathlana (Yamuna Nagar) and the Minutes of Public Hearing is enclosed as **Annexure-XIV.** The action plan with budget has been revised accordingly and incorporated at appropriate place in EIA/EMP.	**Annexure- XIV.**
40	Details of litigation pending against the project, if any, with direction /order passed by any Court of Law against the project should be given.	There is no court case against this project, however there is a court case in the matter of Mr. Rajbir Singh v/s State of Haryana and others [CWP No. 27700 of 2013], wherein the petitioner had challenged the conditions of the auction notice and the rules relating to payment of rent and compensation to the land owners. The State Government (Dept. of Mines and Geology) has issued LoI subject to the outcome of this case. The above mentioned case is dismissed by Hon'ble Punjab and Haryana High Court vide order dated 19.10.2015. **The Project Proponent has not filed any court case against any department neither he is a party in this case.**	**Chapter 2,Item 2.17 at Page 25**
41	The cost of the project (capital cost and recurring cost) as well as the cost towards implementation of EMP should clearly be spelt out.	**Head** / **Cost** Capital cost — Rs.12.0 Crores EMP — Rs. 36.00 Lakhs/ year ESR — Rs. 30.00 Lakhs/ year OH&S — Rs. 15.00 Lakhs/year Wildlife Conservation — Rs. 9.10 Lakhs	**Chapter-9 Item 9.0,9.1 at Page 137**
42	A Disaster Management Plan shall be prepared and included in the EIA/EMP report.	The Disaster Management Plan for sand mining and mine closure has been prepared and incorporated in **EIA/EMP report**.	**Chapter 7 at Page 106-111**
43	Benefits of the project if the project is implemented should be spelt out. The benefits of the project shall clearly indicate environmental, social, economic,	Physical, social and ecological benefits of the proposed sand mining project has been prepared and incorporated in the of EIA/EMP report.	**Chapter 8 at Page. 135**

	employment potential etc.		
General Points			
44.	Besides the above, the below mentioned general points are also		
a)	All documents to be properly referenced with index and continuous page numbering.		Compiled
b)	Where data are presented in the Report especially in Tables, the period in which the data were collected and the sources should be indicated.		Indicated
c)	Project Proponent shall enclose all the analysis/testing reports of water, air, soil, noise etc. using the MoEF&CC/NABL accredited laboratories. All original analysis/testing reports should be available during appraisal of the project.		Enclosed
d)	Where the documents provided are in language other than English, an English translation should be provided.		Provided
e)	The Questionnaire for environmental appraisal of mining projects as devised earlier by the Ministry shall be filled and submitted.		Enclosed
f)	While preparing the EIA report, the instructions for the proponents and instructions for the Consultants issued by MoEF vide O.M. No. J-11013/41/2006-IA.II(I) dated 4th August, 2009, which are available on the website of this Ministry, should be followed.		Followed
g)	Changes, if any made in the basic scope and project parameters (as submitted in Form-1 and the PFR for securing TOR) should be brought to the attention of MoEF&CC with reasons for such changes and the permission should be sought, as the TOR may also have to be altered. Post Public Hearing changes in structure and content of the Final EIA/EMP (other than modifications arising out of the P.H. process) will entail conducting the PH again with the revised documentation.		No Modifications done
h)	A per the circular No.-J-11011/618/2010-IA.II (I) dated 30.05.2012, certified report of the status of compliance of the conditions stipulated in the environment clearance for the existing operations of the project, should be obtained from the Regional Office of Ministry of Environment, Forest and Climate Change, as may be applicable.		Included
i)	The EIA report also include (i) surface plan of the area indicating contours of main topographic features, drainage and mining area, (ii) geological maps and sections and (iii) sections of the mine pit and external dumps, if any, clearly showing the land features of the adjoining area.		Included

CHAPTER-1
INTRODUCTION

1.0 PRELUDE

EIA is different from other decision-making tools like environment audit, which is conducted on existing projects, while the EIA is applied to new projects and the expansion of existing projects. EIA uses the techniques of science, economics, sociology, geology etc while assessing the project because it is dealing with events, which have not yet occurred, may not occur, but whose chances of occurrence may be strong in future. There are various other tools like energy analysis, cost-benefit analysis, environment management systems and risk analysis. EIA is by far the most suitable tool for any proposed project. It is also one of the most popular decision-making tools and has been integrated in the regulatory system of many countries. We have collected baseline data for one season *i.e.* winter season. (1st December, 2015- 29th February, 2016). for the preparation of EIA report on the basis of standard ToR issued by Honorable MoEF&CC vide letter no **J-11015/5/2016-IA.II (M)** dated **08.02.2016**. The lessee has submitted Draft EIA report dated 08.03.2016 to HSPCB Haryana for conducting public hearing. Accordingly, Haryana State Pollution Control Board (HSPCB) has conducted public hearing dated 24.05.2016 at 10.00 AM and the action plan has been prepared on the basis of issues raised during public hearing is incorporated in Chapter-7.

1.1 DETAILS OF MINING ACTIVITY, LOI AND CONSULTANT

In the e-auction held on **05.11.2015** and **06.11.2015** on the State Government web portal hhtps://haryanaeprocurement.gov.in, Sh. Kulvinder Singh Prop M/s P.S. Buildtech, 34-Vishal Nagar, Yamuna Nagar -135001 has offered highest bid of **Rs.9,34,50,000 /-** as against the reserve price of **9,34,00,000/-** per annum for obtaining the mining lease of sand minor minerals mines namely "**Jathlana Block/YNR B 12**" for extraction of sand over an area of **101.27 ha.** falling in Jathlana Block, Tehsil-Radaur, District Yamuna Nagar (Haryana).

Letter of Intent: The letter of intent (LoI) has been issued by the Director of Mines & Geology department, Haryana vide Memo no. **DMG/HY/cont/ Jathlana block /YNR B 12/2015 /10070** dated **30.11.2015** in favor of Sh. Kulvinder Singh Prop M/s P.S. Buildtech **Vishal Nagar, Yamuna Nagar -135001** for mining of sand in riverbed (Copy of LOI has been enclosed as **Annexure-I**).

Lease Period: 10 Years

Mine Plan and Progressive Mine Closure Plan: Sh. Kulvinder Singh Prop M/s P.S. Buildtech has submitted Mining Plan and Progressive Mine Closure Plan of the proposed mine lease area to the Director General of Mines and Geology Department, Chandigarh, Haryana vide Memo no. **DMG/HY/MP/Jathlana Block/YNR B-12 /2015/3110** dated **10/06/2016**. It is prepared by RQP Sh. S.N. Sharma (RQP No. RQP/DDN/0135/2001/A). (Copy of Approved letter of Mining Plan & Progressive Mine Closure Plan has attached as **Annexure-II**)

Environment Consultant: On dated 30.11.2015 the lessee has hired a consultant *i.e.* **M/s. Vardan Environet** D-142, Sec-57, Sushant Lok-III, Gurgaon, Haryana (QCI/NABET Accreditation No: NABET/EIA/1316/IA001) for preparation of Environment Impact Assessment Report for obtaining Environment Clearance from MoEF&CC.

Category "A", As per EIA Notification dated 14th September, 2006 and new amendment in EIA Notification dated 15.01.2016 this project falls under Category "A", 1(a), due to lease area more than 50 hectare. In this context, Form-I and Pre-Feasibility Report has been submitted to Ministry of Environment & Forests, New Delhi on date **05.12.2015** online requesting for issue of "Terms of Reference" (ToR). The request for baseline data collection has been submitted to MoEF&CC dated 7th Dec. 2015 (copy enclosed as **Annexure IIIa)** The ToR Presentation was held on **20.01.2016** before EAC of MoEF&CC New Delhi. Subsequently, the ToR was issued on date **08.02.2016** by Honorable MoEF&CC vide letter no **J-11015/5/2016-IA.II (M) (enclosed as Annexure-IIIb**) and EAC, MoEF&CC directed the study period for baseline data collection from December, 2015 onwards.

1.2 IDENTIFICATION OF PROJECT AND PROJECT PROPONENT

1.2.1 Project Proponent

Applicant:

Name and Address	Partners Name and Address	Age
Sh. Kulvinder Singh S/O Sh. Trilochan Prop. M/s P.S. Buildtech, 34-Vishal Nagar, Yamuna Nagar-135001, Haryana	Sh. Kulvinder Singh S/O Sh. Trilochan	39

Mob.: 08397800000		

Sh. Kulvinder Singh S/O Sh. Trilochan, aged 39 years having wide experience in various domains such as trading, construction, mining etc. he is dynamic and proactive in his business. His team is working towards excellence and quality in the services

1.2.2 Identification of Project

Name of Project: Sand (minor mineral) Mine-"Jathlana Block/YNR B 12" Mine Lease Area –101.27 Ha. Contains one mining block comprising the inside river bed Jathlana Block/YNR B 12.

Location of the Project: Block- Jathlana, Tehsil-Radaur, District Yamuna Nagar (Haryana).

1.3 BRIEF DESCRIPTION OF NATURE, SIZE, LOCATION OF THE PROJECT

Table1.1 Brief Description of the Project

S. No.	Particulars	Details	
A.	Nature and Size of the Project	Mining of Sand (Minor Mineral) Jathlana Block/YNR B-12 by Sh. Kulvinder Singh Prop M/s P.S. Buildtech, (ML Area -101.27 Ha) for production 45,00,000 TPA. (Interstate boundary of Haryana and U.P. at 1.0 Km)	
B.	Location		
Name of Unit	Name of Block	Khasra Number	Area of Block in ha.
Jathlana Block/ YNR B 12	Jathlana	**Village- Jathlana** **103//11,** 19, 20, 21, 22 **104//7min,** 8min,9min, 10min. 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21/1, 21/2, 22, 23 **105//6,** 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25/1, 25/2 **106//13,** 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 11, 12, **123//1 to 15,** 16, 17, 18, 19, 20, 21, 22, 23 **124//1,** 2, 3, 4/1, 4/2, 4/3, 5/1, 5/2, 5/3, 6/1, 6/2, 7, 8, 9/1/1, 9/1/2, 9/2, 9/3, 10, 11, 12/1, 12/2, 12/3, 13, 14,15,19,20, 21 **125//1,** 2, 3, 9/1, 9/2, 10,11,20 **107//14min,** 15min, 16,17, 18, 19min, 20min, 21, 22,23,24, 25 **108//25min** **121//5min,** 6, 7min, 14min, 13min, 15, 16 ,17, 18min, 23min, 24, 25 **122//1 to 23,** 24, 25 **126//1,** 2, 3, 4, 8, 9, 10, 11, 12, 21, 20 **127//3 to 8,**2min,9min,12min, 19min, 13, 14, 15, 16, 17, 18, 19, 25 **137//16,** 17, 18, 23, 24 ,25 **138//2,** 3 to 8, 9, 12, 13, 14, 15, 16 **139//1,** 2min, 8min, 9, 10, 11, 12, 20 **136//21min** **Village– Dhakwala** Khasra numbers- 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 14, 15, 16, 17, 18, 19/1,19/2, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43 min, 44, 45, 46, 47, 48 min, 49 min, 50, 51, 52, 53, 54 min, 55 min, 56 min, 221, 222 min, 223 min, 224 min, 225 min, 226, 227, 228, 229, 230, 231, 232, 233/1,233/2, 234, 235, 236, 237, 238, 239, 240, 241, 242, 243, 244, 245, 246, 247, 249 min, 251 min, 252, 253 min, 254 min, 340 min, 341, 342min, 343 min, 344, 345, 346, 347, 348, 349, 350, 351 min, 352min	101.27

Total			**101.27**
	District	Yamuna Nagar	
	State	Haryana	
Coordinates	**Jathlana Block YNR B-12**		

Pillar no	Latitudes	Longitudes
A	N 30° 00' 30"	E77° 14' 46"
B	N 30° 00' 34"	E77° 14' 58"
C	N 30° 00' 34"	E77° 15' 11"
D	N 30° 00' 36"	E77° 15' 11"
E	N 30° 00' 36"	E77° 15' 23.5"
F	N 30° 00' 35.5"	E77° 15' 23.5"
G	N 30° 00' 35.5"	E77° 15' 33"
H	N 30° 00' 24"	E77° 15' 56"
I	N 30° 00' 20"	E77° 16' 00"
J	N 30° 00' 12"	E77° 15' 54"
K	N 30° 00' 19"	E77° 15' 13.5"
L	N 30° 00' 19"	E77° 15' 02"
M	N 30° 00' 20"	E77° 14' 59"
N	N 29° 59' 48"	E77° 14' 39"
O	N 29° 59' 51"	E77° 14' 37"
P	N 30° 00' 00"	E77° 14' 37.5"
Q	N 30° 00' 11"	E77° 14' 43.5"
R	N 30° 00' 15"	E77° 14' 42"

C.	**Lease Area Details**	
	Lease Area	101.27 Ha
	Type of Land	Gair Mumkin Nadi, Nallah.
	Topography	Undulating (Inside Riverbed)
	Site Elevation Range	Ranges from 261 m amsl to 266 m amsl
D.	**Cost Details**	
	Cost of the project	Rs. 12.00 Crores
	Cost for EMP	Rs. 36 Lakhs per annum
	Cost of ESR	Rs. 30 Lakhs per annum
	Cost of OH&S	Rs. 15 Lakhs per annum
	Cost of Conservation	Rs. 9.10 Lakhs
	Mines and Minerals Development, Restoration and Rehabilitation Fund	10% of annual contract money *i.e.* 93,45,000 per annum as per LoI clause (xiv).
E.	**Details of Environmental Setting**	
	Ecological Sensitive Areas (National Park, Wild Life Sanctuary, Biosphere Reserve, Reserve/ Protected Forest etc.) within 10 Km radius.	There is no National Park, Wild Life Sanctuary Biosphere Reserve within 10 km of project site. Only, Reserve and Protected Forest present within the 10 Km of the project area which are as follows: -Kalanaur Reserve Forest 8.8 Km NE.
	Archaeological Important Place	None within 10 Km radius of the project
	Nearest city	Radaur-9.1 Km NE
	Nearest Railway Station	Kalanaur Railway Station-11 Km NE
	Nearest National Highway	SH 6 (0.7 Km in W)
	Nearest Airport	Chandigarh Airport- 89.5 Km in N
	Seismic Zone	Zone IV

Source: Site visit /Baseline Data and Pre-feasibility Report.

All corner-coordinates of ML area are superimposed on Toposheet (OSM) of survey of India and same has been furnished here in the **Figure 1.2**.

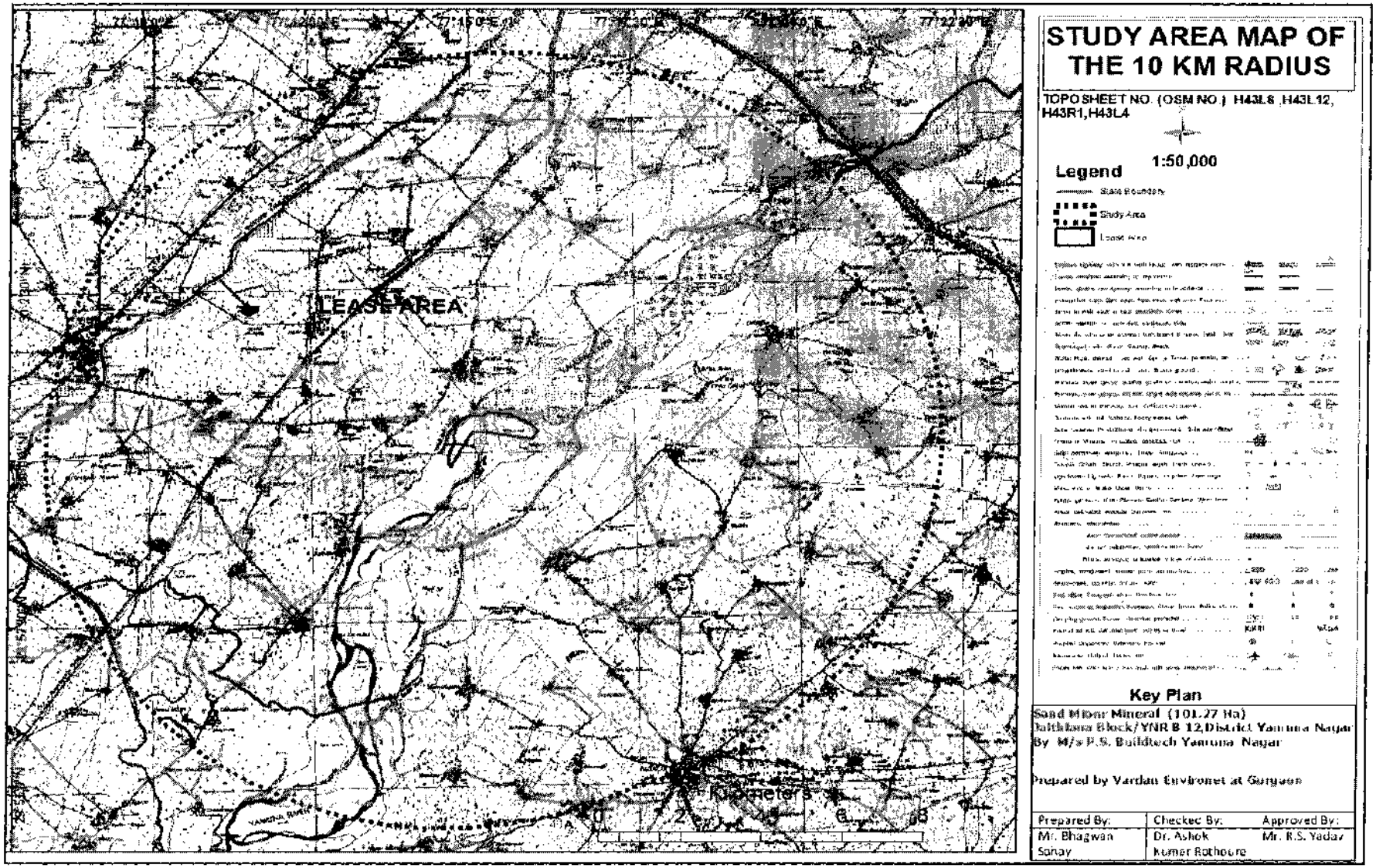


Figure 1.1: Key Plan on Toposheet survey of India of scale of 1:50000

1.3.1 Location and Accessibility

The mining contract area **101.27** ha and is inside riverbed falling in **Jathlana Block/YNR B-12**, Yamuna Nagar, Haryana. The inside riverbed block is under government Land. The contract area lies on **9.1 Km Northeast** direction towards Radaur city. The site is approachable from **10.5 Km NH-73** in North-East direction. From the contract area, an unmetalled road joins a metalled road which further joins the SH-6, 0.7 Km West.

1.3.2 Basic Amenities

- **Police Station:** The nearest police station is Jathlana Police station - which is about 2.8 Km, SW from mining site.
- **Post Office:** The nearest post office is Jathlana Post Office at a distance of 1.2 Km, N from the mining site.
- **Medical Facilities:** The nearest hospital is Lal Baburam Hospital, Nahapur which is situated 5.8 Km, NE from mining site.
- **Availability of water:** Water for drinking purpose is brought from nearby village. The water of hand pump and well located nearby area has potable and drinkable quality, the villagers and habitants and labors have been using this water since long period. Water required for dust suppression will also supplied from the well by Water tanker brought on hire basis.
- **Electricity:** Electrical supply is available in all nearby villages.
- **Educational Facilities:** The nearest school *i.e.* Jathlana at a distance of 1.2 Km, N direction from the mining site.
- **Mode of transportation of Mineral:** From the contract area, an unmetalled road joins a metalled road which further joins the SH-6 (0.7 Km, W) and NH -73 (10.5 Km, NE). Sand will be transported by trucks. Loaded trucks will travel on Kuccha road made for plying of trucks. As the mining area is spread over an area of 101.27 ha. working will be carried out in River bed. Each block has its outlet meeting the tar road on the nearby villages and from where the mineral is sent to various destinations. Similarly, mineral will be transported on the other side through approach roads which finally merge with tar roads for final destinations.
- **River/ Canal:** Yamuna River.

1.4 SCOPE OF STUDY

The scope of the study includes a detailed characterization of the environment in an area of 10 Km. radius of the Mine Lease Area for various environmental parameters like Air, Water, Soil and Noise, Ecological and Socio-economic aspects.

1.4.1 Preparation of EIA

The EIA includes the following details:

1) Study of the reports like Geological report, Pre-Feasibility report (PFR) or mining plan made available by the client.
2) Present Environmental Setting
3) Identification, prediction and evaluation of Anticipated Environmental Impact due to the proposed mine and related facilities.

The environmental impacts would be anticipated in core and buffer zone on:

- Topography and drainage,
- Climate,
- Water quality (Surface/Ground),
- Hydro-geological Regime,
- Air quality,
- Noise Levels,
- Soil Quality,
- Flora and Fauna,
- Traffic density survey,
- Land-Use,
- Socio-Economic Conditions,
- Habitat,
- Health, culture, human environment including public health, occupational health and safety

- Sensitive Places/Historical Monuments.

This EIA Report is prepared in accordance with has been divided into twelve chapters (in addition to Executive Summary) as briefed hereunder:

Chapter 1 – Introduction
The chapter provides description of project background, site and surroundings, objectives, scope and organization of the study and format of this report.
Chapter 2 – Project Description
This chapter provides information on project and capacity; need for the project; location; size or magnitude of operation; technology and process description; maps showing project layout, component of projects etc.
Chapter 3 – Analysis of Alternatives (Technology and Site)
In this chapter, the potential impacts of the proposed mining and allied activities, which could cause significant environmental concerns, are identified and discussed. This discussion will form the basis for environmental management activities.
Chapter 4 – Description of the Environment
This chapter deals with the methodology and findings of field studies undertaken with respect to ambient air, meteorology, water, soils, noise levels, ecology to define the various existing environmental status in the area of the project. This also deals with the infrastructural development as a part of project and sources of pollution from the proposed mining project.
Chapter 5 – Anticipated Environmental Impacts and Mitigation Measures
This chapter will include a comparison of alternatives in this chapter to determine the best method of achieving the project objectives with minimum environmental impacts or indicates the most environmentally friendly and cost effective options, if any.

Chapter 6 – Environmental Monitoring Program
This chapter will include ascertaining the environmental impacts; state of pollution within the mine lease and in its vicinity; planning for predictive or corrective actions in respect of pollution to keep it within permissible limits.
Chapter 7 – Additional Studies
This chapter will include outcomes of public consultation, risk assessment, social impact assessment, R&R action plan, biodiversity conservation plan, watershed management etc.
Chapter 8 – Project Benefits
This chapter deals with improvements in the physical infrastructure, social infrastructure, employment potential and other tangible benefits due to proposed project activity.
Chapter 9 – Environmental Cost Benefit Analysis
This chapter includes environmental value enhancement (biodiversity, crop productivity, eco tourism etc.)
Chapter 10 – Environmental Management Plan
This chapter will include the description of administrative aspects of ensuring that the mitigation measures suggested are implemented and their effectiveness is monitored, after approval of the EIA.
Chapter 11 – Summary
This will constitute the summary of EIA Report.
Chapter 12 – Disclosure of Consultant
This will includes the names of the consultants engaged in preparation of EIA and nature of consultancy rendered.

1.5 LAWS APPLICABLE TO THIS PROJECT

The Acts, Notifications, Rules and Amendments applicable for setting up a new mining industry or its expansion of an existing mine and for operation of a mine include the following:

The Environment (Protection) Act and Rules, 1986;

- The Environmental Impact Assessment (EIA) Notification, 1994 and amendments- for Environmental Clearance – including the Environmental Public Hearing a mandatory for the 30 categories of industries; • Forest (Conservation) Act, 1980;
- The Air (Prevention and Control of Pollution) Act, Rules and Amendment, 1981, 1982, 1983, 1987;

- The Factories Act and Amendment, 1948, 1987;
- The Water (Prevention and Control of Pollution) Act and Rules, 1974, 1975;
- The Water (Prevention and Control of Pollution) Cess Act and Rules, 1977, 1978, 1991;
- The Public Liability Insurance Act, 1991;
- The Environmental Standards Notification, 1993, 1996;
- The Environmental Audit Notification, 1992;
- Hazardous Waste Management and Handling Rules, 1989 and amendment rules 2000;
- The Manufacture, Storage and Import of the Hazardous Chemical Rules, 1989 and amendment rules 2000; and
- The National Environment Tribunal Act, 1995.

Note:

1. Some environment, health and safety related aspects are also covered under the Indian Factories Act, 1948.
2. MoEF has stipulated general discharge standards for water effluents and general emission standards for air emissions. These standards limit the concentration and volumes of the effluents and emissions released to the atmosphere. These standards could be made more stringent by the SPCBs based on the environmental sensitivity of a specific location.
3. The project proponents are required to take Consents (for both air and water) and No Objection Certificates (NOCs) from the relevant SPCBs before initiating any activity.

In addition to the above, CPCB has also specified National Ambient Air Quality Standards (NAAQS) for residential, commercial, industrial and sensitive zones for the country as a whole.

CHAPTER-2
PROJECT DESCRIPTION

2.0 GENERAL

This chapter gives broad description of the project, location, type of ore deposit (s), quality of reserve, Mining Methodology, various site utilities and infrastructure, etc. The downstream use of mineral for value addition and its importance is also described.

2.1 TYPE OF THE PROJECT

The project is proposed for the excavation of sand from inside riverbed field. It is an opencast semi-mechanized mining project to excavate Sand in its existing form.

2.2 NEED FOR THE PROJECT

River channels and their flood plains are important sources of construction grade aggregate materials like sand. The durability of river-borne coarser clastics and their sorting by fluvial action make them best suitable raw materials/ingredients for building constructions. The market demand of river sand is high throughout the country for construction of infrastructure projects. The project lies inside river bed of Yamuna and also on the palaeochannels (derived from "palaeo" or "old", and channel) of the river. The sediment in the form of river bed material *i.e.* sand has deposited in the last many years as a process of sedimentation in the palaeochannels. Sand bars have been formed at various places hindering the flow of water and excess deposition had changed the shape of the river bed. Because of this, during monsoon season, the water may rise above the high flood level causing heavy and devastating floods. Such disasters may damage large tracts of land lying on both the banks of the river especially the agricultural lands.

Apart from this the project will also serve the following:

- Generate various employment opportunities especially to the local people hosting the mining project
- Economic development of the state by contributing to state exchequer.

2.3 DESCRIPTION OF MINE LEASE AREA

The proposed activity of sand mining at Jathlana Block/YNR B-12 in the area of 101.27 ha. inside riverbed in Tehsil Radaur , District Yamuna Nagar, Haryana. The lease area falls in Survey of India Toposheet (OSM) No. **H43L8, H43L12, H43R1, H43L4.** The lease coordinates are listed in **Chapter 1 item#5**

2.3.1 Location of Lease Hold Area

The lease hold area of 101.27 ha. lies inside the Riverbed of Yamuna. The general location and project site layout are given below:

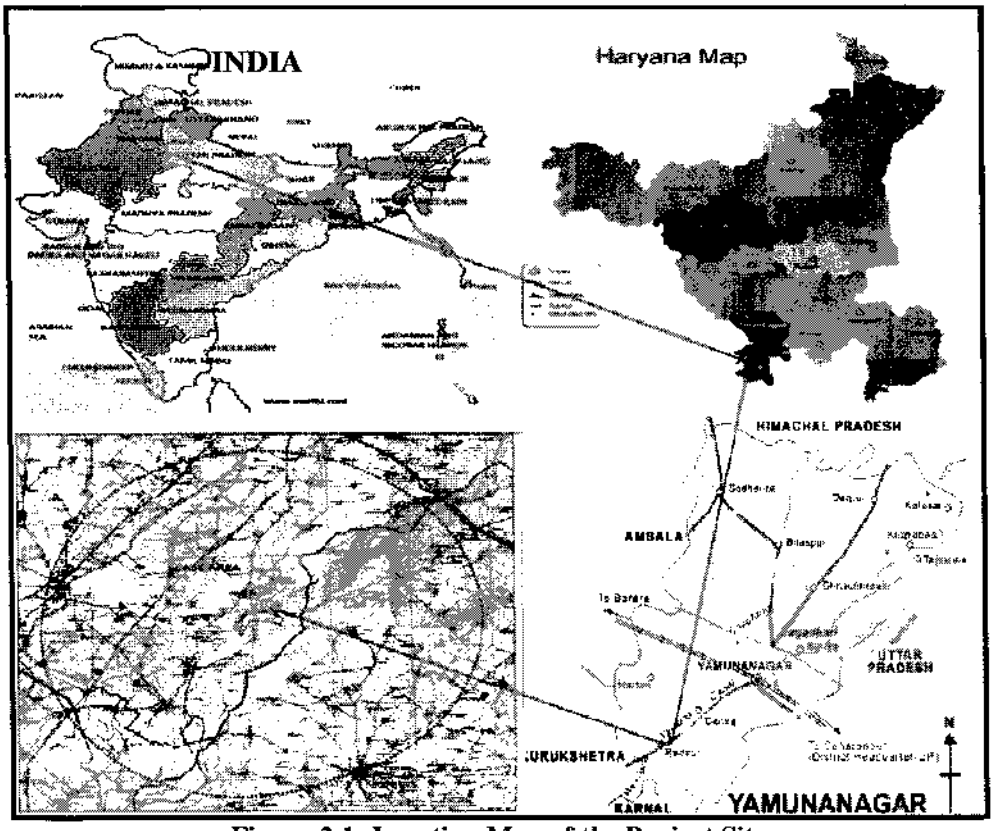


Figure 2.1: Location Map of the Project Site

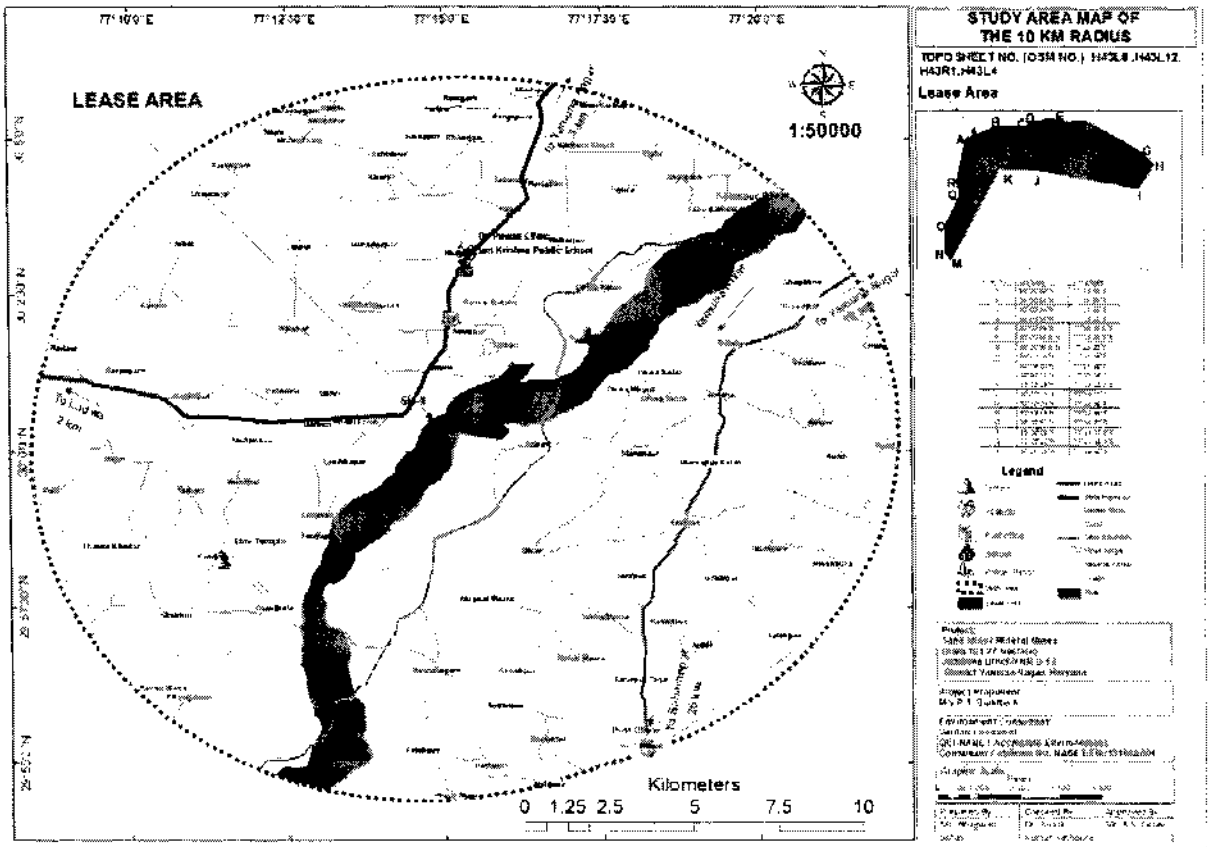


Figure 2.2: Digitized Key Plan of the Project Site

2.3.2 Site History

Jathlana is a Sand Mining at Yamunanagar

Jathlana is a Village in Radaur Tehsil in Yamunanagar District of Haryana State, India. It belongs to Ambala Division . It is located 15 KM towards South from District head quarters Yamuna Nagar 10 KM from Radaur. Yamuna Nagar has the river Yamuna running through the district, and forming the eastern boundary with the neighbouring Saharanpur district. This boundary is also a state boundary, as Saharanpur is in the state of Uttar Pradesh. The district also separates the Yamuna system from the Satluj river system. Towards its northern edge is a sub-mountainous region, which has more forest cover and lots of streams; it is the area where the river Yamuna flows out of the hills and into the plains. The northern boundary is also an interstate boundary with the state of Himachal Pradesh to the north. Sirmour in Himachal is the district to its north with the towns of Nahan and Paonta Sahib close to the boundary with Yamuna nagar. The mine lease area exhibits plain to undulated topography. The maximum elevation of the plain is 297 m RL. Large part of the district lies under the Shiwalik foothills. Sugarcane, wheat and rice are its main crops.

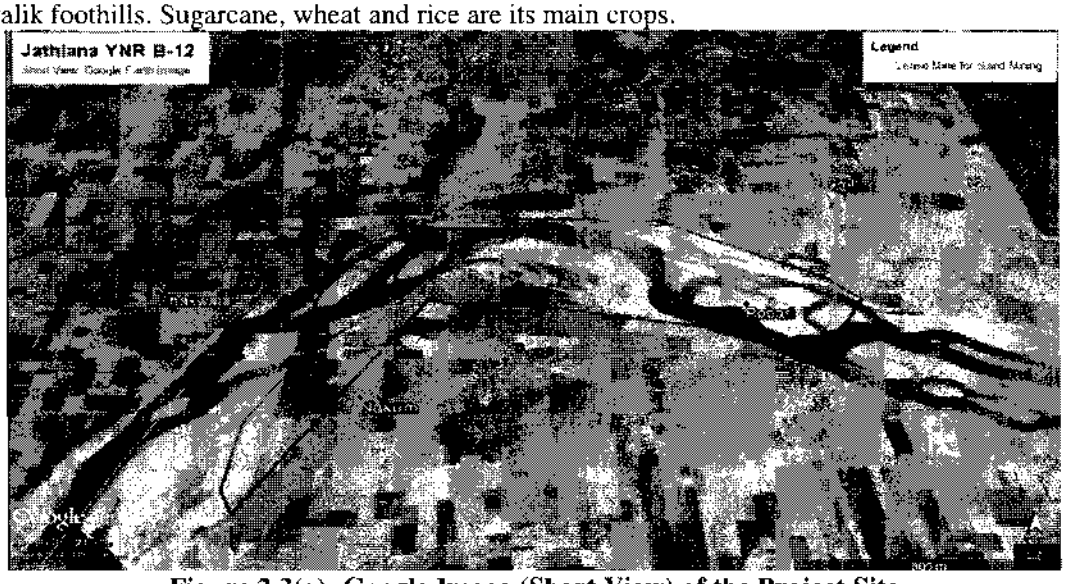


Figure 2.3(a): Google Image (Short View) of the Project Site

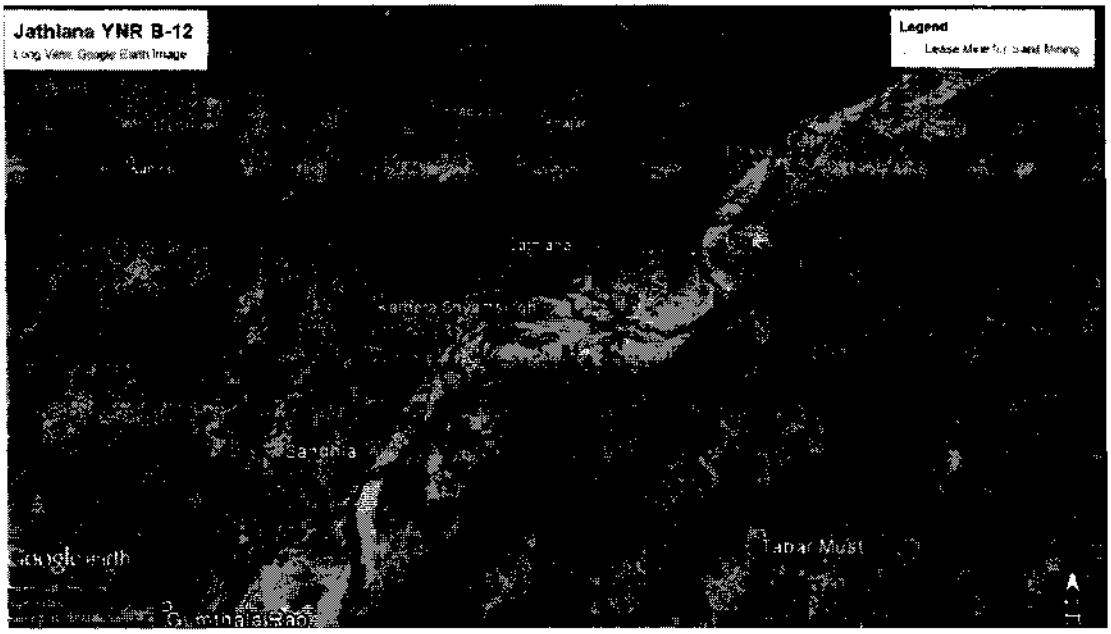


Figure 2.3(b): Google Image (Long View) of the Project Site

2.3.3 Two mining project are present in 10 Km radius

Name of Proposed Mining	Direction	Distance
Mining of Sand at Yamuna River, Pobari Block/YNR B11 (ML Area- 23.05 Ha.)	SE	1.0 Km
Mining of Sand at Yamuna River, Gumthala North Block/YNR B16 (ML Area- 44.62 Ha.)	SW	5.0 km

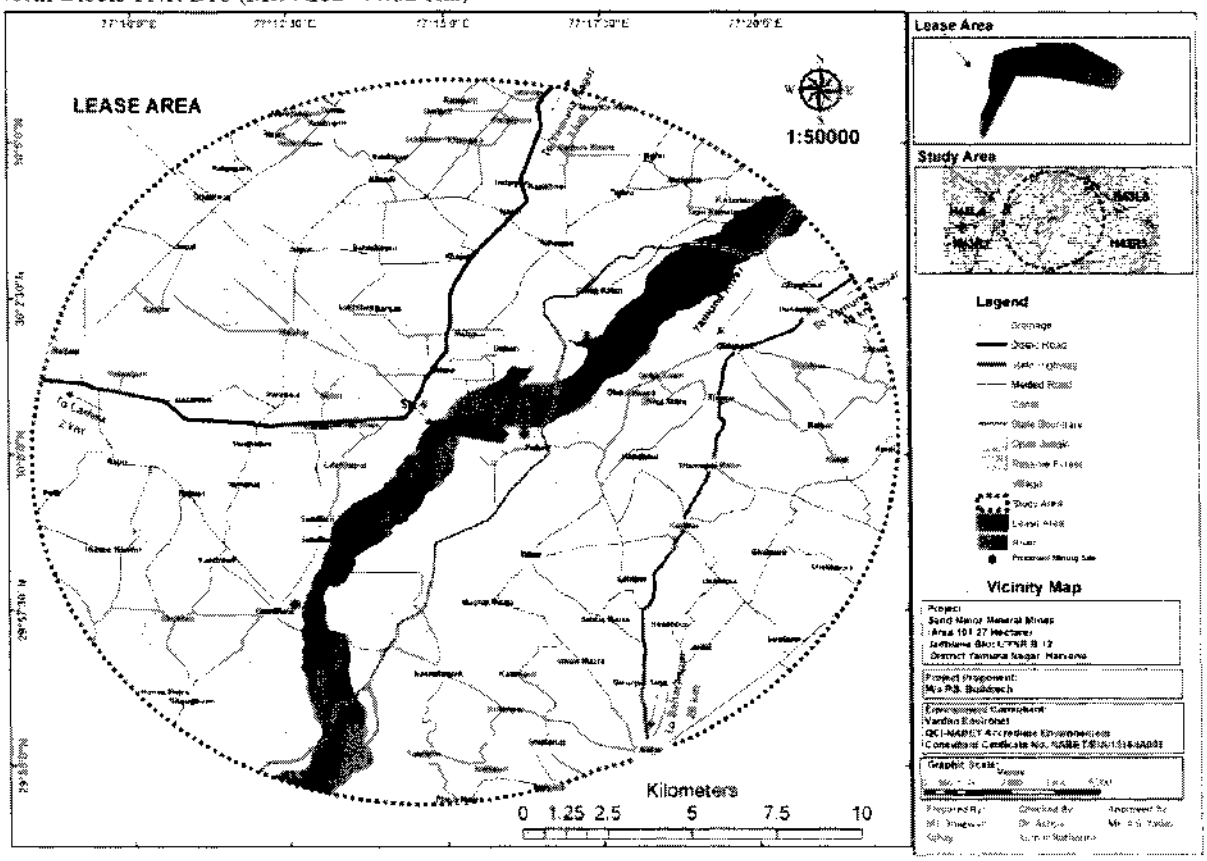


Figure 2.4: Map of the Proposed Mining Project are present in 10 Km Radius

2.4 MINING AREA

The proponent has been granted an area of **101.27 ha** in Government Land (inside riverbed) on contract as per LoI. The mining department has taken prior clarification from the Forest department before putting it into the auction. Hence this area is free from the forest. However the Letter from DFO, Yamuna Nagar vides letter no.3816 dated 24-12-2015 is attached as **Annexure IV.** This clearly shows that the area is free from forest.

Table 2.1 Details of Mining

S. No.	Particulars	Details	
1.	**Method of Mining**	River Bed	open cast semi-mechanized
2.	**Geological Reserves**	River Bed	60,76,200 Metric Tons
3.	**Mineable Reserves**	River Bed	45,40,200 Metric Tons
4.	**Proposed Production**	45,00,000 TPA	
5.	**Elevation Range of Mine Site**	From 261 to 266 m amsl	
6.	**Bench Height**	3 m in	
7.	**Bench Width (Average)**	Width of the bench around 20 m	
8.	**Bench Slope**	45^0	

2.4.1 Topography of the Area

The topography of the district is flat terrain and the mine site elevation ranges from 261 to 266m amsl. The general slope is from northeast towards south.

2.4.2 Geology

2.4.2.1 Regional Geology

The north-eastern and central part of Haryana is predominantly characterized by sedimentary litho logy in the Sub-Himalayan zone comprising Subathus, Agshais. Kasaulis and Siwaliks. A general Regional stratigraphic sequence in the area is given in table.

Table 2.2: Regional Stratigraphic sequence

Age	Super Group	Group	Formation	Lithology
Holocene			Newer alluvium and Newer Aeolian Deposits	Gravel, Sand, silt, clay, limestone, gypsum
Lower to upper Pleistocene			older alluvium and Older Aeolian Deposits	Gravel, grey sand, silt, clay, brown sand, calcrete
Lower to Middle Pleistocene	S I W A L I K	Upper Siwalik	BoulderConglomerates formation	Conglomerate, sandstone, silt, clay
Upper Pliocene			Pinjore Formation	Coarse grit, red sand stone and clay, conglomerate
			Tatrot Formation	Friable Sandstone and variegated clay
		Middle Siwalik	Dhokpathan Formation	Brown sandstone and orange clay
Middle Miocene			Nagri Formation	Hard grey sand stone, mudstone and minor shale
		Lower Siwalik	Nahan Formation	Coarse grity ,clay and red sandstone often calcareous, brownish shale with lignite lenticles, greenish white Quartzite
Lower Miocene		Sirmur	Kausauli Formation	Grey and green stone, green shale and grey clay
			Dagsai Formation	Purple and green sand stone, deep red gritty, clay, white and stone with ferruginous concretions

Upper Eocene			Subathu formation	Sandstone with grity clay. Impure fossiliferous limestone calcareous slate, greenish shale and dark brown quartzite
Pre-proterozoic			Tunda Pathar	Thickly bedded, stromatolite limestone with carboniferous shale and quartzite

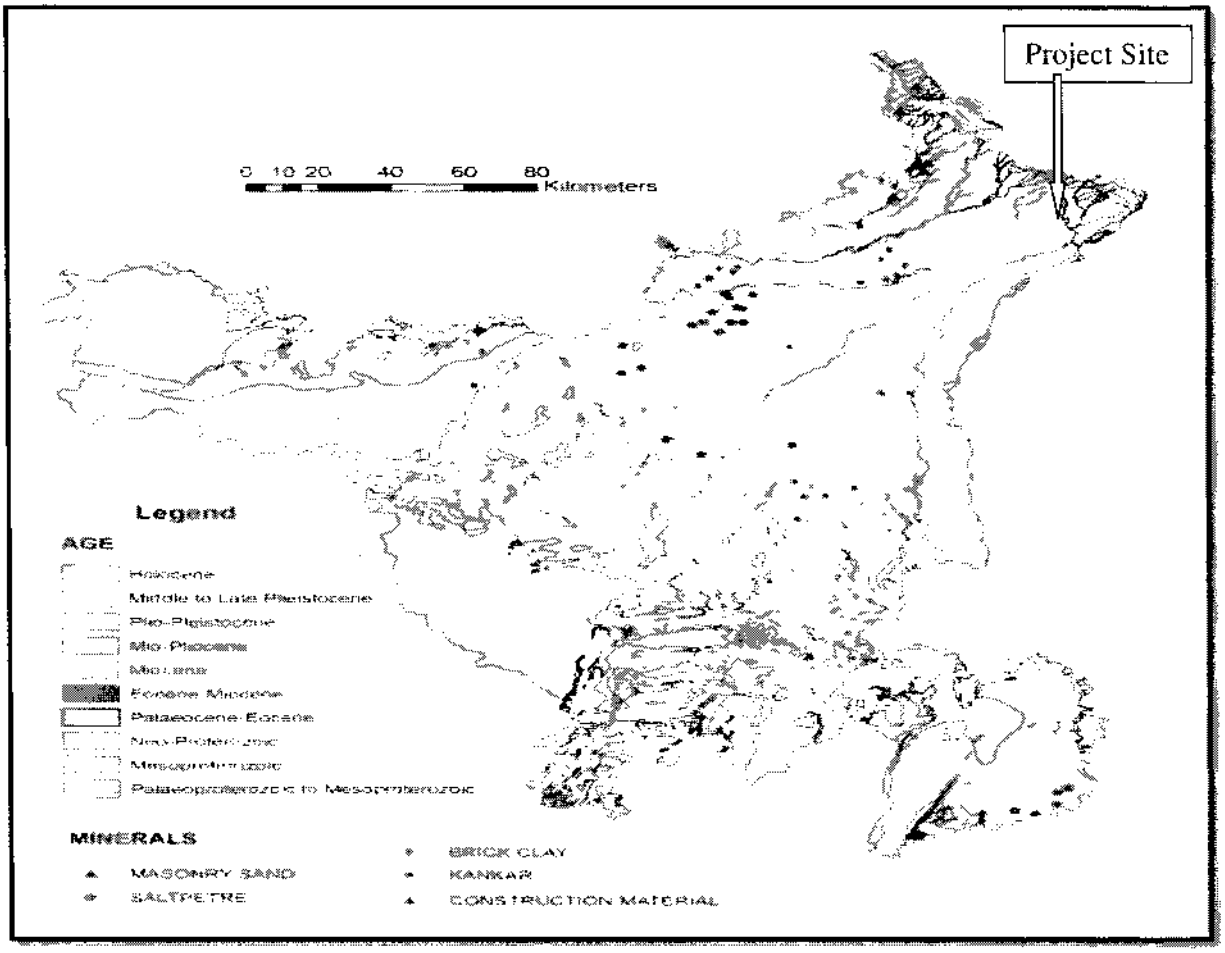


Figure 2.5: Geomorphology of Haryana (Source: GSI)

2.4.2.2 Local Geology

The litho units encountered in the proposed area and surrounding areas belongs to the Shivalik super groups. The sediments are river borne and has deposited in the riverbed and the flood plains. The different formations of the area belong to Shivalik Super group and are a mixture of boulders, pebbles, sand, silt and clay. The following sequences have been observed in the area.

- Soil/Alluvium,
- Sand,
- Gravel,
- Boulder.

There is no clear demarcation between the litho units. They have been deposit in a mixed form. The Litho-units exposed around the riverbed belong to Shivalik Super- Group. The mineral Boulders, Gravel and sand have formed by weathering of rocks and then deposition on the flood plains of the rivers originated from the Shivaliks. These have been washed by rainwater during rainy season and deposited in flood plains and river beds in the form of boulders, gravels and sand of different sizes and shapes. These minerals are sorted by screening. The max depth of the minerals is not known.

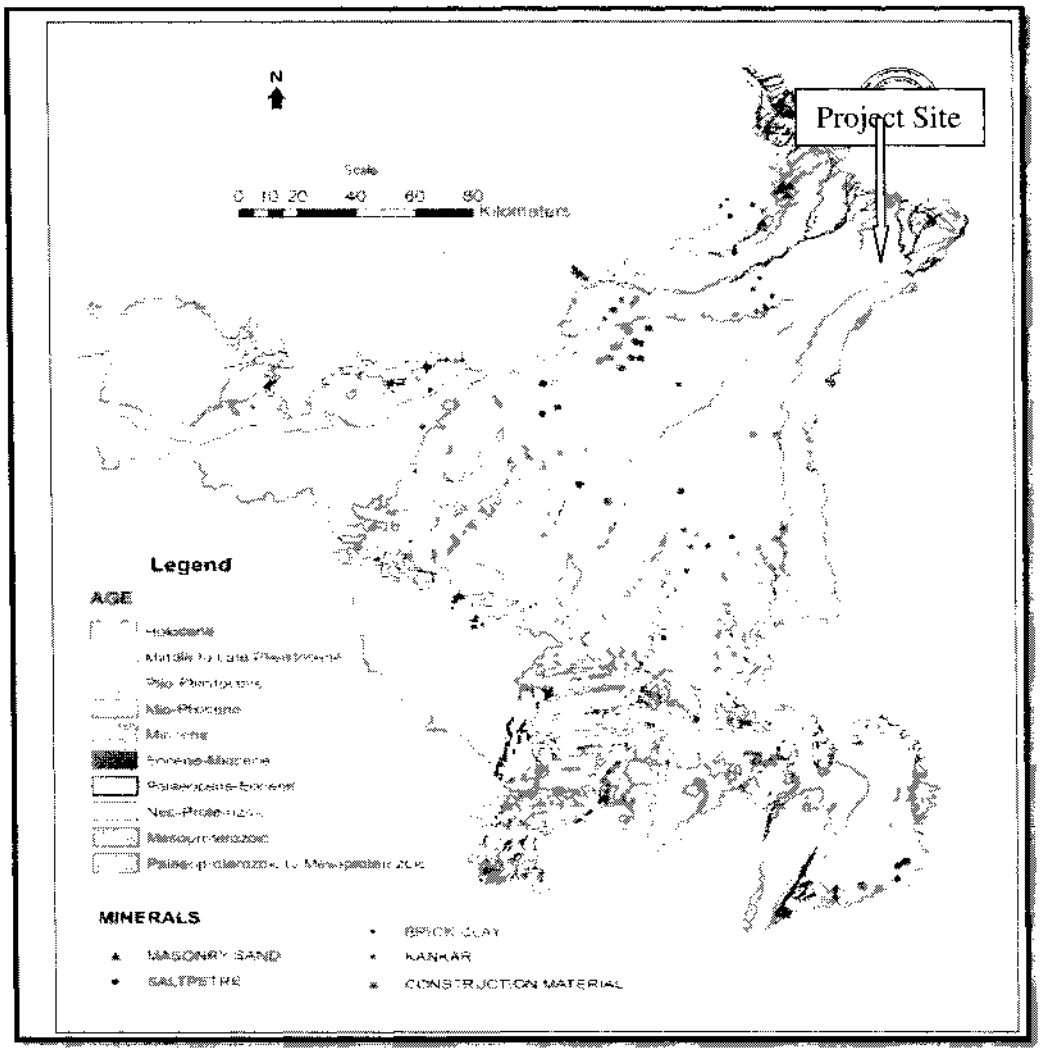


Figure 2.6: Geological and Mineral Map of Haryana *(Source: GSI)*

Soil/ alluvium varying in thickness from 0.5-1.50m constitute the top horizons in the area suitable for agriculture. Boulder, gravel and sand is deposited up to great depths. This bed is presently dry and water flows only during the rainy season. The litho-units exposed within the river and surrounding areas have formed as water borne sediments brought by flood water during rainy season every year and deposited in riverbed and flood plains.

2.4.3 Sediment Composition

Sedimentation, in the geological sciences, is a process of deposition of a solid material from a state of suspension or solution in a fluid (usually air or water). Broadly defined it also includes deposits from glacial ice and those materials collected under the impetus of gravity alone, as in talus deposits, or accumulations of rock debris at the base of cliffs. The term is commonly used as a synonym for sedimentary petrology and sediment logy. Sedimentation is generally considered by geologists in terms of the textures, structures, and fossil content of the deposits lay down in different geographic and geomorphic environments.

2.4.4 Physiography

The district is divided into five Physiographic units

- Siwaliks,
- Dissected Rolling Plains,
- Interfluvial Plains,
- Active and Recent Flood Plains,
- Relict Plains.

a) **Siwaliks hills:** Siwalik hill ranges occupy the northern fringe of Yamuna Nagar district and attain the height up to 950m amsl. The hills are about 500m high with respect to the adjacent alluvial plains. These are characterized by the broad tableland topography that has been carved into quite sharp slopes by numerous ephemeral streams come down to the outer slopes of the Siwaliks and spread much of gravels boulders, pebbles in the beds of these streams.

b) **Dissected Rolling Plains (Kandi Belt)**: A dissected rolling plain in the northern parts of district is a transitional tract between Siwaliks hills and alluvial plains. It is about 25 Km wide and elevation varies between 250 and 375m AMSL.

c) **Interfluvial plains:** This tract is part of higher ground between Ghaggar and Chautang and includes high mounds and valleys. In general, the slope is from northeast to southwest.

d) **Active and recent flood plains:** This plain is narrow tract along river Yamuna in the district.

e) **Relict wedge plain:** This is almost in alignment to the surface water divide between the westward flowing Ghaggar and eastward flowing Yamuna River.

2.4.5 Drainage

The drainage pattern study area of Yamuna River is directed from North to South and its originates from the Yamunotri glacier near Bandar Punch in the Mussourie range of the lower Himalayas in the district Uttarkashi (Uttrakhand) and confluence with river Ganga at Allahabad (Uttar Pradesh). Yamuna Nagar district is bestowed with rich water resources, both surface as well as ground water resources. The ground water is major sources of irrigation in the district. Nearly 40% of area is irrigated by canal water. Distributaries in the district are 21.45 Km long. Two major canals passing through the district are Western Yamuna Canal and augmentation canal. Length of unlined WJC is 63.64 Km whereas augmentation canal is 22.54 Km long. Net irrigated area is 1130 Km^2 whereas, gross irrigated area 1860 Km^2. Total catchment area of Yamuna River in Haryana is 21265 Sq.Km. and % contribution is 6.5 %. Drainage patter of study area is shown in **Figure-2.7.**

Table 2.3: Catchment of River Yamuna

Name of state	Total catchment area in Yamuna (Sq.Km.)	%age contribution
U.P. (including Uttrakhand)	74208	21.5
Himachal Pradesh	5799	1.6
Haryana	21265	6.5
Rajasthan	102883	29.8
Madhya Pradesh	14028	40.6
Delhi	1485	0.4

Source: CPCB, 2006

Table 2.4: Details of Mining Site Elevation

Lowest Elevation (m amsl)	Highest Elevation (m amsl)	Working Depth (in meters)	Ground Water Table
261	266	Inside Riverbed Land: 3 m bgl	Inside Riverbed Land: 05-10 m bgl

(Source: Google Earth, 2016)

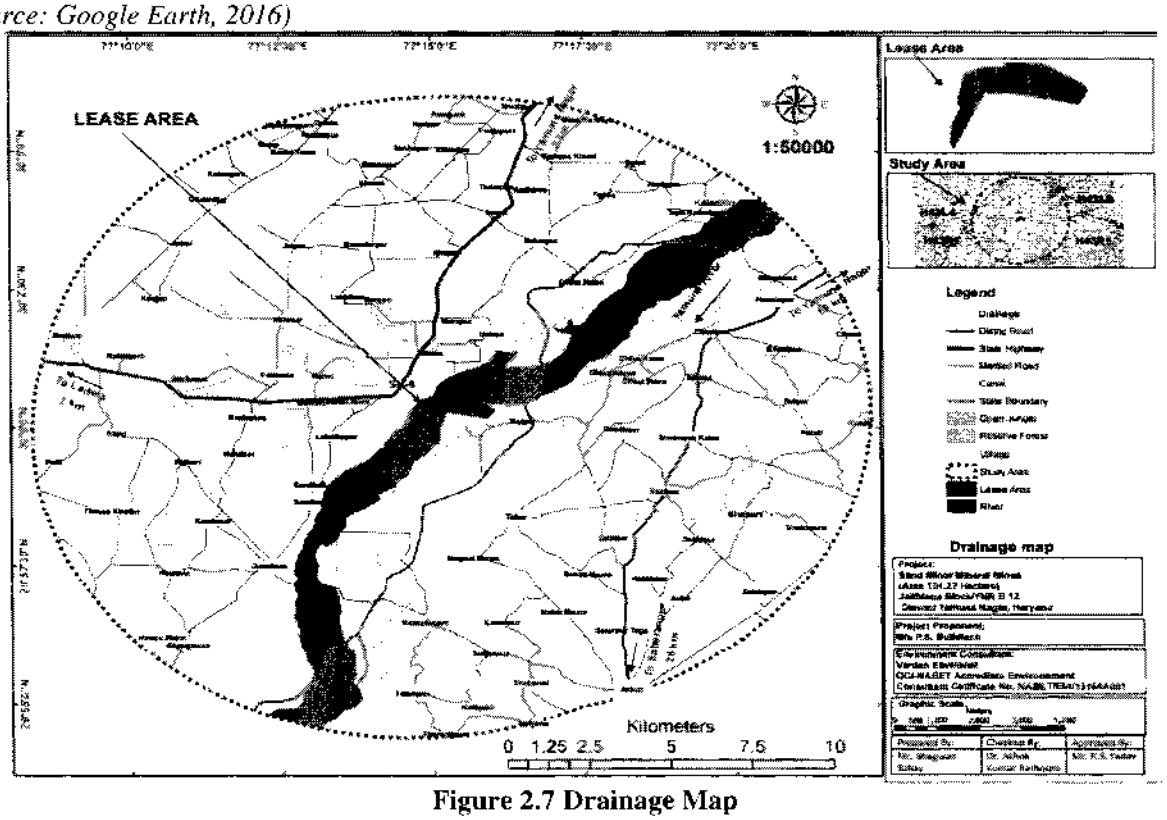


Figure 2.7 Drainage Map

2.4.6 Hydrology

The ground water exploration in the district reveals that clay group of formations dominates over the sand group in the district area. Ground water in the district occurs in the alluvium under water table and semi-confined to confined conditions. These aquifers consist of sand, silt, gravels and kankar associated with clay and form highly potential aquifers. In alluvium, the permeable granular zones comprise fine to medium grained sand and occasionally coarse sand and gravel. Their lateral and as well as vertical extent is extensive. In Kandi belt, which has not been explored fully boulders cobbles and pebbles, constitutes the major aquifer horizon. Siwalik Hills occupy marginal areas in the northeastern parts of the district constitute a low potential zone. In Kandi areas, the shallow aquifers are isolated lenses embedded in clay beds whereas aquifers in alluvial areas occur on regional scale and have pinching and swelling disposition and are quite extensive in nature. These aquifers generally consists sands (fine to coarse grained) and gravels and are often intercepted by clay and kankar. These aquifers are under unconfined. Under ground water exploration programme nine exploratory wells were drilled in the district. On average 3-12 of granular zones were deciphered in the depth range down to 450 m bgl. Exploratory wells drilled in depth range of 130 and 180 m bgl yield discharge in the range of 2700 to 4900 l pm for drawdown of 6.0 m to 12.0 m and Transmissivity of aquifers range between 1500 to 4900 m^2/day. The yield potentials of aquifer below 200.0m bgl are yet to be evaluated.

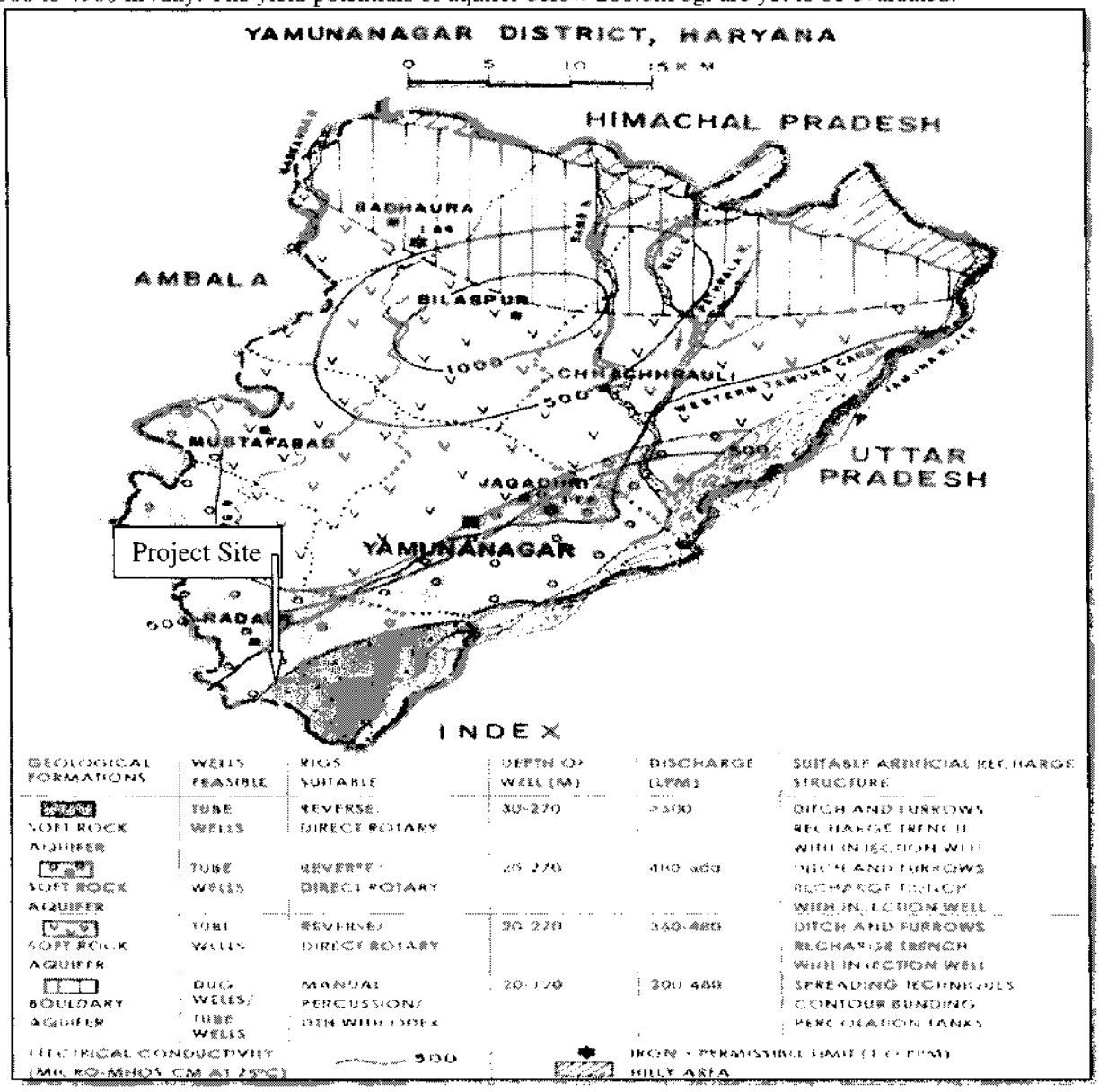


Figure 2.8: Hydrological Map of Haryana (Source: Mine Plan)

2.4.7 Climate

The climate of Yamuna Nagar district can be classified as subtropical monsoon, mild and dry winter, hot summer and sub-humid which is mainly dry with hot summer and cold winter except during monsoon season

when moist air of oceanic origin penetrates into the district. There are four seasons in a year. The hot weather season starts from mid March to last week of the June followed by the southwest monsoon which lasts up to September. The transition period from September to November forms the post monsoon season. The winter season starts late in November and remains up to first week of March.
*(**Source**: http://cgwb.gov.in/District_Profile/Haryana/Yamuna%20Nagar.pdf)*

2.4.8 Rainfall

The normal annual rainfall of the district is 1107 mm, which is unevenly distributed over the area in 43 days. The south west monsoon sets in from last week of June and withdraws in end of September, contributed about 81% of annual rainfall. July and August are the wettest months. Rest 19% rainfall is received during non-monsoon period in the wake of western disturbances and thunderstorms.
(Source: http://cgwb.gov.in/District_Profile/Haryana/Yamuna%20Nagar.pdf)

2.5 SEISMICITY OF THE AREA

Many parts of the Indian subcontinent have historically high Seismicity. Seven catastrophic earthquakes of magnitude greater than 8 (Richter scale) have occurred in the western, northern and eastern parts of India and adjacent countries in the past 100 years. By contrast, peninsular India is relatively less seismic, suffered only infrequent earthquakes of moderate type. The main seismogenic belts are associated with the collision plate boundary between the Indian and Eurasian plates. The project site falls under seismic **zone IV** which is a high damage risk zone (**MSK VIII**). The IS code assigns zone factor of **0.24** for **zone IV**. As the map of Intensity (**Figure 2.9**) clearly depicts that the seismic intensity of Yamuna Nagar is **VII-VIII MSK** unit. And **Figure 2.10** shows the likelihood of injuries and deaths, respectively, in Haryana State. The loss estimation outcome based on the census data of Haryana State, projected deaths and injuries calculated by researcher are tabulated below.

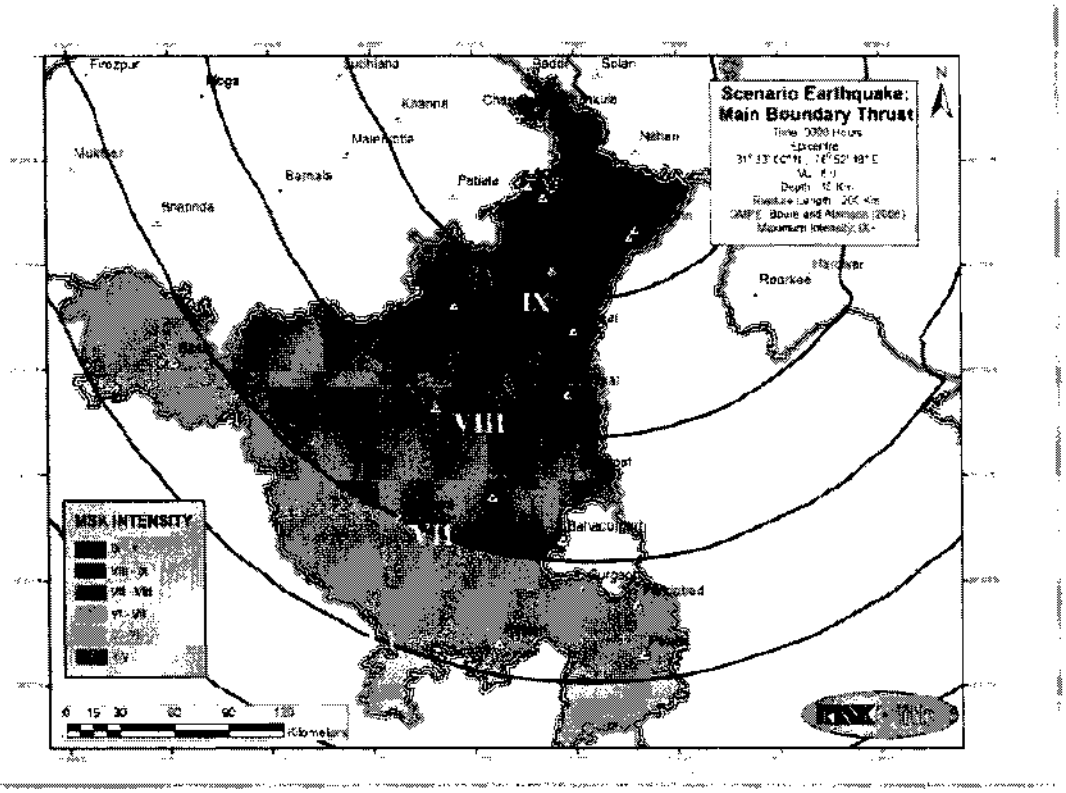
Table 2.5: Loss Estimation at State Level

State	Population (Census, 2011)	Injuries	Deaths
Haryana	2,53,53,081	15,04,200	3,23,400

Table 2.6: Loss Estimation at District Level

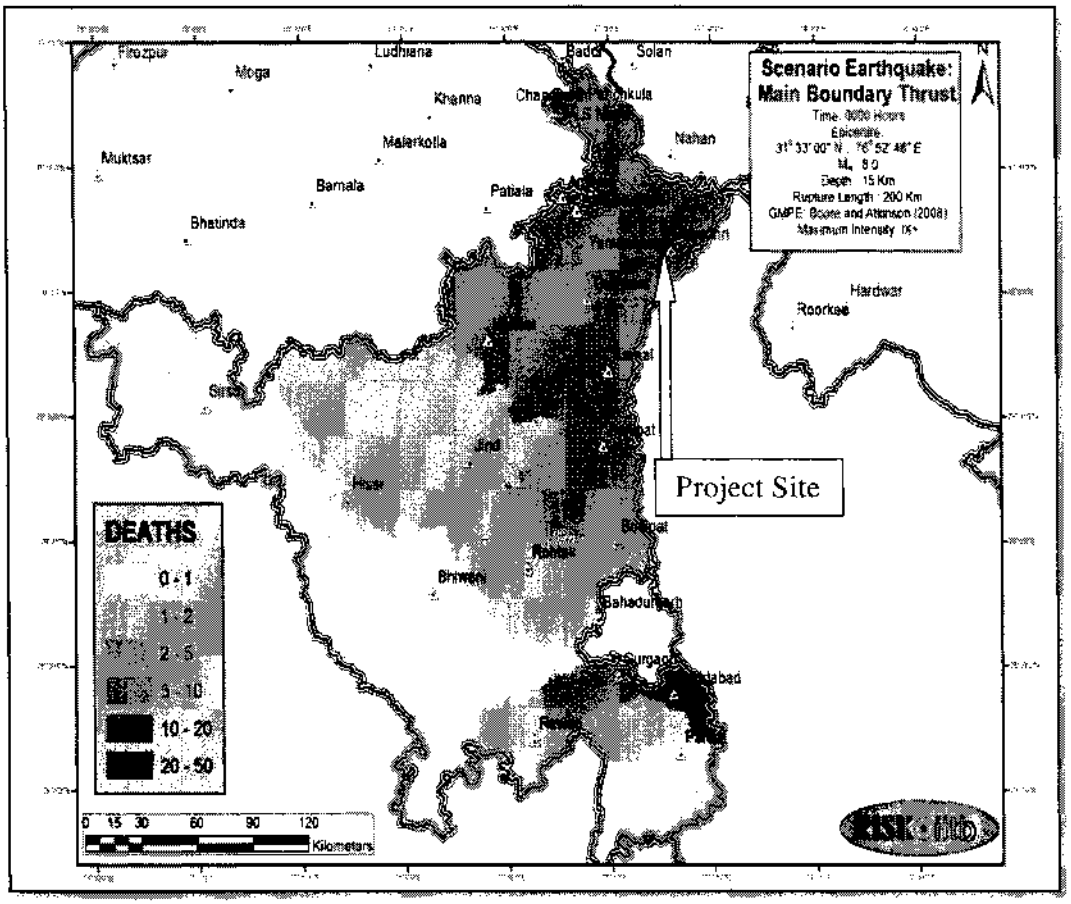
S.No.	District	Population (Census, 2011)	Injuries	Injuries (%)	Deaths	Deaths (%)
1.	Panchkula	5,58,890	51,900	9.2	11,400,	2.0
2.	Ambala	11,36,784	121,700	10.7	26,200	2.3
3.	YamunaNagar	12,14,162	114,000	9.3	25,500	2.1
4.	Kurukshetra	9,64,231	85,200	8.8	19,500	2.0
5.	Kaithal	10,72,861	93700	8.7	20400	1.9
6.	Karnal	15,06,323	125700	8.3	28400	1.8
7.	Panipat	12,02,811	85100	7.0	19200	1.5
8.	Sonipat	14,80,080	86700	5.8	19800	1.3
9.	Jind	13,32,042	91600	6.8	21200	1.5
10.	Hisar	17,42,815	88500	5.0	20100	1.1
11.	Bhiwani	16,29,109	71100	4.3	15000	0.9
12.	Rohtak	10,58,683	55500	5.2	12700	1.1
13.	Jhajjar	9,56,907	46200	4.8	9700	1.0

Source: NDMA, Government of India, 2014.



Source: NIDM, Haryana, 2014

Figure 2.9: Map of Intensity of Injured in Haryana



Source: NIDM, Haryana, 2014

Figure 2.10: Map of Likelihood of Deaths in Haryana

2.5.1 Largest Instrumented Earthquake in Haryana

The instrumental earthquakes in this region are listed in Table given below. General locations are provided for historical events for which generalized epicentral co-ordinates are available. Some events which were significant for other reasons are also included.

Table 2.7: Major Earthquake in Haryana

S. No.	Date	Time	Latitude	Longitude	Depth (Km)	Magnitude	Region
2006							
1.	February, 15	1:37:47.5 HRS (UTC)	29.1° N	76.6 ° E	05.0	3.2	Sonipat, Haryana
2.	March, 31	11:25:39.3 HRS (UTC)	28.7° N	76.8° E	22.0	3.4	Jhajjar, Haryana
3.	April, 07	18:56:38.0 HRS (UTC)	29.0° N	77.0° E	11.5	3.0	Sonipat, Haryana
4.	May, 01	5:13:47.9 HRS (UTC)	29.0° N	76.7° E	10.0	3.6	Rohtak, Haryana
5.	May, 07	16:1:0.5 HRS (UTC)	28.7° N	76.6° E	20.2	4.1	Jhajjar, Haryana
6.	December, 09	18:52:03.7 HRS (UTC)	29.0° N	76.7° E	06	2.8	Rohtak , Haryana
2007							
7.	April, 03	15:35:10.3 HRS (UTC)	29.0° N	76.6° E	8.8	2.8	Rohtak , Haryana
8.	May, 14	7:22:47.4 HRS (UTC)	29.0° N	76.6° E	5.0	3.2	Rohtak , Haryana
9.	November, 20	17:11:5.6 HRS (UTC)	28.0° N	76.6° E	1.2	3.3	Rajasthan-Haryana Border Region
2008							
10.	February, 27	11:13:55.2 HRS (UTC)	28.9° N	76.6° E	15.0	2.8	Rohtak , Haryana
11.	November, 1	22:34:49 HRS (UTC)	28.9° N	76.8° E	10	2.7	Rohtak , Haryana
12.	October, 19	07:56:48 HRS (UTC)	29.1° N	76.9° E	7	3.2	Sonipat, Haryana
2009							
13.	May, 10	11:02:47.0 HRS (UTC)	30.3° N	76.9° E	11	3.5	Ambala, Haryana
2010							
14.	February, 24	19:20:52 HRS (UTC)	28.6° N	76.9° E	17	2.5	Rohtak , Haryana
15.	March, 03	11:48:18.0 HRS (UTC)	28.8° N	77.0° E	15	2.3	Delhi- Haryana Border Region
16.	October, 12	10:27:25 HRS (UTC)	28.2° N	76.0° E	6	3.5	Rajasthan-Haryana Border Region
17.	September, 07	17:58:18 HRS (UTC)	28.6° N	77.0° E	8	4.2	Delhi- Haryana Border Region
18.	November, 24	19:09:22 HRS (UTC)	28.8° N	77.0° E	10	2.5	Delhi- Haryana Border Region
2011							
19.	March, 05	07:41:03 HRS (UTC)	28.7° N	76.7° E	10	4.9	Haryana- Delhi Border Region

Source: *http://www.imd.gov.in/section/seismo/dynamic/welcome.htm*

2.5.2 Conclusion

As per outcome of the data collected from IMD, Haryana, only two earthquakes observed during 10 years. First in 7th April, 2006 the magnitude of this earthquake was 3.0 and second was in 19th October 2008 the magnitude of this earthquake was 3.2. These two was observed as low intensity earthquake hence there will be no major impact on the environment due to proposed activity.

2.6 FLOODS

Floods have been a recurrent phenomenon in Haryana from time immemorial. Many part of the state of Haryana are prone to flooding. The devastating floods hit Haryana many times. In 1977, 1978, 1980, 1983, 1988, 1993 and 1995, 1996 floods occurred in Haryana. Floods have been causing extensive damage not only to standing crops but also loss of lives and cattle. The floods in Haryana can occur because of some natural reasons such as its physiographic situation which makes a depressional saucer shape zone around the Delhi-Rohtak-Hisar-Sirsa axis and it has a poor natural drainage system and sometimes the heavy precipitation becomes a major contributing factor in causing flood as such in case of Rohtak flood, 1995. The state receives an average rainfall of about 650 mm. In flood manual of Haryana, there are 102 vulnerable points in Haryana which need special attention during monsoon.

2.6.1 History of Flood in Yamuna Nagar

Situation of Yamuna Nagar District is such that the northern part of the district falls in the foothills of Shiwalik ranges while remaining part lies on the hill-slopes and plains. A number of Streams and rivulets flow through this district and these cause damage to crops in the monsoon season in many ways. River Yamuna Passes along the eastern boundary of this district dividing it from district Saharanpur of U.P. State. The important rivers, streams and rivulets passing through this district are somb, Pathrala, Chautang, Sadhura Nadi part of the Markanda River etc. Whenever there are heavy rains, large areas of the district are affected by heavy discharge from Hathani Kund Barrage in the catchment areas of Himachal Pradesh. On the basis of information available, heavy rains/ floods affected the district badly in the years 1978, 1988, 1989, 1990, 1995, 1998, 2008, 2010, 2011 and 2013. Khadar area of this district along river Yamuna was affected by high floods. It has been experienced that people of this area have always taken the floods in their stride and they hardly faced any difficulty before 1978. It was in this year that villages like Kalesar, Mandewala, Mamdubas, Kaniawala, Bhilpura, Lakarmai Partappur, Nawajpur, Mandoli Gaggar, Kanalsi, Bhogpur, Bibipur Lapra, Karera, Model Town, Kamalpur Tapu, Bagwali, Jathlana, Lal Chappra, Sandhala, Gumthala, Pobari etc. were cut off due to over flow of water in river Yamuna as its discharge exceeded 8 Lakhs cusecs. The discharge in river Yamuna reaches to 8.63 Lakhs cusecs in the year 2013 Khadar area in this district is affected whenever there is more than 2.00 Lakhs cusecs of water in river Yamuna. The situation becomes alarming when it increases beyond 2.5 Lakhs cusecs. After the year 1965, bund swere constructed and protection works completed hence there was no such village which could be termed as dangerously exposed, but during the floods of 1978, 1988 and 1998, 2005 and 2008 villages namely Bhilpura, Kaniawala, Sandhala, Sandhali, Jathlana, Ghoron Pipli, Tapu Majri, Lakkar Mai Partappur, Mali Majra, Nawajpur, Mandouli, Ghaggar Kanyawala, Odri, Lapra, Tapu Kamalpur, Gumthala etc. were affected. There are still some vulnerable villages which required special attention / vigilance for the sake of safety: They are as under :

Table 2.8: Major Floods affected Villages in Yamuna Nagar, Haryana

S.No.	Chhachhrauli Tehsil	Jagadhri Tehsil	Bilaspur Tehsil
1.	Kalesar	Gadhaula	Ranjitpur
2.	Mandewala	Rajpura	Jaitpur
3.	Lakkar Mai Partappur	Kanalsi	Bihta
4.	Nawajpur	Bhogpur	Mujafat
5.	Mandouli Gaggar	Bibipur	Bhamnauli
6.	Urjani	Odri	Chintpur
7.	Baroli Majra	Lapra	Khanuwala
8.	Kot Sarkari	Jathlana	Lalhari
9.	Kot Basawa Singh	Sandhala	
10.	Naggal Patti	Sandhali	
11.	Muzafat Kalan and Muzafat Khurd	Gumthala	
12.	Khanuwala	Naharpur	
13.	Chintpur	Ghoro Pipli	
14.	Khizri	Tapu Majri	

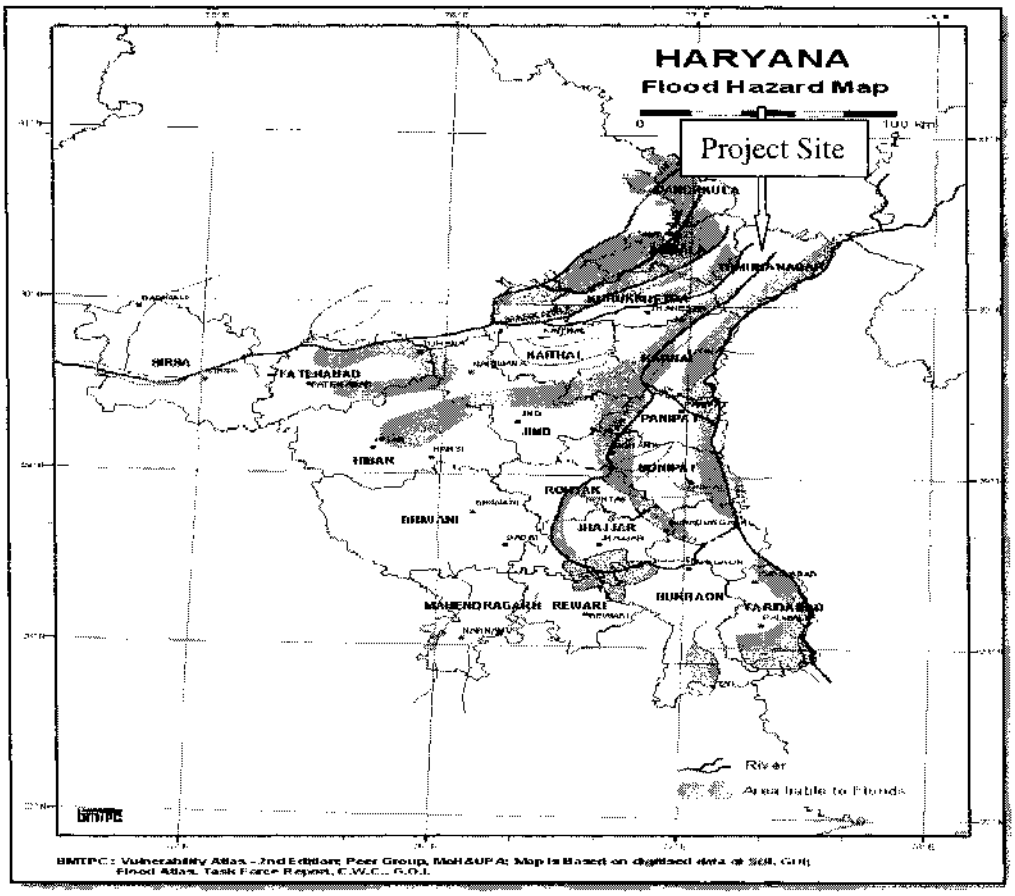


Figure 2.11: Flood Hazard Map of Haryana

2.7 EXPLORATION AND RESERVES

2.7.1 Proved Reserves

Survey was conducted in the proposed area government Land (inside river bed) as per the area allocated by DMG, Haryana, a document provided by the authorities to the contractor. The Khasra plan was provided by the applicant.

Basics of Mineral Reserves Calculation-River Bed Area

- Mineral Reserves falling in the river bed area has been calculated taking the maximum permissible depth of 3 m from the river bed surface RL.
- The bulk density of Sand is considered 2.0.
- Volumetric method is adopted for calculating reserves of Sand.
- The mineable reserves are calculated by deducting "Blocked Geological Reserves on account of river banks, lease boundary, railway line, highways, bridges, anicuts (where ever applicable) from total proved Geological Reserves".
- It is considered that river bed Sand shall be replenished 100% every year as evident from paragraph (3.2.6) on "Annual Replenishment of Mineral in River Bed Area vis-à-vis Sedimentation" in mining plan.

2.7.2 Reserve Estimation

For estimating the reserve of sand the following parameters are considered:

a) The reserves are calculated on the basis of established width, thickness and strike length/influence of the mineralized formation in the area.
b) The entire reserves of Sand up to the depth of 3.0 m are calculated for government land (inside river bed area).
c) The Sand reserves are calculated up to 3.0m below the ground level.
d) The bulk density of Sand is considered 2.0.

2.7.3 Geological Reserves: The reserves of Sand calculated by volumetric method and are summarized here below:

Table 2.9: Geological Reserves Estimation

Nature of land	Lease area (ha)	Total proved Geological reserves MT=Area x depth x BD (A)	Blocked area/ restricted area	Blocked Geological Reserves in blocked area (B)	Total Mineable reserves A-B=C (FOR 10 Yrs)	Planned production (per year)
River bed	101.27	60,76,200 MT	25.60	15,36,000 MT	45,40,200 MT	45,00,000 MT

2.7.4 Mineable Reserves:

A) Proved Reserves as Per **UNFC Code** (111)
Total Reserves = 60,76,200 MT

B) Blocked Reserves as Per **UNFC Code** (211 and 222) = 15,36,000 MT

C) Mineable Reserves = **A-B** = 45,40,200MT

2.7.5 Targeted Production: 45,00,000 MT per Year

Table 2.10: Five Years Proposed Production Details (Tons/annum)

	Production From River bed		Area (ha) Needed per year
Year	Trips/ day	MTPA	
I	600	45,00,000	75.00
II	600	45,00,000	75.00
III	600	45,00,000	75.00
IV	600	45,00,000	75.00
V	600	45,00,000	75.00

2.7.6 Life of Mine

The period of contract for mining will be for 10 years commencing with effect from the date of grant of Environmental Clearance or an expiry of a period of 12 months from issuance of LOI.

2.8 MINING METHOLOGY

2.8.1 Proposed method of mining

Mining activity will be carried out by open cast semi-mechanized method.

- No overburden/ waste material will be produced in river bed. No drilling/ blasting are required as the material is loose in nature. Light weight excavators will be used for loading of mineral in tippers.
- Proper benching of 3.0 m height will be maintained and width of the bench will be around 20 m. The benches shall be maintained in the form of slices/strips parallel to the banks of river.
- Mining activities will be carried out in a manner so that there is no obstruction to the movement of water flow, during rainy season.
- Roads will be properly made and sprayed by water for suppression of dust.
- Extraction activities will start in the blocks from the upstream side to downstream side. This will not obstruct the movement of water, if any, during monsoon period in the river course.
- In case during any period, the replenishment was found less than 3 m or depth of exaction, the mining during said period would restrict to depth which would not be more than 3 m of the original level of the river bed.

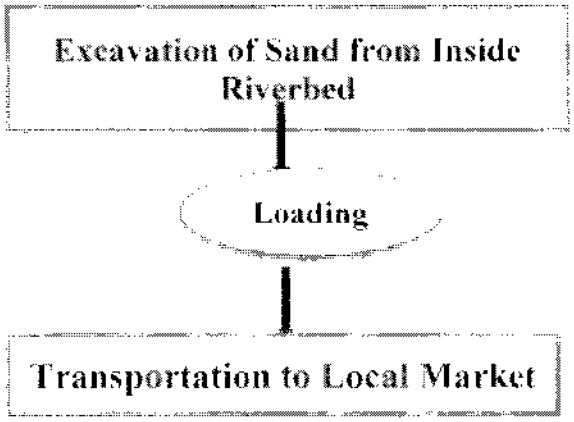


Figure 2.12 Process Flow Chart of Mining of Sand

2.8.2 Year Wise Production detail with Benches Height

Year Wise Production detail with Benches Height (Jathlana Block/YNR B 12, Yamuna Nagar) the working will start from 266 m amsl and over an area of 75.67 ha. out of total mineable area of 101.27 ha. The depth of working will be 3m. The land use of the lease area will remain same as the proposed activity is extraction of deposited Sand (minor mineral) from river bed which will get replenished during succeeding monsoon season.

2.8.3 Reclamation of Mined out Area

Measures taken and to be taken for land restoration, reclamation and plantation in/ or nearby mining area.

- Envisaged mining operation will be carried out in the River bed only. The excavation in the river bed areas are proposed to be undertaken only during the period the same remains dry. There will be no mining activities when there is flow of water in the working zones. During rainy season, the activities will be stopped, if there is flow in the river.
- Besides resource extraction, following activities will be kept in view:
  a) Protection and restoration of ecological system
  b) Prevent damages to the river regime
  c) Protect riverine configuration such as bank erosion, change of water course gradient, flow regime etc.
  d) Prevent contamination of ground water.

Safeguard Measures

While carrying out mining activity following measures will be taken:

- Mining activities will be carried out only in dry bed. No in stream mining will be practiced.
- Identification of river stretches for mining will be completed.
- There will be no mining near the banks and same would be restricted with central $3/4^{th}$ of the river bed. This is to protect the bank erosion and river migration.
- Mineral Sand from river will be restricted to a maximum depth of 3.0 m from the existing bed level. This is for safety and sustainability.
- As the mining area is quite large and long in length, systematic extraction will be carried out to prevent seasonal scouring and enhanced erosion.
- Extraction will be carried out in a manner that there is no obstruction to flow of water, if any, during rainy season.
- Mining on the concave side of the river channel would be avoided to prevent bank erosion. Similarly meandering segment of river will be selected to prevent natural eroding banks and to promote mining on natural building (aggrading) meanders component.
- Reclamation of Mined out Area (plate no.5 of mine plan).

2.9 EXTENT OF MECHANIZATION

This is a new mining contract. Following equipments are proposed to be deployed for the desired production.

Table 2.11: List of Machineries

S. No.	Name of machinery	Capacity	Nos.
1.	Excavated	2.0 m3	10
2.	Tippers/ Trucks	25 tons	200
3.	Water Tanker	5000 liters	2
4.	Light vehicles /jeep	--	1
5.	Maintenance Van		1

2.10 TRANSPORTATION

Mineral river sand will be transported by hired trucks. Light weight excavators/JCB will be deployed for extraction. Mineral will be loaded in trucks of 25 tons capacity. Movement of trucks after mineral loading will be through approach roads connecting to tar roads.

2.11 MINE DRAINAGE

(i) Mine Drainage in river bed mining

The River Yamuna flow from N to S which originates from the Himalayas provides the major drainage in the mining area. The general slope of the land surface is From NE to S and elevation of the mining area varies from 261.7 mRL in the north end side of the mining area to 261.10 m RL in south end side of the mining area. There is flow of water in the river bed in a narrow area in post monsoon period. Area is having 1067 mm rainfall in a year. During rainy season, catchment water flows in the river. During dry period the Sand is excavated which gets replenished during rainy period. No mining activities will be carried out during rainy season when there is water flowing in the working area. There will be no intersection of water table as

working will be carried out upto 3.0 m depth only from surface of river bed while the water level is 5 -10 m below the surface of river bed.

(ii) Drainage Around and Within Mine:

The mining area will become a depression, which warrants accumulation of water during rainy season. The pit will become a depression and will help in faster recharge of water in the aquifer

(iii) Dewatering

Since the depth of mining proposed is only 3.0 meters in the river bed, the same being above the water table of the area, there will be no chance of encountering the ground water table during the mining operations. No dewatering of the ground water is proposed.

2.12 WASTE MANAGEMENT

There is no generation of waste during sand mining in this mining project. **No overburden production** in the sand mining project will be observed.

2.13 USE OF MINERAL

- Minor Mineral is mainly consumed in construction work in construction work in infrastructure, housing, road projects and other development projects.
- Virtually there is no construction or infrastructure building work possible without this minor mineral, hence the same can be assumed as back bone of the infrastructural growth of India.

2.14 LAND USE PATTERN OF MINING AREA AT VARIOUS STAGES

Table 2.12: Land Use Pattern at Various Stages

S. No.	Particulars	Present Land use (Ha)	At the End of 5th year of Mining (Ha)
1.	Safety Zone	25.60	25.60
2.	Infrastructure (Office, Temporary Shelters etc.)	00.00	0.20*
3.	Area available for mining	75.67	--
4.	Reclaimed area	--	75.67
5.	Unworked area	--	--
Total		**101.27**	**101.27**

** Plantation and infrastructure in restricted area only.*

2.15 UTILITIES AND SITE FACILITIES

2.15.1 Water Requirement

Total water requirement for the mining project is **70 KLD.**

S. No	Head	Calculation	Water Requirement (KL)
1.	Dust Suppression	6427.91*7.5*1 L	48.00
2.	Domestic Purpose	120*50 L	06.00
3.	Plantation	96815*0.17 L	16.00
Total			**70.00**

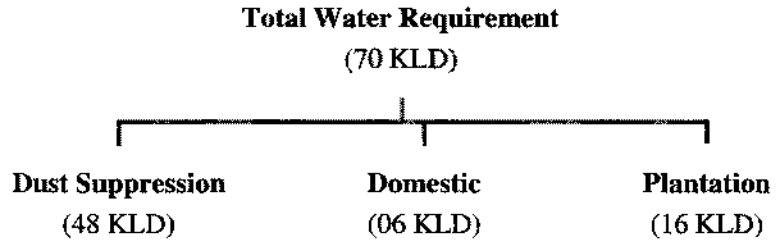


Figure 2.13: Water Balance

Note: Water requirement is fulfilled through Hired Tankers. Therefore there is no need of clearance from the competent authority as there will be no ground water withdrawal by the project proponent.

2.15.2 Man Power

Requirement of Technical and other supervisory staff will be as follows for the proposed systematic and scientific mining:

Table 2.12: Employment Details

S. No.	Category	Numbers
1.	Manager 1st class/ Managers/ Assistant Managers	7

2.	Skilled personnel / Semi-skilled personnel	90
3.	Unskilled	23
Total		**120**

2.15.3 Power

Electricity connection shall be taken for office and security purpose from the nearby substation of Haryana Electricity Board, however no power is require for excavation of mineral.

2.15.4 SITE SERVICE

Manager's Office: One competent Manager and one Assistant Managers will be required to supervise the mining operations. An office for Manager 5 x 3 meters shall be provided at the central location of quarry. An additional room for other supervisory staff is also proposed at each mine.

