

EXECUTIVE SUMMARY

ENVIRONMENTAL IMPACT ASSESSMENT AND ENVIRONMENT MANAGEMENT PLAN

CHANGORI LIMESTONE QUARRY MINE

CLUSTER AREA: 42.023 ACRES / 17.006 HA

AT VILLAGE: CHANGORI,
TEHSIL- AMBIKAPUR, DISTRICT: SURGUJA,
CHHATISGARH

NAME OF THE APPLICANT

SRI MANOJ KUMAR AGRAWAL
AT / P.O. /TEHSIL –AMBIKAPUR
DISTRICT – SURGUJA,
C.G.–497001

ENVIRONMENT CONSULTANT

KALYANI LABORATORIES PVT LTD
PLOT NO. 78/944, MILLENIUM CITY,
PAHALA, BHUBANESWAR - 752101.

1.1 INTRODUCTION

Changori Cluster Limestone Quarry Mine is a new mining lease located at Village Changori under Lundra Tahasil in Surguja District, Chhatisgarh State. As per EIA Notification, 14th September 2006 and subsequent amendments the project comes under category B1, as the cluster lease area is less than 100 Ha. As per Notification of MOEF & CC vide S.O. No. 3977(E), Appendix- XI, dated the 14th August 2018; Cluster over total mineralized area of 33.38 Acres or 13.51 Hectares is categorized as 'B1' & required Environmental Clearance from SEIAA, Chhatisgarh.

As per Ministry of Environment, Forest & Climate Changes (MoEF & CC), New Delhi, EIA Notification dated. 14th September 2006 and its subsequent amendments, Environmental clearance is a statutory requirement for mining of minerals. Thus, MoEF & CC had formulated its policies & rules for mining of minerals to achieve sustainable development and to prevent haphazard exploitation of natural resources. Environmental Impact Assessment (EIA) is an assessment of the possible impact-positive or negative-that a proposed project may have on the environment, together consisting of the natural, social and economic aspects. On the basis of baseline study being conducted to adjudge Environment Impact Assessment (EIA) of the area, relevant EIA report along with Environment Management Plan (EMP) has been prepared in respect of Changori Limestone Quarry of Proprietor Manoj Kumar Agarwal over an area of 1.235 Ha. At Changori Village under Lundra Tahsil of Sarguja Dist. Chattisgarh. 18 no. of other individual Quarries has been located within 500 mtrs of Changori Limestone Mines as cluster of mines and the total cumulative area of the said cluster area is estimated as 17.006 Ha.

The detail of lease area and lessee has been tabulated as below:

Table No. 1.1 Details of Cluster Lease Area											
S. N.	Name of Proponent with Address	Location of Quarry	Tahasil	Plot No.	Area in Ha.	Annual Production CUM As per EC	Area in SQM	Depth in M	Geological Reserve CUM	Mineable Reserve	Recoverable Reserve
1	Shri Ram Singh	Changori	Lundra	25/91	1.315	8059	13150	10	108305	66594.25	59934.83
2	Smt. Sarita Singh	Changori	Lundra	25/126	0.410	2013	4100	13	47974.5	16365	14728.5
3	Ritesh Kumar Agrawal	Amdi	Lundra	11/2	0.486	1240.9	4860	6	25921.27	12974.81	11677.33
4	Shri Manoj Kumar Agrawal	Amdi	Lundra	63/2,106/1, 106/2,106/3	0.837	4533.18	8370	6	33733.29	21539.23	19385.31

