



TANCEM

**EXECUTIVE SUMMARY
FOR CAPACITY ENHANCEMENT OF ANANDAVADI LIMESTONE
FROM 0.26 MTPA TO 1.5 MTPA
(Category-A, EXPANSION PROJECT)**

PROJECT PROPONENT

**M/S Tamil Nadu Cements Corporation Ltd
(A Government of Tamil Nadu Undertaking)**

LLA Building, 2nd Floor, 735, Anna Salai, Chennai 600 002



STUDY PERIOD MARCH-MAY 2018

MCPL/EMD/MIN/2017-18/03/01

May, 2019



Prepared By

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(QCI Accredited EIA Consultant at S.No.104 as per List of Accredited consultant Organizations/Rev. 76/May 06, 2019)

(NABET Accredited EIA consultant, MoEF & NABL approved Laboratory)

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EXECUTIVE SUMMARY

1 Introduction

The mining lease was initially granted vide letter no. G.O. (MS) No624 dated 23.09.1998, for the period of 30 years. Subsequently the lease deed was executed on 16.03.2000, and got registered on 13.07.2001 deemed to be extended till 15.03.2030.

As per the section 8A (5) of new MMDR amendment act 2015, the validity of this lease is deemed to be extended till 15.03.2050.

The first mine plan was approved by IBM vide Lt. No: TN/PBR/Lst-MP/916-SZ dated 18.10.2000. The 1st scheme of mine was approved vide Lt. No: TN/PBR/Lst-MS/396-SZ dated 06.10.2006. Latest scheme of mining approved by IBM vide Lt. No. TN/ALM/LST/MS-1300-MDS, dated 25.01.2016 for the period of 2018-19 up to 2020-2021. However modification the approved Mining scheme was obtained by IBM vide Lt. No. TN/ALM/LST/MS-2050-MDS, dated 24.07.2018 for the period of 2018-19 up to 2020-2021.

The applicant has proposed to enhance the limestone production from 0.26 Million tons per annum to 1.5 Million tons per annum to meet the requirement of limestone for M/s Ariyalur Cement Works, for cement manufacturing unit at Ariyalur of TANCEM.

The environment clearance with annual capacity of limestone production 0.26 Million tonne per year was granted by Ministry of Environment & Forest Government of India, New Delhi vide order no.J-11015/15/99-IA.II(M) dated 22.11.1999. The production details are as follows.

Table 1-1: Production details

Year	Quantity of limestone produced
2000-2001	Nil
2001-2002	500.020
2002-2003	Nil
2003-2004	Nil
2004-2005	1000.00
2005-2006	1000.00
2006-2007	69959.990
2007-2008	54893.670
2008-2009	55057.900
2009-2010	59994.900
2010-2011	39701.870
2011-2012	Nil
2012-2013	Nil
2013-2014	Nil
2014-2015	Nil
2015-2016	Nil
2016-2017	Nil
2017-2018	58514.560
Total	340622.910

The project Anandavadi Limestone Mines is for enhance the limestone production capacity from 0.26 MTPA to 1.5 MTPA of existing mine for the extraction of limestone. The mine lease area is 110.685 Ha. (Own patta Land-92.465Ha and government waste land-18.22Ha) which is located at Village- Anandavadi, Taluka- Sendurai, District- Ariyalur, State-Tamilnadu. As per EIA notification 2006 and its subsequent amendments later, the project activity has been categorized as "Category-A" due to of mining lease being more than 100 Ha.