Canteen -cum-rest shelter: In order to provide the rest shelter for the workers working in the mine and also to provide tea etc. the arrangement shall be made to install a rest shelter-cum-canteen at each quarry and shall be utilized by the workers. The rest shelter will be for having rest during the lunch hours by the workers/ labor. The size of rest shelter shall be about 10 x 3 meter to accommodate the workers.

First Aid Room: To provide the first aid for any sort of injuries encountered during the mining operation, one small first aid room shall be provided at each sub block. First aid kit and sufficient stock of material/medicines needed for first aid shall be provided as per requirement. As the Mining Engineer/Manager and Mining Mates are qualified first aides, they can provide first aid to the labor on the spot.

Crèche: No woman employment is proposed in mine operation. However, in case of women workers are employed for other ancillary works like minor road repair, plantation etc, arrangement for a small crèche shall be made as per the requirement.

Electricity Supply: Electric connection shall be taken for office and security purpose from the near bye sub-station of Haryana Electricity Board.

Water Supply: The water supply for drinking purpose proposed will be made available by R.O. System.

2.16 Aspect and Impact Analysis

The aspects and probable impacts (short term, midterm and long term) for proposed stone mining activity at Village-Jathlana, Tehsil-Radur, District-Yamuna Nagar, Haryana has been presented in table 2.13.

Table 2.14 Aspect and Impact Analysis

#	Activity	Aspect	Impact			Legal Regulation
			Short Term	Mid Term	Long Term	
1.	Loading and Unloading	a. Dust generation	✓	X	X	The Mines Act 1952
		b. Noise	✓	X	X	Minor Mineral Concession (Amendment) Rules 2012
2.	Transportation of Mineral (Stone)	a. Dust generation	✓	X	✓	The Air (Prevention and Control of Pollution) Act 1981. Haryana Minor Mineral Concession, Stocking, Transportation of Minerals and Prevention of Illegal Mining Rules, 2012
		b. Noise	✓	X	X	
		c. Gaseous Emission	✓	X	✓	
		d. Accidents	✓	✓	✓	Haryana Minor Mineral Concessi amendment Rules 2012
3.	Water Transportation	a. Dust generation	✓	X	X	The Water (Prevention and Control of Pollution) Act 1974
		b. Noise	✓	X	X	The Air (Prevention and Control of Pollution) Act 1981
4.	Disposal of Waste Water	a. Ground Water Contamination	✓	X	X	The Water (Prevention and Control of Pollution) Act 1974 EIA Notification, 2006 under EPA Act
		b.Surface Water Contamination	✓	X	X	
		c.Soil Quality	✓	✓	✓	
5.	Recruitment	Social	X	✓	✓	Haryana Minor Mineral Concession Rules 2012 The Mines and Mineral (Development and Regulation) Act 1957

From aspect and impact analysis, it is concluded that this stone mining project has short term, midterm as well as long term impacts. Different activities like drilling, blasting, explosive use, loading and unloading, transportation, disposal of waste has both short term and long term impacts. This project has long term positive impact on social aspects. Accordingly, the receptor will be studied and mitigation measures will be discussed in chapter 5.

2.17. Litigation

There is no court case against this project, however there is a court case in the matter of M/s Om minerals v/s State of Haryana and others [CWP No. 7991 of 2014], wherein the petitioner had challenged the demand/levy of stamp duty on execution of (Contract Agreement). The State Government (Dept. of Mines and Geology) has issued LoI subject to the outcome of this case. The above mentioned case is still pending before Hon'ble Punjab and Haryana High Court for adjudication.

The Project Proponent has not filed any court case against any department neither he is a party in this case.

2.18 SUMMARY

The proposed project is for Mining of Sand (Minor Mineral) and open-cast semi mechanized method inside riverbed over an area of **101.27 Ha.** by **Sh. Kulvinder Singh S/o Sh. Trilochan Singh, M/s P.S. Buildtech** in Tehsil –Radaur, Distt- Yamuna Nagar, Haryana with proposed production capacity of **45 Lakhs TPA** of Sand (Minor Mineral). The climate of the district is characterized by the dryness of the air with an intensely hot summer and a cold winter. The normal annual rainfall of the district is 1076 mm, and is unevenly distributed over the area. The south west monsoon sets in from last week of June and withdraws in the end of September, contributing about 81% of normal annual rainfall. July and August are the wettest months. Rest19% rainfall is received during non-monsoon period in the wake of western disturbances and thunderstorms. Generally rainfall in the district increases from southwest to north east. The project site falls under seismic zone IV which is a high damage risk zone (MSK VIII). Many part of the state of Haryana are prone to flooding. The total geological reserve is **60,76,200 MT** and total mineable reserve is **45,40,200 MT** .Mine lease area will be worked in block and the digging depth will be restricted to 3 m inside riverbed the excavation minerals will be replenished 100% every year in the riverbed. Mineral Sand will be transported by trucks. The deposit is moderate to good quality sand. It is widely used in construction, buildings, bridges and other infrastructure. It is free from clay and non sticky in nature. Total water requirement for the project is **70 KLD**. Total man power requirement for the project is **120.** The site facilities like canteen, rest-shelter, first aid facility, water and electricity supply etc. will be provided as per requirement. There is no litigation pending against this project.

CHAPTER- 3
ANALYSIS OF ALTERNATIVES (TECHNOLOGY & SITE)

3.0 INTRODUCTION

Consideration of alternatives to a project proposal is a requirement of EIA process. During the scoping process, alternatives to a proposal can be considered or refined, either directly or by reference to the key issues identified. A comparison of alternatives help to determine the best method of achieving the project objectives with minimum environmental impacts or indicates the most environmentally friendly and cost effective options.

3.1 ALTERNATIVE FOR MINE LEASE

Sand (minor mineral) deposits are site specific. It is present in inside riverbed (101.27 Ha.). The mining of the material will be done by opencast semi-mechanized method inside riverbed. The mining will be done as per laid down procedures Haryana Minor Mineral Concession, Stocking, Transportation of Minerals and Prevention of Illegal Mining Rules, 2012. **No over burden** from inside riverbed block will be produced. Therefore, no alternate site is suggested as the mineral is site specific.

3.2 ALTERNATIVE FOR TECHNOLOGY AND OTHER PARAMETERS

Some alternatives considered during EIA study are discussed below:

Table 3.1: Alternative for Technology and other Parameters

S. No.	Particular	Alternative Option 1	Alternative Option 2	Remarks
1.	Technology	Opencast semi mechanized and mechanized mining	Opencast mechanized mining	Opencast Semi mechanized in inside riverbed block is preferred **Benefits:** • No electric power requirement • Minimal noise will be generated • Minimal air pollution will be generated.
2.	Employment	Local employment	Outsource employment	Local employment is preferred. **Benefits:** • Provides employment to local people along with financial benefits • No residential building/housing is required.
3.	Labourer transportation	Public transport	Private transport	Local labours will be deployed so they will either reach mine site by bicycle or by foot. **Benefits:** • Cost of transportation of men will be negligible.
4.	Material transportation	Public transport	Private transport	Material will be transported through trucks/trolleys on the contract basis **Benefits:** • It will give indirect employment.
5.	Water requirement	Tanker supplier	Ground water/surface water supply	Tanker supply will be preferred. **Benefits:** • No change in the surface water or ground water quality.
6.	Road	Haul road	Metallic road	Haul road will be considered for linking mine site from metallic road for transportation purpose. Minimum distance will be measured along with less number of trees for

				considering optimum haul road roots. **Benefits**: Less distance, less fuel used, minimum or negligible no. of trees will be cut in best opted haul road root.

3.3 SUMMARY

We have analyzed all the option for alternatives of the proposed mine site. This project is and specific project and existing land use of mine lease classified as Gair Mumkin Nadi/Nallah Government Land (Inside River bed) which will continue to be so even after the current mining project is over, hence no alternate site is suggested for this project.

CHAPTER-4
DESCRIPTION OF THE ENVIRONMENT

4.0 GENERAL

The main objectives of describing the environment, which may be potentially affected, are (i) to assess present environmental quality and the environmental impacts and (ii) to identify environmentally significant factors that could preclude Mine development. This chapter discuss about the present scenario of the study area with reference to the prominent environmental attributes. The study area covers 10 Km radius of the mine lease area. Baseline data has been collected out during the **Monsoon Season 1st December 2015 – 29th February 2016 by M/s. Vardan Envirolab, Gurgaon {NABL Accredited Lab, Certificate No. T-2629 (Certificate enclosed as Annexure V)}** in accordance with the Guidelines for EIA issued by the Ministry of Environment Forests and Climate Change, Govt. of India and CPCB, New Delhi. The impact identification always commences with the collection of baseline data such as Ambient Air Quality, Micro-Meteorology, Ground and Surface Water Quality, Noise levels, Soil Quality, Land use pattern, Biological Environment and Socio-economic aspects, Solid and Hazardous waste, Risk Assessment. Geology and Hydrology within the study zone of 10 Km. radius. Long term meteorological data recorded at the nearest IMD station, Karnal was also collected. Micrometeorological data at site was recorded using automatic weather station. Apart from these, secondary data have been collected from Census Handbook, Revenue Records, Statistical Department, Soil Survey and Land use Organization, District Industries Centre, Forest Department, Central Ground Water Authority, etc. The generation of primary data as well as collection of secondary data and information from the site and surroundings was carried out during post monsoon season.

The EIA study is being done for the Mine Lease (core zone) and area within 10 Km distance from mine lease boundary (buffer zone), both of which together comprise the study area. The following data, through field survey and other sources, has been collected by **M/s Vardan Environet**, for preparing the EIA/EMP for the proposed mining area with related facilities.

- Physical environment (Air, Water, Soil and Noise) baseline data.
- Relevant meteorological data, for previous decades from Indian Meteorological Department (IMD) and primary data.
- Land use pattern within core zone and buffer zone (10 Km distance around the core zone) based on Survey of India Toposheet map, ground truth and satellite image.
- Identification of water bodies, hills, roads etc. within 10 Km radius.
- Eco-sensitive places, sanctuaries, biosphere reserves within 10 Km radius.
- Religious places / historical monuments and tourist places within 10 Km radius.
- Details of fauna and flora within a distance of 10 Km from the project site and information about forests, if any.
- Demography and Socio-economic based on last available Census data for entire study area.
- Major industries within 10 Km radius.
- Study of present environmental protection and mitigation measures in nearby operating similar projects, if any.

4.1 LAND ENVIRONMENT

Area statistics of land use classes has been generated within 10 Km radius of mine lease area (Core zone and Buffer zone) and given in **Table 4.1**.

4.1.1 Data Used

Indian Remote Sensing satellite IRS-P6, LISS III, multi-spectral digital data has been used for the preparation of land use/ land cover map of present study. Survey of India reference map on 1:50,000 scales have been used for the preparation of base map and geometric correction of satellite data. Ground truth has been carried out to validate the interpretation accuracy and reliability of remotely sensed data, by enabling verification of the interpreted details and by supplementing with the information, which cannot be obtained directly on satellite imagery.

4.1.2 Methodology

The methodology used for the study consists of following components.

(i) Base Map Preparation

Base map was prepared using Survey of India reference map on 1:50,000 scale. Interpreted thematic details were transferred on the base map. Besides, other supporting data like project reports and statistical data published by various Government departments have also been used.

(ii) Ground Truth Data Collection

Ground data on geo-environmental components of the study area was collected for verification of information about the different features on the study areas, which are responsible for the occurrence of specific spectral reflectance behavioral patterns. During the ground truth detailed information on agricultural practices, wastelands, mining, industrial area etc. were collected along with other land features.

(iii) Interpretation of Remote Sensing Data

A hybrid technique has been used *i.e.* visual interpretation and digital processing for identification of different land use /land cover classes based on the image characteristics like tone, size, shape, pattern, texture, location and association etc. An image interpretation key was developed based on such image characteristics, which enables interpretation of satellite images for land use/land cover features. Further, the land use / land cover and other baseline layers was put in GIS database for integration, analysis, statistics generation and final out in the form of land use land cover map.

4.1.3 Observation of Land Use Study

In the present study, both digital image processing and using visual interpretation technique were used to generate output of Land use / Land cover map of study area on 1: 50.000 scale (**Figure 4.1**). A standard False Colour Composite (FCC) image has also been generated on the same scale (**Figure 4.2**). Land use Pattern of the Study Area (10 Km distance from the mine site).

Table 4.1 Land Use Pattern of the Study Area

Land use	Area (Hectares)	% Area
Water Body	1092.78	3.20
Grass Land	18801.25	55.01
Dense Forest	4225.30	12.36
Open Scrub	1718.777	5.03
Agricultural Land	4046.48	11.84
Fallow Land	1945.35	5.69
Sand/River Bank	1203.30	3.52
Settlement	1144.40	3.35
Total Area	**34177.64**	**100.00**

Source: Land use map

4.1.4 Topography

The mine lease area exhibits plain to undulated topography. The maximum elevation of the plain is 297 m RL. Large part of the district lies under the Shiwalik foothills. Sugarcane, wheat and rice are its main crops. It is an important industrial town having metal, utensil and plywood industries.

4.1.5 Drainage

The drainage pattern is already discussed in Chapter- 2.

4.2 SEISMICITY OF THE AREA

The details of the seismicity of the area have been already discussed in Chapter 2 of this EIA report. As per outcome of the data collected from IMD, Haryana, only two earthquakes observed during 10 years. First in 7th April, 2006 the magnitude of this earthquake was 3.0 and second was in 19th October 2008 the magnitude of this earthquake was 3.2. These two was observed as low intensity earthquake hence there will be no major impact on the environment due to proposed activity. The Map of intensity of India is already given in **Figure 2.9** of **Chapter 2**.

4.3 FLOODS

The flood in the area has been discussed in details in the **Chapter 2** of this EIA report. Floods have been a recurrent phenomenon in Haryana from time immemorial. Many part of the state of Haryana are prone to flooding. In flood manual of Haryana, there are 102 vulnerable points in Haryana which need special attention during monsoon. The flood hazard map of Haryana already given in **Figure 2.10** in **Chapter 2**.

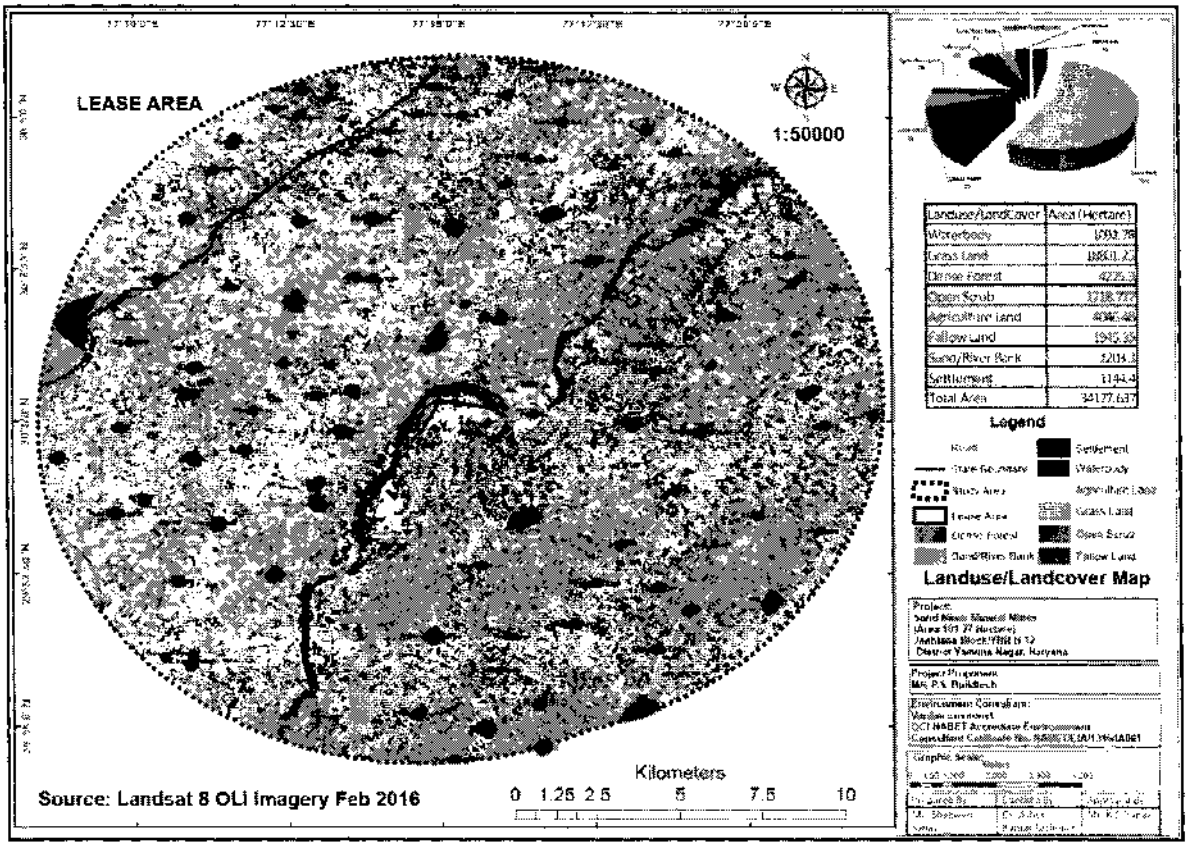


Figure 4.1: Land Use Pattern of the Study Area (10 km Radius from the Mine Site)

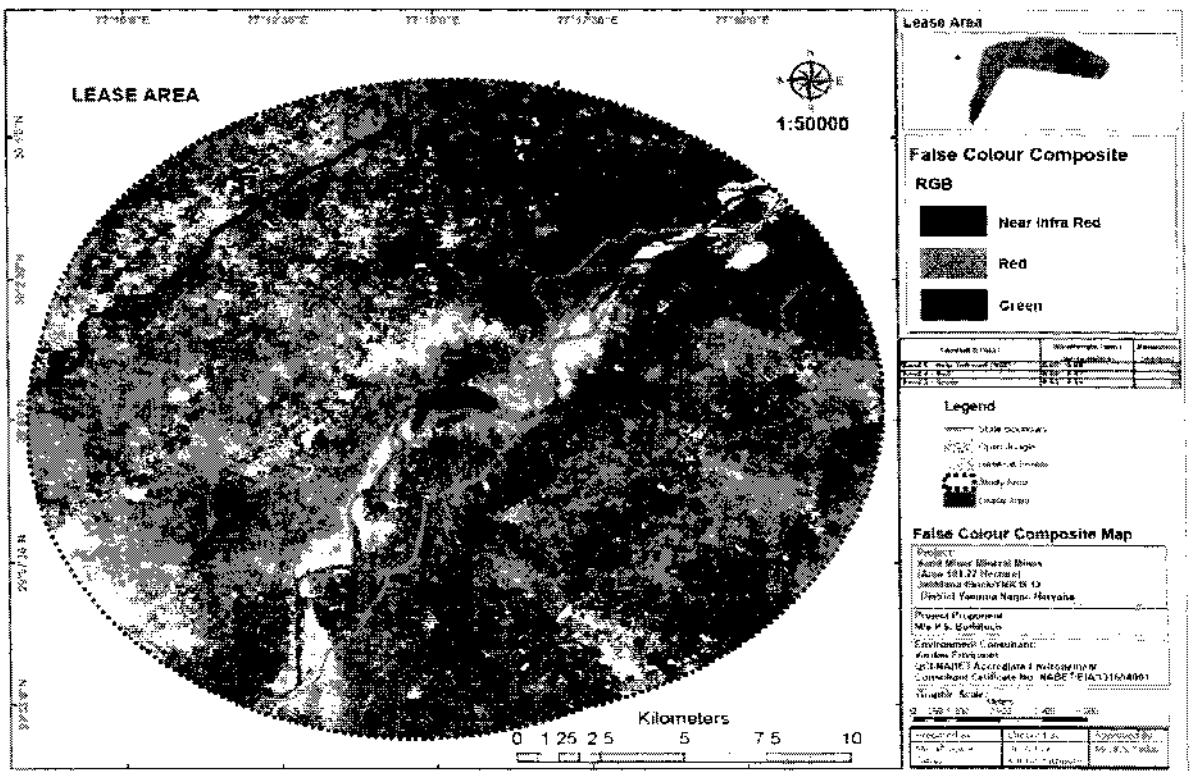


Figure 4.2: FCC Map of the Study Area (10 Km Radius from the Mine Site)

4.4 METEOROLOGY

Meteorology plays a vital role in affecting the dispersion of pollutants, once discharged into the atmosphere. Since meteorological factors show wide fluctuations with time, meaningful interpretation can be drawn only from long-term reliable data. Such source of data is the India Meteorological Department (IMD), which maintains a network of meteorological stations at several important locations. The nearest IMD station to the study area is located at New Delhi. The Meteorological parameters obtained from this station are temperature, humidity, rainfall, wind speed, and wind direction etc. A micro meteorological station was installed at site to record micrometeorological parameters on hourly basis during study period to understand the wind pattern, temperature variation, relative humidity variation etc.

4.4.1 Climate of the Area

The climate of Yamuna Nagar district can be classified as subtropical monsoon, mild and dry winter, hot summer and sub-humid which is mainly dry with hot summer and cold winter except during monsoon season when moist air of oceanic origin penetrates into the district. There are four seasons in a year. The hot weather season starts from mid March to last week of the June followed by the southwest monsoon which lasts up to September. The transition period from September to November forms the post monsoon season. The winter season starts late in November and remains up to first week of March.

4.4.2 Rainfall of the Area

The normal annual rainfall of the district, based on the record for the period 2009-2013 is **686.1-1367.7 mm**. About 88.5% of the annual rainfall is recorded during the southwest monsoon from June-September. August is the wettest month of the year with 1566.9 mm rainfall during this period.

Table 4.2 Monthly Average Rainfalls for Year 2009-2013 (mm)

Months/Year	2009	2010	2011	2012	2013
January	3.5	7	2.8	9.0	76.0
February	20.5	27	19.5	0	142.4
March	4.0	0	14.2	2.0	9.9
April	20	0	4.9	12.1	1.4
May	0	8.3	55.4	0.3	17.7
June	7	25.4	303.5	4.7	330.6
July	159	459.4	225.9	179.3	121.2
August	220	357.1	228.5	347	414.3
September	308	437.1	65.9	122	98.3
October	6	11	0	0	15.7
November	0	6.7	0	0	7.8
December	0	28.7	1.6	9.7	23.9
Total Rainfall	**748**	**1367.7**	**922.2**	**686.1**	**1259.2**

(Source: http://imd.gov.in/section/hydro/distrainfall/webrain/haryana/yamunanagar.txt)

As we can see that the average annual rainfall of the district from the year 2009-2013 shows a variable pattern and will make a curved graph with decreasing and increasing heights.

4.4.3 Meteorological Status at the Project Site

Meteorological station was set-up at site to record surface meteorological parameter during study period; Winter Season.

Climatology during study period (1st December, 2015 to 29th February, 2016)

- Temperature : 5°C (Minimum), 31°C (Maximum)
- Relative Humidity% : 27-92 %
- Wind Speed (Km/Hr) : 0-16.1

Table 4.3: Meteorological Condition of the Study Area

Month	Temperature °C		Relative Humidity%		Wind Speed (Km/Hr)	
	Min	Max	Min	Max	Min	Max
Dec. 2015	5.0	31.0	27	87	0.0	12.2
Jan. 2016	6.0	26.3	41	95	0.0	16.1
Feb. 2016	10.0	31.0	28	92	0.0	16.1

4.4.4 Relative Humidity

The humidity is highest in July, August and September. The annual mean relative humidity of 30 years is furnished in **Table 4.4** and depicted in **Figure 4.3**.

Table 4.4: Monthly Average Relative Humidity (%)

Months	Max	Min
January	75	48
February	70	44
March	61	34
April	44	25
May	42	27
June	55	38
July	75	64
August	80	69
September	71	56
October	61	40
November	63	41
December	72	47
Average	**64**	**44**

(Source: Climatological Table – 1961 to 1990, IMD, GoI, New Delhi)

4.4.5 Wind Speed / Wind Rose Diagram

Wind speed and wind direction data recorded during the study period is useful in identifying the influence of meteorology on the air quality of the area. Based on the collected meteorological data, relative percentage frequencies of different wind directions are calculated and plotted as wind roses of Sixteen directions *viz.*, N, NNE, NE, ENE, E, ESE, SE, SSE, S, SSW, SW, WSW, W, WNW, NW and NNW for twenty four hour duration respectively. Maximum and minimum temperatures including percentage relative humidity were recorded simultaneously. The average wind speed recorded was 4.47 m/s. wind rose diagram from the monitored data shows that the predominant wind direction during the study period was mainly from NNW to SSE.

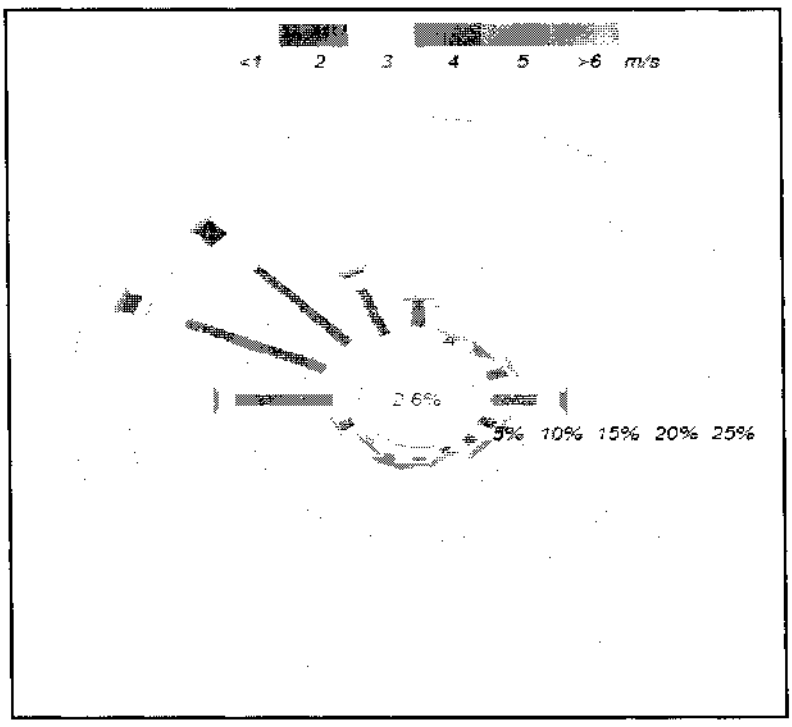


Figure 4.4: Wind Rose Diagram of Study Area

4.5 AMBIENT AIR QUALITY

The ambient air quality with respect to the study area of 10 Km radius around the lease area forms the baseline information. The various sources of air pollution in the region are dust rising from unpaved roads,

domestic fuel burning, vehicular traffic, agricultural activities, other industries, etc. The prime objective of baseline air quality monitoring is to assess existing air quality of the area. This will also be useful in assessing the conformity to standards of the ambient air quality during the operations.

4.5.1 Selection of Sampling Station

The baseline status of the ambient air quality has been assessed through scientifically designed Ambient Air Quality Network. The design of monitoring network in the air quality surveillance program has been based on the following considerations:

a) Meteorological conditions (wind direction and wind speed),
b) Representative of likely affected area,
c) Representative of regional background air quality for obtaining baseline status,
d) Topography of the study area,
e) Accessibility and availability of the infrastructure,
f) Representative of sensitive receptor.

Keeping in view above mentioned points, 6 Nos. of Ambient Air Quality Monitoring Stations were established with in the study area. The sampling locations and their distances are shown in **Table 4.5** and in **Figure 4.4**. It can be observed from the wind rose diagram, that the predominant wind direction during the study period was from West. Villages/locations have been selected in downwind direction as well as in the upwind direction for AAQ monitoring from the proposed activity site.

Table 4.5 Ambient Air Quality Monitoring Sampling Stations

Stations	Sampling Locations	Coordinates		Aerial Distance (Km) and Direction From Mine Site	Sampling Criteria
		Latitude	Longitude		
A1	Near Mine Site	30°0'12.9"N	77°15'18.1"E	Near Mine site	Mine Site
A2	Village-Jathlana	30°1'24.3"N	77°14'59.5"E	1.2 Km. N	Downwind
A3	Village- Khurdi	30°4'24.9"N	77°14'1.2"E	7.0 Km, NW	upwind
A4	Village- Latifpur	29°58'2.3"N	77°18'2.0"E	5.2 Km, SE	Crosswind
A5	Village-Madhobas	30°0'10.0"N	77°11'52.6"E	4.3 Km, SW	Crosswind
A6	Village- Qutabpur	30°1'45.7"N	77°19'40.7"E	6.2 Km, NE	downwind

(Source: SOI Toposheet and Field Visit)

4.5.2 Baseline Data

Ambient air monitoring at 06 locations was carried out on during December 2015-February 2016 (Winter Season) in the study area to assess the ambient air quality at the source. Major air pollutants *viz.* Particulate Matter (PM_{10}), Sulphur Dioxide (SO_2), Nitrogen Dioxide (NO_2), representing the basic air quality in the region were identified for Ambient Air Quality Monitoring (AAQM). The ambient air quality results are given in **Table 4.7** for each location.

4.5.2.1 Sampling and Analytical Techniques and Instruments Used for Sampling

The various instruments used and technique adopted for sampling is given in table below:

Table 4.6: Testing Procedure Used for Determining Various Air Quality Parameters

Parameters	Testing Procedure
PM_{10}	Gravimetric Method by using Repairable particulate matter sampler "Repairable Dust Sampler" (RDS)
$PM_{2.5}$	Cyclonic Method by using Fine particulate sampler.
NO_2	Absorption in diluted NaOH and then estimated calorimetrically with sulphanilamide and N (I-Nepthyle) Ethylene diamine Dihydrochloride and Hydrogen Peroxide (IS: 5182 1975, Part-VI).
SO_2	Absorption in Sodium Tetra Chloromercurate followed by Colorimetric estimation using P-Rosaniline hydrochloride and Formaldehyde (IS: 5182 Part – II, 2001).
Free Silica	Colorimetric method by Spectrophotometer

Table 4.7: Concentration Air Pollutants in Ambient Air during Dec. 2015 to Feb. 2016 (µg/m3)

Station	PM_{10}		$PM_{2.5}$		SO_2		NO_2	
	Min	Max	Min	Max	Min	Max	Min	Max
Core Zone								
A1	56.3	80.2	30.2	50.6	6.3	14	15.7	29.1
Buffer Zone								
A2	53.3	77.1	30.4	48.8	7	13.8	14.7	30.1
A3	53.5	78.1	30.8	45	7.6	16.1	17.6	26
A4	50.9	79.1	30.1	46.7	5.9	13.9	12.6	24.8
A5	50.3	75.1	30.5	45.6	7.3	14.7	12.3	24.8
A6	50.3	76.2	30	41.2	6.5	15	11.3	25.1

(Source; Vardan EnviroLab)

Table 4.8: Mineralogical Composition of Free Silica in PM_{10}*

Station	Free Silica (% in PM_{10})	PM_{10} ($\mu g/m^3$)	Ca ($\mu g/m^3$)	Mg ($\mu g/m^3$)	Ni (ng/m^3)	Pb ($\mu g/m^3$)
Core Zone						
A1	3.90	66.2	1.68	0.00	<0.5	0.1
Buffer Zone						
A2	2.91	60.1	1.01	0.66	<0.5	0.07
A3	2.50	73.00	1.09	0.64	<0.5	0.09
A4	2.50	57.30	1.00	0.35	<0.5	0.08
A5	1.80	68.10	0.81	0.36	<0.5	0.05
A6	3.90	66.20	1.68	0.00	<0.5	0.1

(Source; Vardan EnviroLab)

4.5.3 Interpretation

Ambient Air Quality Monitoring reveals that the minimum & maximum concentrations of PM_{10} for all the 6 AAQM stations were found to be **50.3 µg/m³ and 80.2 µg/m³** respectively and minimum and maximum concentrations of $PM_{2.5}$ for all the 6 AAQM stations were found to be **30.0 µg/m³ and 50.6 µg/m³** respectively. The range of Free Silica in PM_{10} was found to be **1.8% to 3.9%**. The minimum and maximum concentrations of SO_2 were found to **5.9 µg/m³ and 16.1 µg/m³** respectively. The minimum and maximum concentrations of NO_2 were found to be **11.3 µg/m³ and 30.1 µg/m³** respectively. The prescribed CPCB limit of SO_2 and NO_2 is 80 $\mu g/m^3$ for residential and rural areas has never surpassed at any monitoring station. Detailed Air Monitoring Analysis report is attached as **Annexure-VI**. The standards of Ambient Air Quality in India are available online at http://cpcb.nic.in/National_Ambient_Air_Quality_Standards.php.

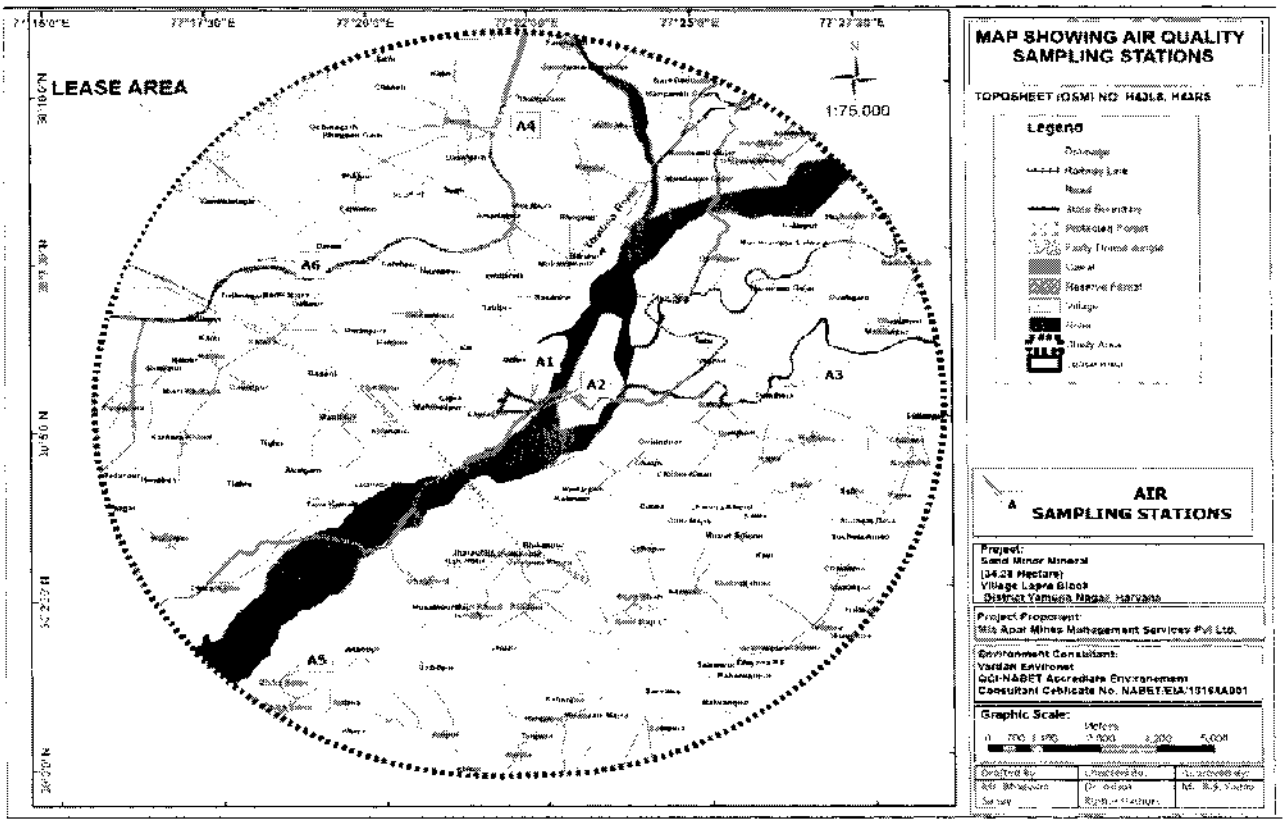


Figure 4.5: Key plan of Air Monitoring Stations

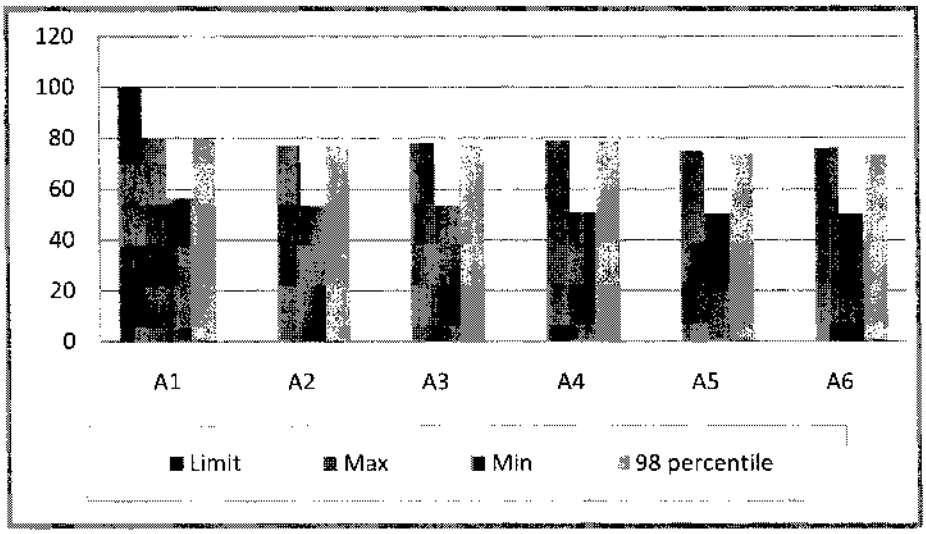


Figure 4.6: PM_{10} Concentration in $\mu g/m^3$

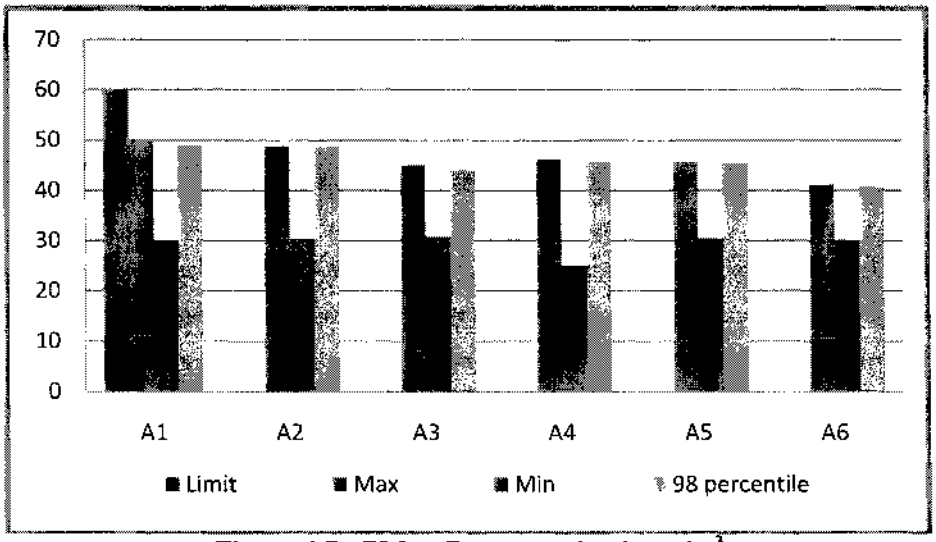


Figure 4.7: $PM_{2.5}$ Concentration in µg/m^3

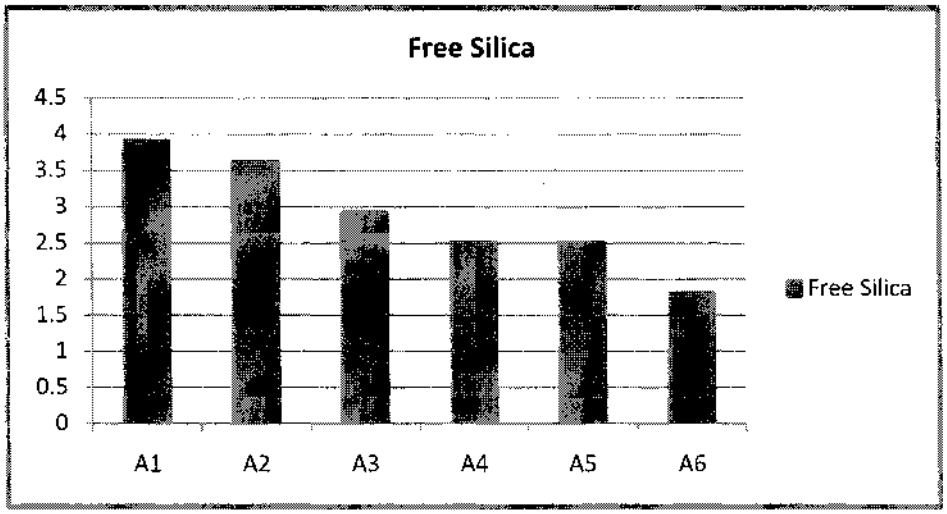


Figure 4.8: Range of Free Silica in PM_{10}

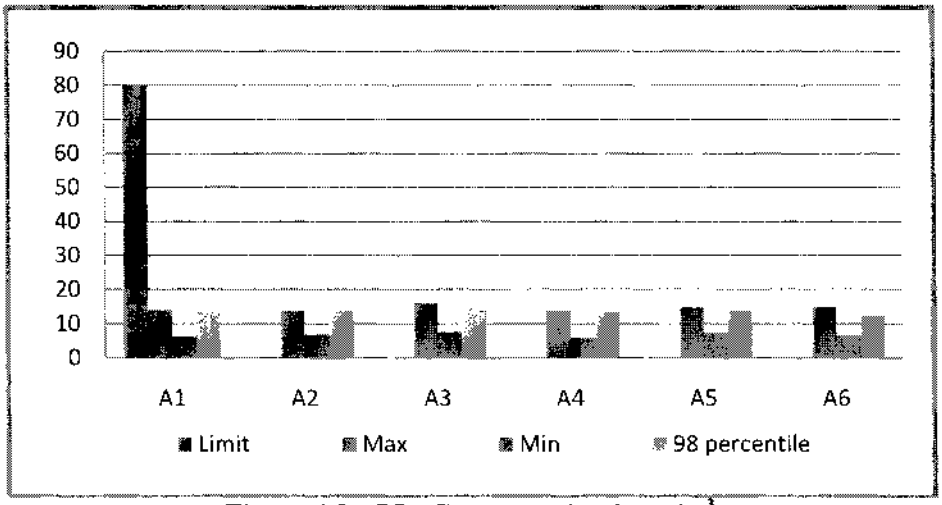


Figure 4.9: SO_2 Concentration in µg/m^3

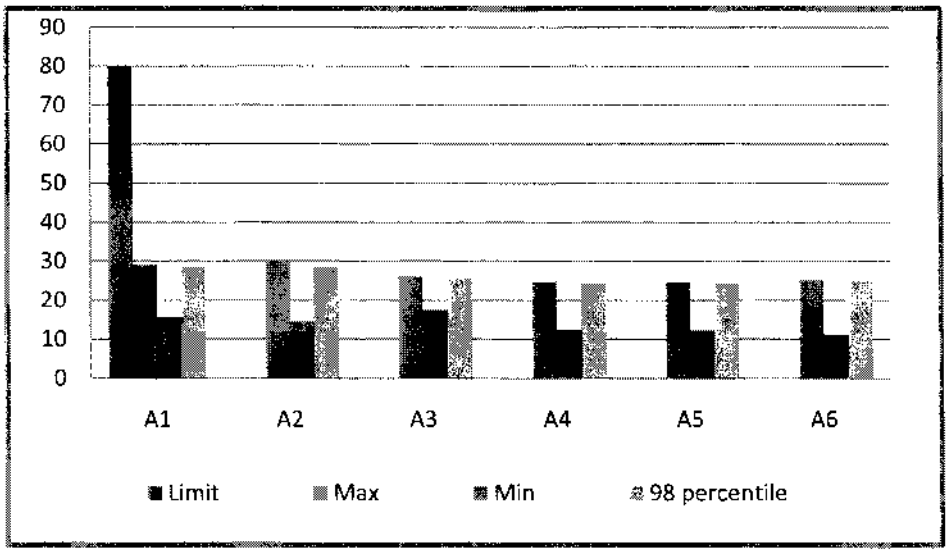


Figure 4.10: NO_2 Concentration in µg/m^3

4.6 WATER ENVIRONMENT

4.6.1 Methodology Adopted for Selection of Sampling Station

The sampling was done both for surface water and underground water. The samples were taken from the identified monitoring locations within the 10 Km radius of the study area. Total of **10** samples were taken (**6** for ground water and **4** for surface water). The water quality sampling locations are described in **Table 4.9 (a) and 4.9 (b)** and shown in **Figure 4.11.**

Table 4.9 (a): Ground Water Sampling Stations

Station	Sampling Location	Coordinates		Aerial Distance (Km) & Direction	Source
		Lat	Long		
GW1	Village-Jathlana	30°1'24.3"N	77°14'59.5"E	Mine site	Tube well
GW2	Near Mine Site	30°0'12.9"N	77°15'18.1"E	1.2 Km N	Tube well
GW3	Village-Khurdi	30°4'24.9"N	77°14'1.2"E	7.0 Km NW	Tube well
GW4	Village-Latifpur	29°58'2.3"N	77°18'2.0"E	5.2 Km NW	Tube well
GW5	Village-Mandhobas	30°0'10.0"N	77°11'52.6"E	4.3 Km NE	Tube well
GW6	Village-Qutabpur	30°1'45.7"N	77°19'40.7"E	6.2 Km SE	Tube well

(Source: SOI Toposheet and Field Visit)

Table 4.9 (b): Surface Water Sampling Stations

Station	Sampling Location	Coordinates		Aerial Distance (Km) and Direction	Sampling Criteria
		Latitude	Longitude		
SW1	Near Mine Site	29°59'30.7"N	77°14'53.4"E	Mine Site	Yamuna River
SW2	Near Village-Gumthala	29°57'9.5"N	77°13'13.7"E	5.5 Km SW	Down Stream
SW3	Near Village-Ghaghond	30°2'44.8"N	77°19'16.2"E	6.8 Km NE	Up Stream
SW4	Near Village-Jalpur	30°2'33.1"N	77°12'30.2"E	6.1 Km NW	Village pond

(Source: SOI Toposheet and Field Visit)

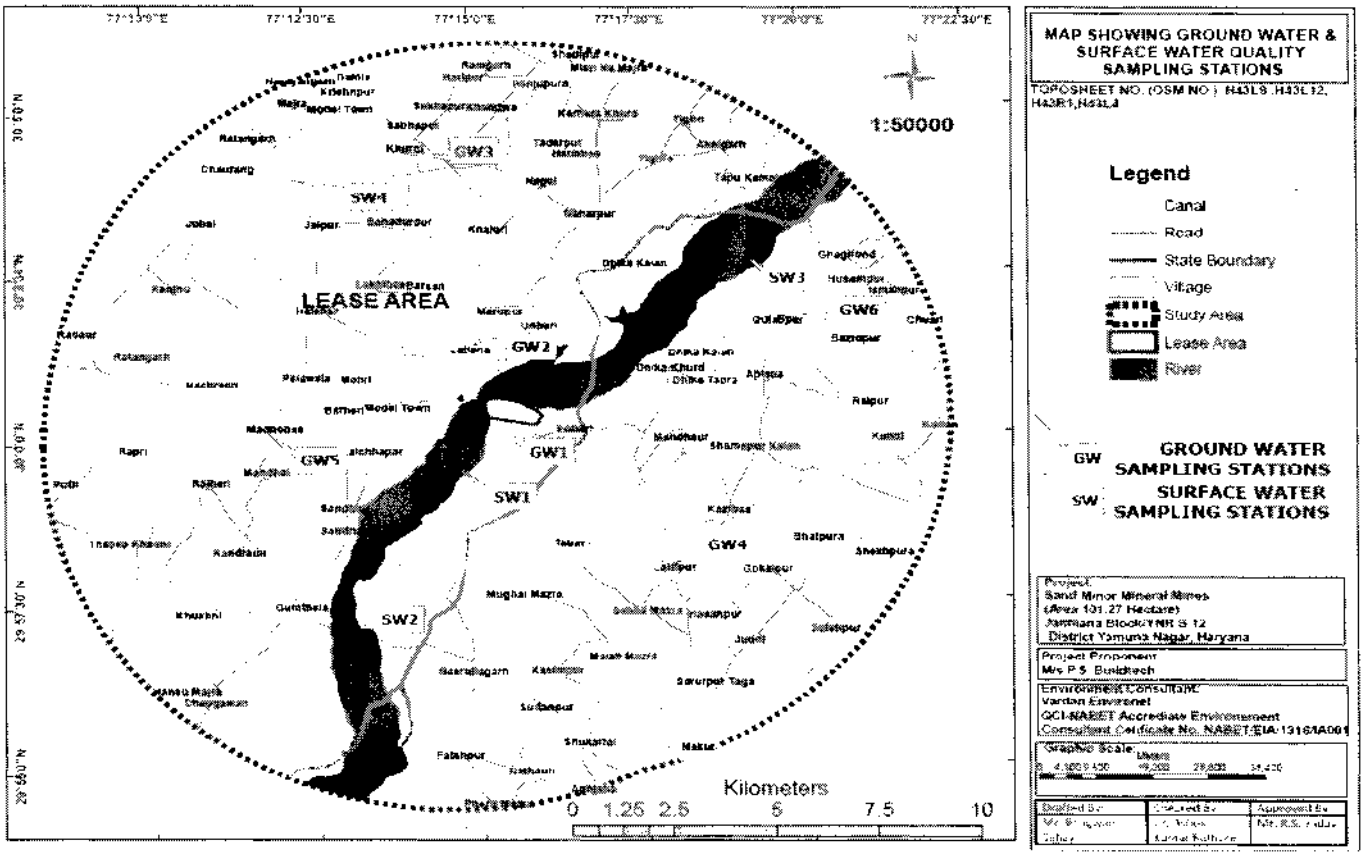


Figure 4.11: Key Plan of Water Sampling Stations

Table 4.10: Physico-chemical and microbiological Analysis of Ground Water

S. No.	Parameter	GW1	GW2	GW3	GW4	GW5	GW6
Physical Parameter							
1.	pH (at 25 ^{0}C)	7.83	7.91	7.62	7.52	7.82	7.86
2.	Colour (Hazen Unit)	<5	<5	<5	<5	<5	<5
3.	Turbidity (NTU)	<1	<1	<1	<1	<1	<1
4.	Odour	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
5.	Taste	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
Chemical Parameter							
6.	Total Hardness as $CaCO_3$ (mg/L)	212.00	239.40	172.00	221.60	145.00	254.23
7.	Calcium as Ca (mg/L)	56.00	63.00	51.20	59.62	26.10	62.18
8.	Alkalinity as $CaCO_3$(mg/L)	176.88	188.25	201.00	162.00	148.74	182.00
9.	Chloride as Cl (mg/L)	9.85	12.10	1.97	6.51	5.91	8.70
10.	Cyanide as CN (mg/L)	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
11.	Magnesium as Mg (mg/L)	17.56	19.98	10.75	17.70	19.41	24.08
12.	Total Dissolved Solids (mg/L)	241.00	252.00	213.00	227.10	166.00	236.00
13.	Sulphate as SO_4 (mg/L)	41.17	34.00	5.10	21.00	12.51	19.10
14.	Fluoride as F (mg/L)	0.19	0.19	0.23	0.24	0.08	0.13
15.	Nitrate as NO_3 (mg/L)	1.38	2.44	1.45	2.03	1.21	2.34
16.	Iron as Fe (mg/L)	0.29	0.12	0.20	0.17	0.12	0.09

17.	**Aluminium as Al (mg/L)**	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03
18.	**Boron (mg/L)**	0.26	0.19	0.39	0.31	0.09	0.13
19.	**Chromium as Cr (mg/L)**	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
20.	**Conductivity (mS/cm)**	0.404	0.420	0.362	0.593	0.280	0.390
21.	**Phenolic Compounds (mg/L)**	< 0.001	< 0.001	< 0.001	<0.001	<0.001	<0.001
22.	**Mineral Oil (mg/L)**	< 0.01	< 0.01	< 0.01	<0.01	<0.01	<0.01
23.	**Anionic Detergents as MBA (mg/L)**	<0.02	< 0.02	< 0.02	<0.02	<0.02	<0.02
24.	**Zinc as Zn (mg/L)**	0.26	0.34	0.20	0.32	0.28	0.25
25.	**Copper as Cu (mg/L)**	0.18	0.08	0.08	<0.02	<0.09	<0.02
26.	**Manganese as Mn (mg/L)**	< 0.10	< 0.10	< 0.10	<0.10	<0.10	<0.10
27.	**Cadmium as Cd (mg/L)**	< 0.001	< 0.001	< 0.001	<0.001	<0.001	<0.001
28.	**Lead as Pb (mg/L)**	< 0.01	< 0.01	< 0.01	<0.001	<0.001	<0.001
29.	**Selenium as Se (mg/L)**	< 0.01	< 0.01	< 0.01	<0.01	<0.01	<0.01
30.	**Arsenic as As (mg/L)**	< 0.01	< 0.01	< 0.01	<0.01	<0.01	<0.01
31.	**Mercury as Hg (mg/L)**	<0.001	< 0.001	<0.001	<0.001	<0.001	<0.001
32.	**Total Coliform (MPN/100 mL)**	<2/100ml	<2/100ml	<2/100ml	<2/100ml	<2/100ml	<2/100ml
Microbiological Parameter							
33.	***E. coli* (CFU/100mL)**	Absent	Absent	Absent	Absent	Absent	Absent

(Source; Vardan EnviroLab)

Note: There are more than 60 parameters as per IS 10500:2012, here 33parameter has been analyzed as per discussed by team. IS 10500:2012.

Table 4.11: Physico-chemical Analysis of Surface Water

S. No.	Parameter	SW1	SW2	SW3	SW4
Physical Parameter					
1.	**pH (at 25 ^{0}C)**	8.39	8.11	8.18	8.38
2.	**Colour (Hazen)**	<5	<5	<5	<5
3.	**Turbidity (NTU)**	<1	<1	<1	<1
4.	**Odour**	Agreeable	Agreeable	Agreeable	Agreeable
5.	**Total Hardness as $CaCO_3$ (mg/L)**	196.00	182.10	176.02	140.00
Chemical Parameter					
6.	**Calcium as Ca (mg/L)**	52.80	49.18	59.20	48.00
7.	**Alkalinity as $CaCO_3$ (mg/L)**	132.66	144.72	112.10	91.42
8.	**Chloride as Cl (mg/L)**	5.91	4.12	5.91	2.50
9.	**Residual free Chlorine (mg/L)**	<0.20	<0.20	<0.20	<0.20
10.	**Cyanide as CN (mg/L)**	<0.02	<0.02	<0.02	<0.02
11.	**Magnesium as Mg (mg/L)**	15.62	14.43	6.88	4.92
12.	**Total Dissolved Solids (mg/L)**	195.00	204.00	178.00	149.00
13.	**Total Suspended Solids (mg/L)**	5.20	7.00	6.50	6.90
14.	**Dissolved Oxygen (mg/L)**	6.1	6.1	6.2	6.0
15.	**Sulphate as SO_4 (mg/L)**	29.77	24.62	30.62	28.67
16.	**Fluoride as F (mg/L)**	0.13	0.13	0.19	0.09

17.	**BOD (3 Days at 27 ^{0}C) (mg/L)**	5.00	3.40	4.00	4.90
18.	**COD (mg/L)**	11.50	9.80	10.50	12.05
19.	**Conductivity (mS/cm)**	0.330	0.346	0.301	0.246
20.	**Nitrate as NO_3 (mg/L)**	1.08	1.61	0.12	0.35
21.	**Iron as Fe (mg/L)**	0.19	0.24	0.26	0.27
22.	**Aluminium as Al (mg/L)**	<0.03	<0.03	<0.03	<0.03
23.	**Boron (mg/L)**	0.13	0.15	0.16	0.10
24.	**Hexa Chromium as Cr^{+6} (mg/L)**	<0.01	<0.01	<0.01	<0.01
25.	**Phenolic Compounds (mg/L)**	<0.001	<0.001	<0.001	<0.001
26.	**Mineral Oil (mg/L)**	<0.01	<0.01	<0.01	<0.01
27.	**Anionic Detergents as MBAS (mg/L)**	<0.02	<0.02	<0.02	<0.02
28.	**Zinc as Zn (mg/L)**	0.29	0.22	0.19	0.26
29.	**Copper as Cu (mg/L)**	0.08	0.02	0.07	0.10
30.	**Manganese as Mn (mg/L)**	<0.10	<0.10	<0.10	<0.10
31.	**Cadmium as Cd (mg/L)**	< 0.001	< 0.001	< 0.001	< 0.001

(Source: Vardan EnviroLab)

Note: There are more than 60 parameters as per IS 10500:2012, here 31parameter has been analyzed as per discussed by team. IS 10500:2012

4.6.2 Interpretation

Analysis results of ground water reveal the following;

- **pH** varies from to **7.52 to 7.91.**
- **EC** varies from **0.280 to 0.593 mS/cm**
- **Total Hardness** varies from **145.00 to 254.23 mg/L.**
- **Total Dissolved Solids** varies from **166.00 to 252.00 mg/L.**
- **Fluoride** varies from **0.08 to 0.25 mg/L**
- **Chloride** varies from **1.97 to 12.10 mg/L**

Analysis results of surface water reveal the following;

- **pH** varies from to **8.11 to 8.39.**
- **EC** varies from **0.246 to 0.346 mS /cm**
- **Total Hardness** varies from **140.00 to 196.00 mg/L.**
- **Total Dissolved Solids** varies from **149.00 to 204.00 mg/L.**
- **Fluoride** varies from **0.09 to 0.19 mg/L**
- **Chloride** varies from **2.50 to 5.91mg/L**
- **COD** varies from **9.80 to 12.05 mg/L)**
- **BOD** varies from **3.40 to 5.0mg/L**

A review of the above chemical analysis reveals that there is some variation in chemical composition of water tapped from different sources but the ground water from all sources remains suitable for drinking purposes as all the constituents are within the limits prescribed for drinking water standards promulgated by Indian Standards (IS: 10500). Fluoride concentration in all the samples ranged from **0.09 to 0.19 mg/L** in surface water and **0.08 to 0.25 mg/L**in ground water in the study area of the mine site. Chloride is important in detecting the contamination of ground water. Its concentration increase rates of corrosion of metals in the distribution system. The permissible limit of chloride in drinking water is 250 ppm. The chloride concentration in water samples from all the locations ranged from **2.50 to 5.91mg/L** in surface water and **1.97 to 12.10 mg/L** in ground water. Specific conductivity is a measure of total dissolved solids present in water and it ranges from **0.246 to 0.346 mg/L** in surface water **0.280 to 0.593 mg/L** in ground water. Water Quality data and CPCB standard for water quality parameters and Indian standard Drinking water

Specification, IS 10500:2012 for water quality is available online at http://cgwb.gov.in/Documents/WQ-standards.pdf .

4.7 SOIL ENVIRONMENT

The soil is generally alluvial in nature which prone to water logging. Also nature of recently alluvial calcareous has been observed. Assessment of soil quality is an important aspect with reference to tree plantations, percolation of water, ground water impact etc. The information on soils has been collected from various secondary sources and also through primary soil sampling analysis of which is described in this section.

4.7.1 Methodology adopted for Selection of Sampling Station

Random soil samples were collected up to depth of 15 cm and homogenized samples were then sent to the laboratory for analysis. The physical and chemical characteristics of the soil of the study area have been assessed by analyzing various parameters as per the methods described in "Soil Chemical Analysis" (Jackson, 1967).The soil quality of the study area has been assessed by collecting samples from 4 different locations. Details of soil sampling locations are presented in **Table 4.12** and shown in **Figure 4.13.**

Table 4.12: Soil Monitoring Station

Stations	Sampling Location	Coordinates		Aerial Distance(Km) And Direction From Mine Site	Sampling Criteria
		Latitude	Longitude		
S1	Mine Site	30°0'12.9"N	77°15'18.1"E	Near Mine Site	Non-Agricultural Land
S2	Village –Gumthala	29°57'39.2"N	77°12'14.2"E	Mine Site	Agricultural Land
S3	Near Village Shamaspur	30°0'6.0"N	77°19'19.1"E	1.8 Km S	Agricultural Land
S4	Near Village Nasrullagarh	29°56'31.4"N	77°14'52.3"E	6.0 Km NW	Agricultural Land

(Source: SOI Toposheet and Field Visit) \

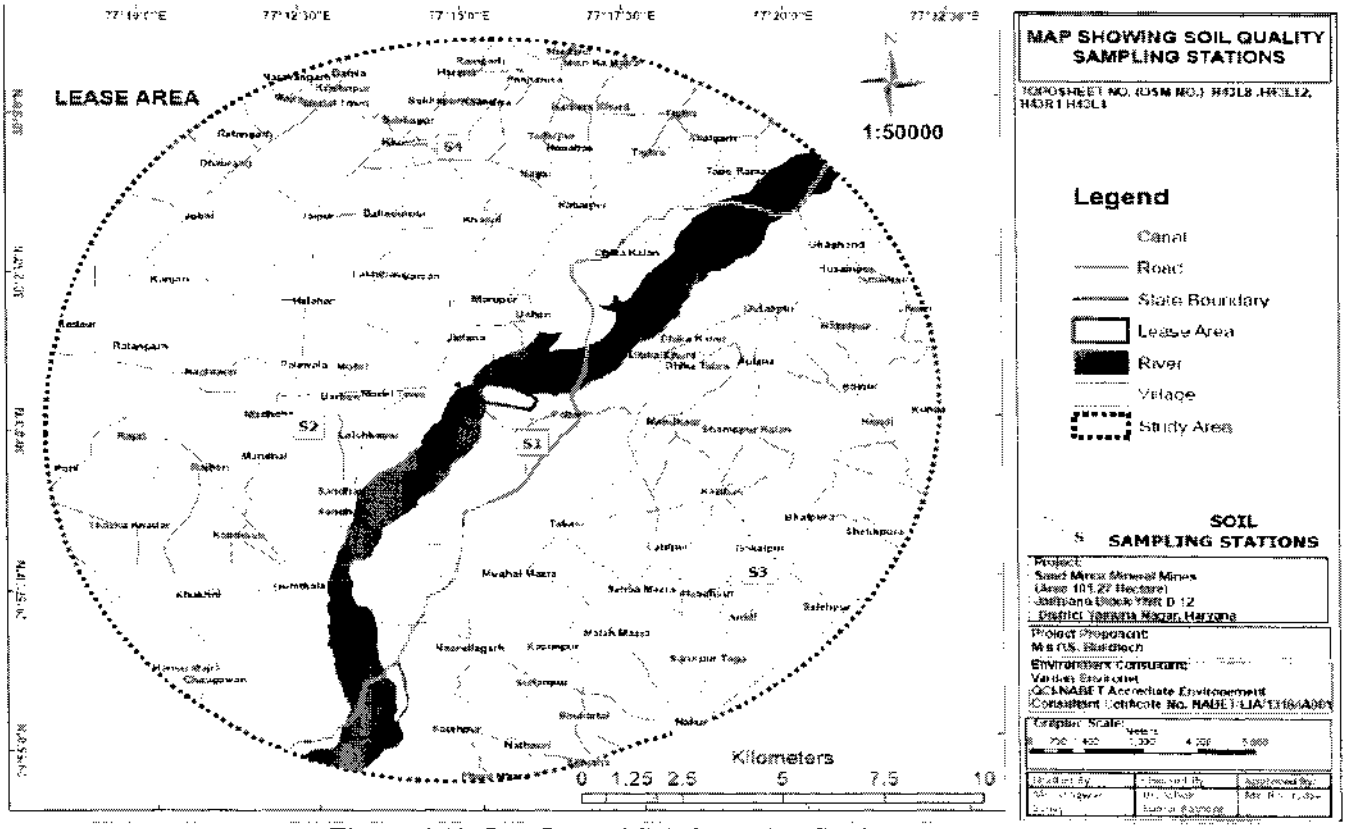


Figure 4.12: Key Plan of Soil Sampling Stations

Table 4.13: Physico-chemical and microbiological Analysis of Soil

(Source; Vardan EnviroLab)

S. No.	Parameter	S1	S2	S3	S4
1.	pH (at 25 ^{0}C)	7.96	8.19	8.22	8.09
2.	Conductivity (mS/ cm)	0.287	0.316	0.266	0.291
3.	Soil Texture	Sandy	Silty Loam	Silty Loam	Silty Loam
4.	Color	Brownish	Yellowish Brown	Yellowish Brown	Yellowish Brown
5.	Water holding capacity(%)	22.18	26.4	25.6	29.4
6.	Bulk density (gm/cc)	1.29	1.43	1.42	1.38
7.	Chloride as Cl(mg/100g)	38.24	36.52	21.60	41.10
8.	Calcium as Ca (mg/100g)	29.16	27.46	37.19	19.28
9.	Sodium as Na(mg/100g)	24.37	16.35	24.52	31.00
10.	Potassium as K(kg/ha)	83.70	97.52	103.6	98.56
11.	Organic Matter (%)	0.53	0.69	0.69	0.70
12.	Magnesium as Mg (mg/100g)	19.36	16.25	15.62	13.64
13.	Available Nitrogen as N (kg/ha)	197.00	239.12	230.72	251.00
14.	Available Phosphorus (kg/ha)	40.16	47.10	26.07	32.25
15.	Zinc as Zn (mg/100g)	4.01	4.21	3.85	3.91
16.	Manganese as Mn (mg/100g)	1.35	1.03	1.56	1.17
17.	Chromium as Cr (mg/100g)	0.79	0.96	0.72	0.84
18.	Lead as Pb (mg/100g)	0.66	0.71	0.52	0.62
19.	Cadmium as Cd (mg/100g)	1.03	0.82	1.09	0.65
20.	Copper as Cu (mg/100g)	2.97	3.03	3.20	1.96

4.7.2 Interpretation

The analysis results show that soil is basic in nature as pH value ranges from **7.96 to 8.22** with organic matter **0.53 % to 0.70 %.** The concentration of Nitrogen (N) ranges from **197.0 kg/hec to 251.00 kg/hec**. Concentration of Phosphorus (P) ranges from **26.07 kg/hec to 47.10 kg/hec.** and concentration of Potassium (K) was found to be in range from **83.70 k/hec to 103.6 kg/hec** has been found to be in good amount in the soil samples. All plants need nitrogen, phosphorus and potassium to grow. Nitrogen is largely responsible for the growth of leaves on the plant. Phosphorus is largely responsible for root growth and flower and fruit development. Potassium is a nutrient that helps the overall functions of the plant performs correctly. The NPK (Compound fertilizer containing N, P_2O_5 and K_2O) ratio is 5:1:2. The consumption of fertilizers is as important a factor as their production. There should be appropriate balance in the consumption of different fertilizer nutrients. The appropriate NPK ratio under Indian soil conditions is stated to be 4:2:1 (National Academy of Agricultural Sciences, 2009). Soil texture is **Silty to Sandy**. Soil Quality data attached as **Annexure-VIII.**

4.8 NOISE ENVIRONMENT

Noise in general is sound, which is composed of many frequency components of various loudness distributed over the audible frequency range. Various noise scales have been introduced to describe, in a single number, the response of an average human being to a complex sound made up various frequencies at

different loudness levels. The most common and heavily favored of those scales is the A weighted decibel (dBA). This is more suitable for audible range of 20 to 20,000 Hertz. The scale has been designed to weigh various components of noise according to the response of a human ear. The main objective of the noise level monitoring is to assess the background noise levels in different zones *viz.*, industrial, commercial, residential and silence zones within the study area. Noise levels were measured in residential areas, bus stands and other settlements located within 10 Km radius around the site.

4.8.1 Noise Analysis within the Study Area

The noise analysis within the study area was recorded using 4012 Maxtech sound level meter. The instrument was calibrated with a Standard Acoustic calibrator before using in the field. The measurements were carried out continuously for the 24-hour period to obtain hourly equivalent sound pressure level, 1 hour Leq. From these values, day and night time as well as 24-hour Leq values were also calculated. The Leq value is the equivalent continuous sound level, which is equivalent to the same sound energy as the fluctuating sound measured in the same period.

4.8.2 Methodology adopted for Selection of Sampling Station

Noise levels are more annoying in the night time particularly in the residential areas. The environmental impact of noise can have several effects varying from annoyance to hearing loss depending on loudness of noise levels. The monitoring for noise levels were done in **4** locations keeping considering the population and traffic of the area. The locations are depicted in **Figure 4.14** and levels recorded stated in **Table 4.15.**

Table 4.14: Noise Monitoring Sampling Stations

Station	Sampling Locations	Coordinates		Aerial Distance (Km) and Direction from Mine Site
		Latitude	Longitude	
N1	Near Village-Jathlana	30°0'12.9"N	77°15'18.1"E	Near Village-Jathlana
N2	Near Village-Gumthala	29°57'39.2"N	77°12'14.2"E	5.5 Km SW
N3	Near Vill -Shamspur Kalan	30°0'6.0"N	77°19'19.1"E	5.1 Km E
N4	Near Vill.- Nasrullagarh	29°56'31.4"N	77°14'52.3"E	5.8 Km S

(Source: SOI Toposheet and Field Visit)

Table 4.15: Noise Levels in Study Area

Location Code	Average Day Time Noise Level Leq. dB (A)	Average Night Time Noise Level Leq. dB (A)
	Day Time (6:00 a.m. to 10:00 p.m.)	Night Time (10:01 p.m. to 5:59 a.m.)
N1	53.1	43.8
N2	52.6	42.8
N3	53.8	41.62
N4	51.6	43.25

(Source; Vardan EnviroLab)

4.8.3 Interpretation of Noise Monitoring

Ambient noise levels were measured at **4** locations around the proposed project site. Minimun and maximum noise levels recorded during the day time were from **51.6 Leq dB and 53.8 Leq dB** respectively and minimum and maximum level of noise during night time were **41.62 Leq dB and 43.25 Leq dB** respectively. Thus noise levels at all locations were observed to be within the prescribed limits. Noise Quality data attached as **Annexure IX** and Ambient Air Quality Standards in respect of Noise is available online at http://cpcb.nic.in/divisionsofheadoffice/pci2/noise_rules_2000.pdf. From the above study and discussions it can be concluded that noise levels in the study area are well within the prescribed limits as prescribed by the CPCB and State Pollution Control Board.

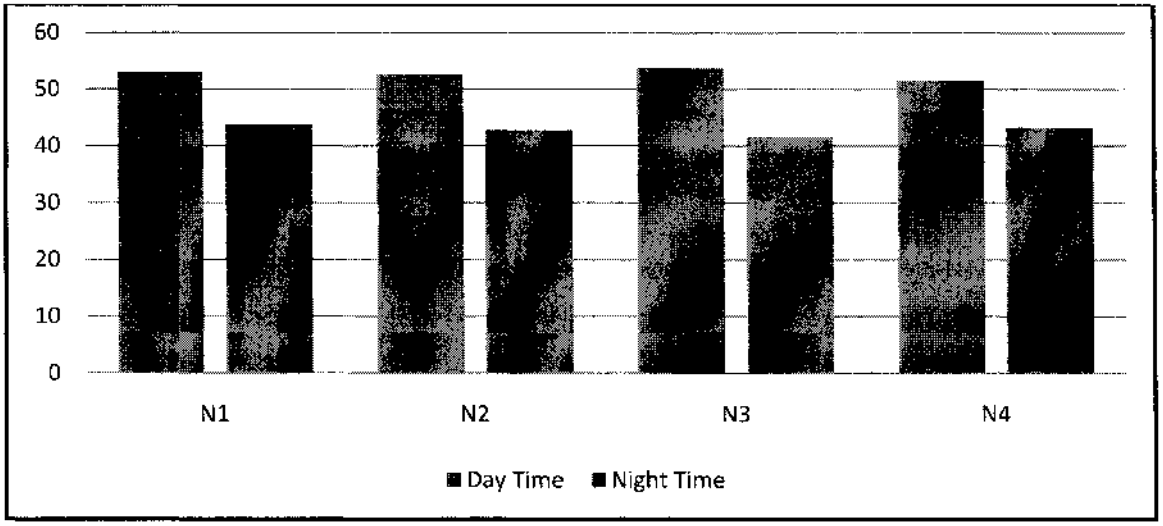


Figure 4.13: Noise Monitoring Result

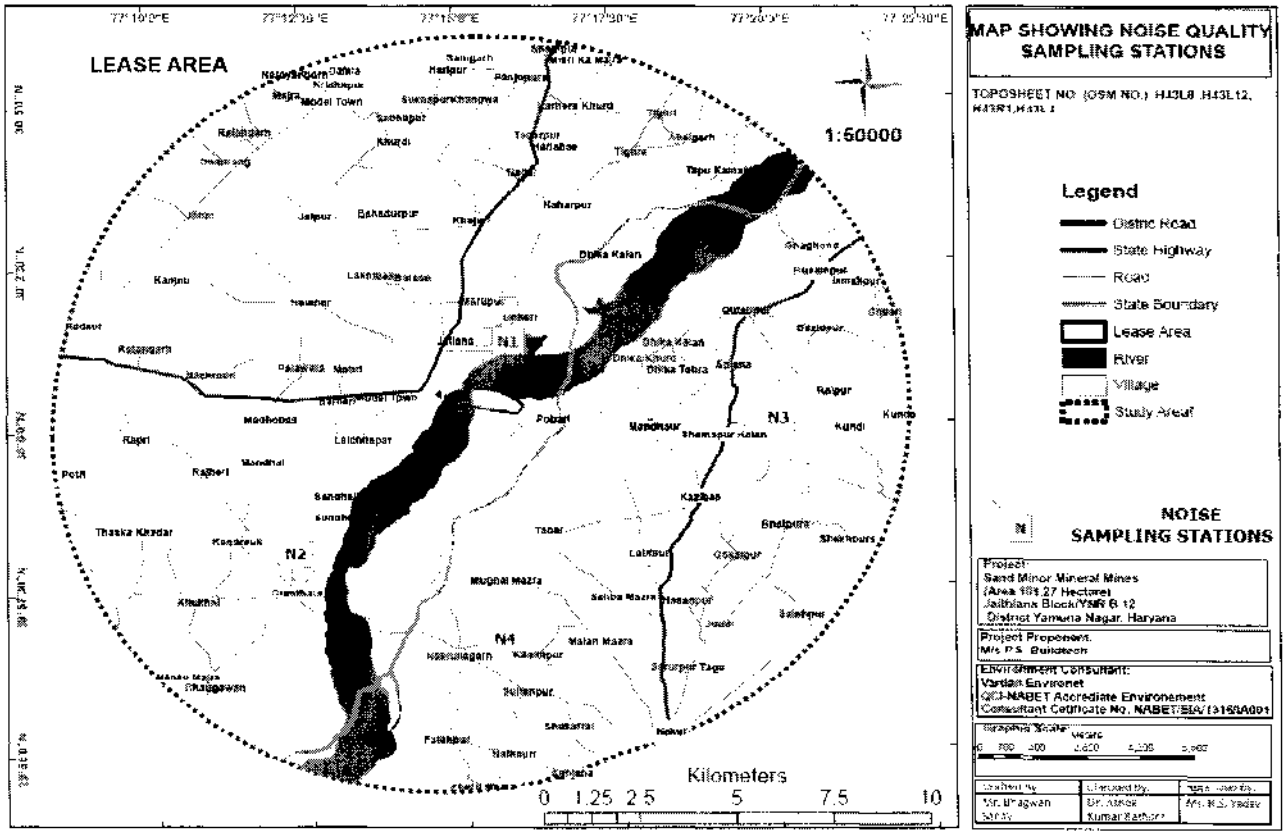


Figure 4.14: Key plan of Noise Monitoring Stations

4.9 TRAFFIC STUDY

Traffic study measurements were performed at State Highway-6 and MDR to assess impact on local transport infrastructure due to this mining project. Traffic study measurements were performed at three locations of these highways is marked on the map in **Figure 4.13**. The traffic study has been conducted on 17th, 18th and 19th December 2015. The detailed traffic study is enclosed as **Annexure-X.**

Table 4.16: Roads and Highways in the Study Area

Name of National/ State Highway and District Road	Direction		Dispatched Ratio in Percentage
	Up	Down	

SH-6	Yamuna Nagar	Radaur	60
MDR	Yamuna Nagar	Saharanpur	40
Total Mineral transported through State Highways and MDR			**100**

Traffic data collected continuously for 24 hours by visual observation and counting of vehicles under three categories, *viz.*, heavy motor vehicles, light motor vehicles and two/three wheelers. As traffic densities on the roads are high, two skilled persons were deployed simultaneously at each station during each shift- one person on each of the two directions for counting the traffic. At the end of each hour, fresh counting and recording was undertaken. Total numbers of vehicles per hour under the three categories were determined

Table 4.17: No. of Vehicles per Day

S. No.	Vehicles Distribution	Number of Vehicles Distribution/Day		(PCU)	Total Number of Vehicle in PCU		Total Number of Vehicle (PCU)/Hour	
		SH-6	MDR		SH-6	MDR	SH-6	MDR
1.	Cars	1503	702	1	1503	702	63	29
2.	Buses	678	604	3	2022	1812	84	76
3.	Trucks	894	505	3	2682	1515	112	63
4.	Two wheelers	810	536	0.5	405	268	17	11
5.	Three wheelers	598	1043	0.75	448	782	19	32
Total		**4483**	**3390**		**7060**	**5079**	**295**	**211**

Table 4.18: Existing Traffic Scenario and LOS

Road	V (Volume in PCU/hr)	C (Capacity in PCU/hr)	Existing V/C Ratio	LOS
SH-6	295	1250	0.24	**B**
MDR-1	211	900	0.23	**B**

Source: IRC:SP:37:2010

V/C	LOS	Performance
0.0-0.2	A	Excellent
0.2-0.4	B	Very Good
0.4-0.6	C	Good/ Average/ Fair
0.6-0.8	D	Poor
0.8-1.0	E	Very Poor

Note: Capacity as per IRC: 64-1990

During Mine Operation

Total Capacity of mine	: 45,00,000 TPA
No. of working days	: 300
Extraction & Transportation of mineral	: 15000 MT/day
Working hours per day	: 8 hour
Truck Capacity	: 25 Tonnes
Frequency of trucks/tankers deployed/day (200 no. x 3 trips/day x 2 (up/down)	: 1200
Frequency of trucks deployed/hr	: 150
Increase in PCU/hr	: 450

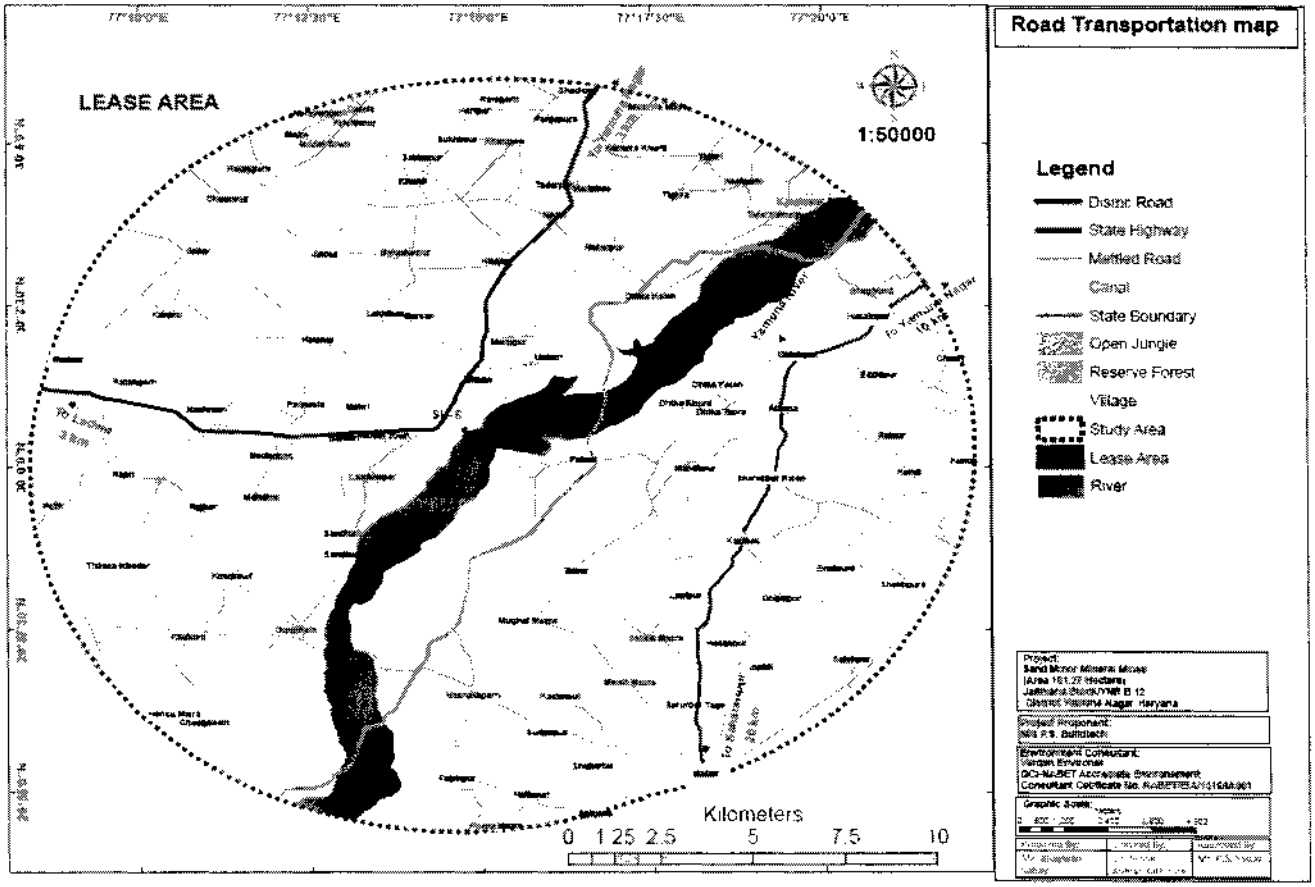


Figure 4.15: Showing the Typically Haul Road which is Connected to Highways for Transportation of Mineral

Table 4.19: Modified Traffic Scenario & LOS

Road	Increased PCU's-State/National Highway	V	C	Modified V/C Ratio	LOS
SH-6	450x 60%= 270	295+270 = 565	1250	0.45	**C**
MDR -1	450 x 40%= 180	211+180 = 391	900	0.43	**C**

4.9.1 Conclusion

Not much impact on local transport as only 200 dumpers/day [200 no. x 3 trips/day x 2 (up/down) = 1200] will be required for transport of mineral from mine. The LOS value from the proposed mining will be changed for both SH-6 and District Road1from **'Very Good'** to **'Good'**. So, the additional load on the carrying capacity of the concern roads is not likely to have any significant adverse affect.

4.16: Photographs for Sampling and Monitoring

4.10 BASELINE STATUS FOR FLORA AND FAUNA

4.10.1 Introduction

The ecology is the scientific analysis and study of interactions among organisms and their environment. It is an interdisciplinary field that includes biology and Earth science. The biodiversity and conservation discipline explores natural landscapes, species and ecosystems and acquires theories and practical methods in preserving environments and organisms. Biodiversity refers not only to endangered species but also to every organism, including microbes and fungi. Biodiversity and conservation program increase awareness and understanding of how human life depends on preserving animal species and natural ecosystems. Biodiversity and conservation is connected to similar disciplines like environmental science, natural resources management and animal sciences.

4.10.2 Baseline Study Area and Period

The baseline study was conducted for the evaluation of the floral and faunal biodiversity of the terrestrial and aquatic environment of the study area (10 Km radius from the lease mine area-) and it

comprises of 43 villages in Yamunanagar District (Haryana) and 31 Villages in Saharanpur District (Uttar Pradesh) due to interstate boundary.

Field study period: The ecological survey has been conducted for one season. The ground truthing has been conducted on 14th, 15th and 16th December, 2015.

Survey sites: Jathlana Project site.

Core zone: At the project site along 1 Km periphery.

Buffer zone: Around the project site in 10 Km radius.

4.10.3 Methodology for Terrestrial Ecology

The primary objective of survey was to describe the floral and faunal communities within the study area. The sampling plots for floral inventory were selected randomly in the suitable habitats (Anderson, 1867; Jain and Rao, 1983; Dixit, 1984; Wilson and Reeder, 2005; Kumar, 2013; Kumar *et al.*, 2013).

The methodology adopted for faunal survey involve random survey, opportunistic observations, diurnal bird observation, active search for reptiles, faunal habitat assessment, active search for scats and foot prints, animal call, and review of previous studies. The aim was to set baselines in order to monitor and identify trends after the commissioning of the mining activity. Emphasis has been placed on presence of endemic species, threatened species if any present in the study area. The qualitative study has been carried out only.

Desktop literature review was conducted to indentify the representative spectrum of threatened species, population and ecological communities listed by IUCN, WCMC, ZSI, BSI and Indian Wild life Protection Act, 1972 (Bentham and Hooker, 1862-1883; Hunter, 1879; Dixit, 1984; Ghosh *et al.*, 2004; Lushington, 1915; Wilson and Reeder, 1993; BirdLife International, 2000; BirdLife International, 2004a, b; Wilson and Reeder, 2005; BirdLife International, 2010; Kumar and Srivastava, 2012; Kumar, 2013; Kumar *et al.*, 2013; Kumar and Aggarwal, 2013a,b). The status of individual species was assessed using the revised IUCN/SSC category system (WCMC, 1988; IUCN, 1994; WCMC, 2000; IUCN, 2001, 2003, 2008, 2010). The villages covered for baseline study are given in the table 4.20 and mode of data collection in table 4.20.

Table 4.20. List of Villages for Baseline study

S.No.	Name of Village	S.No.	Name of Village
Yamunanagar (HR)			
1.	Ramgarh Alias Gulabgarh	**39.**	Marrupur
2.	Haripur Kambo	**40.**	Khajuri
3.	Khandwa	**41.**	Kartarpur
4.	Sukhpura	**42.**	Alahar
5.	Aurangabad	**43.**	Barheri
6.	Karera Khurd	**Saharanpur (UP)**	
7.	Hariawas	**1.**	Husainpur
8.	Todarpur	**2.**	Ghaghond Must.
9.	Panjupur	**3.**	Ismailpur
10.	Shadipur	**4.**	Chabri
11.	Nagal	**5.**	Qutubpur Must
12.	Naharpur	**6.**	Wajidpur
13.	Tapu Kamalpur	**7.**	Dhikka Kalan
14.	Sabhapur	**8.**	Tabra Must.
15.	Khurdi	**9.**	Mandhaur Must.
16.	Akalgarh	**10.**	Kazi Bans
17.	Tigra	**11.**	Tabar Must
18.	Tigri	**12.**	Tabar Aht
19.	Lakhi Bans	**13.**	Nasrulla Garh Must.
20.	Barsan	**14.**	Mugal Mazra
21.	Mohri	**15.**	Kasampur
22.	Jaipur	**16.**	Malha Mazra
23.	Kandrauli	**17.**	Narayanpur
24.	Mandhar	**18.**	Latifpur
25.	Sandhali	**19.**	Sahaba Mazra

26.	Sandhala	**20.**	Meharpur
27.	Gumthala Rao	**21.**	Saroorpur Taga
28.	Rao	**22.**	Shahpur Taga
29.	Nagli	**23.**	Nakur(Dehat)
30.	Majri Dayalgarh	**24.**	Ladde Bans
31.	Karhera	**25.**	Gokalpur
32.	Lal Chhapar	**26.**	Rasoolpur
33.	Jathlana	**27.**	Hasanpur
34.	Pobari	**28.**	Juddi
35.	Bagwali	**29.**	Hasanpur
36.	Unheri	**30.**	Salhapur
37.	Madho Bas	**31.**	Abarakpur
38.	Rajheri		-

Table 4.21. Mode of data collection and parameters considered during the Survey

#	Aspect	Data	Mode of Data collection	Parameters monitored	Remarks
1.	Terrestrial Ecology	Primary data collection	By field survey	Floral and Faunal diversity	Random survey, opportunistic observations, diurnal bird observation, active search for reptiles, faunal habitat assessment, active search for scats and foot prints, animal call
2.		Secondary data collection	From authentic sources like Forests department of Haryana and available published literatures from ZSI, BSI etc.	Floral and Faunal diversity and study of vegetation, forest type, importance etc.	Bentham and Hooker, 1862-1883; Hunter, 1879; Dixit, 1984; Ghosh *et al.*, 2004; Lushington, 1915; Wilson and Reeder, 1993; BirdLife International, 2000; BirdLife International, 2004a, b; Wilson and Reeder, 2005; BirdLife International, 2010; Kumar and Srivastava, 2012; Kumar, 2013; Kumar *et al.*, 2013; Kumar and Aggarwal, 2013a,b). The status of individual species was assessed using the revised IUCN/SSC category system (WCMC, 1988; IUCN, 1994; WCMC, 2000; IUCN, 2001, 2003, 2008, 2010.
3.	Aquatic Ecology	Primary data	By field survey	Floral and Faunal diversity	**For Plankton Study-** Lackey's drops method and light microscope **For other aquatic-** Random survey,

					opportunistic observations
4.		Secondary data collection	From authentic sources like Forests department of Haryana.	Floral and Faunal diversity and study of vegetation, forest type, importance etc.	Desktop literature review to indentify the representative spectrum of threatened species, population and ecological communities.

4.10.4 Methodology for Inland Water Sampling

The samples for qualitative and quantitative analysis of planktons were collected from the sub surface layer at knee depth. Water samples were filtered through plankton net of 20μ mesh size (APHA, 1971). The filtered samples were concentrated by using the centrifuge. By using Lackey's drops method and light microscope (Lackey, 1938), the qualitative analysis was carried out for phytoplankton and zooplankton. The standard flora and other literature were followed for the qualitative evaluation of Plankton (Welch, 1948; Vollenweider, 1969; Edmondson, 1974).

4.10.5 Terrestrial Floral and Faunal Components of the Study Area

The area of for the present biological baseline study falls under 43 villages of Yamunanagar District of Haryana state and 31 villages of Saharanpur of Uttar Pradesh State.

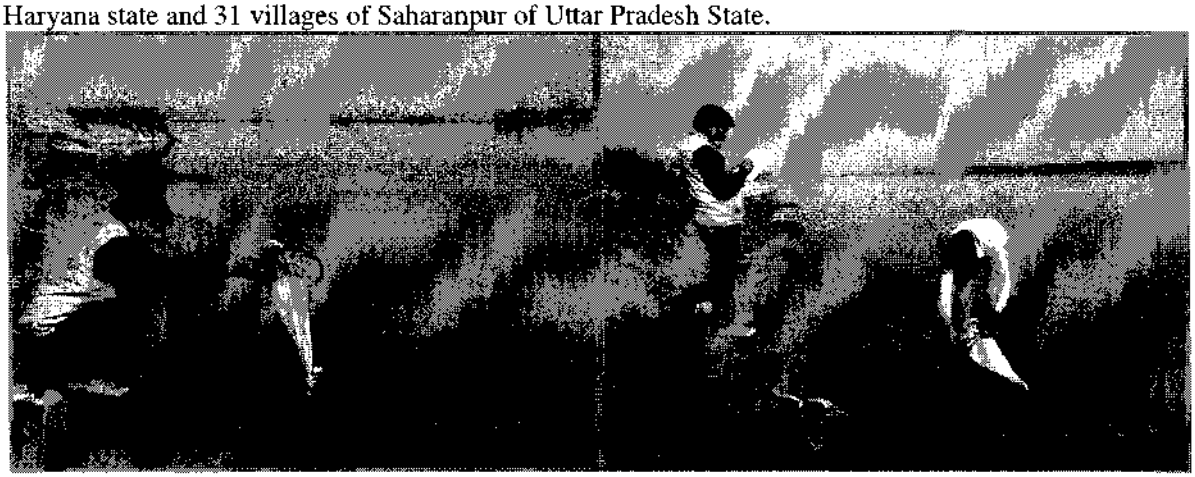


Figure 4.17 Aquatic Habitat of the Study area

Figure 4.18 Terrestrial Habitat of the Study area

Most of villages in the study area (Yamunanagar and Saharanpur) are engaged in agriculture practice and people are depending on the same, major crops are wheat and sugar cane (winter), while in summer paddy is the major crops. Major source of irrigation water is Western Jamuna Canal and its subsidiary canals. Villages are scattered in between the large patches of agriculture lands. The tree cover in the

study area is scanty restricted only in the habituated areas of the village and few along the boundary of the agricultural fields and road sides. It was observed that some of the villages in the study area are with talabs (pond) used in rain water harvesting. The study area is also characterized by many water logged regions occupied by hydrophytes. Some people are engaged in poultry farming while many people are engaged in domestic animal for milk production like Buffalo and cows.