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5	Smt. Sangeeta Singh	Changori	Lundra	423/1,426/ 2,428/2, 435/2,436/ 6	1.725	3312	17250	7	83016	45088.5	40579.652
6	Shri Mohan Agrawal	Changori	Lundra	172	0.579	1504.74	5790	6	19528.72	10096.92	9087.23
7	Shri Ramesh Kumar Mittal	Changori	Lundra	72,74,75	0.573	2100	5730	10	49945.48	15932.98	14339.68
8	Shri Anil Singh	Changori	Lundra	125/2	0.280	780	2800	10	24958.52	8275.372	7447.836
9	Shri Ramesh Kumar Mittal	Changori	Lundra	330/2,333/ 1	1.947	9,420	19470	10	175230	83475	75127.5
10	ShriSiyaramYadav	Changori	Lundra	254	0.307	1191	3070	7.5	19656	3193.6	2874.24
11	Shri Ramesh Mittal	Changori	Lundra	195/16	0.409	1243.5	4090	20	31620	12289	11060.1
12	Manoj Kumar Yadav	Amdi	Lundra	195/7,195/ 8,195/20, 198/2,119	2.848	7906.5	28480	6.5	140848.4	90083.88	85579.688
13	Shri Manoj Kumar Agrawal	Changori	Lundra	195/29	0.567	1987.78	5670	3	17010	10443.24	9398.92
14	Vivek Kumar Goyal	Changori	Lundra	239	1.000	10785.27	10000	6	60000	35350.91	31815.82
15	Naresh Kumar Agrawal	Changori	Lundra	239/2	0.780	2,531.48	7800	5.25	40950	26527.52	23874.768
16	ShriHariomAgrawal	Changori	Lundra	254	0.856	4,506	8560	16	106993.2	48298	43468.2
17	Shri Mohan LalAgrawal	Changori	Lundra	254	0.549	2637.2	5490	12	50790	24876	22388.4
18	Ritesh Kumar Gupta	Changori	Lundra	195/26,195/ 27	0.303	411.6	3030	11	25438.79	4523.34	4071.01
	Total of 18 Mines				15.771	66163.15	157710	165.3	1061919.2	535927.55	486839.01
19	Manoj Kumar Agrawal	Changori	Lundra	25/119,25/ 120,25/28,	1.235	7851.6	12350	21	253175	82930.5	74637.45
	Total of 19 Mines				17.006	74014.75	170060	186.3	1315094.2	618858.05	561476.46

Environment Impact Assessment and Environment Management Plan (EIA/EMP) has been prepared with reference to the Terms of Reference (ToR) issued by SEAC, Chattisgarh issued in favour of the Changori Limestone Mines of Manoj Kumar Agarwal vide letter no. 1659/SEAC CG. Mine//Surguja/939, Nawa Raipur, Atal Nagar, Dtd.05.02.2020. The above mines have been situated within 500 mtrs of Changori Limestone Mines as per letter issued from the Office of Dist. Collector (Mines Division); vide letter no. 2221/Khanij /Kha.Li.1/19, Ambikapur, dtd.09/12/2019.

The mining plan in respect of Changori limestone quarry has been duly approved by Deputy Director, (Directorate Geology & Mines, Admin Cell), SurgujaDist., Chattisgarh vide letter no. 662/Khanij/2019, Ambikapur, dtd.10/06/2019.

Letter of Intent (LOI) for grant of fresh lease has been granted to project proponent by collectorate mining branch Surguja vide letter no. 377/Kha.Li 4/ e-tender/2018-19,

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Ambikapur, Dated 20/03/2019 on 1.235hect land area under rule 42 of Chhattisgarh Minor Mineral Rule 2015. As per rule 38A of CGMMR 2015 as amended lease period will be 30 years from the date of first lease agreement.

Application for environment clearance was duly prepared and submitted to SEIAA, Chhattisgarh by the lessee with form 1, Proposed TOR and PFR along with approved mining plan for Changori Limestone Quarry.

The total area granted for mining lease is coming within the non-forest waste land. The land details with plot no. and kissam in respect of Changori Limestone Quarry Mines of Lessee Manoj Agrawal are attached as below.

Table No. 1.2 Land Schedule of Changori Limestone Quarry

Name of the Mines	Name of Lessee	Forest Land	Non Forest land			
			Private Agricultural Land	Grazing Land	Barren Land	Others
Changori Limestone Mines	Manoj Kumar Agarwal	Nil	1.235 Ha.	Nil	Nil	Nil

Changori Limestone Quarry of Lessee Manoj Kumar Agawal is featured in the Survey of India Toposheet No. 64 M/8. The site is located about NH-343 at 7.00 km towards West (Ambikapur-Raipur Road) and located SH-12 at 10.10 km towards North (Pratappur-Kusmi Road). The project site is well accessible through all rough roads. At 1.70 km towards south (Bariyon- Lundraroad whereas Nearest Railway Line is located at Ambikapur at a distance of 27.30km towards south-west.