The Application (ToR proposal) for obtaining Environmental Clearance from Ministry of Environment & Forests, New Delhi for this project was submitted on 06.10.2018. The ToR presentation was held on 38th meeting of EAC held on November 15-16th, 2018. The ToR was issued on dated 26.02.2019 by MoEF&CC vide letter no. J-11015/173/2018-IA.II (M)

The Brief description of the project is given below:

Table 1-2: Brief Description of the project

S no.	Particulars	Detail																		
A	Nature and size of the Project	Anandavadi Limestone Mines for Capacity Expansion in production of existing mine from 0.26 MTPA to 1.5 MTPA																		
B	Location																			
	Village	Anandavadi																		
	Taluka	Sendurai																		
	District	Ariyalur																		
	State	Tamil Nadu																		
	Toposheet no.	58M/4																		
C	Lease Area Detail																			
	Lease Area	110.68.5 Ha.																		
	Type of Land	The mine lease area is in Poramboke land and own Patta Land.																		
	Topography	Slope towards south east																		
	Site elevation range	93-102 meters																		
D	Cost Detail																			
	Cost of the Project	100Lakh																		
	Cost for EMP	43.25Lakh																		
	Cost of CER	1 Lakh																		
	Cost of Occupational Health & safety	1 Lakh																		
	Cost for conservation of Species	27 Lakh																		
E	Detail of Environmental Setting																			
	Ecological Sensitive Areas (National Park, Wildlife Sanctuary, Biosphere Reserve, Reserve/ Protected Forest etc.)within10km radius	No National Park, Wild Life Sanctuary falls within 10 km radius. The RF are enlisted below. <table border="1" data-bbox="734 1247 1430 1486"> <thead> <tr> <th>S. No</th> <th>Reserve Forest</th> <th>Distance & Direction</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Vannankurichi RF</td> <td>0 Km in E</td> </tr> <tr> <td>2</td> <td>Manageri RF</td> <td>4.4 Km in SE</td> </tr> <tr> <td>3</td> <td>Sedalavadi RF</td> <td>6.2 Km in NE</td> </tr> <tr> <td>4</td> <td>Vilangudi Extension RF</td> <td>7.3 Km in S</td> </tr> <tr> <td>5</td> <td>Sundaresvarapuram RF</td> <td>9.4 Km in S</td> </tr> </tbody> </table>	S. No	Reserve Forest	Distance & Direction	1	Vannankurichi RF	0 Km in E	2	Manageri RF	4.4 Km in SE	3	Sedalavadi RF	6.2 Km in NE	4	Vilangudi Extension RF	7.3 Km in S	5	Sundaresvarapuram RF	9.4 Km in S
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5	Sundaresvarapuram RF	9.4 Km in S																		
	Archaeological Important Place	None within 10 Km radius of the project																		
	Nearest Town	Ariyalur, 13 Km in SW.																		
	Nearest Railway Station	Sendurai Railway station approx 7 Km in N																		
	Nearest National Highway	NH-227 approx 6 km, south																		
	Nearest Airport	Tiruchirapalli Airport 70Km SW- direction																		
	Seismic Zone	Zone- II																		

2 Project Description

2.1 METHOD OF MINING

The method of working is opencast (A category fully mechanized) adopting non-conventional method by deploying rock breaker for primary and secondary breaking eliminating drilling and blasting thus adopting eco-friendly mining.

2.2 STEPS INVOLVED FOR WINNING LIMESTONE:

Primary and Secondary Breaking: Mega Rock Breaker of 150 TPH capacity will be deployed for primary breaking and dilution of oversize boulders which will totally eliminate drilling and blasting.

Loading and hauling: Excavator will be used for loading the material on to the tippers (hauling units) which will be used for transportation of mineral from the mines to crusher at plant site and for handling the overburden / reject.

Rock breaker will be used for primary breaking wherever required and also for reduction of oversize boulders instead of secondary blasting.

BENCH PARAMETERS:

Bench height	-	6m
Bench Width	-	8m
Ultimate Pit Slope	-	45°
Depth of Mining	-	21 m maximum upto 80 RL.