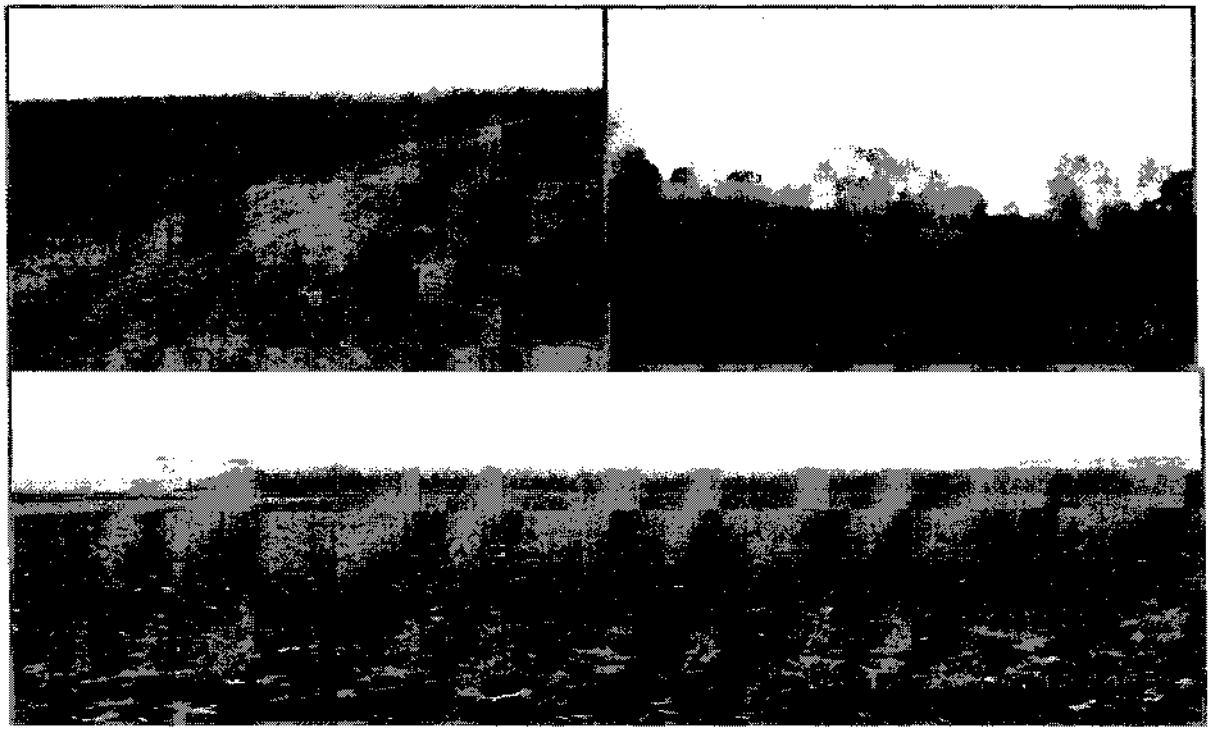
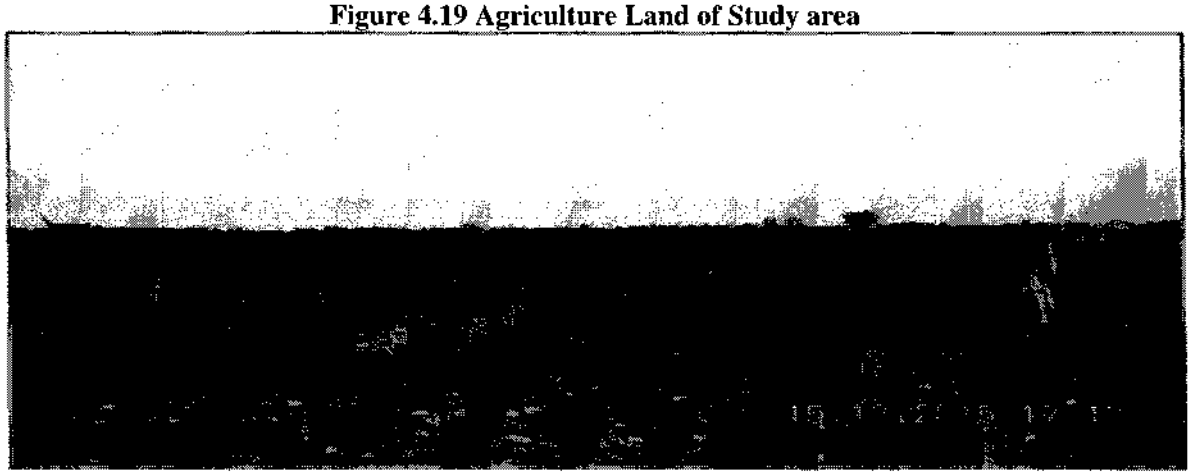


Figure 4.19 Agriculture Land of Study area



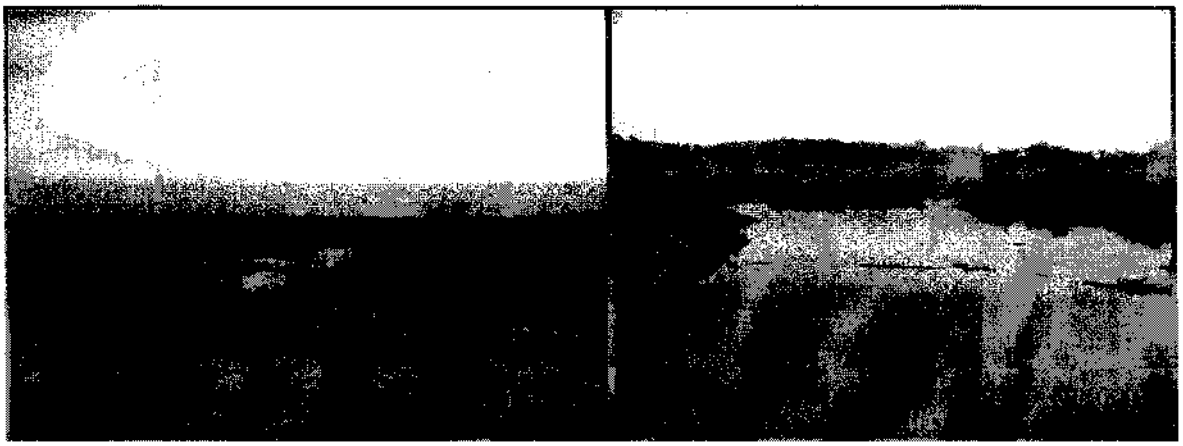


Figure 4.20. Non agriculture Land of Study area

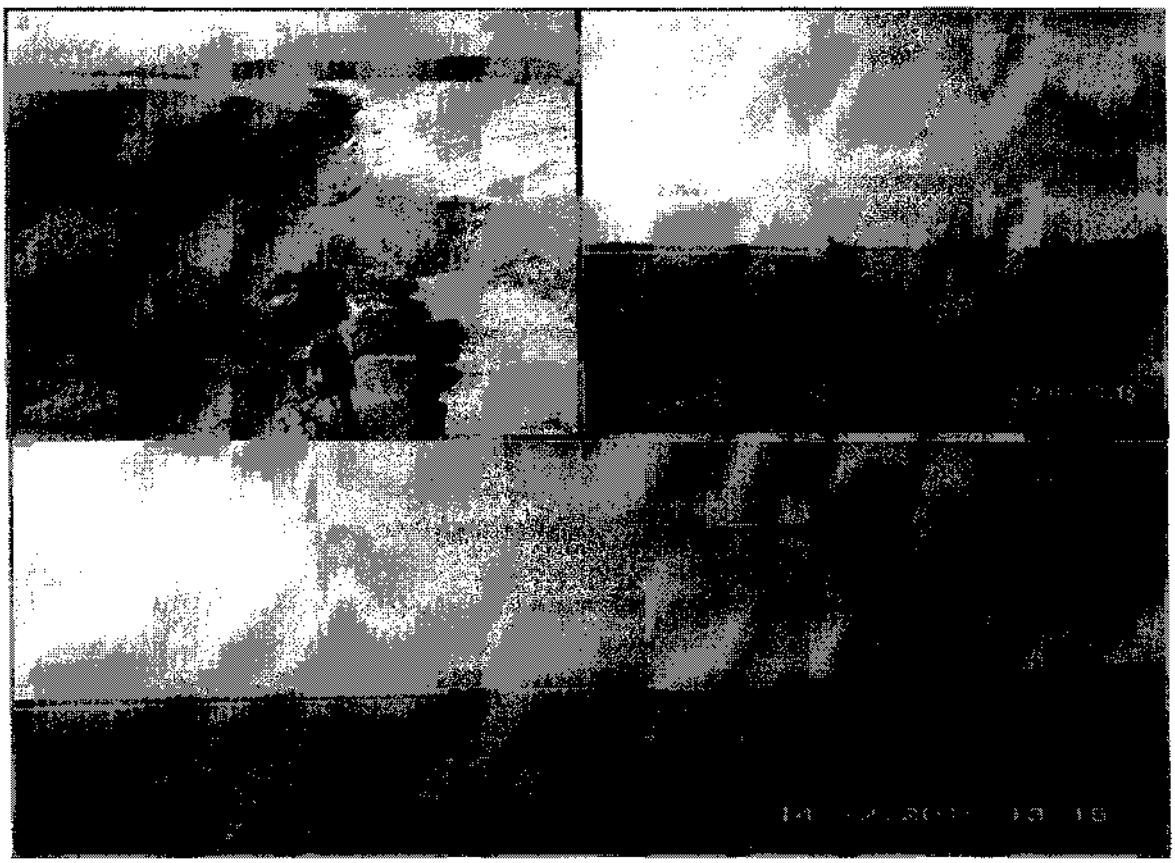


Figure 4.21. Scenario of Project site (Area for Sand Mining)

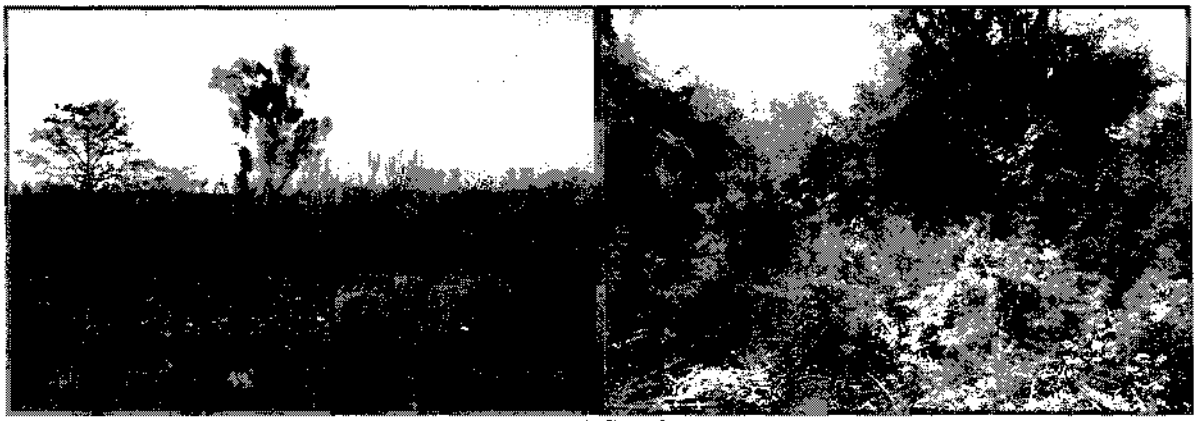


Figure 4.22 Scrub Area

4.10.6 FLORAL DIVERSITY OF THE STUDY AREA

The objective this floral inventory of the study area, is to provide necessary information on floristic structure in the study area for formulating effective management and conservation measures. The climatic, edaphic and biotic variations with their complex interrelationship and composition of species, which are adapted to these variations, have resulted in different vegetation cover, characteristic of each region (Ohasi, 1975). The tree species, herbs, shrubs, climbers and major crops, were documented during this base line study (Jain, 1968; 1991). The tree species observed in the study area is enlisted in the table below. The shrubs observed in the study are documented in the table below. Herbs and climbers in the study area are represented in table below.

Riparian vegetation: Riparian vegetation is found along the river side. In stagnant water growth of hydrophytes likes *Hydrolea zeylanica, Ipomoea carnea, Ludwigia adscendens, Marsilea minuta, Sagittaria sagittifolia, Spilanthes paniculata, Typha latifolia*, etc. can be commonly observed.

Trees: The dominant trees in the study area are *Azadirachta indica* (Neem), *Mangifera indica* (Aam), *Acacia nilotica, Butea monosperma, Terminalia arjuna, Bombax ceiba* (Semal), *Delonix regia* (Gulmohar), *Prosopis cineraria*, etc. along with many varieties of medicinal plants. Total 44 tree species were observed. During survey herbs and shrubs observed in and around the lease area are listed in table 4.22-4.24.

Table 4.22 Trees in the Study area

S. No.	Scientific name	Family	Common name
1.	*Acacia nilotica*	Fabaceae	Babul
2.	*Acalypha ceylon*	Euphorbiaceae	Fire Dragon
3.	*Adenanthera pavonina*	Fabaceae	Barbados Pride
4.	*Aegle marmelos*	Rutaceae	Bel
5.	*Azadirachta indica*	Meliaceae	Neem Tree
6.	*Bambusa arundinacea*	Poaceae	Giant Thorny Bamboo
7.	*Bambusa polymorpha*	Poaceae	Bamboo
8.	*Bombax ceiba*	Malvaceae	Cotton Tree
9.	*Broussonetia papyrifera*	Moeaceae	Paper Mulberry
10.	*Butea frondosa*	Fabaceae	Bastard Teak
11.	*Butea monosperma*	Fabaceae	Flame of the Forest
12.	*Carissa karandas*	Apocynaceae	Christ's Thorn
13.	*Cassia fistula*	Fabaceae	Golden Shower Tree
14.	*Cedrela toona*	Meliaceae	Indian Mahogany
15.	*Dalbergia sissoo*	Fabaceae	Sisam
16.	*Delinia pentagyna*	Dilleniaceae	Fox-Tail Palm
17.	*Delonix regia*	Fabaceae	Flamboyant
18.	*Eucalyptus camaldulensis*	Myrtaceae	Gum Tree
19.	*Ficus bengalensis*	Moeaceae	Indian Fig
20.	*Ficus religiosa*	Moraceae	Sacred Fig
21.	*Ficus retusa*	Moraceae	Cuban Laurel

22.	*Jacaranda mimosifolia*	Bignoniaceae	Nil Mohar
23.	*Jatropha curcas*	Euphorbiaceae	Biodiesel Plant
24.	*Koelreuteria paniculata*	Sapindaceae	Varnish Tree
25.	*Mangifera indica*	Anacardiacea	Mango
26.	*Melia azedarach*	Meliaceae	China Berry
27.	*Milletia pinnata*	Fabaceae	Indian Beech Tree
28.	*Mimusops elengi*	Sapotaceae	Bullet wood Tree
29.	*Murraya koenigii*	Rutaceae	Curry Plant
30.	*Polyalthia longifolia*	Annonaceae	False Ashoka
31.	*Populus ciliata*	Salicaceae	Poplar
32.	*Psidium guajava*	Myrtaceae	Common Guava
33.	*Pterospermum acerifolium*	Malvaceae	Bayur Tree
34.	*Saraca indica*	Fabaceae	Ashoka
35.	*Strychnos nux - vomica*	Loganiaceae	Strychnine Tree
36.	*Syzigium cumini*	Myrtaceae	Jambolan Plum
37.	*Tectona grandis*	Lamiaceae	Sal
38.	*Terminalia arjuna*	Combretaceae	Arjun
39.	*Terminalia bellirica*	Combretaceae	Bastard Myrobalan
40.	*Thevetia peruviana*	Apocynaceae	Punjab Fig/ Anjiri
41.	*Tridex procumbens*	Compositae	Coat Button
42.	*Typha angustata*	Typhaceae	Cat Tail
43.	*Ziziphus muritiana*	Rhamnaceae	Indian Plum
44.	*Ziziphus jujuba*	Rhamnaceae	Jujube

(Source: Primary data)

Shrubs: Shrubs encountered during the present survey are given in the Table below. The dominant shrub community in this area was represented by Kaner (*Thevetia peruviana*), *Prosopis juliflora* (Bilayati babool), *Calotropis procera*, *C. gigantea* (Akoda), *Ipomoea fistulosa* and *Abutilon indicum*, etc. The shrubs observed in the study area are given in the table below.

Table 4.23. Lists of Shrubs in the Study Area

S.No.	Family and Scientific name	Vernacular name
1	**Apocynaceae**	
1/1	*Oxypetalum acerosum*	-
2/2	*Thevetia peruviana* Merr.	Pili Kaner
2	**Asclepiadaceae**	
3/1	*Calotropis gigantea* (L.) R. Br	Akoda
4/2	*Calotropis procera* (Ait.) R.Br	Akoda
3	**Balanitaceae**	
5/1	*Balanites aegyptiaca* (L.) Del.	-
4	**Bignoniaceae**	
6/1	*Tecoma stans* (L.) H.B. and K.	-
5	**Cactaceae**	
7/1	*Cereus peruvianus*	Cactus
5	**Caesalpiniaceae**	
8/1	*Cassia auriculata* L	-
6	**Capparaceae**	
9/1	*Capparis decidua* (Forsk.) Edgew	-
7	**Compositae**	
10/1	*Xanthium strumarium* L.	Gokhru
8	**Convolvulaceae**	
11/1	*Ipomoea fistulosa* Mart.ex Choisy	Besharm
9	**Euphorbiaceae**	
12/1	*Euphorbia neriifolia L.*	Thor
13/2	*Jatropha curcas L.*	Ratanjot

14/3	*Ricinus communis L.*	Arand
10	**Lythraceae**	
15/1	*Decodon verticillatus*	Water willow
11	**Malvaceae**	
16/1	*Abelomoschus manihot (L.) Medic.*	Jagali bhindi
17/2	*Abutilon indicum (L.) Sw.*	Khapat
18/3	*Hibiscus rosasinensis*	Gurhal
12	**Musaceae**	
19/1	*Musa paradisiaca L.*	Kela
13	**Mimosaceae**	
20/1	*Prosopis juliflora* DC	Bilayati babool
14	**Nyctaginaceae**	
21/1	*Bougainvillea spectabilis* Willd.	Bougainvelia
15	**Papilionaceae**	
22/1	*Sesbania sesban* (L.) Merr.	Sesban
16	**Rhamnaceae**	
23/1	*Zizyphus nummularia* (Burm.f.) W. and.	Jharbera
17	**Solanaceae**	
24/1	*Datura metel* L	Datura
25/2	*Solanum incanum* L	Junglee baigan

(Source: Primary data)

Herbs: The herbaceous cover observed in this region is given in the table below. The most of the undergrowth was dried up, except near water logged regions and along the periphery of the village ponds. Total 33 species belongs to 18 family were recorded from the study area.

Table 4.24 List of Herbaceous species observed in the study area

S.No.	Family and Scientific name	Vernacular name
1	**Acanthaceae**	
1/1	*Hygrophila auriculata (Schum.)*	Kokilaksha
2	**Asteraceae**	
2/1	*Blumea sps.*	-
3/2	*Eclipta prostrata* (L.) L.	Bhangra
4/3	*Echinops echinatus* Roxb	Shulia
5/4	*Tridax procumbens L*	Pardesi bhangra
3	**Boraginaceae**	
6/1	*Trichodesma indicum l.*	-
4	**Chenopodiaceae**	
7/1	*Suaeda nudiflora* (willd) Moq.	-
8/2	*S. fruticosa* L.	-
5	**Cyperaceae**	
9/1	*Cyperus bulbosus* Vahl.	-
10/2	*Cyperus difformis* L.	-
11/3	*Cyperus stoloniferus* Retz.	-
12/4	*Cyperus rotundus* L.	-
6	**Lamiaceae (Labiatae)**	
13/1	*Ocimum basilicum* L.	Damara
14/2	*Ocimum sanctum* L.	Tuli
7	**Liliaceae**	
15/1	*Aloe barbadensis* Mill.	Kunvarpato
8	**Nymphaeaceae**	
16/1	*Nymphaea pubescens* Willd	Kamal
17/2	*Nymphaea stellata*	-
9	**Nyctaginaceae**	
18/1	*Boerhavia diffusa* L.	-

19/2	*Boerhavia chinensis Druce*	-
10	**Papaveraceae**	
20/1	*Argemone mexicana L.*	Darudi
11	**Papilionaceae**	-
21/1	*Cortalaria medicaginea Lam*	Ran methi
22/2	*Indigofera oblongifolia Forks.*	-
12	**Poaceae (Gramineae)**	
23/1	*Phragmites karaka Steud*	-
24/2	*Aleuropus lagopoides Trin*	-
25/3	*Cynodon dactylon Pers.*	-
26/4	*Pennisetum typhoides (Burm.)*	Bajri
13	**Poligonaceae**	
27/1	*Poligonum sp.*	-
14	**Pontederiaceae**	
28/1	*Eichhornia crassipes* (Mart.)	Jalkumbhi
15	**Potamogetonaceae**	
29/1	*Potomogeton* sp.	-
16	**Solanaceae**	
30/1	*Solanum surattense Burm.*	Bhoringini
31/2	*Datura metel*	Dhatura
17	**Typhaceae**	
32/1	*Typha angustata* Bory and Chaub	-
18	**Zygophyllaceae**	
33/1	*Tribulus terrestris* L	Gokhru

(Source: Primary data)

Climbers and Twiners: The climbers and twiners observed along the agricultural hedges and road side hedges of the study area are given in the table below. Total 4 species of climbers/ twiners belongs to 3 families are recorded from the area.

Table 4.25. List of Climbers Observed in the Study Area

S.No.	Family and Scientific name	Vernacular name
1.	**Convolvulaceae**	
1/1	*Ipomoea pes-caprae*	Dariani vel
2.	**Cucurbitaceae**	
2/1	*Coccinia grandis* (L.) Voigt	Ghiloda
3/2	*Luffa cylindrica (L.) M.J.Roem*	Galku
3.	**Cuscutaceae**	
4/1	*Cuscuta chinensis* Lam.	Amarval

(Source: Primary data)

4.10.7 Cultivated Plants in the Study Area

The soil is more Sandy, the typical river basin characteristics and is mixed with sand making it more useful for agricultural purposes. The crop occupying the highest percentage of the sown area of this region is taken as the major crop and all other possible alternative crops which are sown in this region either as substitutes of the base crop in the same season or as the crops which fit in the rotation in the subsequent season, are considered as minor crop. The yields for most of the crops are one of the best in India. The major produces are that of wheat, rice, maize, sugarcane and oilseeds.

a. Major Crops: Mainly people of Yamunanagar area was dependent on Wheat *(Triticum aestivum)* and Sugar cane (*Saccharum officinarum*). Other crops in the study area are Mustard (*Brassica rapa*), Paddy (*Oryza sativa*), Maize (*Zea mays*) and Barley (*Hordeum vulgare*).

b. Minor crops: The minor crops of this region are Mustard (*Brassica campestris* var.), Green gram (*Vigna radiate*), Sesamum (*Sesamum inicum*), Pigeon Pea (*Punica granatum*) Jowar (*Sorghum bicolar*) and Black Gram (*Vigna mungo*).

c. Major horticultural crops: Aam (*Mangifera indica* L.), Papaya (*Carica papaya* L.), Banana (*Musa Paradisiaca* L.), Lime (*Citrus aurantifolia*), Guava (*Psidium guajava*), Jack-fruit (*Artocarpus*

heterophyllus), Jujube (*Ziziphus mauritiana*), Myriobalan (*Phyllanthus emblica*) and Palmgranate (*Punica granatum*).

d. Major Vegetable corps: The major vegetables grown in the study area were:

1. Amari: *Hibiscus subderifa.*
2. Brinjal: *Solanum melongena.*
3. Cabbage: *Brassica oleracea.*
4. Carrot: *Daucus carota.*
5. Cauliflower: *Brassica oleracea.*
6. Chilli: *Capsicum annum.*
7. Coriander: *Coriandrum sativum*
8. Garlic: *Allium sativum*
9. Potato: *Solanum tuberosum.*
10. Radish: *Raphanus sativus.*
11. Spinach: *Beta olirecia.*
12. Sponge gourd: *Luffa cylindrica.*
13. Tomato: *Lycopersicum esculantum*
14. White gourd (winter melon): *Benincasa hispida.*

e. Major Ornamental Plants: Following is the list of ornamental plants in the study area.

1. Marigold: *Tagates erecta.*
2. Periwinkle: *Catharanthus roseus.*
3. China rose: *Hibiscus rosasinensis.*
4. Chrysanthemum: *Chrysanthemum americanum.*
5. Rose: *Rosa indica.*
6. Jasmin: *Jasminum sambac.*
7. Stick Rose: *Polyanthes tuberose.*

4.10.8 Rare and Endangered Flora in the Study Area: The IUCN Red List is the world's most comprehensive inventory of the global conservation status of plant and animal species. It uses a set of criteria to evaluate the extinction risk of thousands of species and subspecies. These criteria are relevant to all species and all regions of the world. With its strong scientific base, the IUCN Red List is recognized as the most authoritative guide to the status of biological diversity. Out of 17000 species of higher plants known to occur in India, nearly 614 higher plant species were evaluated by IUCN. Among them 247 species are under threatened category (IUCN, 2008).

Among the enumerated flora in the study area, none of them were assigned any threat category by Red data book of Indian Plants (Jain and Sastry, 1984; Nayar and Sastry, 1987; 1988; 1990; Oldfield *et al.*, 1998; Kholia and Bhakuni, 2009) and Red list of threatened Vascular plants (IUCN, 2010).

4.10.9 Endemic Plants of the Study Area: De Candolle (1855), Swiss botanist, first used the concept of Endemic, which is defined as an area of a taxonomic unit, especially a species which has a restricted distribution or habitat, isolated from its surrounding region through geographical, ecological or temporal barriers. Out of 17000 species of known flowering plants of India nearly 5000 species are said to be endemic. Nearly 58 genera and 1932 taxa are found to be endemic to peninsular India (Nayar, 1980; Ahmedullah and Nayar, 1986; 1987; Jain 1992; Nayar, 1996; Vijaya Shankar *et al.*, 2005; Nautiyal *et al.*, 2009a,b; Shendage *et al.*, 2010).

Among recorded plant species none can be assigned the status of endemic plant of this region.

4.10.10 Status of the Forest, Their Category in Study Area:

There is no Wildlife Sanctuary/National Park in 10 Km radius. The project area is free from forest and not falling under wildlife. However, there is one RF i.e. Kalanaur Reserve Forest 8.8 Km, NE direction.

4.10.11 Faunal Biodiversity of Study Area

For the documentation of the faunal biodiversity of the study area with respect to birds, reptiles, amphibians, and butterfly species, a baseline survey had been conducted. The study area falls under two states Haryana and Uttar Pradesh (interstate boundary).

Birds: The sighting of bird species was very lass during the study period during Dec. 2015. The most commonly spotted bird species of this area were: Cattle Egret, Intermediate Egret, Black-winged Stilt, Red-wattled Lapwing, Rock Pigeon, Eurasian Collared-Dove, Spotted Dove, Chestnut-headed Bee-

eater, Bank Myna and Common Myna. Only one Indian Peafowl was observed which is listed as schedule –I as per IWPA, 1972.

Table 4.26. Schedule –I Bird(s) of Study Area

Species	As IWPA 1972	IUCN	CITES
Indian Peafowl *(Pavo cristatus)*	Schedule 1	Least Concern ver 3.1	Not listed

Table 4.27. Systematic Lists of Birds in the Study Area with Its Distribution and Migratory Status

Old Common name	New Common Name	Scientific Name	Distribution
I ORDER: APODIFORMES			
Family: Apodidae (swifts)			
Common Swift	Common Swift	*Apus apus*	**R**
House swift	Little Swift	*Apus affinis*	**R**
II ORDER: FALCONIFORMES			
Family: Accipitridae (vulture, Sparrow hawk, Eagle, Harrier, Kite and Vulture)			
Shikra	Shikra	*Accipiter badius*	**R**
Black-winged Kite	Black-winged Kite	*Elanus caeruleus*	**R**
III. ORDER: : CICONIIFORMES			
Family: Ardeidae (heron, Egret, Bittern)			
Cattle Egret	Cattle Egret	*Bubulcus ibis*	**R**
Median or Smaller Egret	Intermediate Egret	*Mesophoyx intermedia* *Egretta intermedia*	**R**
Little Egret	Little Egret	*Egretta garzetta*	**R**
Pond Heron	Indian Pond-Heron	*Ardeola grayii*	**R**
Family: Charadriidae (Plover, Stilt, Oystercatcher, Lapwing, Avocet)			
Black-winged Stilt	Black-winged Stilt	*Himantopus himantopus*	**R**
Red-wattled Lapwing	Red-wattled Lapwing	*Vanellus indicus*	**R**
Family: Threskiornithidae (Spoonbill and Ibis)			
Black Ibis	Red-naped Ibis	*Pseudibis papillosa*	**R**
IV ORDER: COLUMBIFORMES			
Family: Columbidae (Pigeon, Dove)			
Blue Rock Pigeon	Rock Pigeon	*Columba livia*	**R**
Ring Dove	Eurasian Collared-Dove	*Streptopelia decaocto*	**R**
Rufous Turtle Dove	Oriental Turtle-Dove	*Streptopelia orientalis*	**R**
Spotted Dove	Spotted Dove	*Streptopelia chinensis*	**R**
V : ORDER: CORACIFORMES			
Family: Dacelonidae (Kingfishers)			
White breasted Kingfisher	White-throated Kingfisher	*Halcyon smyrnensis*	**R**
Family: Coraciidae (Roller)			
BlueJay or Roller	Indian Roller	*Coracias benghalensis*	**R**
Family: Meropidae (Bee Eater)			
Chestnut-headed Bee-eater	Chestnut-headed Bee-eater	*Merops leschenaulti*	**R**
Blue-cheeked Bee-eater	Blue-cheeked Bee-eater	*Merops persicus*	**R**
Olive Bee eater	Olive Bee eater	*Merops superciliosus*	**W**
VI. ORDER: CUCULIFORMES			
Family: Centropodidae (Cocucal)			
Crow-Pheasant or Coucal	Greater Coucal	*Centropus sinensis*	**R**
Family: Cuculidae (cuckoo, Koel)			
Koel	Asian Koel`	*Eudynamys scolopacea*	**R**
Indian Drongo Cuckoo	Drongo Cuckoo	*Surniculus lugubris*	**R**
VII. ORDER: GALLIFORMES			

Family: Phasianidae (Peafowl, Partridge, Quail, francolin, Spur fowl, Jungle fowl, Monal)			
Common Peafowl	Indian Peafowl	*Pavo cristatus*	**R**
Grey Partridge	Grey Francolin	*Francolinus pondicerianus*	**R**
Common Quail	Common Quail	*Coturnix coturnix*	**R**
Red jungle fowl	Red jungle fowl	*Gallus gallus*	**R**
VIII. ORDER: GRUIFORMES			
Family: Rallidae (Waterhen, coot, crake water cock, Moorhen, Rail)			
White-breasted Water hen	White-breasted Water hen	*Amaurornis phoenicurus*	**R**
Indian Moorhen	Common Moorhen	*Gallinula chloropus*	**R**
XI. ORDER: PASSERIFORMES			
Family: Paridae (Tit)			
Grey Tit	Great Tit	*Parus major*	**R**
Family: Corvidae			
Raven	Common Raven	*Corvus corax*	**R**
House Crow	House Crow	*Corvus splendens*	**R**
Black drongo- King Crow	Black Drongo	*Dicrurus macrocercus*	**R**
Tree Pie	Rufous Treepie	*Dendrocitta vagabunda*	**R**
Family: Muscicapidae (Short wing, Chat, Robin, Shama			
Indian Robin	Indian Robin	*Saxicoloides fulicata*	**R**
Pied Bushchat	Pied Bushchat	*Saxicola caprata*	**R**
Family: Nectariniidae (Sun Birds, Flower pecker, Spider hunter)			
Purple Sunbird	Purple Sunbird	*Nectarinia asiatica*	**R**
Small Sunbird	Crimson-backed Sunbird	*Nectarinia minima*	**R**
Family: Passeridae (Avadavat, Pipit, Wagtail, Munia, Snowfinch, Sparrow, Accentor)			
House Sparrow	House Sparrow	*Passer domesticus*	**R**
Grey Tit	Great Tit	*Parus major*	**R**
Family: Pycnonotidae (Bulbul)			
Red-whiskered Bulbul	Red-whiskered Bulbul	*Pycnonotus jocosus*	**R**
Red-vented Bulbul	Red-vented Bulbul	*Pycnonotus cafer*	**R**
Family: Sturnidae (Myna, Starling)			
Bank Myna	Bank Myna	*Acridotheres ginginianus*	**R**
Indian Myna	Common Myna	*Acridotheres tristis*	**R**
Family: Sylviidae (Warbler, Browning, Fulvetta ,Babbler, Laughing thrash, Tailor birds)			
Common Babbler	Common Babbler	*Turdoides caudatus*	**R**
Jungle Babbler	Jungle Babbler	*Turdoides striatus*	**R**
Tailorbird	Common Tailorbird	*Orthotomus sutorius*	**R**
X. ORDER: PSITTACIFORMES			
Family: Psittacidae (Parrot and Parakeet)			
Rose-ringed Parakeet	Rose-ringed Parakeet	*Psittacula krameri*	**R**
Family: Ploceidae			
Baya	Baya weaver	*Ploceus philippinus*	**R**
XI. ORDER: STRIGIFORMES			
Family: Strigidae (Owl and Owlet)			
Owl	Indian Great Horned owl	*Bubo bubo*	**R**

(Source: Primary data)

Note: **R** = Widespread Resident, r = Very Local Resident, **W** = Widespread Winter Visitor, w = Sparse Winter Visitor, **RW** =Resident and winter visitor as per the distribution given in WCMC, Check list of Indian Birds

Butterflies from the study area: Butterflies observed during the present study are documented in the Table below.

Table 4.28. Butterflies in the Study Area

Scientific name and family	Common name
Family Papilionidae	
Papilio polytes	Common Mormon
Family Pieridae	
Eurema hecabe	Common Grass yellow
Ixias Marianne	White orange tip
Family: Nymphalidae	
Danaus genutia Cramer	Stripped Tiger
Hypolimanas misippus	Danaid egg fly
Mycalesis perseus	Common bush brown

(Source: Primary data)

Herpetofauna: Frog, toad, Common Garden Lizard, Indian Monitor, etc. were sighted during the study period during Dec. 2015. The reptiles' document in the region is given in the table below.

Table 4.29. Reptiles and Amphibian in the Study Area

S.No.	Common Name	Scientific name	Schedule as IWPA, 1972
1.	Toad	*Bufo bufo*	Not listed
2.	Marbled toad	*Bufo stomaticus*	-
3.	Common Toad	*Bufo melanostictus*	-
4.	Frog	*Rana tigrina*	Schedule IV
5.	Skink	*Mabuya macularia*	-
6.	Common Garden Lizard	*Calotes versicolor*	Not listed
7.	Fan-Throated Lizard	*Sitana ponticeriana*	Not listed
8.	House Gecko	*Hemidactylus flaviviridis*	Not listed

(Source: Primary data)

Mammals: The wild mammals observed other than the domesticated ones are given in the table below.

Table 4.30. Mammals in Study area

S.No.	Common Name	Scientific name	Status as per IWPA 1972
1.	Bat	*Rousettus leschenaulti*	Schedule V
2.	Common House rat	*Rattus rattus*	Schedule V
3.	Common Mongoose	*Herpestes edwardsii*	Schedule II
4.	Five striped Palm Squirrel	*Funambulus pennanii*	Schedule IV
6.	Indian Mole Rat	*Bandicota bengalensis*	Schedule V
7.	Hare	*Lepus nigrigolis davanus*	Schedule IV
8.	Indian field mouse	*Mus booduga*	Schedule IV
9.	Monkey (Rhesus macaque)	*Macaca mulatta*	Schedule II
10.	Nilgai (Blue Bull)	*Boselaphus tragocamelus*	Schedule-III

(Source: Primary data)

Fishes: The fishes observed are given in the table below.

Table 4.31. Fishes in Study area

S.No.	Local Name	Scientific name
1.	Calbasu	*Labeo calbasu*
2.	Kali Machali	*Barbus chilinadea*
3.	Mahseer	*Tor barakae*
4.	Rohu	*Labeo rohita*
5.	Singi	*Clarias batrachus*

(Source: Primary data)

Domestic Animals

The domestic animals observed in the study area are given in the table below.

Table 4.32. Domestic Animals in Study area

S.No.	English/Hindi Name	Scientific name
1.	Buffalo/ Bhains	*Bulbalus bulbalis*

3.	Cow/Gai	*Bos primigenius*
5.	Dog/Kutta	*Canis lupus familiaris*
2.	Goat/Bakri	*Capra aegagrus hircus*
4.	Sheep/Bhed	*Ovis aries*

(Source: Primary data)

Rare and Endangered Fauna of Study Area: Among the birds in the study area, Pea fowl (*Pavo cristatus)* is included in schedule I of Wild life protection Act (1972), while many other birds are included in schedule IV. Among mammals, Common Mongoose (*Herpestes edwardsi)*, and Monkey (*Rhesus macaque*) are a schedule–II animals. Nilgai (*Boselaphus tragocamelus*) is protected as Schedule-III animal and hares and five stripped squirrels are included in schedule IV of Wild Life Protection act 1972.

Endemic Fauna of the Study Area: None of the sighted animal species can be assigned endemic species category of the study area.

Table 4.33 List of Schedule –I and II Fauna observed During the Study

S.No.	Scientific Name	Local Name	Schedule as per WPA, 1972	IUCN Category	CITES Listing
1.	*Pavo cristatus*	Indian Peafowl	Schedule I	LC	Not listed
2.	*Herpestes edwardsi*	Common Mongoose	Schedule II	LC	Appendix III
3.	*Macaca mulatta*	Rhesus macaque	Schedule II	LC	Not listed

Plankton Study

Most of the villages in the study area are with large village ponds for rain water harvesting option as wells to recharge aquifers for better quality water in the wells at the periphery of these village ponds. The Village-

Jathlana (Near project site) River Yamuna at Village Ghagond(Upstream) River Yamuna at Village Gumthala(Downstream) Village Madhobas,Village Mughal Mazra were sampled to document the plankton diversity. Biotic communities of the in an inland water body consist of Phytoplankton (plant plankton) includes minute photosynthetic cells and microscopic unicellular and multi cellular species of several phyla of true algae, which are either solitary or colonial. Phytoplankton is autotrophs, containing photosynthetic pigments. Most of the phytoplankton has a density greater than the water hence they tend to sink down. Water turbulence combined with other factors such as shape, and physiological state, reduce the sinking rate of non motile organisms. Motile phytoplankton, like most of the dinoflagellates may actively swim to compensate for sinking. Phytoplankton is of great ecological significance because they comprise the major portion of primary producers for all the consumers such as zooplankton and fishes. Zooplankton (animal plankton) includes a great variety of animals from single-celled protozoa to large invertebrates. Among the zooplanktons crustaceans of phylum Arthropoda easily predominate, these include numerous species within several categories. Zooplankton includes animals that are planktonic throughout their lives as well as larvae of animals that grow up to be nekton or benthos.

Table 4.34. Plankton Community of Inland Water bodies

Plankton Community	Village Jathlana (Near project site)	River Yamuna at Village Ghagond (Upstream)	River Yamuna at Village Gumthala (Downstream)	Village Madhobas	Village Mughal Mazra
Phytoplankton					
Sub Phylum Chlorophyceae					
Order: Chlorococcale					
Family: Scenedesmaceae					
Scenedesmus sp.	✖	✖	✖	✓	✓
Ulothrix sp.	✖	✖	✓	✖	✓

Famiy: Hydrodictyacea					
***Hydrodictyon* sp**	✓	✗	✗	✓	✓
***Pediastrum* sp.**	✗	✓	✗	✓	✓
Order: Zygnematles					
Family: Zygnemataceae					
***Spirogyra* sp.**	✓	✓	✗	✓	✓
Family : Desmidiaceae					
***Closterium* sp.**	✗	✓	✗	✓	✓
***Cosmarium* sp**	✗	✗	✗	✓	✓
Phylum: Euglenophyta					
Order Euglenales					
Family Euglenaceae					
***Phacus* sp**	✓	✗	✗	✗	✗
Euglena sp.	✗	✓	✗	✗	✗
Phylum: Chrysophyta					
Sub Phylum: Bacillariophyceae					
Order: Centrales					
***Melosira* sp**	✗	✗	✗	✗	✓
Order: Pennales					
Family: Fragilariaceae					
***Fragilaria* sp**	✗	✗	✗		
***Synedra* sp.**	✗	✗	✗	✓	✓
Family: Naviculaceae					
***Navicula* sp.**	✓	✓	✓	✗	✓
***Pinnularia* sp**	✓	✓	✓	✓	✗
Zooplankton					
Phylum Rotifera					
Class : Monogononta					
Order : Ploima					
Family : Brachionidae					
Brachionus angularis	✗	✗	✓	✓	✓
Brachionus forficula	✓	✓	✗	✗	✗
***Nothalca* sp.**	✗	✗	✗	✓	✗
Keratella sp.	✗	✓	✓	✗	✓
Phylum: Arthropoda					
Class Brabchiopoda					
Order Cladocera					
Famliy Daphnidae					
***Daphnia* sp.**	✗	✗	✗	✓	✗
Bosmina sp.	✓	✗	✓	✓	✓
Class : Crustaceae					
Sub class Copepoda					
Order: Calanoida					
Family: Diaptominae					
***Neodiaptomus* sp.**	✓	✓	✓	✓	✗
Order: Cyclopoida					
Family: Cyclopidae					
Sub family: Eucyclopinae					
Cyclops sp.	✗	✗	✓	✓	✗
***Eucyclops* sp.**	✗	✗	✗	✓	✓
***Ectocyclops* sp.**	✓	✗	✓	✓	✓

PCI	0	0	0	3	4

(Source: Microscopic study) ✓ Indicates presence; × Indicates absence.

PCI Codes as per Colebrook, 1960 and Batten *et al.* 2003.

Code 0 = No Colour
Code 1 = Very Pale Green (Shade 1)
Code 2 = Pale Green (Shade 2)
Code 3 = Light Green (Shade 3)
Code 4 = Light Green (Shade 4)
Code 5 = Light Green (Shade 5)

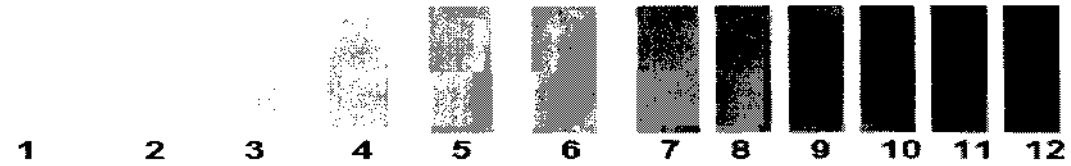


Figure 4.23. Plankton Code Index (PCI) Map

The plankton study reveals that Yamuna River has no much richness of plankton biodiversity, while village ponds have much diversity of phytoplankton and zooplankton. The mining activity will be done on dry river bed except monsoon season, hence no any impact will envisaged on plankton community of the river Yamuna.

4.10.13 Conclusion

The study area comprise of two districts of two states *i.e.* Yamunanagar (Haryana) and other part falls in Saharanpur (Uttar Pradesh). The current study reveals that the study area has most of agriculture land and vegetable corps. The ecology and biodiversity patterns reveal that the most part is covered by vegetable crops only in the winter and summer season and during the monsoon there is no vegetable or major crops grown in this area due to over flow of Yamuna River. Some of the sighted fauna was given protection by the Indian Wild Life (Protection) Act, 1972 by including them in different schedules. Among the birds in the study area, Pea fowl (*Pavo cristatus)* is included in schedule 1 of Wild life protection Act (1972), while many other birds are included in schedule IV. Among mammals; Common Mongoose (*Herpestes edwardsi)* and Monkey (*Rhesus macaque*) are a schedule –II animals. The species wise conservation plan is prepared for the protection of scheduled –I and II fauna along with budgetary provision to assure the implementation of the same by the proponent.

4.11 SOCIO-ECONOMIC SURVEY

Any developmental activity exerts a direct impact on the socio-economic environment of the region. Usually, the beneficial impacts such as better job opportunities, improved education, communication, energy, housing, health, transportation facilities etc. outweighs the adverse impacts, if any.

The study of socio-economic component of environment is incorporating various facets, viz. demographic structure, availability of basic amenities such as housing, education, health and medical services, occupation, water supply, sanitation, communication and power supply, prevailing diseases in the region as well as features such as places of tourist attraction and monuments of archaeological importance. The study of these parameters helps in identifying predicting and evaluating the likely impacts due to project activity in the surrounding region. The present study on the socio-economic environment incorporates existing status of the socio-economic profile of the area for the proposed activity of sand mining of 101.27 Hectares is located at Village Jaithlana Block/YNR B12 District Yamuna Nagar Haryana Sh. Kulvinder Singh Prop M/s P.S. Buildtech. The land for mining lease area is mostly barren land therefore there are no issues involved like land acquisition, displacement, compensation, resettlement & rehabilitation. Baseline data such as demographic pattern, occupational status, educational, health and other amenities as existing in the study area have been studied.

Baseline Status

The latest available data has been complied to generate the existing socio-economic scenario of the study area. Information on socio-economic profile was collected from the Primary Census Abstract CD 2011 including the population details of the region. The Socio-Economic Status of the study areas is mentioned below and the villages surveyed are enlisted in Table 4.35.

Village

The basic unit for rural areas is the revenue village which has definite surveyed boundaries. The revenue village may comprise of one or more hamlets but the entire village is treated as one unit for presentation of data.

Demographic Structure

Demographic structure of the study area was estimated for the selected parameters as households, population, sex ratio, scheduled caste, scheduled tribes, literacy from primary census abstract, CD 2011. The summarized demographic structure of the study area is presented in Table 4.35, while the villagewise demographic pattern is shown in Table 4.36. The study within the 10 km covers 54 villages from Jagdhri Tehsil of Yammunanagar District, and Nakur Tehsil of Saharanpur District of Uttar Pradesh.

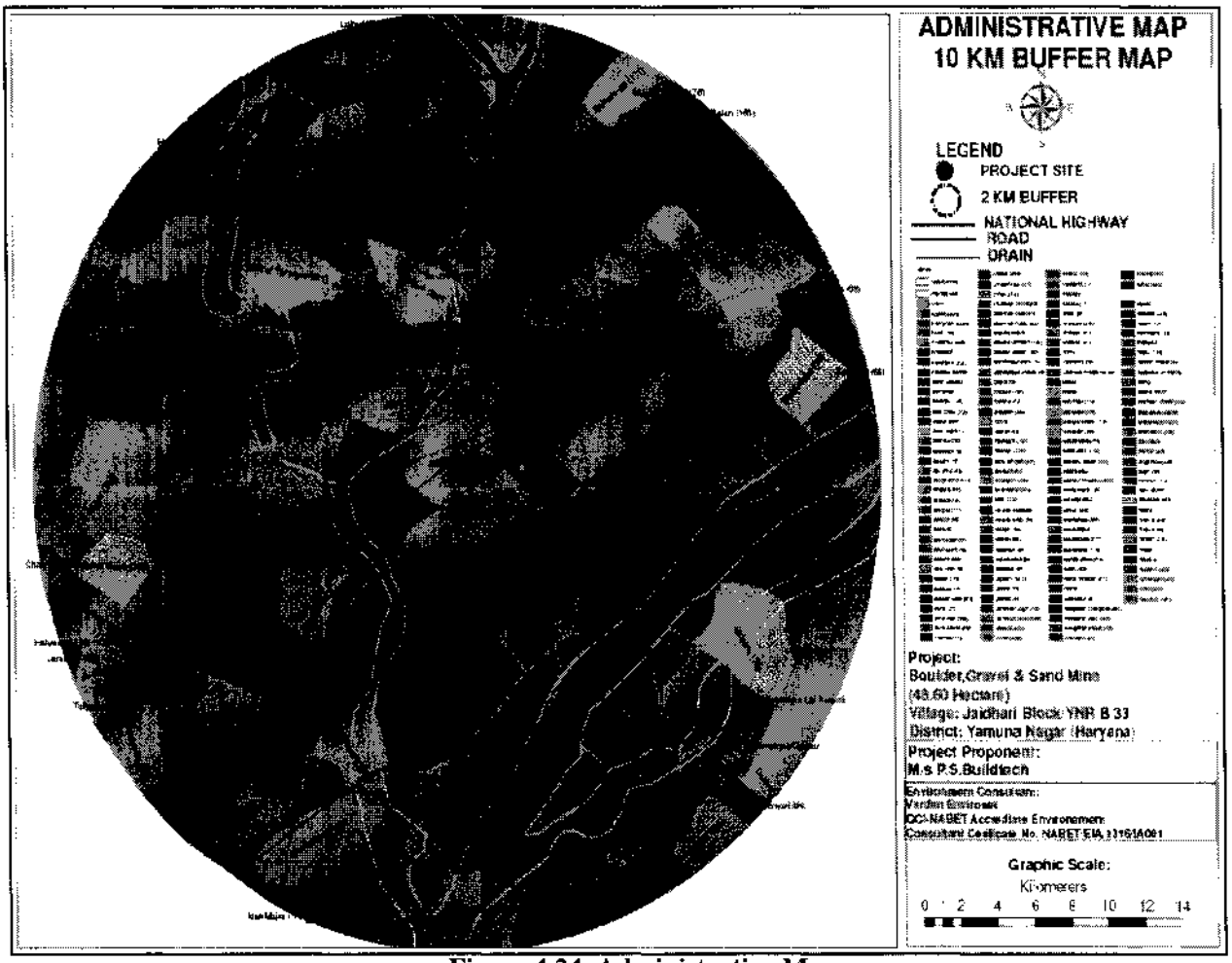


Figure 4.24. Administrative Map

Household and Population: As per Census 2011 the total number of household in the study area is about 13683 with the total population of about 78742 with Male-42347 *i.e.* 53.77% and Female 36395 (46.97%) and the household ratio *i.e.* person per family is about 5.7. The population of children in the age group of 0-6 in the study area is 11182 (14.20%)

Sex Ratio: Sex ratio (number of female per thousand male) figure of the study is 859.

Scheduled Castes & Scheduled Tribes Population: The ratios of scheduled caste and scheduled tribe as compared to the total population of the Study area is about 18834 (23.91%) while the scheduled caste population is nil.

Literacy: person who can both read and write with understanding of any one language is treated as **Literate**. The literacy rate within the study areas is in an average of about 49259 (62.55%)

Occupational Pattern: Occupational Pattern of any region mainly depends upon its economically active group i.e. the working population involved in productive work. 'Work' has been defined as participation in any economically productive activity. Such participation may be physical or mental. Persons on leave and under training are also treated as workers. However, rent receivers and pensioners are not treated as workers. There are different types of workers that may be classified as:

Main Workers: Main workers are those who have worked for a major part of the year (i.e. at least six months or 183 days). Main activity of a person who was engaged in more than one activity was reckoned in terms of time disposition. The main worker population within the study area is 21231 (26.96%) out of which 7851 (36.97%) are engaged as cultivators, 6052 (28.50%) as agricultural laborers, only 1.39% are engaged as Household Laborers, and the other worker population is about 7032 *i.e.* 33.12%

Non-Workers: Non-Workers may be defined as those persons who have not worked at all during the entire year under the reference period. The proportion of non workers may show the unemployment level of the region. The non worker population in the study area is very high of about 53568 (68.02%).
Economic Resource Base: Agriculture and its allied activities are the major income sources of the people in the rural region of the study areas. Major crops are grown in both Kharif and Rabi seasons. Major Kharif crops are cotton and tur. Major Rabi crops are Jawar, tur, soyabean and channa. Due to poor irrigation facilities, the productivity of land is mostly low in the study areas. However, most of the local populations are engaged in the sand mining either as contractors or laborers. Mining activities plays an important role in increasing the economic resource base for the people in the region.

Cultural and Aesthetic Attributes: As such no culturally and aesthetically important places are located within the seven study areas.

Socio-economic Survey

In order to access and evaluate likely impacts arising out of any development projects on socioeconomic environment, it is necessary to gauge the apprehensions of the people in the study areas.

Methodology applied for selection of sample and data collection

The methodology which is applied for primary source of data collection *i.e.* gathering data through field survey for socio-economic environment is depicted below:

Sampling Method: A judgmental and purposive sampling method was used for choosing respondents of various sections of the society *i.e.* Sarpanch, adult males and females, teachers, medical practitioners, businessmen, agriculture laborers, unemployed group etc. Judgmental and purposive sampling method includes the right cases from the total population that helps to fulfill the purpose of research needs.

Data Collection Method: For the process of data collection through primary source certain methods are used among that are:

Field Survey and Observations: Field survey and observations is made at each sampling village and the socioeconomic status of that region is studied. Visits are made at hospitals, primary health centers and sub-centers to know the health status of the region. Various governmental organizations such as statistical department, department of census operations are visited to collect the population details of that region.

Interview Method: Structured interview method is used to collect data regarding the awareness and opinion from the samples selected of the various socio- economic sections of the community. Structured interviews involve the use of a set of predetermined questions that includes fixed and alternative questions. The questionnaire mainly highlights the parameters such as income, employment

and working conditions, housing, food, water supply, sanitation, health, energy, transportation and communication, education, environment and pollution to assess the standard of living of that particular region and general awareness, opinion and expectation of the respondents about the proposed project. Interview method helps to collect more correct and accurate information as the interviewer is present during the field survey.

Socio-economic survey was conducted in the villages within the study areas located in all directions with reference to the clusters. 6 villages were surveyed from study area. The respondents were asked for their awareness / opinion about the existing sand mining and also of their opinion about the impacts of the sand mining which are an important aspect of socio-economic environment, *viz.* job opportunities, education, health care, housing, transportation facility and economic status. The salient observations recorded during socio economic survey in the study areas are depicted below:

Livelihood of the villagers is primarily based on agriculture sector. Majority of main workforce are engaged either in cultivation in own land & or in laboring activities in other agricultural land owners. Majority of workers are practicing farming activities without any irrigation source, it means that area under irrigation is very low and maximum area is covered by unirrigated land. Most of the villages have Primary School (PS) while in some villages it is extended up to Middle School (MS). While for further education villagers go to the town places. The main source of drinking water supply is through tap, dug well, bore well and hand pump. The Government medical facilities in the form of primary health sub- centre and private medical representatives are available in the villages. Villagers expressed positive opinion regarding the facilities available at the centre. ANM (Auxiliary Nurse Midwife) frequently visits all the villages and regular vaccination and health checkup camps are organized by the health centre. Two wheelers, auto rickshaws & bus facility are the main mode of transportation used by natives in the study area. Power supply is available in mostly all the sampling villages. Street lights are also available in all villages. Wood, kerosene and LPG gas is a major fuel used for cooking purpose. Availability of Post office and banking facilities in the surveyed villages. Majority of surveyed population opted positive response regarding the sand mining activity as most of the local population are employed as contractors, drivers, or laborers and the activity has helped in development of auxiliary as well as ancillary jobs in the region. The demography detail of study area is enclosed as **Annexure XII.**

Table 4.35 List of the Villages for Field Survey of Socio-economic Environment

S. No.	Villages	Distance and Direction
1.	Jaithlana	Mining Site
2.	Pobari	E
3.	Khurdi	N
4.	Latifpur	SE
5.	Madhopas	W
6.	Qutubpur	NE

Table 4.36 Summarized Demographic Structure of the Study Area

S.No.	Parameter	Study Area
1.	No. of Villages	43
2.	Household	13683
3.	Household Ratio	5.7
4.	Total Population	78742
5.	Population (0-6 Years.)%	11182(14.20)
6.	Sex Ratio	859
7.	Scheduled Caste %	18834(23.91)
8.	Literates %	49259(62.55)
9.	Main Workers %	21231(26.96)

10.	Marginal Workers %	3943(5.0
11.	Non-Workers %	53568(68.02)

Source: Primary Census Abstract-CD; 2011, Haryana & Uttar Pradesh State

4.11.1 Conclusion

The study within the 10 km covers 43 villages with total number of household in the study area is about 13683 with the total population of about 78742. Sex ratio (number of female per thousand male) figure of the study is 859 .Scheduled caste populations in the study area is about 18834 (23.91%)while the scheduled tribe population is nil. The literacy rate within the study areas is about 49259 (62.55%)The main worker population within the study area is 33591 (26.87%).The non-worker population in the study area is very high of about 53568 (68.02%). Most of the villages have Primary School (PS) while in some villages it is extended up to Middle School (MS). While for further education villagers go to the town places. The main source of drinking water supply is through tap, dug well, bore well & hand pump. Majority of surveyed population opted positive response regarding the sand mining activity as most of the local population are employed as contractors, drivers, or laborers and the activity has helped in development of auxiliary as well as ancillary jobs in the region.

It can be concluded from the data available that the study area is densely populated that with male population higher as compare to female population and the literacy rate of the population is on an average as the educational facilities in the region is low.

4.12 SUMMARY

The generation of primary data as well as collection of secondary data and information from the site and surroundings was carried out during winter monsoon season *i.e.* **1st December 2015 to 29th February, 2016.** The EIA study is being done for the Mine Lease (core zone) and area within 10 Km distance from mine lease boundary (buffer zone), both of which together comprise the study area. The mine lease area exhibits plain to undulated topography. The general slope of the land surface is From N to S and the maximum elevation of the plain is 266 m amsl. The project site falls under seismic zone IV which is a high damage risk zone (MSK VIII). Many part of the state of Haryana are prone to flooding. In flood manual of Haryana, there are 102 vulnerable points in Haryana which need special attention during monsoon. Meteorological station was set-up at site to record surface meteorological parameter during study period. Ambient Air Quality Monitoring reveals that the minimum and maximum concentrations of PM_{10} for all the 6 AAQM stations were found to be **50.3 µg/m³ and 80.2 µg/m³** respectively and minimum and maximum concentrations of $PM_{2.5}$ for all the 6 AAQM stations were found to be **30.0 µg/m³ and 50.6 µg/m³** respectively. The range of Free Silica in PM_{10} was found to be **1.8% to 3.9%**. The minimum & maximum concentrations of SO_2 were found to **5.9 µg/m³ and 16.1 µg/m³** respectively. The minimum & maximum concentrations of NO_2 were found to be **11.3 µg/m³ and 30.1 µg/m³** respectively. Minimum and maximum noise levels recorded during the day time were from **51.6 Leq dB and 53.8 Leq dB** respectively and minimum and maximum level of noise during night time were **41..02 Leq dB and 43.25 Leq dB** respectively. Thus noise levels at all locations were observed to be within the prescribed limits. Analysis results of ground water reveal that pH varies from **7.52 to 7.91**, Total Hardness varies from **145.00 to 254.23 mg/L** and Total Dissolved Solid varies from **166.00 to 252.00 mg/L**. The Analysis results of surface water reveal that pH varies from **8.11 to 8.39**, Total Hardness varies from **140.00 to 196.00 mg/L**, Total Dissolved Solids varies from **149.00 to 204.00 mg/L.** Traffic study measurements were performed at State Highway-6 and District Road 1. The LOS value from the proposed mining will be changed for both SH-6 and District Road1from **'Very Good'** to **'Good'**. Random soil samples were collected up to depth of 15 cm and homogenized samples were then sent to the laboratory for analysis. The analysis results show that soil is basic in nature as pH value ranges from **7.96 to 8.22** with organic matter **0.53 % to 0.70 %.** The concentration of Nitrogen ranges from **197.0 kg/hec to 251.00 kg/hec**. Concentration of Phosphorus ranges from **26.07 kg/hec to 47.10 kg/hec.**and concentration of Potassium was found to be in range from **83.70 k/hec to 103.6 kg/hec.** The NPK ration in soil is 5:1:2. Soil texture is **Silty to Sandy**. The study area comprise of two districts of two states *i.e.* Yamunanagar (Haryana) and other part falls in Saharanpur (Uttar Pradesh). The current study reveals that the study area has most of agriculture land and vegetable corps. The ecology and biodiversity patterns reveal that the most part is covered by vegetable crops only in the winter and summer season and during the monsoon there is no vegetable or major crops grown in this

area due to over flow of Yamuna River. Some of the sighted fauna was given protection by the Indian Wild Life (Protection) Act, 1972 by including them in different schedules. Among the birds in the study area, Pea fowl (*Pavo cristatus)* is included in schedule I of Wild life protection Act (1972), while many other birds are included in schedule IV and Common Mongoose (*Herpestes edwardsi)* and Monkey (*Rhesus macaque*) are a schedule –II animals. The species wise conservation plan is prepared for the protection of scheduled –I and II fauna along with budgetary provision to assure the implementation of the same by the proponent. The implementation of this mining project will generate both direct and indirect employment. The study within the 10 km covers 43 villages with total number of household in the study area is about 13683 with the total population of about 78742. Sex ratio (number of female per thousand male) figure of the study is 859 .Scheduled caste populations in the study area is about 18834 (23.91%)while the scheduled tribe population is nil. The literacy rate within the study areas is about 49259 (62.55%)The main worker population within the study area is 33591 (26.87%).The non-worker population in the study area is very high of about 53568 (68.02%).. It was found that most of the parameters were within the limits as per the Indian Standards. In general, there is no major threat to the quality of these parameters. Similarly, the study for the biotic factors was conducted. Hence it can be concluded that the present environment status of the study area is good enough for the project activity. Adoption of adequate pollution control measures will protect the surrounding environment.

CHAPTER: 5
ANTICIPATED ENVIRONMENTAL IMPACT AND ITS MITIGATION MEASURES

5.0 INTRODUCTION

The environmental parameters likely to be affected by mining are related to many factors, *i.e.* physical, social, economic, agriculture and aesthetic. Opencast mining of sand involves loading and transport of overburden and ore. The excavated sand will be transported via trucks to outsiders. The operations may disturb environment of the area in various ways, such as removal of mass, change of landscape, flora and fauna of the area, surface drainage, and change in air, water and soil quality. While for the purpose of development and economic up-liftment of people, there is need for establishment of mining industries, but these should be environment friendly. Therefore, it is essential to assess the impacts of mining on different environmental parameters, before starting the mining operations, so that abatement measures could be planned in advance for eco-friendly mining in the area.

5.1 CONSTRUCTION PHASE

This is a sand mining project in riverbed. There will be no impacts as no construction stage is envisaged in this project.

5.2 OPERATION PHASE

Some of the impacts identified in various phases of operation are insignificant and do not warrant much attention whereas some others are important especially with respect to the present context. Therefore objective is to identify those impacts, which are significant and require a detailed analysis for decision making or formulating adequate management measures. This section deals with an assessment of impact of various mining activities on the existing environmental conditions. The methodology of assessment is based upon identification and description of the existing project activities as well as environmental components followed by evaluating the impact of mining and associated activities on the environment. The environmental components that are likely to be influenced or modified by the continuation of project activities are:

i. Air Environment,
ii. Water Environment,
iii. Soil Environment,
iv. Noise and Vibration Environment,
v. Land Use,
vi. Hydrology
vii. Geology,
viii. Solid Waste/overburden
ix. Risk Assessment/ OH&S
x. Biological Environment,
xi. Socio-economic Environment.

5.3 AIR QUALITY MODELS

A) ISCST3 Dispersion Model

The Industrial Source Complex (ISC) Short Term model provides options to model emissions from a wide range of sources that might be present at a typical industrial source complex. ISCST3 is US-EPA approved model to predict the air quality.

B) CALINE 4 model

The California Line Source Dispersion Model. CALINE4 (1989), uses traffic emissions, site geometry and meteorology to predict air pollutant concentrations within 500 meters of the roadways. Predictions can be made for carbon monoxide, nitrogen dioxide and suspended particles.

5.3.1 Model Setup

5.3.1.1 Emission of PM_{10}

The major sources of PM_{10} emission in case of sand mining project are the loading activity at mine site (loading of material over dumpers by excavators) and the movement of vehicles on unpaved haul roads. The emission rates for these sources are given in latest USEPA's AP-42 guidelines.

5.3.1.2 Loading of Material

The sand will be loaded on dumpers using excavators. Nine JCB will be used for loading 15,000 MT of sand during the working shift of 8 hours/day. The PM_{10} emission rate due to loading activity is calculated using below equation.

E=k X 0.0016 X ((U/2.2)^1.3/(M/2)^1.4) --- AP42 (Nov 2006)

Where,

E = Emission Factor, kg/ton

k = Particle size multiplier, 0.35 for PM10

M = Moisture Content, %

u = Mean wind speed, m/s

5.3.1.3 Emission of PM_{10} due to Transportation

The hauling of sand from the mine lease area to the end users via haul road (unpaved road) will cause emission of particulate matters. This emission will be limited to the extent of unpaved haul road starting from mining pit to nearest paved road connectivity. As per the mining plan the material will be transported during the working shift only. Each day maximum 200 dumpers (25 tonne capacity each) will make 600 trips for transporting sand. The following empirical expressions are used to estimate the quantity in pounds (lb) of size-specific particulate emissions from an unpaved road in industrial sites, per vehicle mile travelled (VMT).

E=k (s/12)^a (W/3)^b+ C --- AP42 (Nov 2006)

Where

k, a, b are empirical constants i.e. different for different particle size.

E = size-specific emission factor (lb/VMT)

s = surface material silt content (%)

W = mean vehicle weight (tons)

C = emission factor for 1980's vehicle fleet exhaust, brake wear and tire wear, 0.0047 lb/VMT for PM10. The source characteristics s and W are referred to as correction parameters for adjusting the emission estimates to local conditions. The effective emission rate after considering reduction in emission potential of haul roads due to water sprinkling was calculated for use in CALINE4 model.

5.3.1.4 Emission of CO from Vehicles

The sand will be transported outside the mining area for end use. In order to estimate the emission of CO from these vehicles exhaust ARAI-2007 emission factors were used in CALINE4 model. The ARAI emission factors for CO emitting from heavy vehicles (diesel) is 3.92 gm/km or 6.32 g/mile.

5.3.1.5 Summary of calculated Emission Rates

Table 5.1: Emissions Rates

S. No.	Activities	Units	Emission Rates
1.	Loading	g/s	0.01924
2.	Transportation on Haul Road (PM_{10} Emission)	g/mile/vehicle	89.9872
3.	Transportation (CO Emission)	g/mile/vehicle	6.32

5.3.2 Meteorological Data

The meteorology of the project area plays very important role in dispersion of pollutants and buildup of pollution within the atmosphere. In the present study, one season (December 2015-February 2016) meteorological data has been taken to find the dispersion of pollutant concentration. The mixing height for study period, which is an important parameter to express the dispersive potential of atmosphere, has been taken from the atlas of hourly mixing height and assimilative capacity of atmosphere in India (Attri *et al.*, 2008). Windrose diagram of one season meteorological data used for modeling is shown in **Figure 4.3** of **Chapter-4.**

5.3.3 Input Parameters

5.3.3.1 ISCST3 Model Input Parameters

The ISCST3 model was used to predict the GLC of PM_{10} due to loading activity at mine site. Ten Excavators will be used to load 15,000 tonne of sand on dumpers for further transportation to end users. Point source resembling loading activity at mine site and having equivalent emission rates were setup in mining lease to predict the maximum incremental concentration of PM_{10} at baseline monitoring location. The predicted incremental concentration PM_{10} was added to baseline concentration to obtain the cumulative concentration level at baseline stations.

5.3.3.2 CALINE4 Input Parameters

CALINE4 model was used to predict the worst case GLC of PM_{10} due to dumper movement on haul road (unpaved road) between the mine site and nearest paved road. In the present project, dumpers having 25 tonne capacity have been proposed to transport the mined sand from mining area. The maximum number of dumpers proposed is 200. The model was set-up with haul road links along the mining lease and receptors at all the AAQM locations to predict the pollutant concentration. Since CALINE4 has options to predict only 1-hour and 8-hour pollutant concentration, the model was used to predict 1-hour worst case GLC of pollutant which was later converted into 24-hour GLC using Turner Equation. The 24-hour incremental concentrations (predicted) of pollutants due to transportation were added to baseline concentrations to obtain the cumulative concentration levels.

5.3.3.3 Interpretation

The maximum incremental concentration of PM_{10} viz.1.59 $\mu g/m^3$ was predicted inside the core zone near active mining area (loading locations). These loading locations are generally away from sensitive receptors (settlements etc.). As the distance from source increases, the incremental concentration of PM_{10} drops drastically due to settling of PM_{10} particles under gravity. A graphical representation of the variation of PM_{10} concentration *w.r.t.* distance. As evident from the line graph, the maximum impact of loading activity at mine site is limited to 300m only. The predicted maximum cumulative GLC of PM_{10} was found to be 82.57 $\mu g/m^3$ at A1 (Ambient Air Quality Monitoring Station–1); which is lower than the permissible NAAQ standard for PM_{10} concentration (100 $\mu g/m^3$). The predicted 24 hours ground level concentrations at baseline air quality monitoring locations are presented in **Table 5.2** below. The graphical representation is given in **Figure 5.1**. The predicted concentration for CO was found to be 0.0$\mu g/m^3$ owing to very less traffic to and from the mining area.

Table 5.2: Predicted GLC of PM_{10} at Ambient Air Quality Monitoring Stations

Location Code	Location Name	Max Baseline Conc. ($\mu g/m^3$)	Predicted GLC ($\mu g/m^3$) – ISCST3 Model	Predicted GLC ($\mu g/m^3$) – CALINE4 Model	Cumulative GLC ($\mu g/m^3$)
A1	Mine Site	80.2	1.59	0.78	**82.57**
A2	Village Jathlana	77.1	0.89	0.025	78.02
A3	Village Khurdi	78.1	0.002	0.006	78.11
A4	Village Latifpur	78.6	0.002	0.001	78.60
A5	Village Madhobas	75.1	0.006	0.002	75.11
A6	Village Qutabpur	76.2	0.003	0	76.20

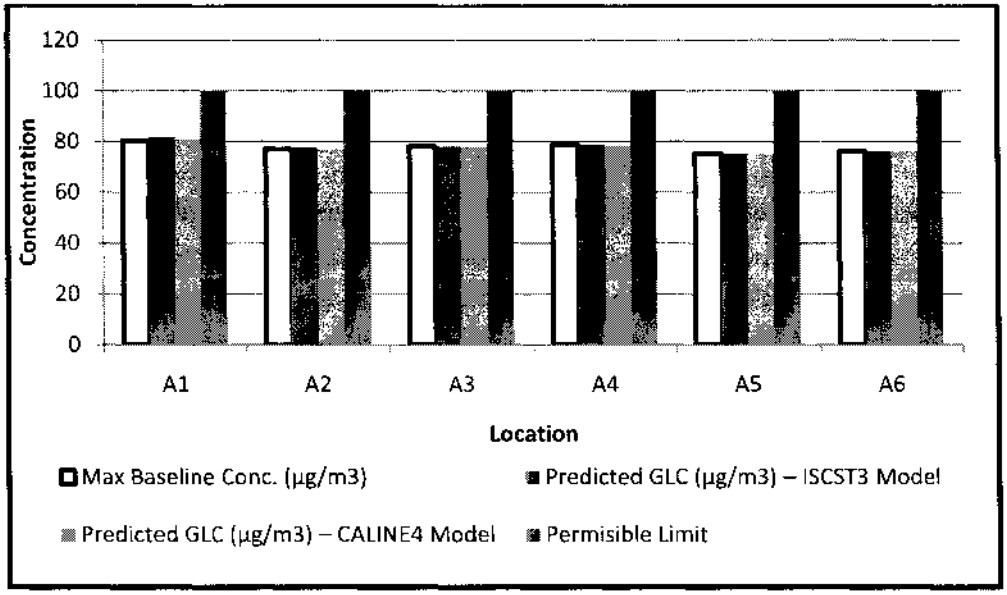


Figure 5.1 – Graphical representation of ISCST3 model

The contour maps showing the predicted concentration levels of PM_{10} are presented in **Figure 5.3** and **Figure 5.4**.

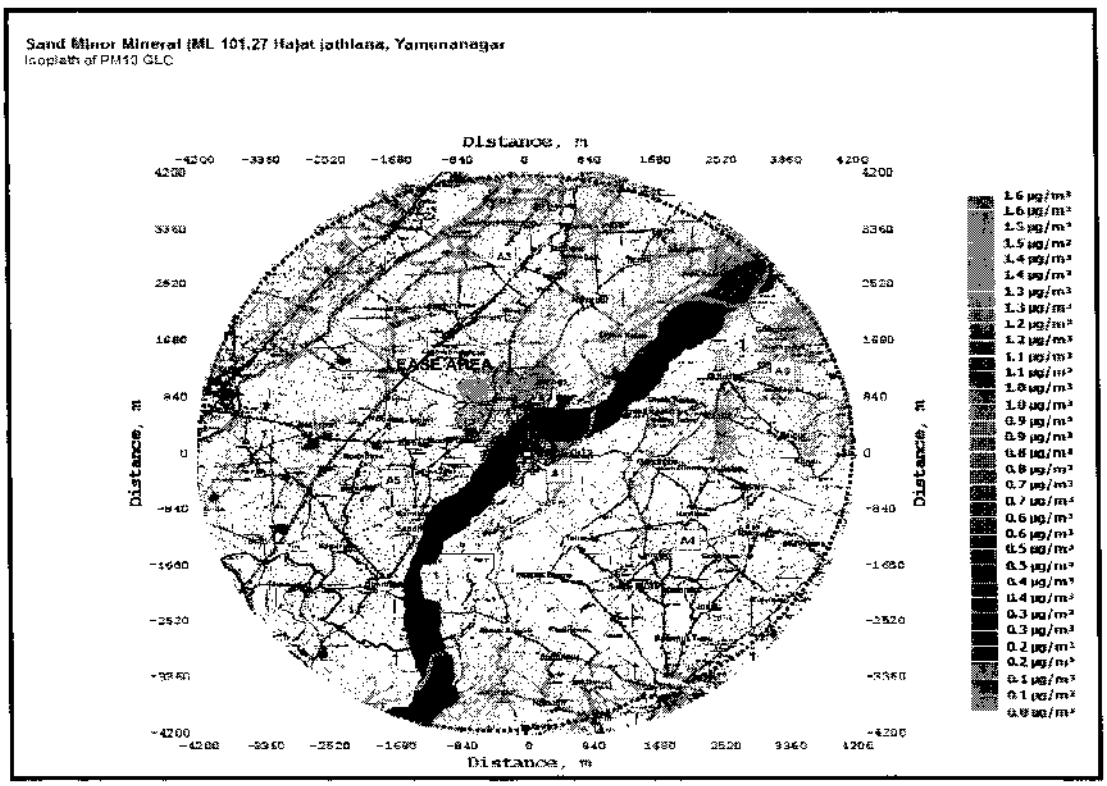


Figure 5.2: Spatial distribution of predicted GLCs of PM_{10} due to Mining

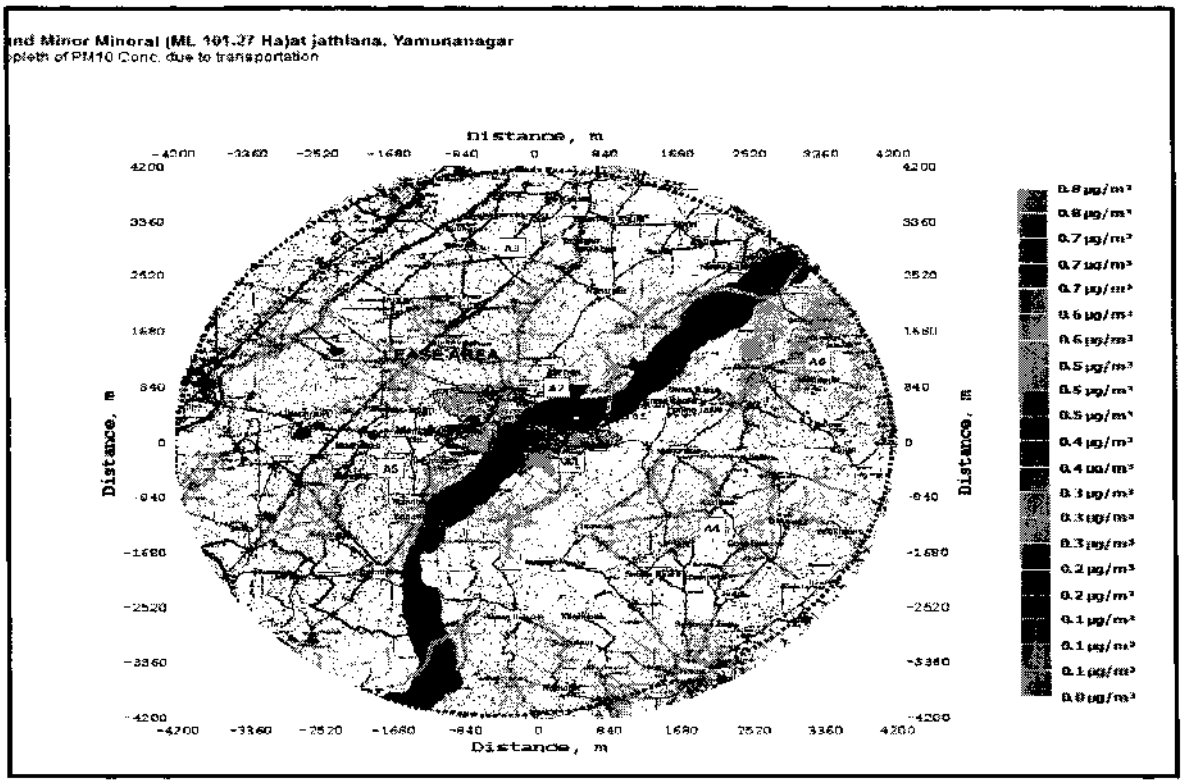


Figure 5.3: Spatial distribution of PM_{10} GLC due to transportation

5.3.4 Conclusion

The predicted maximum cumulative GLC of PM_{10} was found to be 82.57µg/m^3 at A1 (Project site). The second highest predicted cumulative GLC of PM_{10} was found to be 78.60µg/m^{3}at A4 (500 mt from mine site). All predicted cumulative concentrations are lower than the permissible NAAQ standard for PM_{10} concentration (100µg/m^3). From the results of ISCST3 and CALINE4 models, it is concluded that the maximum cumulative concentrations of PM_{10} both due to mining activities and transportation are expected to be within the prescribed standards for PM_{10}. It is to be noted that the predicted concentrations from mining activities is insignificant; whereas transportation is the major of source of dust emission. The concentration of CO due to vehicle exhaust is negligible due to small number of vehicles plying on haul road. The concentrations of SOx and NOx generated from mining area are expected to be low due to absence of any major source. The predicted concentrations are due to proposed sand mine only and higher pollutant concentrations may be observed in the study area due to simultaneous operations of other mines / anthropogenic activities, data for which is not available. The overall impact on air quality due to proposed mining project is expected to be low extending to close vicinity of mining lease area and in proximity of unpaved haul roads only.

5.4 IMPACTS OF AIR POLLUTION AND MITIGATION MEASURES

Attributes	Impact	Mitigation Measure	Budget/annum
Human	A predicted cumulative GLC of PM_{10} was 82.57 $\mu g/m^3$ at Industrial Estate (Mine Plan) against the threshold limit of 100 $\mu g/m^3$ which can cause adverse effect on human health of neighboring villagers. Dust generation due to loading and unloading of mineral and due to transportation can also affect the workers as well as nearby villagers.	40 KLD water will be proposed for sprinkling on unpaved roads to avoid dust generation during transportation. Dust mask will be provided to the workers engaged at dust generation points like excavation and loading points. Planning transportation routes of sand so as to reach the nearest paved roads by shortest route (minimize transportation over unpaved road). Alternatively, graveled road may be constructed between mine lease area and nearest paved road connectivity. The speed of trucks plying on the haul road will be limited to avoid generation of dust and covering of material during transportation on trucks to prevent sand leak from the trucks. The trucks will be covered by tarpaulin. Overloading will be avoided. It is proposed to plant **2000 Nos.** of local species per year with consultation of Forest department with some fruit bearing and medicinal trees, along the haul roads, outer periphery within the lease area to prevent the impact of dust in the nearby village.	Rs. 7.0 Lakhs under Dust Suppression Rs. 2.40Lakhs under OHS @100 per dust mask for 240 Nos. Other fund for this activity will be utilized from 'Mines and Mineral Development, Restoration and Rehabilitation fund'
Animal	Grassing land will be reduced.		Rs. 3.0 Lakhs
Plant	Stomatal index may be minimized due to dust deposit on leaf.		6.00 Lakhs. (Plantation)
Crops	Crop yield will be reduced.		
Infrastructure	There is no major impact on infrastructure due this mining operation.		-

5.4.1 Conclusion

In this mining project the only source of emission of air pollution is excavation, transportation, loading, hauling operation and handling of sand etc. The proposed mining operations are not anticipated to raise the concentration of the pollutants beyond prescribed limits. However, the measures are suggested to mitigate any harmful impacts of pollutants like plantation of trees along haul roads, specially near settlements, to help to reduce the impact of dust on the nearby villages; planning transportation routes of mined material so as to reach the nearest paved roads by shortest route (minimize transportation over unpaved road); regular water sprinkling on unpaved roads to avoid dust generation during transportation etc.

5.5 IMPACTS OF WATER POLLUTION AND ITS MITIGATION MEASURES

Attributes	Impact	Mitigation Measure	Budget/annum
Human	The mining in the outside riverbed area may cause the ground water contamination due to intersection of the water table. The municipal waste water disposed from the mining activity may cause contamination of surface water. Ground Water contamination due to discharge of mine run off.	The water table will not be intersected during mining in the riverbed as ultimate depth is limited upto 3 meters as the water table is 5-10 m bgl. Proper analysis/Monitoring will be done to check the ground water. Water table as shown in the **Figure 5.4.**	Rs. 1.25 Lakhs (Monitoring)
Animals	Domestic Water Disposal	The municipal wastewater will be disposed off into septic tanks and soak pit. No chemical having toxic elements will be used for carrying out mining activity.	
Crops	Waste water discharges through mining operation direct affect the crops and plants.		
Plantation		Waste water will be disposed off in septic tank /soak pit. There are 10 Nos. of septic tank /soak pit of capacity 1 KL (Total 10 KL capacity). Water required for domestic use= 10 KLD. Waste water generation= 8 KLD. The design of septic tank /soak pit has been given in **figure 5.5.**	Rs. 2.00 Lakhs (Water Treatment)
Infrastructure	There is no major impact on infrastructure due this mining operation.	-	-

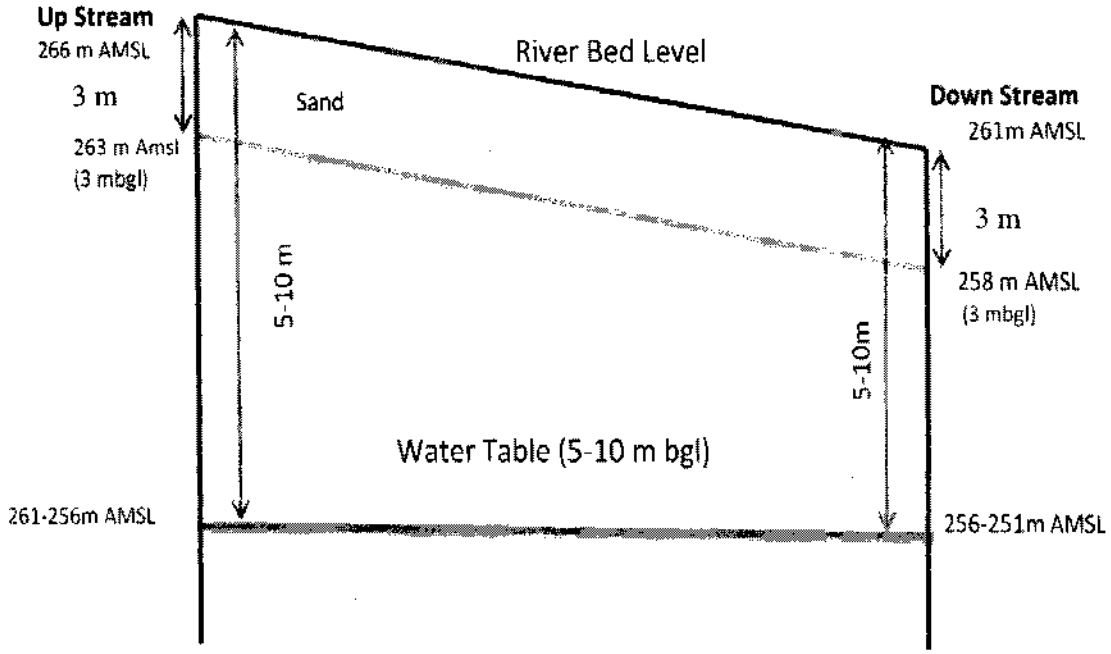


Figure 5.4: Impact of Mining on Ground Water (River Bed Block)

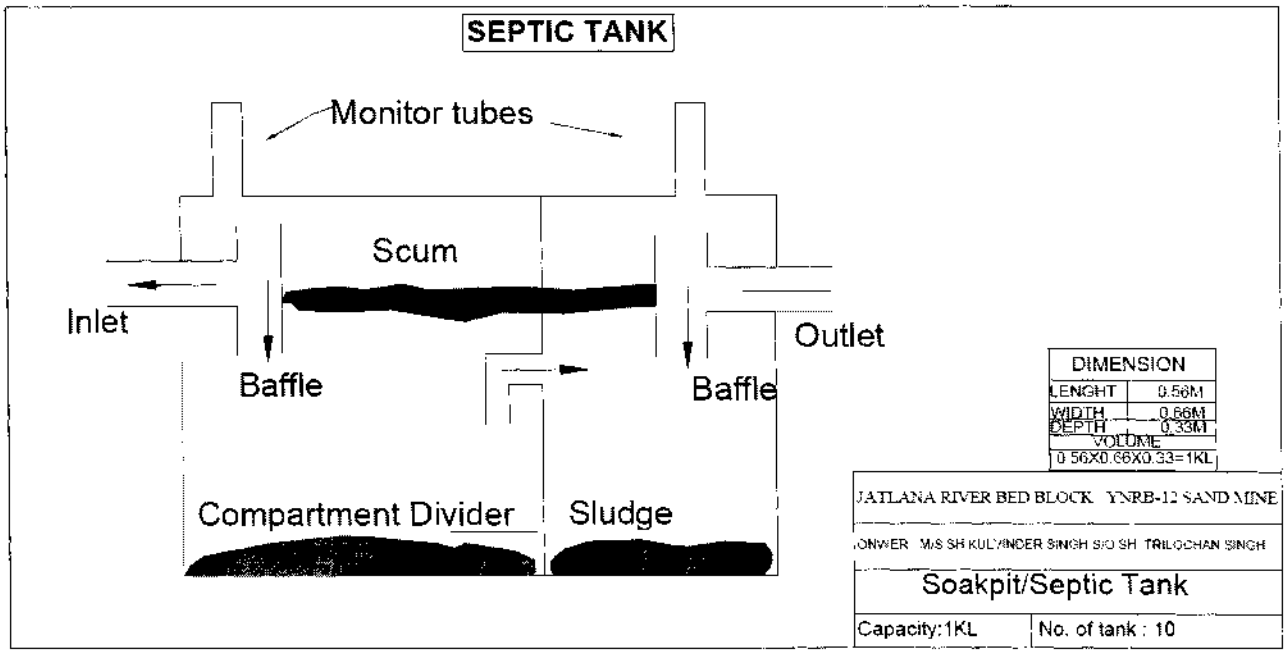


Figure 5.5: Design of Septic tank/Soak pit

5.5.1 Conclusion

In this mining project in the entire lease period the ground water table will not be intersected hence there will be no impact on the water environment.

5.6 IMPACTS ON SOIL ENVIRONMENT AND MITIGATION MEASURES

Attributes	Impact	Mitigation Measure	Budget/annum
Human	Mining activity may increase the soil erosion and soil degradation which have adverse impact on soil fertility. During the flood, the soil erosion may occur.	It is already proposed to plant **2000 Nos.** of local species per year with consultation of Forest department with some fruit bearing and medicinal trees, along the haul roads, outer periphery within the mining area which enhances the binding property of the soil to check the erosion. 40.00 KLD water will be proposed for sprinkling on unpaved roads to avoid dust generation and soil erosion. Mine lease area has been proposed leaving a safety distance of 1/4th of the width of the river from the bank inwards which will protect the banks. Check dams have been constructed at various places for protection of banks against direct attack of the rivers and avoid bank cutting.	Rs. 6.00 Lakhs (Plantation) Rs 7.0 Lakhs (Dust Suppression)
Animals			
Crops	Mining activity may increase the soil erosion and soil degradation which have adverse impact on soil fertility.		
Plantation			
Infrastructure	There is no major impact on infrastructure due this mining operation.	-	-

5.7 IMPACTS DUE TO NOISE/VIBRATIONS AND TRAFFIC MOVEMENT

Attributes	Impact	Mitigation Measure	Budget/annum
Human	Noise from the machinery can cause hypertension, high stress level, hearing loss, sleep disturbance etc due to prolonged exposure. No. of 450 PCU/hr will increase in the existing traffic due to this mining activity hence vehicle collation may occur unwanted sound and can also cause impact on human health of neighboring villagers like effect on breathing and respiratory system, damage to lung tissue, cancer and premature death, influenza or asthma. Accidents may be occur due to fast movement of vehicles.	The machinery will be maintained in good running condition so that noise will be reduced to minimum possible level. Vehicles with PUC Certificate will be hired. Regular maintenance of vehicles will be done to ensure smooth running of vehicle. Awareness will be imparted to the workers about the permissible noise level and effect of maximum exposure to those levels. Personal protective equipment will provide to prevent the noise exposure. Personal Protective Equipment will be provided during mining activity. In addition, truck drivers will be instructed to make minimum use of horns in the village area and sensitive zones. It is proposed to plant **2000 Nos.** of local species per year with consultation of Forest department with some fruit bearing and medicinal trees, along the haul roads, outer periphery within the lease area to reduce the impact of noise in the study area. The trucks will be diverted on different roads *viz.* SH-6 and district roads to avoid traffic congestion. Regular Health checkup camps will be organized.	Other fund for this activity will be utilized from 'Mines and Mineral Development, Restoration and Rehabilitation fund' Rs. 6.00 Lakhs (Plantation) Rs. 5.00 Lakhs (OH & S) Other fund for this activity will be utilized from 'Mines and Mineral Development, Restoration and Rehabilitation fund'
Animals			
Crops	There is no major impact on plants and crops due this mining operation.		
Plantation			
Infrastructure	There is no major impact on infrastructure due this mining operation.	-	-

5.7.1 Conclusion

In summary, it can be stated that the impact on the present noise levels due to mining operations will be

restricted to the work zone areas only. The impact on the ambient noise levels will not be felt at the settlement areas due to masking effect with the existing noise levels. There is no drilling and blasting envisaged in the sand mining so there is no impact of vibration due to this project. Hence, the noise levels and vibration impact due to the proposed mining operations on community will be minimal.

5.8 IMPACTS ON LAND USE AND MITIGATION MEASURES

The project area does not consist of any forest land. It does not consist of any human habitations. Land use plan of the mining lease area during pre-operational, operational and post operational is incorporated in the **Chapter 2**

Attributes	Impact	Mitigation Measure	Budget/annum
Human Animals	The mining activity in the outside riverbed will be converted into the pit. Which may cause soil erosion, soil degradation etc. Mining in the riverbed may change complete land use pattern including channel geometry, bed elevation, sediment transportation capacity which can reduce flow of the river and downstream erosion.	It is proposed to plant **2000 Nos.** of local species per year with consultation of Forest department with some fruit bearing and medicinal trees, along the haul roads, outer periphery within the mining area which enhances the binding property of the soil. The mined out area river bed block will be reclaimed naturally every year.	Rs 6.00 Lakhs (Plantation)
Crops	Mining activity may increase the soil erosion and soil degradation	The mining is planned in non monsoon seasons only so that the	Rs 8.0 Lakhs

Plantation	which have adverse impact on soil fertility.	excavated area will be replenished naturally during the subsequent rainy season for the river bed mining block. The regular health checkup camp will be organized. Mine lease area has been proposed leaving a safety distance of 1/4th of the width of the river from the bank inwards which will protect the banks so channel geometry will not be disturbed. Check dams have been constructed at various places for protection of banks against direct attack of the rivers and avoid bank cutting. Pre and post monsoon survey for sedimentation in the riverbed will be done regularly.	
Infrastructure	There is no major impact on infrastructure due this mining operation.	-	-

5.8.1 Conclusion

The most of the land of this lease area is in the riverbed and the entire excavated land will get replenished every year hence there will be no impact on the land use. It is an eco-friendly mining project. Every year the sediments in the riverbed accumulated, if these are not removed/excavated then riverbed level may be increased and the river may change its course which may cause heavy losses to the life of nearby villagers and habitants.

5.9 IMPACT ON HYDROLOGY

Impact	Mitigation Measure	Budget/annum
The mining in the riverbed area may cause the ground water contamination due to intersection of the water table.	The water table will not be intersected during mining in the riverbed as ultimate depth is limited upto 3 meters as the water table is 5-10 m bgl. Proper analysis/Monitoring will be done to check the ground and surface water.	Rs 1.25 Lakh

Change the topography will divert the river flow.	There is no proposal of any stream modification/diversion due to this mining activity hence there will be no any impact on flow of the river.	The fund for this activity will be utilized from 'Mines and Mineral Development, Restoration and Rehabilitation fund'

5.9.1 Conclusion

The flow of surface/ground water (sub surface flow) is following the trend of topography, which is in the North to South direction. There is no proposal of any stream modification/diversion. Hence, there will be no any impact on hydrology of the study area. The depth of excavation in riverbed is 3 m where ground water table is at 5-10 m bgl hence the water table is not expected to be intersected at any stage of mining.

5.10 IMPACTS ON GEOLOGY AND MITIGATION

Impact	Mitigation Measure	Budget/annum
Slope of mining area will change which can create soil erosion and divert rain water runoff channel.	The maximum depth of mining in the river bed will not exceed 3 meters. In riverbed, more than 100 % replenishment will be done every year. Hence no slope will be changed due to mining.	The fund for this activity will be utilized from 'Mines and Mineral Development, Restoration and Rehabilitation fund'
Soil weathering due to dumping and mining.	Mine lease area has been proposed leaving a safety distance of 1/4th of the width of the river from the bank inwards which will protect the banks. Check dams have been constructed at various places for protection of banks against direct attack of the rivers and avoid soil weathering. It is proposed to plant **2000 Nos.** of local species per year with consultation of Forest department with some fruit bearing and medicinal trees, along the haul roads, outer periphery within the mining area which enhances the binding properties of the soil.	The fund for this activity will be utilized from 'Mines and Mineral Development, Restoration and Rehabilitation fund' Rs. 6.00 Lakhs
Change in topography can change the river flow and flood may occur.	40 KLD water will be proposed for sprinkling on unpaved roads to avoid soil weathering. Scientific mining has been proposed hence no any topographical change will occur during mining activity. Mining will be prohibited in monsoon season.	Rs. 8.00 Lakhs The fund for this activity will be utilized from 'Mines and Mineral Development, Restoration and Rehabilitation fund'

5.11 IMPACTS DUE TO SOLID WASTE/OVERBURDEN AND MITIGATION MEASURES

Impact	Mitigation Measure	Budget/annum
The mine worker will generate municipal solid waste of about **30 Kg** per day which will have adverse impact on human health.	**6 Nos.** of Garbage bins will be provided for the safe disposal of solid waste.	The fund for this activity will be utilized from 'Mines and Mineral Development, Restoration and Rehabilitation fund'

5.12 IMPACTS ON OCCUPATIONAL HEALTH AND SAFETY

Impact	Mitigation Measure	Budget/annum
The mining of sand (minor mineral) from the river bed can cause the lung disease and respiratory disorder due to dust exposure.	Dust masks will be provided as additional personal protection equipment (helmet and safety shoes) to the workers working in the dust prone area. Regular water sprinkling will be done and dust masks will be provided to the workers.	Rs. **15.00 Lakhs** Other fund for occupational health safety will be utilized from 'Mines and Mineral Development, Restoration and Rehabilitation fund'.
Due to noise exposure, hearing disorder may be resulted.	Ear-muffs will be provided to the workers and good maintenance of vehicles will be provided	
The accident at the site due to mining operation may be anticipated	Workers are informed, kept aware and trained about possible accidents during the mining operation and persona protective equipments will be provided viz. gloves, safety shoes, dust mask, safety jackets, helmet etc. In addition to, the awareness about the occupational health hazards due to mining activities to avoid any incident will be provided to the workers Pre- placement health checkup will be made mandatory and periodic heath checkup will be done quarterly.	

The detail of the proposed budget for the Occupational Health and Safety is given as in **Chapter 10** of this EIA/EMP report.