The assignment for conducting Environment Impact Assessment / Environmental Management Plan Study (EIA/EMP) was awarded to M/s Kalyani Laboratories Pvt. Ltd., Bhubaneswar (QCI – NABET Accredited Consultant Certificate No. NABET/ EIA /1922 /RA0154 valid up to 28/04/2022).The EIA/EMP report has been prepared based on the baseline data generated from 15th Dec 2019 to 15th Mar 2020 (Winter Season).

1.2 BRIEF PROFILE OF THE PROJECT

Table No. 1.3 Brief Profile of the Project: ChangoriLimestone Quarry/Manoj Kumar Agarwal

Sl. No.	Salient Features	Description
1	Total mining lease area	1.235 Ha.
2.	Village	Changori
3.	Tahasil	Lundra

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4.	District and State	Surguja, Chattisgarh
5.	Land Category	Non Forest Pvt. Land.
6.	Toposheet No.	64 M/8
7.	Nearest Town	Ambikapur (25km)
8.	Nearest Highway	NH 343 / (7 km)
9.	Nearest River	Gagar River – 440 m, W
10.	Nearest Rly Station	Ambikapur Railway (27.30 km)
12.	Nearest Forest	R.F. at 5 Km
13.	Material to be Mined	Lime Stone (Low Grade)
14.	Rate of production	19629 TPY
15.	Nature of Waste	No mine waste or rejects is expected to be generated.
16.	Water requirement	For Dust Suppression 2 KLD, For Green Belt 3 KLD & for Drinking and washing 0.30 KLD. Total 5.30 KLD
17.	Source of water	Water will be arranged from local body i.e. gram panchayat through water tankers.
18.	Manpower	1no. Qualified 1no. Experienced & 17 nos. Labourers. Total 19 nos.

1.2.1 Reserve Estimation

The reserve within the lease has been calculated by graphical method. The area is Flat land. The formula adopted for calculation of reserve is graphical method and thus mine specification arrived through graphical method are as under:-

Table No. 1.4 Reserve Estimation & specification

S.N.	Particularof Mine	Details
1	Lease area	1,235 (hect.)
2	Fresh area in the mine	12350.0sqm.
3	Proposed depth of excavation from surface level	21.00m
4	Thickness of Topsoil (Alluvial Soil)	0.50m
5	Outer Length of mine boundary	581.00m
6	Inner Length of mine Boundary	519.53m
7	Average Length of Mine Boundary	550.27m
8	Width of Mine Boundary	7.50m
9	Avg. Length of mine boundary(with topsoil)	550.27m
10	Fresh Area in mine boundary (with topsoil)	4127.00sqm.
11	Area for Stone Crusher	NIL sqm.
12	Area for Stone Storage	NIL sqm.
13	Specific Gravity of stone	2.50

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14	Total Geological Reserve	2,53,175 cum
15	Total, Reserve Blocked in mine boundary	84 603.50 cum
16	Reserve Blocked in Benches & Slope Maintenance	85641 cum
17	Total Blockage	170244.50 cum
18	Mineable Reserve(Geological reserves-Blocked reserve)	82,930.50 cum
19	Mine Loss	8,293.05 cum
20	Rejectes of Limestone	NIL
21	Recoverable Reserve=(Mineable Reserves - Deduction for Mine loss and Rejects)	74,637.45 cum
22	Top soil	4111.5 cum

The details of the Mining of the existing quarries within the cluster area are given in the table below:

Table No. 1.5 CLUSTER MINING QUARRY DETAILS IN RESPECT OF MANOJ KUMAR AGRAWAL CHANGORI LIMESTONE MINES WITH 18 OTHER MINES LOCATED WITHIN 500 MTRS.