For North pit:

No. Bench	Top R.L	Bottom R.L	Height	L x W
I st Bench Topsoil & sandstone	100 M	94 M	6.0 M	210 M x 145 M
II nd Bench	92 M	88 M	6.0 M	100M x 60M

For South pit:

No. Bench	Top R.L	Bottom R.L	Height	L x W
I st Bench Topsoil & sandstone	100 M	94 M	6.0 M	100 M x 60M
II nd Bench	92 M	88 M	6.0 M	80M x 60M

2.3 PRODUCTION DETAILS

Year wise production for the last three years is as given below:

Table 2-1: Year wise production Parameters (Metric tonnes)

Year	Pit No.	Total Tentative Excavation (MT)	Top soil (MT)	OB/SB/IB (MT)	ROM (MT)		Total waste	ROW/Waste Ratio
01.07.2018-19	North pit	753695	38475	214566	500654	Nil	253041	
	South pit	965812	72900	267874	625038		340774	1:0.53
	Total	1719507	111375	482440	1125692		593815	
2019-20	North pit & South pit	2283400	135900	644250	1503250	Nil	780150	

	Total	2283400	135900	644250	1503250	Nil	780150	1:0.52
2020-21	North pit & South pit	3003175	367875	643440	1501360	490500	1501815	
	Total	3003175	367875	643440	1501360	490500	1501815	1:1.00
Grand total		7006082	615150	1770130	4130302	490500	2875780	

2.3.1 Stacking of mineral reject /sub grade material and disposal of waste

The Topsoil removed during the year 2000-01 to 2010-11 around 1.12 lakh Tons is dumped in the existing dump yard given in the eastern side of the lease area. During the last scheme period no top soil and waste has been generated due to the-quality and technical constraints of the deposit.

Table 2-2: Details of Top soil and mineral reject

Year	Top Soil (MT)	Waste rock/ Sandstone (MT)
2018-19	130950	750000
2019-20	92171	750000
2020-21	367875	750000
Total	590996	2250000

The mining lease area is covered by Red soil of 0.0 to 0.50 Mtrs. thickness. The thickness of topsoil is meager and will be stacked for the purpose of afforestation. The benches shall be sloped at an angle of 45° individual bench in limestone shall also be of 6 m height and the width of the benches shall always be maintained more than the height.

2.3.2 Mineable reserve and anticipated life of the mines:

The proved mineral reserves are 18.58 Mil.T of limestone, having the proposed exploitation for mineral of 1.5 million tons per annum, the life of the mine will come around 12.38 years, say 13 years. Hence the life of mine is 13 years only with respect to the proposed production rate.

2.4 BASIC REQUIRMENT OF THE PROJECT

2.4.1 Land

Anandavadi Lime stone mine is having a lease area of 110.685 Ha out of which 92.465 ha are own patta land and 18.22 ha Paramboke land.

2.4.2 Water Requirement

Water requirement for plantation and dust suppression will be 40 KLD, which shall be met from water tanker through reservoir at G.O. 344.

Table 2-3: Water Requirement

S no.	Particulars	Water Requirement	Source
1.	Domestic use	1	Water Reservoir at G.O 344
2.	Plantation	9	
3.	Dust Suppression	30	
	Total	40 KLD	

2.4.3 Power Requirement

No electrical power shall be required for operations as the mining will be worked out during day time in two shifts.

2.4.4 Man power Requirement

It includes managerial & supervisory staff directly employed by the company and skilled, semi skilled workers through contractual. Therefore, total strength of workforce in the mine site is 41 (Direct- 7 & Indirect- 34).

2.5 WASTE GENERATION

There is no liquid effluent generation from the proposed project. However the domestic effluents are collected by a sewerage system and biological treatments is adopted by means of septic tanks and soak pits.

The Domestic effluent will be generated 16.4 Kg/day and collected in the waste bins and disposed off properly by the municipal authority.

3 Description of environment

Environmental data has been collected in relation to proposed mining for Air, Noise, Water, Soil, Socio-economic and Ecology & Biodiversity. The generation of primary data as well as collection of secondary data and information from the site and surroundings was carried out during pre monsoon season i.e. March 2018 to May, 2018.