5.13 IMPACT ON ECOLOGY AND BIODIVERSITY AND ITS MITIGATION MEASURE

Table 5.3: Ecological Impact Assessment

Ecological Criteria	Identified Impacts	Ecological significance of Impact	Magnitude	Duration /Timing/ Frequency	Reversibility	Mitigation	Cumulative Impact
Zone of Influence	**Project site habitat Due to Site clearance.**	The proposed mining lease is located in Outside of Yamuna River. No site clearance is required. Only some scrub area will be cleared.	**Low impact**	-	**Reversible**	-	**No Cumulative impact**
Zone of Influence	**Ecological Impact Surrounding habitat due to fugitive emission.**	Not much impact on the surrounding habitat is envisaged due to the transportation activity except some fugitive emission.	**Temporary Impact**	Only during the transportation activity	**Reversible**	The green belt/community forestry near river bank and approach road will restrict the fugitive emission.	**No cumulative impact**
Accessibility	**Ecological Impact due to road construction**	No Road construction is required to assess the project site. The existing internal Roads are connected the project site to the existing SH road and then to the highway.	**No impact**	-	-	-	**No Impact**
Zone of Influence	**Ecological Impact on Surrounding/ Eco sensitive habitat due to waste water generated from the project activity.**	During operation phase daily water requirement of the proposed mining activity will be 70 KLD of which 10 KLD will be required for drinking and 40 KLD for dust suppression which will be met through tankers from nearby villages. No waste water will be discharged in the nearby area.	**No impact**	**During operation Phase**	**No**	Proper treatment of waste water to meet CPCB permissible disposal limit	**No impact**
Zone of Influence	**Ecological Impact on Surrounding/Ec**	The Noise level during the operation phase is around 75 dB. The impact on ambient	**Low impact on Flora and fauna**	**During operation Phase**	**No**	As given in the EMP section.	**No impact**

	o sensitive habitat due to Noise generated from the project activity.	noise level will be restricted only on the factory premises. The ambient air quality of the surrounding villages may not have any significance increase due to the project activity.					
Zone of Influence	**Ecological Impact on Surrounding/Eco sensitive habitat due to Transportation**	Transportation of Sand in the trucks/dumper will disturb the movement of peafowl. Fugitive emission from vehicle movement will form a layer in leaves thus reducing the gaseous exchange process. This ultimately affects the growth of plants. Chances of vehicle collisions with wildlife attempting to cross roads are possible.	**Moderate Impact**	**During operation Phase**	**No**	As given in EMP. Access roads will not encroach into the riparian zones. To the extent practicable, the right-of-way (ROW) to avoid residential areas and important wildlife habitat areas (e.g. rookeries, raptor nesting areas, and calving areas) will be provided.	**Low Cumulative impact**

Table 5.4: Impact on Ecology and biodiversity due to Mining Activity

S.No	Impact	Mitigation Measure	Budget
1.	Mining on the streambed, braided flow or subsurface inter-sand flow may hinder the Movement of fishes between pools. Transportation of Sand in the trucks/dumper will disturb the movement of Wild animals and reptiles.	Transportation of mineral will be minimize in the morning and evening and cannot be done in night. Access roads will not encroach into the riparian zones. Plantation will be carried out on approach roads and nearby vicinity at river banks areas. It is proposed to include *Azadirachta indica, Ficus religosa, Pongamia glabra* and *Ficus recimosa* in the plantation program as they serve as sinks for gaseous emissions.	Rs. 8.00 Lakhs
2.	Fugitive emission from vehicle movement will form a layer in leaves thus reducing the gaseous exchange process. This ultimately affects the growth of plants.	Haul roads will be sprinkled with water which would reduce the dust emission, thus avoiding damage to the crops. Annual bio-monitoring of roadside plants exposed to vehicular pollution will be done to check the dust load and Air Pollution Tolerance Index (APTI).	Rs. 8.00 Lakhs

3.	Chances of vehicle collisions with wildlife attempting to cross roads are possible.	Transportation of mineral will be minimize in the morning and evening and cannot be done in night.	--
4.	Any human settlement in the mining area will disturb the vegetation cover and reptiles.	No human settlement will be permitted in the lease mining or nearby area.	--
5.	Indiscriminate mining from active channels of rivers causes many adverse effects on the benthic fauna, which inhabits the bottom sandy substratum.	Scientific mining will be done	--
6.	Excessive mineral extraction from rivers affects the eco-biology of many terrestrial insects whose initial life history begins in aquatic environments.	No mining will be carried out during the rainy season to minimize impact on aquatic life.	--
7.	The Indian peafowl movement is very common in the area; the noise from sand mining will hinder the same.	Green belt and community forestry should be encouraged to mitigate the noise level. The latest equipment with sound-control devices should be used for sand excavation and loading/unloading, etc. Use of exhaust silencers and optimized acoustical pipe lagging (acoustical wrapping) to minimize compressor noise. If wildlife are noticed crossing the area, they will not be disturbed at all.	Rs. 6.00 Lakhs
8.	Mining may drive away the wild life from their habitat, and significantly affect wildlife and nearby residents.	Green belt and community forestry should be encouraged to mitigate the noise level. Plantation will be carried out on approach roads and nearby vicinity at river banks areas. If wildlife are noticed crossing the area, they will not be disturbed at all. Awareness program about wildlife and its importance will be conducted for workers and nearby residents so that they will not disturb the wildlife at all. Sign boards will be displayed as mentioned in conservation plan.	Rs. 6.00 Lakhs Rs. 9.10 Lakhs

5.14 IMPACTS ON SOCIO-ECONOMIC ENVIRONMENT AND MITIGATION MEASURES

Impact	Mitigation Measure	Budget/annum
Due to mining and transportation of sand will generate the small shops, dhabas, garage, restaurant, vegetable shops etc. along the road and generate direct employment.	Positive Impact	--
Mining activity will generate direct employment by recruiting 120 people which will be employed locally and preference will be given to local people.	Positive Impact	--
Such shops along the roads will generate solid waste and waste water which will have adverse impact on human health.	6 nos. of Garbage bins will be provided for proper disposal of solid waste. The municipal wastewater will be disposed off into septic tanks and soak pit.	The fund for this activity will be utilized from 'Mines and Mineral Development, Restoration and Rehabilitation fund' Rs. 6.00 Lakhs
Extraction from river banks and beds and the resultant generation of fugitive dust cause workers of the mine to suffer from occupational hazards like skin allergies, eye and respiratory problems etc	Mine lease area has been proposed leaving a safety distance of 1/4th of the width of the river from the bank inwards which will protect the banks. Dust mask will be provided to the workers engaged at dust generation points like excavation and loading points. Regular water sprinkling on unpaved roads to avoid dust generation	Rs. 3.00 Lakhs Rs. 2.00 Lakh Rs. 8.00 Lakhs
Further, the deep pits created in the channel also can contribute to an increase in accidents in the working environment. This creates serious threat to residents in the area who depend on river water for their domestic purposes.	The mined out area in river bed block will be reclaimed naturally every year. The mining is planned in non monsoon seasons only so that the excavated area will be replenished naturally during the subsequent rainy season for the river bed mining block.	The fund for this activity will be utilized from 'Mines and Mineral Development, Restoration and Rehabilitation fund'

The major source of socio-health impacts of transportation will generate from truck, dust etc. Increase in accidents as a result of rash driving of dumpers carrying mineral through the roads may be possible.	It is proposed to plant 2000 Nos. of local species per year with consultation of Forest department with some fruit bearing and medicinal trees, along the haul roads, outer periphery within the mining area to control the dust.	Rs. 6.0 Lakhs
	Planning transportation routes of mined material so as to reach the nearest paved roads by shortest route (minimize transportation over unpaved road). Alternatively, graveled road may be constructed between mine lease area and nearest paved road connectivity; The speed of trucks plying on the haul road should limited to avoid generation of dust; and Covering of material during transportation on trucks to prevent spillage of sand from the trucks. The trucks will be covered by tarpaulin. Overloading will be avoided.	Rs. 8.00 Lakhs
	Regular water sprinkling on unpaved roads to avoid dust generation during transportation;	Already Allotted

5.15 SUMMARY

The proposed mining operations are not anticipated to raise the concentration of the pollutants beyond prescribed limits. However, the measures are suggested to mitigate any harmful impacts of pollutants like plantation of trees along haul roads, specially near settlements, to help to reduce the impact of dust on the nearby villages; planning transportation routes of mined material so as to reach the nearest paved roads by shortest route; regular water sprinkling on unpaved roads to avoid dust generation during transportation etc. Some of impacts may be due to increase in the PCU/hr which is **450 PCU/hr**. Transportation of sand should be minimized in the morning and evening and cannot be done in night. Access roads will not encroach into the riparian zones. Fugitive emission from vehicle movement will form a layer in leaves thus reducing the gaseous exchange process. The impact on the present noise levels due to mining operations will be restricted to the work zone areas only. The impact on the ambient noise levels will not be felt at the settlement areas due to masking effect with the existing noise levels. There is no drilling and blasting envisaged in the sand mining so there is no impact of vibration due to this project. Hence, the noise levels and vibration impact due to the proposed mining operations on community will be minimal. There will be no impact on water environment due to mining in riverbed since there is no intersection of water table due to mining activity. There will be no waste water generation from the proposed mining activity except sanitary waste water generation that will be treated in septic tanks and will be used for plantation purpose. The mine worker will generate municipal solid waste of about **30 Kg per day** which will have adverse impact on human health. There will be **6 Nos. of garbage** provided for domestic waste collection. There is no overburden due to mining in riverbed which will not change the topography of the area and not divert rain water runoff channel. The mining activities will be done in a systematic manner by maintaining the road infrastructure and vehicle transport which will be protective measure for preserving the topography and drainage in the area. The ownership will not be changed as the land has been taken on contract which will be returned as it is after the contract period is over. No human settlement should be permitted in the lease mining or nearby area. No mining will be carried out during the rainy season to minimize impact on aquatic life. There are 1 species of Schedule I and 2 species of Schedule II are observed during study period hence, for the same conservation plan was prepared and will be submitted to Chief Conservator, Forest, Panchkula, Haryana. Subsequently, a budget of **Rs.9.10 Lakhs** has allotted for the conservation of wildlife species. The mining of sand is likely to

increase the per capita income of local people by which the socio-economic status of the people will be improved. The local people have been provided with either direct employments or indirect employment such as business, contract works and development work like roads, etc. and other welfare amenities such as medical facilities, conveyance, free education, drinking water supply etc. Except dust generation, there is no source which can show a probability for health related diseases. Regular water sprinkling will be done with sprinkle mounted tankers and dust masks will be provided to the workers. All workers will be subjected to medical examination as per Mines Rule 1955 both at time of appointment and at least once in a year. Medical camps will be organized for this activity. Insurance of all employees as per the rules will also be carried out. R&R issues are not involved with this project. As per the point xiv of LoI, the lease holder will deposit 10% of the annual contract money *i.e.* approx. **Rs. 93.45 Lakhs** to the Mines and Minerals Development, Restoration and Rehabilitation Fund. This amount will be spent by lease holder for the protection of environment, mineral conservation in the surrounding area of core and buffer zone.

CHAPTER: 6
ENVIRONMENTAL MONITORING PROGRAM

6.0 INTRODUCTION

Regular monitoring of the various environmental parameters is necessary to evaluate the effectiveness of the management programme so that the necessary corrective measures can be taken in case there are some drawbacks in the proposed programme. Since environmental quality parameters at work zone and surrounding area are important for maintaining sound operating practices of the project in conformity with environmental regulations, the post project monitoring work forms part of Environmental Monitoring Program. Environmental Monitoring Program will be implemented once the project activity commences. Environmental Monitoring Program includes: (i) environmental surveillance (ii) analysis and interpretation of data (iii) preparation of reports to support environmental management system and (iv) organizational set up responsible for the implementation of the programme.Environmental Monitoring will be taken up for various environmental components as per conditions stipulated in Environmental Clearance Letter issued by MoEF&CC and Consent to Operate issued by the State Pollution Control Board. Compliance of same will be submitted to respective authorities on regular basis.

6.1 ENVIRONMENTAL MANAGEMENT CELL

In order to maintain the environmental quality within the stipulated standards, regular monitoring of various environmental components is necessary which will complied as per conditions. For this the lessee **Sh. Kulvinder Singh S/O Sh. Trilochan Singh, M/s P.S. Buildtech** has taken decision to formulate an Environment Policy of the mine and constitute an Environmental Management Cell and committed to operate the proposed mine with the objectives mentioned in approved Environment Policy. (Copy of approved Environmental Policy attached as **Annexure XIV).** The system of reporting of Non Conformances/ violations of any Environmental Law/Policy will be as per Quality Management System of the Company. The Internal Audit will be conducted on periodic basis and any Non Conformances/violations to Environmental Law will be closed and discussed during Management Review Meetings of the Board of Directors/Partners.

Hierarchy

An EHS Manager will be appointed to look after all environmental issues and ensure compliance with Environmental Clearance conditions/SPCB norms. An Assistant Manager and Executive Environment Engineer will be appointed under the EHS Manager. EHS Manager will report to the Lessee directly and discuss the non-compliance if so any. An immediate solution will be arrived to ensure compliance with norms. Environment Policy has been approved by **Sh. Kulvinder Singh S/O Sh. Trilochan Singh, M/s P.S. Buildtech** and they assured that the company will comply accordingly.

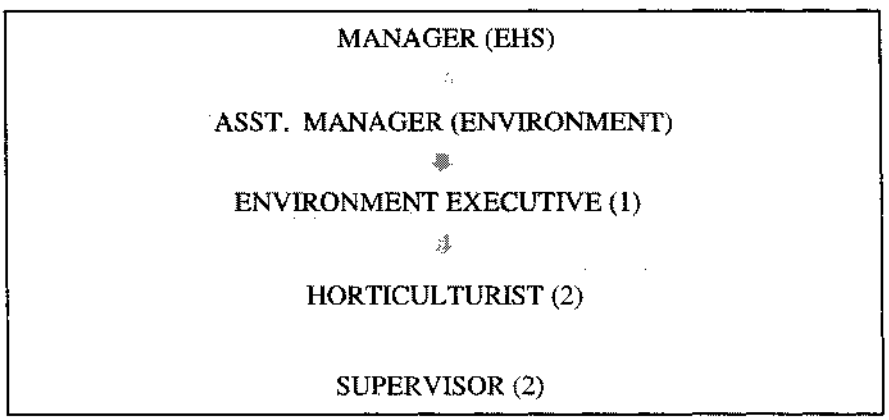


Figure 6.1: Hierarchy of Environment System for Dealing Environmental Issues

6.1.1 Responsibilities for Environmental Management Cell (EMC)

The responsibilities of the EMC include the following:

- Environmental Monitoring of the surrounding area
- Developing the green belt/Plantation
- Ensuring minimal use of water
- Proper implementation of pollution control measures
- Access the risk area
- Implementation of Quality Management System.
- Conducting internal audits,
- Closing of Non Conformances and conducting Management Review Meetings.

6.2 ENVIRONMENTAL MONITORING AND REPORTING PROCEDURE

Monitoring shall confirm that commitments are being met. This may take the form of direct measurement and recording of quantitative information, such as amounts and concentrations of discharges and wastes, for measurement against corporate or statutory standards, consent limits or targets. It may also require measurement of ambient environmental quality in the vicinity of a sit using ecological/biological, physical and chemical indicators. Monitoring may include socio-economic interaction, through local liaison activities or even assessment of complaints.

The key aims of environmental monitoring are:

- To ensure that results/ conditions are as forecast during the planning stage, and where they are not, to pinpoint the cause and implement action to remedy the situation.
- To verify the evaluations made during the planning process, in particular with risk and impact assessments and standards and target setting and to measure operational and process efficiency.
- Monitoring will also be required to meet compliance with statutory and corporate requirements.

Finally, monitoring results provide the basis for auditing, *i.e.* to identify unexpected changes.

6.3 MONITORING METHODOLOGIES AND PARAMETERS

Table 6.1: Monitoring Methodologies and Parameters

Attributes	Sampling		Measurement Method	Test Procedure
A. Air Environment	**Network**	**Frequency**		
Meteorology Wind speed Wind direction Dry bulb temperature Wet bulb temperature Relative humidity Rainfall	Minimum 1 site in the project impact area	Regularly in one season by Weather Monitoring Station	Mechanical/ automatic weather station	-
Pollutants PM_{10} & $PM_{2.5}$	6 locations in the project impact area (Minimum 2 locations in upwind side, more sites in downwind side / impact zone)	Revised National Ambient Air Quality Standards (NAAQS) vide MoEF circular, dated 16.11.2009	Gravimetric method	-
SO_2			EPA Modified West and Geake method	Absorption in Potassium Tetra Chloromercurate followed by Colorimetric estimation using P-Rosaniline hydrochloride and Formaldehyde (IS: 5182 Part - II).
NO_2			Arsenite modified Jacob	Absorption in dill NaOH and then

			and Hochheiser	estimated colorimetrically with sulphanilamide and N (I-Nepthyle) Ethylene diamine Dihydrochloride and Hydrogen Peroxide (CPCB Method).
B. Water Environment				
pH, Turbidity, Colour, Odour, Taste, Conductivity, TDS, Total Hardness, Calcium hardness, Magnesium hardness, Chloride, Fluoride, Sulphate, Nitrates, Alkalinity, Iron, Copper, Manganese, Mercury, Cadmium, Selenium, Arsenic, Cyanide, Lead, Zinc, Chromium, Aluminum, Boron, Phenolic compounds	Set of grab samples during pre and post-monsoon for 6 ground water samples and 4 surface water samples for 10 km distance area.	Diurnal and Season wise	As per IS 10500-	Samples for water quality should be collected and analyzed as per : IS : 2488 (Part 1-5) methods for sampling and testing of Industrial effluents Standard methods for examination of water and wastewater analysis published by American Public Health Association.
C. Noise				
Noise levels at Day and night time -Leq dB (A)	Mine Boundary, High noise generating areas within the lease	Quarterly	As per CPCB norms	As per CPCB norms
D. Soil				
pH, Bulk Density, Soil texture, Nitrogen, Available Phosphorus, Potassium, Calcium, Magnesium, Sodium, Electrical Conductivity, Organic Matter, Chloride	4 locations in the project impact area	Yearly	As per CSSRI, IISWC Method	As per CSSRI, IISWC Method
E. Socioeconomic Status	**Network**	**Frequency**	**Measurement Method**	**Test Procedure**
• Demographic structure • Infrastructure resource base • Economic resource base • Health status: Morbidity pattern • Cultural and aesthetic attributes	Socio-economic survey is based on proportionate, stratified and random sampling method	Yearly	Primary data collection through questionnaire	Secondary data from census records, statistical hard books, topo sheets, health records and relevant official records available with Govt. agencies

• Education				
Ecological Impact				
• Green Belt Development • Conservation of Wild Life	Survey	Yearly	Primary data collection.	Secondary data from statistical hard books, toposheets and relevant official records available with Govt. agencies

6.4 MONITORING SCHEDULE

Regular Monitoring of all the environmental parameters *viz.* air, water, noise and soil as per the formulated program based on CPCB and MoEF&CC guidelines will be carried out every year in order to detect any changes from the baseline status.

Table 6.2: Monitoring Schedule

S. No.	Description	Schedule Of Monitoring
1.	Air Quality	Quarterly
2.	Water Quality (Surface and Ground Water)	Half Yearly
3.	Noise Level	Quarterly
4.	Soil Quality	Yearly
5.	Socio-economic Condition	Yearly
6.	Plantation Monitoring	Once in a season

6.5 LOCATIONS OF MONITORING STATIONS

The location of the monitoring stations was selected on the basis of prevailing micro meteorological conditions of the area like; wind direction and wind speed, relative humidity, temperature. Locations for the post project monitoring shall be as under-

Table 6.3: Locations of Monitoring Stations

S. No.	Description	Location
1.	Ambient Air Quality	Lease area, Villages in downwind direction from the Lease Boundary
2.	Noise Level Monitoring	Lease Boundary, High noise generating areas within the lease boundary
3.	Water Level and Quality	Nearby Surface and Ground water sources
4.	Soil Quality	Lease area and Villages within study area.

Reporting Schedule during Operation of Mine

After completion of analysis, copies of all the analysis reports will be sent to MoEF&CC Regional Office and SPCB. Copies of the reports will be maintained in the office and will be made available to the concerned inspecting authorities.

6.6 BUDGET ALLOCATION FOR MONITORING

The cost of the project is **Rs. 12.00 Crores** and a budget for monitoring of Air, water, Noise and Soil will be **Rs. 3.50 Lakhs per annum** as capital cost and **Rs. 1.50 Lakhs per annum** as recurring cost to be incurred by the project proponent for undertaking pollution prevention measures during the mining activity.

6.7 SUMMARY

In order to maintain the environmental quality within the stipulated standards, regular monitoring of various environmental components is necessary which will complied as per conditions. For this the lessee **Sh. Kulvinder Singh S/O Sh. Trilochan Singh, M/s P.S. Buildtech** has taken decision to formulate an Environment Policy of the mine and constitute an Environmental Management Cell and committed to operate the proposed mine with the objectives mentioned in approved Environment Policy. EMP may also require measurement of ambient environmental quality in the vicinity of a sit using ecological/biological, physical and chemical indicators. Monitoring may include socio-economic interaction, through local liaison

activities or even assessment of complaints. Regular Monitoring of all the environmental parameters *viz.*, air, water, noise and soil as per the formulated program based on CPCB and MoEF&CC guidelines will be carried out every year. The location of the monitoring stations was selected on the basis of prevailing micro meteorological conditions of the area like; wind direction and wind speed, relative humidity, temperature. A budget for monitoring of Air, Water, Noise and Soil will be **Rs. 3.50 Lakhs** as capital cost and **Rs. 1.50 Lakhs** as recurring cost to be incurred by the project proponent for undertaking pollution prevention measures during the mining activity.

CHAPTER-8
PROJECT BENEFITS

8.0 GENERAL
The execution of the project bring overall improvement in the locality, neighborhood and the State by bringing industry, roads, employment and hence improving living standard and economic growth.

8.1 PHYSICAL BENEFITS
The opening of the proposed project will enhance the following physical infrastructure facilities in the adjoining areas:

a. **Road Transport:** There will be improved road communication due to the proposed project and maintenance will also be done time to time.
b. **Market:** Generating useful economic resource for construction. Excavated mineral will provide a good market opportunity.
c. **Infrastructure:** Creation of community assets (infrastructure) like provision for drinking water, construction of school buildings, village roads/ linked roads, dispensary and health centre, community centre, market place etc, as a part of corporate social responsibility.
d. **Enhancement of Green Cover:** As a part of reclamation plan, plantation will be carried along the river banks or along the road sides or near the civic amenities.
e. **Green Belt Development:** A suitable combination of trees that can grow fast and also have good leaf cover will be adopted to develop the green belt. It is proposed to plant 2000 no.s per annum of native species along with some fruit bearing and medicinal trees during the mining plan period.
f. **Local Employment:** This project will enhance the opportunities of employment for the local villagers near the lease area due to which their economic status become better

8.2 SOCIAL BENEFITS
The mining in the area will create rural employment. It has been observed that conditions of the villages around mining areas are better than that of distant villages. The mining activity in the region will have positive impact on the social economic condition of the area by way of providing employment to the local inhabitants; wages paid to them will increase the per capita income, housing, education, medical and transportation facilities, economic status, health and agriculture.

A detailed programme for socio economic development of the area has been framed. The salient features of the programme are as follows:

i) Social welfare programme like provision of medical facilities educational facilities, water supply for the employees as well as for nearby villagers will be taken.
ii) A well laid plan for employment of the local people has been prepared by giving priority to local people.
iii) Supplementing Govt. efforts in health monitoring camps, social welfare and various awareness programs among the rural population.
iv) Assisting social forestry programme.
v) Adoption of villages for general development.
vi) Supply of water to village nearby villages.
vii) Development of facilities within villages like roads, etc.

Environmental and Social Responsibility: A budget of **Rs. 30.00 Lakhs** per annum towards Environmental and Social Responsibility which can be used for welfare of nearby village and will help in improving the socio-economic status of the residents. Description of Budget for Environmental and Social Responsibility (ESR) is given in **chapter 7.**

8.3 ECOLOGICAL BENEFITS
A green belt will be developed along the boundary of the mining lease area. The area for green belt plantation consists of undisturbed soil; hence plantation could be made as in any garden or road side plantation. Green belt is erected not from biodiversity conservation point of view but is basically developed as a screen to check the spread of dust pollution. It is proposed to plant **2000 Nos.** per annum of native species along with some fruit bearing and medicinal trees during the plan period and a budget of **Rs. 6.00 Lakhs** for plantation is given

CHAPTER: 7
ADDITIONAL STUDIES

7.0 GENERAL

Mining operations are associated with several potential hazards that affect adversely the human health and environment. It would normally require the assistance of emergency services to handle it effectively. The mining operation will be taken up under the supervision and control of qualified staff including Mine Manager (Grade I). Similarly Sand mines also have impending dangers and risk which need to be addressed for which a disaster management plan has been prepared with an aim of taking precautionary steps to avert disasters and also to take such action after the disaster which limits the damage to the minimum.

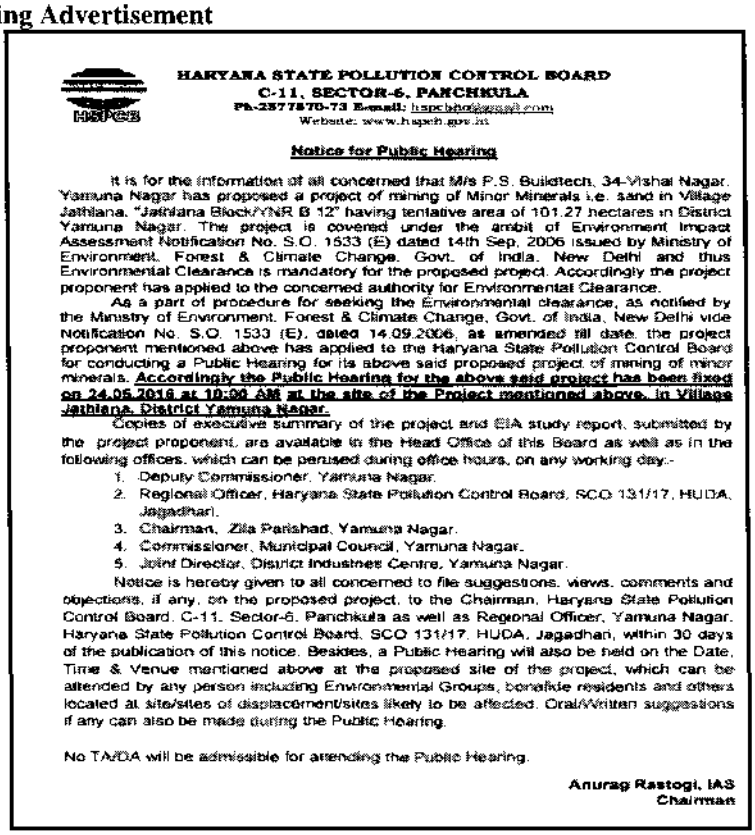
Nevertheless, the following natural/industrial problems may be encountered during the mining operation.

1. Inundation due to excessive rains.
2. Accidents by heavy machinery.
3. Slope failures at the mine faces etc.

7.1 PUBLIC CONSULTATION

Public hearing is very significant part of the process of public participation envisaged under the guidelines issued by MoEF & CC, Government of India. It facilitates involvement of all the stake holders of the project which is essential for ensuring smooth running of project and benefitting all sections of society in the process of economic development of the region. The public hearing of sand minor minerals mines namely "Jathlana Block/YNR B 12" for extraction of sand over an area of 101.27 ha. falling in Jathlana Block, Tehsil- Radaur, District Yamuna Nagar (Haryana) was conducted on 24.05.2016 at 10.00 am at Mine Site in village-Jathlana(Yamuna Nagar).

7.1.1 Public Hearing Advertisement



HARYANA STATE POLLUTION CONTROL BOARD
C-11, SECTOR-6, PANCHKULA
Ph-2577870-73 E-mail: hspcbhq@gmail.com
Website: www.hspcb.gov.in

Notice for Public Hearing

It is for the information of all concerned that M/s P.S. Buildtech, 34-Vishal Nagar, Yamuna Nagar has proposed a project of mining of Minor Minerals i.e. sand in Village Jathlana, "Jathlana Block/YNR B 12" having tentative area of 101.27 hectares in District Yamuna Nagar. The project is covered under the ambit of Environment Impact Assessment Notification No. S.O. 1533 (E) dated 14th Sep, 2006 issued by Ministry of Environment, Forest & Climate Change, Govt. of India, New Delhi and thus Environmental Clearance is mandatory for the proposed project. Accordingly the project proponent has applied to the concerned authority for Environmental Clearance.

As a part of procedure for seeking the Environmental clearance, as notified by the Ministry of Environment, Forest & Climate Change, Govt. of India, New Delhi vide Notification No. S.O. 1533 (E), dated 14.09.2006, as amended till date, the project proponent mentioned above has applied to the Haryana State Pollution Control Board for conducting a Public Hearing for its above said proposed project of mining of minor minerals. **Accordingly the Public Hearing for the above said project has been fixed on 24.05.2016 at 10:00 AM at the site of the Project mentioned above, in Village Jathlana, District Yamuna Nagar.**

Copies of executive summary of the project and EIA study report, submitted by the project proponent, are available in the Head Office of this Board as well as in the following offices, which can be perused during office hours, on any working day:-

1. Deputy Commissioner, Yamuna Nagar.
2. Regional Officer, Haryana State Pollution Control Board, SCO 131/17, HUDA, Jagadhari.
3. Chairman, Zila Parishad, Yamuna Nagar.
4. Commissioner, Municipal Council, Yamuna Nagar.
5. Joint Director, District Industries Centre, Yamuna Nagar.

Notice is hereby given to all concerned to file suggestions, views, comments and objections, if any, on the proposed project, to the Chairman, Haryana State Pollution Control Board, C-11, Sector-6, Panchkula as well as Regional Officer, Yamuna Nagar, Haryana State Pollution Control Board, SCO 131/17, HUDA, Jagadhari, within 30 days of the publication of this notice. Besides, a Public Hearing will also be held on the Date, Time & Venue mentioned above at the proposed site of the project, which can be attended by any person including Environmental Groups, bonafide residents and others located at site/sites of displacement/sites likely to be affected. Oral/Written suggestions if any can also be made during the Public Hearing.

No TA/DA will be admissible for attending the Public Hearing.

Anurag Rastogi, IAS
Chairman

Figure 7.1 Notice from Haryana State Pollution Control Board regarding Public Hearing

7.1.2 Photographs of Public Hearing

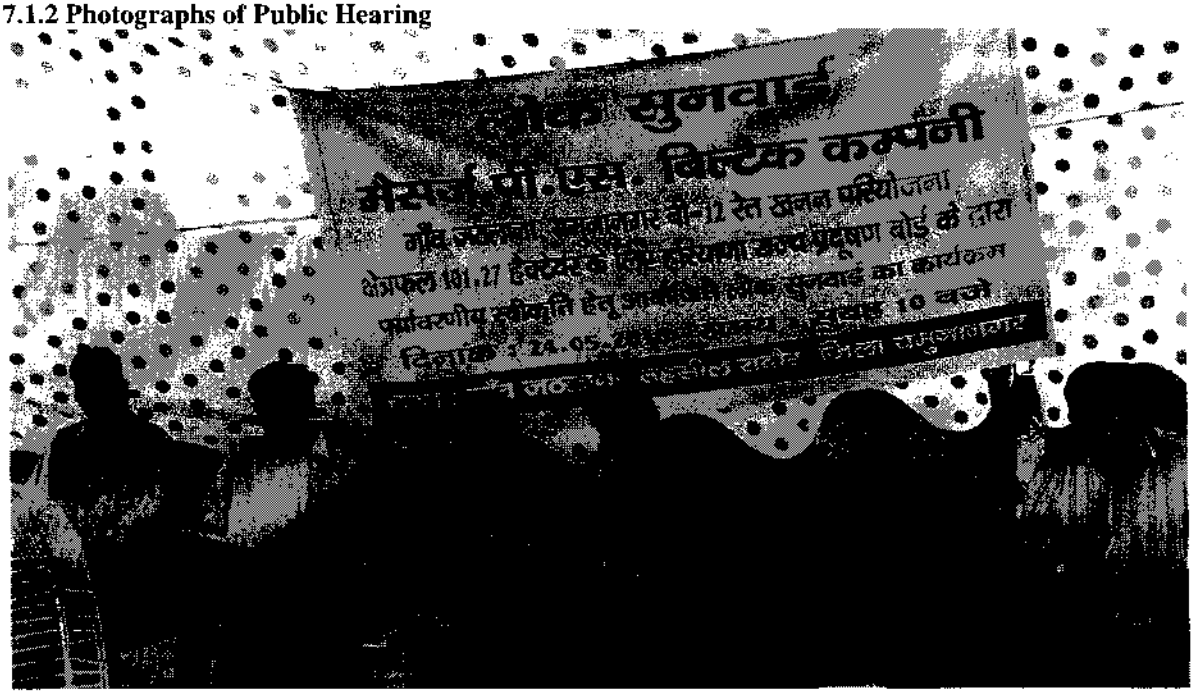


Figure 7.2 Members of SPCB, Haryana for Public Hearing

Figure 7.3 Environment Consultants at Public Hearing

Figure 7.4 Local Public present for Public Hearing

7.1.3 Minutes of Public Hearing

Proceeding of public consultation (minutes of meetings) of sand minor minerals mines namely "Jathlana Block/YNR B 12" over an area of 101.27 ha. falling in Jathlana Block, Tehsil- Radaur, District Yamuna Nagar (Haryana) Approved proceeding of public consultation is attached as **Annexure XIII.**

Table 7.1 Action Plan of the issues raised during Public Hearing and reply given by Project Proponent					
S. No.	**Name and address of Stakeholder**	**Question**	**Reply**	**Action Plan**	**Budget**
1.	Sh. Sanjeev Kumar, Sarpanch of Vill- Jathlana	First of all, he welcomed the Hon'ble Deputy Commissioner, Yamuna Nagar, RO, HSPCB, Yamuna Nagar, all other officers and all stakeholders. 1.) He questioned that how the villagers will be benefitted from this mining project. And how our Gram Panchayat Fund will be benefitted or not. He also questioned that what provisions has been made by the lease holders in CSR activity.	1.) The Environment Consultant, Sh. RS Yadav replied that it is very big mining project the river bed having area of 101.27 Ha. The land of this project is Gar-mumkin Nadi Nala, it may be Gram Panchyat land or the private. Before the start of mining operation compensation will be settled with affected land owners of this mining project by the lease holders in mutually agreed financial terms and the Haryana Government will also accept the same. This Mining project will generate direct and indirect employment opportunities of 1400-1500 to the local villagers i.e about 200 dumpers will be deployed and each dumper employ 4-5 persons as driver, cleaner, helper. About 120 technical,	Before start of mining operation compensation will be settled with affected land owners of this mining project by the lease holder in mutually agreed financial term and the Haryana Government will also accept the same.	Compensation will be settled in mutually agreed finical terms with the land owner by lease holder. In case of non settlement of compassion with affected land owners the lease holder will deposit 10% of annual contract money *i.e.* 93.45 Lakhs as tentative compassion in advance to Mining offer Yamuna Nagar with a request to settle the compassion. Mining officer will forward the request to DC Yamuna Nagar for final settlement compassion.

			skilled/semi-skilled man powers will be deployed in this mining project. Many bill clerks, security gaurds, Gardners will be employed in this mining project. Many small shops for daily need, hotels, vegetable shops, spare parts shops and workshops will be opened nearby this mining project area. For the CSR activity a budget of Rs. 30.00 Lakhs per year is proposed for the welfare of the villagers in which various activities will be carried out i.e. providing of drinking water, education facility, scholarship to students, free of cost books and stationery to students and organizing health camps. The lease and Gram Panchayat will decide together at what concession the mineral will be given for the social works of the village, but this mineral will not be given at free of cost for commercial use because this is very costly project. The lease holder assured that first preference will be given to the villagers for any kind	It is ensured by the lease holder that in employment opportunity first preference will be given to local villagers and about 1400-1500 persons will be employed in this project. In the CSR activity varies welfare schemes are proposed *i.e.* providing drinking water and health camps for the local villagers. scholarship and vocational training to students of local villagers The local gram panchyat and lease holders will mutually decided the rate of concession for mineral used for social and community work in the village.	A budget of Rs. 30.00 Lakhs per year is proposed for CSR activities.

			of employment as per their qualification. The Sarpanch of the gram Panchayat will provide the list of educated persons for employment to the lease holders.		
2.	Sh. Shiv Kumar, Vill-Sandhala	1.)He welcomed the district administration officers for participation of local villagers in this public hearing. He also questioned that how the 10% amount deposited by lease holders will be spent on affected persons of nearby villages by this mining project.	1.)The Environmental Consultant replied that first time Mining department of Haryana government made a provision in their Minor Mineral concession rule June 2012 to deposit 10% of the contract money annually by the lease holder in "Mines and Minerals Restoration and Rehabilitation Fund". The amount of this fund will be utilised to compensate the affected persons from this mining project. In this case Rs. 93.45 Lakhs per annum will be deposited by the lease holder to the mining department in this fund. The district monitoring committee headed by DC and other officers i.e. RO, HSPCB, Mining officers, DFO will monitor the utilisation of this fund. This fund will be utilized to compensate the affected villagers of 10 Km from the project site.	The amount available in "Mines and Minerals Restoration and Rehabilitation Fund" which will be spent for protect ion of environment of surrounding area. Affected persons from this mining project will be compensated from this fund *i.e.* damage of agriculture crops, land, health, maintaince of repair road etc. Monitoring committee headed DC Yamuna Nagar and other officers i.e. RO, HSPCB, Mining officers will monitor proper utilization of this fund .	A budget of Rs. Rs. 93.45 Lakhs per annum is available in "Mines and Minerals Restoration and Rehabilitation Fund" which will be deposited by leasc holder.

		2.) He questioned that what provisions or mitigation measures has been proposed by the lease holders to protect the environment of the nearby project sites and its surrounding areas.	2.) The Environment Consultant, Sh. RS Yadav replied that first of all it is a eco-friendly mining project which prevent the flooding of water in nearby agricultural land of villagers. It is perennial river hence the sediments coming with flow of water in river may accumulated hence the level of the river may rise. If these sediments (Minor Minerals) may not be excavated then river may not be able to flow in a channel and it may cause flooding of nearby agriculture land. The Environment Consultant replied that in addition to the above mentioned budget "Mines and Minerals Restoration and Rehabilitation Fund" i.e Rs. 93.45 Lakhs annually, a budget of Rs. 36.00 Lakhs per year is provided for environment protection. Regular water sprinkling will be carried out around the active mining area and on the haul road from where mineral loaded dumpers will ply to suppress the dust. Everyday 48 KLD water will be provided for dust	This river bed mining project prevents the flooding of water in nearby agricultural land of villagers. It is informed by lease holder that 48 KLD water will be used for dust suppression. The mineral loaded dumper will be covered with tarpaulin A thick green belt will also will developed around perihary of lease area along the haul roads from mineral will be transported. regular Environmental monitoring will be conducted and its compliance report may be field six monthly to the concern government departments.	A budget of Rs.36.00 Lakhs per year is provided for EMP activities **Particulars** / **Capital Cost (Lakhs)** / **Recurring Cost (Lakhs)** Pollution monitoring – Air, Water, Noise and Soil: 3.50 / 1.50 Dust Supression: 5.00 / 3.00 Plantation: 3.75 / 2.25 Rainwater rechargang: 4.00 / 2.00 Haul road and other roads repair and maintenance: 6.00 / 2.00 Pre monsoon and Post Monsoon survey for sedimentation in the river bed: 2.00 / 1.00 **Total = 36 Lakhs**: **24.25** / **11.75**

			suppression. The mineral loaded dumper will be covered with tarpaulin. And if the storm will come then work will be temporarily stopped.		
		3.)He also questioned that due to transportation of mineral loaded vehicle the existing road will be damaged hence how the lease holder will take care for this issue.	3.)The Environment Consultant, Sh. RS Yadav replied that the lease holder will construct a separate new road for transportation of mineral that will not disturb the local villagers and proper compensation will be paid to villagers whose land will be used for this purpose. Lease holder also assured for the same. And another alternate road will be constructed with the helps and suggestions of the villagers and Gram Panchayat. The lease holder will regularly repair and maintain this road.	It is ensured by lease holder that he will construct a separate new road for transportation of mineral from the mining project with the help and suggestions of the villagers and gram panchayat. It is ensured by the lease holder that proper compensation will be paid to villagers whose land will be used for this purpose.	In addition of above a budget of Rs. 93.45 Lakhs per annum available in "Mines and Minerals Development Rehabilitation and Restoration Fund. As per requirement part amount may also be utilized from this fund. A budget of Rs.36.00 Lakhs per year is provided for EMP activities out of which 8.00 Lakhs is provided for haul road and its repair and maintenance.
		4.) He also questioned that the mineral shall be given on concession rate to the local villagers for their self use in the village.	4.)The Environmental Consultant replied that the lease and Gram Panchayat will decide together at what concession the mineral will be given for the social works or self use to the villagers, but this mineral will not be given at free of cost for	The gram Panchayat and the lease holder will mutually decide the rate of concession to be given to the local villagers for mineral used for their selfuse.	In addition of above a budget of Rs. 93.45 Lakhs per annum available in "Mines and Minerals Development Rehabilitation and Restoration Fund. As per requirement part amount may also be utilized from this fund.

			commercial use.		
3.	1.)Sh. Sanjeev Kumar, Regional Officer, Region, Haryana State Pollution Control Board. Yamuna Nagar	1.) He questioned that how many trees have been planted in this project.	1.)The Environment Consultant replied that 2000 tress will be planted per year of local species of fruit bearing and medicinal species of trees in this project with consultation of the forest Dept. And these trees will be planted along the roads, in schools, gram Panchayat compound, hospitals etc.	It is ensured by lease holder that 2000 tress will be planted per year and these trees will be planted along the haul roads, in schools, gram Panchayat compound, hospitals etc.	A budget of Rs.36.00 Lakhs per year is provided for EMP activities out of which 6.00 Lakhs is provided for Plantation. In addition of above a budget of Rs. 93.45 Lakhs per annum available in "Mines and Minerals Development Rehabilitation and Restoration Fund. As per requirement part amount may also be utilized from this fund.
		2.) He questioned that upto what depth mining will be carried out.	2.) As per Minor Mineral Concession rule June 2012 mining is permitted upto 3 m depth in this mining project.	It is informed that as per Minor Mineral concession rule June 2012 mining operation is permitted upto 3m depth in the river bed mining project.	
		3.)Weather mining will be carried out in rainy season.	3.) Mining will not be carried out in heavy rainy season. In a year mining will be carried out in 300 days only.	It is informed by lease holder that mining operation will not be carried out in heavy rainy season and in a year it will be carried out in 300days only.	
4.	Sh. Vipin Kumar, AEE, Region, Haryana State Pollution Control	He questioned that what kind of machineries and equipments will be deployed in this mining	The environment consult replied that there is a proposal of semi-mechanised method of mining in this	There is a proposal of semi-mechanised method of mining in this project in which	

	Board. Yamuna Nagar	project.	project in which small bucket JCB is used along with dumpers. The mining dept. approved this proposal in their mining plan for river bed mining.	small bucket JCB is used along with dumpers. The mining dept. approved this proposal in their mining plan for river bed mining.	
5.	Dr. S.S. Phulia, IAS, Deputy Commissioner, Yamuna Nagar	He questioned that directed the lease holder that unit will comply with all the direction/orders of Hon'ble National Green Tribunal and rule & regulations of other concerned departments.	The lease holder assured to comply the same.	The lease holder assured to comply the order of Hon'ble National Green Tribunal.	

7.2 MINE CLOSURE PLAN

7.2.1 General

Mine closure plan is one of the most important requirements in the environment management of mining projects. The closure operation is a continuous series of activities right from the commencement to decommissioning of the project. Therefore, progressive mine closure plan is specifically included in the mining plan, which is to be reviewed every five years in the scheme of mining. The primary aim is to ensure that the following broad objectives along with the abandonment of the mine can be successfully achieved:

- Creation of a productive and sustainable after-use for the site, acceptable to mine owners, regulatory agencies, and most importantly to the community.
- Protection of public health and safety of the surrounding habitation.
- Minimization of environmental damage.
- Conservation of valuable attributes and aesthetics.
- Counter balancing the adverse socio-economic impacts.

7.2.2 Reason for Closure

The progressive mine closure plan has been prepared in compliance of Haryana Minor Mineral Concession Rules 2012 under MMCR 1986. No immediate closure is planned as sufficient reserves are available to carry on the activities. There is market potential in domestic demands.

7.2.3 Phase-Wise Plan of Restoration of Land Degraded by Mining

Our production detail for **first five year** is given below:

Year	Production (MT)
I	45,00,000
II	45,00,000
III	45,00,000
IV	45,00,000
V	45,00,000

Geological Reserve = 60,76,200 Tons
Mineable Reserve= 45,40,200 Tons

These data are as per mine plan and has submitted to the Director General of Mines and Geology Department, Chandigarh, Haryana dated on **11-01-2016** for approval (Copy of receipt of Mining Plan and Progressive Mine Closure Plan has attached as **Annexure-II**). In every year, the production will be 45,00,000 MT and every year 100% of minerals will be replenished during monsoon season. The fresh mining scheme will be submitted to **DMG Haryana** well in time as per **Haryana Mines & Mineral Concession Rule, 2012** Hence, it is clarified that we will not going to attain the ultimate mining limit at the end of first year itself. However, due to proximity of lease boundary wherever further advancement is not feasible; the Restoration/Reclamation/Rehabilitation measures will be started from second year onwards.

7.2.3.1 Following initiatives are proposed for Restoration/ Reclamation/Rehabilitation, the land degraded by mining operation, in case the portion of lease area going to attain ultimate limit before lease life:

a) Plantation along the Lease Boundary.
b) Plantation in the Mine Premises.
c) Plantation along the Haul Road starting from core area to mettled road.
d) Plantation at suitable location from Second Year to Fifth Year along the worked out mine benches. such that, it does not affect working of mine.

We would like to mention that the plantation details have been shown in Plate No. 10, Conceptual Plan of the Mining Plan along with the Afforestion/Green Belt programme. The detailed map of plantation on benches is provided in **Figure 102.** In view of **clause xiv** of LoI, the lease holder are bound to deposit 10% of annual contract money in advance to the mining department towards **Mines and Mineral Development, Restoration & Rehabilitation Fund' (MMDR&RF).** In this regard, Mining Dept of

Haryana Govt. issued the notification **Establishment of the "Mines and Mineral Development, Restoration and Rehabilitation Fund"** No. DMG/HY/MMDR&RF/2015/6016 dated 10th July 2015. The following objectives are intended to be achieved through the said Fund:

(i) Funding of the restoration or reclamation or rehabilitation works in the sites affected by mining operations;
(ii) Provision of common facilities for the benefit of community in and around areas where mining activities are undertaken;
(iii) Development of infrastructure facilities for orderly growth of the mining operations and allied activities *e.g.* roads, stone crusher estates, water supply etc.;
(iv) Funding of the studies commissioned or activities related to the mining sector e.g. survey, exploration and prospecting of minerals, procurement of equipment and machinery required to support such activities;
(v) Education, awareness and training of the mineral concession holders and the staff of the Department through field visits and exposure to the best mining practices;
(vi) Funding of expenditure incurred on implementation of any scheme of incentives that the state government may frame for recognition and awards for scientific mining undertaken with highest regard to mineral conservation, rehabilitation measures along with environmental safeguards and other measures;
(vii) Any other objects, which the Government may consider expedient to support in the overall interest of the mining sector.

The **budget** for **first FIVE YEARS** towards Mines and Mineral Development, Restoration and Rehabilitation Fund is given below:

S.No.	Year of Lease Period	Budget (Rs.)
1.	First Year	93,45,000
2.	Second Year	93,45,000
3.	Third Year	93,45,000
4.	Fourth Year	1,16,81,250
5.	Fifth Year	1,16,81,250

The lease holder is bound to expend this fund every year for Restoration and Rehabilitation at the project site and surrounding area. The Senior Officer of Concerned Department of Haryana Govt. will monitor the progress in this regard carried out by lease holder in view of said notification. If their work will found satisfactory, then this amount will be reimbursed to lease holder.

7.2.4 Statutory Obligations

i. As per **LoI condition no. xiv**, the lease holder is bound to deposit additional amount equal to 10 % of the due contract money in along with monthly installments towards the "Mines and Minerals, Development, Restoration and rehabilitation Fund". To the mining department, Haryana (Haryana Minor Mineral Concession, Stocking, transportation of Mineral & Prevention of Illegal Mining Rule-2012). Hence, accordingly after the mine closure the mining department will spend the fund for the same.
ii. The mining contractor is bound to submit the Progressive mine closure plan either with Mining plan or Scheme of Mining.
iii. Mining contractor is bound to follow the terms and conditions as will be stipulated in the mining contract.
iv. In addition to it the rules pertaining to the Protection of Environment i.e Environment Act. Environment Rules and other associated rules for the protection of environment will have to be followed.
v. During the course of mining the rules stipulated in Mines Act, Mines rules Metalliferous Mines Regulation 1961 and HMMCR.2012 will be followed.

vi. All other rules pertaining to the mining existing at that time will be followed during the course of mining activities.

7.2.4 Disposal of Mining Machinery

Machinery is proposed on hire basis. Hence no de-commissioning of mining machinery is proposed.

7.2.5 Safety and security

Safety measures to be implemented to prevent access to excavations area by un-authorized persons as per Mines Act 1952, M.M.R. 1961.

i. Safety measures will be implemented as per Mines Act 1952, MMR 1961, Mines Rules 1955.
ii. Provision of MMR 1961 shall be followed strictly and all roads shall be 10 m wide and have a gradient of not more than 1 in 20.
iii. Excavation will not be more than 3 m in river bed.
iv. Width of bench will be kept around 20.0 m for ease of operations and provide sufficient room for the movement of equipments.
v. Protective equipment like dust masks, ear plugs / muffs and other equipments shall be provided for use by the work persons.
vi. Notice giving warning to prevent inadvertent entry of persons shall be displayed at all conspicuous places and in particular near mine entries.
vii. Danger signs shall be displayed near the excavations.
viii. Security guards will be posted.
ix. In the event of temporary closer, approaches will be fenced off and notice displayed.

7.2.6 Time Scheduling for Abandonment

The mining area has enormous potential for continuance of operations even after the expiry of the awarded period. The details of time schedule of all abandonment will be given at the time of final closer plan. Mining activities are confined to river bed, up to 3.0 m. depth, relatively shallow depth of workings. Replenishment of the Sand being removed from the river bed is a natural process particularly during monsoon periods.

7.2.7 Financial Assurance

As per LoI term and condition and Minor Mineral Concession Rule 2012, Haryana; the lease holder will deposit 10% of the annual contract money *i.e.* **Rs. 93.45 Lakhs** will be deposited in "Mines and Mineral development, Restoration and Rehabilitation Fund" to the Mining Department. This fund will be deposited yearly till mine period.

7.3 HAZARD IDENTIFICATION AND RISK ASSESSMENT METHODOLOGY

All types of industries face certain types of hazards which can disrupt normal activities abruptly. Similar inside river bed mines also have risks which need to be addressed for which a disaster management plan has been formulated with an aim of taking precautionary steps to avert disasters and also take such action after disaster which limits the damage to minimum. In the sections below, the identification of various hazards, probable risks during the operational phase of the mining, maximum credible accident analysis and consequences analysis are addressed either qualitatively or quantitatively.

Risk assessments will help mine operators to identify high, medium and low risk levels. This is a requirement of the Occupational Health and Safety Act 2000. Risk assessments will help to priorities the risks and provide information on the need to safely control the risks. In this way, mine owners and operators will be able to implement safety improvements. The following natural/industrial problem may be encountered during the mining operation.

- Inundation: Filling of the mine pit due to excessive rains
- Slope failures at the mine faces or stacks
- Accident due to fire (in forested areas)

As per proposal made under the mining plan the area will be developed by means of opencast mining method. Extraction of minerals is to be carried out by open cast mechanized method. Water table will not be touched during the mining process. No high risk accidents like landslides, subsidence flood etc have been apprehended.

7.3.1 Risks due to Inundation

Mining will be done during the Post-monsoon periods (December, 2015 to February, 2016); therefore problem of inundation is not likely to happen.

7.3.2 Risks Due to Failure of Pit Slope

In order to allay dangers due to open cast slope failure, final pit, slope stability estimations will be made for the existing mines. Determining the factor of safety, the slopes should be monitored at regular intervals to check for any possible failure.

7.3.3 Risks due to Failure of Waste Dumps

During extraction of sand from mining areas silt and clay will also be removed in form of waste materials. The excavated silt and clay will be used for backfilling of the pits. Therefore there is no risk associated with failure of waste dumps.

7.3.4 Risks of Accidents due to Trucks and Dumpers

Identifying the hazards that come along with the presence of vehicles at the workplace (*e.g.* reversing operations, loading) can cause harm if not properly handled. Among some of the factors that may make vehicle accidents more likely are:

- Rough access roads
- Time pressure
- Inadequate brakes (Possibly from lack of maintenance)
- Carelessly parked vehicles (*e.g.* being parked on a slope without being adequately secured)
- Unsafe coupling and uncoupling of trailers, and
- Untrained drivers
- Overturning vehicles

To avoid such instances we will talk to the workers and their representatives and will involve them in the risk assessment process and tell them what to do, to reduce risk. All transportation within the mine lease area should be carried out directly under the supervision and control of management.

- The vehicles will be maintained in good working condition and checked thoroughly at least once a month by the competent person authorized for the purpose by the management.
- Road signs will be provided at each and every turning point up to the main road (wherever required)
- To avoid danger while reversing the vehicles especially at working place/loading points, stopper should be posted to properly guide reversing/spotting operating.
- Only trained drivers will be hired.

7.4 DISASTERS AND ITS MANAGEMENT

Mining and allied activities are associated with several potential hazards to both the employees and the public at large. A worker in a mine will be able to work under conditions, which are adequately safe and healthy. At the same time the environmental conditions also will not impair his working efficiency. This is possible only when there is adequate safety in mines. Hence mine safety is one of the most essential aspects of any working mine. The safety of the mine and the employees is taken care of by the Mines Act 1952, which is well defined with laid down procedure to ensure safety and constantly monitored and supervised by Directorate General of Mines Safety and Department of Mines, State Government.

7.4.1 Identification of Hazards

There are various factors, which can create disaster in sand mine. These hazards are as follows:

a) Inundation / Flooding.
b) Quick Sand Condition.
c) Drowning.
d) Accident due to vehicular movement.

e) Accident during sand loading, transporting and dumping.
The mining activity has several disaster prone areas. A check list depicting likely disaster/risk events due to the sand mining activity is presented in **Table 7.2** and identification network for hazards are depicted in **Figure 7.1**. Accidents occur due to negligence, poor workmanship and unskilled persons.

Table 7.2.: List Occupational Risks in Minerals Mines

S. No.	Activities	Human Risk		
		Probability of Occurrence	Consequence	Risk level
1.	Mincrals Loading	Possible	Critical	Low
2.	Minerals Transport/ Vehicular Movement	Possible	Critical	High
3.	Minerals Dumping and Storage	Possible	Critical	Low
4.	Inundation/Flooding	Possible	Minor	Moderate

7.4.2 Sand Loading

The sand is loaded in the trucks using hand shovels and back-hoe. There are possibilities of injury in the hands during loading with shovels and staying under bucket movement.

i. There are possibilities that the workers standing on the other side of loading may get injury due to over thrown sands with pebbles.
ii. There are possibilities of workers getting injured during opening of side covers of the trucks to facilitate sand loading.
iii. There are possibilities of riverbank collapse due to close proximity of sand extraction.
iv. There are chances of falling of cattle/children into sand pit in river bed-- instances of death due to fall in such pits were reported from other areas to the Department of Mines.
v. Chance of workers getting injured due to improper balancing of truck while loading.

7.4.3 Sand Transport

The sands loaded in 25 Tons trucks are being sent to the collieries through public roads.

i. All possibilities of road accidents are possible.
ii. Accident may also occur during movement in the mine (sand dunes).

7.4.4 Sand Dumping and Storage

i. There are possibilities of the trucks rolling/ sliding down the sand bunker during dumping operation.
ii. The dumper /trucks may cause injury to the workers working near the stowing plant.
iii. Dumping the sand in an empty sand bunker may cause injury to the stowing operator if the bunker chute is in open condition.
iv. Dumping the sand in an empty sand bunker may cause burying the stowing machineries if the bunker chute is in open condition.

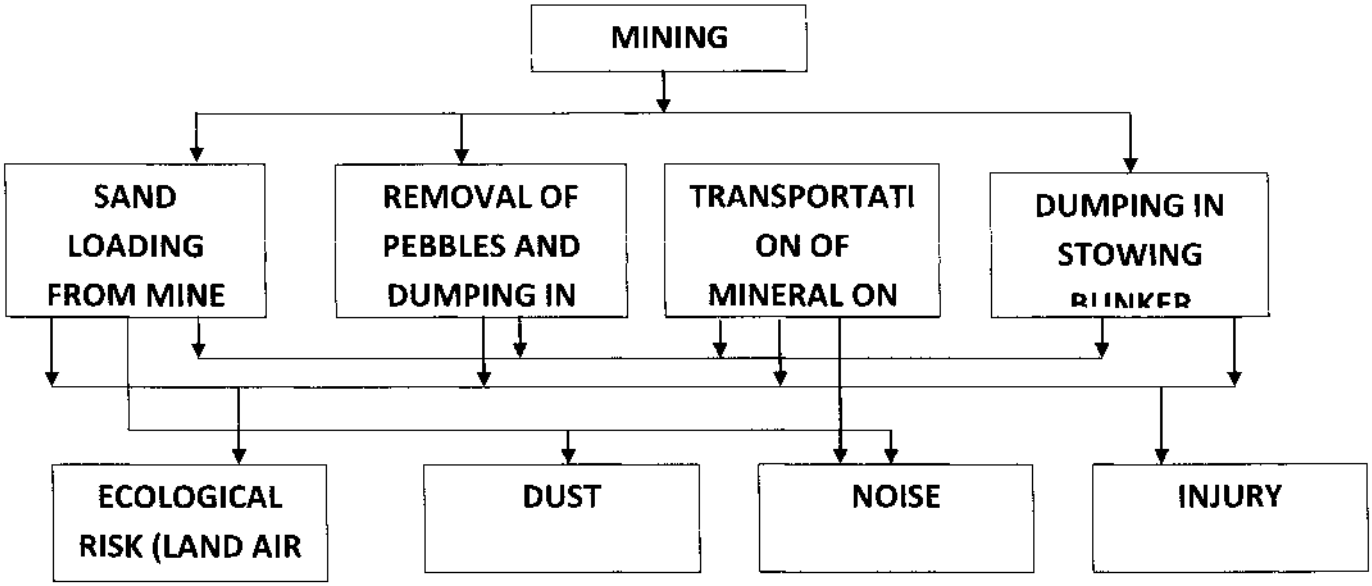


Figure 7.5: Identification of Hazards in Mine

7.4.5 Heavy Machinery

Most of the accidents occur during transportation by dumpers, trucks and other heavy vehicles and are often attributable to mechanical failures, in which the factor of human errors cannot be ruled out.

7.4.6 Inundation / Flooding

i. The possibility of inundation/flooding of the sand mines are very high during monsoon or during heavy rains in lean season as the mine area lies over the sand dunes of a riverbed.
ii. There are dangers to the trucks and other machineries due to flooding.
iii. There are dangers to the workers working in the sand dunes.

Inundation or flooding is expected and beneficial for these sand mines as during this time only the sand reserve gets replenished.

7.4.7 Quick Sand Condition

i. This condition occurs when the working crosses the water table at a certain depth and the permeability of the strata is very high.
ii. This condition occurs when the effective stress in the sand becomes zero due to influx of water i.e. $i = i_{cr} = \gamma'/\gamma w$; where i = Hydraulic gradient, icr = Critical Hydraulic gradient, γ' = submerged unit weight, γw = unit weight of water.
iii. This creates danger condition to the trucks and other machineries plying over the sand dunes.

7.4.8 Drowning

There are possibilities of drowning in the deeper part of the river. However safety jackets, floating tube will be kept at the site office to prevent any mishap.

7.4.9 Mitigation of Hazards

7.4.9.1 Measures to Prevent Accidents during Sand Loading.

i. The trucks will be brought to a level so that the sand loading operation suits to the ergonomic condition of the workers and the back-hoe.
ii. The loading will be done from one side of the truck only.
iii. The workers will be provided with gloves and safety shoes during loading.
iv. Opening of the side covers (pattas) will be done carefully and with warning to prevent injury to the loaders.

v. No sand will be collected within 7.5m from bank, especially from outer bank of the meandering river. Safe clearance will be mainly determined by the height of the river bank and thickness of sand to be extracted from the close vicinity of that bank.
vi. Ponding in the river bed shall not be allowed.
vii. Operations during daylight only.
viii. No foreign material (garbages) will be allowed to remain/spill in river bed and catchment area, or no pits/pockets are allowed to be filled with such material.
ix. Stockpiling of harvested sand on the river bank will be avoided.
x. For particular operations, approaching river bed from both the banks will be avoided.
xi. Digging inside river bank within 500m for pit sand and gravel, and also taking anything from that zone for construction of access ramps, will be strictly prohibited.

7.4.9.2 Measures to Prevent Accidents during Sand Transportation.

i. All transportation within the main working will be carried out directly under the supervision and control of the management.
ii. The Vehicles must be maintained in good repairs and checked thoroughly at least once a week by the competent person authorized for the purpose by the Management.
iii. Road signs will be provided at each and every turning point especially for the guidance of the drivers at the evening/night.
iv. To avoid danger while reversing the trackless vehicles especially at the embankment and tipping points, all workers will be removed from all areas for reversing of lorries, and the vehicle will have audio-visual alarm during reversing.
v. A statutory provision of the fences, constant education, training etc. will go along way in reducing the incidents of such accidents.
vi. Generally, overloading will not be permitted. The truck will be covered and maintained to prevent any spillage.
vii. The maximum permissible speed limit will be ensured.
viii. The truck drivers will have proper driving license.

7.4.9.3 Safety Features Required in Tippers/Trucks

a) Exhaust/ Retard Brake: Required as per DGMS circular 02 of 2004.
b) Propeller shaft guard: Propeller shaft guard as per DGMS circular 10 of 1999.
c) Tail gate protection: Protection of cabin against collision either by head to head or head to tail.
d) Limiting speed device: To ensure speed limits as decided by management. The device may be Electronic or mechanical type speed governors.
e) Reverse gear for audio-visual alarm: The audio-visual alarm provided for equipments will confirm to DGMS (Tech.) Tests to be carried out on the audio-visual alarm and certificates shall be issued to user industries.
f) Provision of two brakes: One of brakes shall be fail safe and for details refer DGMS circular 09 of 1999.
g) Body lifting position locking arrangement: A hooter along with an indication may be provided to show the body is lifted.
h) Fire suppression System: Semi-automatic fire suppression system. For details refer DGMS circular 10 of 2004. The fire suppression system shall be a factory fitment.
i) Blind spot mirror: Better view of front blind spot by operator.
j) Retro reflective reflectors on all sides: For visibility of truck during night
k) Seat belt reminder: To alert operator for using the seat belt
l) Proximity warning device: To alert operator
m) Rear Vision System: For assisting operator to have back view during reversing
n) Auto dipping System: To reduce glaring of eyes of operator during night
o) Load Indicator and Recorder: Enables management to detect and prevent over loading.

p) Global Positioning system: To prevent illegal transport and selling of sand, restricting short-cut routes other than stipulated routes and computerized monitoring.

It is the responsibility of the Project Proponent (Tata Steel) to mention these terms and conditions in the tender document.

7.4.9.4 Measures to Prevent Accidents during Sand Dumping and Storage

i. The Stowing Sand bunkers will be covered by steel grizzly (netting) to prevent inadvertent fall of human being or the vehicles during dumping operation.
ii. The dumping will be done only when the chute of the sand bunker is in closed condition or partially filled.
iii. The vehicles/trucks will not be brought over the grizzly.
iv. There will be a duly constructed berm made up of concrete or other material to prevent the rear wheels come/roll over the grizzly of sand bunker.
v. Dozers are used near the sand bunkers to maintain the safety bern and to push material over the edge as required.
vi. The dumping operation will be done under strict supervision.

7.4.9.5 Measures to Prevent Accidents due to Trucks/ Dumpers etc.

i. All transportation within applied mining lease working will be carried out directly under the supervision and control of the management.
ii. The vehicles will be maintained in good condition and checked thoroughly at least once a month by the competent person authorized for the purpose by the management.
iii. Road signs will be provided at each and every turning point up to the main road (wherever required).
iv. To avoid danger while reversing the equipment's/ vehicles especially at the working place / loading points, stopper will be posted to properly guide reversing/ spotting operating, otherwise no person will be there within 10 Km radius of machine.
v. A statutory provision of the fences, constant education, training etc. will go a long way in reducing the incidents of such accidents.
vi. Regular training will be provided to the operators by the Company or the Contractors.

7.4.9.6 Measures to Prevent Dangerous Incidents during Inundation/Flooding

i. Inundation or flooding is expected and beneficial for these sand mines as during this time only the sand reserve gets replenished.
ii. During monsoon months and heavy rains the sand mining operations are ceased.
iii. The Trucks and other vehicle plying over the dunes will be kept on the river banks beyond HFL.
iv. The workers are not allowed to go over the dunes during heavy rains.
v. There will be mechanism/warning system of heavy rains and discharges from the upstream dams.

7.4.9.7 Measures to Prevent Quick Sand Condition

i. The only way to avoid quick sand condition is by avoiding sand lifting below water table.
ii. The critical hydraulic gradient (icr) will be maintained at less than 1 to prevent high artesian pressure in a coarse sand area.
iii. At least 0.5m sand bed will be left in-situ while harvesting sand from riverbed.

7.4.9.8 Measures to Prevent Drowning

i. The sand mining will be done under strict supervision.
ii. The workers are not allowed to go to the deeper areas of the rivers.
iii. The workers are not allowed to fish in the river during working hours.
iv. In case it is required to cross the river, it is done under strict supervision and over the shallow area using life lines.
v. Few life jackets, inflated tubes will be kept near the mine site.

7.4.10 Training and Human Resources Development

i. Appointment and delegating qualified and experienced personnel in various disciplines.
ii. Adequate training/refresher training will be provided to the supervisors, workers keeping in view provisions of Mines Vocational Training Rules, 1966; Mine Rules, 1955, Mines Rescue Rules, 1985.

iii. Personnel who have to operate and maintain HEMM, Trucks etc are to be trained under the guidance of the manufacturers and as per provisions of DGMS Circular Technical 1/1989 regarding accidents in opencast mines. Recommendation of Seventh Conference on Safety in Mines on "Safety in Open Cast Mining", "Traffic Rules and Procedures", "Mobile equipments and Highway Delivery Vehicles", "Operations and Operator Training" and other related circulars.

iv. The training of mine personnel shall be provided regularly with respect to environmental protection.

v. Special courses for employees will be arranged for afforestation, revegetation, reclamation, health hazards (identification), malaria eradication, HIV prevention etc in the training centre of the company.

7.5 OCCUPATIONAL HEALTH HAZARDS

Dry-pit mining by open cast method involves dust generation by excavation, loading and transportation of mineral. At site, during excavation and loading activity, dust is main pollutant which affects the health of workers whereas environmental and climatic conditions also generate the health problems. Addressing the occupational health hazard means gaining an understanding of the source (its location and magnitude or concentration), identifying an exposure pathway (*e.g.* a means to get it in contact with someone), and determination of likely a receptor (someone receiving the stuff that is migrating). Occupational hazard due to sand mining mainly comes under the physical hazards. Possible physical hazards are as below mention:

7.5.1 Physical Hazards Due To Mining Operations

Following health related hazards were indentified due to riverbed sand mining operations to the workers:

a) **Light:** The workers may be exposed to the risk of poor illumination or excessive brightness. The effects are eye strain, headache, eye pain and lachrymation, congestion around the cornea and eye fatigue.

b) **Heat and Humidity:** The most common physical hazard is heat. The direct effects of heat exposure are burns, heat exhaustion, heat stroke and heat cramps; the indirect effects are decreased efficiency, increased fatigue and enhanced accident rates. Heat and humidity are encountered in hot and humid condition when temperatures and air temperatures increase in summer time up to 48^0C or above in the river bed mining area.

c) **Eye Irritation:** During the high windy days in summer the sand could be the problems for eyes like itching and watering of eyes.

d) **Respiratory Problems:** Large amounts of dust in air can be a health hazard, exacerbating respiratory disorders such as asthma and irritating the lungs and bronchial passages.

e) **Noise Induced Hearing Loss:** Machinery is the main source of noise pollution at the mine site.

7.5.2 Medical Examination Schedule

To minimize the health impacts PPE like dust masks, ear plugs/ muffs and other equipments will be provided for use by the work personnel. All workers will be subjected to Initial Medical Examination as per Mines Rule 1955 at the time of appointment. Periodical Medical Examination will be conducted at least once in five years. Medical camps will be organized. The detail of health check up and periodical medical examination schedule is given below.

Table 7.3: Medical Examination Schedule

S. No	Activities	1st Year	2nd Year	3rd Year	4th Year	5th Year
1.	Initial Medical Examination (Mine Workers)					
A.	Physical Check -up		-	-	-	-
B.	Psychological Test		-	-	-	-
C.	Audiometric Test		-	-	-	-
D.	Respiratory Test					
2.	Periodical Medical Examination (Mine Workers)					
A.	Physical Check -up	-				
B.	Audiometric Test	-				
C.	Eye Check -up	-				

D.	Respiratory Test	-				
3.	Medical Camp (Mine Workers and Nearby Villagers	-				
4.	Training (Mine Workers)					

Note: Medical Follow Ups Work force will be divided into three targeted groups age wise as follows:

Age Group	PME as per Mine Rule 1955	Special Examination
Less than 25 years	Once in a Three Years	In case of emergencies
Between 25 to 40 Years	Once in a Three Years	In case of emergencies
Above 40 years	Once in a Three Years	In case of emergencies

7.6 RAIN WATER HARVESTING

The rain water harvesting is proposed by Project Proponent and allocated a budget of Rs. 6.00 Lakhs under EMP budget. There are 15 No's of rainwater harvesting pit of 4.5 KL each will be installed at mine site. The size of rainwater harvesting is given in **figure 7.2.**

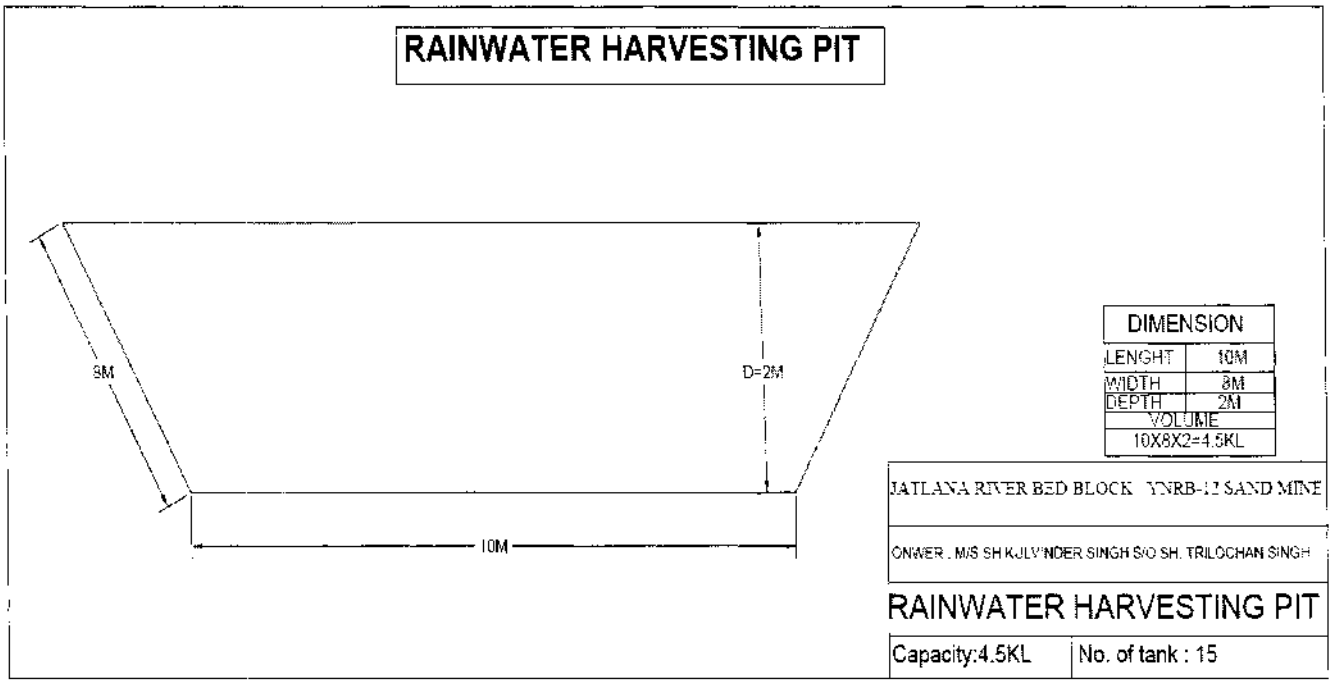


Figure 7.6: Rainwater Harvesting Pit

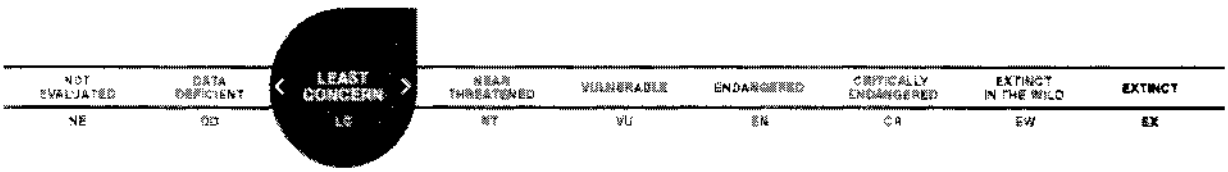
7.7 CONSERVATION PLAN FOR SCHEDULED FAUNA

7.7.1. Conservation plan for Indian Peafowl (Peacock)

Zoological name–***Pavo cristatus***

Peacock or Indian peafowl (*Pavo cristatus*) is a very familiar bird and also recognized as National Bird of India Asiatic peafowl like the Indian Blue Peafowl and especially the Green Peafowl occupy a similar niche as the roadrunners, secretary bird and seriema. All of these birds hunt for small animals including arthropods on the ground and tall grass and minnows in shallow streams. Because of human encroachment into their natural territories, peafowl and humans have come into increasing contact. Because of their natural beauty some are reluctant to classify the birds as pests, but their presence can be disturbing.

1 CLASSIFICATION
Kingdom: Animalia
Phylum: Chordata
Class: Aves
Order: Galliformes
Family: Phasianidae
Genus: *Pavo*
Species: *cristatus*
Vernacular name: Mor or Peacock
Conservation Status



IUCN: Others (LC) ver. 3.1
IWPA: Schedule I.
CITES: Not listed.
Geographical Distribution: Pakistan, India and Sri Lanka. Many feral populations exist throughout the world.
Description of *Pavo cristatus*: The male, known as a peacock, is a large bird with a length from bill to tail of 100 to 115 cm (40 to 46 inches) and to the end of a fully grown train as much as 195 to 225 cm (78 to 90 inches) and weigh 4–6 kg (8.8–13.2 lbs). The females, or peahens, are smaller at around 95 cm (38 inches) in length and weigh 2.75–4 kg (6–8.8 lbs). Indian Peafowl are among the largest and heaviest representatives of the Phasianidae family. Their size, colour and shape of crest make them unmistakable within their native distribution range. The male is metallic blue on the crown, the feathers of the head being short and curled. The fan-shaped crest on the head is made of feathers with bare black shafts and tipped with bluish-green webbing. A white stripe above the eye and a crescent shaped white patch below the eye are formed by bare white skin. The sides of the head have iridescent greenish blue feathers. The back has scaly bronze-green feathers with black and copper markings. The scapular and the wings are buff and barred in black, the primaries are chestnut and the secondary are black. The tail is dark brown

and the train is made up of elongated upper tail coverts (more than 200 feathers, the actual tail has only 20 feathers) and nearly all of these feathers end with an elaborate eye-spot. A few of the outer feathers lack the spot and end in a crescent shaped black tip. The underside is dark glossy green shading into blackish under the tail. The thighs are buff coloured. The male has a spur on the leg above the hind toe. Peacocks are polygamous and the breeding season is spread out but appears to be dependent on the rains. Several males may congregate at a leek site and these males are often closely related. Males at leek appear to maintain small territories next to each other and they allow females to visit them and make no attempt to guard harems. Females do not appear to favour specific males. Peafowl are omnivorous and eat seeds, insects, fruits and reptiles. A large percentage of their food is made up of the fallen berries. Around cultivated areas, peafowl feed on a wide range of crops such as groundnut, tomato, paddy, etc. Around human habitations, they feed on a variety of food scraps. In the countryside, it is particularly partial to crops and garden plants.

Habitat: The Indian Peafowl is found mainly on the ground in open scrub forest or on land under cultivation where they forage for berries, grains but will also prey on snakes, lizards and small rodents. Their loud calls make them easy to detect and in forest areas often indicate the presence of a predator such as a tiger. They forage on the ground in small groups and will usually try to escape on foot through undergrowth and avoid flying, though they will fly into tall trees to roost. The bird has a celebrated status in Indian mythology and hence protected culturally in India. The Indian Peafowl is listed as Least Concern by IUCN.

Peafowl Behaviour

Peacocks are gregarious by nature. In the breeding season they are usually seen in small parties of one male with three to five females whereas in the non breeding season they remain in separate parties of adult males and females with juveniles. Peacocks roost in tall trees and emerge from the dense thickets to feed in fields and openings in forests and fields.

Life Cycle

Voice/Call: Kee-ow, Kee-ow, Kee-ow, Ka-an, Ka-an, Ka-an, Kok-kok, Kok-kok, cain-kok

Breeding: April-September.

Nest site: On ground in undergrowth (wild), on buildings by semi-feral birds in villages.

Life Span: The life expectancy is about 10-15 years.

Food Habit: Peacocks are ground feeders. Indian peafowl's do most of their foraging early in the morning and shortly before sunset. They retreat to the shade and security of the trees for the hottest portion of the day. They make a meal of grains, berries drupes wild figs and some cultivated crops. They can also eat insect's small reptiles and small mammals.

Relationship with Man

The great beauty and popularity of the Indian Peafowl has ensured its protection throughout its native ranges. It is a National bird of India. The peafowl is prominent in the mythology and folklore of the Indian people. The Hindus consider the bird to be sacred because of its association with Lord Krishna who used to wear its feather as crown (Mor Mokut). It is also associated with the God Kartikeya, son of the Lord Shiva and Parvati and brother of Lord Ganesh. It is Vaahan (transport) of Lord Kartikeya. This long and close association with humans has proven the peafowl's adaptability to human altered landscapes. In villages where it is protected it becomes quite tame, but is very shy and secretive where hunted. In the buffer area of mine site peacock is generally protected by the local people.

Threats in the Study Area: No perceptible threats were identified in the villages surveyed. Village residents are against hunting or poaching of the peafowl, due to culture and mythology reasons. Adult peafowl can usually escape ground predators by flying into trees.

a) Foraging in groups provides some safety as there are more eyes to look out for predators.

b) Habitat loss, specially the shortage of tall trees in and around the villages for roosting and for providing shade during hot summer months.

c) Shortage of drinking water for the birds during the hot summer days.

d) Casualties caused by eating chemically treated agricultural crop seeds.

e) Illegal hunting by some communities.

Conservation through Habitat Improvement and Awareness: Habitat improvement programme will be undertaken through plantation of suitable tree species in the surrounding villages. While selecting the tree/ shrub species care shall be provided for beery plants which attract these birds. During summer period, villagers will be encouraged to use the old earthen pots to fill with water for drinking these birds. Summer is the time when these. Birds are facing shortage of feeds; there by supplying the feed like Bajri, Juwar, Maize to the identified villages will suffix the problem of food shortage. The proponent can directly supply these feed to the villages directly or by funding to the NGOs active in this mission.

Feeding and Watering Arrangement: Artificial water holes will be created along the natural drained nallahs which can sufficient drinking water up to summer of the region. An anicut and open wall will be created by the company as their community development programme involving the local panchayats in this work. Proposition for the suitable place to increase population of birds near plant nursery and office plantation will help. Provision for artificial nests, feeding trays and water troughs is under consideration. To support furgivorous birds, artificial feed like wild fruits and vegetables will be provided.

Direct and indirect approach is required to provide effective conservation, which is recommended as under:

i) Increasing the tree cover in the buffer area for shelter and roosting of peacocks. This will be achieved by planting of tree groves (a group of trees that grow close together, generally without many bushes or other plants) in buffer area. Some local species such as Neem, Siris, Amaltash, Ardu, Shesham, Dhak, Peepal tree etc. will be plant. Planting of tree groves in school compounds in the villages of buffers area will be plant as per the plantation programme.

ii) By conducting awareness programmes (community and school level) for conservation of peacocks in the area and also through organizing competitions during Wildlife Week and Van Mahotsave celebrations.

iii) Some provision of rewards to informers for the control of poaching and illegal trade in wildlife.

iv) Carrying out census and research projects to know the potential threats and population status of the species.

v) Provision of veterinary care and cages for injured or sick or deformed birds.

vi) Suggest strategies to minimize negative impacts of changing environment in nearby area of peacock populations and to promote conservation of peacock habitats.

vii) Another way to help preserve the endangered species is to create society dedicated to ecological ethics. All the conservation measures will be implemented with the help of and in the consultation of the district forest department.

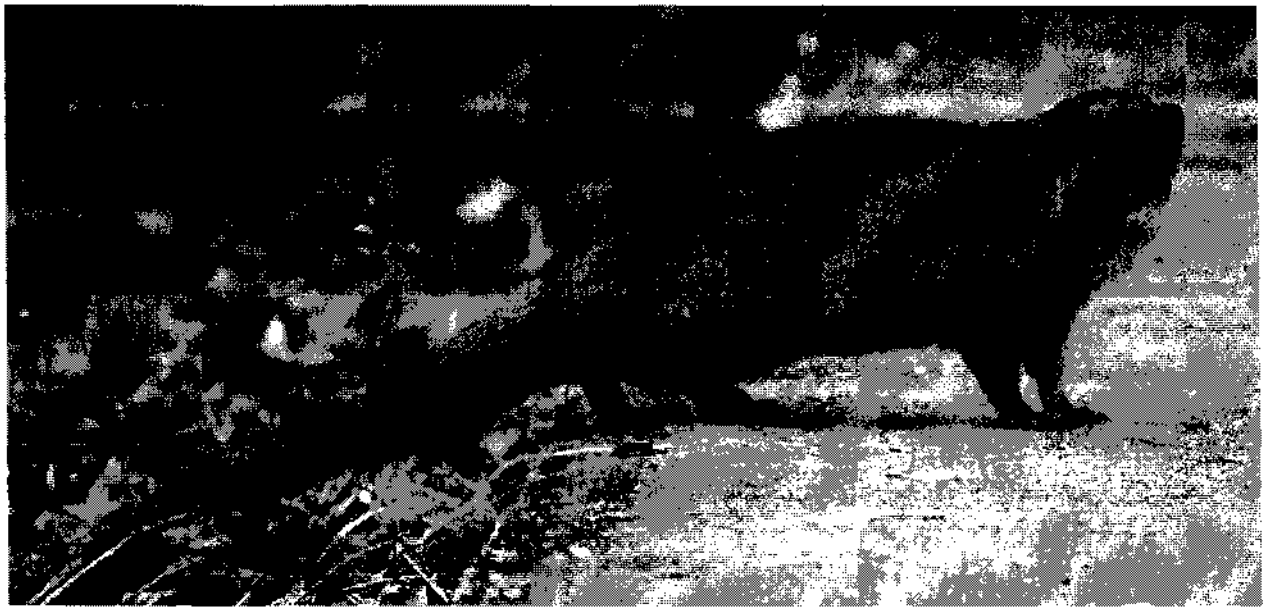
viii) With the objective of effectively protecting the wild life and to control poaching, smuggling and illegal trade in wildlife and its derivatives, the Government of India enacted Wild Life (Protection) Act 1972. The Act was amended in January 2003 and punishment and penalty for offences under the Act have been made more stringent.

7.7.2. Conservation plan for Common Mongoose (*Herpestes edwardsi*)

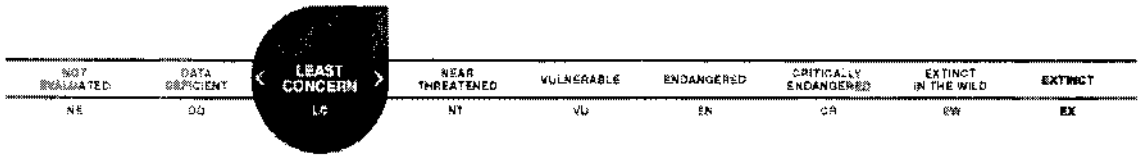
A mongoose is a member of the family of small cat-like, bold, agile carnivores. The word mongoose is derived from the Marathi word mangus. Mongooses have a tapered head, long body, and short legs. They are typically gray or brown with long, coarse hair that bristles when the animal is disturbed. The claws, used for digging burrows, are quite strong and do not retract.

Classification

Kingdom: Animalia
Phylum: Chordata
Class: Mammalia
Order: Carnivora
Family: Herpestidae
Genus: *Herpestes*
Taxon: *Herpestes edwardii*



Conservation Status



IUCN: Others (LC) ver 3.1
IWPA: Schedule II.
CITES: Appendix-III.
Geographical Distribution: Mongooses are widely distributed in Asia, Africa, the Caribbean, and southern Europe.
Habitat: Mongooses live in a variety of habitats, but most often forests, open woodland, savanna, semi-desert and desert. They can inhabit ground burrows, hollow trees, or crevices among rocks or roots.
Food: Mongooses are clever predators. They eat small mammals, rodents, birds, chickens, eggs, reptiles, lizards, amphibians, crabs, snails, earthworms, insects, and sometimes fruit. However, they will also eat carrion. Some species will attack and kill even the largest and most poisonous snakes even king cobras to whose poison they are not immune, but typically avoid the cobra and have no particular affinity for consuming their meat. Mongooses are also known to crack eggs by throwing them against a rock or onto the ground.
Behaviour: The animals are usually active during the day, but some species are nocturnal. They can live alone, in pairs, or in large groups, depending on the species. Litter size is two to four young. habitats from forests to.
Life span: Mongooses live about 7 to 12 years in the wild, but in captivity they may live more than 20 years.
Threat
Their behaviour and small size (they weigh less than one kilogram) makes them very vulnerable to larger carnivores and birds of prey. Their greatest threat is human use of toxic agro-chemicals in farming areas. Some species of mongoose can be easily domesticated, are fairly intelligent, and can be taught simple tricks, so they are often kept as pets to protect the home from vermin. However, they can be more destructive than desired; when imported into the West Indies for the purpose of killing rats and snakes, they destroyed most of the small, ground-based fauna. For this reason, it is illegal to import most species of mongooses into the United States, Australia and other countries. Mongooses were introduced to

Hawaii in 1883, and have had a significant impact on native species. Mongooses are sometimes referred to as the most dangerous animals on the planet for this reason.

Conservation

The people living in the surrounding area and employee of the company would be motivated towards the protection of the animal. Motivation will lead to timely information to the concerned authorities about any threat to wild life or any cases of pouching/hunting.

Education and Awareness: This is the most important aspect of wild life conservation. People will be educated regarding the importance of wild life conservation through mass publicity by installing sign-boards, conducting audio visual classes and distributing literature in respective villages in the buffer zone. Experts in the field of wild life conservation will also be invited to deliver talks through slides.

People Participation: With the help of the local people and employees of the Company watch will be kept on the wild life as well as illegal tree felling. Forest and police department will be informed if such incident occurs, to take legal action against the offenders. For this they will be trained for motivation.

Sign-Boards: Sign-boards will be in English as well as in local language.

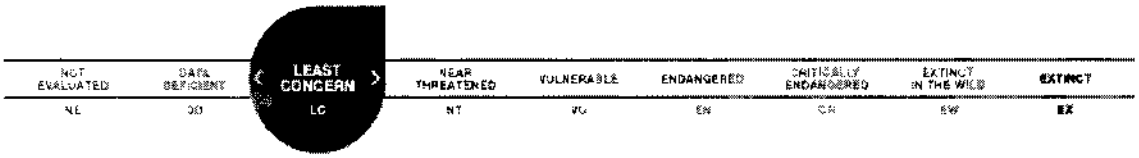
7.7.3. Conservation plan for Monkey (*Rhesus macaque*)

The rhesus macaque (Macaca mulatta), is one of the best-known species of Old World monkeys. It is listed as Least Concern in the IUCN Red List of Threatened Species in view of its wide distribution, presumed large population, and its tolerance of a broad range of habitats. Native to South, Central and Southeast Asia, troops of Macaca mulatta inhabit a great variety of habitats from grasslands to arid and forested areas, but also close to human settlements.

Classification

Kingdom: Animalia
Phylum: Chordata
Class: Mammalia
Order: Primates
Family: Cercopithecidae
Genus: *Macaca*
Species: *M. mulatta*

Conservation Status



IUCN: Others (LC) ver 3.1.
IWPA: Schedule II.
CITES: Not listed.
Local names: Bandar, Monkey, Rhesus monkey.
Life span: 25 Years
Gestation: 5.5 Months (164 days)
Height: 531.8 mm (M), 468.8 mm (F)
Weight: 7.7 Kg (M), 5.34 Kg (F)
Native: Afghanistan; Bangladesh; Bhutan; China; India; Lao People's Democratic Republic; Myanmar; Nepal; Pakistan; Thailand; Viet Nam

Geographical Distribution

The species as a whole is found throughout most of southern Asia, in eastern Afghanistan, Bangladesh, Bhutan, central and southern China (Anhui, Fujian, Guangdong, Guangxi, Guizhou, Hebei, Henan, Hubei, Hunan, Shaanxi, Sichuan, Tibet, and Yunnan, as well as the island of Hainan), northern and central India (in the states of Andhra Pradesh, Arunachal Pradesh, Assam, Bihar, Chhattisgarh, Gujarat, Haryana, Himachal Pradesh, Jammu and Kashmir, Jharkand, Madhya Pradesh, Maharashtra, Manipur, Meghalaya, Mizoram, Nagaland, Orissa, Punjab, Rajasthan, Sikkim, Tripura, Uttaranchal, Uttar Pradesh and West Bengal), Lao PDR, Myanmar, Nepal, northern Pakistan, northern Thailand and Viet Nam.

Habitat

Because they are found in such a broad geographic area, it is difficult to concisely summarize the types of habitats rhesus macaques populate. In the most general terms, they are found in both tropical and temperate habitats including semi-desert, dry deciduous, mixed deciduous and bamboo, and temperate forests as well as in tropical forests and mangrove swamps, usually at elevations from sea level to 2000 m (6561 ft), but they have been seen at elevations up to 4000 m (13,123 ft) in China and northeastern India. Rhesus macaques are also found in areas close to humans in urban settings or near cultivated fields. The habitat includes primary and secondary tropical and dry evergreen forests and bamboo forests. In India, rhesus macaques are found in flat, cultivated areas, where agricultural fields dominate the landscape and in the plains, foothills and mountainous regions where habitat includes cultivated fields, tropical forests and dry, deciduous forests. During the hottest parts of the year, groups in the Himalayan region of India migrate to higher elevations where cooler temperatures persist throughout the summer months. In urban areas of India, they are found on roadsides, canal banks, in railway stations, villages, towns, and temples. It is estimated that 48.5% of rhesus macaques in northern India live in villages, towns, cities, temples and railway stations where they are in close and frequent contact with people at all times. About 37.1% of the population lives with some human contact on roadsides and canal banks and only 14.4% of the rhesus macaques in the northern part of the country live in isolation from humans and do not rely on them at all for food.

Ecology

Rhesus macaques are exceptionally adapted to coexisting with humans and thrive near human settlement, in both urban and agricultural areas. It is impossible to characterize their natural diet without considering the impact of humans. Because they are found in higher densities in areas of human disturbance compared to forests, in some areas rhesus macaques derive, both directly and indirectly, a substantial part of their diet from human activities. In fact, up to 93% of their diet can be from human sources, either from direct handouts or from agricultural sources. Rhesus macaques are omnivores and feed on a wide array of plant and invertebrate products. By raiding crops, they have access to a huge variety of cultivated fruits and vegetables, and in highly urban areas, they forage by picking through garbage. Throughout their range and especially in India, they inhabit temples and are fed as a form of worship by local people. Some of the most common foods given to rhesus macaques in temples include bread, bananas, peanuts, seeds, other

fruits and vegetables, and assorted miscellaneous foods like ice cream and fried bread. In less human-influenced areas, they focus on fruits, flowers, leaves, seeds, gums, buds, grass, clover, roots, bark, and they supplement their diet with termites, grasshoppers, ants, beetles, and mushrooms. Rhesus macaques also eat bird eggs, shellfish, and fish. During the driest parts of the year, they may even eat the dirt from termite mounds. At higher elevations, where seasonal snowfall restricts food sources, rhesus macaques are restricted to eating the leaves of evergreen trees and bark as well as a few berries that grow in winter. During the winter months at high elevations, rhesus macaques suffer from food and climate stress and have higher levels of mortality if the cold weather lasts too long.

Home range size and day range length is dependent on habitat in rhesus macaques. Temple, village, and urban rhesus macaques have small home ranges between 0.01 and 3.0 Km^2 (0.004 and 1.16 mi^2) in size because they derive almost all of their food from human visitors leaving offerings, crop raiding, or opportunistic foraging on human byproducts. The day ranges for these urbanized areas are variable but the average is about 1.15 Km (0.715 mi). In more forested areas of India, home range size can be up to 15 Km^2 (5.79 mi^2), but rhesus monkeys only move, on average, 1428 m (0.887 mi) per day. Both climate and season affect the timing of the onset of daily activities as well as the type of activities undertaken. In the warmest times of the year, rhesus macaques spend more time resting than during more temperate months. Home ranges of rhesus macaques overlap and groups have high frequencies of intergroup contact, which is characterized by generally mild social interactions. Across all habitat types, feeding and resting are the major activities of the rhesus macaques' day and they spend the rest of their time travelling, grooming, playing, and other activities. Potential predators of rhesus macaques include raptors, dogs, weasels, leopards, tigers, sharks, crocodiles, and snakes

Social Organization and Behavior

Rhesus macaques live in large, multi-male/multi-female groups that have an average of 10 to 80 individuals, regardless of habitat type. Groups may number in the hundreds in mountainous areas and areas of high human food subsidization or agricultural habitats. Rhesus groups are characterized by female philopatry and male dispersal; females remain in their natal groups and form dominance hierarchies according to their matrilineal kinship while males emigrate from their natal groups at the beginning of the breeding season shortly before puberty, and may transfer groups throughout their lives in search of mating opportunities. Female rhesus macaques very rarely leave their natal groups. Among females, rank remains relatively stable over a lifetime and is passed on to female offspring. Each female rises in rank above her older sister, and therefore when old, high-ranking females disappear or die, they are usually replaced by their youngest daughters. One of the benefits of dominance for a rhesus macaque is priority access to food and space. High-ranking females have greater access to feeding sites because they displace lower-ranking females and they are less likely to be disturbed during feeding compared to subordinates. Because they have cheek pouches, though, low-ranking females do not consume less food than high-ranking females, they simply store as much as they can into their cheek pouches and then move away from the group to eat. This method of feeding is more energetically expensive than remaining in the same area while feeding, so low-ranking females may be consuming the same amount but using more energy to consume it. Dominance status and rank among males is not stable over a lifetime, compared to female rhesus macaques. Immature males inherit the rank of their mothers, but as they mature, their status changes based upon a combination of social and aggressive skills. Aggression is sometimes used to establish and reinforce social position, though, and aggressive behavior seen in macaques includes slapping, pushing, pulling fur, tail yanking, and biting as well as other non-contact behaviors such as displays and threats. Once males attain dominant status, they enjoy this rank for an average of two years before being displaced by another male.

Reproduction

Females reach puberty around age three while males are sexually mature by age four. The ovarian cycle lasts for 28 days and is characterized by the darkening of the skin surrounding the anogenital region accompanied by menstruation. Estrus lasts for eight to 12 days, with the day of ovulation occurring at the midpoint of the estrus period. Females have increased sexual activity during ovulation, exhibiting the highest number of copulations seen during the ovarian cycle. Females reproduce from three until about 20 years of age. Males reach puberty between three and 3.5 years of age but do not reach adult body size

until about eight years old. Though males are capable of reproducing by age four, they are not reproductively successful until after age eight, or when they reach adult size. During this time between becoming sexually mature and when they begin to mate, young rhesus macaques are learning the social skills, including fighting ability that will influence their success throughout their lives. Both males and females reach sexual maturity sooner in captivity.