S. N.	Name of Proponent with Address	Location Village of Quarry	Annual Production CUM As per EC	Area in SQM	Depth in M	Total Excavation	Geological Reserve CUM	Mineable Reserve	Recoverable Reserve
1	Shri Ram Singh	Changori	8059	13150	10	108305	108305	66594.25	59934.83
2	Smt. Sarita Singh	Changori	2013	4100	13	47974.5	47974.5	16365	14728.5
3	Ritesh Kumar Agrawal	Amdi	1240.9	4860	6	25921.27	25921.27	12974.81	11677.33
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18	Ritesh Kumar Gupta	Changori	411.6	3030	11	25438.79	25438.79	4523.34	4071.01
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	Total of 19 Mines		74014.75	170060	186.25	1315094.17	1315094.17	618858.05	561476.464

Table No. 1.6 Summary Abstract of Reserve Estimations of the Changori Cluster Limestone Quarry

SL. NO.	Descriptions	Quantity in Cu. m
1	Total Geological Reserve	1315094.17
3	Mineable Reserve	618858.05
4	Recoverable Reserve after deduction for mine loss and rejects	561476.464

Table No. 1.7 Statement of Annual Production Plan

Period	Area Under Excavation Sq.M.	Production Cu.M.	Topsoil Cu.M.
1 st Year	3320	7470	1660
2 nd Year	3200	7200	1600
3 rd Year	1703	7341.75	851.50
4 th Year	2780	7506	-
5 th Year	2620	7344	-
6 th Year	2650	7155	-
7 th Year	1795	7492.5	-
8 rd Year	2654	7705.8	-
9 th Year	2598	7851.6	-
10 th Year	1728	7570.8	-
Total		74637.45	4111.50

1.2.2 Conceptual mining Details:

As the proposed scheme of mining is drafted for excavation of lime stone till 21m of depth from surface level. Therefore after reaching 21m of depth in the mine or anytime during the balance lease period, if there would be further minerals available as per investigation of district mining authorities and there is possibility of further exploration of mineral feasibly, than permission of further excavation of stone might be given as decided by respective authorities along with due compliance as then applicable.

During the conceptual period the maximum quarry size in respect of Changori Limestone Quarry of Mr. Manoj Kumar Agarwal will be 0.822 Ha which will be converted to water reservoir. There will no waste dumping during the conceptual period as the waste/ reject will be utilized as construction material. Top soil generated during conceptual period will be utilized for plantation purpose. Details conceptual plan has been given in the table below:

Table No. 1.8 Details Conceptual Plan

A)	Estimated recoverable reserves	74637.45 cum. Or 186593.63 tons
B)	Average rate of production per year During Five year plan	7372.35cum. or18430.88 tons
C)	Expected rate of production After Five year plan	7555.14cum. or18887.85 tons
D)	Sanctioned lease period	30years
E)	Plan period	10 years
F)	Thus anticipated life of the quarry	About10 years. (Up to21m of mine depth from surface level)

Table No. 1.9 Land use Details :

Articles	Land use at the End of 5years in Hect.	Forest Land	Agri. Land	waste Land	Land use atthe endof10years in Hect.
A. Lease Area	1.235	-	-	1.235	1.235
B. Quarrying & allied		-	-	-	
1. Area under pits	0.822	-	-	-	0.822
2. Statutory Boundary	0.413	-	-	-	0.413
3. Area for dumping	0.248	-	-	-	0.248
4. Plantation	0.248	-	-	-	0.248

Statutory boundary is 7.50 m wide in order to comply the rules of MMR1961. Out of this statutory boundary 3.0m wide area from the edge of mine pit is proposed to left to comply the provisions of MMR1961. Dumping area is proposed on balance outer 4.50m wide area of statutory boundary i.e. after 3.0m of no activity zone. Therefore separate dumping area in the mine is not proposed. Rather outer 4.50 meter wide area under statutory boundary is it self considere das dumping area. Plantation and development of roads is also proposed on the same dumping area.