3.1 AIR ENVIRONMENT

Ambient Air quality monitoring reveals that the minimum and maximum concentration of PM₁₀ for all 6 monitoring location station was found to be 48 µg/m³ and 88 µg/m³. The minimum and maximum concentration of PM_{2.5} was 28 µg/m³ and 52 µg/m³. The minimum and maximum concentrations for SO₂ were found 5µg/m³ and 18µg/m³. The concentrations for NO₂ were found 14µg/m³ and 26 µg/m³ minimum and maximum respectively. The minimum and maximum concentrations for CO were found 0.60mg/m³ and 0.94mg/m³.

3.2 WATER ENVIRONMENT

Analysis result of Surface water:

pH varies from to 7.51 to 7.74 in which minimum at Senduri and maximum at Keelarayampuram. Total Hardness varies from 168 mg/L at Keelarayampuram and 246 mg/L at Anandavadi. Total Dissolved Solids varies from 469 at Senduri and 722 mg/L at Anandavadi. Fluoride varies from 0.33 mg/L at Senduri and 0.49 mg/L at near mine site. Chloride varies from 118 mg/L at Senduri and 192 mg/L at Anadavadi. COD varies from 20.0 mg/L at Anandavadi and Keelarayampuram to 30.0mg/L at Senduri. BOD varies from 6mg/L at Anadavadi and 12mg/L at Senduri.

Analysis results of Ground water;

pH varies from the minimum value of 7.14 at Anandavadi and maximum value 7.72 at Villangudi. Total Hardness varies from 187 mg/l at Villangudi and 341 mg/l maximum at Anandavadi. Total Dissolved Solids varies from 338mg/L at at Villangudi to 623 mg/L at Anandavadi. Fluoride varies from 0.48 at Keelarayampuram to 0.76 mg/L at Villangudi. Chloride varies from 52 mg/L at Villangudi to 166 mg/L at Anandavadi.

3.3 SOIL ENVIRONMENT

The analysis results show that soil is basic in nature as pH value ranges from 6.92 at Killimangalan and 7.46 at Keelarayampuram. The organic matter found within the study area with minimum 1.08% at project site and maximum 1.42 % at Keelarayampuram. The concentration of Nitrogen, Phosphorus and Potassium has been found to be in good amount in the soil samples.

3.4 NOISE ENVIRONMENT

The Noise level during day time minimum at Anandavadi 48.5 Ld and maximum at project site 56.3 Ld. Noise level during night time minimum at Keelarayampuram 38.1 Ln and maximum at project site 43.4 Ln.

It was observed that the values obtained were within the prescribed Ambient Noise Quality Standards with respect to Noise indicated no industrial activity in the study area.

3.5 SOCIO-ECONOMIC ENVIRONMENT

A socio-economic study was undertaken in assessing aspects which are dealing with social and cultural conditions, and economic status in the study area. The study provides information such as demographic structure, population dynamics, infrastructure resources, and the status of human health and economic attributes like employment, per-capita income, agriculture, trade, and industrial development in the study area. The study of these characteristic helps in identification, prediction and evaluation of impacts on socio-economic and parameters of human interest due to proposed project developments. The parameters are:

- Demographic structure
- Infrastructure Facility
- Economic Status
- Health status
- Cultural attributes

Socio Economic profile of the study area:

- The project is in the village of Anadavadi of Senduri Tehsil of Ariyalur district.
- The area is rural and the main occupation is agriculture and its related activities.
- The population of the project area is 118350.
- The male and female population is 59172 and 59178 respectively.

3.6 BIOLOGICAL ENVIRONMENT

It is observed that western part from the mine lease area is human populated and also dominated with agricultural fields whereas the eastern side of the lease area which reserve forest area which is Southern **Thorn Scrub Forest (6A/C2/DS1)** as per Champion & Seth 1968.