There is marked birth seasonality in rhesus macaques, with the majority of mating occurring in October through December and births coinciding with the end of the rainy season, or during the period of highest food abundance. High-ranking males have more opportunities to mate with females than low-ranking males, but do not always sire a disproportionate number of infants. Lower-ranking males may have similar reproductive success compared to high-ranking males because they are new immigrants and are more attractive to females because of this. From one breeding season to the next, females will drastically reduce the amount of mating they do with familiar males and over a period of three years, they try not to mate with any familiar males given the opportunity to mate with unfamiliar males. During the breeding season, females enter into consort ships with one or more males. An individual female will spend longer amounts of time in contact with, grooming, and mating with these males. Males and female rhesus macaques are promiscuous breeders, mating multiple times with multiple mates. Both males and females initiate these consort relationships and competition for access to mates is related to the high levels of aggression seen in rhesus macaque groups during this time of year. Gestation lasts 164 days in rhesus macaques and the inter birth interval is between 12 and 24 months. If a female does not have a successful pregnancy or her infant dies in the first year of life, she is more likely to give birth the following season than a female who successfully rears an infant.

Parental Care

While the majority of parental care is the responsibility of the mother, rhesus infants are also handled by close female relatives and protected by adult males. In the first few days, the infant is carried ventrally and protected from other group members by the mother. Ventral clinging is the position most frequently adopted during travel for the first four months of life, but rhesus infants begin to ride dorsally for short periods during the second week. By six weeks of age, locomotor skills are developed enough for the infant to move independently, but they do not move very quickly at this age, and if the mother is travelling too quickly, she will pick up the infant and carry it. Some young rhesus is carried until they reach one year of age, though it is rare. During early infancy, rhesus macaques nurse exclusively for the first two weeks of life, after which they begin to experiment with solid food. At about four months of age, rhesus mothers begin to resist the attempts of their offspring to nurse, and young rhesus macaques are fully weaned by the birth of their next sibling. Exploration off of the mother begins as early as five days old and continues to increase so that by the third week, the infant breaks physical contact with the mother as frequently as possible. During this time, juvenile and adolescent females are intensely interested in the infant and will approach the mother and groom her in an attempt to get near the infant. When an infant is off the mother, a young rhesus female will touch the infant and try to carry it, but the mother is watchful of this interaction and any sign of distress from the infant may elicit an aggressive response from the mother towards the younger female. Mother rhesus macaques show differential investment in their offspring depending on the sex of the infant.

Communication

Vocal and gestural communication is important in rhesus macaques. Facial expression, body postures, and gestures are all forms of non-vocal communication among rhesus macaques and are important in interactions between individuals at short distances. One facial expression that is seen throughout macaque species and is one of the most common expressions in rhesus macaques is the silent bared teeth face. Among rhesus macaques this is seen between individuals of differing rank with the lower-ranking or submissive animal performing the silent bared teeth face to the dominant animal. Another common facial expression used in dominance interactions include a fear grimace accompanied by a scream, heard in frightened animals and used to appease or redirect aggression. Dominant animals use a silent open mouth stare as a threat to other animals; this is accompanied by the tail sticking straight out behind the body with the monkey standing quadrupedally. Another common visual communication signal is the present rump, where the tail is raised and the genitals are exposed to the more dominant individual. Vocalizations of

rhesus macaques include coos and grunts, which are commonly, heard expressions during group movement, during affinitive interactions, and when one animal approaches another to groom. Warbles, harmonic arches, and chirps, are heard in the context of finding high-quality, rare food items. The most common alarm call heard among rhesus macaques, the shrill bark, is emitted in threatening situations and is consists of a single, loud, high-pitched sound. Vocalizations made during aggressive interactions include screeches, screams, squeaks, pant-threats, growls and barks. Infants have their own repertoire of vocalizations which include geckers, which are harsh staccato sounds heard during weaning conflict. It is usually heard along with convulsive jerks of the body, and looks and sounds much like a human child's temper tantrum.

Threats

Human-Induced Habitat Loss and Degradation

Problems of habitat destruction do not seem to affect rhesus macaques like other primates; they are well adapted to life near humans and can thrive in highly disturbed environments. Because of the cessation of export and the rhesus macaque's adaptability to human-disturbed environments, the Indian population is increasing. This increase may not necessarily be positive because in areas where rhesus macaques are in contact with humans they are menaces; threatening or biting children and the elderly, stealing food from people, raiding crops and damaging property leading to decreased tolerance and persecution of rhesus macaques in some areas. This is one rare case where the destruction of habitat and replacement with agricultural land has led to an increase in the number of primates, but at a serious social cost. These problems will only be exacerbated if habitat destruction does not stop and will likely force government control measures, like trapping and relocation, to decrease the population for the health and safety of humans in India.

Harvesting (hunting/gathering)

Rhesus macaques were once seriously threatened by the rate of capture and export for use in biomedical research. In the 1960s, often 50,000 juvenile rhesus macaques were trapped and shipped from India per year, crippling the population growth of rhesus in India. In 1978, a total ban on rhesus export was the first step in re-establishing the population, and the numbers in India have more than doubled since the 1970s. There are still some rhesus macaques trapped and used for research within India, but the effect of the population is negligible compared to previous levels of usage.

Persecution

In orthodox Hindu tradition, monkeys are sacred animals to be revered and protected, but as humans and animals begin to compete for similar resources or monkeys become nuisances, causing not only property damage, but also injury to humans, the traditional bond is degraded. In some areas of India, rhesus macaques are subjected to stoning, trapping, and shooting because they are such pervasive, destructive pests. Over 95% of the local people in one region of India felt harassed by the rhesus macaques either because of bites, stealing of household items, or other reasons. Though their populations continue to expand, the deterioration of traditional beliefs that leads to their persecution could have an effect on rhesus macaque conservation in the future. If the conservation ethic connected to deifying rhesus macaques is lost, it will be difficult to rekindle in the future if the population stops growing or decreases.

Conservation

The root cause of conflict between humans and rhesus macaques is the eradication of natural habitat, forcing monkeys into proximity with humans. Though they excel in human-disturbed environments, rhesus macaques living in forested areas are usually healthier, eating a better diet and in overall better condition than urban macaques. Restoration of their natural habitat in densely populated areas may decrease conflict, but given that they will likely move into areas where humans make food readily available, this may not be a permanent solution. In the long term, management will be necessary to conserve healthy populations of rhesus macaques and prevent persecution by humans from being a threat to their survival. Translocation of large numbers of monkeys may be one management option to remove rhesus macaques dependent on human sources of food.

Mitigating human-rhesus conflict is necessary to prevent the change in attitudes towards rhesus macaques that could lead to further persecution and population decline. Translocating particularly problematic rhesus monkeys or entire groups has been successful, but is not a widespread option because there simply

are not enough suitable forest patches in which large numbers of rhesus can live. Perhaps innovative engineering could lead to monkey-proof containers in which people can store household items and food and prevent local rhesus from raiding their kitchens. Deterrent fencing or other protective measures could also be established around gardens and agricultural crops to prevent rhesus macaques from crop raiding. Decreasing opportunities for conflict between local humans and rhesus macaques will lead to maintained tolerance of these monkeys that have nowhere to retreat from human encroachment.

Education and Awareness: This is the most important aspect of wild life conservation. People will be educated regarding the importance of wild life conservation through mass publicity by installing sign-boards, conducting audio visual classes and distributing literature in respective villages in the buffer zone. Experts in the field of wild life conservation will also be invited to deliver talks through slides.

People Participation: With the help of the local people and employees of the Company watch will be kept on the wild life as well as illegal tree felling. Forest and police department will be informed if such incident occurs, to take legal action against the offenders. For this they will be trained for motivation.

Conservation

The people living in the surrounding area and employee of the company would be motivated towards the protection of the animal. Motivation will lead to timely information to the concerned authorities about any threat to wild life or any cases of pouching/hunting.

Special Staff for the Protection and Anti-poaching: Special Staffs will be deployed by the forest department for patrolling and protection of the fauna and flora under their jurisdiction because the regular staff deployed for this purpose, due to their busy schedule, is unable to perform their work properly. Each of the special staff will be equipped with dress, raincoat, gumboots, sticks and wireless set for communication. Financial burden for the same has been included in financial projection of this report.

Reducing man wildlife conflicts: Unauthorised entry in to forest for illegal grazing, cutting or poaching are the major causes for Man-Wildlife conflicts. These practices will be reduced as much as possible.

Training and Awareness Programme: This is the most important aspect of wild life conservation. People will be educated regarding the importance of wild life conservation through mass publicity by installing sign-boards, conducting audio visual classes and distributing literature in respective villages in the buffer zone. Experts in the field of wild life conservation will also be invited to deliver talks through slides.

7.7.4 Conclusion

The conservation plan suggested here is for scheduled fauna (Animal and Bird) will be implemented by the mining lease holder and the budgetary provision is discussed and given in detail for the implementation of the same in the area. It is very important to conserve the scheduled fauna in the area by the local authority as well as by the forest officials. People are not aware about the wildlife and protection of wild animals. There is an urgent need of education and awareness to local people about the wild life and their importance.

7.7.5 Green Belt Development

A green belt will be developed along the boundary of the mining lease area. The area for green belt plantation consists of undisturbed soil; hence plantation could be made as in any garden or road side plantation. Green belt is erected not from biodiversity conservation point of view but is basically developed as a screen to check the spread of dust pollution. A green belt, 7.5m in width will be developed around the core zone. Green belt plantation will be started with the beginning of the mining and will be completed within five years from the beginning.

Following precaution will be taken:

- To raise seedlings for plantation in the green belt a nursery will be developed.
- Seedlings of only local species, suitable for green belt plantation will be raised in this nursery.
- All the representative plant species of the region were found to grow in and around the study site.
- Care will be provided against grazing and browsing.
- Timely watering during the initial stages of survival and provision will be made for the allocation of funds as well.

- During the running of mine, flora will be regenerated in different stages and the area having matured Afforestation will be properly fenced so as to avoid cutting, browsing and hacking of branches and pruning of trees
- Creating awareness among villagers residing on the periphery of the mines regarding the use of plantations.
- Plantation of indigenous species, fodder and fruit bearing tree species which can also act as habitats for wild life.
- Plantation of fruits bearing trees like Karonda, Zizyphus, Awala, Gular, Timbru, Lasoda, Aam and other Ficus species will attract sloth bear population.
- For increasing hare population turfing on the ground on both sides of nallahs by grasses will provide a suitable habitat which is most sought food for hares.

7.7.6 Plantation in the Buffer zone

Trees will be planted in the buffer zone also. This plantation will be done at selected places only and only local species will be used in the plantation. Some of the tree species included will be Saja (*Terminalia tomentosa*), Baheda (*Terminalia bellerica*), Bija (*Pterocarpus masupium*), Bargad (*Ficus benghalensis*), Peepal (*Ficus religiosa*), Mahua (*Madhuca latifolia*), Sal (*Shorea robusta*), *Ficus recimosa, Pongamia glabra* etc. Care will be taken to include some fruit bearing trees like Gular (*Ficus glomerata*), Aonla (*Emblica officinalis*), Aam (*Mangifera indica*) and such trees to provide food to the herbivores which in turn will be the food source of the carnivores. Water, particularly during drier seasons, becomes the most important factor to all types of wild animals including the mammals, birds and reptiles. If water is available safely, then all other factors become secondary for the presence and survival of the wild life in any forested area. Places suitable for mini watersheds will be identified in the core as well as in the buffer zone to store rainwater. Further, to make water available at all the times, throughout the year, some of these water holes will be recharged through artificial means. Proper slope will be given to approach these water sources so that the wild animals will be able to drink water without any difficulty. Proper cover through vegetation or any other type of even artificial cover will be developed near to these water sources so that the prey species will be able to hide themselves from the predators, at the time of approaching the water sources. To attract the birds, plants yielding food to the birds will be planted on priority basis. If water and food are available to the birds without any anthropogenic disturbances the area can become an ideal place for bird watching.

7.7.7 Financial Projection for Conservation

Rs. 9.10 Lakhs has been allocated towards conservation of scheduled fauna in the area for the implementation of conservation proposal. The budgetary allocation for all scheduled fauna is listed table below.

Table 7.4(a) Budget for Conservation/Management Plan

S.No.	Component/Intervention	BUDGET (LAKSH)
1.	Planting of trees groves in surrounding area	3.00
2.	Promotion of agro forest in villages planting fruits trees	3.00
3.	Plantation of herbs/ shrubs along the river bank	2.00
4.	Awareness generation of labors and local people	1.10
	TOTAL	9.10

Table 7.3(b) Financial projection (yearly)

YEAR	I	II	III	IV	V	VI	VII	VIII	IX	X	TOTAL
Provision (Lakh)	1.10	1.10	1.00	0.90	0.90	0.90	0.90	0.90	0.80	0.60	9.10

Table 7.4(b) Financial projection (yearly)

S. No	Component/Year	I	II	III	IV	V	VI	VII	VIII	IX	X
1	Planting of trees	35,000	25,000	25,000	25,000	30,000	30,000	30,000	30,000	25,000	-

place water is redirected into a channel for the purpose of electricity generation. Once it goes across the sikh religious place of Ponta Sahib, the river arrives at Tajewala in the Yamunanagar district of Haryana where a dam was constructed in 1873. This dam is the origin of the two major channels or water courses – Eastern Yamuna Canal and Western Yamuna Canal and both drain in UP & Haryana. The Western Yamuna Canal (WYC) traverses Karnal, Yamunanagar and Panipat prior to arriving at the Haiderpur water treatment plant, which provides a portion of municipal water provisions of Delhi.. The Yamuna also forms natural boundary between the states of Uttrakhand & HP and also amid the states of UP and Haryana. Together with the Ganga to which it flows almost parallel once it meets the Indo-Gangetic plateau, the biggest Alluvial productive area in the World. it forms the Ganges-Yamuna Doab are stretched across 69,000 square Km which is 33% of the whole area.

Table of Drainage Basin area of River Yamuna (square KM/square mile) with % of Drainage Basin

i.	HP	5799/2240 (1.6)
ii.	UP & Uttrakhand	73618/28662 (21.50)
iii.	Rajasthan	102883/39739 (29.80%)
iv.	Haryana	21265/8214(6.5%)
v.	Delhi	1485/574(0.4%)
vi.	MP	14023/5416 (40.6%)

Catchment Area

The amount of water carried by a stream, the shape of the channel, the chemical composition of its water, and its ability to support life are determined by its catchment and what is happening there. A stream is only as healthy as its surrounding catchment. This section will help you to look beyond the stream, and learn about the land that surrounds it. Everybody lives in a catchment. A catchment is a basin shaped area of land, bounded by natural features such as hills or mountains from which surface and sub surface water flows into streams, rivers and wetlands. Water flows into, and collects in, the lowest areas in the landscape. The system of streams which transport water, sediment and other material from a catchment is called a drainage network. A catchment catches water which falls to earth as precipitation (rainfall), and the drainage network channels the water from throughout the catchment to a common outlet. The outlet of a catchment is the mouth of the main stream or river. The mouth may be where it flows into another river or stream, or the place where it empties into a lake, estuary, wetland or ocean. Tributaries are small feeder streams that empty into larger streams or rivers. The catchments of tributaries are referred to as sub-catchments. Large catchments are often made up of a number of smaller sub-catchments. For example, the catchment of the Yamuna River contains many subcatchments. Each has a different size, shape, drainage pattern and features that are determined by natural processes, particularly geology and climate. The geology of your catchment will influence many of its characteristics, from the stability of the streambanks and streambed to the natural pH of the water. Climatic processes and flowing water erode and shape the land. As rocks are broken down into smaller pieces they can be transported in the flow. Fine materials are transported as sediment throughout the catchment. Weathered rock and organic matter make up the soils that blanket the landscape. Soils have different textures, mineral content, structure and drainage properties. The nature of the soils in your catchment will have a key role in deciding how much water runs off the land and how likely the land is to erode.

Upper Catchment Area

Streams begin their journey to the sea in the upper reaches of the catchment. Some may appear briefly, flowing only during periods of intense rainfall. Some are intermittent, flowing during the wet seasons of the year. Others are more permanent, having year-round flow. If the stream is steep it will be fast-flowing and energetic. This means that it has the energy to carry large amounts and large-sized pieces of rock and gravel which have been eroded from stream beds and banks. Streams tend to be narrower here and riparian vegetation almost completely covers the stream with its canopy. Very little sun reaches these streams, so the water temperature remains cool throughout the year. Low light levels restrict algal growth, and upstream plant eaters (herbivores) rely mostly on food material from outside the stream, leaves, fruits,

seeds, twigs and bark. The headwaters of a river system can be very important to the health of the entire river.

Middle Catchment

In the middle reaches of the catchment some tributaries have entered the stream and added to the flow. The land is generally flatter, and the flow of the stream is slower. There are frequent shallow areas of faster moving water called riffles, where rocks break the surface and deeper areas of water called pools. The bottom substrate is composed of mostly gravel and cobble. The stream regularly overflows onto this area, slows, and dumps its load of sediment. The stream often flows across the flood plain in curves or meanders. Usually there is a combination of erosion on the outside edge of bends, where the water flow is more rapid, and sediment in areas where the water flow is slower. In these middle reaches the canopy no longer reaches across the stream to shade the entire water surface. Here the sun is able to warm the water, raising water temperature over the day. Slower flows, together with murkier water in these reaches may increase the heat. Seasonal changes in water temperature are usually greatest in this section. Organic debris still falls into the stream from the riparian zone but the amount of light increases algae become an important part of the food base.

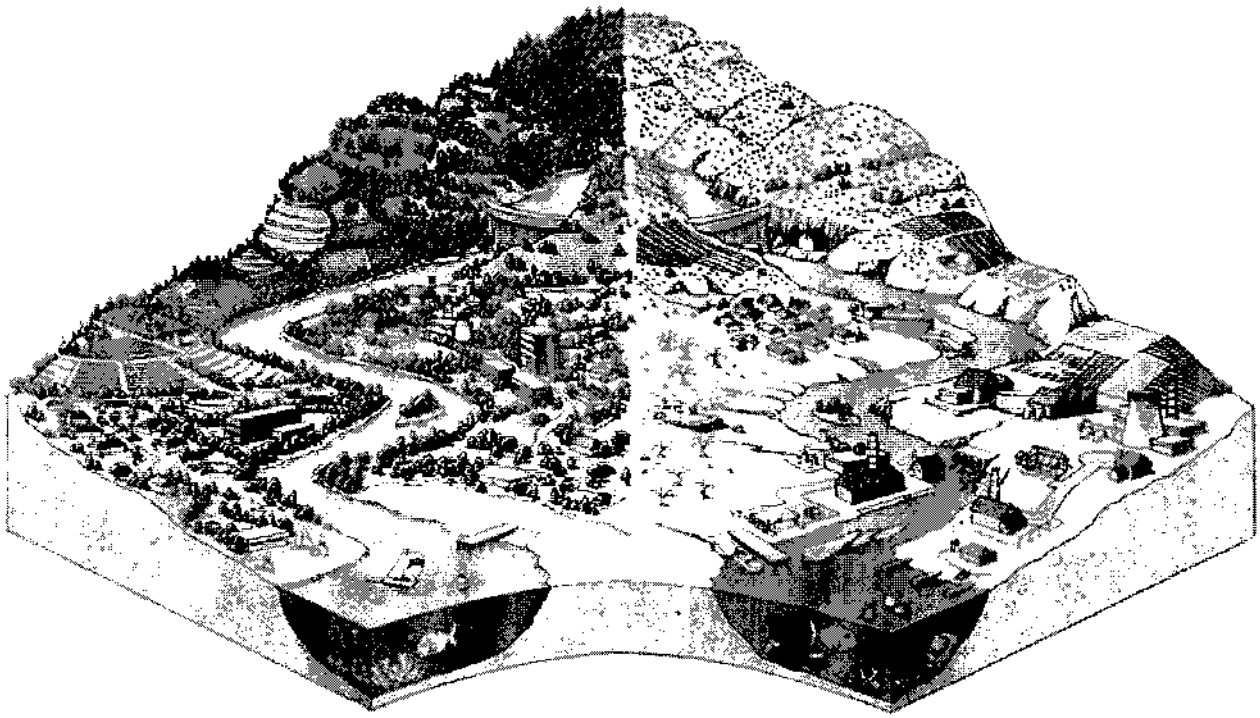


Figure 7.7. Demonstration of Catchment area for river

Lower Catchment area

Moving downstream towards the streams mouth, more tributaries have entered and added more flow. The wider, deeper channel meanders through a flat flood plain and broad valley. The stream travels very slowly and deposits the large quantities of sediment it has been carrying from further upstream. Although the water is unshaded, the murky water limits sunlight penetration, but some attached algae may grow in the shallows if stones or other suitable substrate are available. Fine particles replace organic debris and algae as the food source. The community of small aquatic organisms is changed again. Collector-filterer macroinvertebrates are more common in this stretch of the stream, filtering out accumulated minute particles suspended in the water and gathering fine particles that have settled to the river bottom.

Table-7.5. Downstream Changes in Streams

Factor	Change from Upstream to Downstream	Explanation
Stream Velocity	Decrease	Reduced gradient of the stream and greater depth
Temperature	Increase	Increased exposure to sunlight (less shade and an increase in the length of sunlight time), lower altitude and energy absorbed by suspended particles (turbid streams).
Water Clarity	Decrease	Accumulation of sediment from runoff and erosion
Nitrogen and Phosphorus	Increase	Increased discharge into the stream, particularly from soil water. Increase may be hidden because aquatic plants use it. More agricultural activity on lowlands
Conductivity	Increase	Above
Dissolved Oxygen	Decrease	Decrease in tumbling and mixing (aeration), slower flow velocity, higher water temperature. Abundant aquatic plant growths result in greater daily variation.
Biological Oxygen Demand (BOD)	Increase	Increased amount of organic matter, uses oxygen as it decays.
pH	Decrease	CO2 levels increase as a result of photosynthesis by aquatic plants. Daily change particularly evident in the middle reaches of the stream.
Faecal Coliforms	Increase	Accumulated contamination along length of stream from stock wastes
Macroinvertebrate Community	Shift in composition	Shift from collector-browsers to grazers and collector-filterers Less .sensitive. Species present as substrate and oxygen levels become less suitable
Habitat	Fewer riffles and less variety in pool depth and size	Reduced gradient of the stream
Substrate	Smaller particle sizes poorly sorted	Reduced gradient (lower flow velocities and therefore less kinetic energy

Stream Order

Streams are often classified by size. Within any catchment the smallest streams that have year round flow and no tributaries are called first order streams. When two first order streams meet they form a second order stream. A third order stream is formed when two second order streams join, and so on. Stream order only changes when two streams with the same classification meet. For example, when a first order stream meets a second order stream the resulting stream remains a second order stream. The idea of catchments is useful, as it is the standard functioning unit of the landscape: water, soil, plants and animals are all linked together within a catchment, and any activity that occurs within a catchment will affect the whole catchment. Healthy catchments are important for human survival, as it is where our food is grown and where all the water we drink comes from.

Dandy and Bolton Formula for Calculation of Sediment Yield

Dandy-Bolton formula is often used to check whether the sedimentation yield exceeds the replenishment rate but the whole question is whether there is adequate monitoring of the river basin, the answer is no as

hydrological stations are sparsely spread. The formula uses catchment area and mean annual runoff as key determinants to give a yield value. It does not differentiate in basin wide smaller streams and their characteristics. CWC distinguishes river basins as classified and non-classified, as per the latest hydrological data for unclassified River basins; there are 122 GDSW (Gauge, Discharge, Sediment & Water Quality) sites in 12 such basins, the number was 147 in 2005. This brings in context the whole issue of scientific mining, thereby indicating that the monitoring of sediment yield in rivers / streams within the river basins is essential to arrive at extraction rates and express and conduct environmental studies based on these basin wide characteristics which should become part of the 'Terms of Reference'.

Sediment Yield versus Drainage Area
On the average, sediment yield is inversely proportional to the 0.16 power of drainage area between 1 and 30,000 square miles.

Sediments Yield versus Mean Annual Runoff
Sediment yield increased sharply to about 1,860 tons per square mile per year as run-off increased from 0 to about 2 inches. As runoff increased from 2 to about 50 inches, sediment yield decreased exponentially. Because sediment yield must approach zero as runoff approaches zero, a curve through the plotted points must begin at the origin. The abrupt change in slope of a curve through the data points at Q equals 2 inches precluded the development of a continuous function that would adequately define this relationship. Thus, there are two equations derived for when Q was less than 2 inches and when Q was greater than 2 inches.

Combined Effect of Drainage area and Run off on Sediment Yield
Dandy- Bolton determined the combined influence of runoff and drainage area on sediment yield to compute the sediment yield. They develop two equations *i.e.* for run off less than 2 inch and for run off more than 2 inch, which are given below:-

For run off less than 2 inches (Q < 2 in)
$S=1280*(Q)^{0.46}*[1.43-0.26\ Log(A)]$

For run off more than 2 inches (Q > 2 in):
$S= 1958*(e^{-0.055*Q})*[1.43-0.26\ Log(A)]$

Where: S = Sediment yield (tons/mi^2/yr)
Q = Mean Annual runoff (inch)
A = Net drainage area (mi^2)

Table 7.6 District Profile Yamuna Nagar

Name of State	Haryana
Name of District	Yamuna Nagar
Geographical Area (sq.km.)	1,756
Major Geological formation	Alluvium and Hard Rock
Major drainage system	Yamuna river and Markanda R.
Population (As per 2011Census)	1214205
No of Blocks	6
Existing Major / Medium irrigation projects	Western Yamuna canal
Utilizable ground water resources (MCM)	758
Net ground water draft (MCM)	414
Stage of ground water development (%)	59
Average annual Rainfall (mm)	**1107**
Range of Temperature (°C)	6.3 – 40.3
Name of Block showing intensive GW development	Nil

Source: http://cgwb.gov.in/District_Profile/Haryana/Yamuna%20Nagar.pdf

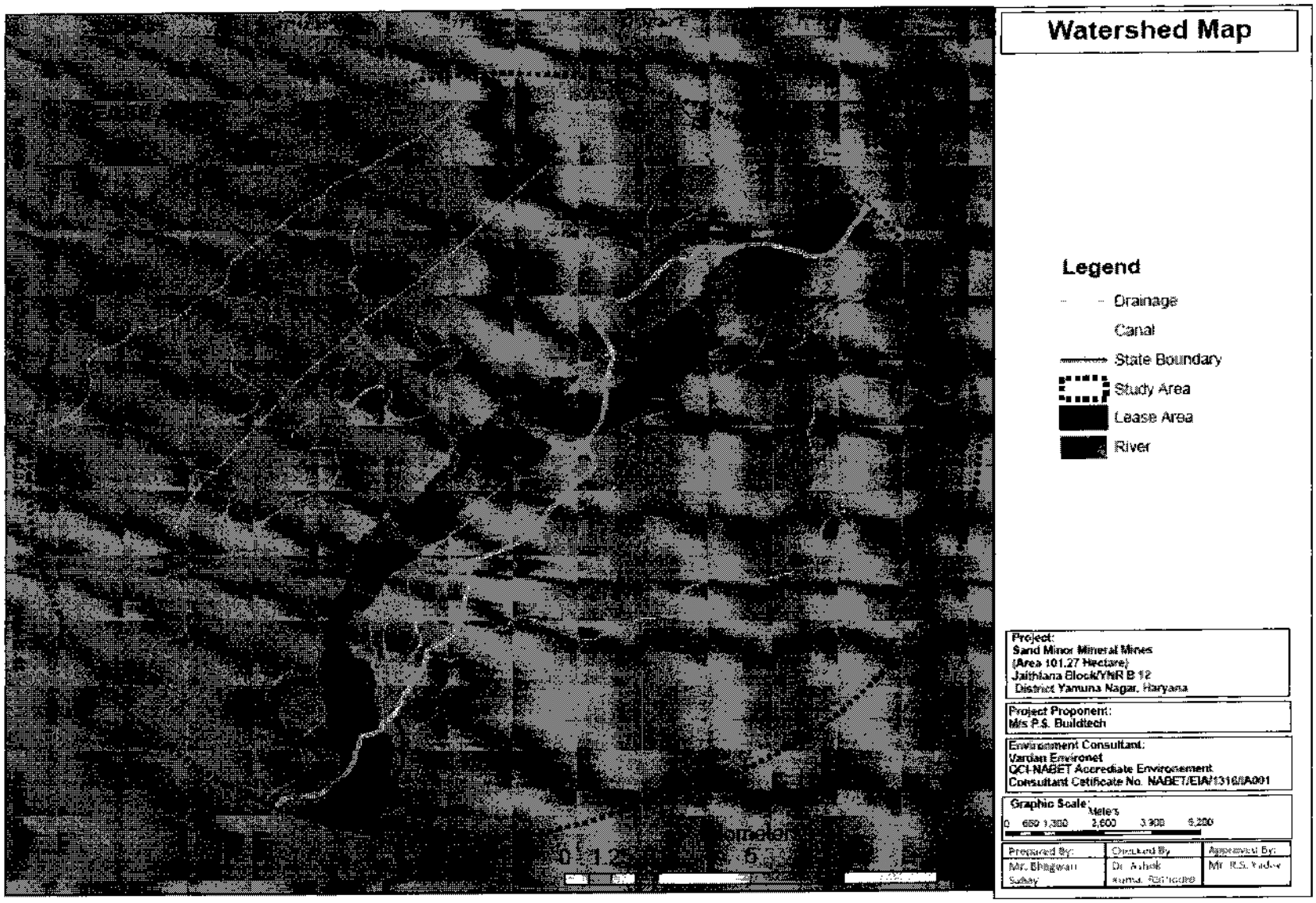


Figure: 7.8 Watershed Map of the Study Area

7.9.3 Replenishment with Service of Production

The maximum annual production is 45.00,000 MT per annum in riverbed block. The amount of sediment regenerated every year derived hypothetically by Dandy-Bolton's equation will be around **4533785.5 Tons/Annum** for the proposed lease area. Therefore, the percentage of replenishment is more than 100% every year. In view of this huge amount of sedimentation there are fare chances of replenishment of the river bed annually. The hypothetical derivation of replenishment data is not supported by any ground evidence as the same can be derived only after annual study due to inconsistent rains in Haryana. The derived replenishment data is based on macro-watershed data taken from satellite imagery with sample ground truthing and annual average rainfall. The data derived is based on SRTM 30 m resolution processed using ARCGIS software with linear and resolution factors affecting the derivation.

7.10 REHABILITATION & RESETTLEMENT (R&R)

There is no displacement of the population within the project area and adjacent nearby area and the complete lease area is Govt. land. However Social development of village will be considered as per social activities. Reclamation and rehabilitation by back filling the worked out area, Provision and maintenance of protective works like drains, parapet walls, retaining walls, check dams, Management of Air & water quality. Management of Waste, top soil, infrastructure and mining machinery disposal, Safety and security. The resources required for management of these operations shall be supervision, raw materials (mainly sand available at mines), gates, fencing, transport and communication. All the above operations shall be carried out in three months time. As per the point Xiv of LoI the lease holder will be deposited 10% of the annual contract money *i.e.* **93 Lakhs 45 Thousands** only to the **Mines and Minerals Development, Restoration and Rehabilitation Fund.**

It is expected that this will improve the socio-economic status of the people and at the same time the popularity of the project proponent will enhance. The local community in the study area desired that the project proponent should take up the following development initiatives for the betterment of the local people.

a) Health camps in project village
b) Distribution of books and stationeries to meritorious students in the study area
c) One time donation to the schools for drinking water facilities
d) Training camps for skill development

For each activity the funds to be earmarked by the proponent will be decided after discussion with the local authority and the beneficiaries. It has been planned to undertake a concurrent evaluation of the activities to be taken up under the CSR programme.

7.10.1 Mines and Minerals Development, Restoration and Rehabilitation Fund

As per the point **xiv** of LoI the lease holder will be deposited 10% of the annual contract money *i.e.* **Rs. 93.45 lakhs** approx. to the **Mines and Minerals Development, Restoration and Rehabilitation Fund.** This amount will be spent by lease holder for the protection of environment in the nearby surrounding area. The officers of the State Government Haryana will strictly monitor the compliance of lease holder in this regard. Other than this social development of village will be considered as per social activities.

The following objectives are intended to be achieved through the aforesaid fund:

i. Funding of the restoration or reclamation or rehabilitation works in the sites affected by mining operations.
ii. Provision of common facilities for the benefit of community in and around areas where mining activities are undertaken.
iii. Development of infrastructure facilities for orderly growth of the mining operations and allied activities e.g. roads, water supply etc.
iv. Funding rehabilitation measures along with the environmental safeguards, mineral conservation and others.

In this way this amount will be spent by the lease holder for environmental protection and mineral conservation in the surrounding area of core and buffer zone.

7.11 ENVIRONMENT SOCIAL RESPONSIBILITY

The activities to be undertaken for the local people under ESR have been identified and approx. **Rs. 30.00 Lakhs** per annum towards Corporate Social Responsibility. The major activities will be:

Table 7.8: Budget for Environment Social Responsibility

S. No.	Description	Budget (Lakhs)
1.	Vocational training on- • Fire and safety, • Health and safety, • Awareness program on cancer and AIDS.	5.00
2.	Sanitations and drinking water facility at Village Jathlana	5.00
3.	Sanitations and drinking water facility at Village Ramgarh	5.00
4.	Sanitations and drinking water facility at Village Lal Chhapper	5.00
5.	Assistance to self help group	5.00
6.	Health check up camps	5.00
Total		**30.00**

7.12 SUMMARY

Risk assessments will help mine operators to identify high, medium and low risk levels. This is a requirement of the Occupational Health and Safety Act 2000. Risk assessments will help to priorities the risks and provide information on the need to safely control the risks. In this way, mine owners and operators will be able to implement safety improvements. Mining and allied activities are associated with several potential hazards to both the employees and the public at large. A worker in a mine will be able to work under conditions, which are adequately safe and healthy. At the same time the environmental conditions also will not impair his working efficiency. This is possible only when there is adequate safety in mines. Hence mine safety is one of the most essential aspects of any working mine. The conservation plan suggested here is for scheduled fauna (Animal and Bird) will be implemented by the mining lease holder and the budgetary provision is discussed and given in detail for the implementation of the same in the area. It is very important to conserve the scheduled fauna in the area by the local authority as well as by the forest officials. People are not aware about the wildlife and protection of wild animals. There is an urgent need of education and awareness to local people about the wild life and their importance. A green belt will be developed around the core zone. Green belt plantation will be started with the beginning of the mining and will be completed within five years from the beginning. This plantation will be done at selected places only and only local species will be used in the plantation. A budget of **Rs 9.10 Lakhs** has been allocated towards conservation of scheduled fauna in the area for the implementation of conservation proposal. This mining project has positive impact on social and economic well being of the community because this project provides employment opportunities to local people and many social welfare works done by project proponent. The percentage of replenishment is more than 100% every year *i.e.* **4533785.5 Tons/Annum**. In view of this huge amount of sedimentation there are fare chances of replenishment of the river bed annually. There is no displacement of the population within the project area and adjacent nearby area. However, as per the point Xiv of LoI the lease holder will deposit 10% of the annual contract money *i.e.* **Rs. 93.45 Lakhs** to the **Mines and Minerals Development, Restoration and Rehabilitation Fund**. This amount will be spent by lease holder for environmental protection and mineral conservation in the surrounding area of core and buffer zone. The officers of the State Government Haryana will strictly monitor the compliance of lease holder in this regard.

in EMP. A green belt, 7.5m in width will be developed around the core zone. Green belt plantation will be started with the beginning of the mining and will be completed within five years from the beginning.

8.4 SUMMARY

The management will recruit the semi-skilled and unskilled workers from the nearby villages. The project activity and the management will definitely support the local Panchayat and provide other form of assistance for the development of public amenities in this region. The company management will contribute to the local schools, dispensaries for the welfare of the villagers. A suitable combination of trees that can grow fast and also have good leaf cover will be adopted to develop the green belt. It is proposed to plant 2000 no's per annum of native species along with some fruit bearing and medicinal trees during the mining plan period. The project proponent has allocated about **Rs. 30.0 Lakhs** per annum for CSR Activities and **Rs 93. 45 Lakh** to the **Mines and Minerals Development, Restoration and Rehabilitation Fund**. This amount will be spent by lease holder for the protection of environment in the nearby surrounding area. The officers of the State Government Haryana will strictly monitor the compliance of lease holder in this regard. Other than this social development of village will be considered as per social activities.

CHAPTER-9
ENVIRONMENTAL COST BENEFIT ANALYSIS

9.0 PROJECT COST

After making exhaustive study, it is considered desirable that the mining project may be implemented. Project cost for the proposed Sand Mining namely **"Jathlana Block/YNR B12"** over an area of **101.27 Ha.** falling in Jathlana Block, Tehsil Radaur District Yamuna Nagar (Haryana) is Rs. **12.00 Crores.** The estimated profit will be **2.25 Crores** which is 18.75% of capital cost.

Table-9.1 Financial Pattern

Major Heads	**Total**
Production Capacity	45,00,000 Tons per annum
Production Cost of Mineral	Rs 113.50/- Per Ton or Rs.4.54 per cu. ft.
Sale Value of Mineral	Rs 118.50/- Per Ton or Rs.4.74 per cu. ft.
Profit	Rs.5.00 per Ton
Estimated Profit per Annum	**2,25,00,000/- Per Annum**

9.1 ENVIRONMENT COST ANALYSIS

The Environment cost for this proposed mining includes Environmental Management Plan, Environmental and Social Responsibility, Occupational Health and Safety and Conservation Plan which is likely to come approximately Rs. 82.10 Lakhs per annum. The detailed cost for Environmental Expenses is given in Table 9.2. The profit from this project will be 2, 25,00,000 - 82,10,000 = 1,42,90,000/- which is 11.9 % of capital cost.

Table 9.2 Environmental Cost Analysis

S. No	Major Heads	Budget (Rs. in Lakhs/Annum
1.	**Environmental Management Plan**	36.00
2.	**Environmental and Social Responsibility**	30.00
3.	**Occupational Health and Safety**	15.00
4.	**Conservation/Management Plan**	1.10
	Total	**82.10**

9.2 SCHEDULE OF PROJECT IMPLEMENTATION

The estimated capital cost and financial viability of the present scheme has been worked out on the assumptions that the above scheme will be completed by the end of Year, 2026. From the above financial analysis it is clear that this sand mining project is financial & technically viable.

9.3 SUMMARY

It is considered desirable that the mining project may be implemented. Project cost for the proposed Sand Mining namely **Jathlana Block/YNR B 12"** over an area of **101.27 Ha.** falling in Jathlana Block, Tehsil Radaur, District Yamuna Nagar (Haryana) is Rs. 12.00 Crore. The profit will be approx. Rs. 2,25,00,000 per annum.

CHAPTER-10
ENVIRONMENTAL MANAGEMENT PLAN

10.0 INTRODUCTION

The mine development in the ML area needs to be intertwined with judicious utilization of natural resources within the limits of permissible assimilative capacity. The assimilative capacity of the study area is the maximum amount of pollution load that can be discharged in the environment without affecting the designated use and is governed by dilution, dispersion and removal due to natural physicochemical and biological processes.

The environmental management must be integrated into the process of mine planning so that ecological balance of the area is maintained and adverse affects are minimized. An Environmental Management Plan (EMP) is a site specific plan developed to ensure that the project is implemented in an environmentally sustainable manner. An effective EMP ensures the application of best practice environment management to a project. The purpose of an EMP is to:

i. Assists proponent in the preparation of an effective and user friendly EMP.
ii. Improve the contribution that an EMP can make to the effectiveness of the environmental management process.
iii. Ensure a minimum standard and consistent approach to the preparation of EMP's.
iv. Ensure that the commitments made as part of the project's EIA are implemented throughout the project life.
v. Ensure that environment management details is captured and documented at all stages of a project.

The design of EMP for operational phase has been aimed to achieve the following objectives:

i. To ensure adoption of state of art technological environmental control measures and implementing them satisfactorily.
ii. Effectiveness of mitigatory measures in mitigation of impacts.
iii. Description of monitoring program of the surrounding environment.
iv. Institution arrangements to monitor effectively and take suitable corrective steps for implementation of proper EMP.
v. An Environmental Management Cell (EMC) should be set up to take care of all environment aspects and to maintain environmental quality in the project area.

The detailed hierarchy and responsibilities of Environment Management Cell is discussed in Chapter-6.

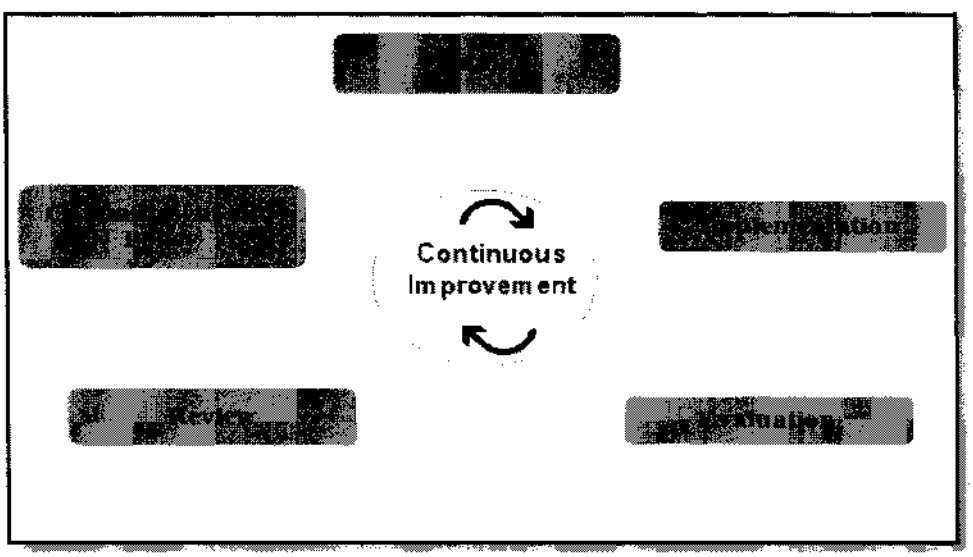


Figure10.1: Flow Chart of EMP

10.1 LAND USE PATTERN

River bed mining can lead to river bank erosion and sedimentation arising from changes in hydrology due to alteration in water depths and river bed morphology. Sand and gravel in lowland river landforms are biologically important and an economic asset. Keeping this in mind, the following management plans are suggested:

i. The area under mining at a given time will be kept minimum and the area will be reclaimed by top soil.
ii. There will be no mining near the banks. This is to protect the bank erosion and river migration.
iii. Proper wide benches in the mining area will be created to prevent any erosion.
iv. Slopes of the sides in mine will be at least 45^0 to prevent any erosion.
v. Grass/plants will be planted on the slopes and benches to prevent soil erosion.

10.2 AIR ENVIRONMENT MANAGEMENT

Mitigative measures suggested for air emission control will be based on the baseline ambient air quality monitoring data. From the point of view of maintenance of an acceptable ambient air quality in the region, it is desirable that the air quality needs to be monitored on a regular basis to check it vis-à-vis the NAAQS prescribed by MoEF&CC and in cases of non-compliance, appropriate mitigative measures will be adopted. In order to minimize impacts of mining on air and to maintain it within the prescribed limits of CPCB/ SPCB, an Environmental Management Plan (EMP) has been prepared. This will help in resolving all environmental and ecological issues likely to cause due to mining in the area.

During the course of mining no toxic substances are released into the atmosphere as such there seems to be no potential threat to health of human beings. In the mining activities, the only source of gaseous emissions is from the engines of vehicles. The reasons may be quality of fuel, improper operation of the engine, etc; proper maintenance of engines will improve combustion process and brings reduction in pollution.

10.2.1 Control of Gaseous Pollution

In mining activities, the only source of gaseous emissions is from the engines of transport vehicles. The emissions from the diesel engines of the machinery can be controlled by proper maintenance and monitoring of machines.

10.2.2 Control of Dust Pollution

The main pollutant in air is PM_{10}, which is generated due to various mining activities. However to reduce the impact of dust pollution the following steps have been taken during various mining activities.

a) During loading operation

i) Latest loading equipment like hydraulic excavators will be used with dumpers. This reduces the number of buckets to fill from height and thus have comparatively less dust generation. The propagation of this dust is confined to loading point only and does not affect any person both the operators of excavator and dumpers who will sit in closed chamber and will be equipped with dust mask.
ii) Skilled operators will operate excavators.
iii) Avoid overloading of dumpers and consequent spillage on the roads.
iv) The operators' cabin in the drills, dumpers will be provided with dust free enclosure and persons working at high dust prone areas will be provided with dust mask.

b) During Transport operation

i) All the haulage roads including the main ramp be kept wide, leveled, compacted and properly maintained and watered regularly during the shift operation to prevent generation of dust due to movement of dumpers, and other vehicles.
ii) Mineral carrying trucks will be effectively covered by Tarpaulin to avoid escape of fines to atmosphere.
iii) Regular Compaction and grading of haul roads to clear accumulation of loose material.
iv) Air quality will be regularly monitored both in the core zone and the buffer zone.

c) Plantation work carried out

In order to reduce air pollution in the surroundings, green belt will be developed around mines office, mine approach road. The plantation will be done around the lease boundary.

d) Monitoring of air pollution

Periodic air quality survey will be carried out to monitor the changes consequent upon mining activities as per the norms of Haryana State Pollution Control Board.

10.3 NOISE AND VIBRATION ENVIRONMENT

The ambient noise level monitoring carried out in and around the proposed mine lease area shows that ambient noise levels are well within the stipulated limits of MoEF&CC. There is no drilling and blasting for mineral extraction. Noise pollution will only be due to loading and transporting equipment. Effective steps will be taken to keep the noise level well below the DGMS prescribed limit of 85 dbA.

10.3.1 Noise Abatement and Control

i. Proper maintenance of all machines is being carried out, which help in reducing generation of noise during operations.
ii. No other equipments accept the Transportation vehicles and Excavator and Loaders (as and when required) for loading is allowed.
iii. Noise generated by these equipments is intermittent and does not cause much adverse impact.
iv. Periodical monitoring of noise will be done to adopt corrective actions wherever needed.
v. Plantation will be taken up along the approach roads. The plantation minimizes propagation of noise and also arrests dust.

10.4 WATER MANAGEMENT

There will be no wastewater generation from the mining operations. Only wastewater generation will be sanitary wastewater, which will be treated in septic tank followed by subsurface dispersion.

10.4.1 Surface and Ground Water Management

i. Mining will neither intersect the ground water table of the area. So not at all disturbing water environment.
ii. The mining does not have any impact on topography and natural drainage of surrounding area.
iii. Rain water harvesting pits will be proposed on the mining site.

10.4.2 Waste Water Management

No waste water is generated from the mining activity of minor minerals as the project only involves lifting/excavation of Sand and transportation directly to the consumers.

10.4.3 Water Conservation

The project do not consume any process water except for drinking, dust suppression and plantation. Plantation is proposed, which will increase the water holding capacity and help in recharging of ground water. No artificial rainwater harvesting is proposed for the present project.

10.5 SOLID WASTE MANAGEMENT

Waste management is an important facet of environment management. Thus, solid waste management is important from both aesthetics and environment viewpoints.

i. Solid waste (sand and silt) that will be generated during mining activities as spillage will be utilized for filling of the mine voids. Apart from this, no other solid wastes will be generated from the said mining operations.
ii. Top soil from inside riverbed will be stocked and re-laid post mining to reclaim the land for agriculture.
iii. Generated food waste or any other domestic waste will be collected in dustbins and will be properly disposed off.
iv. There are no toxic elements present in the mineral which may contaminate the soil or river water.

10.6 GREEN BELT DEVELOPMENT

The proposed green belt in the lease area is to be developed taking into consideration the availability of area as the efficiency of green belt in pollution control mainly depends on tree species, its width, distance from pollution sources, side of the habitat from working place and tree height. The proposed green belt has been designed to control PM_{10}, gascous pollutants, noise, surface run off and soil erosion etc. While considering the above aspects due care will be taken for selecting the suitable characteristics plant species such as fast growing, locally suitable plant species, resistant to specific pollutant and those which would maintain the regional ecological balance, soil and hydrological conditions.

10.6.1 Plantation Program

Under the afforestation plan, plantation in nearby villages and connecting roads will be undertaken. The implementation for development of greenbelt will be of paramount importance as it will not only add up as an aesthetic feature but will also act as a pollution sink. The species to be grown in the areas should be dust tolerant and fast growing species so that a permanent greenbelt is created. Plantation in the barrier zone and roads is necessary as these areas will contain fine particulates resulting from mining operation and vehicle movement. Mining activities will not cause any harm to riparian vegetation cover as the working will not extend beyond the offset left against the banks in the river. Link road from the active zone pass through the areas. It is proposed to have plantation on both sides of the roads as greenbelt to provide cover against dust dissemination. River banks will be strengthened by way of plantation on the banks. Plantation will also be carried out as social forestry programme in village, school and the areas allocated by the Panchayat/State authorities.Native plants like Neem, Khejri, Mango and other local species will be planted. A suitable combination of trees that can grow fast and also have good leaf cover shall be adopted to develop the greenbelt. It is proposed to plant 2000 number of native species along with some fruit bearing and medicinal trees during the plan period. The greenbelt development programme is given in **Table 10.1 and Table 10.2**. Plantation will increase the water holding capacity and help in recharging of ground water. No artificial rainwater harvesting is proposed for the present project.

Objective of Plan:

The main purpose of this plan is to develop greenbelt and landscape at project site so that following specific purpose is met with after completion of the project:

a. General pollution abatement.
b. Air pollution attenuation.
c. Dust absorption.

As envisaged in the National Forest Policy 1988 that one third of the total area should be under green cover to maintain ecological balance in the country. It is very difficult target to attain agricultural state like Haryana but their enormous scope for attaining this target under the developmental projects where the project is designed as fresh and there is change of land use from agriculture primarily to other uses.

Therefore, to attain the target as envisaged under State Forest Policy and National Forest Policy, the provision of green belts/avenue plantations is made under developmental projects. The species proposed should be long rotation, ornamental, evergreen, hardy, wind firm. The species proposed should be long rotation, ornamental, evergreen, hardy, wind firm. The species suitable for urban areas should have capacity to combat pollution.

The project will be implemented on an area of 101.27 Ha (10,12,700 m^2).

The detail of the areas proposed under various components is given below:

1. Plantation along the Lease Boundary = 7.5*6427.91=48209.35 m^2
2. Plantation in the Mine Premises= 96815m^2
3. Plantation along the Haul Road starting from core area to mettled road= 3*2136= 6408 m^2
4. Plantation at suitable location from Second Year to Fifth Year along the worked out mine benches, such that, it does not affect working of mine.

Total plantation area = 1022774.29 m^2

Total no. of plants to be planted: 10000 Nos.

A green belt will be developed along the boundary of the mining lease area. The area for green belt plantation consists of undisturbed soil; hence plantation could be made as in any garden or road side

plantation. Green belt is erected not from biodiversity conservation point of view but is basically developed as a screen to check the spread of dust pollution. A green belt, 7.5m in width will be developed around the core zone. Green belt plantation will be started with the beginning of the mining and will be completed within five years from the beginning.

Following precaution will be taken:

- To raise seedlings for plantation in the green belt a nursery will be developed.
- Seedlings of only local species, suitable for green belt plantation will be raised in this nursery.
- All the representative plant species of the region were found to grow in and around the study site.
- Care will be provided against grazing and browsing.
- Timely watering during the initial stages of survival and provision will be made for the allocation of funds as well.
- During the running of mine, flora will be regenerated in different stages and the area having matured Afforestation will be properly fenced so as to avoid cutting, browsing and hacking of branches and pruning of trees
- Creating awareness among villagers residing on the periphery of the mines regarding the use of plantations.
- Plantation of indigenous species, fodder and fruit bearing tree species which can also act as habitats for wild life.
- Plantation of fruits bearing trees like Karonda, Zizyphus, Awala, Gular, Timbru, Lasoda, Aam and other Ficus species will attract sloth bear population.
- For increasing hare population turfing on the ground on both sides of nallahs by grasses will provide a suitable habitat which is most sought food for hares.

Plantation in Buffer zone

Trees will be planted in the buffer zone also. This plantation will be done at selected places only and only local species will be used in the plantation. Some of the tree species included will be Saja (*Terminalia tomentosa*), Baheda (*Terminalia bellerica*), Bija (*Pterocarpus masupium*), Bargad (*Ficus benghalensis*), Peepal (*Ficus religiosa*), Mahua (*Madhuca latifolia*), Sal (*Shorea robusta*), *Ficus recimosa, Pongamia glabra* etc. Care will be taken to include some fruit bearing trees like Gular (*Ficus glomerata*), Aonla (*Emblica officinalis*), Aam (*Mangifera indica*) and such trees to provide food to the herbivores which in turn will be the food source of the carnivores. Water, particularly during drier seasons, becomes the most important factor to all types of wild animals including the mammals, birds and reptiles. If water is available safely, then all other factors become secondary for the presence and survival of the wild life in any forested area. Places suitable for mini watersheds will be identified in the core as well as in the buffer zone to store rainwater. Further, to make water available at all the times, throughout the year, some of these water holes will be recharged through artificial means. Proper slope will be given to approach these water sources so that the wild animals will be able to drink water without any difficulty. Proper cover through vegetation or any other type of even artificial cover will be developed near to these water sources so that the prey species will be able to hide themselves from the predators, at the time of approaching the water sources. To attract the birds, plants yielding food to the birds will be planted on priority basis. If water and food are available to the birds without any anthropogenic disturbances the area can become an ideal place for bird watching.

List of Species for Greenbelt Development

Scientific Name	Common Name	Type	Effective in Control of Pollution
Azadirachta indica	Neem	Tree	Dust, Air Pollution, Noise Pollution
Bauhinia variegata	Kachnar	Tree	Dust
Tamarindus indica	Imli	Tree	Air Pollution
Zizyphus mauritiana	Ber	Tree	Air Pollution
Aegle marmelos	Bel	Tree	Air Pollution, Noise Pollution
Polyalthis longifolia	Ashok	Tree	Dust, Air Pollution,

Ficus glomerata	Guler	Tree	Dust, Air Pollution, Noise Pollution

Source: Guidelines for Greenbelt Development, CPCB, March, 2000

Table 10.1: Plan for Afforestation

Year	Saplings	Survival 80%	Species	Place of Plantation	Budget/Annum
I	2000	1600	Neem, Mango, Shisham, Sirish, Babool, Gulmohar,and other tree species as per soil condition of the area.	Along the roads, in schools and public building and other social forestry programme.	6,00,000
II	2000	1600			6,00,000
III	2000	1600			6,00,000
IV	2000	1600			6,00,000
V	2000	1600			6,00,000
Total	**10000**	**8000**			30,00,000

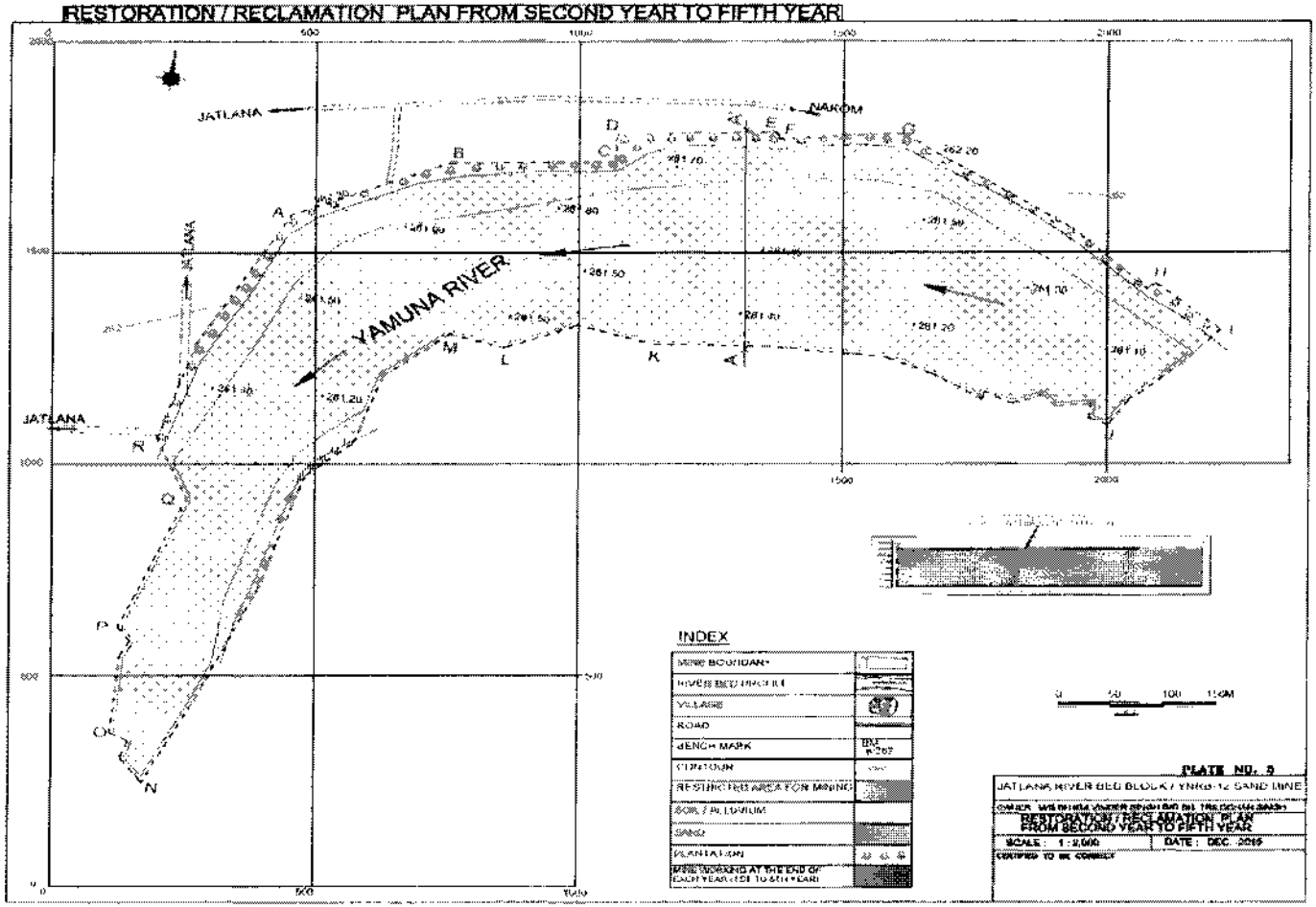


Figure 10.2: Restoration/Reclamation/Rehabilitation Plan from Second year to Fifth Year

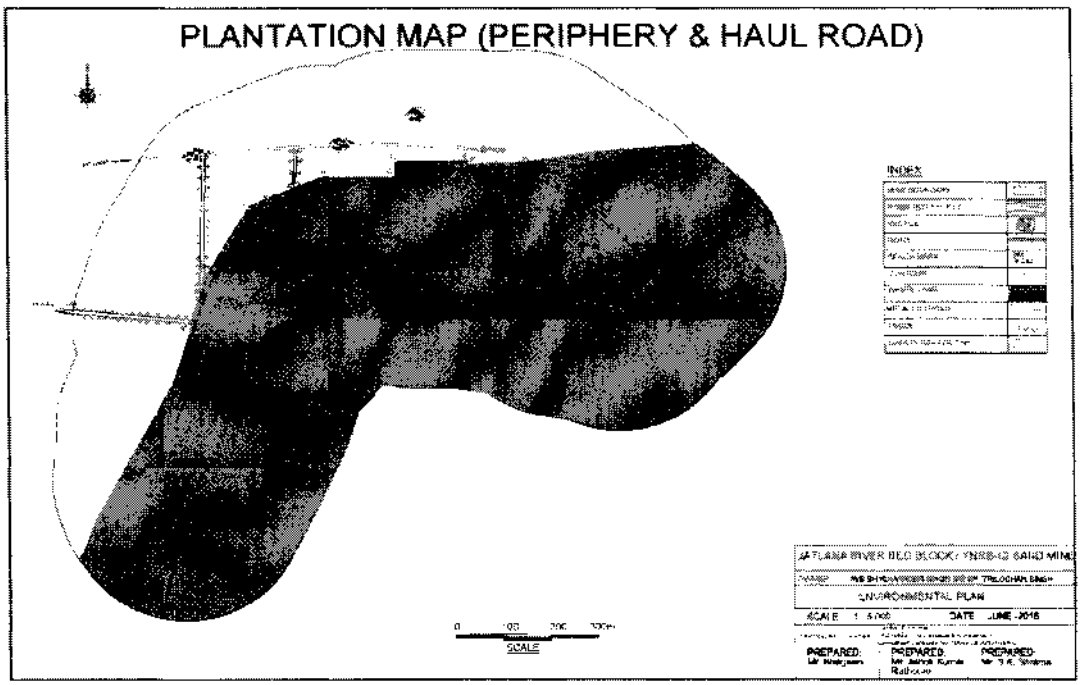


Figure 10.3 Plantation Map (Periphery and Haul Road)

10.7 SOCIO-ECONOMIC ENVIRONMENT

10.7 Management Plan for Socio-Economic Environment

i. In general, socio-economic environment will have positive impact due to the mining project in the area.
ii. The deployed laborers will be from nearby villages only as these people are mainly dependent upon such mining activities.
iii. In order to further improve the socio-economic conditions of the area, the management will contribute for development works in consultation with local bodies.

The lessee has already allocated **Rs 30.0 Lakhs** (As per demand) for Socio-Economic Measures.

10.8 OCCUPATIONAL HEALTH AND SAFETY

Occupational Health and Safety professionals develop and coordinate safety and health systems and strategies within organizations. They identify workplace hazards, assess risks to employee health and safety, and recommend solutions. Increasingly, Health and Safety Professionals are also responsible for many of the environmental aspects of their workplace. As this profession matures there is an increased emphasis on risk management strategy and on the development of workplace culture.

Occupational Health and Safety professionals in the minerals industry may perform the following tasks:

i. The collection of minor minerals from the Sand mine does not cause any occupational ill effects.
ii. Except fugitive dust generation there is no source which can show a probability for health related diseases and proper dust suppression will control dust generation and dispersion.
iii. Dust masks will be provided to the workers working in the dust prone areas as additional personal protective equipment.
iv. The occupational health hazards have so far not been reported.
v. Awareness program will be conducted about likely occupational health hazards so as to have preventive action in place.
vi. Any workers health related problem will be properly addressed.
vii. Periodical medical checkup will be conducted.
viii. Promote occupational health and safety within their organization and develop safer and healthier ways of working;

ix. Help supervise the investigation of accidents and unsafe working conditions, study possible causes and recommend remedial action;
x. Develop and implement training sessions for management, supervisors and workers on health and safety practices and legislation;
xi. Coordinate emergency procedures, mine rescues, fire fighting and first aid crews;
xii. Communicate frequently with management to report on the status of the health and safety strategy and risk management strategy, and Develop occupational health and safety strategies and systems, including policies, procedures and manuals.

Table 10.3: Budget for Occupational Health and Safety of the workers

S. No	Risks	Mitigation of Risk	Budget/Annum (Lakhs)
1.	Minerals Loading & Vehicular Movement	**Measures to Prevent Accidents during Sand Loading.** The trucks will be brought to a level so that the sand loading operation suits to the ergonomic condition of the workers and the back-hoe. The loading will be done from one side of the truck only. The workers will be provided with gloves and safety shoes during loading. Opening of the side covers (pattas) will be done carefully and with warning to prevent injury to the loaders. No sand will be collected within 7.5m from bank, especially from outer bank of the meandering river. Safe clearance will be mainly determined by the height of the river bank and thickness of sand to be extracted from the close vicinity of that bank. Pounding in the river bed shall not be allowed. Operations during daylight only. No foreign material (garbage) will be allowed to remain/spill in river bed and catchment area, or no pits/pockets are allowed to be filled with such material. Stockpiling of harvested sand on the river bank will be avoided. For particular operations, approaching river bed from both the banks will be avoided. Digging outside river bank within 500m for pit sand and gravel, and also taking anything from that zone for construction of access ramps, will be strictly prohibited.	Rs. 1.00
2.	Minerals Transport	**Measures to Prevent Accidents during minerals Transportation.** All transportation within the main working will be carried out directly under the supervision and control of the management. The Vehicles must be maintained in good repairs and checked thoroughly at least once a week by the competent person authorized for the purpose by the Management. Road signs will be provided at each and every turning point especially for the guidance of the drivers at the evening/night. To avoid danger while reversing the trackless vehicles especially at the embankment and tipping points, all workers will be removed from all areas for reversing of lorries, and the vehicle will have audio-visual alarm during reversing. A statutory provision of the fences, constant education, training etc. will go along way in reducing the incidents of such accidents. Generally, overloading will not be permitted. Big boulders will not be loaded. This is unsafe and may damage equipment and stowing bunker. The truck will be covered and maintained to prevent any spillage. The maximum permissible speed limit will be ensured. The truck drivers will have proper driving license.	Rs. 1.50
3.	Minerals Dumping and Storage	**Measures to Prevent Accidents due to Trucks/ Dumpers etc.** All transportation within applied mining lease working will be carried out directly under the supervision and control of the management. The vehicles will be maintained in good condition and checked thoroughly at least once a month by the competent person authorized for the purpose by	Rs. 1.50

		the management. Road signs will be provided at each and every turning point up to the main road (wherever required). To avoid danger while reversing the equipment's/ vehicles especially at the working place / loading points, stopper will be posted to properly guide reversing/ spotting operating. otherwise no person will be there within 10 Km radius of machine. A statutory provision of the fences, constant education, training etc. will go a long way in reducing the incidents of such accidents. Regular training will be provided to the operators by the Company or the Contractors.	
4.	Inundation/ Flooding	**Measures to Prevent Dangerous Incidents during Inundation/Flooding** Inundation or flooding is expected and beneficial for these sand mines as during this time only the sand reserve gets replenished. During monsoon months and heavy rains the sand mining operations are ceased. The Trucks and other vehicle plying over the dunes will be kept on the river banks beyond HFL. The workers are not allowed to go over the dunes during heavy rains. There will be mechanism/warning system of heavy rains and discharges from the upstream dams. In case of critical situation or in case of death the victim will be compensate financially.	Rs. 1.00
5. 6.	**Education awareness and first aid kit** The training will be provided to all the personnel by s qualified and having more than five year of experience in relevant field. Adequate training/refresher training will be provided to the supervisors, workers keeping in view provisions of Mines Vocational Training Rules, 1966; Mine Rules, 1955, Mines Rescue Rules, 1985. Personnel who have to operate and maintain HEMM, Trucks etc are to be trained under the guidance of the manufacturers and as per provisions of DGMS Circular Technical 1/1989 regarding accidents in opencast mines. Recommendation of Seventh Conference on Safety in Mines on "Safety in Open Cast Mining", "Traffic Rules and Procedures", "Mobile equipments and Highway Delivery Vehicles", "Operations and Operator Training" and other related circulars. The training of mine personnel will be provided regularly with respect to environmental protection. Special courses for employees will be arranged for afforestation, revegetation, reclamation, health hazards (identification), malaria eradication, HIV prevention etc in the training centre of the company. The first aid box will be keep at a place which can be easy to access to the worker. **The qualified (MBBS) person will be hired to Medical Examination.** **Medical Examination Schedule** Initial Medical Examination (Mine Workers) Physical Check -up Psychological Test Audiometric Test Respiratory Test Periodical Medical Examination (Mine Workers) Physical Check -up Audiometric Test Eye Check -up Respiratory Test Medical Camp (Mine Workers and Nearby Villagers Training (Mine Workers)		Rs. 1.50

	Note: Medical Follow Ups Work force will be divided into three targeted groups age wise as follows:			
	Age Group	**PME as per Mine Rule 1955**	**Special Examination**	Rs. 2.50
	Less than 25 years	Once in a Three Years	In case of emergencies	
	Between 25 to 40 Years	Once in a Three Years	In case of emergencies	
	Above 40 years	Once in a Three Years	In case of emergencies	
	Total			**15.00**

10.9 COST OF EMP MEASURES

Following provisions are proposed to be taken for improving, control and monitoring of environment protection measures.

Table 10.4: Budget for EMP

S. No.	Particulars	Capital Cost (Lakhs)
1.	Pollution monitoring – Air, Water, Noise and Soil	5.00
2.	Dust Suppression	7.00
3.	Plantation	6.00
4.	Rainwater recharging	6.00
5.	Haul road and other roads repair and maintenance	7.00
6.	Pre monsoon and Post Monsoon survey for sedimentation in the river bed	3.00
7.	Waste Water Treatment	2.00
	Total	**36.00**

10.10 REHABILITATION AND RESETTLEMENT (R &R)

There is no displacement of the population within the project area and adjacent nearby area and the riverbed area is Govt. land. However, as per the point xiv of LoI the lease holder will deposit 10% of the annual contract money *i.e.* **93.45 Lakhs** the **Mines and Minerals Development, Restoration and Rehabilitation Fund**. This amount will be spent by lease holder for the protection of environment in the nearby surrounding area. The officers of the State Government Haryana will strictly monitor the compliance of lease holder in this regard.

10.11 SUMMARY

As per Above discussion there is no measure impact on the environment due to mining except fugitive emission in the form of dust generated during handling of mineral. The adequate preventive measures will be adopted to contain the various pollutants within permissible limits. Plantation development will be carried out in the mine premises, along the approach roads, around Govt. buildings, schools approx 2000 trees per year. It will prove an effective pollution mitigate technique, and help avoid soil erosion during monsoon season. Employment opportunities will be provided to the locals only as providing extraction of minerals from the mine site is the only prevailing occupation for them for their livelihood. A budget of **Rs. 30.0Lakhs per annum** for Corporate Social Responsibility, budget of **Rs. 15.00 Lakhs** for Occupational Health and Safety and ppbudget of **Rs 36.0 Lakhs per annum for EMP** are incurred by Project Proponent. The lease holder will also deposit 10% of the annual contract money *i.e.* **Rs 93.45 Lakhs** to the **Mines and Minerals Development, Restoration and Rehabilitation Fund.**

CHAPTER-11
SUMMARY & CONCLUSION

11.0 GENERAL

The chapter discuses about the summary of whole EIA/EMP report along with recommendation and conclusion. The proposed mining lease area falls in Survey of India Toposheet (OSM) No. H43L8, H43L12, H43R1, H43L4.The lease area is located near Jathlana Block, Tehsil- Radaur and District Yamuna Nagar, Haryana.

The mine lease coordinates are listed below:

Table 11.1 Details of the Project

A	**Lease Area Details**	
	Lease Area	101.27 Ha
	Type of Land	Inside Yamuna River
	Topography	Gair mumkin Nadi Nallah
	Site Elevation Range	Ranges from 261 m amsl to 266 m amsl
B	**Production Details**	
	Proposed production	45,00,000TPA
	Mineable reserves	45,40,200 tonnes
C	**Cost Details**	
	Cost of the project	Rs.12.0 Crores
	Cost for EMP	Rs. 36.00 Lakhs/ year
	Cost of ESR	Rs. 30.00 Lakhs/ year
	Cost of OH&S	Rs. 15.00 Lakhs/year
	Cost of Conservation	Rs. 9.10 Lakhs/year
D	**Details of Environmental Setting**	
	Ecological Sensitive Areas (National Park, Wild Life Sanctuary, Biosphere Reserve, Reserve/ Protected Forest etc.) within 10 Km radius	Project area not falling under National Park, Wild Life Sanctuary, Biosphere Reserve and forest reserve. So, no approval is required. Only, Reserve and Protected Forest present within the 10 Km of the project area which are as follows: • Kalanaur Reserve Forest 8.8 Km SW. No. The Project area is not falling under CRZ notification. So, no approval is required.
	Archaeological Important Place	None within 10 Km radius of the project
	CRZ areas within 10 Km radius	None within 10 Km radius of the project
	Nearest city	Radaur– 9.1 Km in NW direction
	Nearest Railway Station	Kalanaur Railway station –11 Km in NW direction
	Nearest National Highway	NH -73, 10.5 Km NE, SH-6, 0.7 km W
	Nearest Airport	Chandigarh Airport – 89.5 km N
	Seismic Zone	Zone IV

11.1 INTRODUCTION

As per EIA Notification dated 14th September, 2006 and O.M. of MoEF&CC dated 24.12.2013 and MoEF&CC Notification dated 15.01.2016 this project falls under Category "A", 1(a), due to lease area more than 50 hectare. The project involves extraction of Sand from inside River bed of Yamuna of Yamuna Nagar district, Haryana. The Letter of Intent (LoI) vides Memo no. **DMG/HY/Cont/ Jathlana Block/YNRB-12 /2015/10070** dated **30/11/2015** has been issued by Department of Mines & Geology, Haryana in favor of **Sh. Kulvinder Singh S/o Sh. Trilochan Singh, M/s P.S. Buildtech** for removal of Sand (minor mineral) from the inside river bed in Jathlana Block . The validity period of the contract is **10 years**. The project involves total area of **101.27 Ha** in Jathlana Block, Tehsil Radaur and District Yamuna Nagar, Haryana.

11.2 PROJECT DESCRIPTION

The proposed project is for mining of sand (Minor Mineral) by open cast semi mechanized method in riverbed over an area of 101.27 Ha. by **Sh. Kulvinder Singh S/o Sh. Trilochan Singh, M/s P.S. Buildtech** in Jathlana Block, /YNR B-12, Tehsil- Radaur, District- Yamuna Nagar, Haryana with proposed production capacity of 45,00,000 TPA of sand (Minor Mineral). The climate of Yamuna Nagar district can be classified as subtropical monsoon, mild &dry winter, hot summer and sub-humid which is mainly dry with hot summer and cold winter except during monsoon season when moist air of oceanic origin penetrates into the district. The normal annual rainfall of the district is 1107 mm, which is unevenly distributed over the area in 43 days. The south west monsoon sets in from last week of June and withdraws in end of September, contributed about 81% of annual rainfall. July and August are the wettest months. Rest 19% rainfall is received during non-monsoon period in the wake of western disturbances and thunderstorms. The project site falls under seismic zone IV which is a high damage risk zone (MSK VIII). Many part of the state of Haryana are prone to flooding. The total geological reserve is **60,76,200 MT** and total mineable reserve is **45,40,200 MT.** Mine lease area will be restricted to 3 m inside riverbed. Mineral will be transported by trucks. The deposit is moderate to good quality of sand (Minor Mineral). It is widely used in construction, buildings, bridges and other infrastructure. It is free from clay and non sticky in nature. Total water requirement for the project is 70 KLD. Total man power requirement for the project is 120. The site facilities like canteen, rest-shelter, first aid facility, water and electricity supply etc. will be provided as per requirement. There is no litigation pending against this project.

11.3 ANALYSIS OF ALTERNATIVES

We have analyzed all the option for alternatives of the proposed mine site. This project is for mining of Sand (minor mineral) and existing land use of mine lease classified as inside Yamuna River and there is no alternate site is suggested for this project.

11.4 DESCRIPTION OF THE ENVIRONMENT

Environmental data has been collected in relation to proposed mining for Air, Noise, Water, Soil, Ecology and Biodiversity. The generation of primary data as well as collection of secondary data and information from the site and surroundings was carried out during winter season *i.e.*1st **December 2015 to 29th February 2016.** The EIA study is being done for the Mine Lease (core zone) and area within 10 Km distance from mine lease boundary (buffer zone), both of which together comprise the study area. The mine lease area exhibits plain to undulated topography. The general slope of the land surface is From N to S and the maximum elevation of the plain is 297 m RL. The project site falls under seismic zone IV which is a high damage risk zone (MSK VIII). Many part of the state of Haryana are prone to flooding. In flood manual of Haryana, there are 102 vulnerable points in Haryana which need special attention during monsoon. Meteorological station was set-up at site to record surface meteorological parameter during study period; Winter Season *i.e.* December 2015 to February 2016.

Table 11.1: Baseline Environment Status

Parameters	Baseline Status
Ambient Air Quality	PM_{10} – **50.3 µg/m³ and 80.2 µg/m³** $PM_{2.5}$ – **30.1µg/m³ and 50.6µg/m³** SO_2 – **5.9 µg/m³ and 16.1 µg/m³** NOx – **11.3 µg/m³ and 30.1 µg/m³**
Noise Level	Noise Level During Day Time –**51.6 Leq dB and 53.8 Leq dB** Noise Level During Night Time –**41.02 Leq dB and 43.25 Leq dB**
Water Quality	**Ground Water:** pH varies from to **7.52 to 7.91.** TDS **(166.00 to 252.00 mg/L)** Total Hardness **(145.00 to 254.23 mg/L)** Fluoride varies from **0.08 to 0.25 mg/L** Chloride varies from **1.97 to 12.10 mg/L** EC varies from **0.280 to 0.593 mS/cm** are found within the permissible limits.
	Surface Water: pH varies from to **8.11 to 8.39** TDS **(149.00to 204.00 mg/L),** Total Hardness **(140.00 to 196mg/L)**

	EC varies from **0.246 to 0.346 mS /cm** Fluoride varies from **0.09 to 0.19 mg/L** Chloride varies from **2.50 to 5.91mg/L** COD varies from **9.80 to 12.05 mg/L)** BOD varies from **3.40 to 5.0 mg/L** etc. are found within the permissible limits.
Soil Quality	pH –**7.96 to 8.22**, Texture – Silty to Sandy Organic Matter – **0.53 % to 0.70 %** Nitrogen- **197.0 kg/hec to 251.0 kg/hec** Phosphorus-**26.07 kg/hec to 47.10kg/hec** Potassium-**83.70 kg/hec to 103.6 kg/hec**
Ecology And Biodiversity	There is no National Park, Wild Life Sanctuary Biosphere Reserve within 10 Km of project site Only, Reserve and Protected Forest present within the 10 Km of the project area which are as follows: • Kalanaur Reserve Forest 8.8 Km NE. No. The Project area is not falling under CRZ notification. So, no approval is required.Subsequently, a budget of **Rs. 9.10 Lakhs** has been earmarked for conservation of wildlife.

Traffic study measurements were performed at State Highway-6 and District Road. The LOS value from the proposed mining will be changed for both SH-6 and District Road1from **'Very Good'** to **'Good'**. The study area comprise of two districts of two states *i.e.* Yamunanagar (Haryana) and other part falls in Saharanpur (Uttar Pradesh). The current study reveals that the study area has most of agriculture land and vegetable corps. The ecology and biodiversity patterns reveal that the most part is covered by vegetable crops only in the winter and summer season and during the monsoon there is no vegetable or major crops grown in this area due to over flow of Yamuna River. Some of the sighted fauna was given protection by the Indian Wild Life (Protection) Act, 1972 by including them in different schedules. Among the birds in the study area, Pea fowl (*Pavo cristatus)* is included in schedule I of Wild life protection Act (1972), while many other birds are included in schedule IV and Common Mongoose (*Herpestes edwardsi)* and Monkey (*Macaca mulata*) are a schedule –II animals. The species wise conservation plan is prepared for the protection of scheduled –I and II fauna along with budgetary provision to assure the implementation of the same by the proponent. The implementation of this mining project will generate both direct and indirect employment. Yamuna Nagar district in which the mine contract area falls is an agriculturally based district. All the basic facilities like road and rail network, medical facilities, post and telegraph, market, drinking water facilities and education facilities are available. The project will also provide impetus to industrialization of the area and mining would be boon for the district as it will not only result in employment opportunity but also infrastructure development and overall growth of the area. At present agriculture is the main occupation of the people as more than half of the population depends on it. With the implementation of the proposed mining project the occupational pattern of the people in the area will change making more people. It was found that most of the parameters were within the limits as per the Indian Standards. In general, there is no major threat to the quality of these parameters. Similarly, the study for the biotic factors was conducted. Hence it can be concluded that the present environment status of the study area is good enough for the project activity. Adoption of adequate pollution control measures will protect the surrounding environment.

11.5 ANTICIPATED ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

The proposed mining operations are not anticipated to raise the concentration of the pollutants beyond prescribed limits. However, the measures are suggested to mitigate any harmful impacts of pollutants like plantation of trees along haul roads, specially near settlements, to help to reduce the impact of dust on the nearby villages; planning transportation routes of mined material so as to reach the nearest paved roads by shortest route; regular water sprinkling on unpaved roads to avoid dust generation during transportation etc. Some of impacts may be due to increase in the PCU/hr which is **450 PCU/hr**. Transportation of sand should be minimized in the morning and evening and cannot be done in night. Access roads will not encroach into the riparian zones. Fugitive emission from vehicle movement will form a layer in leaves thus reducing the gaseous exchange process. The impact on the present noise levels due to mining operations will be restricted to the work zone areas only. The impact on the ambient noise levels will not be felt at the settlement areas due to masking effect with the existing noise levels. There is no drilling and blasting

envisaged in the sand mining so there is no impact of vibration due to this project. Hence, the noise levels and vibration impact due to the proposed mining operations on community will be minimal. There will be no impact on water environment due to mining in riverbed since there is no intersection of water table due to mining activity. There will be no waste water generation from the proposed mining activity except sanitary waste water generation that will be treated in septic tanks and will be used for plantation purpose. The mine worker will generate municipal solid waste of about **30 Kg per day** which will have adverse impact on human health. There will be **6 Nos. of garbage** provided for domestic waste collection. There is no overburden due to mining in riverbed which will not change the topography of the area and not divert rain water runoff channel. The mining activities will be done in a systematic manner by maintaining the road infrastructure and vehicle transport which will be protective measure for preserving the topography and drainage in the area. The ownership will not be changed as the land has been taken on contract which will be returned as it is after the contract period is over. No human settlement should be permitted in the lease mining or nearby area. No mining will be carried out during the rainy season to minimize impact on aquatic life. There are 1 species of Schedule I and 2 species of Schedule II are observed during study period hence, for the same conservation plan was prepared and duly submitted to Chief Conservator, Forest, Panchkula, Haryana. Subsequently, a budget of **Rs.9.10 Lakhs** has allotted for the conservation of wildlife species. The mining of sand is likely to increase the per capita income of local people by which the socio-economic status of the people will be improved. The local people have been provided with either direct employments or indirect employment such as business, contract works and development work like roads, etc. and other welfare amenities such as medical facilities, conveyance, free education, drinking water supply etc. Except dust generation, there is no source which can show a probability for health related diseases. Regular water sprinkling will be done with sprinkle mounted tankers and dust masks will be provided to the workers. All workers will be subjected to medical examination as per Mines Rule 1955 both at time of appointment and at least once in a year. Medical camps will be organized for this activity. Insurance of all employees as per the rules will also be carried out. R&R issues are not involved with this project. As per the point Xiv of LoI, the lease holder will deposit 10% of the annual contract money *i.e.* approx. **Rs. 93.45 Lakhs** to the Mines and Minerals Development, Restoration and Rehabilitation Fund. This amount will be spent by lease holder for the protection of environment, mineral conservation in the surrounding area of core and buffer zone.

11.6 ENVIRONMENTAL MONITORING PROGRAM

The environmental quality within the stipulated standards, regular monitoring of various environmental components is necessary which will complied as per conditions. For this the lessee **Sh. Kulvinder Singh S/O Sh. Trilochan Singh, M/s P.S. Buildtech** has taken decision to formulate an Environment Policy of the mine and constitute an Environmental Management Cell and committed to operate the proposed mine with the objectives mentioned in approved Environment Policy. EMP may also require measurement of ambient environmental quality in the vicinity of a sit using ecological/biological, physical and chemical indicators. Monitoring may include socio-economic interaction, through local liaison activities or even assessment of complaints. Regular Monitoring of all the environmental parameters *viz.*, air, water, noise and soil as per the formulated program based on CPCB and MoEF&CC guidelines will be carried out every year. The location of the monitoring stations was selected on the basis of prevailing micro meteorological conditions of the area like; wind direction and wind speed, relative humidity, temperature. A budget for monitoring of Air, water, Noise and Soil will be **Rs. 5.00 Lakhs per annum** as recurring cost to be incurred by the project proponent for undertaking pollution prevention measures during the mining activity.

11.7 ADDITOINAL STUDIES

Risk assessments will help mine operators to identify high, medium and low risk levels. This is a requirement of the Occupational Health and Safety Act 2000. Risk assessments will help to priorities the risks and provide information on the need to safely control the risks. In this way, mine owners and operators will be able to implement safety improvements. Mining and allied activities are associated with several potential hazards to both the employees and the public at large. A worker in a mine will be able to work under conditions, which are adequately safe and healthy. At the same time the environmental conditions also will not impair his working efficiency. This is possible only when there is adequate safety in mines. Hence mine safety is one of the most essential aspects of any working mine. The conservation plan suggested here is for scheduled fauna (Animal and Bird) will be implemented by the mining lease holder and the budgetary provision is discussed and given in detail for the implementation of the same in the area. It is very important to conserve the scheduled fauna in the area by the local authority as well as by the forest

officials. People are not aware about the wildlife and protection of wild animals. There is an urgent need of education and awareness to local people about the wild life and their importance. A green belt will be developed around the core zone. Green belt plantation will be started with the beginning of the mining and will be completed within five years from the beginning. This plantation will be done at selected places only and only local species will be used in the plantation. A budget of **Rs 9.10 Lakhs** has been allocated towards conservation of scheduled fauna in the area for the implementation of conservation proposal. This mining project has positive impact on social and economic well being of the community because this project provides employment opportunities to local people and many social welfare works done by project proponent. The percentage of replenishment is more than 100% every year *i.e.* **4533785.5 Tons/ Annum**. In view of this huge amount of sedimentation there are fare chances of replenishment of the river bed annually. There is no displacement of the population within the project area and adjacent nearby area. However, as per the point xiv of LoI the lease holder will deposit 10% of the annual contract money *i.e.* **Rs. Rs 93. 45 Lakhs** to the **Mines and Minerals Development, Restoration and Rehabilitation Fund**. This amount will be spent by lease holder for environmental protection and mineral conservation in the surrounding area of core and buffer zone. The officers of the State Government Haryana will strictly monitor the compliance of lease holder in this regard.

11.8 PROJECT BENEFIT

The management will recruit the semi-skilled and unskilled workers from the nearby villages. The project activity and the management will definitely support the local Panchayat and provide other form of assistance for the development of public amenities in this region. The company management will contribute to the local schools, dispensaries for the welfare of the villagers. A suitable combination of trees that can grow fast and also have good leaf cover will be adopted to develop the green belt. It is proposed to plant 2000 no's per annum of native species along with some fruit bearing and medicinal trees during the mining plan period. The project proponent has allocated about **Rs. 30.0 Lakhs** per annum for ESR Activities and **Rs 93. 45 Lakhs** to the **Mines and Minerals Development, Restoration and Rehabilitation Fund**. This amount will be spent by lease holder for the protection of environment in the nearby surrounding area. The officers of the State Government Haryana will strictly monitor the compliance of lease holder in this regard. Other than this social development of village will be considered as per social activities.

11.9 ENVIRONMENTAL COST BENEFIT ANALYSIS

It is considered desirable that the mining project may be implemented. Project cost for the proposed Sand Mining namely **Jathlana Block/YNR B 12**" over an area of **101.27 Ha**. falling in Jathlana Block, Tehsil Radaur , District Yamuna Nagar (Haryana) is **Rs. 12.00 Crore.** The profit will be approx. **Rs. 2,25,00,000** per annum.

11.10 ENVIRONMENTAL MANAGEMENT PLAN

As per Above discussion there is no measure impact on the environment due to mining except fugitive emission in the form of dust generated during handling of mineral. The adequate preventive measures will be adopted to contain the various pollutants within permissible limits. Plantation development will be carried out in the mine premises, along the approach roads, around Govt. buildings, schools approx 2000 trees per year. It will prove an effective pollution mitigate technique, and help avoid soil erosion during monsoon season. Employment opportunities will be provided to the locals only as providing extraction of minerals from the mine site is the only prevailing occupation for them for their livelihood. A budget of **Rs. 30.00 Lakhs per annum** for Environment Social Responsibility, budget of **Rs. 15.00 Lakhs** for Occupational Health and Safety and budget of **Rs 36.0 Lakhs per annum for EMP** are incurred by Project Proponent. The lease holder will also deposit 10% of the annual contract money *i.e.* **Rs 93. 45 Lakhs** to the **Mines and Minerals Development, Restoration and Rehabilitation Fund.**

11.11 CONCLUSION

From the baseline study and various discussion on probable impacts of all the operational activity, it has been concluded that this project will more positive impact and will generate the revenue and employment in the area. On the above facts and baseline study, the proposed activity is recommended for the commencement with proper mitigation measure as suggested.

CHAPTER-12
DISCLOSURE OF CONSULTANT ENGAGED

12.0 Introduction

Vardan EnviroNet, established on 16th August 2012, is an accredited organization by Quality Council of India/NABET (National Accreditation Board for Education and Training) certificate no. **NABET/EIA/1316/IA001**. The updated list of accredited consultant is also available online at http://nabet.qci.org.in/environment/pop.asp?file=documents/Annexure7.pdf&heading=Accredited%20EIA%20Consultant%20Organizations%20with%20accredited%20sectors. We have our in-house Environmental Laboratory named "Vardan EnviroLab" at Village Samaspur, Opposite Amity International School, Sector 51, Gurgaon (Haryana) approved by National Accreditation Board for Testing and Calibration Laboratories, Govt. of India (NABL).

12.1 Deceleration

I, hereby, certify that I was a part of the EIA team in the following capacity that developed the above EIA.

EIA Coordinator: Mr. Kuldipak Ahuja

Signature

Date: 11.06.2016

I, hereby, certify that I was a part of the EIA team in the following capacity that developed the above EIA.

Team Member: Mr. Aman Sharma

Signature

Date: 11.06.2016

12.2 List of Functional Area Experts

#	Name of Person	FAE/FAA/TM	Area of Expertise
1.	Mr. S. K. Sharma	FAE	AP, WP, SHW and SC
2.	Mr. R.S. Yadav	FAE	HG and GEO
3.	Dr. Ashok Kumar	FAE	EB and WP
4.	Mr. Asif Hussain	FAE	AQ and NV
5.	Mr. Kuldipak Ahuja	FAE	RH
6.	Mrs. Shilpa Mishra	FAE	SE
7.	Mr. Joshua Anand	FAE	LU
8.	Mr. Bhagwan Sahay	FAA	LU and SE

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Registered Post
From

The Director General,
Mines and Geology, Haryana,
30 Bays Building, Sector-17, Chandigarh.

To

Sh. Kulvinder Singh S/o Trilochan Singh
(Prop of M/s P.S.Buildtech)
34-Vishal Nagar, Yamunanagar-135001.

Memo No. DMG/HY/MP/Jathlana Block/YNR B-12/2015/ 3910
Dated Chandigarh, the 10-6-2016

Subject: **Submission of Mining Plan including Progressive Mine Closure Plan for Boulder, Gravel and Sand Mine for Jathlana Block/YNR B-12, District Yamunanagar, comprising an area of 101.27 hectares - M/s P.S.Buildtech, Yamunanagar.**

Reference your letter dated 06.06.2016 on the above noted subject.

2. Vide letter under reference, the Mining Plan along with Progressive Mine Closure Plan in respect of an area of 101.27 hectares of land in village Jathlana Block /YNR B-12, district Yamunanagar was submitted for approval.

3. In exercise of the powers conferred by Sub Rule 4A of Rule 22 of the Mineral Concession Rules 1960 read with the State Government order No. 1/7/103-2IBII-96 dated 25.2.2003, I hereby approve the above said Mining Plan along with Progressive Mine Closure Plan in respect of Boulder, Gravel and Sand Minor Minerals over an area of 101.27 hectares of land situated in village Jathlana of district Yamunanagar. This approval is subject to the following conditions:-

(i) That this Mining Plan and Progressive Mine Closure Plan is approved without prejudice to any other laws applicable to the mine/area from time to time whether made by the Central Government or State Government or any other authority;

(ii) That this approval of the "Mining Plan alongwith Progressive Mine Closure Plan" of Mining does not in any way imply the approval of the State Government in terms of any other provisions of the Mines and Minerals (Development & Regulation) Act, 1957 or Haryana Minor Mineral Concession, Stocking, Transportation of Minerals and Prevention of Illegal Mining Rules, 2012 or any other law including Forest (Conservation) Act, 1980 and Environment Protection Act, 1986 and rules framed there under;

(iii) That this "Mining Plan along with Progressive Mine Closure Plan" is being approved on the basis of data provided by you. In case, at any point of time any ambiguity in the same is found, the approval will be revoked with suspension of the mining operations and will be allowed to resume operation only after modification/rectification of the same, if so required.

(iv) That this "Mining Plan along with Progressive Mine Closure Plan" is approved without prejudice to any other order or direction from any court of any competent jurisdiction and is for a period of five years only and shall not be make you entitled for any extension of the lease period;

(v) That all the norms and provisions as envisaged in the Mining Plan would be adhered to during the working of mine; and

(vi) That the Financial Assurance of Rs. 11,35,050/- (Rs. Eleven lac thirty five thousand fifty only) as required under the provisions of Rule 71(6) of "Haryana Minor Mineral Concession, Stocking, Transportation of Minerals & Prevention of Illegal Mining Rules, 2012, shall be furnished within a period of 60 days or before start of mining operations, whichever is earlier.

3. Further, as per condition no. (xviii) of the LoI dated 30.11.2015, the actual mining will be allowed to be commenced only after Prior Environmental Clearance from the Competent Authority as required under EIA notification dated 14/09/2006, as amended from time to time by the MoE&F, GoI and guidelines/ circulars issued in this behalf.

Encl: Mining Plan & Progressive Mine Closure Plan (2 copies)

State Mining Engineer,
for Director General, Mines and Geology,
Haryana.

Registered Post
Endst. No. DMG/HY/MP/Jathlana Block/YNR B-12/2015/ Dated:

A copy along with a copy of the dully approved Mining Plan and Progressive Mine Closure Plan is forwarded to the Director Mines Safety, Room No. 201-203, 2nd Floor, B-Block, CGO Complex-II, Hapur Road, Ghaziabad for information and necessary action.

- Sd -

Encl: Mining Plan & Progressive Mine Closure Plan

State Mining Engineer,
for Director General, Mines and Geology,
Haryana.

Registered Post
Endst. No. DMG/HY/MP/Jathlana Block/YNR B-12/2015/ Dated:

A copy along with a copy of the dully approved Mining Plan and Progressive Mine Closure Plan is forwarded to the Mining Officer, Mines and Geology Department, Yamunanagar for information and necessary action.

- Sd -

Encl: Mining Plan & Progressive Mine Closure Plan

State Mining Engineer,
for Director General, Mines and Geology,
Haryana.

Endst. No. DMG/HY/MP/Jathlana Block/YNR B-12/2015/ Dated:

A copy is forwarded to Shri S.N. Sharma, House No. 282, Sector 11-D, Faridabad - 121 001 (Haryana) w.r.t. his letter dated 06.06.2016 for information and necessary action.

- Sd -

State Mining Engineer,
for Director General, Mines and Geology,
Haryana.