1.2.3 WATER & POWER REQUIREMENT

Water requirement for the proposed mines will be for dust suppression, Green Belt Development and Drinking and domestic purpose. Detail breakup of water requirement is as below:

Table No. 1.10: Requirement of water for quarrying operations:

Details	Unit (KLD)
Dust Suppression	2.00
Green Belt	3.00
Domestic usage	2.00
Drinking & Washing	0.30
Total Water	5.30

Power is reqd. for stone cutting, pumping of water, temporary admin. Building and rest shelters. Total power requirement is 25 HP. Local electricity board shall be applied for electric connection.

1.3 BASELINE STUDY

1.3.1 LAND ENVIRONMENT

As per the satellite imagery data presented above it has been observed that about 30% of the land cover is fallow land, irrigated land (Rabi crop land) include 26% and 17% scrub land, and river is covered under 1% of the total land use plan.

Primary field survey shows that the buffer zone is dominated by forest and Agricultural land with less agricultural practice. The habitation and industrial area is also occupied within the buffer zone.

1.3.2 SOIL QUALITY

The soil of the area is neutral with the pH range of 5.6-7.6. The total organic carbon content of soils is 1.23-2.19%. Available nitrogen is 56-156.9Kg/Ha and potassium content is 115-475 Mg/Kg. Soils of the area are low to moderate fertility. This type of soil will require more frequent irrigation and fertilization.

1.3.3 WATER ENVIRONMENT

1.3.3.1 Surface Water analysis

The pH range of the water samples is neutral ranging from 7.0-8.1. Total hardness of the water sample ranges from 65-173mg/l. Electrical conductivity of water sample ranges from 0.16-0.40ms/cm. Dissolved oxygen in the surface water sample ranges from 6.6-7.3 mg/l. Biochemical oxygen demand of the surface water body is <1.2-2.5 mg/l. From the water quality results it can be inferred that all the parameters analyzed are under the prescribed limit as per class C classification of surface water by CPCB and the water does not contain any pollutant which would be hazardous for human, animal or crop health.

1.3.3.2 Ground water analysis

- Water is colourless and odourless and found to be suitable for human consumption.
- The pH level of the ground water sample ranges from 6.5-7.3. This indicates that the pH of the ground water in the study area is neutral and as per the drinking water standard.
- Total hardness ranges from 68-324 mg/l, and total dissolved solid ranges from 80-370 mg/l.
- Alkalinity ranges from 52-214 mg/l.

1.3.4 AIR ENVIRONMENT

The major contributors of air emissions are industrial emission, vehicular movement combustion of bio-fuel and other man made sources. During the study period the concentration of PM₁₀ varies from 56.4-69.5µg/m³ and PM_{2.5} varies from 16.8-38.0 µg/m³. The concentration of SO₂ varies from 4.31-10 µg /m³ and NO_x concentrations vary from 12.4-20.2 µg/m³. Concentration of particulate matters, Oxides of Sulphur and Nitrogen are within the NAAQ, 2009 standards.

1.3.5 NOISE ENVIRONMENT

The study area includes industrial area and residential areas. The ambient noise levels were measured in eight sampling locations. In the project site the day time noise level is 60.7dB (A) and the night time noise level is 48.9dB (A). The maximum noise level is 53.6dB (A) during the day time at Bilhai Khurd Village and minimum noise level is 36.5dB (A) during the night time at Dumki Village. The noise level is found to be maximum in BilhaiKhurd Village.

1.3.6 BIOLOGICAL ENVIRONMENT

The area is covered with mostly scrub and open forest along with scattered vegetation near villages. The common plant species found in the study area are Neem, Peepal, Bargad, Gulmohr, Palas, Amrud, Amla etc. The project site and its buffer zone do not include any wild life sanctuary, eco-sensitive area or wildlife corridor. The nearest wild life sanctuary is Udanti-Sitanadi Tiger Reserve which is at a distance of 110 km from the project site. The study area within 10 Km of the project site is devoid of any national parks, sanctuaries, Biosphere reserves, wild life corridors, tiger/elephant reserves etc. The area is also devoid of any kind of vulnerable, endangered and critically endangered flora and fauna. Udanti-Sitanadi Tiger reserve is located at a distance of 110 Km from the project site.