According to primary survey conducted in study area and consultation with the secondary resources, a total of 89 floral species belonging to 35 plant families were found. The vegetation with short stature trees and several kinds of shrubs and herbs as *Prosopis juliflora*, *Acacia nilotica*, *Morindatinctoria*, *Commiphora berryi*, *Catunaregam spinosa*, *Azimatetracantha*, *Opuntia sp.*, *Cassia auriculata* and other thorny bushes. The herbaceous flora comprises of *Calotropis gigantea*, *Ziziphus sp*, *Croton bonplandianum*, *Capparis sepiaria*, *Cassia auriculata*. Typical grasses in this habitat include the species like *Chrysopogon fulvus*, *Heteropogon contortus*, *Eremopogon foveolatus*, *Aristida setacea* and *Dactyloctenium sp.*, etc. No Eco-Sensitive Zone exists within the 10 km radius of the project site.

From the faunal diversity perspectives, a total of 8 mammalian, 40 avian, 4 amphibian, 8 reptilian, 17 butterflies and 4 other insects are reported from the study area. On account to aquatic life, few common/local fish species with general spectrum of the planktons are observed at some ponds at villages. A total of 2 Schedule-I bird species are reported from the area.

4 Anticipated environment impact and mitigation measures

4.1 LAND ENVIRONMENT

The existing land use pattern of the study area based on the latest satellite imagery is given below:

Table 4-1: Land Use details in the study area

S.No	Classes	Area (sq.km)	Area in %
1	Agriculture	189.44	60.31
2	Settlement	10.60	3.37
3	Fallow Land	5.75	1.83
4	Vegetation	70.67	22.50
5	Reserve Forest	25.09	7.99
6	Water Bodies	8.37	2.66
7	Waste Land	4.20	1.34
Total		314.12	100.00

Presently mining operations are carried out in the Northern block only. About 3.045 Ha & 1 Ha are covered under mining and Overburden / dumping respectively. This is likely to go up to 15.045 Ha & 2.250 Ha under mining & Overburden/dumping respectively at the end of present Mine Scheme period.

In the ultimate stage about 60.685 Ha of land area will be covered under mining and 0.00 Ha will be under dumps. Besides, 48.500 Ha of land area will be covered under green belt / plantation.

To minimize land degradation, it is proposed to work only two pits at a time. After exhaustion of North and South pit which is worked presently at RL of 85m. Entire waste removed from and dump into the waste dump. The 2.083 Ha of are covered by the Eucalyptus and Caurina plants.

The existing dumping proposal was made in the non mineral bearing adjoining to the working pit and in the eastern side of the lease area.

Mitigation Measures

- Top soil will be stored separately for future use in spreading afforestation areas.
- A substantial plantation program was carried out undertaken along the public road and periphery of the mine lease area.

4.2 WATER ENVIRONMENT

Anticipated Impact

- No water is discharged to environment from Limestone mining at the project site.
- The mining will not intersect ground water table (aquifer) thus avoiding a major impact on water regime.

Mitigation Measure

- No waste water will be generated from the mine.
- No toxic water will be generated.
- Water monitoring will be done on time to time basis.

4.3 AIR ENVIRONMENT

Anticipated Impacts

- Mining Operation carried out by opencast mechanized method generate dust particles due to loading & unloading of limestone and during transportation.
- The dust liberated in mining and other related operations is injurious to health if inhaled in sufficient quantity.
- Gases, such as, Sulphur Dioxide, Oxides of Nitrogen etc. from vehicular exhaust.
- Blasting is not envisaged.

Mitigation Measures

- Proper mitigation measures like water sprinkling will be adopted to control dust emissions.
- Masks will be provided to workers.
- To control the emissions regular preventive maintenance of equipment will be carried out on contractual basis.

4.4 SOIL ENVIRONMENT

Anticipated Impact

- No major impact on soil of the study area is envisaged due to mining activities as there is no waste water, heavy metal, and fugitive emission shall remain confined locally within working area and emission at haul roads will be controlled by water sprinkling and plantation.
- Mitigation for Soil Environment
- There is no waste water & toxic water will be generated.
- Noise Environment
- Anticipated Impact
- Transportation vehicles used for the transportation of mineral are a source of noise pollution at the site.
- Loading & unloading of minerals also source of noise pollution.