MINING PLAN AND PROGRESSIVE MINE CLOSURE PLAN
FOR
SAND MINE (MINOR MINERAL)

JATHLANA BLOCK (YNR B-12)

Lease area: 101.27 ha, Lease Period- 10 years; Production –4.5 Million T/Annum)

SUBMITTED TO MAY-2016

THE DIRECTOR GENERAL, MINES & GEOLOGY HARYANA

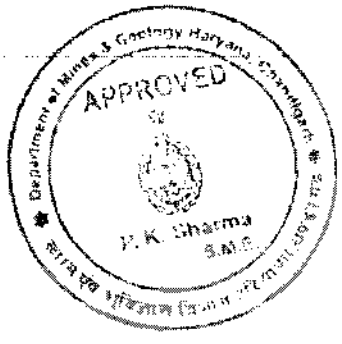
APPLICANT

Sh.Kulvinder Singh S/o Trilochan Singh Prop of M/s P.S.Buildtech, 34- Vishal Nagar,Yamunanagar Pin-135001

PREPARED BY

S.N. SHARMA
RQP/DDN/0135/2001-A
House No. 282, sector 11-D, Faridabad (Haryana)

CONTENTS



List of annexure

Sr.no.	Description
1	A copy of LOI
2	Consent letter from applicant to prepare the Mining Plan
3	RQP Certificate

LIST OF PLATES

Plate. No.	Description
1	Location Plan
2	Key plan
3	Surface Geological plan and section
4	Plan showing the position of Mine Workings at the end of Each Year.
5	Reclamation Map
6	Environmental Plan

INTRODUCTION

M/s P.S.Buildtech,34-Vishal Nagar, Yamuna Nagar was the highest bidder (9.345 Crores) for the Sand of Jathlana Block/YNR B-12 for which e-auction was held on 05-11-2015 and 06-11-2015. A Letter of Intent has been issued by the Director General, Mines & Geology Department, Haryana vide letter no DMG/Hy/Cont/ Jathlana Block/YNR B-12 /2015/10070/dated 30-11-2015 for Mining of Sand (Minor Mineral) in revenue village Jathlana , over an area of 101.27 hectares in District- Yamunanagar , Haryana for a period of 10 years

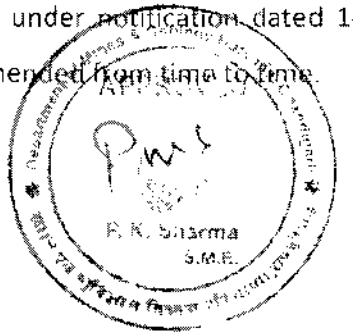
Name of Block	Nme of Village	Area of block in ha	Lease period
Jathlana Block/YNR B-12	Jathlana	101.27	10 years

The applicant is involved in the Construction & infrastructure development business for last many years. They can invest necessary funds for the scientific and systematic development of mines including land rejuvenation and progressive reclamation programme and other measures necessary to protect the quality of the environment and human health etc.

The objective of preparation of this Mining Plan and Progressive Mine Closure Plan is to fulfill the conditions stipulated by the Department of Mines & Geology, Haryana required under Haryana Minor Mineral Concession Rules, 2012. The conditions which are related to the mining plan are reproduced here below.

- The period of contract shall commence w.e.f the date of grant of environmental clearance by competent authority as required under EIA notification dated 14.09.2006 and as amended from time to time by the MOEF,G o I or on expiry of a period of 12 months from the date of acceptance of highest bid/issuance of "**Letter of Intent**",(L o I) whichever is earlier;

- Though due care had been taken in specifying the details of the areas of the mining blocks. However, in case of any inadvertent clerical mistake, the same shall be got rectified/corrected even after the auction but before execution of contract agreement;
- The Block areas are **Tentative** and are being notified on '**as is where is basis**' and all prospective bidders are expected and presumed to have surveyed the areas to make their own assessment for the potential of the areas for which bids are to be offered. The State government shall not be responsible for any kind of loss in land / area or any other loss to the bidders/contractors at any point of time (before or after grant of contract) on account of reduction of land/ area or otherwise. Further, the bidders are also expected to have gone through the terms and conditions of auction notice and also the applicable Acts and Rules for undertaking mining;
- No request regarding reduction in bid amount on account of reduction in land/area of the Mining Block, on any account including that of change in description of khasra numbers / location etc. at any stage will be entertained on any ground. This shall also include any loss/reduction of area for actual mining for want of compliance of applicable laws/restrictions for mining or part of the contracted area had already been operated in the past. Needless to state that this also includes the changes, if any, as per condition no. (3) and the prospective bidder shall give their bids taking account of all such eventualities;
- The contractor shall also deposit/pay an additional amount equal to 10% of the due contract money along with installments towards the **'Mines and Minerals Development, Restoration and Rehabilitation Fund'**;
- The mining contractor shall got prepare a "Mining Plan" along with the Mine Closure Plan (Progressive & Final) from the Recognized Qualified Person as per chapter 10 of the "Haryana Minor Mineral Concession, Stocking, Transportation of Minerals and Prevention of Illegal Mining Rules, 2012" for mining area granted on contract. The contractor shall not commence mining operations in any area except in accordance with such Mining Plan duly approved by an officer authorized by the Director, Mines & Geology, in this behalf. Further, the actual mining will be allowed to be commenced only after prior Environmental Clearance is obtained by the LoI holder/mining contractor for the Mining blocks area from Competent Authority as required under notification dated 14/9/2006 issued by the MoE&F & Climate Change, GoI or as amended from time to time.



- The total mineral excavated and stacked by the concession holder within the area granted on mining contract shall not exceed two times of the average monthly production as per approved Mining Plan at any point of time.
- The Mining contractor shall not stock any mineral outside the concession area granted on mining contract, without obtaining a valid mineral dealer license as per provisions contained in Chapter 14 of the "Haryana Minor Mineral Concession, Stocking, Transportation of Minerals and Prevention of Illegal Mining Rules, 2012".
- The contractor shall not carry out any mining operations in any reserved/protected forest or any area prohibited by any law in force in India, or prohibited by any authority without obtaining prior permission in writing from such authority or officer authorized in this behalf. In case of refusal of permission by such authority or officer authorized in this behalf, contractor(s) shall not be entitled to claim any relief in payment of contract money on this account.
- That no mining operation shall be allowed in the urbansizable zone of area notified by Town and Country Planning Department. Further, in case of the agriculture zone notified by Town and Country Planning Department mining shall be permissible only after obtaining prior permission from the competent authority.
- Following special conditions shall be applicable for excavation of minor mineral(s) from river beds in order to ensure safety of river-beds, structures and the adjoining areas:

(i) No mining would be permissible in a river-bed up to a distance of five times of the span of a bridge on up-stream side and ten times the span of such bridge on down-stream side, subject to a minimum of 250 meters on the up-stream side and 500 meters on the down-stream side;

(ii) There shall be maintained an un-mined block of 50 meters width after every block of 1000 meters over which mining is undertaken or at such distance as may be directed by the Director or any officer authorized by him;

(iii) The maximum depth of mining in the river-bed shall not exceed three meter from the un-mined bed level at any point in time with proper bench formation;

(iv) Mining shall be restricted within the central 3/4th width of the river/ rivulet;

P. K. Sharma
S.M.E.

(v) In case of areas permitted for excavation outside river/rivulets i.e. areas adjoining to rivers/rivulets, no mining shall be permissible in an area up to a width of 500 meters from the active edges of embankments in case of river Yamuna, 250 metres in case of Tangri, Yamuna and Ghaggar and 100 meters on either side of all other rivers/ rivulets;

(vi) Any other condition(s), as may be required by the Irrigation Department of the state from time to time for river-bed mining in consultation with the Mines & Geology Department, may be made applicable to the mining operations in river-beds.

- That no mining operation shall be allowed in the urbansizable zone of area notified by Town and Country Planning Department. Further, in case of the agriculture zone notified by Town and Country Planning Department mining shall be permissible only after obtaining prior permission from the competent authority.
- A safety margin of two meters (2m) shall be maintained above the ground water table while undertaking mining and no mining operations shall be permissible below this level unless a specific permission is obtained from the competent authority in this behalf.
- The contractor shall not undertake any mining operations in the area granted on mining contract without obtaining requisite permission from the competent authority as required for undertaking mining operations under relevant laws.
- The contractor shall be under obligation to carryout mining in accordance with all other provisions applicable as per Mines Act, 1952, Mines and Minerals (Development and Regulation) Act, 1957, Indian Explosive Act, 1884, Forest (Conservation) Act, 1980 and Environment (Protection) Act, 1986 and the rules made there under Wild Life (Protection) Act, 1972, Water (Prevention and Control of Pollution) Act, 1974 and Air (Prevention and Control of Pollution) Act, 1981.

1.0. GENERAL:

a) **Name and address of the Lessee/applicant:**

Sh. Kulvinder Singh S/o Sh. Trilochan Singh,Prop. of

M/s P.S.Buildtech, 34-Vishal Nagar, Yamuna Nagar

b) **Status of the Applicant**;-The applicant is a Proprietary Co.

c) **Name, Address and registration number of the RQP preparing the mining plan**

The applicant has assigned the work of preparation of mining plan to S.N.Sharma

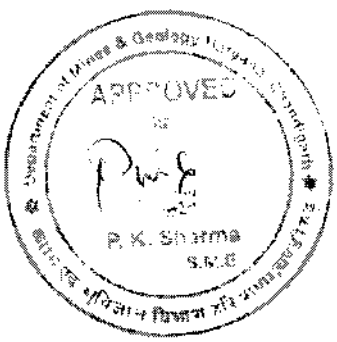
(Consent letter enclosed as Annexure -2 and copy of RQP certificate as Annexure-3)

Regd. No RQP/DDN/0135/2001/A

House No. 282 Sector 11-D Faridabad (Haryana)

Mobile no.09560848579

Email- sn_sharma1959@rediffmail.com



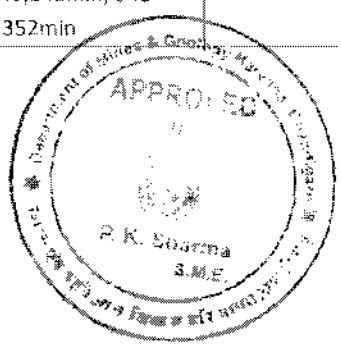
2.0 Details of the Mining Area

a) Details of the land covered in the 'Area' notified by Hr. Govt. on 30-9-15 are as under:-

Mining Contract of Jathlana Block/YNR B-12 Sand unit (Minor Mineral) over an area of 101.27 ha is located in District – Yamunanagar , containing one mining block namely(i) Jathlana Block/YNR B-12 River bed block , the area of the mining falls in the River bed.

Table -1: Village & Khasra wise details of proposed mining area

Name of Block	Nme of Village	Details of Khasra No/Kila Nos	Area of block in ha
Jathlana/YNR B-12	Jathlana	**103//11,** 19, 20, 21, 22 **104//7min,** 8min,9min, 10min,11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21/1, 21/2, 22, 23 **105//6,** 7, 8, 9, 10, 11, 12, 13, 14,15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25/1, 25/2 **106//13,** 14, 15, 16, 17, 18, 19,20, 21, 22, 23, 24, 25, 11, 12, **123//1 to 15,** 16, 17, 18, 19, 20,21, 22, 23 **124//1,** 2, 3, 4/1, 4/2, 4/3, 5/1,5/2, 5/3, 6/1, 6/2, 7, 8, 9/1/1, 9/1/2, 9/2, 9/3, 10, 11, 12/1, 12/2,12/3, 13, 14,15,19,20, 21 **125//1,** 2, 3, 9/1, 9/2, 10,11,20 **107//14min,** 15min, 16,17, 18, 19min, 20min, 21, 22,23,24, 25 **108//25min** **121//5min,** 6, 7min, 14min,13min, 15, 16 ,17, 18min, 23min,24, 25 **122//1 to 23,** 24, 25 **126//1,** 2, 3, 4, 8, 9, 10, 11, 12,21, 20 **127//3 to 8,**2min,9min,12min,19min, 13, 14, 15, 16, 17, 18, 19,25 **137//16,** 17, 18, 23, 24 ,25 **138//2,** 3 to 8, 9, 12, 13, 14, 15,16 **139//1,** 2min, 8min, 9, 10, 11, 12,20 **136//21min**	101.27
	Dhakwala	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12,14, 15, 16, 17, 18, 19/1,19/2, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29,30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43 min, 44, 45,46, 47, 48 min, 49 min, 50, 51, 52, 53, 54 min, 55 min, 56 min,221, 222 min, 223 min, 224 min, 225 min, 226, 227, 228, 229,230, 231, 232, 233/1,233/2, 234, 235, 236, 237, 238, 239, 240,241, 242, 243, 244, 245, 246,247, 249 min, 251 min, 252, 253min, 254 min, 340 min, 341,342min, 343 min, 344, 345, 346,347, 348, 349, 350, 351 min, 352min	



b) Name of Mineral

Sand (minor mineral)

c) Description report of the mining contract/ quarry license with plan (copy of sanction order/ lease deed/ license)

Based on the details published vide Haryana Government Gazette notification dated 30-09-2015 issued by DMG, Haryana and the Khasra map submitted by the applicant, survey of the area was carried out in the proposed area. The area falls in Jathlana Block/YNR B-12 in Jathlana revenue village. Workings will be restricted within the mining area/ khasra's allotted. Copy of Letter of Intent issued is enclosed as **Annexure – 1.**

d) Key plan of the area

Key plan is enclosed as **Plate – 02.** Showing mining area and 5km surrounding areas.

e) Location map of the mining area showing the details of the approach roads up to the mine (Location plan Shown on Plate no.1)

Mining area is shown on the Key Plan. It forms a part of G. T. Sheet No's –53F/4,8 & 53G/1,G/5

Toposheet is enclosed as **Plate – 02.**

Co-ordinates of the lease area as under

Latitudes N 29^0 59' 48" to N 30^0 00' 36"

Longitudes E77^0 14' 37" to E 77^0 16' 00"

Co-ordinates of important boundary pillars is as under

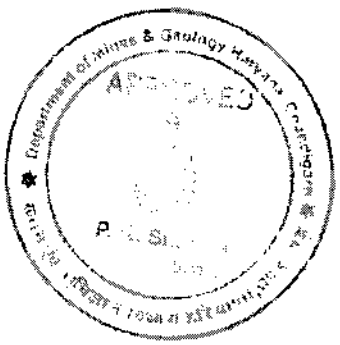
Pillar no	latitudes	longitudes
A	N 30^0 00' 30"	E77^0 14' 46"
B	N 30^0 00' 34"	E77^0 14' 58"

C	N 30° 00' 34'''	E77° 15' 11''
D	N 30° 00' 36'''	E77° 15' 11''
E	N 30° 00' 36'''	E77° 15' 23.5''
F	N 30° 00' 35.5'''	E77° 15' 23.5''
G	N 30° 00' 35.5'''	E77° 15' 33''
H	N 30° 00' 24''	E77° 15' 56''
I	N 30° 00' 20'''	E77° 16' 00''
J	N 30° 00' 12''	E77° 15' 54''
K	N 30° 00' 19'''	E77° 15' 13.5''
L	N 30° 00' 19'''	E77° 15' 02''
M	N 30° 00' 20'''	E77° 14' 59''
N	N 29° 59' 48'''	E77° 14' 39''
O	N 29° 59' 51''	E77° 14' 37''
P	N 30° 00' 00''	E77° 14' 37.5''
Q	N 30° 00' 11''	E77° 14' 43.5''
R	N 30° 00' 15''	E77° 14' 42''

The area is approachable from various nearest towns as detailed below

Village Jathlana is very well connected with Metalled road. Yamunanagar Railway Terminus is about 8 km from the mining area.

Delhi ISBT is about 240 Km and Yamunanagar is about 10 km N from the mining area. State Headquarters Chandigarh is about 100 km in the North West of the mining area.



f) **Infrastructure facilities:**

Nearest railway station	**Yamunanagar** Railway station
Police station	**Jagadhari,**
Post office	**All the nearby villages**
Medical facilities	**Yamunanagar**
Electricity	Electrical supply is available in all nearby villages.
Education facilities	Most of the nearby villages have secondary schools and for higher education institutes are available at Radaur, **Jagadhri, Yamunanagar** and, Kurukshetra,
Mode of transportation of mineral	Sand, a Minor Mineral will be transported by trucks/other vehicles. The vehicles will pass through Kuccha path/road made for plying of vehicles. Temporary road will provide access to the river bed and the movement of loaded trucks/vehicles as the mining area is spread over an area of 101.27 ha in River Bed. Block has its outlet meeting the tar road on the nearby villages and from where the mineral is sent to various destinations. Similarly, mineral will be transported on the other side through approach roads which finally merge with tar roads for final destinations.
River/ canal/ port	Yamuna.

3) **DETAILS OF EXISTING MINING PITS, THEIR DIMENSION AND LOCATIONS**

Mineral Sand is the critical component in construction activities. Presently there is no pit available in the proposed area. . Earlier Sand from this area and other nearby areas

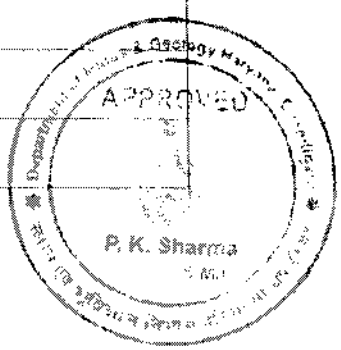
used to be transported from the road network ultimately to various destinations in NCR.

Surface & geological plan & sections enclosed as **Plate – 03**

Present Land use Pattern :- (In hectares)

Table: Present Land use Pattern

Sl. No.	Type of Land Use	Total Value (in Hectares)
1	Quarry Area	0.0
2	Infrastructure (road)	0.00
3	River bed	101.27
4	Plantation	0.00
5	Habitation	0.00
6	Soil dump	0.00
7	OB dump	0.00
	Total	101.27
	Restricted area	**25.60**
	Available area for mining	**75.67**
	Total	**101.27**



3.1 Physiography, Drainage and Climate

Yamuna Nagar district of Haryana located in north-eastern part of Haryana State and lies between 29° 55': 30° 31' north latitudes and 77° 00': 77° 35' east longitudes. The district is

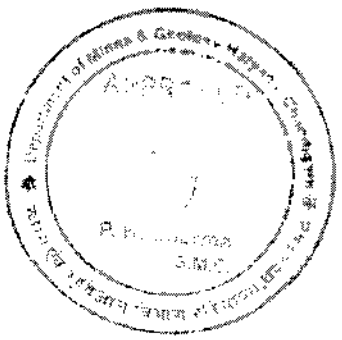
bounded, in north by Himachal Pradesh, in the east by Uttar Pradesh, in west by Ambala district, in south by Karnal and Kurukshetra districts. Total geographical area of the district is 1768 sq.km and comprises 4% of total area of State. Yamuna Nagar district is divided into one sub-division and six-development blocks viz. Bilaspur, Chachrauli, Jagadhri, Mustafa bad, Radaur and Sadhaura. Yamuna Nagar is thickly populated district and density of population is 589 persons per Km2, which is higher than State average of 478 persons per Km2. The population of the district is 12, 14,162 as per 2011 census.

The district is mainly drained by the rivers Yamun and its tributaries. The high land between Markanda River and small rivulets of River Yamuna acts as basin boundary between west flowing rivers of Indus system and east flowing rivers of Ganga basin. River Yamuna drains eastern part of the district and acts as boundary between Haryana and Uttar Pradesh State.
Yamuna Nagar district is bestowed with rich water resources, both surface as well as ground water resources. The ground water is major sources of irrigation in the district. Nearly 40% of area is irrigated by canal water. Distributaries in the district are 21.45 Km long. Two major canals passing through the district are Western Yamuna Canal and augmentation canal. Length of unlined WJC is 63.64km whereas augmentation canal is 22.54 km long. Net irrigated area is 1130Km2 whereas, gross irrigated area 1860Km2. Percentage of gross area irrigated to total cropped area is 91.6%. Systematic hydro geological surveys in the district was carried out by Geological Survey of India during 1956-61.Re-Appraisal Hydro Geological Surveys in the district were carried out by Central Ground Water Board, during 1975-77,1981- 82 and 1988-89.detailed hydro geological and water balance studies were carried out under Ghaggar and Upper Yamuna Projects. Ground water exploration has been carried out in various phases and so far 5 exploratory wells, 15 slim holes and 15 piezometers have been constructed in the district.

Phygiography

The district is divided into five Physiographic units

- Siwaliks
- Dissected Rolling Plains



- Interfluvial Plains
- Active And Recent Flood Plains
- Relict Plains

a) **Siwaliks hills** - Siwalik hill ranges occupy the northern fringe of Yamuna Nagar district and attain the height up to 950m AMSL. The hills are about 500m high with respect to the adjacent alluvial plains. These are characterized by the broad tableland topography that has been carved into quite sharp slopes by numerous ephemeral streams come down to the outer slopes of the Siwaliks and spread much of gravels boulders, pebbles in the beds of these streams.

b) **Dissected Rolling Plains (Kandi Belt)** - A dissected rolling plain in the northern parts of district is a transitional tract between Siwaliks hills and alluvial plains. It is about 25 km wide and elevation varies between 250 and 375m AMSL.

c) **Interfluvial plains** - This tract is part of higher ground between Ghaggar and Chautang and includes high mounds and valleys. In general, the slope is from northeast to southwest.

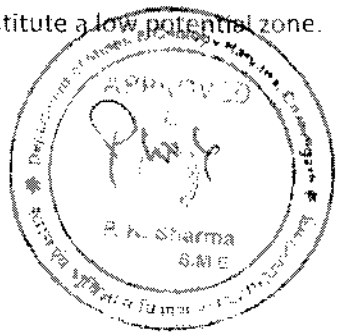
d) **Active and recent flood plains** - This plain is narrow tract along river Yamuna in the district.

e) **Relict wedge plain** - This is almost in alignment to the surface water divide between the westward flowing Ghaggar and eastward flowing Yamuna River.

Hydrogeology

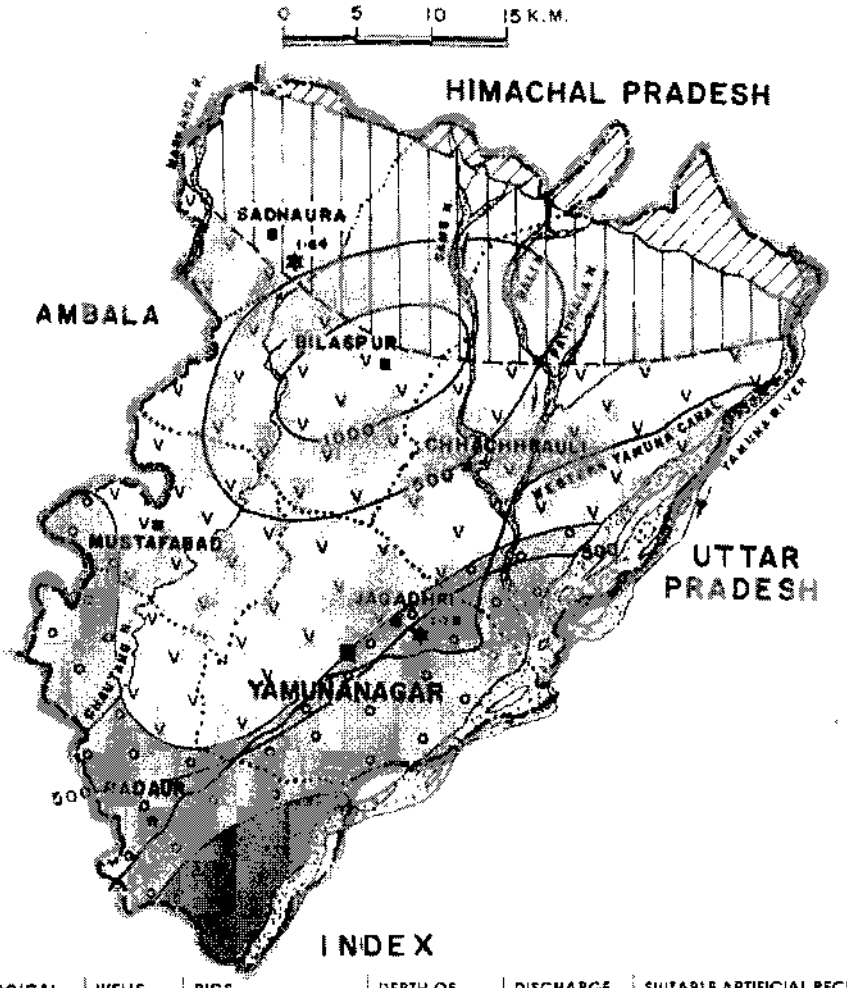
The ground water exploration in the district reveals that clay group of formations dominates over the sand group in the district area. Ground water in the district occurs in the alluvium under water

table and semi-confined to confined conditions. These aquifers consist of sand, silt, gravels and kankar associated with clay and form highly potential aquifers. In alluvium, the permeable granular zones comprise fine to medium grained sand and occasionally coarse sand and gravel.Their lateral and as well as vertical extent is extensive. In Kandi belt, which has not been explored fully boulders cobbles and pebbles, constitutes the major aquifer horizon. Siwalik Hills occupy marginal areas in the northeastern parts of the district constitute a low potential zone.



HYDROGEOLOGY

YAMUNANAGAR DISTRICT, HARYANA



GEOLOGICAL FORMATIONS	WELLS FEASIBLE	RIGS SUITABLE	DEPTH OF WELL (M)	DISCHARGE (LPM)	SUITABLE ARTIFICIAL RECHARGE STRUCTURE
SOFT ROCK AQUIFER	TUBE WELLS	REVERSE/ DIRECT ROTARY	30-270	>600	DITCH AND FURROWS RECHARGE TRENCH WITH INJECTION WELL
SOFT ROCK AQUIFER	TUBE WELLS	REVERSE/ DIRECT ROTARY	20-270	480-600	DITCH AND FURROWS RECHARGE TRENCH WITH INJECTION WELL
SOFT ROCK AQUIFER	TUBE WELLS	REVERSE/ DIRECT ROTARY	20-270	360-480	DITCH AND FURROWS RECHARGE TRENCH WITH INJECTION WELL
BOULDARY AQUIFER	DUG WELLS/ TUBE WELLS	MANUAL/ PERCUSSION/ DTH WITH ODEX	20-120	200-480	SPREADING TECHNIQUES, CONTOUR BUNDING, PERCOLATION TANKS

ELECTRICAL CONDUCTIVITY (MICRO-MHOS/CM AT 25°C) — 500

IRON > PERMISSIBLE LIMIT (1.0 PPM)

HILLY AREA

APPROVED

In Kandi areas, the shallow aquifers are isolated lenses embedded in clay beds whereas aquifers in alluvial areas occur on regional scale and have pinching and swelling disposition and are quite extensive in nature. These aquifers generally consists sands (fine to coarse grained) and gravels and are often intercepted by clay and kankar. These aquifers are under unconfined.

Under ground water exploration programme nine exploratory wells were drilled in the district. On average 3-12 of granular zones were deciphered in the depth range down to 450 m bgl. Exploratory wells drilled in depth range of 130 and 180 m bgl yield discharge in the range of 2700 to 4900 lpm for drawdown of 6.0 m to 12.0 m and Transmissivity of aquifers range between 1500 to 4900 m_2/day. The yield potentials of aquifer below 200.0m bgl are yet to be evaluated.

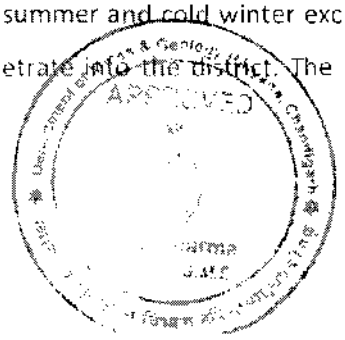
Depth to water level

The depth to water level during pre-monsoon period in the district ranges between 2.07m bgl at Choli and 15.32m bgl at Khizrabad. However, in major part of district water level ranges between 5.0m bgl and 10.0m bgl. The Depth to water level during pre-monsoon period in the district ranges between 1.57m bgl at Choli and 18.41m bgl at Bahadurpur. However, in major part of district water level ranges between 5.0m bgl and 15.0m bgl. Appraisal of water level data of May and November reveals that some parts of the district have experienced water level decline whereas in other parts rise in water level has been recorded. Maximum decline of –0.43m has been observed in area around Khizrabad and maximum rise of 0.39m was recorded at Sabri village. During last ten years, majority of observation points in the district have shown declining trends ranging from 0.00013 m/yr to 0.389m/yr, however, area as not recorded any significant rise during last ten years.

The discharge of the shallow tubewells tapping unconfined aquifers is tube wells ranges from 100 lpm to 500 lpm with moderate Drawdown values. Near Manakpur, a phreatic aquifer extending down to 88.0m bgl has Transmissivity value of 2500m_2/day, lateral hydraulic conductivity of 31m /day, and specific yield of

CLIMATE

The climate of Yamunanagar district can be classified as subtropical monsoon, mild dry winter, hot summer and sub-humid which is mainly dry with very hot summer and cold winter except during monsoon season when moist air of oceanic origin penetrate into the district. The hot



weather season starts from mid March to last week of the June followed by the south west monsoon which lasts up to September. The transition period from September to November forms the post monsoon season. The winter season starts late in November and remains up to first week of March.

Rainfall: The normal annual rainfall of.the district is 1076 mm, and is unevenly distributed over the area. The average rainy days are 44. The south west monsoon sets in from last week of June and withdraws in the end of September, contributing about 81% of normal annual rainfall. July and August are the wettest months. Rest19% rainfall is received during non-monsoon period in the wake of western disturbances and thunderstorms. Generally rainfall in the district increases from southwest to northeast .The mean maximum temperature is 40.8₀ C(May &June)and mean minimum is 6.8₀ C (January) of the district.

Normal Annual Rainfall: 1076 mm

Normal monsoon Rainfall: 879 mm

Temperature

Mean Maximum: 40.8°C(May & June)

Mean Minimum : 6.8 °C(January)

Normal Rainy days : 44

. (*Source: District Groundwater Brochure CGWB*).

3.2 Geology of the Area

3.2.1 Regional Geology

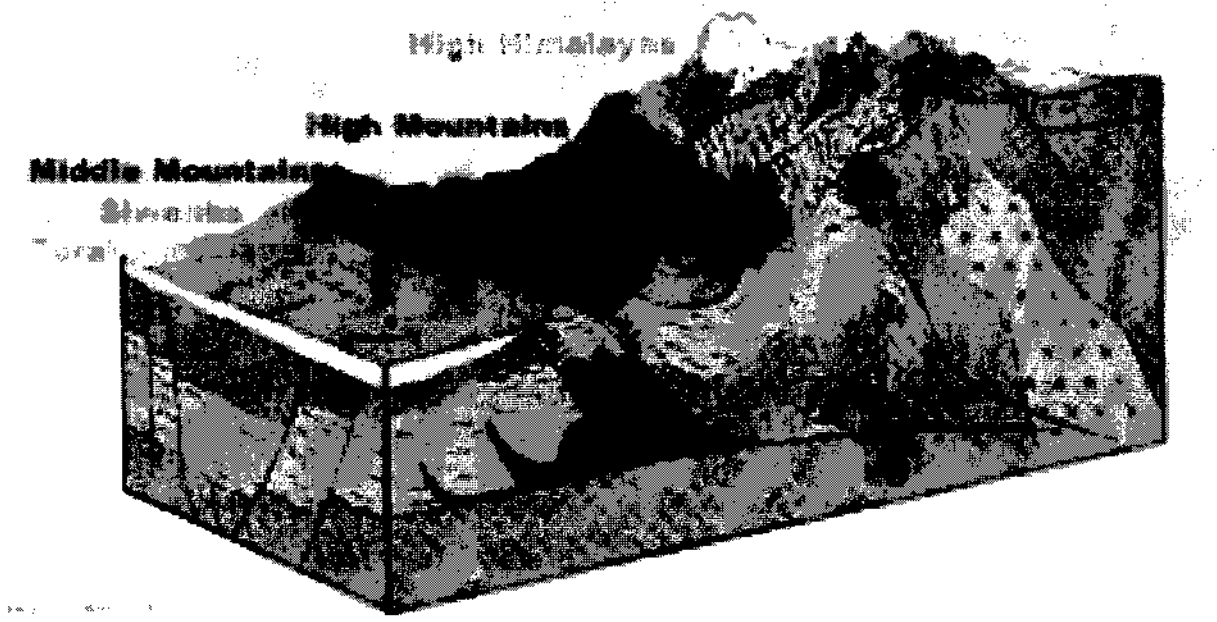
The north-eastern and central part of Haryana is predominantly characterized by sedimentary litho logy in the Sub-Himalayan zone comprising Subathus, Dagshais, Kasaulis and Siwaliks. A general Regional stratigraphic sequence in the area is given in Table.

Table: Regional stratigraphic sequence

Age	Super group	group	Formation	litho logy
Holocene			Newer alluvium and Newer Aeolian Deposits	Gravel, Sand, silt, clay, limestone, gypsum

Lower to upper Pleistocene			older alluvium and Older Aeolian Deposits	Gravel, grey sand, silt, clay, brown sand, calcrete
Lower to Middle Pleistocene	S I W A L I K	Upper Siwalik	Boulder Conglomerates formation .	Conglomerate, sandstone, silt, clay
Upper Pliocene			Pinjore Formation	Coarse grit,red sand stone and clay, conglomerate
			Tatrot Formation	Friable Sandstone and variegated clay
		Middle Siwalik	Dhokpathan Formation	Brown sandstone and orange clay
Middle Miocene			Nagri Formation	Hard grey sand stone, mudstoneand minor shale
		Lower Siwalik	Nahan Formation	Coarse grity ,clay and red sandstone often calcareous, brownish shale with lignite lenticles, greenish white Quartzite
Lower Miocene		Sirmur	Kausauli Formation	Grey and green stone,green shale and grey clay
			Dagsai Formation	Purple and green sand stone, deep red gritty,clay,white andstone with ferruginous concretions
Upper Eocene			Subathu formation	Sandstone with gritu clay. Impure fossiliferous limestone calcareous slate,greenish shale and dark brown quartzite
Pre-proterozoic			Tunda pathar	Thickly bedded ,sstromatolite limestone with carboniferous shale and quartzite

A schematic diagramme of Himalayas showing higher, middle and lower Himalayas including Shiwaliks is shown here below



3.2.2 LOCAL GEOLOGY

The litho units encountered in the river bed and surrounding areas belongs to the Shivalik super groups. The sediments are river borne and has deposited in the riverbed and the flood plains. The different formations of the area belong to Shivalik Super group and are a mixture of boulders, pebbles, sand, silt and clay. The following sequences have been observed in the area.

Soil/Alluvium

Sand

Gravel

Boulder

There is no clear demarcation between the litho units. They have been deposit in a mixed form. The Litho- units exposed in the flood plains belong to Shivalik Super- Group. The mineral Boulders, Gravel and sand have formed by weathering of rocks and then deposition on the flood plains of the rivers originated from the Shivaliks. These have been washed by rainwater during rainy season and deposited in flood plains and river beds in the form of boulders, gravels and sand of different sizes and shapes. These minerals are sorted by screening. The max depth of the minerals is not known.

Soil/ alluvium varying in thickness from 0.5 -1.50m (Av 1.0m) constitute the top horizons in the area suitable for agriculture. Yamuna River meanders through the area exposing the alluvium and soil at the banks. Sand is found in the river bed. Sand is deposited up to great depths. This bed is presently dry and water flows only during the rainy season The Sand exposed in the River bed of Yamuna and surrounding areas is the product of the deposition of the sediments brought and deposited in the flood plains of River Yamuna. These sediments are of recent geological formation. The litho-units exposed within the river and surrounding areas have formed as water borne sediments brought by flood water during rainy season every year and deposited in riverbed and flood plains. Geological map and section are enclosed as **Plate – 03)**

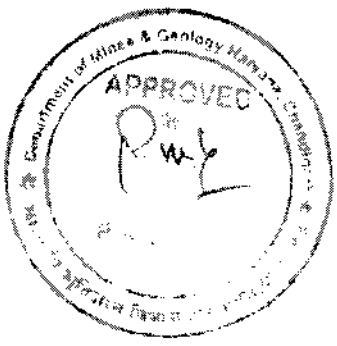
3.2.3 DESCRIPTION OF FORMATION

The description of Sand found in the lease area as minor mineral has been as under:

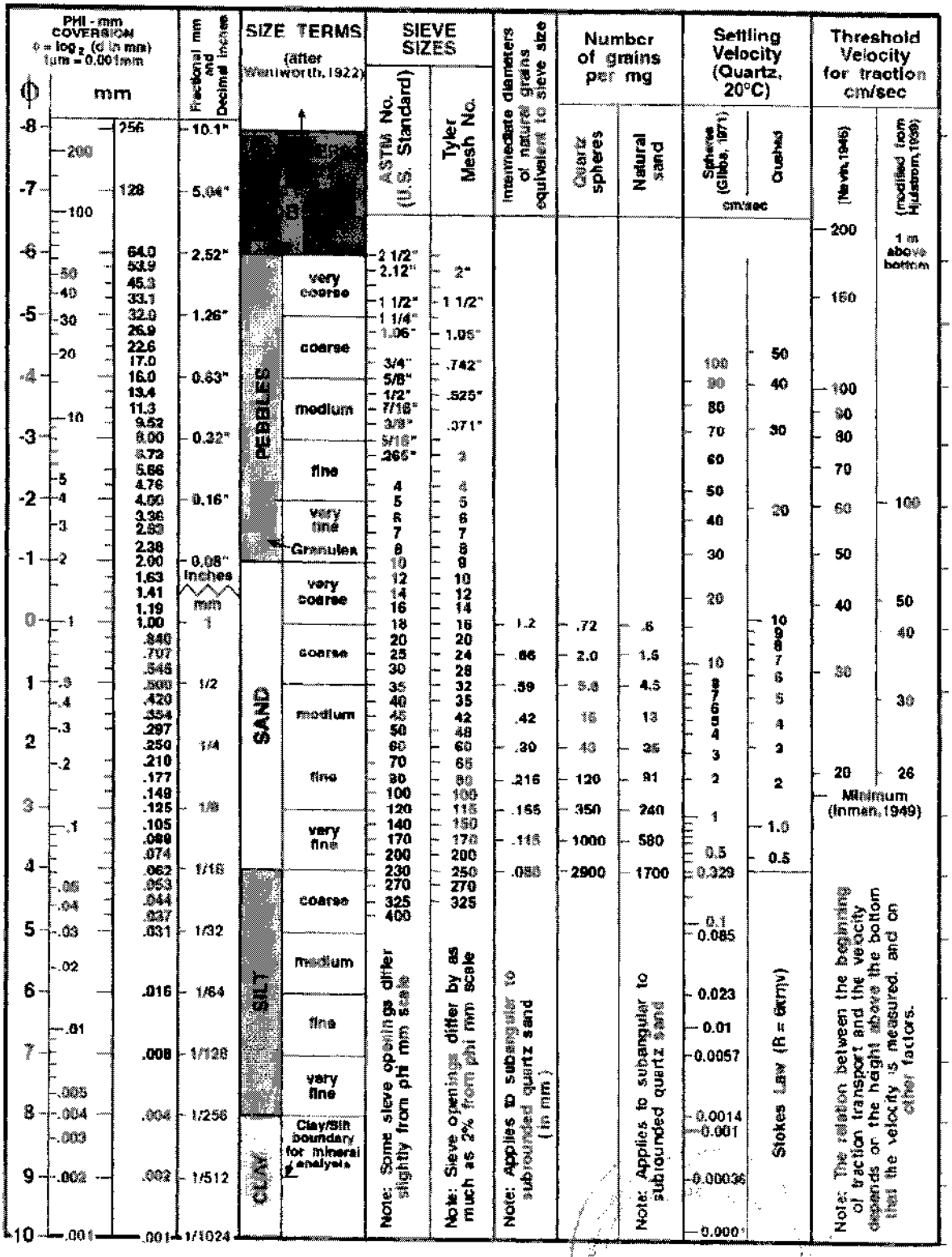
3.2.4 (Sand)

Sediments of various sizes and in mixed form are predominantly deposited in the flood plains of River Yamuna and its tributaries. There is no perfect classification between boulders, cobbles, pebbles and sand. They are deposited in a mixed state. The classification is done by grab mining and the sediments are passed through different sieves in the screening plants.

Sediments of various sizes and in mixed form are predominantly deposited in the flood plains/river bed and there is no perfect classification between sediments. These may be called as coarse sand, medium sand and fine sand. The term sand is used to denote an aggregate of rock grains greater than 1/16mm and less than 2 mm in diameter mineral.



Classification of Sediments (Wentworth -Grain Size-Chart)



3.2.5 PHYSICAL & CHEMICAL CHARACTERISTICS OF MINERAL

Technically, the size of boulders varies from 2.52 inches to up to 10.1 inches & pebbles range from 0.08 inches to 2.52 inches. Sand is merely a size category. Sand is particulate matter that's larger than silt and smaller than gravel. Different specialists set different limits for sand: Engineers call sand anything between 0.074 and 2 millimeter, or between a U.S. standard #200 sieve and a #10 sieve.

Soil scientists classify grains between 0.05 and 2 mm as sand, or between sieves #270 and #10.

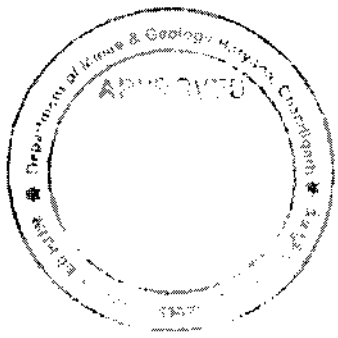
Sedimentologists put sand between 0.062 mm (1/16 mm) and 2 mm on the Wentworth scale, or 4 to −1 unit on the phi scale, or between sieves #230 and #10. In some other nations a metric definition is used instead, between 0.1 and 1 mm.

From a geological viewpoint, sand is anything small enough to be carried by the wind but big enough that it doesn't stay in the air, roughly 0.06 to 1.5 millimeters. It indicates a vigorous environment.

Composition and Shape of minerals

Most boulders, gravels and sand is made of quartz or its microcrystalline cousin chalcedony, because that common mineral is resistant to weathering. The farther from its source rock sand is, the closer it is to impure quartz. But Yamuna sands contain quartz grains, tiny bits of rock (lithics), or dark minerals like limestone and ferruginous concretions.

The size of the sediments is variable. The grains whether small or large are rounded in shape. Sand is grey, brown in color, coarse to fine grained. The present deposits are of good quality and can be used for building industries. There is no other use of this material.



3.2.6 ORIGIN & CONTROL OF MINERALISATION(ANNUAL REPLENISHMENT OF MINERAL IN RIVER BED/flood plains area vis-à-vis SEDIMENTATION)

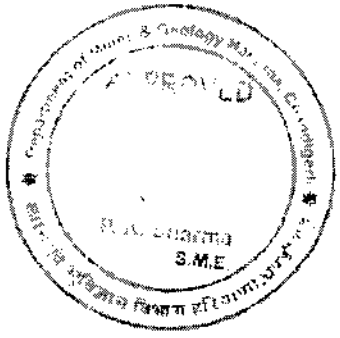
Sedimentation, in the geological sciences, is a process of deposition of a solid material from a state of suspension or solution in a fluid (usually air or water). Broadly defined it also includes deposits from glacial ice and those materials collected under the impetus of gravity alone, as in talus deposits, or accumulations of rock debris at the base of cliffs. The term is commonly used as a synonym for sedimentary petrology and sediment logy.

Sedimentation is generally considered by geologists in terms of the textures, structures, and fossil content of the deposits lay down in different geographic and geomorphic environments.

The factors which affects the "Computation of Sediment":

a) Geomorphology & Drainage Pattern : The following geomorphic units plays important role :

- Structural Plain
- Structural Hill
- Structural Ridge
- Denudation Ridge & Valley
- Plain & Plateau of Gangetic plain
- Highly Dissected pediment
- Un dissected pediment



b) Distribution of Basin Area River wise (Area in Sq. Km or Sq. Miles)

c) Drainage System/Pattern of the area (Drainage Density = ...Km/Sq. Km of Yamuna River

d) Rainfall & Climate : Year wise Rainfall data for previous 10 years of Yamuna Basin/River

e) As per Dandy & Bolton study "Sediment Yield" can be related to

i) Catchment Area and

ii) Mean Annual Run-off

Sand is an essential minor mineral used extensively across the country as a useful construction constituent and variety of other uses in sports, agriculture, glass making (a form of sand with high silica content) etc. It is common knowledge that minerals are non-renewable but this form of mineral naturally gets replenished from time to time in a given river system and is very much interrelated to the hydrological cycle in a river basin.

The Rivers originating from the Himalayas bring with them lots of aggregate materials whereas as they move downstream, only finer elements / minerals like sand are found in abundance. River Yamuna near Dakpathar barrage leaves Uttarakhand and enters Himachal Pradesh.

The YAMUNA RIVER is the biggest tributary of the river Ganga in North India. Its source in the Yamunotry glacier at an elevation of 6387 mtrs on South western sides of Banderpooch crests in the lower Himalayan ranges. The overall span of the Yamuna river is 1376 Kms (855 miles) with catchment area of 366223 square km (141,399 square mile). This encompasses 40.2 % of the whole Ganga valley, prior to joining Ganga at Triveni Sangam in Allahabad (UP).

Itinerary of Yamuna River:and its tributries

The river passes through many states such as Uttrakhand, UP, Haryana, going across to HP and then Delhi. With yearly discharge of around 10,000 cubic billion meters (cbm) and consumption of 4400 cbm (of which irrigation comprises 96%), the river represents above 70% of water provision of Delhi. Yamuna water are fairly good quality for its entire span from Yamunotri in Himalayan ranges to Wazirabad in Delhi, the length of which is around 375 Kms.

Itinerary of Drainage area of Yamuna:

The origin of Yamuna is situated in the Yamunotri glacier at an elevation of 6387 mtrs on SE sides of Banderpooch crests, which are located in the Mussoorie range of lower Himalayan range in

Uttrakashi district of Uttrakhand, to the North of Haridwar. From this place Yamuna runs to South around 200 Kms across the Shivalik mountain ranges and lower Himalayan ranges. A significant portion of its beginning of Drainage basin (with total area of 217.00 square km) is situated in HP and a major tributary sapping the upper drainage basin in the Tons, which is also biggest and most extensive tributary of the Yamuna. Other tributaries in the area are the Rishi Ganga, Giri, Hanuman Ganga, Kunta & Bata, which sap the upper drainage basin of the huge Yamuna river. Subsequently, the river moves down the terrains of Doon basin at Dak Pathar close to Dehradun, in this place water is redirected into a channel for the purpose of electricity generation. Once it goes across the sikh religious place of Ponta Sahib, the river arrives at Tajewala in the YAMUNANAGAR district of Haryana where a dam was constructed in 1873. This dam is the origin of the two major channels or water courses – Eastern Yamuna Canal and Western Yamuna Canal and both drain in UP & Haryana. The Western Yamuna Canal (WYC) traverses Karnal, Yamunanagar and Panipat prior to arriving at the Haiderpur water treatment plant, which provides a portion of municipal water provisions of Delhi. The Yamuna also forms natural boundary between the states of Uttrakhand & HP and also amid the states of UP and Haryana. Together with the Ganga to which it flows almost parallel once it meets the Indo-Gangetic plateau, the biggest Alluvial productive area in the World, it forms the Ganges-Yamuna Doab are stretched across 69,000 square Km which is 33% of the whole area.

Table of Drainage Basin area of River Yamuna (square KM/square mile) with % of Drainage Basin

1. HP 5799/2240 (1.6)
2. UP & Uttrakhand 74208/142 (21.50)
3. Rajasthan 102883/39739 (29.80%)
4. Haryana 21265/8214(6.5%)
5. Delhi 1485/574(0.4%)
6. MP 14023/5416 (40.6%)

Dandy & Bolton formula for calculation of Sediment Yield:

Dandy bolton formula is often used to check whether the sedimentation yield exceeds the replenishment rate but the whole question is whether there is adequate monitoring of the river basin, the answer is no as hydrological stations are sparsely spread. The formula uses catchment

area and mean annual runoff as key determinants to give a yield value. It does not differentiate in basin wide smaller streams and their characteristics. CWC distinguishes river basins as classified and non-classified, as per the latest hydrological data for unclassified River basins; there are 122 GDSW (Gauge, Discharge, Sediment & Water Quality) sites in 12 such basins, the number was 147 in 2005. This brings in context the whole issue of scientific mining, thereby indicating that the monitoring of sediment yield in rivers / streams within the river basins is essential to arrive at extraction rates and express and conduct environmental studies based on these basin wide characteristics which should become part of the 'Terms of Reference'.

Sediment Yield versus Drainage Area

Dandy and Bolton studied sedimentation data from about 1500 reservoirs, ponds, and sediment detention basins. In developing their formulas, they used data from about 800 of these reservoirs with drainage areas greater than or equal to 1 mi2. The smaller watersheds-those of drainage area less than 1 mi2-were excluded because of their large variability of sediments yield, reflecting the diverse effects of soils, local terrain, vegetation, land use, and agricultural practices.

For drainage areas between 1 and 30,000 mi2, Dandy and Bolton found that the annual sediment yield per unit area was inversely related to the 0.16 power of the drainage area:
In which S= sediment yield in tons per square mile per year; SR = Reference sediment yield Corresponding to a 1-mi2 drainage area, equal to 1645 tons per year; A = drainage area in square miles; and AR = reference drainage area (1 mi2)

Sediments Yield versus Mean Annual Runoff

Dandy and Bolton studied sedimentation data from 505 reservoirs having mean annual runoff data. Annual sediment yield per unit area was shown to increase sharply as mean annual runoff Q increased from 0 to 2 in. Thereafter, for mean annual runoff from 2 to 50 in. annual sediment yield per unit area decreased exponentially.

This led to the following equations.
For Q <2 in.:

For Q >2 in.:

In which QR = reference mean annual runoff QR = 2 in.

Dandy and Bolton combined Eqs. 15-10 and 15-11 into a set of equations to express sediment yield in terms of drainage area and mean annual runoff.

For Q <2 in.:

For Q >2 in.:

Sec: 15.2 Sediment Production.

For SR = 1645 tons/mi2/y, QR = 2 in., and AR = 1 mi2, Eq. 15-12 reduces to the followings:

For Q <2 in.: S = 1280 Q0.46(1.43 – 0.26 log A)

For Q >2 in.: S = 1965e-0.055Q(1.43 – 0.26 log A)

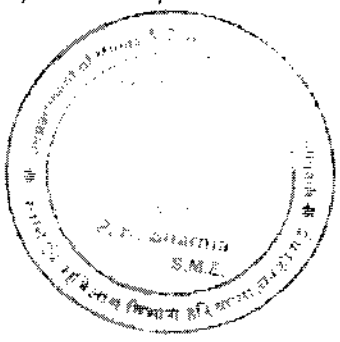
Equations 5-12 and 5-13 are based on average values of grouped data; therefore, they should be used with caution. In Certain cases, local factors such as soils, geology, topography, land use, and vegetation may have greater influence on sediment yield than either mean annual runoff or drainage area. Nevertheless, these equations provide a first approximation to be of sediment yield for watershed planning purposes.

Calculation of Sediment Yield for boulder, gravel &Sand Mine of Jathlana .

Total production proposed is 45,00,000 MT/year

- Area under consideration : 101.27 ha
- Drainage basin area of river Yamuna and is tributaries in Haryana : 8214 square miles
- Normal Annual Rainfall of Yamunanagar district (1978 to 2005) :1076mm or 42.36 inch

With above inputs, the calculation of the sediment yield by the Dandy and Bolton formula is illustrated below :



Sample Set	S.No.	Q (in inches)	A (in square mile)	S
	1	3.5	150	1400.823
	2	27.4	8214	179.4756

$$S = 1965\, e^{-0.055Q}[1.43 - 0.26 \log(A)]$$

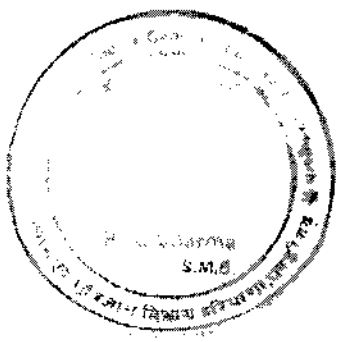
With above formula the value of S = 76.40 T/mile square/annum

Therefore the Total Sediment Yield for drainage basin of 8214 square mile will be = 8214 x 76.40= 6.27 lac T per annum.

Dandy & Boltan formula also says that actual sediments yield from individual drainage basins may vary 10-fold or even 100 fold from computed yields. Since itinerary of river Yamuna indicates that its basis comprises of sediment rocks with good average rainfall therefore there are fair chances of yield of sediments to be 50 fold of computed results hence Actual Sediment Yield will be : 627000 T x 50 fold = 3,13,50,000 T / Annum

The equations express the general relationships between sediment yield runoff and drainage area. They may provide a quick rough approximation of mean sediment yields on a regional basis for preliminary watershed planning. Because Dandy & Bolton have derived the equation form average values computed sediment yields normally would be low for highly erosive area and high for well stabilized drainage basins with high plant density. Factors which have direct bearing on sediments yield & limitations of Dandy & Bolton equation.

Sediment yield of a sediment basin has direct impact of local terrain, climate, vegetation, soils, agricultural practices & land use pattern of catchment area of the sediment basin aforesaid factors varies from basin to basin therefore, Dandy & Bolton has category stated that use of the equation to predict sediment yield for a specific location would be unwise because of the wide variability caused by local factors not considered in the equation development. Actual sediment yield form individual drainage basins may vary 10-fold or even 100-fold from computed yields.



3.2.7 Grade & Use of Sand

Most Sand is made of quartz or quartzite/its microcrystalline cousin chalcedony, because that common mineral is resistant to weathering. Sands contain quartz, feldspar grains, tiny bits of rock (lithics), or dark minerals like illminite and magnetite.

The size of the sediments is variable. The grains whether small or large are rounded in shape. Sand is yellow brown in color, coarse to fine grained. The present deposits are of good quality and can be used for building industries. There is no other use of this material.

3.3 RESERVE

3.3.1 METHOD OF ESTIMATION OF RESERVE

PROVED RESERVES

- Survey was conducted in the proposed area outside river bed as per the area allocated by DMG, Haryana, a document provided by the authorities to the contractor. The Khasra plan was provided by the applicant. There are certain conditions/restrictions:
- Following special conditions those are applicable for excavation of minor mineral(s) from river beds in order to ensure safety of river-beds, structures and the adjoining areas are considered while calculating the reserves of this area:

(i) No mining would be permissible in a river-bed up to a distance of five times of the span of a bridge on up-stream side and ten times the span of such bridge on down-stream side, subject to a minimum of 250 meters on the up-stream side and 500 meters on the down-stream side;

(ii) There shall be maintained an un-mined block of 50 meters width after every block of 1000 meters over which mining is undertaken or at such distance as may be directed by the Director or any officer authorized by him;

(iii) The maximum depth of mining in the river-bed shall not exceed three meter from the un-mined bed level at any point in time with proper bench formation;

(iv) Mining shall be restricted within the central 3/4th width of the river/ rivulet;

(v) In case of areas permitted for excavation outside river/rivulets i.e. areas adjoining to rivers/rivulets, no mining shall be permissible in an area up to a width of 500 meters from the active edges of embankments in case of river

Yamuna, 250 metres in case of Tangri, and Ghaggar river and 100 meters on either side of all other rivers/ rivulets;

(vi) Any other condition(s), as may be required by the Irrigation Department of the state from time to time for river-bed mining in consultation with the Mines & Geology, a safety margin of two meters (2m) shall be maintained above the ground water table while undertaking mining and no mining operations shall be permissible below this level unless a specific permission is obtained from the competent authority in this behalf.

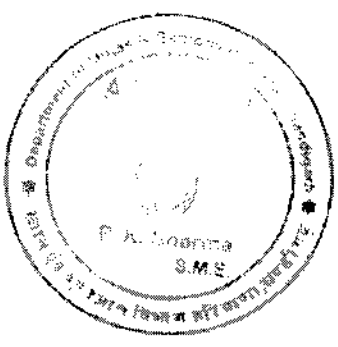
vii) The contractor shall not undertake any mining operations in the area granted on mining contract without obtaining requisite permission from the competent authority as required for undertaking mining operations under relevant laws.

ix) A barrier of 7.5 m width will be left from the mining area boundary, .

•

Basics of Mineral Reserves Calculation – River Bed Area

- Mineral Reserves falling in the river bed area has been calculated taking the maximum permissible depth of 3 m from the river bed surface RL.
- The bulk density of Sand is considered 2.0
- Volumetric method is adopted for calculating reserves of Sand.
- The mineable reserves are calculated by deducting "Blocked Geological Reserves on account of river banks, lease boundary, railway line, highways, bridges, anicuts (where ever applicable) from total proved Geological Reserves".
- It is considered that river bed Sand shall be replenished every year as evident from preceding paragraph (3.2.6) on " Annual Replenishment of Mineral in River Bed Area vis-à-vis Sedimentation"



UNFC classification – Codes of UNFC are followed for reserve calculation

- UNFC is a three digit code based system, the economic viability axis representing the first digit, the feasibility axis the second digit and the geological axis the third digit. Each digit provided.
- Codes 1, 2 and 3 in decreasing order. The highest category of resources under UNFC system has code (111) and for lowest category the code is (334).
- Code (111): This code is provided for the economically mineable part of the measured mineral resources (proved category reserves).
- Code (121): This code is provided for the economically mineable part of the indicated mineral resources (probable category reserves).
- Code (211): The part of the measured mineral resources (proved category), which as per feasibility study has not found economically mineable. The reserves blocked in 7.5 meters buffer zone and 50 meters from permanent structure.
- Code (222): The part of the indicated mineral resources (probable category), which as per feasibility study has not found economically mineable. The reserves blocked in 7.5 meters buffer zone and 50 meters from permanent structure.
- Code (480): Tonnage, Grade and mineral contents can be estimated with low level of confidence and resources are also inferred from geological.

The reserves of Sand calculated by volumetric method and are summarized here below:

Table: Geological Reserves

Sr no.	Nature of land	Lease area in ha	Total proved Geological reserves MT=Area x depth x BD (A)	Blocked area /restricted area	Blocked Geological Reserves in blocked area (B)	Total Mineable reserves A-B=C	Planned production (Per Year)
1	River bed	101.27	60,76,200 MT	25.60 ha	15,36,000 MT	45,40,200 MT	45,00,000 MT

A) GEOLOGICAL PROVED RESERVES AS PER UNFC CODE (111)

Total Reserves = 60,76,200 MT. These reserves are to replenished on every rainy season.

B) BLOCKED RESERVES AS PER UNFC CODE (211 & 222) = 15,36,000 MT

C) MINEABLE RESERVES = A-B = 45,40,200 MT

D) TARGETED PRODUCTION

45,00,000 MT per Year

E) Life of the mine

It is estimated that the entire mineral mined every year will be replenished. Therefore at the proposed rate of production the life of the mine is 10 years

4.0 DETAILS OF PRODUCTION & DISPATCHES OF FIVE YEARS

This is a new mining area allotted to the applicant. Future production programme has been planned as per the details given below:

Production Programme (Plate no.4) .

Mining Contract has been allotted for a period of 10 years only. Mining area consists of 101.27 ha area in Jathlana Block/YNR B-12 village (Khasra) out of which blocked 25.60

hectares area is under restricted zone. About 75.67 hectare area is free from restriction and the mining is proposed in this area only.

Daily production proposed = 15000 MT /day

Production program me is 600 trips/ day @ 25 ton per trip .

Working days have been taken as 300 days per annum.

Projected Production per Year = 300 x15000 = 45,00,000 Tons **(4.50 Million MT)**

Table: Five Years Proposed Production Details (MT/A)

	Production proposed		Area (ha)
Year	Trips/ day	MTPA	Needed per year
I	600	45,00,000	75.00
II	600	45,00,000	75.00
III	600	45,00,000	75.00
IV	600	45,00,000	75.00
V	600	45,00,000	75.00

5.0 PHYSICAL AND GEOLOGICAL CHARACTERISTICS OF THE DEPOSIT

Deposit is moderate to good quality Sand. It is widely used in construction, buildings, bridges and other infrastructure. It is free from clay and non sticky in nature.

6.0 DETAILS OF MINING MACHINERY DEPLOYED OR TO BE DEPLOYED AND THE DETAIL SPECIFICATIONS

This is a new mining contract. Following equipments are proposed to be deployed for the desired production.

Table: List of Machinery

S. No.	Name of machinery	Capacity	Nos.
1	EXCAVATOR	2.0 m^3	10
2	Tippers/ Trucks	25 tons	200
3	Water Tanker	4000 liters	2
4	Light vehicles /jeep	--	1
5	Maintenance Van		1

6.1 Fuel Consumption (Quantity of Diesel / Energy fuel Consumption per day)

S. No.	Machine	Details of Diesel requirements	Consumption of Diesel (in ltr.)
1.	Dumper	(Considering diesel consumption by the dumper is 3 km / ltr.) Total Diesel consumption for 200 Dumper =200 x50 = 10000 Ltr	10000
2.	EXCAVATOR	Diesel consumption 15itr / hr working of 16 hrs diesel consumption = 15 x16x10 =800 ltr	2400
3.	Water Tankers	Diesel consumption 10 ltr/Hour x6hrs x 2=120	120
6.	Light Vehicles	Diesel consumption 6 ltr/Hour x 10 hrs =60 ltr	60
7.	Maintenance Van	Diesel Consumption 10 ltr/hr x 10hrs =10 ltrs	100
		Total diesel requirements per day	12680

7.0 METHOD OF MINING

Mining is proposed up to 3.0m in the river bed.

River bed mining is for extracting Sand from Yamuna River bed. As per Haryana Minor Mineral Concession Rules, 2012 extraction is limited to 3.0 m depth only in river bed Mining area allotted is 101.27 ha in district – Yamunanagar . Mining activity will be carried out in allocated areas only, enclosed as **Annexure –I.**

Method of Working ---Simultaneous Mining & Reclamation outside of river bed

Light weight excavators/JCB will be deployed for extraction. Mineral will be removed in 3.0 m layer only forming one bench. This is as per the digging depth of the equipments and maximum permitted depth. Mineral will be loaded in trucks of 25 tons capacity. There will be no OB or waste generation as the Sand is exposed in the river bed.

Bench will advance parallel to the banks of the river. Height of bench will be 3.0 m. Width of the bench will be around 20.0 m. Workings will be restricted within the mining area/ khasra as per the description report given by Mining Department. Mining activities will be carried out in a manner so that there is no obstruction to the movement of water flow, if any, during rainy season. The bench will be in the form of slices/ strips parallel to the banks of the river. Roads in the mining area for the movement of loaded trippers/ trucks will not have slopes more than 1 in 20. However, movement of trucks after mineral loading will be towards both sides through approach roads connecting to tar roads. Every block will have its own approach roads, well connected to main highways. No processing of mineral will be done.

Total production envisaged is 15000 MT per day i.e. 600 trips@25Mt/trip). Activities will be carried out as per the production schedule given earlier. The mining quarry will be working as self sustained units with all facilities like site office, rest shelter, first aid

and drinking water etc. All these mines will be connected suitably with communication system.

7.1 Proposed year wise development for five years

Sand mining contract has been granted for a period of 10 years only. No pre-production development is required except making excess road and removing of soil in advance and stack it t a designated spot which will be used for reclamation simultaneously. .

Ultimate limit will be 3.0 m below existing bed level as indicated in the working section.

7.2 Proposed rate of production when the mine is fully developed

Work will be carried out for 300 days in year. Year wise production during the plan period will be as follows:

Table: Proposed Production

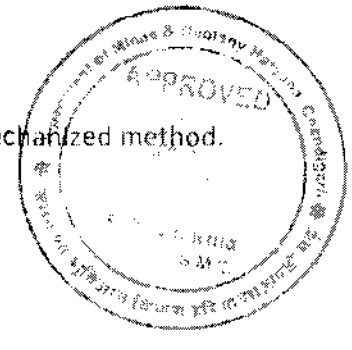
Year	Total Targeted Production MT/annum
1	45,00,000
2	45,00,000
3	45,00,000
4	45,00,000
5	45,00,000

7.3 Mineable reserves and anticipated life of the mine

The total mineable reserves are calculated 45,40,200 MT which are replenished every year.. At the proposed 45, 00,000 MT/Year productions the life of the mine is calculated 10 years.

7.4 Proposed method of mining

Mining activity will be carried out by open cast semi-mechanized method.

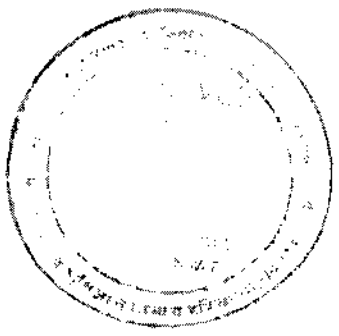


- No overburden/ waste material will be produced in river bed. No drilling/ blasting are required as the material is loose in nature.
- Light weight excavators will be used for loading of mineral in tippers.
- Proper benching of 3.0 m height will be maintained and width of the bench will be around 20 m. The benches shall be maintained in the form of slices/strips parallel to the banks of river.
- Mining activities will be carried out in a manner so that there is no obstruction to the movement of water flow, if any, during rainy season.
- Roads will be properly made and sprayed by water for suppression of dust.
- Roads in the mining area for the movement of loaded trippers/ trucks will not have slopes more than 1 in 20.
- Extraction activities will start in the blocks from the upstream side to downstream side. This will not obstruct the movement of water, if any, during monsoon period in the river course.
- In case during any period, the replenishment was found less than 3 m or depth of exaction, the mining during said period would restrict to depth which would not be more than 3 m of the original level of the river bed.

Total production envisaged is 15000 MT per day i.e. 600 trips@25Mt/trip). Activities will be carried out as per the production schedule given earlier. The mining quarry will be working as self sustained units with all facilities like site office, rest shelter, first aid and drinking water etc. All these mines will be connected suitably with communication system.

Roads will be properly made and sprayed by water for suppression of dust.

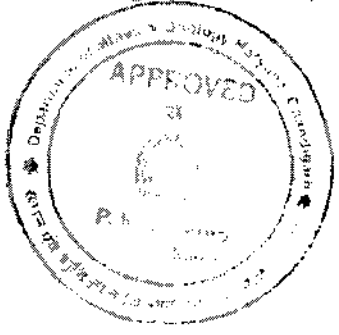
Roads in the mining area for the movement of loaded trippers/ trucks will not have slopes more than 1 in 20.



As per MMR 1961, following precautions shall be undertaken during operations of HEMM.

Shovel/ excavator: -

1. Excavators will be provided with efficient warning devices, front & rear lights and efficient brakes.
2. Excavator will be under the charge of a competent person authorized in writing by the manager designated as operator.
3. No person other than the operator or his helper if any will ride on the excavator or even enter the excavator's cabin.
4. No person will be permitted to ride in the bucket of a Shovel/ excavator.
5. No inflammable material will be stored in the excavator housing or cab.
6. Shovel/ excavator dippers will be lowered to the ground during greasing operation.
7. When a Shovel/ excavator is to be moved from one point to another its boom shall be kept in strict alignment with direction of travel while the bucket/ dipper shall be held m above the ground.
8. No Shovel/ excavator will be operated in the position where any part of the machines, suspended loads or lines are brought closer than 3 m to the exposed high voltage line.
9. Every movement of a Shovel/ excavator shall be preceded by warning signals.
10. When not in use, the Shovel/ excavator will be moved to and stood on stable ground, the bucket shall be kept resting on stable ground and will never be left hanging.
11. The Shovel/ excavator will be so spaced that there will be no danger of accident from flying & falling objects.
12. Safety appliances, booms will be examined thoroughly once in a year.



13. Emergency switches, safety limit switches will be examined and tested once in four months.

14. All brakes will be tested for their operation worthiness once in a week.

15. The following signboards will be carried in and around the machine: -

(i) "Warning— Do Not Enter The Working Range Of The Machine".

(ii) "Lubricating Prohibited While the Machine in Running Condition".

Duties of Shovel/ excavator operator: -

1. At the commencement of every shift the operator will personally inspect and test the machine, paying special attention to the following details: -

(i) The brakes and every warning device are in working order.

(ii) Lights are in working order.

(iii) The operator will neither take out the machine for work nor will he work the machine unless he is satisfied that it is mechanically shown and in efficient working order.

(iv) The operator will maintained a record of every inspection made in a bond paged book, kept for the purpose and shall sign every entry made there in.

(v) The operator will keep the cab window clean so as to ensure clear vision at all times.

(vi) The operator will not operate the machine when persons are in such proximity as to be endangered.

(vii) Before leaving the machine, the operator will lower the bucket to the ground.

(viii) The operator will not leave his machine during the shift. Whenever, he finishes his work, he will hand over the machine to his relief or lock the excavators cab.

(ix) The operator will not allow any unauthorized person to ride on the machine.

Dumper: -

1. Every dumper will be provided with efficient brakes.
2. Efficient audible warning devices will be provided with the dumpers.
3. The dumper, if required to work after daylight hours, efficient headlights and taillights will be used.
4. Every dumper will be under the charge of a competent person, authorized in writing by the manager.
5. No person, other than the driver or his helper, if any, will ride on a dumper.
6. No person will be permitted to ride in the running board of a dumper.
7. The loaded dumpers will not be reversed on gradients.
8. Sufficient stop blocks will be provided at every tipping point and these will be used on every occasion when material is dumped.
9. Standard traffic rules shall be adopted and followed during movement of all dumpers. They shall be prominently displayed at relevant places in the opencast workings and haulm roads.
10. When not in use, every dumper will be moved to and stood on proper parking places.
11. No person will be permitted to work on a chassis of a dumper, with the body in rest position, until after the dumper body has been securely blocked in position.
12. The mechanical wised mechanism will not be depended upon to whole the body of a dumper in a rest position.
13. No unauthorized person will be permitted to enter or remain in any turning points.
14. While inflating tyres, suitable protective cages shall be used.

15. Tyres will never be inflated by sitting either in the front or on the top of the same.

16. While the vehicle is being loaded / unloaded on gradient, the same will be secured stationary by the parking brake, and other means suitably designed stopper block, which could be placed below the tyres.

17. At least once in every two weeks the brakes of every dumper will be tested as below: -

(a) Service Brake test: - The brake will be tested on a specified gradient and speed when the vehicle is fully loaded. The vehicle should stop within the specified distance when the brake is applied.

(b) Parking brake test: - The parking brake shall be capable to hold the vehicle when it is fully loaded and placed at the maximum gradient. Maximum gradient of the roadway which is permitted only for a period of at least 10 minutes.

(c) A record of such test will be maintained in a bound paged book and will be signed by the competent person carrying out the test. These records will be countered signed by the engineer and manager.

(d) All vehicles shall be tested and examined once at least in every 6 months.

(e) A notice shall be displayed outside every vehicle that **"No Unauthorized Travelling Allowed"**.

Duties of dumper operators: -

1. At the commencement of every shift, the operator shall personally inspect and test the machine, paying special attention to the following details: -

(i) Tyre pressure, brakes, horn and the Lights are in working order.

(ii) The driver will neither take out the machine for work nor will he work the machine unless he is satisfied that it is mechanically shown and in efficient working order.

(iii) The driver will maintained a record of every inspection made in a bound paged book, kept for the purpose and shall sign every entry made there in.

(iv) The driver will keep the cab window clean so to ensure clear vision at all times.

(v) Driver will ensure that the gear is in neutral position before stopping the engine. He will park the vehicle: -

(a) In reverse gear, on level roads and down gradients.

(b) In low gear, on up gradients.

(vi) The driver will negotiate downhill gradients in low gear, so that minimum of braking is required.

(vii) The driver will not drive too fast, avoid distractions and drive defensively.

(viii) Before crossing a road / railway line he will reduce his speed looking both directions along the road or railway line and will proceed across the road or line only if it is safe to do so.

(ix) The driver will not operate the dumper in reverse unless he has a clear view of the area behind the vehicle.

(x) The driver will see that : -

(a) The vehicle is not overloaded.

(b) The material is not loaded in a dumper so as to project horizontally beyond the sides of its body.

(xi) The driver will not allow any unauthorized person to ride on the vehicle.

(xii) When there is a poor visibility, the speed of a vehicle will be restricted in a manner that the braking distance is maintained shorter the distance of visibility.

(xiii) The driver will not leave his machine during the shift. When he finishes his work, he will hand over the machine to his reliever or lock the excavators cab.

7.5 Conceptual Mining Plan

(i) **River Bed**: Mine area will be worked in blocks for ease of operation. However, as the digging depth will be restricted to 3.0 m only in river bed and material will still be available below. This will be further replenished during rainy season. Blocks will be worked systematically as the width is limited while length is much more.

(ii) Sequence of working has been shown on **Plate no –4.** As the mining contract period is only 10 years, some of the area will be left un-worked at the end of contract period.

(iii) Final Slope Angle To Be Adopted

Thickness of the bench is limited to 3.0 m only and width will be more than the height of the bench.. Bank side natural slope will not be disturbed. This will prevent collapse of bank and erosion. During plan period workings will be carried out in the designated khasras only & workings will ensure safety, remove congestion of vehicles and will have better control and management.

(iv) Ultimate Capacity Of Dumps

There will be no burden removal / generation during the plan period. Therefore no site is designated for dumps.

a) Land use Pattern of Mining Area at Various Stages

Land use pattern will be as follows:

Table: PRESENT LAND USE PLANING

Sr.No.	Particulars	Present Land Use (ha)
1	Restricted Safety Zone/7.5m mining area boundry.	25.60
2	Infrastructure (Office,temp. Shelters etc.	0.00

3	Area available for mining	75.67
	Total	101.27

Table: LAND USE PLANING AT THE END OF lease period

Sr.No.	Particulars	AT THE END OF 5th YEAR (ha)
1	Safety Zone7.5m mining area boundry, /restricted area	25.60
2	Infrastructure (Office,temp. Shelters etc.	0.020*
3	Reclaimed area	75.67
6	Unworked	0.0
7	Plantation*	8.00*
	Total	101.27

*Plantation in 8.0 ha land will be done under social forestry on restricted area/ lease boundary and land available from Panchayat by the end of mine life

* Plantation & infrastructure In restricted area only

7.7 (i) Mine Drainage

The River Yamuna flows from N to S which originates from the Himalayas provides the major drainage in the mining area. The general slope of the land surface is From E-W and elevation of the mining area varies from 261.90 mRL in the north end side of the mining area to 261.00 mRL in south end side of the mining area.

There is flow of water in the river bed in a narrow area in post monsoon period. Area is having 1067 mm rainfall in a year. During rainy season, catchment water flows in the river. During dry period the Sand is excavated which gets replenished during rainy period. No mining activities will be carried out during rainy season when there is water flowing in the working area. There will be no intersection of water table as working will be carried out upto 3.0 m depth only from surface of river bed while the water level is 5 -10 m below the surface of river bed.

- **MINE DRAINAGE**
- Drainage Around And Within Mine:

The mining area will become a depression, which warrants accumulation of water during rainy season. The pit will become a depression and will help in faster recharge of water in the aquifer

Drainage Around And Within Mine:

The mining area will become a depression, which warrants accumulation of water during rainy season. The pit will become a depression and will help in faster recharge of water in the aquifer

- **DEWATERING:**

Since the depth of mining proposed is only 3.0 meters in the river bed, the same being above the water table of the area, there will be no chance of encountering the ground water table during the mining operations. No dewatering of the ground water is proposed.

7.8 Water Requirement

The requirement of water for the project will be as under

Sr.no	Activity	Requirment in KLD	Source
1	Dust suppression	25.0	Hired Tankers
2	Drinking	4.0	Hired Tankers
3	Green belt	5.00	Hired Tankers
	Total	34.00	

7.9 SITE SERVICE: -

Manager's Office:

One competent Manager and statutory officials shall be deployed as per the Mines Act, 1952 and as allowed by DGMS, will be required to supervise the mining operations. An office for Manager(5 x 3 meters) shall be provided. An additional room for other supervisory staff is also proposed at each mine.

Canteen -cum-rest shelter:

In order to provide the rest shelter for the workers working in the mine and also to provide tea etc. the arrangement shall be made to install a rest shelter-cum-canteen at each quarry and shall be utilized by the workers. The rest shelter will be for having rest during the lunch hours by the workers/ labor. The size of rest shelter shall be about 10 x 3 meter to accommodate the workers.

First Aid Room:

To provide the first aid for any sort of injuries encountered during the mining operation, one small first aid room shall be provided at each sub block. First aid kit and sufficient stock of material/medicines needed for first aid shall be provided as per requirement. As

the Mining Engineer/Manager and Mining Mates are qualified first aides, they can provide first aid to the labor on the spot.

Crèche:

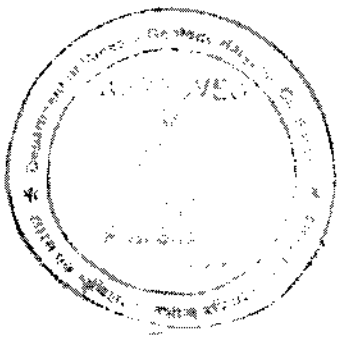
No woman employment is proposed in mine operation. However, in case of women workers are employed for other ancillary works like minor road repair, plantation etc, arrangement for a small crèche shall be made as per the requirement.

Electricity Supply:

Electric connection shall be taken for office and security purpose from the near bye sub-station of Haryana Electricity Board.

Water Supply:

The water supply for drinking purpose proposed will be made available by hired tanker.

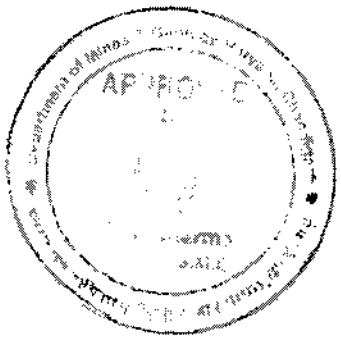


8.0 YEAR WISE ANNUAL PROGRAMME OF MINING FOR NEXT 5 YEARS

Sand mineral is targeted for 15000 tons per day i.e. 4.50 million tons per annum (maximum). Production programme is given below:

Table: Production Programme

Year	Targeted Production (In MMTA)	Overburden handling M^3 Per year
1	*4.50*	*Nil*
2	*4.50*	*Nil*
3	*4.50*	*Nil*
4	*4.50*	*Nil*
5	*4.50*	*Nil*

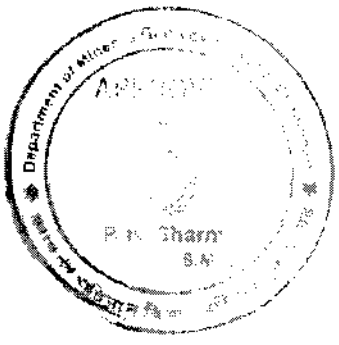


9.0 DETAILS OF EMPLOYMENT

Total estimate Man power would be about 238 persons as per the details given below and statutory officials shall be deployed as per the Mines Act, 1952 and as allowed by DGMS.

Table: Employment Details

S. No.	Category	Numbers
1	Manager 1st class	1
2	Assistant Manager	2
3	Skilled personnel	10
4	Semi-skilled personnel	200
5	Unskilled	25
Total		**238**



ENVIRONMENT MANAGEMENT PLAN

10.0 MEASURES TAKEN AND TO BE TAKEN FOR LAND RESTORATION, RECLAMATION AND PLANTATION IN/ OR NEARBY MININGAREA

- Envisaged mining operation will be carried out in the River bed only. There will be no mining activities when there is flow of water in the working zones. During rainy season, the activities will be stopped, if there is flow in the mine.
- Besides resource extraction, following activities will be kept in view:
  a) Protection and restoration of ecological system
  b) Prevent damages to the soil erosion in the nearby areas by making soil bund on the lease boundary
  c) Protect riverine configuration such as bank erosion, change of water course gradient, flow regime etc.
  d) Prevent contamination of ground water

Safeguard Measures

While carrying out mining activity following measures will be taken:

- Mining activities will be carried out only in dry bed. No in stream mining will be practiced.
- Identification of river stretches for mining will be completed.
- There will be no mining near the banks and same would be restricted with central $3/4^{th}$ of the river bed. This is to protect the bank erosion and river migration.
- Mineral Sand from river will be restricted to a maximum depth of 3.0 m from the existing bed level. This is for safety and sustainability.
- As the mining area is quite large and long in length, systematic extraction will be carried out to prevent seasonal scouring and enhanced erosion.
- Extraction will be carried out in a manner that there is no obstruction to flow of water, if any, during rainy season.

Mining on the concave side of the river channel would be avoided to prevent bank erosion. Similarly meandering segment of river will be selected to prevent natural eroding banks and to promote mining on natural building (aggrading) meanders component

Reclamation of Mined out Area (plate no. 5)

There is no generation of OB/ waste material in case of river bed mining. No backfilling has been proposed in the excavated zone in river bed. River bed will be replenished by sediments during rainy season.

Greenbelt

In order to restore the environment and ecological balance in the area affected by mining, a forestation is considered to be an effective measure. Afforestation is a major thrust area in pollution control of mining. Afforestation is suitable for detecting, recognizing and reducing air pollution effects. Tree functions as sinks of air pollutants, besides their bio-aesthetical values, owing to its large surface area. The green belt supplements Oxygen to the atmosphere and combat air pollution effectively and aesthetic beauty and landscape of the area improves. It also checks soil erosion and make eco-system and climate more conducive.

Following factors will be considered while selecting species for plantation:-

i) Fast growing plant species shall be preferred.
ii) The plant will be of deep rooting system.
iii) The plant will be perennially green to improve aesthetic beauty of the area.
iv) The plant species will be adoptable to the local climatic conditions.
v) Native plant species will be planted.

Forestation programme shall be carried out basically, along the mine boundaries and roads as permitted by land owners. The mining area is devoid of any vegetation, will not cause any harm to riparian vegetation cover. It is proposed to have plantation on both sides of the roads as greenbelt to provide cover against dust dissemination. Plantation will also be carried out as social forestry programme in villages, school and the areas allocated by the Panchayat/ State authorities.

Native plants like Neem, shisham, , Mango and other local species will be planted. A suitable combination of trees that can grow fast and also have good leaf cover shall be adopted to develop the greenbelt. It is proposed to plant 3,000 no's of native species

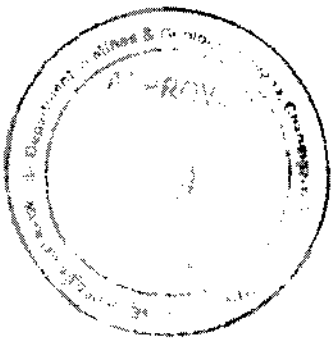
along with some fruit bearing and medicinal trees during the plan period.

Table: Greenbelt Programme

Year	Saplings to be planted	Survival 80 %	Species	Place of Plantation
I	2000	1600	Neem, , Mango, Shisham, Sirish, Babool, Gulmohar	Along the roads, In schools and public building and other social forestry programme.
II	2000	1600		
III	2000	1600		
IV	2000	1600		
V	2000	1600		
Total	**10000**	8000		

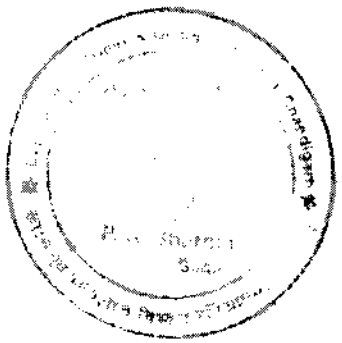
11.0 MEASURES TAKEN AND TO BE TAKEN FOR PROTECTION OF ENVIRONMENT IN AND AROUND MINING AREA

- Mining activities will be confined to 3.0 m depth .
- All link roads from the mining area to the tar road will be properly sprayed with water for dust suppression.
- Greenbelt and plantation on road side will help in dust suppression and will also reduce noise level.
- Plantation will improve ecology and aesthetic beauty of the area
- Measures will be taken to prevent the workings from extending in safety zones, cutting the banks and exceeding 3.0 m depth limit from the river bed surface.



12.0 MEASURES TAKEN AND TO BE TAKEN FOR DUMPING OVERBURDEN, STACKING OF TOP SOIL AND UTILIZATION OF TOP SOIL

There is no top soil in the river bed mining. If any soil is required to be removed the same will be used to strengthen the river banks.



13.0 MEASURES TAKEN AND TO BE TAKEN FOR THE CONTROL OF WATER, NOISE AND AIR POLLUTION

Air Pollution:

Emission of gases and dust takes place due to movement of vehicles. Spraying of water and plantation along the road side prevents the spread of dust. Plantation also acts as barrier for restricting pollution. Impact on air environment has been assessed taking in to consideration the proposed production and increase emissions. The sources of air pollution are given below:

- Operation of mining machinery/ loading operations
- Transportation of mineral
- Wind erosion from barren area and river bed
- Emission of gases and dust due to movement of vehicles

MEASURES FOR DUST SUPPRESSION & CONTROL OF AIR POLLUTION:

Control of Air Pollution Due To Dust, Exhaust Emissions or Fumes During Mining or Processing Operations For Minor Mineral & Related Activities and Containing the Same Within Permissible Limits Specified Under : -

1. Plantation road side as it will prevent the spreading of dust.
2. Water spraying will be done twice in a day over the haul road & roads leading to adjoining state roads.
3. Dust respirators will be provided to the operators of the heavy earth moving machineries.
4. Preventive maintenance shall be carried out of equipment.
5. At every work place where, the air borne dust generated, to be sampled and the concentration of the respirable dust will be determined regularly. If any measurement at any workplace and at source, the concentration in excess of 50% or 75% of the available concentration of permissible limit then

measurements shall be carried on, at intervals not exceeding 3 months or 1 month respectively.

6. Silencers will be fitted to the dumpers.

- The following table indicates the concentration of Ambient Air as per the CPCB guidelines:

National Ambient Air Quality Standards

S. No.	Pollutants	Time weighted Average	Concentration of Ambient Air	
			Industrial, Residential, Rural and Other Areas	Ecologically Sensitive Area (notified by central Government)
1.	2.	3.	4.	5.
1	Sulphur Dioxide (SO^2), µg/m^3	Annual*	50	20
		24 hours**	80	80
2	Nitrogen Dioxide (NO_x), µg/m^3	Annual*	40	30
		24 hours**	80	80
3	Particulate Matter (Size less than 10 im) or PM_{10}, µg/m^3	Annual*	60	60
		24 hours**	100	100
4	Particulate Matter (Size less than 2.5 im) or $PM_{2.5}$, µg/m^3	Annual*	40	40
		24 hours**	60	60
5	Ozone (O_3), µg/m^3	8 hours**	100	100
		1 hours**	180	180
6	Lead (Pb), µg/m^3	Annual*	0.50	0.50
		24 hours**	1.0	1.0
7	Carbon Monoxide (CO), mg/ m^3	8 hours**	02	02
		1 hours**	04	04
8	Ammonia (NH_3), µg/m^3	Annual*	100	100
		24 hours**	400	400
9	Benzene (C_6H_6), µg/m^3	Annual*	05	05
10	Benzo(O) Pyerene Particulate Phae only ng/ m^3	Annual*	01	01
11	Arsenic (As), ng/ m^3	Annual*	06	06
12	Nickel (Ni), ng/ m^3	Annual*	20	20

* Annual arithmetic mean of minimum 104 measurements in a year at a particular site taken twice a week 24 hourly at uniform intervals.

** 24 hourly or 8 hourly or 1 hourly monitored values, as applicable, shall be compiled with 98% of the time in a year. 2% of the time, they may exceed the limits but not on to two consecutive days of monitoring.

(Source: CPCB notification Dated 18th November 2009)

Air pollutants released during production can be checked by:

- Dust suppression system/ water spraying would be adopted at mine working and loading points
- Excavation operations to be suspended during very strong wind conditions
- Afforestation will be carried out for control of dust
- Plantation with wide canopy trees along approach road will help in dust suppression
- Persons to be provided with dust mask and other personal protective equipments, particularly during summer months and dust storm periods

Transportation

- Regular water spraying on haulage roads during mineral transportation by water sprinklers,
- Avoid over loading of tippers & consequent spillage on the roads,
- Mineral carrying trucks will be effectively covered by tarpaulin to avoid escape of fines to atmosphere,
- Air quality shall be regularly monitored both in the core zone and the buffer zone.

Controlling of NOx level

The source of NOx is due to vehicular emission. This can be controlled by proper maintenance and servicing of vehicles. Only P.U.C. certificated vehicles will be permitted

Noise Pollution

There is no drilling and blasting for mineral extraction. Noise pollution due to transportation will not cause any problem to the inhabitants of this area because there is no human settlement in close proximity to the link roads in mining area.Effective

steps will be taken to keep the noise level well below the DGMS prescribed limit of 85 dBA.

Noise control is achieved by the following:

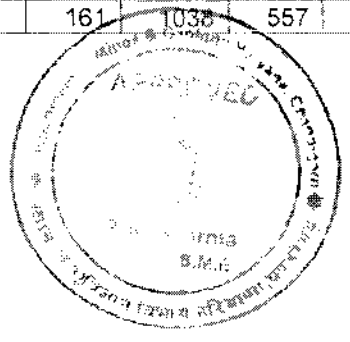
- Proper care and maintenance of the equipments will be carried out.
- Personal protective equipments will be provided to the workers.

14.0 DEMOGRAPHIC DETAILS OF THE STUDY AREA

Total number of villages in which mining area falls is 1. Main occupation is agriculture. The details of these and other nearby village and their population are given below:-

Table: Demographic Details

Name of village	THH	Tot Pop	Tot Male	Tot female
Madho Bas (8)	106	675	385	290
Rajheri (15)	230	1434	766	668
Fatehgarh (14)	119	775	413	362
Thaska Khadar (18)	196	1206	634	572
Kandrauli (19)	195	1268	681	587
Mandhar (26)	173	1061	569	492
Sandhali (25)	235	1564	829	735
Sandhala (24)	210	1357	725	632
Gumthala Rao (21)	678	4333	2365	1968
Rao (20)	43	289	160	129
Nagli (23)	11	74	52	22
Majri Dayalgarh (29)	23	169	91	78
Nakum (33)	6	30	16	14
Karhera (30)	265	1701	904	797
Lal Chhapar (28)	138	898	460	438
Jathlana (4)	1054	6127	3245	2882
Dhakwala (34)	3	12	12	0
Pobari (35)	54	300	162	138
Unheri (38)	318	2136	1120	1016
Marrupur (39)	97	612	322	290
Khajuri (159)	408	2603	1382	1221
Bahadurpur (162)	280	1656	904	752
Jaipur (163)	161	1038	557	481



15.0 DETAILS OF HEALTH CHECKUP AND INSURANCE OF ALL THE EMPLOYED PERSONS (FOR EXISTING MINING AREA)

All workers will be subjected to medical examination as per Mines Rule 1955 both at times of appointment and at least once in five years. Medical camps will be organized for this activity. Insurance of all employees as per the rules will be carried out.

15.1 Corporate Social Responsibility

As a corporate responsibility following measures along with budget provision is proposed for improving the conditions of persons in and around the project area:

The Yamuna agar district of Haryana State is relatively less developed in respect of employment and facilities. Thus, it can be seen that the proposed project offers good potential for the local people for employment directly and indirectly. The Project Affected Persons, if any, of the lease area will be provided with compensation or job or indirect employment such as business, contract works etc. With the starting of mining operation, employment/business opportunity will increase and welfare amenities such as free medical facilities, conveyance, school, free education, drinking water supply etc will be available for the area.

The details of benefits to the people in the adjoining villages are discussed here under:

a) Employment

From the study of socio economic environment at the study area it is quite evident that the area is not quite developed as far as job opportunities and living standard of the population is concerned. Apart from cultivation, agriculture, etc mining, industries and ancillary activities play an important source of livelihood in this as well as adjoining districts.

With the start of mining operations, various employment opportunities will be generated. Several persons will be benefited with mining works, employment through contractor, running of jeep and buses, canteens, different kind of shops and transport related business avenues.

The Project Affected Persons, if any, will be provided with either compensation or direct employment or indirect employment. They would be mostly recruited in unskilled, semi skilled categories etc. This will improve the economic condition of the local people. The employment of local people in primary and secondary sectors of project shall upgrade the prosperity of the region.

(b) Educational facilities

Industrial on-job training will be provided to the interested local people and the trained people will be absorbed in jobs as per the requirement of the project. Proponent will also provide full cooperation and monitory assistance for adult education programme. Other activities proposed are :

1. Targeted programmes for primary education for specially girl child
2. Augmentation of infrastructure and equipments, furniture, blackboard, toilets etc in schools
3. Scholarships to meritorious students
4. Adult education & awareness about saving & investment plans.
5. Partnerships in state sponsored education programmes
6. School wall boundary maintenance
7. Existing govt. school strengthening by boundary wall construction, construction of toilets, roof repair, drinking water taps, etc.

Capacity building activities such as following will be undertaken:

1. Scholarship for ITI training outside for 10 persons
2. Sponsorship of land losers / wards for full term courses
3. Short term courses for skill up gradation
4. Vocational training (dairy, poultry, bee keeping, sericulture)
5. Specific Programmes for Ladies (stitching, embroidery, tailoring etc)

(c) Medical facilities

Project shall provide aid to improve the existing medical facilities in the villages and also improve awareness and provide sufficient training in hygiene, sanitation and proper diet. Some of the activities that can be carried out are as follows:

1. Mobile Clinic with testing and diagnostic facilities
2. Health Camps for Family Planning, HIV/AIDS and other communicable diseases.
3. Addressing local health related issues through audio visuals and group meetings

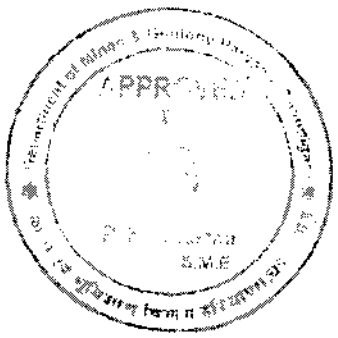
4. Subsidized treatment in hospital with which tie-up will be there
5. Specific Programmes for hygiene and sanitation
6. Helping aids to each category of physically challenged as per requirement
7. Eye camps to address the issue of cataracts specially

(d) Infrastructure facilities

Infrastructure facilities like road, Post & Telegraph, Telephone, Banks etc are basics for each and every area. These facilities are already well developed in the surrounding areas. The lessee will take various steps for upliftment of the basic amenities of the area by providing drinking water, communication facilities, etc. Construction of roads, drainage, community halls, school buildings, health centers, street lighting, equipments to educational institutions, public utilities, sanitation facilities, etc in nearby area will be undertaken.

As a corporate responsibility following measures along with budget provision is proposed for improving the conditions of persons in and around the project area:

Sr No	Description	1st Year	2nd Year	3rd Year	4th Year	5th Year
1	Health check up camps	3.0	3.0	3.0	3.0	3.0
2	Insurance cover of workers	3.0	3.0	3.0	3.0	3.0
3	Assistance to local schools, scholarship to students	5.0	5.0	5.0	5.0	6.0
4	Sanitations and drinking water facilitites	4.0	4.0	4.0	4.0	5.0
5	Vocational training to persons for income generation	2.0	2.0	2.0	2.0	3.0
6	Assistance to self help groups	5.0	5.0	5.0	5.0	5.0
Total		**22.0**	**22.0**	**22.0**	**22.0**	**25.0**



15.2 Fund Provision for Environmental Management

It is proposed to create an Environment Management Fund. The contractor shall deposit/pay an amount equal to 10% of the due contract money along with installments towards the **'Mines and Minerals Development, Restoration and Rehabilitation fund.**

15.3 Fund Provision for EMP Measures: following provisions are proposed to be taken for improving, control and monitoring of environment protection measures

Sr. No.	Particulars	Amount (in lacs)
1	Pollution monitoring – Air, Water, Noise	3.0
2	Pollution monitoring – Water sprinkling	5.0
3	Wire fencing at plantation sites	1.25
4	Plantation including maintenance	1.60
5	Rainwater harvesting	5.0
6	Haul road and other roads repair and maintenance	5.0
7	Pre-monsoon and post monsoon survey for sedimentation in the river bed	2.0
	Total	22.85

PART –II

PROGRESSIVE MINE CLOSURE PLAN

1.0 Introduction

Name & address of the Mining Contractor

M/s P.S.Buildtech,34-Vishal Nagar, Yamuna Nagar

(B) LOCATION OF THE MINING AREA

Mining Contract of Sand (Minor Mineral) over an area of 101.27 ha is located in District – Yamunanagar ; Village-Jathlana Block/YNR B-12 unit.