1.3.7 SOCIO ECONOMIC PROFILES

- Surguja district is located in the Northern part of Chhattisgarh State adjoining with the borders of three states namely, Jharkhand, Uttar Pradesh, Jharkhand and Madhya Pradesh. Surguja, being a Divisional Headquarters, the Office of the Divisional Commissioner is situated in Ambikapur is also the District Headquarters. Surguja is one of the revenue divisions with headquarters located at Ambikapur. The district is divided into 19 tahsils. It has 14 statutory towns and 1750 villages (1742 revenue villages and 8 forest villages). Out of the total population, 20861 persons are literate. Out of the total literate, male literacy is contributed as 12322 and female literacy is contributed as 8539. Out of the total population, 21990 persons are workers and 21326 persons are non-workers. This can be inferred that more than half of the population is depending on others for their livelihood.
- Regarding workforce participation rate of both the sex, the data reveals that female workforce participation rate is comparatively less with respect to male. Out of the total working population 12006 are male and 9984 are female.

Out of the total workers 6686 are main workers and 2343 are marginal workers. In main workers population the male workers are dominated marginal in comparison to female workers whereas in case of marginal workers, female nos. exceeds male nos.

1.4 IMPACT & MITIGATION MEASURES

1.4.1 Impact due to Water use in Mines

In Limestone stone mines water will be mainly used for domestic purpose, dust suppression, plantation. The water required for dust suppression and plantation purpose will met through the rain water which will be stored in the exhausted mining pits. Only about 0.53m³ of drinking water will be required for domestic use which is being sourced through tanker. However there is the proposal of construction of a tube well within the lease area for drinking purpose.

Impact on Ground Water

As per the data provided in the approved mining plan the depth of ground water is 30 m or below surface level as well as in nearby dug well and bore well etc. As the mining operation has been carried out above the ground water table i.e. up to a maximum depth of 21 m, so this will not intersect the ground water table. Hence there would not be any adverse effect on the ground water.

Mitigation measures

- All stacking and loading areas should be provided with proper garland drains

- Check dams should be provided to prevent solids from wash off.
- Construction of garland drains around freshly excavated and dumped areas so that flow of water with loose material is prevented.
- The mine water should be passed through specially constructed catch pits to arrest any loose material being carried away with water.
- Any areas with loose debris within the leasehold should be planted.
- Garland drains should be constructed surrounding the waste dumps and should be connected to the surface water reservoir to avoid the run-off mixing directly to natural water channels before settling.

1.4.2 Impact of Cropping Pattern (Land Use)

- The mining activities will be restricted within the lease area only. The air quality prediction modeling results shows that the ground level concentration of particulate matter is very less and it will spread up to a maximum distance of 500m from the lease area. So the impact of mining on the soil and cropping pattern will also not be observed.
- There is no waste water generated during the mining activities which will be discharged outside. The surface run off from the lease area will be retain within the lease and used for plantation and dust suppression. So there will be no soil erosion from the lease area and its surrounding due to mining activity.

Mitigation Measures

The mitigation measure of the land environment includes:

- Before the mining activity the top soil will be scrapped and stored in the lease area and will be utilized for plantation purpose.
- The limestone excavated from the lease area will be completely saleable resulting no dump within the lease area.
- At the end of conceptual period the excavated quarry will converted into water reservoir to supply water for local use like irrigation and pisciculture.
- Due to manual mining operation emission from the Limestone stone mines is very less there will no impact on the surrounding soil quality and cropping pattern of the area.

Table No. 1.11 Sources of Air pollution and Mitigation measures

Potential sources	Magnitude of air pollution	Control measures of air pollution
Excavation of topsoil by excavator	Dust generation	Water sprinkling on the soil dump and utilization of soil in plantation purpose
Loading of material	Air emission	Water sprinkling on haul road
Transportation	High dust	Provision for water sprinkle system on permanent road and water spray by tankers on temporary road. Green belt of trees with good footage on both side of haul road. Provision of water spay on the dumper to arrest fine dust before it is transported.

1.4.3 Impact due to noise and vibration

The main noise generating source during mining operation and related activities are excavation, blasting, loading, unloading and transportation. As the proposed mining activity is opencast manual mining the noise generation will be less. It is expected that the generated noise will be limited within the mine lease cluster and there will be no profound effect of noise on the buffer zone. The noise level will be maintained below the threshold limit by vigorous maintenance of the machineries. As the proposed mining activity includes drilling and blasting activity which is Low intensity scientific controlled blasting so, there will be less effect in ground vibration the proposed project.

Mitigation measures

Though the noise pollution in the said mines is very less then also following mitigation measures will be adopted for control of noise and vibration:

- A well planned green belt is proposed for the mining to reduce noise level.
- Regular maintenance of the machineries and vehicles to reduce the noise level.
- Use of ear muffs by the workers with occupational exposure to noise particularly during excavation and stone cutting

1.4.4 Impact on Terrestrial Ecology

The lease area is devoid of any forest land. The lease cluster and the surrounding area does not include any forest land. There is no existing vegetation within the lease area as the area is mostly fallow land. The buffer zone also not includes any forest land and about 80% of the total land use in the buffer zone includes fallow land. No trees will be cut for the mining

activities. As the core zone is devoid of major flora and fauna the impact on the ecological status of the area will not be there.

However the possible impacts on the biological environment will be as follows:

- As the lease area is devoid of any tree species, there will be no removal of the large tree species for mining activity
- Anthropological interference due to project activity may create negative impact on the habitation of the wild fauna and flora.
- As the buffer zone and the core zone is devoid of any forest land the impact on the biological environment is very minimal.

Mitigation Measure

- The lease boundary will be covered under plantation zone.
- The mining quarries will be properly fenced to reduce the risk of fall or slip of wild and domestic animals.
- The green belt developed by the individual lease area will enhance the aesthetic view of the project.

1.4.5 Impact on Socio-Economic Environment

The project does not involve any loss of agriculture land. Some of the impacts would be directly beneficial to the socio-economic environment due to proposed employment potential and improved infrastructural facilities whereas some of them would be of adverse nature. The impact of the project on the socio economic environment may be both positive and negative. The impacts have been summarized as below:

- Positive impact because of better job & business opportunity
- Negative impact due to air, water, soil pollution depending on the location of the villages.
- Positive impact by creating more livelihood option for the land less and labour class of people
- Positive impact by creating better education, health and communication facility for the villagers.
- No land or human habitation will be affected by the project activity

Mitigation Measures

- The exhaustive plan for the socio economic development along with the funding detailed in the project benefit chapter based on the need assessment carried out during the socio economic survey.

- The developmental work like supply of safe drinking water, plantation in the villages, health facility for the villagers, Education facility will be planned as per the requirement of the people and implemented through the village committee.
- As the pollution load in the lime stone mines will be very less and it will be limited to the lease area only.
- All pollution control measures will be undertaken by the lessee to reduce the pollution level due to mining activity and not to spread out of the lease area.
- Thick green belt will be developed around the lease boundary to arrest the air pollutant and noise.

1.5 DISASTER MANAGEMENT PLAN

The following precautionary measures shall be taken to prevent any accident

- Top edge of opencast workings shall be kept properly fenced. At the final stage, the workings shall be fenced with masonry wall (of not less than 0.13m thick and 1.2m high with a parapet top).
- The sides of excavation and the height and width of benches shall be properly maintained as per mining regulations. Quarrying shall be done from top downwards. No overhand will be allowed.
- Special attention and requisite precautions shall be taken while working in areas of geological weakness like existence of slip, fault etc. Regular dressing of bench sides to ensure safety of workers employed within 5m of working face.
- Provision of safety belt or rope while persons are at work at the quarry sides or benches from where there are chances of falling down for stone than 1.8m.
- Drafting and implementation of preventive maintenance schedule for various kinds of machinery deployed in opencast workings.
- Provision of maintenance of properly laid haul roads with parapet wall fencing or guards and road signs at strategic points.
- Precautions against danger while traversing dumpers, excavators etc. by installing audio-visual alarms and appointment of spotters.
- Proper maintenance of vehicles and weekly examination by an engineer and daily examination by a competent person. Training and retraining (at specified interval) of the machinery operators. Adequate maintenance of electrical equipment & adequate illumination after daylight.