(C) EXTENT OF THE MINING AREA

101.27 ha in Jathlana village Block/YNR B-12 as explained at 2.0 in the main mining plan

(D) PRESENT LAND USE PATTERN and At the end of lease period

Table: PRESENT LAND USE PLANING

Sl. No.	Type of Land Use	Total Value (in Hectares)
1	Quarry Area	0.0
2	Infrastructure (road)	0.00
3	River bed	101.27
4	Plantation	0.00
5	Habitation	0.00
6	Soil dump	0.00
7	OB dump	0.00
	Total	101.27

	Restricted area	**25.60**
	Available area for mining	**75.67**
	Total	**101.27**

Table: LAND USE PLANING AT THE END OF lease period

Sr.No.	Particulars	AT THE END OF 5th YEAR (ha)
1	Safety Zone mining area boundary, restricted area	25.60
2	Infrastructure (Office, temp. Shelters etc.	0.20*
3	Reclaimed area	75.67
6	Unworked	0.00
7	Plantation*	8.00*
	Total	101.27

*Plantation in 8.0 ha land will be done under social forestry on land available from Panchayat by the end of mine life

* Plantation & infrastructure In restricted area only

(E) METHOD OF MINING:

Mining activity will be carried out by open cast semi-mechanized method.

Light weight excavators/JCB will be deployed for extraction. Mineral will be removed in 3.0 m layer only forming one bench. This is as per the digging depth of the equipments and maximum permitted depth. Mineral will be loaded in trucks of 25 tons capacity. There will be no OB or waste generation as the Sand is exposed in the river bed.

Bench will advance parallel to the banks of the river. Height of bench will be 3.0 m. Width of the bench will be around 20.0 m. Workings will be restricted within the mining area/ khasra as per the description report given by Mining Department. Mining activities will be carried out in a manner so that there is no obstruction to the movement of water flow, if any, during rainy season. The bench will be in the form of slices/ strips parallel to the banks of the river. Roads in the mining area for the movement of loaded trippers/ trucks will not have slopes more than 1 in 20. However, movement of trucks after mineral loading will be towards both sides through approach roads connecting to tar roads. Every block will have its own approach roads, well connected to main highways. No processing of mineral will be done.

Total production envisaged is 15000 MT per day i.e. 600 trips @25Mt/trip). Activities will be carried out as per the production schedule given earlier. The mining quarry will be working as self sustained units with all facilities like site office, rest shelter, first aid and drinking water etc. All these mines will be connected suitably with communication system.

Roads will be properly made and sprayed by water for suppression of dust.

Roads in the mining area for the movement of loaded trippers/ trucks will not have slopes more than 1 in 20.

(F) MINERAL PROCESSING OPERATION:

No mineral processing is envisaged for Sand (minor mineral) produced during the mining activity.

1.1 Reasons for closure:

The progressive mine closure plan has been prepared in compliance of Haryana Minor Mineral Concession Rules 2012. No immediate closure is planned as sufficient reserves are available to carry on the activities. There is market potential in domestic demands.

1.2 Statutory Obligations:

The mining contractor is bound to submit the Progressive mine closure plan either with Mining plan or Scheme of Mining.

Mining contractor is bound to follow the terms and conditions as will be stipulated in the mining contract.

In addition to it the rules pertaining to the Protection of Environment i.e Environment Act. Environment Rules and other associated rules for the protection of environment will have to be followed.

During the course of mining the rules stipulated in Mines Act, Mines rules Metalliferous Mines Regulation 1961 and HMMCR, 2012 will be followed.

All other rules pertaining to the mining existing at that time will be followed during the course of mining activities.

1.3 Closure plan preparations

Name, address and registration number of the recognized persons who prepared the progressive closure plan and name and address of the executing agency who is involved in the preparation of progressive mine closure plan.

S.N.S Sharma

Regd. No RQP/DDN/0135/2001/A **(Annexure-III)**

Lessee will himself implement the closure plan; no outside agency will be involved.

2.0 MINE DESCRIPTION

2.1 General Geology and Local Geology

2.1.1 Regional Geology

The north-eastern part of Haryana is predominantly characterized by sedimentary lithology in the Sub-Himalayan zone comprising Subathus, Dagshais, Kasaulis and Siwaliks. A general Regional stratigraphic sequence in the area is given in Table. Tertiary sequence of Haryana

Age	Super group	group	Formation	litho logy
Holocene			Newer alluvium and Newer Aeolian Deposits	Gravel, Sand, silt, clay, limestone, gypsum
Lower to upper Pleistocene			older alluvium and Older Aeolian Deposits	Gravel, grey sand, silt, clay, brown sand, calcrete
Lower to Middle Pleistocene	S I W A L I K	Upper Siwalik	Boulder Conglomerates formation	Conglomerate, sandstone, silt, clay
Upper Pliocene			Pinjore Formation	Coarse grit,red sand stone and clay, conglomerate
			Tatrot Formation	Friable Sandstone and variegated clay
		Middle Siwalik	Dhokpathan Formation	Brown sandstone and orange clay
Middle Miocene			Nagri Formation	Hard grey sand stone, mudstoneand minor shale
		Lower Siwalik	Nahan Formation	Coarse grity ,clay and red sandstone often calcareous, brownish shale with lignite lenticles, greenish white Quartzite
Lower Miocene		Sirmur	Kausauli Formation	Grey and green stone,green shale and grey clay
			Dagsai Formation	Purple and green sand stone, deep red gritty,clay,white andstone with ferruginous concretions
Upper Eocene			Subathu formation	Sandstone with gritu clay. Impure fossiliferous limestone calcareous slate,greenish shale and dark brown quartzite
Pre-proteroz			Tunda pathar	Thickly bedded Stromatolite limestone with carbonaceous shale

oic				and quartzite

2.1.2 LOCAL GEOLOGY

The litho units encountered in the riverbed and surrounding areas belongs to the Shivalik super groups. The sediments are river borne and has deposited in the riverbed and the flood plains. The different formations of the area belong to Shivalik Super group and are a mixture of boulders, pebbles, sand, silt and clay. The following sequences have been observed in the area.

Soil/Alluvium

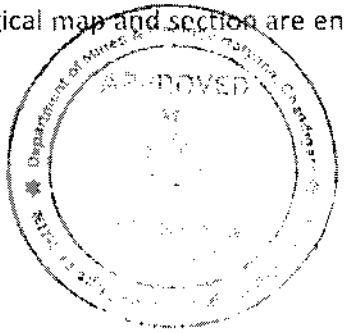
Sand

Gravel

Boulder

There is no clear demarcation between the litho units. They have been deposit in a mixed form. The Litho- units exposed around the riverbed belong to Shivalik Super- Group. The mineral Boulders, Gravel and sand have formed by weathering of rocks and then deposition on the flood plains of the rivers originated from the Shivaliks. These have been washed by rainwater during rainy season and deposited in river bed in the form of boulders, gravels and sand of different sizes and shapes. These minerals are sorted by screening. The max depth of the minerals is not known.

Soil/ alluvium varying in thickness from 2-4m constitute the top horizons in the flood plain area suitable for agriculture. Yamuna River meanders through the area exposing the alluvium and soil at the banks. Sand is found in the river bed. Boulder, gravel &sand is deposited up to great depths. This bed is presently dry and water flows only during the rainy season The Sand exposed in the River bed of Yamuna and surrounding areas is the product of the deposition of the sediments brought and deposited in the flood plains of River Yamuna. These sediments are of recent geological formation. The litho-units exposed within the river and surrounding areas have formed as water borne sediments brought by flood water during rainy season every year and deposited in riverbed. Geological map and section are enclosed as **Plate – 03)**



2.2 Reserves

The reserves of Sand calculated by volumetric method and are summarized here below:

Sr no.	Nature of land	Lease area In ha	Total proved Geological reserves MT=Area x depth x BD (A)	Blocked area /restricted area	Blocked Geological Reserves in blocked area (B)	Total Mineable reserves A-B=C	Planned production (Per Year)
1	River bed	101.27	60,76,200 MT	25.60 ha	15,36,000 MT	45,40,200 MT	45,00,000 MT

A) GEOLOGICAL PROVED RESERVES AS PER UNFC CODE (111)

Total Reserves = 60,76,200 MT

B) BLOCKED RESERVES AS PER UNFC CODE (211 & 222) = 15,36,000 MT

C) MINEABLE RESERVES = A-B = 45,40,200 MT

D) TARGETED PRODUCTION

45,00,000 MT per Year

E) Life of the mine

At the proposed rate of production the life of the mine is 10 years

2.3 Mining Method

Mining method to be followed is described in chapter of mining at 7.0 in mining plan.

2.4 Mineral Beneficiation

No mineral beneficiation is envisaged.

3.0 Review of implementation of mining plan including five years progressive closure plan upto the final closure plan

Mining Plan and Progressive mine closure plan are being submitted for the first time. It will be reviewed after five years and review of implementation will be given with next mining scheme.

4.0 CLOSURE PLAN

4.1 Mined - out land

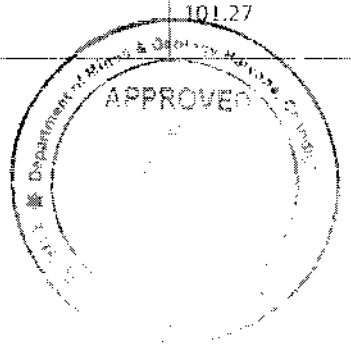
About 75.67 hectare area is available for mining. Land use at various stages is given in the table below:

Table: PRESENT LAND USE PLANING

Sr.No.	Particulars	Present Land Use (ha)
1	Restricted Safety Zone/7.5m mining area boundry,	25.60
2	Infrastructure (Office,temp. Shelters etc.	0.00
3	Area available for mining	75.67
		101.27

Table: LAND USE PLANING AT THE END OF lease period

Sr.No.	Particulars	AT THE END OF 5th YEAR (ha)
1	Safety Zone/7.5m mining area boundry,	25.60
2	Infrastructure (Office,temp. Shelters etc.	0.20*
3	Reclaimed area	75.67
6	Unworked	0.00
7	Plantation*	8.00*
	Total	101.27



*Plantation in 8.0 ha land will be done under social forestry on land available from Panchayat by the end of mine life

* Plantation & infrastructure In restricted area only

4.2 Water quality management

The area constitutes almost alluvial plain without any conspicuous topographical features and forms a part of the vast Indo-Gangetic plain. The elevation of the area above mean sea level is about 261.5 MSL. The general slope of the area is southwards. Area is having 1076 mm rainfall in a year. During rainy season, catchment water flows in the river.

There will be no intersection of water table as working will be carried out up to 3.0 m depth only from surface.

4.3 Air Quality Management:

The proposed mining method is not likely to produce much of dust and fugitive emissions to cause damage to ambient air quality of the area. Workers will be provided with personnel protective equipment like face mask, ear plug/ muffs.

For air pollution management at the progressive mine closure of mine, green belt will be developed to prevent and control air pollution.

4.4 Waste Management:

As stated in mining method, there will be no waste of any kind. Therefore no waste management s required.

4.5 Top Soil Management

There will be no top soil in the river bed. Therefore no top soil handling is needed.

4.6 Tailing dam management

There is no proposal of beneficiation of mineral. No tailing dam is envisaged.

4.7 Infrastructure:

The infrastructure facilities like site office, first –aid station, rest shelter/ store, drinking water etc. will be established temporarily. At the time of closure there will be no problem to remove the same from the lease area..

4.8 Disposal of mining machinery:

Machinery is proposed on hire basis. Hence no decommissioning of mining machinery is proposed.

4.9 Safety & Security:

Safety measures will be implemented to prevent access to excavation area by un-authorized persons as per Mine Act 1952, MMR 1961.

i. Safety measures will be implemented as per Mine Act 1952, MMR 1961, Mines Rules 1955.
ii. Provisions of MMR1961 shall be followed strictly and all roads shall be 10 m wide and have a gradient of not more than 1 in 20.
iii. Excavation will be not more than 3 m in river bed ..
iv. Width of bench will be kept around 20.0 m for ease of operations and provide sufficient room for the movement of equipments.
v. Protective equipment like dust masks, ear plugs/ muffs and other equipments shall be provided for use by the work persons.
vi. Notices giving warning to prevent inadvertent entry of persons shall be displayed at all conspicuous places and in particular near mine entries.
vii. Danger signs shall be displayed near the excavations.
viii. Security guards will be posted.
ix. In the event of temporary closer, approaches will be fenced off and notice displayed.

4.10 Disaster Management and Risk Assessment:

This should deal with action plan for high risk accidents like landslides, subsidence, flood, inundation in underground mines, fire, seismic activities, tailing dam failures etc. and emergency plan proposed for quick evacuation, ameliorative measures to be taken etc. The capability of lessee to meet such eventualities and the assistance to be required from the local authorities should be described.

- The shallow depth of activities outside the river bed mining will not involve any high risk accident due to side falls/collapse.
- There will be no mining whenever there is flow of water.
- The complete mining operation will be carried out under the Management and control of experienced and qualified Mines Manager having Certificate of Competency to manage the mines granted by DGMS.

- All the provisions of Mines Act 1952, MMR 1961 and Mines Rules 1955, HMMR, 2012 and other laws applicable to mine will strictly be complied with.
- During heavy rainfall the mining activities will be closed.
- All persons in supervisory capacity will be provided with proper communication facilities.

  Competent persons will be provided FIRST AID kits which they will always carry.

4.11 Care and Maintenance during Temporary Discontinuance:

In case of any temporary discontinuance due to court order or due to statutory requirement or any other unforeseen circumstance following measures shall be taken for care, maintenance and monitoring of conditions.

- Notice of temporary discontinuance of work in mine shall be given to the DGMS as per the MMR 1961.
- All the mining machinery shall be shifted to a safe place.
- Entrance to the mine or part of the mine, to be discontinued shall be fenced off. Fencing shall be as per the circular 11/1959 from DGMS.
- Security Guards shall be posted for the safety and to prevent any unauthorized entry to the area.
- Carry out regular maintenance of the facilities/area detailed below in such a way as would have been done as if the mines were operation:

  Mine roads and approach roads,

  Fencing on approach roads,

  Checking and maintenance of machines and equipment,

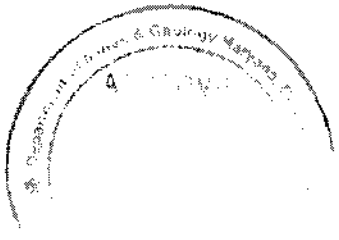
  Drinking water arrangements,

  Mine office, first aid stations etc.

- Competent persons shall inspect the area regularly.
- Air, water and other environmental monitoring shall be carried out as per CPCB and IBM Guideline.
- Care and upkeep of plantation shall be carried out on regular basis.

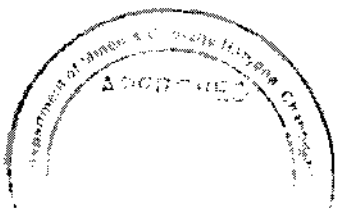
- Status of the working and status monitoring for re-opening of the mines shall be discussed daily.

In case of discontinuance due to any natural calamities/abnormal conditions, mining operation will be restarted as early as possible after completing rescue work, restoring safety and security, repairs of roads etc.



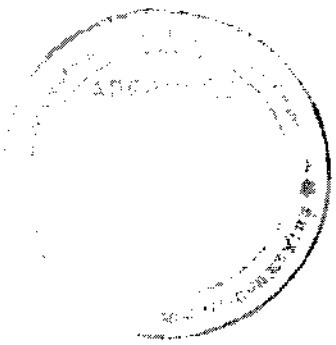
5.0 ECONOMIC REPERCUSSION OF CLOSURE OF MINE AND MANPOWER RETRENCHMENTS

Mining contract area will be granted for a period of 10 years only. As per the production programme envisaged, at the end of contract period, still sufficient un-worked area would be left available for continuing production activities further. Hence, no closure is planned. There will be no affect on the man power as the persons belong to nearby villages and will have an option either to be available for employment for the next contract or do the agriculture in their fields.



6.0 TIME SCHEDULING FOR ABANDONMENT

The mining area has enormous potential for continuance of operations even after the expiry of the awarded period. The details of time schedule of all abandonment will be given at the time of final closer plan. Mining activities are confined 3.0m. depth, relatively shallow depth of workings which will be reclaimed every year during rainy season.

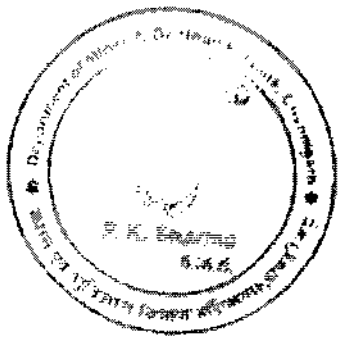


7.0 ABANDONMENT COST

As at present mining is not going to be closed so abandonment cost could not be assessed. However based on the progressive mine closure activities during the plan period, cost is assessed as given below:

Abandonment Cost

ACTIVITY	YEAR					Rate	Amount (in Lakhs)
	First	Second	Third	Fourth	Fifth		
Plantation (in no.)	2000	2000	2000	2000	2000	@ 30 Rs per sapling+50 Rs maintenance cost	8.00
Plantation cost in Rs	160000	160000	160000	160000	160000		
Wire fencing (meter)	1000	1000	1000	1000	1000	@ of 125 Rs per meter	6.25
Wire fencing cost	125000	125000	125000	125000	125000		
						Total	14.25



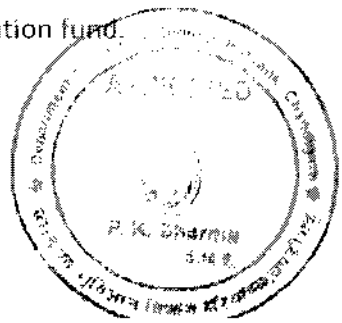
8.0 FINANCIAL ASSURANCE

Total 75.67 ha area will be put in use upto the end of 5th Year. Details of area put to use as given below (As per circular No.4/2006 issued by CCOM, Nagpur following table has been considered for calculation for financial assurance).

Calculation for Financial Assurance

S. No.	Item	Area put on use at start of plan (Ha) (A)	Requirement at the end of plan period (Ha)	Total area put to use (Ha) (B)	Area considered as fully reclaimed & rehabilitation (Ha) (C)	Net area considered for calculation (Ha) D = (B-C)
1.	Area to be excavated	0.0	75.67	75.67	0.0	75.67
2.	Storage for topsoil	0.0	0.0	0.0	0.0	0.0
3.	Overburden/ dumps	0.0	0.0	0.0	0.0	0.0
4.	Mineral storage	0.0	0.0	0.0	0.0	0.0
5.	Infrastructure *(Workshop, Adm. Building & Road)	0.00	0.20	0.20	0.20	0.0
6.	Green belt*	0.0	8.00	8.0	8.0	0.0
7	Tailing pond	0.0	0.0	0.0	0.0	0.0
8.	Effluent treatment plan	0.0	0.0	0.0	0.0	0.0
9.	Mineral separation plant	0.0	0.0	0.0	0.0	0.0
10.	Township area	0.0	0.0	0.0	0.0	0.0
11.	Others to specify	0.0	0.0	0.0	0.0	0.0
Total		**0.0**	**83.87**	**83.87**	**8.2**	**75.67**

Total 75.67 ha area will be put in use. Against this mined out area the total financial assurance (@15000/- per ha. Comes out to Rs 11,35,050/ which is part of the 'Mines and Minerals Development, Restoration and Rehabilitation fund.

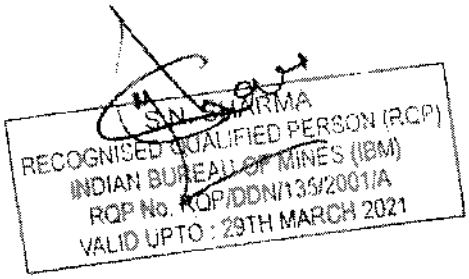


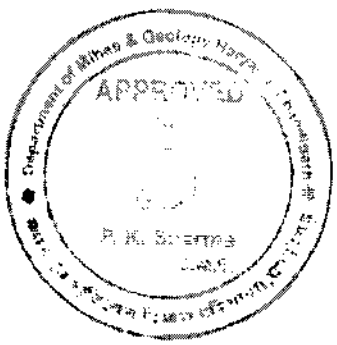
9.0 CERTIFICATE

It is enclosed with the report.

10.0 PLAN AND SECTION

Plan and section are prepared and enclosed with the mining plan.





CERTIFICATE

I, S.N.Sharma, duly recognized qualified person to prepare Mining Plan under Rule 22 C of the Mineral Concession Rules, 1960 (Revised 1987) has prepared the Mining Scheme of SAND (Minor Mineral) Jathlana Block/YNR B-12 over an area of 101.27 hectares of M/s P.S.Buildtech,34-Vishal Nagar, Yamuna Nagar. The various data and write up enclosed have been complied and verified by us. The working plan and all other details given in the plan have been prepared under my guidance and duly verified by me. The mining plan and progressive mine closure plan complies all statutory rules , regulations , orders made by the Central or State Government, statutory organizations, court etc. have been taken into consideration and wherever any specific permission is required the lessee will approach the concerned authorities

S.N. Sharma

RQP/DDN/0135/2001-A
S.N. SHARMA
RECOGNISED QUALIFIED PERSON (RQP)
INDIAN BUREAU OF MINES (IBM)
RQP No. RQP/DDN/135/2001/A
VALID UPTO : 29TH MARCH 2021

APPROVED
P. K. Sharma
S.M.E.

Director General, Mines and Geology Department Haryana
30-Bays Building, Sector-17, Chandigarh.

Registered

From

The Director General,
Mines & Geology Department, Haryana
30 Bays building, Sector-17,
Chandigarh.

To

Sh. Kulvinder Singh S/o Sh. Trilochan Singh,
Prop. of M/s P. S. Buildtech, 34-Vishal Nagar,
Yamuna Nagar-135001.

Memo No. DMG/HY/Cont/Jathlana Block/YNR B 12/2015/**10070**
Dated Chandigarh, the **30.11.2015**

Subject: **Acceptance of the highest bid/ in respect of Sand minor mineral mines of "Jathlana Block/YNR B 12" having Tentative Area of 101.27 hectares in the district Yamuna Nagar, offered in e- auction held on 05- 06.11.2015 and issue of Letter of Intent (LoI) – regarding.**

You participated in the in the e- auction held on **05.11.2015 and 06.11.2015 on the State Government web portal** https://haryanaeprocurement.gov.in **after accepting the terms and conditions of the auction notice DMG/HY/e Auction/YNR/2015/8241 dated 30.09.2015 in order to obtain mining contracts of minor mineral mines/block of the district Yamuna Nagar.** You offered the highest bid of **Rs. 09,34,50,000/-** [Rs. Nine Crore thirty four lakhs fifty thousand only] per annum, against the Reserve Price of **Rs. 09,34,00,000/-** per annum, for obtaining the Mining Contract of Minor Mineral block namely '**Jathlana Block/YNR B 12**' for extraction of Sand having tentative area of **101.27** hectares. The details of the khasra numbers of the tentative area under above said Mining Block is attached as **Annexure 'A'**.

2. You are hereby informed that the State Government has accepted the highest bid of **Rs. 09,34,50,000/-** [Rs. Nine Crore thirty four lakhs fifty thousand only] per annum offered by you in respect of the above said minor mineral block of '**Jathlana Block/YNR B 12**' under the provisions of the Haryana Minor Mineral Concession, Stocking, Transportation of Minerals & Prevention of Illegal Mining Rules-2012 (State Rules). Accordingly, you have become the successful bidder in respect of '**Jathlana Block/YNR B 12**' of the district Yamuna Nagar.

3. The State Government having accepted the aforementioned highest bid offered by you, the Department is pleased to issue this Letter of Intent (LoI) in your favour in respect of the Mining Block/area namely 'Jathlana Block/YNR B 12' subject to the following terms and conditions:

Director General, Mines and Geology Department Haryana
30-Bays Building, Sector-17, Chandigarh.

(i) The period of contract shall be **10 years** and the same shall commence with effect from the date of grant of environmental clearance by competent authority or on expiry of a period of 12 months from the date of this communication of acceptance of highest bid/ issuance of "**Letter of Intent**", whichever is earlier;

(ii) You may note that the detail of the area of the mining blocks is tentative and was notified "on as is where is basis" (**refer condition no. 4 of the notice**). In case of any inadvertent mistake, if any, the same would be rectified/ corrected before execution of the agreement (**refer condition no. 3 of the notice**).;

(iii) No request regarding reduction in bid amount on account of reduction in land/area of the Mining block, including due to change in description of khasra numbers/location etc. at any stage will be entertained on any ground including loss/reduction of area for mining on account of compliance of applicable laws/restrictions. Needless to state that this also includes the changes, if any, as per condition no. 3 of auction notice.

(iv) The amount of the highest successful bid i.e. **Rs. 09,34,50,000/-** [Rs. Nine Crore thirty four lakhs fifty thousand only] per annum shall be the "Annual Contract Money" payable by you as the contractor in the manner prescribed in the contract agreement to be executed on form MC-1 appended to State Rules;

(v) The above said annual contract money shall be increased at the rate of 25% on completion of each block of three years. Accordingly, the year-wise amount of the annual contract money shall be as per details given below:

Sr. No.	Year of the Contract Period	Annual contract Money
1	First Year	Rs. 09,34,50,000/-
2	Second Year	Rs. 09,34,50,000/-
3	Third Year	Rs. 09,34,50,000/-
4	Fourth Year	Rs. 11,68,12,500/-
5	Fifth Year	Rs. 11,68,12,500/-
6	Sixth Year	Rs. 11,68,12,500/-
7	Seventh Year	Rs. 14,60,15,625/-
8	Eighth Year	Rs. 14,60,15,625/-
9	Ninth Year	Rs. 14,60,15,625/-
10	Tenth Year	Rs. 18,25,19,535/-

(vi) As per the terms and conditions of the grant, you are liable to deposit **Rs. 02,33,62,500/-** i.e. equal to 25% of the annual bid amount as "security deposit" out of which you have already deposited an amount of **Rs. 93,45,000/-** (Rs. Ninty three lakh forty five thousand only) i.e. equal to 10% of the annual bid

amount as 'initial bid security' after the conclusion of e-auction. The balance amount of **Rs. 01,40,17,500/-** of the bid security i.e. 15% of the annual bid amount alongwith one month's advance contract money shall be deposited before commencement of the mining operations or before expiry of the period of 12 months, whichever is earlier;

(vii) You shall execute an Agreement Deed in Form MC-I appended to the Haryana Minor Mineral Concession, Stocking, Transportation of Mineral & Prevention of Illegal Mining Rules-2012 (the State Rules 2012) within a period of 90 days from the date of issuance of this communication/ grant of LoI;

(viii) It may be pointed out that as per existing applicable rates the contract agreement had to be executed on **Non Judicial Stamp papers worth Rs.37,54,100/- (Rs. Thirty Seven lakh fifty four thousand one hundred only)**. However, you are aware that M/s Om Minerals, one of the LoI holders (who participated in the auctions held in December 2013) has filed a CWP No.7991 of 2014, before the Hon'ble Punjab & Haryana High Court. Further a few other similarly situated LoI holders have also filed separate CWP's before the Hon'ble Punjab and Haryana High Court challenging demand/ levy of Stamp Duty on execution of 'Contract Agreement'. The said matter is still pending for adjudication. Accordingly, the present auction was conducted subject to outcome of said cases. **Therefore, the charging of stamp duty for the execution of contract agreement shall be as per final outcome of the said CWP's.**

(ix) The Contract Agreement would also be required to be got Registered on payment of the applicable Registration fee;

(x) In case you fail to execute the Agreement Deed within the prescribed period of 90 days, this LoI shall be deemed to have been revoked and the amount of initial bid security deposited at the time of auction shall be forfeited. Further, the balance amount of 15% towards the bid security, amounting to **Rs. 01,40,17,500/-** being the 15% of the annual bid amount, shall be recovered as arrears of land revenue and, you, as the LoI holder/ defaulter, shall be debarred from participation in any future auctions for a period of 5 years;

(xi) You shall also furnish a solvent surety for a sum equal to the amount of the annual bid for execution of the Agreement. In case the surety offered by the contractor(s) during the subsistence of the Contract is not found solvent, the

contractor(s) shall offer another solvent surety and a supplementary deed shall be executed to this effect;

(xii) After execution of Agreement, either before commencement of the mining operation or before expiry of the period of 12 months from the date of issuance of this LoI, whichever is earlier, in case of failure to deposit the balance 15% amount towards security [as required under clause (v) above] the acceptance of bid/issuance of LoI/execution of agreement shall be deemed to have been revoked and 10% amount deposited towards as initial bid security at the time of auction shall stand forfeited. Further, un-paid 15% amount towards security shall be recovered as arrears of land revenue and you shall debarred from participation in any subsequent bids for a period of 5 years;

(xiii) You shall be liable to deposit the contract money in advance at monthly intervals as per provisions of Contract Agreement i.e. from the date of commencement of the contract Agreement;

(xiv) You shall also deposit/ pay an additional amount equal to 10% of the due contract money along with the monthly installments towards the **'Mines and Minerals Development, Restoration and Rehabilitation Fund'**.

(xv) You shall also be liable to pay advance income tax as per provisions of Section 206(c) of income tax act in addition to contract money, payable as per terms and conditions of contract agreement.

(xvi) On enhancement of the contract money with the expiry of every three years period, you shall deposit the balance amount of security so as to upscale the security amount equal to 25% of the revised annual contract money as applicable for one year with respect to the next block of three years. No interest, whatsoever, shall be payable on the security amount deposited under the prescribed security head of the government;

(xvii) You shall prepare a Mining Plan along with the Mine Closure Plan (Progressive & Final) as per chapter 10 of the State Rules for the "Mining Block" and shall not commence mining operations in any area except in accordance with such Mining Plan duly approved by an officer authorised by the Director, mines & Geology, in this behalf.

(xviii) Further, the actual mining will be allowed to be commenced only after prior Environmental Clearance is obtained by you as the LoI holder/mining contractor

R. K. Sharma
S.M.E

for the Mining Block from the Competent Authority as permitted by the competent Authority required under EIA notification dated 14/9/2006, as amended from time to time by the MoE&F, GoI and guidelines/ circulars issued in this behalf;

(xix) The Mining contractor to whom mining rights have been granted through this contract would also be liable to pay the following to the landowners to undertake mining operations:

(a) Annual rent in respect of the land area blocked under the concession but not being operated, and

(b) Rent plus compensation in respect of the area used for actual mining operations.

(xx) The amount of annual rent and the compensation shall be settled mutually between the landowner and the mining contractor. In case of non-settlement of the rent and compensation, the same shall be decided by the District Collector concerned in accordance with the provisions contained in Chapter 9 of the "Haryana Minor Mineral Concession, Stocking, and Transportation of Minerals and Prevention of Illegal Mining Rules, 2012";

(xxi) The total mineral excavated and stacked by the concession holder within the area granted on mining contract shall not exceed two times of the average monthly production as per approved Mining Plan at any point of time;

(xxii) The Mining Contractor shall not stock any mineral outside the concession area granted on mining contract, without obtaining a valid license as per provisions contained in Chapter 14 of the State Rules;

(xxiii) The contractor shall not carry out any mining operations in any reserved/ protected forest or any area prohibited by any law in force in India, or prohibited by any authority without obtaining prior permission in writing from such authority or officer authorized in this behalf. In case of refusal of permission by such authority or officer authorized in this behalf, contractor(s) shall not be entitled to claim any relief in payment of contract money on this account;

(xxiv) Following are the general/ special conditions applicable for excavation of minor mineral(s) from river beds in order to ensure safety of river beds, structures and the adjoining areas:

R.P.

//T.C.//

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GOVERNMENT OF INDIA
MINISTRY OF ENVIRONMENT, FOREST AND CLIMATE CHANGE
(IMPACT ASSESSMENT DIVISION)
NON-COAL MINING SECTOR

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SUMMARY RECORD OF 13th MEETING OF THE RECONSTITUTED COMMITTEE OF THE EXPERT APPRAISAL COMMITTEE FOR ENVIRONMENTAL APPRAISAL OF MINING PROJECTS CONSTITUTED UNDER EIA NOTIFICATION, 2006.

The **Thirteen meeting** of the Reconstituted Expert Appraisal Committee for Environmental Appraisal of Mining Projects (Non-Coal) of the Ministry of Environment, Forest and Climate Change was held during **December 15-16, 2016**. The list of participants is annexed.

After welcoming the Committee Members, discussion on each of the Agenda Items was taken up ad-seriatim.

Item No. 1:

(1.1). Circulation of the Minutes of the 12thEAC Meeting:

The Minutes of the 12th Meeting of EAC held during November 23-25, 2016 were circulated.

Item No. 2:

(2.1). Mogla Limestone Mine of M/s JSW Cements Ltd. for 4.51 MTPA Limestone capacity at Mogla Village, Chittapur Taluka, Gulbarga District, Karnataka (404.29 ha) (Consultant:-Bhagavathi Ana Labs Pvt Ltd.)- Consideration of EC.

The proposal of M/s JSW Cements Ltd. is for production of 4.51 million TPA of Limestone from 404.29 ha. Mine lease area allocated at Village-Mogla, Taluka Chittapur, District Gulbarga in Karnataka at Sy. Nos. 29 – 32, 42 – 84, 88 – 91, 95 – 119 of Mogla Village. The latitude and longitude of the site are as follows: Corner 1: 17° 09′ 50.47″ N, 77° 07′ 35.43″ E; Corner 2: 17° 09′ 48.90″ N, 77° 07′ 30.42″ E; Corner 3: 17° 09′ 10.80″ N, 77° 07′ 19.50″ E; 4 17° 09′ 10.40″ N, 77° 08′ 41.50″ E; Corner 5: 17° 08′ 07.00″ N, 77° 08′ 55.10″ E; Corner 6: 17° 08′ 19.80″ N, 77° 09′ 18.90″ E; Corner 7: 17° 08′ 40.83″ N, 77° 09′ 17.16″ E; Corner8: 17° 09′ 05.01″ N, 77° 09′ 05.70″ E; Corner 9: 17° 09′ 16.28″ N, 77° 08′ 08.72″ E; Corner 10: 17° 09′ 39.66″ N, 77° 07′ 47.49″ E.

The proposal was considered for TOR in the EAC meeting held during 17thApril 2013. Based on discussions held TOR was issued vide MoEF Lr. No J-11015/72/2013-IA.II (M) dated 21st November 2013. The proposal was further considered on 22.12.2015 for extension of Validity of TOR and the same was approved vide MoEF Lr. No J-11015/72/2013-IA.II (M) dated 8th January 2016.

The mine lease area is 404.29 ha which is private non-forest single crop dry agricultural land. There is no forest land in the lease area. The mining plan for the project is approved by Indian Bureau of Mines, Bangalore vide Letter No. KNT/GLB/MP/LST-258-SZ/002 dated 28.12.2012 for production of 4.51 MTPA of Limestone from 404.29 Ha Mine lease area.

It is reported by the Project Proponent (PP) that the mine is proposed for annual production of 4.51 million TPA. Open cast mechanised mining method will be adopted to operate the lease area with drilling and blasting to be adopted to achieve this production. Nine excavators, two dozers, three drill machines and twenty five dumpers would be deployed for the mining.

The area is practically devoid of overburden except the thin layer of black cotton soil. The limestone is exposed on the surface in almost 125 Ha area in the lease. The estimated quantity of topsoil to be removed during the plan period is about 2,96,000 Tonnes. The soil would be dozed off and stacked in green belt area of 7.5 m from the lease boundary. Apart from this area, an area over an extent of 6.25 Ha is earmarked for stacking of the soil.

The depth of soil is average 1.0 m and that shall be removed and stacked separately for afforestation. For mining of the limestone, height of individual bench shall be 8 m and the width of the working bench shall be minimum 30 m to facilitate easy movement of mining machinery and safety factor. Individual bench slope shall be 60° whereas ultimate pit slope shall be maintained at 45°. Sufficiently wide ramp roads with 1 in 16 gradient shall connect the benches.

The drilling shall be carried out by 152 mm dia DTH drill and blasting by conventional explosives. The blasted ROM shall be loaded to dumpers by excavators and hauled to the crushing and screening plant. The -50 mm crushed limestone shall be transported to cement plant located nearby the Mine lease area by conveyor system. During the mining plan period, 98,45,496 tonnes of limestone shall be produced along with 2,96,000 tonnes of soil and 5,18,184 tonnes of intercalated waste. The stripping ratio during the mining plan period shall be 1:0.08. The average grade of the limestone shall be maintained to 43.5% CaO. Life of the mine is 57years. The water requirement is estimated as 300 KLD.

It is reported by the PP that Total Geological Resources are 276240240 tonnes,

Mineable Resources are 252891216 tonnes. Conceptual mine development will be carried out in 358.20 ha, area for green belt will be 9.53 ha, area for afforestation includes 36.56 ha. It was reported by the PP, a total of 5,18,184 tonnes of intercalated waste will be generated during plan / scheme period and 1,33,10,064 tonnes during conceptual period. Initially, the waste shall be dumped on 10.0 Ha area on the mineralized area itself and after exhausting part of the limestone on section 5-5' to 10-10', the waste material shall be backfilled in that area. Before backfilling, the permission from IBM shall be obtained. The backfilled area shall be covered with the soil for afforestation. Total 15.0 Ha mined out pits will be backfilled with waste. Height of the waste dump will be maintained at 10m with overall slope of 28°

About 300 KLD of water will be required which will be sourced through Ground water. Hydrogeological Study has been carried out and application has been submitted to Ground water department for approval. It was reported by the PP that the surface topographical elevation is 406m MSL to 423m MSL. The water table in the locality is at a depth of 70 m below the surface level within lease area. The mine workings are expected to reach to a depth of 40 m with 5 benches of 8m each. **Hence, mining activities will not intersect ground water table.**

It was reported by the PP that there is no wildlife sanctuary/tiger reserve/national park, etc within the 10 km radius area around the mine lease. As per the survey carried out Peacock is the only Schedule – I species in the study area. Baseline studies were carried out during winter season 2013-2014 by M/s Bhagavathi Ana Labs Pvt Ltd. All the parameters for air, water, and noise quality were reported to be within prescribed standards.

Public hearing for the project was completed on 27.05.2016 at the project site at Bhimnagar Village, Kalaburagi. The public Hearing was chaired by Sh.Bhimashankar, Assistant Commissioner, Kalaburagi. Detailed action plan with budget is presented in EIA report.

The cost of the project is Rs. 280 Crores. Capital budget for environmental protection measures is Rs 195.5 lakhs and recurring cost is Rs 112.10 lakhs.Out of the above cost CSR cost: (Capital cost Rs: 49 + Recurring cost Rs 50). It was reported by the PP that there is no court case/litigation pending against the project.

The proposal was considered in the EAC Meeting held during 19-20 September, 2016. Based on the information furnished and discussion held, the Committee noted that the PP has wrongly reported the minable reserves in the Form-1 at TOR stage. There is no production plan in absence of estimates of minable reserves. The mine plan is based on the potential reserve and not on minable reserves, therefore the proposal is premature at this stage for consideration for ToR. The Committee therefore rejected the proposal.

The project proponent vide letter dated 09.11.2016 submitted that in the Form-I and PFR **they had mentioned as Mineral Reserves and not Mineable Reserves**. In this regard, the proposal was placed in the **EAC meeting held during 15-16 December 2016.** The committee noted that the projected mineral reserves in the proposal was based on section 333 of the Exploration Code. Based on the information furnished and discussion held, the **Committee deferred the proposal and informed that the project proponent will have to submit the following documents before the proposal is re-considered**:-

i) **A mine plan duly approved by the Indian Bureau of Mines clearly mentioning the total mineral reserves present in the mine lease area.**
ii) **Conservation plan for Peacock (Pavo cristatus) to be submitted to Chief Wildlife Warden and the proof of submission to be submitted to the Ministry.**
iii) **A detailed action plan on the issues raised during the public hearing and detailed R&R plan for all the families involved with need based action plan along with details of cost involved to be provided.**

(2.2). Bohar limestone mine of M/s Jai Singh Takhur & Sons, with production capacity of 95,800 TPA (ROM) located at Khasra No. 1884/131 & 1956/1926/1886/131/2006/ 14594/2003, Near Village – Bohar, Tehsil – Paonta Sahib, District Sirmour, Himachal Pradesh (4.15 ha.) (Consultant:- M/S Udaipur Mintech Pvt Ltd) - Consideration of EC.

The Proposal of M/s Jai Singh Takhur & Sons for Limestone mine (M.L. Area- 4.15 Ha) with production capacity of 95,800 TPA (RoM) at village Bohar, Tehsil Paonta Sahib, Distt.- Sirmour (H.P.) The mining lease area lies between Latitudes & Longitudes 30°35'33.31" - 30°35'22.20 N and 77°43'09.71" -77°43'15.55 E respectively on survey of India Topo sheet No- 53F/10, 53F/14 the project is located in Seismic zone IV.

The proposal was considered in EAC meeting held on 35th June, 2015 to determine the Term of Reference for undertaking detail EIA Study. ToR was issued by MoEF & CC vide letter No J-11015/191/2015-IA-II (M) on dated 29th July 2015. The public hearing for the proposed project was conducted on 25th July 2016 & Final EIA /EMP Report was submitted on MoEF & CC web portal.

The lease was granted by state govt. on dated 21.04.1985 in favour of M/s Jai Singh Thakur & Sons and executed on 26.04.1985 for a period of twenty years. The mining operation commenced on 01.12.1985. The mining lease was renewed for period of ten years up to 24.04.2015 vide govt. order no Udyog –Bhu(Khani-4) Major-118/2004-9554 dated 03.03.2006. The lessee applied for 2nd renewal on 19.02.2014 in form J. Now as per MMDR Amendment Act 2015 the lease period has been extended up to 24.04.2035

Mining will be carried out by opencast method with proper benches of 6m width and 6m height & mineral shall be exploited with the adoption of drilling & blasting. Life of mine is 13 years and total mineable reserves are 12,37,615 tonnes. Monitoring has been done in post monsoon period of Oct to Dec 2015, results of monitoring for Air, Water Noise & Soil are within limits. Traffic analysis shows that not much impact is anticipated on current scenario as only 12 dumpers will be required for transportation. At conceptual stage total mined out area will be 4.15 ha. About 0.64 ha area will be planted on statuary barrier & 2.19 ha area will be planted on mined out benches & 0.70 ha area will be planted on dump site.

The Project proponent has submitted that the total water requirement in the mine will be about 2.5 KLD for drinking, spraying (dust suppression) and plantation. Water will be sourced from nearby village through water tankers.

The Project proponent has submitted that there is no National Park, Wild Life Sanctuary and Habitat for Migratory Birds, Tiger Reserve, Elephant Reserve, and Bio-sphere Reserves are located within 10 km radius of the mine lease. The project area does not fall in CRZ area.

Public hearing for the proposed project was conducted on dated 25th July 2016 at Bohar village. The public hearing was chaired by ADM, Shri Harbans Singh Brascron. Issue raised in public hearing with action plan is incorporated in the EIA/EMP report. The cost of the project is Rs. 24.50 lac. About Rs 2.00 lac /year will be earmarked for CSR activities and Rs.1.30 lac/year will be earmarked for Environment protection measures.

The proposal was considered in the EAC Meeting held during 15-16 December 2016. Based on the information furnished and discussion held, the Committee **deferred the proposal**. The committee noted that the proposal cannot be considered in its present form and needs to be revised. The committee found that the report submitted by the consultant was carelessly prepared. The committee was of the opinion that the proposal be resubmitted taking into account the following:

i) Resubmit the whole EIA/EMP Report with accurate information
ii) The shape of the boundary of the KML was not coinciding with the GIS map provided in the EIA/EMP report. This should be corrected.
iii) Action Plan on Public Hearing to be submitted in detail with budget
iv) Plantation to be completed in the first year itself. The list of tree species to be revised and submitted. Native fruit bearing trees to be included in the list
v) Environmental measures like building check dams as proposed by the consultant was not possible in the proposed budget. The PP was asked to rework the budget and submit.

(2.3). Kandri Manganese Mine (increase in production capacity of Manganese ore from 0.063 MTPA to 0.1 MTPA for opencast and underground mining of M/s Manganese Ore India Limited (MOIL) at Village Kandrai, Ramtek Tehsil, Nagpur District in Maharashtra. (83.0646 ha.) (Consultant:-M/s Srushti Seva Private Limited)- Consideration of EC.

The proposal of M/s MOIL. Ltd. is for enhancement of production of Manganese from 63000 TPA to 100000 TPA w.r.t. Kandri Manganese Mines (83.0646 Ha). The area is undulated. The shape of lease area is irregular in shape. Scheme of mining is approved from Indian Bureau of Mines (with a proposed production capacity of 100000 TPA clean Manganese ore). The latitude and longitude of the center is 21° 24'45" and longitude 79° 16'00" within topo sheet No. 55 O/7.

The mining lease consists of 83.0646 ha out of which the protected forest is 24.82 ha, Zudpi Jungle is 13.00 Ha, Revenue Land is 32.61 Ha and Private Land is 12.63 Ha. Forest clearance Stage I for 37.82 Ha has been obtained vide Letter no. 8-23/99-FC dated 20/7/99 and Stage II clearance has been obtained Vide Letter No. 8-23/1999-FC dated 12/11/2014 under the Forest Conservation Act, 1960.

The Environmental Clearance under EIA Notification 2006 has been obtained vide Letter No. J-11015/408/2007-1A.II (M) dated 12.09.2007. Monitoring report of earlier Environmental Clearance has been obtained Vide Letter No. 3-44/2007(Parya)/253 dated 07.04.2016.

The proposal for Terms of Reference (TOR) was appraised by the Expert Appraisal Committee (Non Coal Mining) [EAC(M)] during its 33rd meeting held on 15th May 2015 and Terms of Reference (TORs) was prescribed to the project for undertaking detailed EIA study for the purpose of obtaining environmental clearance vide letter no. J-11015/408/2007-IA.II(M) dated 15th June 2015.

Considering the scale of operation, geological setting and the nature of deposit, the PP has proposed to adopt combination of opencast & underground method of mining involving ripping / dozing, drilling- blasting, manual sorting, sizing and stacking as well as mechanized loading and transportation. This will be substantiated with dump recovery. During the mining in the scheme period the lessee would be generating 4,02,920 Tonnes of production achieved from underground (60%), opencast mining (30%) operations and dump recovery (10 %). It is estimated that 1.23 Million m^3 waste will be generated during the mining scheme period. The mine waste is in the form of mica schist, quartzite, bed rejects comprised of gondite manganese quartzite and rejects below threshold value of 10% Mn. About 12,00,000 m^3 waste will be dumped over 85,000 m^2 area. The opencast pit within the mining lease is filled up with 35000 m^3 of waste rock.

About 300 m^3/day water will be extracted during underground operations out of which 150 m^3/day will be reused for sand stowing and wet drilling. Balance will be utilized for dust suppression @ 40 m3/day, Wet drilling @ 75 m3/day and Plantation @ 35 m^3/day. About 163 m^3/day water will be required for drinking and domestic requirements which shall be sourced from existing tube wells/ dug wells within the lease. The power requirement of the project is estimated as 0.137 MW and will be obtained from the State Electricity Grid. The topography is mildly undulating. The hills are seldom higher than 90 m from the general ground level with exception of Kandri ridge which rises to a height of 147 m. The country sides on North-South and east are generally flat. On the west, however, the mine is encircled by hills.

The baseline environmental quality data for various components of environment, viz. Air, Noise, Water, Land and Socio-economic were generated during October 2014 to January 2015 in the study area covering 10 km around the Kandri Mine. Other environmental data on flora and fauna, land-use pattern etc. were also generated through field surveys and also collected from different State Govt. Departments. Air quality monitoring was carried out at 11 stations, consisting of 3 sampling stations from Core Zone (mining Lease) and 8 sampling stations from Buffer Zone (10 Km around core zone). During this monitoring indicated PM10 (42.0 µg/m3 to 57.2 µg/m3), PM2.5 (22.8 µg/m3 to 29.9 µg/m3), SO2 (10.2 µg/m3 to 15.2 µg/m3), NOx (13.2 µg/m3 to 20.3 µg/m3) and Free Silica in PM 10 (.0001 %).The results of the modeling study indicates that the maximum increase of GLC for the proposed project is are 4.46µg/m^3 & 3.99 µg/m^3 for PM_{10} & $PM_{2.5}$ respectively. Soil quality, water quality and noise levels in the study area is within the permissible limit. There that no Schedule I fauna are reported in the lease area and buffer zones.

The project proponent has submitted that there is no National Park, Wildlife sanctuary, defense installation or sensitive area located within 10 km radius of the mine. The project proponent has submitted that the proposed Mansingh Deo Wildlife Sanctuary lies within 10 km buffer zone but this does not fall under the Ecologically Sensitive Zone (ESZ) declared under MOEF&CC draft Notification dated 17.03.2016. A site of archeological importance exists within 10 Km radius of the mine area. In addition there are various places of worship/ tourist interest importance exists in 15 Km radius of the project. **However, the DSS showed that the mine lease area is within 10 Km radius of Pench Wildlife Sanctuary and Tiger Reserve.**

The public hearing was conducted on 12.04.2016 at 11 AM. at 16.00 Hrs venue at Kandri Manganese Mine, Near Ganesh Ground. Additional District Collector, Nagpur presided the Public Hearing. Most of the participants have expressed their willingness for the proposed enhancement in the production of manganese ore as there will be more generation of employment. Issues regarding road development, water supply and pollution were also discussed and project proponent has ensured to resolve the road and water problem under proposed CSR scheme. Effective measures for soil and water

conservation has also been undertaken. In respect of proper sewage disposal an arrangement has been envisaged to take care of the sewage from colony through STP. The industrial water of workshop will pass through oil and grease trap followed by sedimentation tank and finally find a way to local drainage. NOC from Central Ground Water Board is being obtained. Plantation of 56600 trees has already been done in & around the mine lease hold area with various local varieties of trees. Plantation of various local tree species @ 1000 trees per annum is proposed. Priority will be given to locals for employment. Since the mining operations are carried out at Kandri Manganese mine from a long period, various mitigatiing measures are already adopted and the same will be continued after the proposed expansion. All provisions of occupational health are complied. The frequency and magnitude of the adopted measures will be improved during this expansion program.

The approximate cost of the project is around Rs. 28.08 Crores for implementation of expansion of production. The total Capital cost of Environmental Control Measures is Rs. 1.84 Crores. The total Recurring costs per annum, excluding man power cost is Rs. 0.90 Crores. There is no litigation pending against the proposed project.

The proposal was considered in the EAC Meeting held during 15-16 December 2016. Based on the information furnished and discussion held, the Committee **deferred the proposal**. The committee noted that the proposal cannot be considered in its present form and needs to be revised. The committee was of the opinion that the proposal be resubmitted taking into account the following:

1) According to the DSS, the mine lease area falls within 10 Km radius of Pench Wildlife Sanctuary and Tiger Reserve and clearance from NBWL is needed, whereas the PP claims absence of any wildlife sanctuary or National park within 10 Km radius. **The Committee was of the view that the Ministry may ascertain the actual position because NBWL clearance will be required if Pench Wildlife sanctuary is indeed within 10 km radius..**
2) As manganese is toxic the project proponent has to rework the occupation health safety initiatives along with adequate budget provision.
3) Monthly data of manganese content in the Mine water should be analyzed and submitted. Analysis on manganese toxicity to be added.
4) No approved mine plan was submitted in the EIA/EMP report. The PP should submit a duly authenticated Mine plan.
5) The committee noted that ground water intersection has already taken place in the mine lease area and CGWA approval was not obtained. **The Committee was of the view that the comments of CGWA may be asked before the proposal is reconsidered.**

(2.4). Noakari Limestone Mine of M/s Ultratech Cement Limited located at Village Naokari, Taluka Korpana, District Chandrapur, Maharashtra (5.0 MTPA to 7.6 MTPA and 1030.58 ha)(Consultant:-J. M EnviroNet Pvt Ltd) Consideration of EC.

The proposal is of M/s. Ultra tech Cement Limited for expansion in Limestone and Shale Production Capacity from 5.0 Million TPA to 7.6 Million TPA at Villages- Awarpur, Bakardi, Naokari, Palgaon & Talodi, Taluka - Korpana, District - Chandrapur (Maharashtra). Study area falls between 19^0 47'00"N to 19^0 48'01"N and 79^0 07'30"E to 79^0 11'00"E on Survey of India Toposheet No. 56 M/1 & 56 M/2. The Project is located in Seismic zone-II.

The proposal of Terms of Reference (TOR) was considered before EAC (M) on 15th May, 2013 to determine the TOR for undertaking detailed EIA study. ToR letter was issued vide letter no. vide letter no. J-11015/95/2013/IA. II(M) dated 30th March, 2015. Final EIA/EMP Report was submitted online on 20th October, 2016 to the Ministry for seeking Environmental Clearance after conducting Public Hearing on 05th Feb. 2016.

MoEFCC Earlier accorded the Environmental Clearance for this mine for production capacity 5.0 million TPA vide letter no. J-11015/146/2003-IA.II (M) dated 11th April, 2005. Compliance Report of the existing EC has been certified by Regional Office (Western Zone), Bhopal vide letter no. 3-8/2005 (ENV) /356 dated 10.5.2016.

The project proponent has submitted that the total Mining lease area is 1030.58 ha. The mining lease for Limestone & Shale, over an area of 1030.58 ha was initially granted in favour of M/s. Larsen & Toubro Limited, Mumbai in the year 1979 for a period of 20 years and the same was renewed for another 20 years from 12.02.2000 to 11.02.2020. The Lease was transferred to UltraTech Cement Limited, and Transfer Deed was executed on 21st April, 2006 for the balance period of the Lease till 11th February 2020. Scheme of Mining along with Progressive Mine Closure Plan has been approved by IBM vide letter no. CND/ LST/ MPLN- 180/ NGP dated 12.06.2015.

Limestone Mining is being carried out by fully mechanized opencast method utilizing Heavy Earth Moving Machinery and deep hole drilling and blasting methodology with the use of NONEL initiation system. Transportation of limestone is being carried out from the pit face to the crusher installed within the lease area via dumpers and crushed limestone from crusher to the adjacent Cement Plant is being transported via covered belt conveyor. Life of Mine is approximately 28 years and total minable reserves are 203.22 million tones. Ground water has already been encountered due to existing mine operations. Permission for the same has been obtained from CGWA vide letter no. 21-4(206)/CR/CGWA/2014-810 dated 14.05.2015.

Total water requirement after expansion will be 425 KLD which will be sourced

from Captive Power Plant Blow Down water, mine seepage water and ground water. Necessary Permission for groundwater drawl from bore wells and seepage has been obtained from CGWA vide letter no. 21-4(206)/CR/CGWA/2014-810 dated 14.05.2015.

The project proponent has submitted that no National Parks/Wildlife Sanctuaries/Biosphere Reserves/Wildlife Corridors/Tiger/Elephant Reserves are located within the 10 km study area of the mine lease. The project proponent has submitted that one Reserved Forest i.e. Manikgarh RF exists at ~6.65 km in South direction from the Lease area. **However, the DSS showed that the mine lease area is falling on Recorded Forest area (R-192 & 193) Reserve Forest, Central Chanda Division.**

Baseline data was collected for the period Post - Monsoon Season (October to December, 2013). The analytical results of samples collected for all parameters were found within permissible limits.

Public Hearing was conducted on 5th February, 2016 at ACW Sports Club Hall, Awarpur Cement Works in Village Awarpur, Taluka – Korpana, District – Chandrapur (Maharashtra). The Public Hearing was presided over by Dr. Deepak Mhaisekar, IAS, District Magistrate Chandrapur, Shri Rahul Wankhede, Sub- Regional Officer, M.P.C. Board, MPCB Board, Chandrapur, Shri P.M. Joshi, Regional Officer, M.P.C. Board, Chandrapur and Shri Shantanu Goyal, Sub- Divisional Officer, Rajura. The issues raised during Public Hearing were also considered and discussed during the meeting, which inter alia, included Use of waste, infrastructure development, education, health, water conservation measures, development of nearby villages, air pollution and its control etc. Action plan with budgetary allocation has been given against issues raised during Public hearing.

Total cost of the Project is Rs. 93.0 crores. Capital Cost for environmental protection measures is Rs. 1.00 crore /- & Recurring cost is Rs. 20 Lakhs per annum and Expenditure proposed towards CSR activities is Rs. 2999.84 Lakhs/ - for next five years. No Litigation is pending against this project.

The proposal was considered in the EAC Meeting held during 15-16 December 2016. Based on the information furnished and discussion held, **the Committee deferred the proposal. The committee was of the view that the proposal cannot be considered until the issue of forest land being involved or not is clarified conclusively. As the PP insisted that they had certificate from the Forest Department that no forest land was involved, and the DSS was showing that the mine lease area was in forest land, the Committee was of the view that the relevant documents from the PP may be collected and referred to FC division of MoEF&CC for resolving this discrepancy.**

(2.5). Sand, Bajri, Boulder mining from River Bed of Narokhalal River with production capacity of 2,70,000 TPA, by M/s Uttarakhand Forest Development Corporation, located at Langha Forest Range, Village – Kata Patthar, Tehsil - Vikasnagar, District -Dehradun, Uttarakhand (ML area 40 ha). Consideration of EC.

The proposal of M/s Uttarakhand Forest Development Corporation is for an annual production of 2,70,000 tonnes of Sand/Bajri/Boulder by open cast manual extraction method in river bed. The mineable area of 40 ha is a mine lease allotted to UKFDC for the purpose of mining of river bed material. In order to demarcate the mineable area, within the approved area, the inspection of the lease area was carried-out by the Joint Inspection Committee comprising of officers of Sub- Divisional Forest Officer, Divisional Forest Office, Dehradun, Tehsildar Dehradun, Sub-District Magistrate, Dehradun and an area of 40 ha being part of Narokhala river bed was recommended suitable for mining. Geographical location of mine lease area is covered under latitude 30°29'53.05"N to 30°30'33.68"N and longitude 77°52'19.25"E to 77°51'31.40"E. The project is B1 Project as per the MoEF Notification S.O.141 (E) dated 15 Jan 2016. **As SEIAA, Uttarakhand is not re-constituted, the proposal was submitted to the Ministry for consideration of EC.**

The application for TOR of the "Sand, Bajri and Boulder (minor minerals) mining in Narokhala River bed" located near Village-Kattapatthar, Tehsil-Vikasnagar & District-Dehradun, Uttarakhand was submitted on dated 08.08.2015 and the same was considered in the 19th Meeting of Reconstituted Expert Appraisal Committee (EAC) of MoEF&CC held on March 16 –18, 2015. The committee prescribed the TOR for EIA study of the proposed project vide letter No. J-11015/250/2015-IA.II (M) dated 30.04.2015

The river bed mining lease, measuring 40 hectare (ha) is a forest land lying in bed of river Narokhala that falls in Langha Forest Range, Tehsil-Vikasnagar and District: Dehradun, Uttarakhand. The mining site is well connected through rail & road network. The PP has submitted that the mine site is approachable by motor road connecting NH-72 at a road distance of 4.0 Km in the West direction. Only temporary haul roads shall be maintained to facilitate proper plying of vehicles inside the mine lease area. The project site as well as study area lies in Zone-IV.

The projected water requirement for the mine site is 20.0 KLD. The major areas of water consumption are dust suppression (4.0 KLD), for domestic purposes (6.0 KLD) and green belt development (10.0 KLD). Water requirement will be met by tanker supply.

The Project Proponent reported that there is **Binog Wild Life Sanctuary located within the 10 km study area (6.55 km from Mine site)** of the mine lease for which project proponent has applied for wild life clearance to the concerned authority. Five Schedule-I species namely Sher (*Panthera tigris*), Indian elephant (*Elephas maximus*),

Leopard cat (*Felis bengalensis*), Leopard (*Panthera Paradus*), Uidbilao (*Lutra lutra*) are recorded in study area. Detailed conservation plan for the same has been prepared and Authenticated by PCWW,CCF ,Dehradun, Uttarakhand.

The Baseline data was collected for the period Winter Season i.e. October 2015 to December 2015. The analytical results of samples collected for all parameters were found within permissible limits. The Committee deliberated the baseline data presented by the Project Proponent. Public Hearing was conducted on 29 June, 2016 at Rajkiye Inter College Village: -Badawala, Tehsil- Vikasnagar, District- Dehradun, Uttarakand. The public hearing was attended by the District Magistrate, Dehradun, who was the chairman of the Public hearing, Dr. Ajit Singh (Asst. Scientific Officer) and representative of Uttarakand Environment Protection and Pollution Control Board (UEPPCB), Shri Satvant Singh, Environmental Engineer, representative of Mantec Consultants Pvt. Ltd., many officials of UKFDC & general public and was presided by Mr. Satvant Singh, EE. The points which were raised by the Public & action plan for those points has been given.

Total cost of the Project is Rs. 20 Lakh Capital Cost for environmental protection measures is Rs. 12.45 Lakhs and Project Proponent has earmarked Rs. 5.0 Lakhs towards CSR activities w.r.t. sustainable livelihood, education & capacity building, health care, social reforms and community development.

The proposal was considered in the EAC Meeting held during 15-16 December 2016. Based on the information furnished and discussion held, **the Committee noted that the PP has not yet obtained Stage-I Forest Clearance. The Committee also noted that the PP had not submitted the proof of application for NBWL clearance. The committee deliberated and recommended the project subject to submission of Stage-I Forest Clearance and proof of application of NBWL Clearance.**

(2.6). Banour limestone mines of M/s Balbir Singh Supa Ram (0.847 Ha.) with production capacity of 25,000 TPA (ROM) located at near Village Bannaur, Tehsil- Ponta Sahib, District-Sirmour, State-Himachal Pradesh. (Consultant:-M/s Udaipur Min-Tech Pvt. Ltd.) - Consideration of EC.

The Proposal of M/s Balbir Singh Supa Ram for Limestone mine (M.L. Area- 0.847 Ha) with production capacity of 30,000 TPA (RoM) at village Banour, Tehsil Paonta Sahib, Distt.- Sirmour (H.P.) The mining lease area lies between Latitudes & Longitudes $30^0$35'17.62"N to $30^0$35'21.59"N and $77^0$43'24.53"E to $77^0$43'28.96"E respectively on survey of India Topo sheet No- 53F/10, 14 the project is located in Seismic Zone IV. The project is Category – "A" as the interstate boundary of Himachal Pradesh & Uttarakhand is at about 1.8 km towards NE.

The proposal was considered in EAC meeting held on 25th June 2015 to determine

the Term of Reference for undertaking detail EIA Study. ToR was issued by MoEF & CC vide letter No J-11015/189/2015-IA-II (M) on dated 29th June 2015. Public consultation was conducted on dated 25.04.2016 at Banour, Sirmour (HP). The public hearing had been chaired by Shri Man Mohan Sharma, Additional District Magistrate. Final EIA /EMP Report was submitted on MoEF&CC web portal.

The mining lease of 0.847 Ha was granted in favour of M/S Balbir Singh Supa Ram for 20 years on dated 02/09/2002. Lease has been extended up to 1/9/2052 by MMDR (Amendment) Act 2015.

Mining is being carried out by opencast semi- mechanized method with proper benches of 6m width and 6m height, slightly sloping at 70^0 & mineral shall be exploited with the adoption of drilling & blasting. Life of mine is 5.0 years and total mineable reserves are 155709 Tonnes. Monitoring has been done in post monsoon period Oct to Dec 2015 and results of monitoring for Air, Water Noise & Soil are within limit. Traffic analysis shows that not much impact is anticipated on current scenario as only 05 dumpers will be required for transportation. At conceptual stage total mined out area will be 0.847 ha. About 0.1925 ha area will be planted on statuary barrier & 0.6545 ha area will be planted on mined out benches. Total water requirement in the mine will be about 2.5 KLD for drinking, spraying (dust suppression) and plantation. Water will be sourced from nearby village through water tankers.

The project proponent has submitted that there is no National Park, Wild Life Sanctuary, and Habitat for Migratory Birds, Tiger Reserve, Elephant Reserve, and Bio-sphere Reserves are located within 10 km radius of the mine lease. The project area does not fall in CRZ area.

Public hearing for the proposed project was conducted on dated 25th April 2016 at Banour village the public hearing was chaired by ADM Sh. Man Mohan Sharma. Issue raised in public hearing with action plan is incorporated in the EIA/EMP report. The cost of the project is Rs. 24.00 lac. About Rs 2.00 lac /year will be earmarked for CSR activities and Rs.-1.20 lac/year will be earmarked for Environment protection measures.

The proposal was considered in the EAC Meeting held **during 15-16 December 2016.** Based on the information furnished and discussion held, **the committee noted that the approved mine plan was for 25,000 TPA so the committee recommended the EC for the reduced capacity of 25,000 TPA.**

(2.7).Sand Minor Mineral Project of Sh. Kulvinder Singh S/o Sh. Trilochan Singh M/s P.S. Buildtech, located at Village Jathlanaand Dhakwala, Tehsil – Radaur, District – Yamuna Nagar, Haryana (101.27 ha. and 36 Lakh TPA). - Consideration of EC.

The proposal is of Sh. Kulvinder Singh Prop. M/s P.S. Buildtech for mining of Sand (Mine Lease Area–101.27 Ha.) at Jathlana, District Yamuna Nagar (Haryana). The copy of LOI is issued by Department of Mines & Geology, Govt. Of Haryana vide Letter no. DMG/HY/Cont./Jathlana Block /YNR B-12/2015/10070dated 30.11.2015. Life of mine is 10 years. The Mine plan was approved by Department of Mines and Geology, Haryana vide letter no. DMG/HY/MP/Jathlana Block/YNR B-12/2015/3110 dated 10.06.2016. The Consultant has presented the details of mine site using KML/SHP files on Google Earth. The proposal for TOR was considered in EAC meeting held during January 20- 22, 2016, to determine the Terms of Reference (TOR) for undertaking detailed EIA study. TOR was issued by MoEFCC vide letter no. J-11015/5/2016-IA. II(M) dated 08.02.2016. The project land is situated in riverbed of two villages Jathlana and Dhakwala in the coordinates are as follows: Pillar –A: N 30° 00′ 30″ E 77° 14′ 46″; Pillar –B: N 30° 00′ 34″ E77° 14′ 58″; Pillar- C: N 30° 00′ 34″ E77° 15′ 11″ Pillar – D: N 30° 00′ 36″ E77° 15′ 11″; Pillar –E: N 30° 00′ 36′″ E77° 15′ 23.5″; Pillar –F: N 30° 00′ 35.5″ E77° 15′ 23.5″; Pillar- G: N 30° 00′ 35.5″ E77° 15′ 33″; Pillar- H: N 30° 00′ 24″ E77° 15′ 56″; Pillar- I: N 30° 00′ 20″ E77° 16′ 00″; Pillar- J: N 30° 00′ 12″ E77° 15′ 54″; Pillar- K: N 30° 00′ 19″ E77° 15′ 13.5″; Pillar- L: N 30° 00′ 19″ E77° 15′ 02″; Pillar- M: N 30° 00′ 20″ E77° 14′ 59″; Pillar- N: N 29° 59′ 48′″ E77° 14′ 39″; Pillar- O: N 29° 59′ 51″ E77° 14′ 37″; Pillar- P: N 30° 00′ 00″ E77° 14′ 37.5″; Pillar- Q: N 30° 00′ 11″ E77° 14′ 43.5″; Pillar- R: N 30° 00′ 15″ E77° 14′ 42″.

The proposed project is for mining of Sand by open cast semi-mechanized at Yamuna river Tehsil-Radaur and Distt-Yamuna Nagar, Haryana with proposed production capacity of 45,00,000 TPA of Sand. The total geological reserve is 60,76,200 Metric Tons and total mineable reserve is 45,40,200 Metric Tons. Mine lease area will be worked in blocks and the ultimate depth will be 3 m. The replenishment with respect to the production capacity was analysed as per the Dandy-Bolton's equation. Sand will be transported by trucks of 25 Tons capacity and 200 dumpers will be deployed for transportation of minerals. Total water requirement for the project is 70 KLD. Total man power requirement for the project is 120.

It was reported by the PP that no National Parks/Wildlife Sanctuaries/Biosphere Reserves/Wildlife Corridors/Tiger/Elephant Reserves are located within 10 km radius of the proposed Mining Lease boundary. There are one Protected Forests within 10 km radius study area. The conservation plan for Schedule-I species, Pavo cristatus, Herpestes edwardii and Macaca mulatta was also submitted. Baseline data was collected for the winter season (December to February, 2016). All the parameters of monitoring data i.e. Air, Water, Soil and Noise were found within permissible limit. The public

hearing was held on 24.05.2016 at Jathlana, Yamuna Nagar, Haryana. The public hearing was presided over by Shri S.S. Phulia, Deputy Commissioner, Yamunanagar. This project will enhance the opportunities of employment for the local villagers. It is proposed to plant 1000 Nos. per annum of native species along with some fruit bearing and medicinal trees during the mining plan period.

The project cost is 12 crore and a budget of Rs. 30.00 Lakhs for Environmental Social Responsibility, budget for conservation of biodiversity is Rs. 9.10 Lakhs, budget of Rs. 15.00 Lakhs for Occupational Health and Safety and budget of Rs. 36.00 Lakhs for EMP will be incurred by Project Proponent to address all social, physical, ecological and environmental issues. There is no court case against this project, however there is a court case in the matter of M/s Om minerals v/s State of Haryana and others [CWP No. 7991 of 2014], wherein the petitioner had challenged the demand/levy of stamp duty on execution of (Contract Agreement). The State Government (Dept. of Mines and Geology) has issued LoI subject to the outcome of this case. The above mentioned case is still pending before Hon'ble Punjab and Haryana High Court for adjudication. It was reported that the Project Proponent has not filed any court case against any department neither he is a party in this case.

The proposal was placed in the EAC meeting held during July 21-22, 2016 wherein the Committee deliberated at length the information submitted by PP and **deferred** the Proposal for want of following information: (i) The replenishment study shall be done and report shall be submitted. (ii) The evacuation gates w.r.t. haulage road and detailed traffic analysis shall be submitted. (iii) The Disaster Management Plan of the area shall be submitted. (iv) The Transportation plan and Plantation programme is to be revised with budgetary provisions.

The PP submitted the information online therefore the proposal was considered in the EAC meeting held during 19-20 September 2016. The Committee deliberated at length the information submitted by PP and deferred the Proposal for want of following information: (i) The scientific replenishment study shall be done and report shall be submitted. (ii) The evacuation gates w.r.t. haulage road and detailed traffic analysis shall be submitted. (iii) The Disaster Management Plan of the area shall be submitted. (iv) The Transportation plan and Plantation programme is to be revised with budgetary provisions.

The PP submitted the information online therefore the proposal was considered during the EAC meeting held **during 15-16 December 2016**. Based on the information furnished and discussion held, **the Committee noted that there were other contiguous mining projects of similar mineral upstream and downstream. The Committee was of the opinion that 20% of the capacity be reduced as replenishment will be affected because of three contiguous projects. After deliberation the committee recommended the EC for the reduced capacity of 36**

Lakh TPA. The Committee also noted that in case of LoI, there were CWP's pending in the Hon'ble High Court of Punjab and Haryana and recommended the EC based on the current status of the said CWP's.

(2.8). Baida Majheda Soapstone Mining Project of M/s Kunti Parihar located at Village- Baida Majheda, Tehsil: Kapkot, District-Bageshwar, Uttarakhand (5.570Ha) (33,383 TPA) (Consultant:- Grass Root Corporation)- Reconsideration of EC.

The mining proposal of M/s Kunti Parihar is located at Village- Baida Majheda, Tehsil: Kapkot, District-Bageshwar, Uttarakhand is for the production of 33,383 TPA of soapstone in mine lease area of 5.570 Ha. The project falls under Schedule 1(a) of mining and is a Category- "B2" project as per EIA Notification 14th September 2006 and thereafter amended on 15th January 2016. The proposed project has annual production capacity of 33,383 TPA of Soapstone mineral. **As SEIAA, Uttarakhand is not re-constituted, the proposal was submitted to the Ministry for consideration of EC.**

The PP has mentioned that the mining will be open cast semi-mechanized mine. Excavator shall be deployed for the removal of overburden & inter-burden. During first two years the overburden/inter-burden will be dumped separately into the dump yard secured with toe walls & from third year onwards all quantities shall be used in backfilling in the mined out pits. Mining shall be carried out in three pits viz Pit I, II & Pit III. The soapstone will be extracted manually with the help of crow bar, chisels, pickaxe, hammers, spade etc. as well as with deployment of excavator. Soapstone is soft mineral therefore, no drilling & blasting shall be required. No further beneficiation will be required except breaking & sorting. The different grade of soapstone will be filled into 40 kg plastic bags & transported to road side yard manually. From road side the soapstone bags will be loaded into trucks manually and transported to Haldwani.

The PP has submitted that the top soil having average thickness of 0.20m lies all over the applied area. The top soil & inter-burden shall be removed by means of an excavator & dumped separately. All quantities of soil & inter-burden to be generated shall be backfilled from third year onwards in mined out pit, therefore no proposal has been given for separate stacking of soil & inter-burden dump from third year onwards. The PP has submitted that owing to the topography of the area, which is a rough terrain, Soapstone mining activity is needed as the primary source of income for the locals. The mine will provide employment to about 85 workers. It will provide employment to the people residing in vicinity and also indirectly by the development of supporting infrastructure and allied activities.

The PP has mentioned that the area is basically agricultural. It is therefore, deficient in trees. Fruit trees exit in surrounding habitation. The mining activities will be concentrated on cultivated fields. Therefore, no flora shall be disturbed due to mining &

allied activities. During the presentation, the PP mentioned that two schedule-I species namely Asiatic Black bear and Leopard are reported from the mine lease area.

The proposal was placed for consideration in the EAC meeting held on 23-25 November 2016. The Committee deliberated at length the information submitted by PP and deferred the proposal. The committee required the following information to be submitted:-

i) Conservation plan with proper budgeting for Schedule-I species (Asiatic Black bear and Leopard) to be duly authenticated by the Chief Wildlife Warden, Uttarakhand. Also a letter from Forest department that no forest land is involved in the mine lease area.
ii) The haulage plan and the traffic plan submitted by the PP needs to be scientific as the area is hilly terrain and no metal roads are laid. The committee noted that unscientifically planned haulage & traffic can create problem.
iii) The committee noted that the PP had not uploaded any EMP. The committee required a detailed EMP to be prepared and uploaded by the PP for further consideration of the proposal.

The PP submitted online the required documents mentioned above and the proposal was proposal was considered during the EAC meeting held during 15-16 December 2016. Based on the information furnished and discussion held, **the Committee recommended the project for grant of Environmental Clearance subject to periodic free silica analysis to be carried out by the Project Proponent and the report to be submitted to the MoEF&CC Regional Office once in 6 months.**

(2.9). Gadera Soapstone of M/s Wave Mines Private Limited located at Village Panchayat- Gadera Village- Gadera, Tehsil: Kapkot District- Bageshwar, Uttarakhand (22.645 ha.) (40,000 TPA)(Consultant:- Grass Root Corporation) -Reconsideration of EC.

The proposal of M/s Messrs Wave Mines Private Limited is located at Village-Gadera, Tehsil: Kapkot & District: Bageshwar, Uttarakhand. The mining lease area is proposed for Soapstone Mine. The proposed project of 22.645 ha mine lease area is for Soapstone mining. The LoI No.1168/VII-1/24-Soapstone/ 2016 of mine lease has been granted in the name of M/s Wave Mines Pvt. Ltd. dated 26-08-2016. The project falls under Schedule 1(a) of mining and is a Category- "B2" project as per EIA notification 14th September 2006 and thereafter amended on 15thJanuary 2016. As SEIAA, Uttarakhand is not re-constituted, the proposal was submitted to the Ministry for consideration of EC.

The project proponent has submitted the Form-I, PFR and EMP online. The mining

will be done in semi-mechanized way in open cast method in quite a systematic manner by forming 6m high benches. However, there may be minor variation in the width and height which the lessee will keep on mending. The top soil and inter-burden to be scrapped with the help of JCB machine, dozer, shovels, pickaxe, spade & crowbar and will be stacked separately in dump yard located near the working pit. The extracted mineral is properly sorted out at the mine site. Mining work is going on at 46 benches. Crow bars are sometimes used to dislodge the mineral. No further beneficiation shall be undertaken during first five years. Water requirement for the proposed project is 3.62 KLD for drinking use and dust suppression. Soapstone is soft mineral and, therefore, no drilling & blasting shall be required. No further beneficiation will be required except breaking & sorting. The different grade of soapstone will be filled into 40 kg plastic bags & transported to road side yard manually. From road side the soapstone bags will be loaded into trucks through manually and transported to Haldwani.

Green belt development (plantation on barrier zone) will be carried out as a part of reclamation works. The top soil will be removed with the help of JCB machine, dozer, shovels, pickaxe, spade & crowbar and stacked separately. The soil intermixed with fragments and inter-burden rejects are low grade Magnesite. Part of these rejects will be utilized in construction and maintenance of retaining walls, parapet walls, check dams and other construction works. About 25641 cum of rejects will be used for this task, and in dump yard remaining rejects about 102564 cum will be backfilled. The site for dumping the waste have been selected keeping in mind the ultimate pit limit, proximity to roads and lead from working benches. The proposed dump yards have adequate capacity to accommodate the waste production. Drainage from the dumps remain natural i.e., water shall be passed under the solid dumps.

The PP has submitted that the mine will provide employment to about 96 workers. It will provide employment to the people residing in vicinity and also indirectly by the development of supporting infrastructure and allied activities. The mine will be worked on the day shift only. The average number of working days in the year would be 240. The area is basically agricultural. It is therefore deficient in trees. Fruit trees exit in surrounding habitation. The mining activities will be concentrated on cultivated fields. Therefore, no flora shall be disturbed due to mining & allied activities. Two schedule-I species namely Asiatic Black bear and Leopard are reported from the mine lease area.

The proposal was placed for consideration in the EAC meeting held **on 23-25 November 2016.** The Committee deliberated at length the information submitted by PP and deferred the proposal. The committee required the following information to be submitted:-

i) Conservation plan with proper budgeting for Schedule-I species (Asiatic Black bear and Leopard) to be duly authenticated by the Chief Wildlife Warden, Uttarakhand. Also a letter from forest department that no forest land is involved in the mine

lease area.

ii) The haulage plan and the traffic plan submitted by the PP needs to be scientific taking into consideration the number of trucks that would be involved in operations, as the area is hilly terrain and no metal roads are laid. The committee noted that unscientifically planned haulage & traffic will create problems.

The PP submitted online the required documents mentioned above and the proposal was proposal was considered during the EAC meeting held during 15-16 December 2016. Based on the information furnished and discussion held, **the Committee recommended the project for grant of Environmental Clearance subject to periodic free silica analysis to be carried out by the Project Proponent and the report to be submitted to the MoEF&CC Regional Office once in 6 months.**

(2.10). Kawatha Manganese Deposit mines of Lessee Smt. Rachana A. Belorkar located at Khasra No. 251, 253, 254, 255, 259, 267, 268, 269, 271, 272 Kawatha village, Tehsil Saoner, District Nagpur, Maharashtra (26.67 ha. Capacity: 4900 TPA)- Reconsideration of ToR

The proponent informed vide email dated 10th December 2016 that the PP was unable to attend the EAC meeting held during 15-16 December 2016. **The EAC committee deferred the proposal as the proponent did not attend the EAC meeting.**

(2.11). Sand, Bajri, Boulder Mineral Mines of M/s Uttarakhand Forest Development Corporation (UKFDC) located at Village-Abdullpur & Rampur Tehsil -Vikasnagar District -Dehradun, State-Uttarakhand (216000 TPA & Lease Area- 23.75 ha) -Consideration of ToR

The proposal of M/s. Uttarakhand Forest Development Corporation is for Extraction/Collection of Sand, Bajri & Boulder from Swarna River bed with production capacity of 2,16,000 TPA in the mine lease area of 23.75 ha. The mine site is located at village(s)-Abdullpur & Rampur Tehsil-Vikasnagar & District-Dehradun, Uttarakhand. The Latitude and Longitude of the mine site falls between30°22'45.99" N to 30°23'57.00" N 77°51'33.01" E to 77°53'29.68" E. respectively. Study area falls within the Survey of India Toposheet No. 53 F/4. The Project is located in Seismic zone-IV.

The present proposal pertains to mining of river sand. The rate of production will be 2,16,000 TPA (ROM). Total proposed area is 23.75 ha which is forest land for which forest clearance has been obtained with vide letter no-08B/U.C.P/05/166/2016/1320,dated-18.11.2016 and the Letter of Intent has been issued by the Director of Mines and Geology, State Govt. of Uttarakhand, vide letter no. 584/BHU. KHANI.I./2012-13 dated 23rd January, 2013. The Mining Plan for 23.75 ha

mine lease area was approved by the Director of Mine & Geology, Dehradun, Uttarakhand vide letter no. 44/M.Plan/U.Khani/Dehradun/2013-14, dated 13 May 2015.Mining will be carried out by opencast Manual method by use of Hand –Tools etc. Excavation on River bed will be carried out up to a maximum depth of 1.5 meters from surface of mineral deposit and not less than one meter from the water level of the River channel whichever is reached earlier. No drilling and blasting shall be adopted. There will be no mining in river bed during monsoon season. No waste shall be generated from dried river bed mining;

The projected water requirement for the mine site is 7.0 KLD. The major areas of water consumption are dust suppression (3.5 KLD), for domestic purposes (2.0 KLD) and green belt development (1.5 KLD). Water requirement will be met by tanker supply.

The Project Proponent reported that there is no National Park/ Wild Life Sanctuary /Tiger reserve/Elephant reserve located within the 10 km study area of the mine lease. The mining activity will be carried out by open-cast manual method with use of hand tools like shovel, pick-axe, pan, sieves etc. Leaving 25% area on both the banks of the river with a gap of 200 feet each upstream and downstream for any road /bridge crossing the river, thereby collecting the minor mineral in almost 50% of the total area along the centre of river channel; yearly production of mine is estimated as 50% of the total mine lease area per year i.e. @ 2,16,000 per year. Project Proponent reported that there is no court case/litigation pending against the project.

The proposal was considered during the EAC meeting held during 15-16 December 2016. Based on the information furnished and discussion held, **the committee prescribed the Standard ToR for undertaking detailed EIA study as per Annexure-I.**

(2.12). Ranavav Limestone Mining Project of M/s Shri Udaysinh M. Jethwa village: Ranavav, Survey No. 78/5, Taluka – Ranavav, District – Porbandar, Gujarat. (12-14-00 Ha. and 128000 TPA) Reconsideration of ToR

The EAC committee **deferred the proposals** as the project proponent did not attend the EAC meeting.

(2.13). Ranavav Limestone Mining of M/s of Shri Devabhai K Bhutiya village: Ranavav Survey No. 78/5 Taluka Ranavav District – Porbandar, Gujarat. (120000 TPA and Area- 11-33-00 Ha) Reconsideration of ToR

The EAC committee **deferred the proposals** as the project proponent did not attend the EAC meeting.

(2.14). Sand Mine of M/s M.P. Traders located at Nagli Block, Yamunanagar B-15, Tehsil Radaur, District Yamunanagar, State Haryana (77.25 Ha., 28 Lakh TPA) -Re-Consideration of ToR.

The proposal of M/s M.P. Traders is for the production of 35 Lakh TPA of sand in mine lease area of 77.25 Ha. The lease is located at Nagli Block, Yamunanagar B-15, Tehsil Radaur, Yamunanagar, Haryana. The LOI is over an area of 77.25 ha. Mining lease has been granted in favor of M/s. M.P. Traders by The Director General, Department of Mines & Geology, Haryana vide memo no.- DMG/ HY/ Cont/ Nagli Block/ YNR B 15/ 2016/ 5414 dated 20.10.2016 for a period of 10 years. The lease area lies on riverbed of Yamuna River in District- Yamuna Nagar (Haryana). Total M.L. area is 77.25 ha which is non- forest land. The proposed mining project land has been allotted as a single unit for mining of Sand (Minor Mineral) throughout the riverbed of District Yamuna Nagar (Haryana). The lease is located in the following latitude and longitude: Pillar No. A- N 29° 58′ 29″ E 77° 13′ 47″ Pillar No. B -N 29° 58′ 30″ E 77° 13′ 50.5″ Pillar No. C- N 29° 58′ 16″ E 77° 13′ 48.5″ Pillar No. D- N 29° 58′ 02″ E 77° 13′ 46″ Pillar No. E- N 29° 58′ 02″ E 77° 13′ 45″ Pillar No. F- N 29° 57′ 38″ E 77° 13′ 45″ Pillar No. G- N 29° 57′ 24″ E 77° 13′ 37″ Pillar No. H- N 29° 57′ 38″ E 77° 13′ 13″ Pillar No. I- N 29° 57′ 40″ E 77° 13′ 20.5″ Pillar No. J- N 29° 57′ 46″ E 77° 13′ 27″ Pillar No. K- N 29° 58′ 06″ E 77° 13′ 28″ Pillar No. L- N 29° 58′ 10″ E 77° 13′ 32″ Pillar No. M- N 29° 58′ 10″ E 77° 13′ 39″ Pillar No. N- N 29° 58′ 15″ E 77° 13′ 43″ Pillar No. O- N 29° 58′ 15″ E 77° 13′ 42″ Pillar No. P- N 29° 58′ 25″ E 77° 13′ 42″.

The project proponent has submitted that mining activity will be carried out by open cast semi-mechanized method. Light weight excavators will be used for digging and loading of mineral in tippers. No OB/ waste material will be produced. No drilling/ blasting is required as the material is loose in nature. Proper benching of 3.0 m height will be maintained. Roads will be properly made and sprayed by water for suppression of dust. Roads in the lease area for the movement of loaded trippers/ trucks will not have slopes more than 1 in 20. Extraction activities will start in the blocks from the upstream side to downstream side. This will not obstruct the movement of water, if any, during monsoon period in the river course. Approach roads from this block is as already described earlier will be merging with permanent tar roads on both sides of the river for transportation of the mineral to final destinations.

The Project Proponent has submitted that the total water requirement will be 45 KLD which will be sourced from the nearby villages through tankers. No liquid effluent will be generated at the mine site due to the mineral excavation. Only domestic waste water will be generated from mine office etc. which will be disposed of in septic tank via soak pits. The mining lease is a part of river bed of Yamuna River in Tehsil- Radaur, District- Yamuna Nagar (Haryana). The proposed activity is to take place in dry part of river bed where the excavated sand will be replenished during rainy season every year and hence there will be no change in land use. There will be no OB or waste generation

as the sand is exposed in the river bed. But, at the later stage, if any soil or waste will be obtained during mining, then same will be stored with proper protection and will be used for reclamation (plantation).

The PP has submitted that the green belt shall be developed as per approved eco-friendly mine lease plan and as per CPCB guidelines. The project proponent shall also develop greenbelt in the premises of the schools, hospitals and also carry out the avenue plantation in the vacant areas along roads. The greenbelt shall be developed by planting saplings per year. Indigenous species with the consultation of the State Forest Department shall be planted and maintained.

The PP has informed that there is no human settlement within the mine contract area. No human settlement will be disturbed due to the mining activity. So, no Rehabilitation and resettlement is proposed. Total cost of the Project is approximately Rs. 9 Crore/-.

The proposal was placed for consideration in the EAC meeting held on 23-25 November 2016. The committee did not consider the proposal and deferred the proposal for granting ToR as the project proponent had not submitted the KML file. The committee also noted that the proposal needs to be revised as the downstream replenishment will be less because of upstream extraction and it needs to be taken into consideration.

The project proposal was once again considered during the EAC meeting held during **15-16 December 2016.** Based on the information furnished and discussion held, **the Committee noted that there were other contiguous mining projects of similar mineral upstream and downstream. The Committee was of the opinion that 20% of the capacity be reduced as replenishment will be affected because of three contiguous projects. After deliberation the committee recommended the reduced capacity of 28 Lakh TPA and prescribed the Standard ToR for undertaking detailed EIA study as per Annexure-I.**

(2.15). Sand Mine of M/s Kawaljeet Singh Batra located at MT Karhera Block, YNR B-13, Tehsil Yamunanagar, District Yamunanagar (67.79 Ha. 23.60 Lakh TPA) - Re- Consideration Of ToR.

The proposal of M/s Kawaljeet Singh Batra is for the production of 29.50 Lakhs TPA of sand (minor mineral). The lease area lies on Yamuna riverbed. The total mine lease area is 67.79 hectares which is non- forest land. The proposed mining project land has been allotted as a single unit for mining of Sand (Minor Mineral) through the riverbed of District Yamuna Nagar (Haryana). The contractor shall be under obligation to carry out mining in accordance with all other provisions as applicable under the Mine Act, 1952, Mines and Minerals (Development and Regulation) Act, 1957, Indian Explosive Act, 1884, Forest (Conservation) Act, 1980 and Environment (Protection Act),

1986 and the rules made there under, wild life (Protection) Act 1972, water (Prevention and control of pollution) Act 1974 and Air (Prevention and Control of Pollution) Act, 1981. Letter of Intent (LoI) for mining lease for sand minor mineral over an area of 67.79 Ha. has been granted to M/s Kawaljet Singh Batra from Director of Mines and Geology Department, Govt. of Haryana vide Memo No. DMG/HY/ M.T. Karhera Block Cont/ NYR B5 /2016/5412 dated 20.10.2015. The lease is located in the following latitude and longitude: Pillar No. A: N 30° 00' 10" E 77° 14' 38.5" Pillar No.B: N 30° 00' 10" E 77° 14' 39.5" Pillar No. C: N 30° 00' 09" E 77° 14' 40" Pillar No. D: N 29° 59' 59" Pillar No. E: 77° 14' 36.5" E N 29° 59' 58" E 77° 14' 37.5" Pillar No. F: N 29° 59' 46.5" E 77° 14' 37" Pillar No.G: N 29° 59' 46" E 77° 14'39" Pillar No. H: N 29° 59' 42" E 77° 14'37" Pillar No. I: N 29° 59' 42" E 77° 14' 32.5" Pillar No. J: N 29° 59' 38" E 77° 14' 27.5" Pillar No. K: N 29° 59' 36" E 77° 14' 27.5" Pillar No. L: N 29° 59' 36" E 77° 14' 25" Pillar No. M: N 29° 59' 28" E 77° 14' 25" Pillar No. N: N 29° 59' 28" E 77° 14' 22.5" Pillar No. O: N 29° 59' 07" E 77° 14' 15" Pillar No. P: N 29° 59' 06" E 77° 14' 13.5" Pillar No. Q: N 29° 59' 06.5" E 77° 14' 12" Pillar No. R: N 29° 59' 16" E 77° 14' 07" Pillar No. S: N 29° 59' 24" E 77° 14' 07" Pillar No. T: N 29° 59'40" E 77° 14' 09" Pillar No. U: N 29° 59' 50" E 77° 14' 17" Pillar No. V: N 29° 59' 50" E 77° 14' 18.5" Pillar No. W: N 29° 59' 52" E 77° 14' 19" Pillar No. X: N 29° 59' 52" E 77° 14' 17.5" Pillar No. Y: N 29° 59' 54" E 77° 14' 17.5" Pillar No. Z: N 29° 59' 54" E 77° 14' 21" Pillar No. A1: N 30° 00' 02" E 77° 14' 25" Pillar No. B1: N 30° 00' 02" E 77° 14' 27.5" Pillar No. C1: N 30° 00' 04" E 77° 14' 30" Pillar No. D1: N 30° 00' 04" E 77° 14' 35" Pillar No. E1: N 30° 00' 06" E 77° 14' 35" Pillar No. F1: N 30° 00' 06" E 77° 14' 33"

The PP has been proposed to excavate approximately 29.50 Lakhs Tons per annum of sand from the bed of the Yamuna river. The sand will be replenished during monsoon season every year, as the mining will be undertaken on a rotation basis, in such a way that excavated areas of previous years of mining will act as depository for the post monsoon season. Mining activity will be carried out by open cast semi-mechanized method. Light weight excavators will be used for digging and loading of mineral in tippers. No OB/ waste material will be produced. No drilling/ blasting is required as the material is loose in nature. Proper benching of 3.0 m height will be maintained. Roads will be properly made and sprayed by water for suppression of dust. Roads in the lease area for the movement of loaded trippers/ trucks will not have slopes more than 1 in 20. Extraction activities will start in the blocks from the upstream side to downstream side. This will not obstruct the movement of water, if any, during monsoon period in the river course. Approach roads from this block is as already described earlier will be merging with permanent tar roads on both sides of the river for transportation of the mineral to final destinations.

The PP has submitted that the total water requirement will be 40 KLD. This water will be sourced from the nearby villages through tankers. All the activities will be carried out in a mechanized manner. The material will be excavated and loaded directly into, dumpers. tractors-trolley etc by the diesel run excavator cum loaders. The operation will

be done only from sun rise to sun set. So there is no power requirement for the mining activity.

The green belt shall be developed as per approved eco-friendly mine lease plan and as per CPCB guidelines. The project proponent shall also develop greenbelt in the premises of the schools, hospitals and also carry out the avenue plantation in the vacant areas along roads. The greenbelt shall be developed by planting saplings per year. Indigenous species with the consultation of the State Forest Department shall be planted and maintained.

The PP has submitted that no sewerage system is proposed. However, for sanitation purpose portable toilets will be made available. Negligible quantities of silt/clay mixture will be generated, most of which will be left on stream bed for back filling and remaining will be used for plantation. No waste water will be generated from the mining activity of mineral as the project only involves extraction of sand. Domestic waste water will be disposed in soak pits via septic tank.

The PP has informed that there is no human settlement within the mine contract area. No human settlement will be disturbed due to the mining activity. So, no Rehabilitation and resettlement is proposed. Total cost of the Project is approximately Rs. 3.5 Crore/-.

The proposal was placed for consideration in the EAC meeting held on 23-25 November 2016. The committee did not consider the proposal and deferred the proposal for granting ToR as the project proponent had not submitted the KML file. The committee also noted that the proposal needs to be revised as the downstream replenishment will be less because of upstream extraction and it needs to be taken into consideration.

The project proposal was once again considered during the EAC meeting held during **15-16 December 2016**. Based on the information furnished and discussion held, **the Committee noted that there were other contiguous mining projects of similar mineral upstream and downstream. The Committee was of the opinion that 20% of the capacity be reduced as replenishment will be affected because of three contiguous projects. After deliberation the committee recommended the reduced capacity of 23.60 Lakh TPA and prescribed the Standard ToR for undertaking detailed EIA study as per Annexure-I.**

(2.16). Iron Ore & Laterite Mine with production capacity of 2,74,000 TPA Tons of Iron Ore and 62,000 TPA of Laterite of M/s E.V. Ranga Reddy located at Survey no. 172 Pagadalapalli Village, Pendlimarri Mandal, Kadapa District, Andhra Pradesh (201.94 ha)- Amendment of Tor

The proposal of M/s E.V. Ranga Reddy is for extension of validity of TOR from 17.07.2017 to 16.07.2018 for Iron Ore & Laterite Mine with production capacity of 2,74,000 TPA Tons of Iron Ore and 62,000 TPA of Laterite in the ML area of 201.94 ha. The mine lease area is located at Survey no. 172 Pagadalapalli Village, Pendlimarri Mandal, Kadapa District, Andhra Pradesh

The TOR to the project was issued vide letter no. J-11015/46/2013-IA.II(M) dated 18.07.2014 which is valid up to 17.07.2017. The Project Proponent now requested the extension of validity of TOR as the Public Hearing for the project has been delayed.