1.6 CORPORATE ENVIRONMENTAL RESPONSIBILITY

As per the MoEF & CC OM No. 22-65/ 2017-IA II(M) dated 01.05.2018, it has been recommended that 2% of the project cost will be accorded for Corporate Environmental responsibility. The approximate cost of the project is envisaged at Rs.39.50/- lakh. Accordingly, minimum 2% of the project cost i.e. Rs.80, 000/- shall have to be spending for CER activities. The CER plan has been prepared for the proposed mines of lessee has been given in table below:

Table No. 1.12 Proposed CER Plan for Changori Limestone Mines of Sri Manoj Kumar Agarwal

SN	Proposed Plan	Amount (in Rs.)
1.	Corporate Environment Responsibility (CER) COP Rs. 39,50,000X 2% = 79,000/- or say 80,000/-	
<u>Head wise allocation of Budget for Govt. Middle School Buildings around the area (Changori):</u>		
i	Installation of Rain water harvesting	Rs. 1,32,000/-
	Installation of water filter at school	Rs. 20,000/-
ii	Annual maintenance contract of above water filter in the name of school principal for 5 years - 5 X 5000/-per yr.	Rs. 5,000/-
iii	Plantation in school campus	Rs. 15,000/-
iv	Running water arrangement in toilet	Rs. 15,000/-
2.	Development & Maintenance of Green Belt and Dust Suppression and other environment management cost	Rs. 1,00,000/-
	Total::	2,87,000/-

1.6.1 ENVIRONMENT POLICY

Changori Limestone Quarry is presently under the jurisdiction of The Directorate Geology and Mining Chhattisgarh the concerned authority will stipulate a well-defined Environmental policy for Changori Limestone Cluster by which the lessee is committed to conduct business with strong environmental conscience towards community, customer & employees. The safety and environment policy is as below:

- The Environment, health and safety policy of Changori Limestone Quarry is the rules and commitment driven towards conservation of environment with protection of employee's health and safety.
- The Lessee is committed towards efficient use of natural resources based on reduce, recycle and reuse method.
- The Project is committed towards identification of possible impacts and will take necessary management plan to mitigate the impacts.
 - Our environment and safety performance will regularly monitored and reported and helps for continual improvement of our environment and health performance.
- For health and safety of workers, our effort is for identification of workplace hazards and creating awareness among the workers for reduces accident. Training to the workforce regarding prevention of accident, accident response and emergency preparedness.
- We strongly believe that accident and adverse environment impact can control through good quality of working environment, safety management and worker's involvement.

1.6.2 COST THE PROJECT AND ENVIRONMENTAL POLLUTION CONTROL MEASURES:

In the process of environmental impact assessment a no. of site specific issues have been identified which require due consideration as part of the development planning and environmental project costing. The measures suggested are detailed under environmental management plan. The total cost of the project has been given in table below and the updated capital cost and recurring cost (per annum) for the environmental facilities for the proposed mining project.

Table No. 1.14: Cost of the Project

Name of the mines	Name of Lessee	Land Value in Rs. Lakhs	Cost of Admin Building Rs. Lakhs	Cost of Equipment Rs. Lakhs	Establishment cost Rs. Lakhs	Total cost Rs. Lakhs
Changori Limestone Quarry Mine	Mr. Manoj Kumar Agarwal	4.50	2.00	30.00	3.00	39.50

Table No. 1.15: Cost of Environmental Pollution Control Measures

Name of Mine	Name of Lessee	Proposed Cost of EMP
Changori Limestone Quarry Mine	Mr. Manoj Kumar Agarwal	Rs.1,00,000/-