Based on the information furnished and discussions held, the **Committee recommended the extension of the validity of TOR for one more year i.e. from 17.07.2017 to 16.07.2018 as per the provisions of OM No. J-11013/41/2006-IA.II (I)(Pt.) dated 08.10.2014.**

(2.17). Dhulkhera Iron Ore Mining with proposed production capacity of 19,771 TPA (ROM) of Iron Ore by M/s Steel Authority of India Limited, located at Village (s) – Aarjiya, Dhulkhera, Jeepiya, Ranigpura, Bhadalikhera, Chhatrikhera & Maalola, Bhilwara, Tehsil & District-Bhilwara, State Rajasthan (MLA 871.3861ha)-(Consultant:-MECON LIMITED)- Consideration of EC

The proposal of M/s Steel Authority of India Limited is for Dhulkhera Iron Ore mining with proposed production capacity of 19,771 TPA (ROM) of Iron Ore in mine lease area of 871.3861 ha. The mine lease area is located at Village (s) – Aarjiya, Dhulkhera, Jeepiya, Ranigpura, Bhadalikhera, Chhatrikhera & Maalola, Bhilwara, Tehsil & District-Bhilwara, State Rajasthan. The proposed ML area falls under Toposheet No. 45 K/11 between $25^0$23′40.00″ to $25^0$26′11.10″N Latitude and $74^0$35′02.80″ to $74^0$38′43.40″ E Longitude.

The proposal was considered by the Expert Appraisal Committee in its meeting held during July 21-22, 2016 to determine the Terms of Reference (ToR) for undertaking detailed EIA/EMP study. The ToR was issued by the Ministry vide letter No. J-11015/115/2016-IA.II (M) dated 16.08.2016 for **Dhulkhera Iron Ore Mining and beneficiation project with proposed production capacity of 2.0 million TPA (ROM) of Iron Ore mining; 2.0 of million TPA of beneficiation plant and 0.6 million TPA of Pellet plant. The Project Proponent reported that the project will be executed in two phases viz. (i) Phase-I: Iron Ore Mining with production**

capacity of 19,771 TPA (ROM) of Iron Ore; (ii) Phase-II: Iron Ore Mining with production capacity of 2.0 million TPA (ROM) of Iron Ore; 2.0 of million TPA of beneficiation plant and 0.6 million TPA of Pellet plant. The instant proposal is for Phase –I only i.e. Iron Ore Mining with production capacity of 19,771 TPA (ROM) of Iron Ore. The EIA/EMP Report has been submitted by Project Proponent online to the Ministry for seeking Environmental Clearance.

The proposal envisages production of 19,771 TPA of iron ore (ROM) as per IBM approved mining plan. The Government of Rajasthan has issued letter of intent (LOI) for grant of mining lease over an area of 871.3861 ha in favour of M/s SAIL on 01.07.2015 for iron ore mine. The total mine lease area is 871.3861 ha. Out of which 102.7890 ha is a forest land and 768.5595 ha is non-forest land (comprising of 300.5949 ha of agricultural land, 215.8781 ha is a waste land, 108.3797 ha is surface water-body and 36.9873 ha is under settlement and others 83.5823 ha). The Project Proponent has applied for grant of Stage-I forest clearance for diversion of 35.526 ha and also an application for assigning the entire forest land under Section 2 (iii) of FC Act, 1980. Both the proposals are under consideration of the State Forest Department. The mining lease is protected under Section 10 A (2) (C) of the MMDR, Act and the lease deed agreement is to be entered into on or before 12th January, 2017. A total of 23.1248 ha of grazing land exist in the ML area and accordingly, SAIL has applied for obtaining No Objection Certificate (NOC) from the concerned department of the State Govt.

Mining will be fully mechanized opencast method. The mining process involves drilling and blasting, loading and transportation of the excavated material. The Mining Plan is approved by IBM, Ajmer vide letter no. 584(4)(3)(1640)/2016-Khekhani-Ajam/808, dated 13.06.2016. The Project Proponent reported that 7.076 ha area will be used for Mining (excavation), 3.301 ha for overburden/dumps, 10.2350 ha for infrastructure development, 3.416 ha for roads, safety zone area of 4.368 ha and 842.9901 ha will be undisturbed area during initial five years. The Project Proponent reported that on the basis of available resources, the life of the deposit will be 5 years at an annual production rate of 19,771 TPA (ROM) and the life of the mining may increase on establishing the actual iron ore reserve within the lease area. The conceptual land use on establishment of reserve will be 66.5510 ha for mining (excavation), 50.7680 ha for dumping, 10.2350 ha for infrastructure, 5.6350 ha for dry tails disposal, 5.1800 ha for roads, 13.3270 ha for safety zone and 3.502 ha for plantation. The ML area comprises of hilly tract with a stretch of 1780 m with average width of 400 m in the Southwestern part trending NE-SW, rest of the area is mostly flat terrain in nature. The general ground level is around 450 mRL and the highest point of the hills is around 514 mRL with the highest pick near Jipiya village is of about 514 mRL. River Kothari (dry) flows from west to east along the north-western boundary and turns towards south-east in the central part of the lease area and passes through the lease area with an overall hi-parabolic shape with closing towards NE. The Meja Dam over river Kothari is at a distance of 2 km from the lease boundary towards north-west. The ultimate working depth will be 430 mAMSL. The

groundwater table lies between 394-417 mAMSL. Mine working will not intersect groundwater table. The make-up water required for the project (peak capacity) comes to around 320 m^3/hr or 7.6 MLD. A total of 550 Nos. of skilled/ semi-skilled/ supervisory/ executive level of workmen have been proposed for the project. Project Proponent reported that no major infrastructure facilities are envisaged under the present proposal, besides some small pre-fabricated installations at site.

The Project Proponent reported that there is no National Park, Wildlife Sanctuary, Biosphere Reserves, Wildlife corridors; Tiger/Elephant Reserves etc. within the study area (10 km radius of the mining lease boundary). A list flora and fauna within the core zone and the buffer zone is authenticated by the State Forest Department and the mitigation plan for wildlife management and conservation has been prepared by the Project Proponent. The Project Proponent has presented the details of mine site using KML/SHP files on Decision Support System.

The baseline data was generated for one season during summer season i.e. March, 2016 to May, 2016. All the parameters for water and air quality were within the permissible limits. The Public hearing was held on 07.11.2016. The Public hearing was presided over by Shri Anandi Lal Vaishanv, Additional District Collector, Bhilwara. The representative of Regional Office from the Rajasthan State Pollution Control Board was also present. Major issues raised during public hearing were related to employment of locals, land acquisition and proper compensation, skilled development and capacity building of local youths, generation of dust due to vehicular movement. The Committee deliberated the issues raised during the public hearing.

The capital cost of the project is Rs. 750 crores. The capital cost for implementing EMP is Rs 290 Lakhs and recurring cost of Rs 95 Lakhs per annum which include pollution control and monitoring, green belt development etc. PP has earmarked Rs. 30 Lakhs for socio-economic welfare measures for the nearby villages Other than R&R plans. The Project Proponent reported that there are two pending court cases [case Nos.: 852/2011 and 13098/2012] filed in the Hon'ble High Court of Rajasthan, Jodhpur.

Based on the information submitted, presentation made by the PP and the discussion held, the Committee **recommended** the proposal for environment clearance for production of Iron ore 19,771 TPA (ROM) **subject to Stage I FC and updated status of court cases.**

The Committee **recommended additional specific conditions** viz. (i) The Proponent shall install online Ambient Air Quality Monitoring System and there should be system for display of digital AAQ data within 03 months at least at three locations as per wind direction. Online provisions of pH and turbidity meters at discharge points of STP and ETP and also at water storage ponds in the mining area may be made. Project Proponent should display the result digitally in front of the main Gate of the mine site;

(ii) Project Proponent shall obtain the necessary prior permission from the Central Ground Water Authority (CGWA) in case of intersecting the Ground water table. The intersecting ground water table can only be commence after conducting detailed hydrogeological study and necessary permission from the CGWA/MoEFCC. The Report on six monthly basis on changes in Ground water level and quality shall be submitted to the Regional Office of the Ministry, CGWA and State Pollution Control Board; (iii) Project Proponent should plant only native species for green belt development. Plantation of local species should be carried out during the Monsoon Season; (iv) The project should also implement community Development and Welfare programme in the area of Health, Education and Environmental Protection; and (v) Proponent shall appoint an Occupational Health Specialist for Regular and Periodical medical examination of the workers engaged in the Project and maintain records accordingly; also, Occupational health check-ups for workers having some ailments like BP, diabetes, habitual smoking, etc. shall be undertaken once in six months and necessary remedial/preventive measures taken accordingly. The Recommendations of National Institute for ensuring good occupational environment for mine workers shall be implemented; The prevention measure for burns, malaria and provision of anti-snake venom including all other paramedical safeguards may be ensured before initiating the mining activities.

(2.18). Rasuli Iron Ore Mine with production capacity of 45,000 TPA (ROM) of Float Iron Ore by M/s Navbharat Fuse Co. Ltd., located at Village Kanker, Tehsil-Bhanupratappur, District-Kanker, Chhattisgarh (MLA: 220 ha) (Consultant:-BHAGAVATHI ANA LABS PVT LTD)-Consideration of EC

The proposal of M/s Navbharat Fuse Co. Ltd. is for Rasuli Iron Ore Deposit with production capacity of 45,000 TPA (ROM) of Float Iron Ore in mine lease area of 220ha. The mine lease area is located at Village-Rasuli, Tehsil Bhanuprattapur, District -Kanker, Chhattisgarh.

The proposal of TOR was considered in the EAC meeting held during August 26-27, 2014 and further in 29th meeting held during, January 15-16, 2015. The ToR was issued by the Ministry, vide letter no. J-11015/191/2014-IA.II(M) dated 13.02.2015. EIA/EMP Report has been submitted online to the Ministry for seeking Environmental Clearance. The Consultant has presented the details of mine site using KML/SHP files on Decision Support System.

The total mine lease area is 220 ha, which is forest land. Out of which 21.5915 ha for excavation; 0.21ha for storage; 6.065ha for Overburden/Dumps; 0.29ha for infrastructure; 4.71ha for Roads; 4 ha is for green belt/afforestation; 2.999ha for Others Check dam and retention walls; and 178.3845 ha area is unutilized. Mine plan along with mine closure plan has been approved by IBM, vide letter no KNK/FE/MPLN-1058/NGP, dated 22.12.2011. Application for Forest diversion is submitted vide its Registration Number is 2010/086. Part of the area of float ore mining will be backfilled after obtaining

prior permission from IBM. The backfilled pits will be afforested with local plants. About 8 KLD of water will be required which will be sourced through ground water. PP reported that the mining will not intersect the ground water table.

The method of mining is opencast manual operations. Drilling and blasting is not required for float ore. Two excavators cum loaders and 12 tippers will be deployed for mining and transportation of the float ore and associated waste. There will be one bench in float ore deposit at the height of 2.5 m and spread of working will be around 9.7843 ha area during the mining plan period and will be within 562.5 m AMSL to 497.5 m AMSL. The mineral will be sized manually and crushing will be carried out in the sponge iron plant of the company. The mineral will be manually loaded into 10 tonne capacity tippers and will be dispatched to the sponge iron plant of the company. Total generation of overburden during the lease period is around 404841 m^3. Part of the overburden including associated waste will be accommodated in the worked out pit for reclamation followed by plantation. Remaining will be dumped in surface dump located within the mine lease area. The surface dump will cover 6.065 ha area at the end of lease period.

Project Proponent reported that there is no wildlife sanctuary/tiger reserve/national park, etc. Located within 10 km radius area of the mine lease area. The mine lease area is located in Khargaon Protected Forest. Other forests in the study area includes; Ghotulmura PF 5.5 km, Dondi PF 5.8 km, Boriya PF 6.4 km, Gubiyagarh PF 6.0 km, Hilchur PF 5.3 km, Kohka PF 5.0 km.

The Baseline studies were carried out during post monsoon i.e. October 2015 – December 2015. All the parameters for air, water, and noise quality were reported to be within prescribed standards. Public Hearing was held on 07.09.2016. The Public Hearing was presided by Shri Vipin Manjhi, Additional District Magistrate.

The total cost of the project is Rs 55.52 Crores. Capital cost for Environment Protection Measures is Rs 66.00 Lakhs and annual recurring budget is Rs 53.00 lakhs which include pollution control and monitoring, green belt development etc. Project Proponent has earmarked Rs. 14 Lakhs (capital cost) and Rs. 12 lakhs (recurring cost) for socio-economic welfare measures for the nearby villages other than R&R plans. Project Proponent reported that there is no court case/litigation pending against the project.

The Committee deliberated at length the information submitted by PP and **deferred the Proposal** and is of the view that the Proposal may be considered after submission of following information/clarifications:-

(i) The valid LOI of the mine need to be submitted;

(ii) There are Schedule I Species located in the study area. The PP needs to

submit the proof of application submitted for approval of Conservation Plan for Schedule I Species and its present status;

(iii) The Committee noted that the total mine Lease Area is in Forest Land. The PP informed that the State Govt. of Chhattisgarh has forwarded the application for FC Clearance. PP needs to submit the copy of application;

(iv) The Committee noted that the Species selected for green belt has not as per the CPCB guidelines also the number of saplings for greenbelt development are too less for the area in which plantation is to be carried out. The revised plan along with the species as per the Guidelines needs to be submitted;

(v) A detailed time bound action plan along with the budgetary provision for issues raised during the Public Hearing shall be submitted;

(vi) A detailed waste generation and action plan for waste management and evacuation plan shall be submitted.

(vii) Project Proponent shall provide an Occupational Health plan which is to prepared by Specialist for Regular and Periodical medical examination of the workers to be engaged in the Project; and

(viii) Conceptual post mining land use and Reclamation and Restoration of mined out areas (with plans and with adequate number of sections) for 220 ha should be given in the EIA report.

(2.19). Ghatani Ochre, White Earth and Bauxite Mine with proposed production capacity of 20,000 TPA (ROM) of M/s Madhya Pradesh Minerals Supply Company, located at Village Ghatania, Tehsil – Majhgawan, District Satna (3.845 ha) (Consultant:-Envirta Sustainable Solutions India Pvt. Ltd.)- Consideration of EC

The Proposal was **deferred** as the Project Proponent did not attend the meeting.

(2.20). Udali Bauxite, Ochre and White Earth Mine with proposed production capacity of 19,964 TPA (ROM) by M/s Madhya Pradesh Mineral Supply Company located at Village – Udali, Tehsil – Majhgawan, District- Satna, Madhya Pradesh (ML 3.723 ha) (Consultant:-Envirta Sustainable Solutions India Pvt. Ltd.)- Consideration of EC

The Proposal was **deferred** as the Project Proponent did not attend the meeting.

(2.21). Hahaladdi Iron Ore Mine with proposed production capacity 1.5 Lakhs TPA by M/s Monnet Ispat & Energy Ltd., located at Village – Hahalladi Tehsil Bhanupratappur, District Kanker, Chhattisgarh (MLA 78.90 ha)-(Consultant:- Min Mec Consultancy Pvt. Ltd.)-Re-consideration of EC

The proposal of M/s Monnet Ispat & Energy Ltd. is for opening of a new mine for production of 0.15 million TPA of iron ore. The mine lease area is 78.9 ha, which is a forestland. TOR for this project were prescribed on 20.6.2008. Public hearing has been held on 29.4.2010. The mine working will be opencast semi-mechanised.

The proposal was recommended by EAC for environmental clearance in its meeting held during November, 24-26, 2010 subject to following conditions:-(i) Prior forestry clearance will be obtained before starting any work in the forest area.(ii) Plan for conservation of schedule-I fauna reported in the study area should be effectively implemented. The critical habitats in the impact zone should also be conserved and protected. (iii) The occupational health impacts will be appropriately addressed during implementation of the project. (iv) Necessary prior permission from the Competent Authority for drawl of water for the project shall be obtained. In case, the water is to be procured from a private supplier it may clearly be provided whether the said supplier is an authorized supplier having requisite permissions from Competent Authority for drawing the requisite water.

The recommendation of EAC was process in the Ministry and accordingly the Ministry, vide letter dated 10.05.2011, inter–alia, informed to the PP that the formal Environmental Clearance will be issued only after the Stage-I FC. In case the FC is not submitted within one year from the date of issue of this letter, the proposal will stand rejected and the process for obtaining EC will have to be initiated, de-novo, as per procedure prescribed under EIA Notification, 2006.

The project proponent has submitted the proposal of TOR and the same was placed before the EAC in its meeting held during September 22-24, 2015 wherein the Committee noted that the proposal has already been considered and recommended by EAC in November 2010 and is pending for Stage-I forest clearance. The Committee therefore suggested the PP to apply for consideration after obtaining Stage-I forest clearance.

In this context, the PP vide letter dated 02.11.2016, has submitted the Stage –I Forest approval for diversion of 79.56ha of Forest land for iron Ore mining under Section 2 of the Forest (Conservation) Act, 1980. The MoEFCC, vide letter no. 8-81/2010-FC dated 28.10.2016, has accorded Stage –I Forest approval for diversion of 79.56ha of Forest land for iron Ore mining. Accordingly the proposal is placed in the present meeting.

The Member Secretary has informed to the Committee that the Ministry has issued various office memorandums from time to time and as per OM J-11013/41/2006-IA.II(I) dated 09.09.2011, as amended on 18.05.2012 and 19.06.2014 which inter-alia mentioned the followings:-

Para 3(ii): *At the stage of consideration of proposals for EC in respect of projects involving forestland, the project proponent would inform the respective EACs about the status of their application for forestry clearance along with necessary supporting documents from the concerned Forest Authorities. It will clearly be informed to the EACs whether the application is at the State level or at the Central level. The EACs will take cognizance of the involvement of forestland and its status in terms of forestry clearance and make their recommendations on the project on its merits. After the EAC has recommended the project for environmental clearance, it would be processed on file for obtaining decision of the Competent Authority for grant of environmental clearance. In the cases where the Competent Authority has approved the grant of environmental clearance, the proponent will be informed of the same and a time limit of 12 months which may be extended in exceptional circumstances to 18 months, a decision on which will be taken by the competent Authority, will be given to the proponent to submit the requisite stage-I forestry clearance. The formal EC has been submitted by the Proponent.*

Para 3 (iii): *In the eventually that the state-I forestry clearance is not submitted by the project proponent within the prescribed time limit mentioned at para 3(ii) above, as and when the stage-I forestry clearance is submitted thereafter, such project would be referred to EAC for having a relook, in case the primary data used in preparation of EIA/EMP report is more than three years old. In such a situation, the EAC may get the fresh data collected and on that basis and after due diligence, either reiterate its earlier recommendations, or decide for reappraising the project proposal on account of valid reasons, as the case may be. In case it is decided to reappraise the project, the Committee may also decide on the requirements of documents/information for reappraisal as also the need for a fresh public hearing.*

The Committee noted that the proposal of EC was earlier recommended by EAC in its meeting held during November, 24-26, 2010 and accordingly the Ministry, vide letter dated 10.05.2011, inter-alia informed the PP that the formal Environmental Clearance will be issued only after the Stage-I FC. Further, the Stage –I FC has been granted on 28.10.2016 by the Ministry i.e. after about six years of the recommendations of EAC. The Committee deliberated the information submitted by the Proponent and based on the presentation made and discussion held, the Committee **deferred** the proposal and suggested that the **PP needs to collect one full season baseline data comprising of three months (w.r.t. Air Quality, Ground Water Quality, Surface Water Quality, Soil, Noise, Flora/Fauna etc.) and compare the old baseline data and accordingly to submit the report for further consideration of the proposal.**

(2.22). Bodai Daldali Bauxite Mine with enhancement of production capacity from 1.25 MTPA to 3.00 MTPA by M/s Bharat Aluminium Company Limited, located at Village(s) Mundadadar, Keshmarda, Rabda &Semsata, Post Daldali, Tehsil Bodla, District Kawardha, Chhattisgarh (ML area: 626.117 ha) (Consultant: J.M. EnviroNet Pvt. Ltd.)-Amendments in TOR

The Proposal of M/s Bharat Aluminium Company Limited is for amendments in TOR w.r.t. production capacity from "1.25 MTPA to 1.75 MTPA" to "1.25 MTPA to 3.00 MTPA" for Bodai Daldali Bauxite Mine. The mine is located at Villages Mundadadar, Keshmarda, Rabda & Semsata, Post Daldali, Tehsil Bodla, District Kawardha, Chhattisgarh. The mine lease area lies between the latitudes 22° 24' 49.01709" to 22° 29' 11.90077" N and longitudes 81° 10' 15.60718" to 81° 11' 47.28739" E. The total mine lease area is about 626.117 hectares.

The proposal of Terms of Reference (TOR) was earlier considered by the EAC in meeting held during July 21-22, 2016 wherein the Committee prescribed the TOR. The Ministry, vide letter no J-11015/167/2016-IA. II (M), dated 17th August, 2016, has issued the TOR. Now the Project Proponent has submitted the application for amendment in ToR for Proposed expansion of bauxite production capacity from "1.25 MTPA to 1.75 MTPA" to "1.25 MTPA to 3.00 MTPA". The Project Proponent has submitted the updated revised Form I and PFR with respect to proposed enhanced production capacity. Accordingly the Proposal was considered in this meeting for amendment in TOR.

The Committee deliberated at length the information submitted by PP and **recommended the proposal for amendments in TOR** w.r.t. production capacity of bauxite from "1.25 MTPA to 1.75 MTPA" to "1.25 MTPA to 3.00 MTPA" for Bodai Daldali Bauxite Mine.

(2.23). Lohagarh Soap Stone and Dolomite Mine of M/s. M.S. Singhvi located at Village – Lohagarh, Tehsil - Dhariwad District- Udaipur, State – Rajasthan (115.24 ha and 0.33 MTPA) -Consideration of TOR

The Proposal was **deferred** as the Project Proponent did not attend the meeting.

(2.24). Nonglait Limestone Mining with proposed production capacity of 2.0 Million TPA (ROM) by M/s Abhijeet North Eastern Projects Limited, located at Village Nonglait, Block Mawsynram, District East Khasi Hills, Meghalaya (MLA: 190 ha) -Consideration of TOR

The proposal of M/s Abhijeet North Eastern Projects Limited is for Nonglait Limestone Mining with proposed production capacity of 2.0 Million TPA in the mine lease area of 190ha. The mine lease area is located at village - Nongalit, Tehsil-Mawsynram of District-East Khasi Hills, Meghalaya. The location of the Project site falls under Survey of

India toposheet no 78 O/12 and the boundary coordinates are between 25° 11' 37" N to 25° 12' 29.7"N and 91° 34' 5.7" E to 91° 35' 38" E

The total Mining Lease area is 190 ha. The Meghalaya State Govt. has issued letter of intent (LoI), vide letter no. MG.46/2011/191, dated 24/04/2012. The method of mining will be open-cast using drilling machine along with compressor for drilling and subsequent blasting and Excavator/shawells/dumper combination for extraction, loading, sizing by crusher and transportation of limestone. The top soil at few places will be excavated by dozer fitted with ripper and transported by Excavator/dumper combination. There will be only soil (OB) generation during the production of limestone. The top soil (average thickness – 2.0m) will be excavated by dozer fitted scrubber and transported by trucks, loading through bucket on non-mining zone along with the mining lease boundary. There is no National Park, Wildlife sanctuary, defense installation or sensitive area located within 10 km radius of the proposed mine. Total Project Cost is Rs. 861 Lakhs.

The Committee deliberated at length and noted that **the decision support system shows that there is dense forest observed within the mine lease area. However, the Divisional Forest Officer, vide letter dated 03.06.2010, mentioned that the proposed mine lease area is not a forest land. In view of the above Committee is of the view that the comments of FC division w.r.t. forest land needs to be taken as per the new definition of 'forests'. The Committee deferred the Proposal and is of the view that the Proposal may be considered after submission of above clarifications.**

(2.25). Malegaon Dolomite Mine of M/s Vasudha Minerals & Chemicals located at Village-Malegaon, Tehsil-Sausar, District-Chhindwara, Madhya Pradesh (Area 3.084 Ha; Production Capacity @ 11,565 TPA Dolomite Ore) - Consideration of TOR

The Proposal was **deferred** as the Project Proponent did not attend the meeting.

(2.26). Malegaon Dolomite Mines of M/s Vasudha Minerals & Chemicals located at Village-Malegaon, Tehsil-Sausar, Dist-Chhindwara, Madhya Pradesh (Area 8.094 Ha; Production Capacity @ 99,000 TPA Dolomite) - Consideration of TOR

The Proposal was **deferred** as the Project Proponent did not attend the meeting.

(2.27). Kharadi Ball Clay, China Clay and Silica Sand Mine of M/s Peekay Enterprises with enhancement of production capacity of Ball Clay and white clay from 15,800 TPA to 3,00,102 TPA (ROM) and production capacity of Silica Sand @ 1,76,814 TPA (ROM), located at near village

Kharadi, Tehsil- Jaitaran- District- Pali, Rajasthan (MLA: 74.45ha) – (Consultant:- M/s Udaipur Min-Tech Pvt. Ltd.)-Consideration of TOR

The proposal of M/s Peekay Enterprises is for Kharadi Ball Clay, China Clay and Silica Sand Mine with enhancement of production capacity of Ball Clay and white clay from 15,800 TPA to 3,00,102 TPA (ROM) and production capacity of Silica Sand @ 1,76,814 TPA (ROM) in the mine lease area of 74.45 ha. The mine is located at near village- Kharadi, Tehsil- Jaitaran, District-Pali, Rajasthan.

The Ministry has earlier granted the Environment Clearance to M/s Peekay Enterprises, vide letter J-11015/266/2006 IA. II (M), dated 18.05.2007 for production of Ball Clay and white clay @ 15,800 TPA. Mining Scheme with Progressive Mine Closure Plan has been approved by Superintending Mining Engineer, Department of Mines & Geology Jodhpur, vide letter no.17626-31/ SME/ JDR on dated 10.01.2014. Thereafter the Modified Scheme of mining for one years has been approved vide letter no. SME/JO/CC/Sojat /Minor /M.L./17/80/R.L./5/2000/4836 dated 30.08.2016 for a period of 2016-17. The Consent of air and water from RSPCB have been obtained vide letter their No. F(Mines)/Pali(Jaitaran)/22(1)/2009-2010/8270-8274 dated 24.03.2015 for the production of 15,800 TPA. This is valid up to 30.11.2017.

The Committee deliberated at length and noted that **the decision support system shows that there is overlapping of the lease area and this may be due to wrong KML/SHP file provided by the Project Proponent and also there is not adequate plantation in the MLA. The Project Proponent could not also explain the details of proposal.**

The Committee deliberated at length the information submitted by PP and **deferred the Proposal** and is of the view that the Proposal may be considered after submission of correct KML/SHP file and clarity in the proposal.

(2.28). Litaria Ball Clay and China Clay of M/s Rajasthan Clays with enhancement of production capacity of Ball Clay and China Clay from 15,000 TPA to 2,73,409 TPA (ROM) and Silica Sand @ 2,22,288 TPA (ROM), located at near village Litaria, Tehsil-Jaitaran, District-Pali, Rajasthan (M. L. No. 09/92) (MLA: 297.65ha)-(Consultant:- M/s Udaipur Min-Tech Pvt. Ltd.)-Consideration of TOR

The proposal of M/s Rajasthan Clay is for Litaria Ball Clay and China Clay with enhancement of production capacity of Ball Clay and China Clay from 15,000 TPA to 2,73,409 TPA (ROM) and Silica Sand @ 2,22,288 TPA (ROM), in mine lease area of 297.65ha. The mine is located at near village Litaria, Tehsil-Jaitaran, District-Pali, Rajasthan.

The Ministry has earlier granted the Environment Clearance to M/s Peekay Enterprises, vide letter J-11015/22/2003 IA. II (M), dated 24.11.2004 for production of Ball Clay and white clay @ 15,800 TPA. The lease was transferred in favour of Sh. Narpat Singh S/o Sh. Khangar Singh by the order of DMG dated 18.10.2002. The lease further transferred in the name of M/s Rajasthan Clays by the order of DMG dated 26.08.2006. The transferred deed was executed on 27.09.2006. Also the earlier EC made transferred in favour of M/s Rajasthan Clays. In compliance of MMDR (Amendment) Act 2015 the lease period has been extended up to 27.11.2045. A letter from Assistant Mining Engineer, Dept. of Mines and Geology, Sojat City has been issued in this concern vide AME/Sojat/ Major/M. L./09/1992/809 dated 19.02.2016. The Project Proponent reported that the Modified Mining Plan with Progressive Mine Closure Plan for the period 2016-17 to 2020-21 vide the approval letter no. SME/JO/CC/Sojat/Minor/M. L. 09/1992/4831 dated 30.08.2016. The mining lease area is 297.65 ha. The mine is open cast semi-mechanized method. The total mineable reserves of Ball Clay are 25289808 tonnes and 8377983 tonnes of Silica Sand; according to this the expected life of the mine is 84 years for Ball Clay and 37 years for Silica Sand. At the conceptual stage a total about 101.85 ha, excavated area, 23.97 ha, will backfilled and 77.88 will be left for accumulation of rainwater. Water requirement of the project for domestic use, dust suppression and plantation is 16.0 KLD. The project cost is 150 Lakhs.

The Committee deliberated at length and noted that **the decision support system shows that there is overlapping of the lease area and this may be due to wrong KML/SHP file provided by the Project Proponent and also there is not adequate plantation in the MLA. The Project Proponent could not also explain the details of proposal.**

The Committee deliberated at length the information submitted by PP and **deferred the Proposal** and is of the view that the Proposal may be considered after submission of correct KML/SHP file and clarity in the proposal.

(2.29). Ghoraburhani - Sagasahi Iron Ore with proposed production of 7.16 Million TPA of Iron ore (ROM) along with Crushing & Screening Plant and Beneficiation Plant with capacity of 6.7 Million TPA Capacity by M/s Essar Steel India Limited, located at village- Ghoraburhani, Sagasahi and Kalmang, Tehsil Koira, District Sundargarh, Odisha (MLA 139.165ha)-(Creative Engineers & Consultants)–Re-consideration of TOR

The proposal of M/s ESSAR Steel India Limited is for Ghorabhurani – Sagasahi Iron ore block with proposed production of 7.16 Million TPA of Iron ore (ROM) along with Crushing & Screening Plant and Beneficiation Plant with capacity of 6.7 Million TPA Capacity in mine lease area of 139.165ha. The mine lease area is located at Ghorabhurani, Sagasahi and Kalmang villages, Koira tehsil of Sundargarh district of Odisha. The lease area is bounded by Latitude 21°56'08.83896" - 21°57'09.61956" North

and Longitude 85°17'02.52096"- 85°17'48.99336" East and falls in Survey in India Topo Sheet No. 73 G/1 & 73 G/5. The allotted block is a highly rugged terrain, with elongated hills trending ENE-WSW direction, low mounds and narrow valleys. The highest elevation of ridges in the area is 745m. The low lying valleys occur at an elevation of around 600m.

The proposal of TOR was earlier considered in the EAC meeting held during September 19-20, 2016 wherein the Committee noted that there are discrepancies in the online Form I and hard copy submitted in the Ministry. It was also observed by the Committee that 0.50 ha lease area had already been mined out as per land use pattern mentioned in the PFR and the Committee is of the view State Govt. of Mines and Geology may be requested to ascertain whether mining activities were carried out or not to check the violation, if any as per the provisions of E (P) Act, 1986 and F(C) Act.

The Project Proponent, vide letter dated 21.11.2016, has submitted the revised Form-I and PFR. The Directorate of Mines, Government of Odisha, vide letter dated 21.11.2016, *inter-alia,* mentioned that there are few old quarries/excavations of very low and negligible depth have been observed in the area of 0.5ha under question are very old and the depth of excavation therein is negligible. The excavations are presently covered with bushy outgrowth and vegetation. Therefore, it may not be proper to attribute the excavations over the said 0.5ha area to any type of mining operation in violation of the E (P) Act, 1986 and FC Act, 1980. Further, the area over 139.165ha in Goraburhani-Sagasai was not held under any mining lease earlier and therefore, no mining operation has been allowed by the State Government over the area as on date.

Govt. of Odisha has issued letter of Intent under Rule 10(2) of Mineral Auction Rules 2015 to M/s Essar Steel India Ltd. on 28th March' 2016 for grant of Mining Lease for Ghoraburhani - Sagasahi Block. Project Proponent reported that Iron ore produced from this proposed ML area will be fully utilized in the Integrated Steel Plant of M/s Essar Steel India located at Hazira, Gujarat.

The total mine lease area is 139.165ha. Out of which 126.401 ha is forest land and rest 12.764 ha non-forest land (private tenant land @ 3.257 ha; Government land @ 6.063 ha; and Gochar land @ 3.444 ha). Application for diversion of forest land for mining purpose is already made and under consideration with the State Government. Mining will be carried out by mechanized opencast method by removal of topsoil, drilling and blasting of ore zone, excavation, loading and haulage of run of mine ore. The total water requirement will be 3230m^3 /day out of which 430m^3/day is needed for mining, domestic & allied activities and 2800m^3/day is needed as make up water for Beneficiation plant. The total resource of +45%Fe is estimated to be 98.61 Million tones and the mineable reserve is estimated to be 78.24 million tones. Considering this, the life of the mine is expected to be about 12 years.

The Project Proponent reported that there is no National Park, Wildlife Sanctuary, defense installation or sensitive area located within 10 km radius of the proposed mine. Project Proponent reported that in the 10km buffer zone, Topadihi Nala - 3.1 km – N, KunduruNala-6.5 km – NE, Suna Nadi–1.6 km – E, Kalmang Nala – 0.9 km – E, Kakarpani Nala - 5.1 km – E, Gahirajala Nala - 6.2 km - SE, Teherei Nala - 2.9 km - SE, Khajurdihi Nala - 6.3 km - S, Khuntachira Nala - 8.4 km - S, Lekerapani Nala – 2.2 km – SW, Archanda Nala – 7.0 km – S, Karo Nadi - 4.0 km – W are found. Few rain water drainage channels are passing through the lease area. Reserve forests like Lakrhaghat R.F – 4.8 – N, Siddhamath R.F - 4.0 km – NE, Baitarani R.F – 5.0 km – NE, Mendhamaruni R.F – adjacent to lease boundary – SW, Kathamala R. F - 4.0 km – SW, Bhabani Paharh R.F - 6.3 km – SW, Karo R. F - 3.3 km – NW, Uliburu R.F - 5.5 km – NW are located within 10 Km radius. Orissa-Jharkand Inter State Boundary is located at about 7.5 km NW from the lease boundary. Total project cost is Rs. 998.72 Crores. Project Proponent reported that they had started collection of baseline data during October-December 2016 and requested to use the baseline data. The Committee agreed the same.

Based on the information furnished and presentation made by the Project Proponent and discussions held, the **Committee prescribed the Standard TOR** for undertaking detailed EIA study as per **Annexure-I. This Standard TOR shall be subject to carrying capacity being conducted by NEERI.** Further, the Project Proponent along with EC proposal should also furnish the followings: (i) Impact of mining activity on adjacent land with particular reference to run off, soil erosion and loss of top soil due to change in topography; (ii) Details of Transportation of mined out materials as per the Indian Road Congress for both the ways (loaded as well as unloaded trucks) load and its impact on Environment; (iii) Impact of all existing mining on the present land use in the study area; and (iv) updated status of Stage I FC clearance.

(2.30). Expansion of Chromite Mine with production capacity from of 0.1 million TPA to 0.215 million TPA of Chrome Ore by M/s Jindal Stainless Limited, located at Village: Kaliapani, Tehsil: Sukinda, District: Jajpur, Odisha (MLA: 89.0ha)-(Consultants Bhagavathi Ana Labs Pvt. Ltd.)-Re-Consideration of TOR

The proposal M/s Jindal Stainless Limited for Expansion of Chromite Mine with production capacity from of 0.1 million TPA to 0.215 million TPA of Chrome Ore in MLA of 89 ha. The Mine lease area is located at Village-Kaliapani, Tehsil Sukinda, District Jajpur, Odisha. The Consultant has presented the details of mine site using KML/SHP files on Google Earth.

The proposal of TOR was earlier considered by the EAC in its meeting held during July 21-22, 2016 wherein the EAC **deferred** the Proposal and sought the following

information:-

(i) A detail report on tailing disposal and proper bench formation and stabilization; and

(ii) The Tiger Corridor is located at a distance of about 8.8 km for the mine lease boundary, an authenticated map from CWLW should be submitted in this regard.

The Project Proponent had submitted the information online w.r.t. report on tailing disposal and proper bench formation and stabilization and Tiger Corridor related issues. The PP has reported that as per earlier issued map and report by DFO/WLW, there is no existing tiger corridor within 10 Km radius of ML area. PP has carried out site specific wildlife conservation plan which is approved by PCCF (Wildlife) and Chief Wildlife Warden, Odisha, Bhubaneshwar vide letter of 12th September 2016 with a financial forecast of Rs. 584.1312 Lakhs. Further, PP had submitted an application to the statutory authorities for a fresh authenticated Map w.r.t. existing and proposed Tiger Corridor. The authenticated map will be submitted along with EIA/EMP report.

The Committee deliberated at length and noted that the Project Proponent could not provide the adequate details of tailing disposal and proper bench formation and its stabilization. **The Committee is of the view that tailing disposal is very important in case of Chromite mining as it involves of formation of hexavalent state of Chromium. The Committee therefore deferred the Proposal and is of the view that the Proposal may be considered after submission of adequate details of tailing disposal.**

(2.31). Moharwa Limestone deposit of M/s Adhunik Corporation Ltd. located at Village- Moharwa, Tehsil- Maihar, District- Satna, State- Madhya Pradesh. (ML area 869.032 ha and 3.75 MTPA) - Re-Consideration of TOR

The Proposal was **deferred** as the Project Proponent did not attend the meeting.

(2.32). Amendment in EC dated 18.06.2010 w.r.t. Limestone (minor mineral) mining project by Shri Dal Chand Sharma, located in Village Bhawanda, Tehsil Khimsar, District Nagaur, Rajasthan (MLA:100 ha & M.L. No 15/99) -Amendment of EC

The Proposal of Smt. Suraj Kaur w/o Late (Shri) Dal Chand Sharma is for amendment in EC dated 18.06.2010 w.r.t. specific conditions no. A. (viii) to that there would beno concurrent backfilling possible at this stage, so existing waste/over-burden will be backfilled at the end of life of mine. The mine is located in Village Bhawanda, Tehsil Khimsar, District Nagaur, Rajasthan in MLA of 100 ha.

The Committee noted that the Ministry has accorded the EC to Shri Dal Chand Sharma, vide letter no. J-11015/992/2007-IA.II(M), dated 18.06.2010 for mining of limestone (minor mineral)with production capacity of 0.1 million TPA in the MLA of 100ha.

The Committee deliberated at length and noted that the PP first to apply the transfer of EC in the name of Smt. Suraj Kaur w/o Late (Shri) Dal Chand Sharma as per the provisions of the Rule 11 of the EIA Notification, 2006 and afterwards the proposal of Amendment in EC dated 18.06.2010 w.r.t. Limestone (minor mineral) mining project may be considered. **The Committee therefore deferred the Proposal.**

(2.33). Melavenkateswarapuram Limestone Mine of M/s Madras Cements Ltd., located at Villages-Pudur, Nadukattur, Tehsil-Sennayampatti, Taluk Vilathikulam, Distt-Thoothukudi, Tamil Nadu (ML Area 103.53 ha and 0.101 Million TPA to 0.50 Million TPA (ROM) (Consultant:-Creative Engineers & Consultants)- Extension of Validity of TOR.

The Proposal of M/s Madras Cements Ltd. is for extension of validity of TOR for Melavenkateswarapuram Limestone Mine with enhancement of production capacity from 0.101 million TPA to 0.50 million TPA (ROM). The mine is located at Villages-Pudur, Nadukattur, Tehsil-Sennayampatti, Taluk-Vilathikulam, District-Thoothukudi, Tamil Nadu in the MLA of 103.53ha.

The TOR to the project was issued vide letter no. J-11015/136/2013-IA.II (M) dated 09.09.2013 which was valid up to 08.09.2015. The Ministry vide letter dated 18.09.2015 has further extended the validity of TOR from 13.09.2015 to 12.09.2016.

Project Proponent informed that they had submitted the EIA/EMP report to the Ministry online on 13.04.2016 along with the old certified compliance report of EC conditions. The Ministry has send EDS in May 2016 saying that since this is enhancement proposal and latest compliance report is required before appraisal of the EAC. The PP informed that the Regional Office of the Ministry located at Chennai has inspected the mine on 13th May 2016. However the certified compliance report is awaited and accordingly PP requested the extension of validity of TOR.

The Committee deliberated the issues and is of the view that the PP has submitted EIA/EMP online on 13.04.2016 i.e. within validity of TOR and **no extension of validity of TOR is required for this proposal. The Ministry may ask the certified compliance report from the Regional Office of the Ministry located at Chennai for appraising the project before the EAC**

(2.34). Mining of Millstone (minor mineral) including Khanda, Gitti and Boulders occurring as overburden and inter-burden with enhancement of production capacity from 1093 TPA to 15 million TPA (ROM) by M/s A Milnstone Pvt. Ltd., located at village (s) Kandoli, Ghata, Bokoli, Mahalpur, Kachhi, Baroli, Dahina, Ranpur, Jatroli, Lakhanpur, Rajpura, Ranpura, Daha Tehsil- Rupbas, District-Bharatpur, Rajasthan (MLA: 964.94 ha & ML no. 39/1990) (Consultant:- J.M. EnviroNetPvt. Ltd.)- Re-consideration of EC

The proposal of M/s A Milnstone Pvt. Ltd. is for mining of Millstone (minor mineral) including Khanda, Gitti and Boulders occurring as overburden and inter- burden with enhancement of production capacity from 1093 TPA to 15 million TPA (ROM) in the mine lease area of 964.94 ha. The lease area is located at village (s) Kandoli, Ghata, Bokoli, Mahalpur, Kachhi, Baroli, Dahina, Ranpur, Jatroli, Lakhanpur, Rajpura, Ranpura, Daha Tehsil- Rupbas, District-Bharatpur, Rajasthan.

The proposal was earlier considered by EAC in the meeting held during October 25th, 2016 and November 23-25, 2016 wherein the Committee deferred the proposal and sought the following information/clarifications for further consideration:

(i) The millstone mineral concentration in proposed lease area appears very small. The Committee noted that only about 1% millstone has been mined out from the total ROM and rest is overburden such as Khanda, Gitti and Boulders etc. The State Mines and Geology Department, Government of Rajasthan may provide the comments/justification whether this mining project is feasible or not as the millstone mineral occurs in very small quantity;

(ii) The Decision Support System has confirmed that there is one Bandh Baretha Wildlife Sanctuary located at 1.12 Km from the mining lease boundary. The Project Proponent needs to submit the proof of application for NBWL clearance; and

(iii) The Member Secretary has informed to the Committee that Ministry has received a complaint which *intra-alia* mentioned that the project site is located in two States i.e. U.P and Rajasthan. However, Public Hearing was conducted in Bharatpur and Bandha Baretha Wildlife Sanctuary is approximately 3-4 Km from MLA. The masonry Stone is not included in the mining lease etc. The Committee is of the view that the Ministry to examine the complaints on the above mentioned proposal.

(iv) It was raised in the EAC meeting that the mine site may fall in Taj Tropazium Zone (TTZ) wherein the mining activities may not be allowed. The Committee is of the view that the PP needs to submit the distance from the TTZ and its implication w.r.t. TTZ. The Ministry may also ascertain the facts.

The Project Proponent has submitted requisite information and accordingly the proposal is considered in the present meeting. The point-wise requisite information/clarification was submitted by the PP and the same were deliberated by the Committee:-

(i) The Committee noted that the Department of Mines and Geology, Government of Jharkhand, vide letter dated 18.11.2016, mentioned that mining lease of Millstone is effective over an area of 964.94 ha in favor of M/s A. Milnstone at Tehsil - Roopwas, District- Bharatpur, Rajasthan after granting of lease. The mineral Millstone is a rare mineral. Khanda, Boulder occurring as overburden is also extracted along with mineral Millstone. The Department also gets the Royalty for Khanda, Boulder etc. occurring as overburden along with mineral Millstone.

(ii) The Decision Support System has confirmed that there is one Bandh Baretha Wildlife Sanctuary located at 1.12 Km from the mining lease boundary. The Project Proponent has submitted the application for NBWL clearance vide proposal no. FP/RJ/MIN/966/2016 dated 10.11.2016.

(iii) With regard to location of mine site; Govt. of Rajasthan, Asst. Mining Engineer, Bharatpur, vide letter dated 10.11.2016 has confirmed that the mine lease no. 39/90 falls in the State of Rajasthan. Further, Decision Support System has also confirmed that the mine site lies in State of Rajasthan only.

(iv) With regard to distance from the TTZ and its implication; As per MoEF Gazette dated 13.05.1998, the geographical limits of the Taj Trapezium Zone have been defined in the shape of a trapezoid between 26^0 45' N & 77^0 15'E to 27^0 45' N & 77^0 15' E in the West of the Taj Mahal and in the East of Taj Mahal between 27^0 00' N & 78^0 30' E to 27^0 30' N & 78^0 30' E. Mine site is about 36 km far away from Taj Mahal. The mine site falls in the TTZ area, it was submitted by PP that Mining activity does not fall under the grossly polluting industries and seriously polluting industries as per Govt. of India, MoEFCC, New Delhi. There are no restrictions by any court or authority on mining activities within the TTZ area. Mining will be carried out as per relevant Rules and Guidelines and as per approved mining plan/Scheme of mining. The issues of TTZ were discussed by the Committee and the EAC is of the view that the Ministry may also ascertain from Control of Pollution Division of the Ministry to ascertain whether mining activities may be allowed in the TTZ or not.

The Committee deliberated the issues and is of the view that **considering very low mineral density (millstone), the Project Proponent may submit the following information viz. (i) Details of pits area vis-à-vis production capacity as per approved mining plan/scheme of mining and the same**

shall be delineated on the maps; (ii) Details of proposed production capacity pit wise in the mine lease area; (iii) Details of broken up pits in the mine lease; and (iv) Details of virgin area in the mine lease. The Proposal may be further consider before the EAC in the next EAC meeting.

(2.35). Vangar-Madhiya Limestone Mining of M/s Nirma Ltd located at Villages Vangar & Madhiya, Taluka Mahuva, District Bhavnagar, Gujarat. (612.1336 ha; 1.6 MTPA (ROM))- Re- Consideration Of Tor

The project proponent has submitted request for Vangar and Madhiya Limestone Mining Lease Area at villages Vangar & Madhiya, Taluka Mahuva, District Bhavnagar, Gujarat of M/s Nirma Ltd. along with Form-I and Pre-Feasibility Report. The applied area falls within the Survey of India Toposheet No. 41 O/12(restricted). The applied area is bounded by Latitudes 21° 02' 2.35" & 21°03' 40.13" N and Longitudes 71° 39' 18.3" & 71° 41' 05" E.

The total ML area is 1225.8553 ha. Proposed production from the mine shall be 1.6 MTPA (ROM). Limestone produced from this captive mine shall be used for manufacturing of Cement and Clinker of the company. No forest land is involved. No national park/ sanctuary is located within 15 Km. No displacement is involved. Water bodies present in the study area are Malan River (8.4 km, E), Mota Jadra Garvho Nadi (2.6 km, E), Malan Bandhara reservoir (5.5 km, ESE) and Arabian Sea Coast (3.8 km to the HTL). Nearest city is Mahuva at a distance of 7.8 km by road. The site falls in Seismic zone-III.

State Govt. has issued Letter of Intent for grant of mining lease of Limestone vide letter no. MCR-102004-1827-CHH dated 15.02.2008. Opencast Mechanized mining method (conventional and non-conventional) by bench formation of 6.0 m height with deep hole drilling blasting, hydraulic excavator – dumper in combination as well as deploying surface miner shall be adopted. Life of mine shall be 22 years. The limestone will be crushed in a crusher in adjoining the lease area (Padhiarka). Limestone will be transported by internal haul road from mine face to crusher and by conveyor from crusher to the Cement plant adjacent to the mine lease.

The proposed project will generate direct employment for 56 people. Total estimated water requirement for the proposed units will be 42 cum/day. The water will be sourced from Narmada water pipeline for which tapping will be taken for the Company's cement plant and rainwater collected in mine pit. The power demand for the proposed mine will be about 100 KW which shall be sourced from State Electricity Board/ Captive Power Plant at Village Padhiarka, Taluka Mahuva, District Bhavnagar. Total cost of the proposed project will be Rs. 24 Crores.

The Committee was of the view that it is a large area under consideration effecting huge number of villagers therefore the area shall be reduced. To this effect PP submitted

an undertaking that mining operations will not be carried out in 196 ha and only 1029.8553 ha of the area will be used for mining operations. The PP also submitted that there interlinked cement plant received environmental clearance on vide letter no. J-11011/992/ 2007- IA II (I) dated 11 Dec 2008 which was revoked by MOEF vide their order dated 1st December 2011. The revoked order was challenged in NGT, who vide their order dated 14th January 2015 in the appeal no. 04 of 2012 has set aside the MOEF's revocation order dated 01.12.2011, which restores the EC granted by MoEF vide letter dated 11.12.2008. In the meantime, the environmental clearance process of the three captive limestone mines was also stalled. Now that the cement plant project and its EC has been revived consequent to the order of the NGT, PP has re-initiated the process of environmental clearance for the three mines.

The proposal was considered in the EAC meeting held during May 23-24, 2016 based on the information furnished by the Project Proponent and discussions held, the Committee was of the view that there was severe mismatch between limestone requirement of the proposed cement plant, extent of area needed for mining and total area proposed to be acquired. This mismatch is critical considering that most of the area proposed for acquisition is private agricultural land. The case was, therefore, deferred and PP is to submit a revised plan reducing the area to be acquired to minimum possible commensurate with the limestone production required for the proposed cement plant.

The PP submitted the revised plan reducing the area, the proposal was considered in the EAC meeting held during August 22-23, 2016. The PP submitted that no rejects will be generated in this limestone deposit. The soil cover will be removed before winning the limestone. The soil is non-toxic in nature. The chances of the water quality getting affected due to mining activity are very remote, as no chemical having toxic element will be used in carrying out mining activity. The working pits or the ones not being mined during a particular period will be storing the rain water for use in mines. Also, neither soil nor Limestone contains toxic elements, which can affect the quality of the water. During the course of mining the Mine sump water and Reject water of RO /DM plant (from proposed at Cement plant) will be used in dust suppression, plantation, dumpers/ trucks washing etc. Sewage sludge will be used as manure after composting. Oil and grease will get generated in the workshop located in the cement plant where effluent will be skimmed and separated by oil water skimmer and will be sold to recycling vendors authorized by CPCB. The top soil shall be used simultaneously for the plantation over backfill areas, in green belt, avenues, colonies and other areas. Some soil or meagre overburden would be backfilled into mined out areas.

Based on the information furnished by the Project Proponent and discussions held, the Committee was of the view that there was still a severe mismatch between limestone requirement of the proposed cement plant, extent of area needed for mining and total area proposed to be acquired. Committee was of the view that the project is part of three contiguous projects (Agenda item numbers 2.17, 2.18 & 2.19) and taken together these

extend approximately over 3300 ha, out of which approximately over 2500 ha are private agriculture lands involving about 7 villages & approximately more than 2500 households. The revised plan doesn't reduce the area to be acquired and only demarcates the areas which are near roads, habitations etc on which mining would not be undertaken. These three projects together would divert large private agricultural land, affect large number of families and would, therefore, have large socio-economic impact by affecting agriculture & allied activities. The mining over this area would also alter the water & moisture regime of the area and would have serious environmental impact affecting even the agriculture and allied activities in nearby area as well. **The committee was of the view that ToR could not be granted to the present proposal. The PP was advised to look for alternative site or reduce the project area substantially.**

The project proponent submitted a letter that the total area for mining is **reduced to 612.1336 ha.** The project proposal was once again considered during the EAC meeting held during **15-16 December 2016.** Based on the information furnished and discussion held, **the committee recommended the proposal for granting ToR for 612.1336 ha. The Project proponent shall submit following additional details at the time of EC:**

1) Shallow pits up to depth of 4 mts will be refilled and reclaimed and given back to the farmers as agriculture land

2) Return all the proposed non-mining area to farmers/owners of the land.

3) The mining plan, *inter-alia*, includes the above mentioned details with regard to pits and reclamation.

(2.36). **Gujarda, Dudheri and Dudhala Limestone Mining of M/s Nirma Ltd. located at Villages Gujarda, Dudheri and Dudhala, Taluka Mahuva, District Bhavnagar, Gujarat (681.62 ha; 2.7 MTPA ROM) -Re- Consideration Of Tor**

The project proponent has submitted request for Gujarda, Dudheri and Dudhala Limestone Mining Lease Area at villages Gujarda, Dudheri and Dudhala, Taluka Mahuva, District Bhavnagar, Gujarat of M/s Nirma Ltd. along with Form-I and Pre Feasibility Report. The applied area falls within the Survey of India Topo sheet No. 41 O/12 (Restricted). The applied area is bounded by Latitudes 21°01'21.18" & 21°02'51.49 N and Longitudes 71°41'2.44" & 71°42'19.33" E. The total ML area is 1489.4701 ha. Proposed production from the mine shall be 2.7 MTPA (ROM). Limestone produced from this captive mine shall be used for manufacturing of Cement and Clinker of the company. No forest land is involved. No national park/ sanctuary is located within 15 Km. No displacement is involved.

Water bodies present in the study area are Malan River (7.6 km, NE), Mota Jadra Garvho Nadi (3.28 km, NE), Malan Bandhara reservoir (19.95 km, E) and Arabian Sea

Coast (0.8 km to the HTL). Nearest city is Mahuva at a distance of 15 km by road. The site falls in Seismic zone-III. State Govt. has issued Letter of Intent to grant the mining lease over an area of 1497.4701 hac vide letter no. MCR-102004-1943-CHH dated 15th Feb. 2008 & based on our request, the Industries and Mines Department, Government of Gujarat issued revised Letter of Intent vide letter no. MCR-102004- 1943-CHH dated 02.02.2011 for an area of 1489.4701 ha, after deleting 8.00 ha. area fall under CRZ and nearby adjoining area for Gujarda, Dudheri & Dudhala mining lease area in place of originally granted area 1497.4701 ha. Opencast Mechanized mining method (conventional and non-conventional) by bench formation of 6.0 m height with deep hole drilling blasting, hydraulic excavator – dumper in combination as well as deploying surface miner, shall be adopted. Life of mine shall be 21 years.

The proposed project will generate direct employment for 76 people. Total estimated water requirement for the proposed units will be 44 cum/day. Total cost of the proposed project will be Rs. 25 Crores. The Committee was of the view that it is a large area under consideration effecting huge number of villagers, therefore, the area shall be reduced. To this effect PP submitted an undertaking that mining operations will not be carried out in 273 ha and only 1216.4701 ha of the area will be used for mining operations. The PP also submitted that there interlinked cement plant received environmental clearance on vide letter no. J-11011/992/ 2007- IA II (I) dated 11 Dec 2008 which was revoked by MOEF vide their order dated 1st December 2011. The revoked order was challenged in NGT, who vide their order dated 14th January 2015 in the appeal no. 04 of 2012 has set aside the MOEF's revocation order dated 01.12.2011, which restores the EC granted by MoEF vide letter dated 11.12.2008. In the meantime, the environmental clearance process of the three captive limestone mines was also stalled. Now that the cement plant project and its EC has been revived consequent to the order of the NGT, PP has re-initiated the process of environmental clearance for the three mines.

The proposal was considered in the EAC meeting held during May 23-24, 2016 based on the information furnished by the Project Proponent and discussions held, the Committee was of the view that there was severe mismatch between limestone requirement of the proposed cement plant, extent of area needed for mining and total area proposed to be acquired. This mismatch is critical considering that most of the area proposed for acquisition is private agricultural land. The case was, therefore, deferred and PP is to submit a revised plan reducing the area to be acquired to minimum possible commensurate with the limestone production required for the proposed cement plant.

The PP submitted the revised plan reducing the area, the proposal was considered in the EAC meeting held during August 22-23, 2016. The PP submitted that no rejects will be generated in this limestone deposit. The soil cover will be removed before winning the limestone. The soil is non-toxic in nature. The chances of the water quality getting affected due to mining activity are very remote, as no chemical having toxic element will

be used in carrying out mining activity. The working pits or the ones not being mined during a particular period will be storing the rain water for use in mines. Also, neither soil nor Limestone contains toxic elements, which can affect the quality of the water. During the course of mining the Mine sump water and Reject water of RO /DM plant (from proposed at Cement plant) will be used in dust suppression, plantation, dumpers/ trucks washing etc. Sewage sludge will be used as manure after composting. Oil and grease will get generated in the workshop located in the cement plant where effluent will be skimmed and separated by oil water skimmer and will be sold to recycling vendors authorized by CPCB. The top soil shall be used simultaneously for the plantation over backfill areas, in green belt, avenues, colonies and other areas. Some soil or meager overburden would be backfilled into mined out areas.

Based on the information furnished by the Project Proponent and discussions held, the Committee was of the view that there was still a severe mismatch between limestone requirement of the proposed cement plant, extent of area needed for mining and total area proposed to be acquired. Committee was of the view that the project is part of three contiguous projects (Agenda item numbers 2.17, 2.18 & 2.19) and taken together these extend approximately over 3300 ha, out of which approximately over 2500 ha are private agriculture lands involving about 7 villages & approximately more than 2500 households. The revised plan doesn't reduce the area to be acquired and only demarcates the areas which are near roads, habitations etc on which mining would not be undertaken. These three projects together would divert large private agricultural land, affect large number of families and would, therefore, have large socio-economic impact by affecting agriculture & allied activities. The mining over this area would also alter the water & moisture regime of the area and would have serious environmental impact affecting even the agriculture and allied activities in nearby area as well. **The committee was of the view that ToR could not be granted to the present proposal. The PP was advised to look for alternative site or reduce the project area substantially.**

The project proponent submitted a letter that the total area for mining is reduced to 681.62 ha. The project proposal was once again considered during the EAC meeting held during 15-16 December 2016. Based on the information furnished and discussion held, **the committee recommended the proposal for granting ToR for 681.62 ha. The Project proponent shall submit the addition details at the time of EC:**

1) Shallow pits up to depth of 4 mts will be refilled and reclaimed and given back to the farmers as agriculture land

2) Return all the proposed non-mining area to farmers/owners of the land.

3) The mining plan, *inter-alia*, includes the above mentioned details with regard to pits and reclamation.

(2.37). Padhiarka-Doliya Limestone Mining of M/s Nirma Ltd. located at villages Padhiarka & Doliya, Taluka Mahuva, District Bhavnagar, Gujarat. (332.24 ha.; 1.5 MTPA ROM) Re- Consideration Of Tor

The project proponent has submitted request for Padhiarka-Doliya Limestone Mining Lease Area at villages Padhiarka & Doliya, Taluka Mahuva, District Bhavnagar, Gujarat of M/s Nirma Ltd. along with Form-I and Pre-Feasibility Report. The applied area falls within the Survey of India Toposheet No. 41 O/12 (Restricted). The applied area is bounded by Latitudes 21° 01' 5.71" & 21° 02' 16.27" N and Longitudes 71° 40' 30.85" & 71° 41'21.27" E.

The total ML area is 616.7254 ha. Proposed production from the mine shall be 1.5 MTPA (ROM). Limestone produced from this captive mine shall be used for manufacturing of Cement and Clinker of the company. No forest land is involved. No national park/ sanctuary is located within 15 Km. No displacement is involved. Water bodies present in the study area are Malan River (9.9 km, ENE), Mota Jadra Garvho Nadi (4.7 km, NE), Malan Bandhara reservoir (3.5 km, E) and Arabian Sea Coast (0.5 km to the HTL). Nearest city is Mahuva at a distance of 9.5 km by road. The site falls in Seismic zone-III.

The State Govt. has issued Letter of Intent for grant of mining lease of Limestone vide letter no. MCR-102004-1945-CHH dated 15.02.2008. Opencast Mechanized mining method (conventional and non-conventional) by bench formation of 6.0 m height with deep hole drilling blasting, hydraulic excavator – dumper in combination as well as deploying surface miner shall be adopted. Life of mine shall be 19 years. The limestone will be crushed in a crusher in the lease area. Limestone will be transported by internal haul road from mine face to crusher and by conveyor from crusher to the Cement plant adjacent to the mine lease. The proposed project will generate direct employment for 60 people. Total estimated water requirement for the proposed units will be 41 cum/day.

Total cost of the proposed project will be Rs. 29 Crores. The Committee was of the view that it's a large area under consideration effecting huge number of villagers therefore the area shall be reduced. To this effect PP submitted an undertaking that mining operations will not be carried out in 86 ha and only 530 ha of the area will be used for mining operations. The PP also submitted that there interlinked cement plant received environmental clearance on vide letter no. J- 11011/992/ 2007- IA II (I) dated 11 Dec 2008 which was revoked by MOEF vide their order dated 1st December 2011. The revoked order was challenged in NGT, who vide their order dated 14th January 2015 in the appeal no. 04 of 2012 has set aside the MOEF's revocation order dated 01.12.2011, which restores the EC granted by MoEF vide letter dated 11.12.2008. In the meantime the environmental clearance process of the three captive limestone mines was also stalled. Now that the cement plant project and its EC has been revived consequent to the order of the NGT, PP has re-initiated the process of environmental

clearance for the three mines. The proposal was considered in the EAC meeting held during May 23-24, 2016 based on the information furnished by the Project Proponent and discussions held, the Committee was of the view that there was severe mismatch between limestone requirement of the proposed cement plant, extent of area needed for mining and total area proposed to be acquired. This mismatch is critical considering that most of the area proposed for acquisition is private agricultural land. The case was, therefore, deferred and PP is to submit a revised plan reducing the area to be acquired to minimum possible commensurate with the limestone production required for the proposed cement plant.

The PP submitted the revised plan reducing the area, the proposal was considered in the EAC meeting held during August 22-23, 2016. The PP submitted that no rejects will be generated in this limestone deposit. The soil cover will be removed before winning the limestone. The soil is non-toxic in nature. The chances of the water quality getting affected due to mining activity are very remote, as no chemical having toxic element will be used in carrying out mining activity. The working pits or the ones not being mined during a particular period will be storing the rain water for use in mines. Also, neither soil nor Limestone contains toxic elements, which can affect the quality of the water. During the course of mining the Mine sump water and Reject water of RO /DM plant (from proposed at Cement plant) will be used in dust suppression, plantation, dumpers/ trucks washing etc. Sewage sludge will be used as manure after composting. Oil and grease will get generated in the workshop located in the cement plant where effluent will be skimmed and separated by oil water skimmer and will be sold to recycling vendors authorized by CPCB. The top soil shall be used simultaneously for the plantation over backfill areas, in green belt, avenues, colonies and other areas. Some soil or meager overburden would be backfilled into mined out areas.

Based on the information furnished by the Project Proponent and discussions held, the Committee was of the view that there was still a severe mismatch between limestone requirement of the proposed cement plant, extent of area needed for mining and total area proposed to be acquired. Committee was of the view that the project is part of three contiguous projects (Agenda item numbers 2.17, 2.18 & 2.19) and taken together these extend approximately over 3300 ha, out of which approximately over 2500 ha are private agriculture lands involving about 7 villages & approximately more than 2500 households. The revised plan doesn't reduce the area to be acquired and only demarcates the areas which are near roads, habitations etc. on which mining would not be undertaken. These three projects together would divert large private agricultural land, affect large number of families and would, therefore, have large socio-economic impact by affecting agriculture & allied activities. The mining over this area would also alter the water & moisture regime of the area and would have serious environmental impact affecting even the agriculture and allied activities in nearby area as well. **The committee was of the view that ToR could not be granted to the present proposal. The PP was advised to look for alternative site or reduce the project**

area substantially.

The project proponent submitted a letter that the total area for mining is reduced to **332.24 ha.** The project proposal was once again considered during the EAC meeting held during **15-16 December 2016.** Based on the information furnished and discussion held, **the committee recommended the proposal for granting ToR for 332.24 ha. The Project proponent shall submit the addition details at the time of EC:**

1) Shallow pits up to depth of 4 mts will be refilled and reclaimed and given back to the farmers as agriculture land

2) Return all the proposed non-mining area to farmers/owners of the land.

3) The mining plan, *inter-alia*, includes the above mentioned details with regard to pits and reclamation.

Additional items with the permission of the Chair

(3.1). Proposed Limestone Mine with Production Capacity of 5.0 million TPA (ROM) by M/s Wonder Cement Ltd., located near villages: Karunda, Payri, Dhanora, Maliya Khedi, Tehsil-Nimbahera, District-Chittorgarh, Rajasthan (MLA- 255.0032ha) (Consultant: M/s JM EnviroNet Pvt. Ltd.)-Consideration of Environment clearance.

The proposal of M/s Wonder Cement Ltd. is for Limestone Mining Project with production capacity 5.0 million TPA (ROM) in mine lease area of 255.0032ha. The proposed mine lease area is located near village(s): Karunda, Payri, Dhanora, Maliya Khedi, Tehsil- Nimbahera, District-Chittorgarh, Rajasthan. The Latitude and Longitude of the site falls between $24^0$40'33.6" N to $24^0$42'17.1" N and $74^0$35'34.1" E to $74^0$36'21.5" E respectively. Study area falls within the Survey of India Toposheet No. 45 L/10. The Project is located in Seismic zone-II. The Project Proponent has presented the details of mine site using KML/SHP files on Decision Support System.

The Proposal was considered by the Expert Appraisal Committee in its meeting held on March 16-18, 2015 to determine the Terms of Reference (ToR) for undertaking detailed EIA study. The ToR was issued by Ministry, vide letter no. J-11015/46/2015-IA.II (M), dated 15th April, 2015. EIA/EMP Report has been submitted online to the Ministry for seeking Environmental Clearance after conducting Public Hearing. Accordingly the Ministry has requested EAC for appraisal of this project as the instant project covered under section 10A(2)(c) of the MMDR Act.

The proposal of EC was earlier considered before the EAC in its meeting held during November 23-25, 2016 wherein the Committee deferred the proposal. It was also noted

that Letter of Intent (LOI) was issued by Department of Mines & Geology, Government of Rajasthan, vide letter no. P.5 (342) Mine/Group-2/2014, dated 31.12.2014. The Project Proponent informed that the State Government of Rajasthan has cancelled the LOI and accordingly the Project Proponent had filed the case with revision Authority in the Ministry of Mine vide revision application no. 25/19/2015/RC1 (M/s Wonder Cement Ltd. V/s State Government of Rajasthan). Ministry of Mines vide letter No. 25(19)/2015-RC/1, dated 15.12.2016 has forwarded the final order no. 337/2016 dated 14.12.2016 passed by Revisionary Authority in the Central Government u/s 30 of MMDR Act, 1957 in this regard. Para 26 of order dated 14.12.2016 has mentioned the following, ***"In view of this the impugned order must be held to have been passed without application of mind. The impugned order is also violating the principals of equality as un-equals have been treated equally. The impugned orders are therefore, liable to be set aside and the same are accordingly set aside. The matter is remanded back to the State Government for taking necessary action as per law. The Revision Application is accordingly disposed of".*** Based on request submitted by PP, the Ministry has requested EAC for appraisal of this project as the instant project covered under section 10A(2)(c) of the MMDR Act.

Total mine lease area is 255.0032 ha, which is non forest land. Out of the total mine lease area 198.9332 ha is private land; 15.45 ha is Govt. Land; and 40.62 ha is grazing land. The Mining Plan and Progressive Mine Closure Plan has been approved by Regional Controller of Mines, Indian Bureau of Mines, Udaipur, vide letter no. 682 (23) (827)/2015-KHani kha S (U) Udaipur, dated 29th July, 2015. Method of mining will be done by opencast mechanized involving drilling, blasting, loading by Hydraulic Excavators and dumpers, crushing and transportation. Project Proponent reported that at the conceptual stage, out of the total mine area (i.e. 255.0032 ha), total mined-out area will be 97.951ha in which 19.226 ha area will be used for plantation over upper two mined out benches and remaining area i.e. 78.725 ha area will be converted into water reservoir. The limestone produced from the mine will be transported to the crusher within the mine lease area. From crusher, the limestone will be transported to the Cement Plant by covered conveyor belt. Mining will intersect ground water table at conceptual stage. Permission for intersecting ground water table will be taken from concerned authority before intersecting ground water table. The Committee deliberated the issue and is of the view that Project Proponent shall obtain the necessary prior permission from the Central Ground Water Authority (CGWA) for intersecting the Ground water table. The intersecting ground water table can only be commence after conducting detailed hydrogeological study and necessary permission from the CGWA/MoEFCC.

Project Proponent reported that there is no National Parks/Wildlife Sanctuaries/Biosphere Reserves/Wildlife Corridors/Tiger/Elephant Reserves are located within the 10 km study area of the mine area. Some patches of Protected Forests and Reserved Forests fall at a distance of 2.2 to 9.0 km from mine site. No forest land is involved in Mining lease area. State Forest Department, vide letter no. Forest

Protection/CCF/2015-16/8437, dated 08.09.2015 has confirmed that no forest land is involved in the mine area. The Baseline data was collected for the period Summer Season i.e. March to May 2015. The analytical results of samples collected for all parameters were found within permissible limits. The Committee deliberated the base line data.

The Public Hearing was conducted on 9th October, 2015 at Public Place (Near the Temple of Surpurbalaji) Village, Rasulpura, Tehsil: Nimbahera, District: Chittorgarh. The Public Hearing was presided over by Shri Suresh Chandra, Additional District Collector, Chittorgarh. The representatives of the Rajasthan State Pollution Control Board were also present during the Public Hearing. The issues raised during Public Hearing were also considered and discussed during the meeting, which inter-alia, included Compensation for land, employment, LOI Status etc. The Action plan with budgetary allocation has been given against the points raised during the Public hearing. The Committee deliberated the issues.

The Committee noted 198.9332 ha is private land. Total project affected families are 464 including 457 land owners and 7 Dwelling unit as well as land owner. Project Proponent committed that the company proposes Rs. 10.71 Lakhs per dwelling unit for providing housing units for seven families and land area for dwelling units will be provided @1.5 times the area of the present house.. Project Proponent committed that the company proposes land compensation at Rs 30.0 lakhs per hectare. The Project Proponent also proposes additional financial support over and above cost of the land as Onetime Rehabilitation Allowance at Rs 5.0 lakhs per hectare to the land owners owning the land in lease area and direct and indirect Employment to 352 persons out of total PAFs (464) as per their qualification and skills. The above is the minimum proposed compensation offered by the Project Proponent, in addition to the cost of the land, for the Project Affected Families due to land acquisition. Detailed R&R action Plan has been prepared for the project. The Committee deliberated the issues and is of the view that above said commitment of Project Proponent w.r.t. R&R Plan will be a specific condition to the EC.

Total cost of the Project is Rs. 44 Crores. Capital Cost for Environmental Protection Measures is Rs. 4.0 Crores and Recurring cost is Rs. 40 Lakhs per annum. Project Proponent has earmarked Rs. 59.40 crores for socioeconomic welfare measures for the nearby villages other than R&R plan.

The Committee deliberated at length the information submitted by PP and **recommended** the Proposal for Environmental Clearance for Limestone Mine with proposed production capacity **5.0 million TPA (ROM).**

The Committee recommended additional specific conditions viz. (i) This Environmental clearance is granted subject to decision of the State Government of Rajasthan on the order of Revisionary Authority, Ministry of Mines in the matter of M/s Wonder Cement Ltd. versus State Government of Rajasthan vide order no. 337/2016,

dated 14.12.2016; (ii) The Proponent shall install online Ambient Air Quality Monitoring System and there should be system for display of digital AAQ data within 03 months at least at three locations as per wind direction. Online provisions of pH and turbidity meters at discharge points of STP and ETP and also at water storage ponds in the mining area may be made. Project Proponent should display the result digitally in front of the main Gate of the mine site; (iii) **Total project affected families are 464 including 457 land owners and 7 Dwelling unit as well as land owner. Project Proponent committed that the company proposes Rs. 10.71 Lakhs per dwelling unit for providing housing units for seven families and land area for dwelling units will be provided @1.5 times the area of the present house. Project Proponent committed that the company proposes land compensation at Rs 30.0 lakhs per hectare. The Project Proponent also proposes additional financial support over and above cost of the land as Onetime Rehabilitation Allowance at Rs 5.0 lakhs per hectare to the land owners owning the land in lease area and direct and indirect Employment to 352 persons out of total PAFs (464) as per their qualification and skills. The above is the minimum proposed compensation offered by the Project Proponent, in addition to the cost of the land, for the Project Affected Families due to land acquisition.** Detailed R&R action Plan has been prepared for the project. The implementation Report shall be submitted to the Regional Office of the MoEFCC, SPCB; (iv) Project Proponent shall obtain the necessary prior permission from the Central Ground Water Authority (CGWA) for intersecting the Ground water table. The intersecting ground water table can only be commence after conducting detailed hydrogeological study and necessary permission from the CGWA/MoEFCC. The Report on six monthly basis on changes in Ground water level and quality shall be submitted to the Regional Office of the Ministry, CGWA and State Pollution Control Board; (v) Project Proponent should plant only native species for green belt development. Plantation of local species should be carried out during the Monsoon Season; (vi) The project should also implement community Development and Welfare programme in the area of Health, Education and Environmental Protection; and (vii) Proponent shall appoint an Occupational Health Specialist for Regular and Periodical medical examination of the workers engaged in the Project and maintain records accordingly; also, Occupational health check-ups for workers having some ailments like BP, diabetes, habitual smoking, etc. shall be undertaken once in six months and necessary remedial/preventive measures taken accordingly. The Recommendations of National Institute for ensuring good occupational environment for mine workers shall be implemented; The prevention measure for burns, malaria and provision of anti-snake venom including all other paramedical safeguards may be ensured before initiating the mining activities.

(3.2). Sivalarpatti Limestone mine Lease - II with proposed production capacity of 0.21 Million TPA of limestone (0.24 Million TPA of ROM) by M/s The Ramco Cements Limited (TRCL), located at Kullakattankurichi, Pudur, Muthusamypuram, Sivalarpatti and Vannipatti villages, Vilathikulam Taluk, Thoothukudi District, Tamil Nadu (MLA: 129.72ha)- (Consultant: Creative Engineers & Consultants)- Consideration of EC

The proposal of M/s The Ramco Cements Limited (TRCL) is for Sivalarpatti Limestone mine Lease - II with proposed production capacity of 0.21 Million TPA of limestone (0.24 Million TPA of ROM). The mine is located at Kullakattankurichi, Pudur, Muthusamypuram, Sivalarpatti and Vannipatti villages, Vilathikulam Taluk, Thoothukudi District, Tamil Nadu. The area lies in Survey of India Toposheet No.58 K/3 between coordinates Latitude 9°17'47" to 9°19'59" N and Longitude 78°08'33" to 78°09'54" E. The project site is flat with an elevation ranging from 61 to 67 meters above MSL.

The Proposal was considered by the Expert Appraisal Committee in its meeting held on April 25-26, 2016 to determine the Terms of Reference (ToR) for undertaking detailed EIA study. The ToR was issued by Ministry, vide letter no. J-11015/126/2016-IA.II (M), dated 13th May, 2016. Public Hearing was conducted on 29.11.2016. The EIA/EMP Report has been submitted online to the Ministry for seeking Environmental Clearance on 10.12.2016. Accordingly the Ministry has requested EAC for appraisal of this project as the instant project covered under section 10A(2)(c) of the MMDR Act.

The total mine lease area of 129.72ha, consists of 0.975ha of Government Poramboke land and 128.745ha of private patta land. State Government of Tamil Nadu, vide letter dated 29.04.2013, has issued LOI to prepare to Mine Plan and take necessary clearances.

The Committee noted that the **proposed mine lease has various dumps as seen using by Decision Support System. The Project Proponent could not explain the details of dumps in the proposed MLA and surrounded other mine leases on the decision support system. The Committee also noted that the compliance of TOR is not adequate.**

The Committee deliberated at length the information submitted by PP and could not appraise the proposal due to deficiencies of documents and KML/SHP file and therefore **deferred** the Proposal and the same may be considered after submission of above mentioned details.

(3.3) Proposed Kesla Limestone Block along with Production Capacity of 3.0 Million TPA (ROM) of M/s Century Textiles and Industries Limited (Unit Century Cement), located at villages Kharora & Kesla, Tehsil - Tilda, District – Raipur, Chhattisgarh (MLA: 108.335 ha)- Consideration of TOR

The TOR proposal has been received online to the Ministry on 02.12.2016. Accordingly the Ministry has requested EAC for appraisal of this project as the instant project covered under section 10A(2)(c) of the MMDR Act. The Proposal was **deferred** as the Project Proponent did not attend the meeting.

(3.4) Lunghar Chromite Mines with proposed production capacity of 10,531 TPA of M/s Sarvesh Refractory Pvt. Ltd., located at Village: Shirohi-Lunghar, Ukhrul District, Manipur (MLA: 132.781 ha)- Consideration of TOR

The TOR proposal has been received online to the Ministry on 12.12.2016. Accordingly the Ministry has requested EAC for appraisal of this project as the instant project covered under section 10A(2)(c) of the MMDR Act. The Proposal was **deferred** as the Project Proponent did not attend the meeting.

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Annexure-I

Standard Terms of Reference (TOR) for Mining Project

1) Year-wise production details since 1994 should be given, clearly stating the highest production achieved in any one year prior to 1994. It may also be categorically informed whether there had been any increase in production after the EIA Notification 1994 came into force, w.r.t. the highest production achieved prior to1994.
2) A copy of the document in support of the fact that the Proponent is the rightful lessee of the mine should be given.
3) All documents including approved mine plan, EIA and Public Hearing should be compatible with one another in terms of the mine lease area, production levels, waste generation and its management, mining technology etc. and should be in the name of the lessee.
4) All corner coordinates of the mine lease area, superimposed on a High Resolution Imagery/toposheet, topographic sheet, geomorphology and geology of the area should be provided. Such an Imagery of the proposed area should clearly show the land use and other ecological features of the study area (core and buffer zone).
5) Information should be provided in Survey of India Toposheet in 1:50,000 scale indicating geological map of the area, geomorphology of land forms of the area, existing minerals and mining history of the area, important water bodies, streams and rivers and soil characteristics.
6) Details about the land proposed for mining activities should be given with information as to whether mining conforms to the land use policy of the State; land diversion for mining should have approval from State land use board or the concerned authority.
7) It should be clearly stated whether the proponent Company has a well laid down Environment Policy approved by its Board of Directors? If so, it may be spelt out in the EIA Report with description of the prescribed operating process/procedures to bring into focus any infringement/deviation/violation of the environmental or forest norms/ conditions? The hierarchical system or administrative order of the Company to deal with the environmental issues and for ensuring compliance with the EC conditions may also be given. The system of reporting of non-compliances / violations of environmental norms to the Board of Directors of the Company and/or shareholders or stakeholders at large, may also be detailed in the EIA Report.
8) Issues relating to Mine Safety, including subsidence study in case of underground mining and slope study in case of open cast mining, blasting study etc. should be detailed. The proposed safeguard measures in each case should also be provided.
9) The study area will comprise of 10 km zone around the mine lease from lease periphery and the data contained in the EIA such as waste generation etc. should be for the life of the mine / lease period.
10) Land use of the study area delineating forest area, agricultural land, grazing land,

wildlife sanctuary, national park, migratory routes of fauna, water bodies, human settlements and other ecological features should be indicated. Land use plan of the mine lease area should be prepared to encompass preoperational, operational and post operational phases and submitted. Impact, if any, of change of land use should be given.

11) Details of the land for any Over Burden Dumps outside the mine lease, such as extent of land area, distance from mine lease, its land use, R&R issues, if any, should be given.
12) A Certificate from the Competent Authority in the State Forest Department should be provided, confirming the involvement of forest land, if any, in the project area. In the event of any contrary claim by the Project Proponent regarding the status of forests, the site may be inspected by the State Forest Department along with the Regional Office of the Ministry to ascertain the status of forests, based on which, the Certificate in this regard as mentioned above be issued. In all such cases, it would be desirable for representative of the State Forest Department to assist the Expert Appraisal Committees.
13) Status of forestry clearance for the broken up area and virgin forestland involved in the Project including deposition of net present value (NPV) and compensatory afforestation (CA) should be indicated. A copy of the forestry clearance should also be furnished.
14) Implementation status of recognition of forest rights under the Scheduled Tribes and other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006 should be indicated.
15) The vegetation in the RF / PF areas in the study area, with necessary details, should be given.
16) A study shall be got done to ascertain the impact of the Mining Project on wildlife of the study area and details furnished. Impact of the project on the wildlife in the surrounding and any other protected area and accordingly, detailed mitigative measures required, should be worked out with cost implications and submitted.
17) Location of National Parks, Sanctuaries, Biosphere Reserves, Wildlife Corridors, Ramsar site Tiger/Elephant Reserves/(existing as well as proposed), if any, within 10 km of the mine lease should be clearly indicated, supported by a location map duly authenticated by Chief Wildlife Warden. Necessary clearance, as may be applicable to such projects due to proximity of the ecologically sensitive areas as mentioned above, should be obtained from the Standing Committee of National Board of Wildlife and copy furnished.
18) A detailed biological study of the study area [core zone and buffer zone (10 km radius of the periphery of the mine lease)] shall be carried out. Details of flora and fauna, endangered, endemic and RET Species duly authenticated, separately for core and buffer zone should be furnished based on such primary field survey, clearly indicating the Schedule of the fauna present. In case of any scheduled-I fauna found in the study area, the necessary plan alongwith budgetary provisions for their conservation should be prepared in consultation with State Forest and

Wildlife Department and details furnished. Necessary allocation of funds for implementing the same should be made as part of the project cost.

19) Proximity to Areas declared as 'Critically Polluted' or the Project areas likely to come under the 'Aravali Range', (attracting court restrictions for mining operations), should also be indicated and where so required, clearance certifications from the prescribed Authorities, such as the SPCB or State Mining Dept. Should be secured and furnished to the effect that the proposed mining activities could be considered.

20) Similarly, for coastal Projects, A CRZ map duly authenticated by one of the authorized agencies demarcating LTL. HTL, CRZ area, location of the mine lease w.r.t CRZ, coastal features such as mangroves, if any, should be furnished.(Note: The Mining Projeg under CRZ would also need to obtain approval of the concerned Coastal Zone Management Authority).

21) R&R Plan/compensation details for the Project Affected People (PAP) should be furnished. While preparing the R&R Plan, the relevant State/National Rehabilitation & Resettlement Policy should be kept in view. In respect of SCs /STs and other weaker sections of the society in the study area, a need based sample survey, family-wise, should be undertaken to assess their requirements, and action programmes prepared and submitted accordingly, integrating the sectoral programmes of line departments of the State Government. It may be clearly brought out whether the village(s) located in the mine lease area will be shifted or not. The issues relating to shifting of village(s) including their R&R and socio-economic aspects should be discussed in the Report.

22) One season (non-monsoon) [i.e. March - May (Summer Season); October - December (post monsoon season) ; December - February (winter season)] primary baseline data on ambient air quality as per CPCB Notification of 2009, water quality, noise level, soil and flora and fauna shall be collected and the AAQ and other data so compiled presented date-wise in the EIA and EMP Report. Site-specific meteorological data should also be collected. The location of the monitoring stations should be such as to represent whole of the study area and justified keeping in view the pre-dominant downwind direction and location of sensitive receptors. There should be at least one monitoring station within 500 m of the mine lease in the pre-dominant downwind direction. The mineralogical composition of PM10, particularly for free silica, should be given.

23) Airqualitymodelingshouldbecarriedoutforpredictionofimpactoftheprojectonthe air quality of the area. It should also take into account the impact of movement of vehicles for transportation of mineral. The details of the model used and input parameters used for modeling should be provided. The air quality contours may be shown on a location map clearly indicating the location of the site, location of sensitive receptors, if any, and the habitation. The wind roses showing pre-dominant wind direction may also be indicated on the map.

24) The water requirement for the Project, its availability and source should be furnished. A detailed water balance should also be provided. Fresh water

requirement for the Project should be indicated.

25) Necessary clearance from the Competent Authority for drawl of requisite quantity of water for the Project should be provided.

26) Description of water conservation measures proposed to be adopted in the Project should be given. Details of rainwater harvesting proposed in the Project, if any, should be provided.

27) Impact of the Project on the water quality, both surface and groundwater, should be assessed and necessary safeguard measures, if any required, should be provided.

28) Based on actual monitored data, it may clearly be shown whether working will intersect groundwater. Necessary data and documentation in this regard may be provided. In case the working will intersect groundwater table, a detailed Hydro Geological Study should be undertaken and Report furnished. The Report inter-alia, shall include details of the aquifers present and impact of mining activities on these aquifers. Necessary permission from Central Ground Water Authority for working below ground water and for pumping of ground water should also be obtained and copy furnished.

29) Details of any stream, seasonal or otherwise, passing through the lease area and modification / diversion proposed, if any, and the impact of the same on the hydrology should be brought out.

30) Information on site elevation, working depth, groundwater table etc. Should be provided both in AMSL and BGL. A schematic diagram may also be provided for the same.

31) A time bound Progressive Greenbelt Development Plan shall be prepared in a tabular form (indicating the linear and quantitative coverage, plant species and time frame) and submitted, keeping in mind, the same will have to be executed up front on commencement of the Project. Phase-wise plan of plantation and compensatory afforestation should be charted clearly indicating the area to be covered under plantation and the species to be planted. The details of plantation already done should be given. The plant species selected for green belt should have greater ecological value and should be of good utility value to the local population with emphasis on local and native species and the species which are tolerant to pollution.

32) Impact on local transport infrastructure due to the Project should be indicated. Projected increase in truck traffic as a result of the Project in the present road network (including those outside the Project area) should be worked out, indicating whether it is capable of handling the incremental load. Arrangement for improving the infrastructure, if contemplated (including action to be taken by other agencies such as State Government) should be covered. Project Proponent shall conduct Impact of Transportation study as per Indian Road Congress Guidelines.

33) Details of the onsite shelter and facilities to be provided to the mine workers should be included in the EIA Report.

34) Conceptual post mining land use and Reclamation and Restoration of mined out areas (with plans and with adequate number of sections) should be given in the EIA Report.
35) Occupational Health impacts of the Project should be anticipated and the proposed preventive measures spelt out in detail. Details of pre-placement medical examination and periodical medical examination schedules should be incorporated in the EMP. The project specific occupational health mitigation measures with required facilities proposed in the mining area may be detailed.
36) Public health implications of the Project and related activities for the population in the impact zone should be systematically evaluated and the proposed remedial measures should be detailed along with budgetary allocations.
37) Measures of socio economic significance and influence to the local community proposed to be provided by the Project Proponent should be indicated. As far as possible, quantitative dimensions may be given with time frames for implementation.
38) Detailed environmental management plan (EMP) to mitigate the environmental impacts which, should inter-alia include the impacts of change of land use, loss of agricultural and grazing land, if any, occupational health impacts besides other impacts specific to the proposed Project.
39) Public Hearing points raised and commitment of the Project Proponent on the same along with time bound Action Plan with budgetary provisions to implement the same should be provided and also incorporated in the final EIA/EMP Report of the Project.
40) Details of litigation pending against the project, if any, with direction /order passed by any Court of Law against the Project should be given.
41) The cost of the Project (capital cost and recurring cost) as well as the cost towards implementation of EMP should be clearly spelt out.
42) A Disaster management Plan shall be prepared and included in the EIA/EMP Report.
43) Benefits of the Project if the Project is implemented should be spelt out. The benefits of the Project shall clearly indicate environmental, social, economic, employment potential, etc.
44) Besides the above, the below mentioned general points are also to be followed:-
    a) Executive Summary of the EIA/EMP Report.
    b) All documents to be properly referenced with index and continuous page numbering.
    c) Where data are presented in the Report especially in Tables, the period in which the data were collected and the sources should be indicated.
    d) Project Proponent shall enclose all the analysis/testing reports of water, air, soil, noise etc. using the MoEF&CC/NABL accredited laboratories. All the original analysis/testing reports should be available during appraisal of the Project.
    e) Where the documents provided are in a language other than English, an English translation should be provided.
    f) The Questionnaire for environmental appraisal of mining projects as devised

earlier by the Ministry shall also be filled and submitted.

g) While preparing the EIA report, the instructions for the Proponents and instructions for the Consultants issued by MoEF vide O.M. No. J-11013/41/2006-IA.II(I) dated 4th August, 2009, which are available on the website of this Ministry, should be followed.

h) Changes, if any made in the basic scope and project parameters (as submitted in Form-I and the PFR for securing the TOR) should be brought to the attention of MoEF&CC with reasons for such changes and permission should be sought, as the TOR may also have to be altered. Post Public Hearing changes in structure and content of the draft EIA/EMP (other than modifications arising out of the P.H. process) will entail conducting the PH again with the revised documentation.

i) As per the circular no. J-11011/618/2010-IA.II(I) dated 30.5.2012, certified report of the status of compliance of the conditions stipulated in the environment clearance for the existing operations of the project, should be obtained from the Regional Office of Ministry of Environment, Forest and Climate Change, as may be applicable.

j) The EIA report should also include (i) surface plan of the area indicating contours of main topographic features, drainage and mining area,(ii) geological map sand section sand (iii) sections of the mine pit and external dumps, if any, clearly showing the land features of the adjoining area.

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Annexure-II

Attendance sheet of Members of EAC

EAC 13th Meeting

Sl. No.	Name and address	Designation	15.12.2016	16.12.2016
1.	**Dr. Ajai Kumar** B-1302, BestechPa kView Spa, Sector-47, Gurgaon, Haryana	Chairman		
2.	**Shri B Ramesh Kumar** H-No. 6-1-134/6, Bairam Compound, Padmarao Nagar, Secundrabad-500025,Andhra Pradesh	Member		
3.	**Prof.Dr. K.S. Rana** Maharana Manzil, 13, Dholpur House, (D.M. Compound), M.G. Road,Agra-1, Uttar Pradesh - 282001	Member		
4.	**Prof. A. K. Bhatnagar,** JA/4B, Ashok Vihar-I, Delhi - 110052	Member		
5.	**Dr. N. C. Karmakar** Department of Mining Engineering, Indian Institute of Technology (BHU), Varanasi - 221 005, Uttar Pradesh	Member		
6.	**Dr. Hemant S. Sahasrabuddhe** "Utkarsha", LB-53, Housing Board Colony, Laxminagar, Nagpur-440022	Member		
7.	**Prof. S. Ramakrishna Rao** 50-120-9/1, Tulasi Ram Regency North Extension, Seetham madhara, Visakhapatnam - 530013 Andhra Pradesh	Member		
8	**Dr. Himanshu Pathak,** Professor, Center for Environment Science and Climate Resilient Agriculture, Indian Agricultural Research Institute New Delhi 110 012	Member		
9	**Dr AL. Ramanathan** Professor, School of Environmental Sciences, Jawaharlal Nehru University, New Mehrauli Road, New Delhi-110067	Member		
10.	**Dr. Tushar Kant Joshi,** LaxmikantNiwas, SalarGaon, Bhagwantpur, Dehradun-248009, Uttrakhand.	Member		
11.	**Shri Santosh Gupta,** Flat No. 405, Block -B, Gaur Green Vista, NyayKhand -1, Indirapuram, Ghaziabad-201014	Member		
12.	**Representative of Ministry of Mines** **Shri. K.S. Yadav,** Regional Controller of Mines, Indian Bureau of Mine,H.No. 100, Old Nehru Colony,Dehradun-248001,Uttrakhand	Member		
13.	**Representative of Indian Meteorological** **Mr. V.K. Soni,** Scientist "E", (Meteorology,Air Pollution), 609, SatMet Building, MausamBhawan,Indian Meteorological Department,Lodhi Road, New Delhi-110003	Member		
14.	**Representative of Wildlife Institute of India,** **Dr. (Ms.) AshaRajvanshi,** Wildlife Institute of India, Chandrabani, Dehradun-248001	Member		
15.	**Director** IA-Division (Non Coal Mining) Vayu-305, Indira Paryavaran Bhawan, Ministry of Environment, Forest& CC, Jorbagh Road, Lodhi Road, New Delhi-110003	Member Secretary		

List of Representatives of the Project Proponents

1. Representative of **M/s JSW Cements Ltd.**
2. Representative of **M/s Jai Singh Takhur & Sons**
3. Representative of **M/s Manganese Ore India Limited (MOIL)**
4. Representative of **M/s Ultratech Cement Limited**
5. Representative of **M/s Uttarakhand Forest Development Corporation**
6. Representative of **M/s Balbir Singh Supa Ram**
7. Representative of **M/s P.S. Buildtech**
8. Representative of **M/s Kunti Parihar**
9. Representative of **M/s Wave Mines Private Limited**
10. Representative of **M/s M.P. Traders**
11. Representative of **M/s Kawaljeet Singh Batra**
12. Representative of **M/s E.V. Ranga Reddy**
13. Representative of **M/s Steel Authority of India Limited**
14. Representative of **M/s Navbharat Fuse Co. Ltd**
15. Representative of **M/s Monnet Ispat & Energy Ltd**
16. Representative of **M/s Bharat Aluminium Company Limited**
17. Representative of **M/s Abhijeet North Eastern Projects Limited**
18. Representative of **M/s Peekay Enterprises**
19. Representative of **M/s Rajasthan Clays**
20. Representative of **M/s Essar Steel India Limited**
21. Representative of **M/s Jindal Stainless Limited**
22. Representative of **Shri Dal Chand Sharma**
23. Representative of **M/s Madras Cements**
24. Representative of **M/s A Milnstone Pvt. Ltd**
25. Representative of **M/s Nirma Ltd**
26. Representative of **M/s Wonder Cement Ltd**
27. Representative of **M/s The Ramco Cements Limited (TRCL)**

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Gmail rahul pratap <rahulpratap.adv@gmail.com>

Addl Affidavit on behalf of Ministry of Environment, Forest & Climate Change (Respondent No. 1) IN O.A. No. 791/2024 Ajit Pal Singh VS Union of India & Ors.

1 message

rahul pratap <rahulpratap.adv@gmail.com> Wed, Sep 17, 2025 at 8:09 PM
To: emailtogkb@gmail.com, ANSHUL MANGLA <anshul.mangla16@gmail.com>, rkhuranalegal@gmail.com, soni.singh@vgalegal.com

Dear Sir/Ma'am,

Please find attached herewith copy of the affidavit in the above captioned matter.

Regards By

(Rahul Pratatp)
Advocate for the MoEF&CC (Respondent No.1)
A-46, First Floor, Defence Colony,
New Delhi -110024
Mob:- 9910727778
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Final Reply Affidavit in Ajit Pal.pdf