Mitigation Measures

- No other equipment except the transportation vehicles and excavator for excavation & loading will be allowed.
- Noise generated by these equipments shall be intermittent and does not cause much adverse impact. Proper maintenance of all equipments/machines will be carried out which help in reducing noise during operations.
- Plantation will be taken up along the approach roads and side. The plantation minimizes propagation of noise and also arrests dust.

4.5 BIOLOGICAL ENVIRONMENT

Anticipated Impact

There shall be negligible air emissions or effluents from the project site. During loading the truck, dust generation will be likely. This shall be a temporary effect and not anticipated to affect the surrounding vegetation significantly.

Mitigation Measures

- Plantation will be done along the approach roads. These activities will help to improve the Floral cover of the area, which helps counter soil erosion.
- All the preventive measures will be taken for growth & development of flora.

- Although, the project will not lead to any tree cutting, it is proposed to improve the greenery of the locality by plantation services. To avoid dust emissions, the mined materials will be covered with tarpaulin during transportation.
- Suitable plan for conservation of Schedule-I Species have prepared and necessary fund to implement for the same will be made.

4.6 IMPACTS ON SOCIO-ECONOMIC ENVIRONMENT

Anticipated Impact

From the primary Socio-economic survey & through secondary data available from established literature and census data 2001 & 2011, it is found that there would be positive impact on Socio-economic condition of the nearby area. There is no habitation in the mining lease area. Therefore, neither villages nor any part of villages will be disturbed during the entire life of the mine. Mining in this lease will give Direct & indirect 41 job opportunities to the local people. Additional 37 jobs for helpers and Tipper drivers will be created. Thus, limestone mining will create beneficial effect on local people. With the operation of mining lease, various indirect employment opportunities will also be generated. Several persons of the neighboring villages have been benefited with contract works, employment through contractors, running jeeps, trucks, tractors and buses on hire, running canteens, different kinds of shops and transport related business avenues.

Mitigation measures

Limestone mining will create beneficial effect on local people. With the operation of mining lease, various indirect employment opportunities will also be generated. Several persons of the neighboring villages have been benefited with contract works, employment through contractors, running jeeps, trucks, tractors and buses on hire, running canteens, different kinds of shops and transport related business avenues.

4.7 SOLID WASTE

Topsoil and waste rock is being stored at the designated places separately. The top soil dump will be used for afforestation purpose. For biological reclamation, local grasses and shrubs will be planted followed by plantation of saplings of appropriate species. The top soil from the dump shall be re handled and spread over the afforestation area.

Anticipated Impact

- Impact of runoff from overburden, top soil, low-grade ore on water bodies (siltation, contamination etc) shall be negligible.
- No loss of vegetation and wildlife habitat is anticipated.
- Impact on surrounding agricultural land shall be negligible.
- Impact on groundwater quality due to leachate shall be negligible.
- Impact of hazardous wastes and liquids is not anticipated so that the mine waste is negligible.

Mitigation measures

- Overburden is backfilled into the worked out pits.
- Plantation program was carried out.
- Precaution will be taken for landslide control and slope also maintained.

4.8 TRAFFIC DENSITY

Anticipated Impact

Not much impact on local transport as only $12 \times 33 \text{ trips/day} \times 2 \text{ (up/down)} = 792$ tipper/day will be required for transport of mineral from mine. The LOS value from the proposed

mine may be “Good” for village road. So the additional load on the carrying capacity of the concern roads is not likely to have any significant adverse effect.

Mitigation measures

- It is being ensured that all transportation vehicles will carry a valid PUC certificate.
- Speed limit of the vehicles will be followed. To avoid accidents the speed of vehicles will be low near habitation areas.
- Un-necessary blowing of horn will be avoided

5 Analysis of alternatives

No alternative site had been considered since proposed Capacity Enhancement is in existing limestone mine and hence it is site specific.

6 Environmental monitoring programme

TANCEM has formulated well laid-out Environmental Policy, wherein preservation of environment has been accorded a most strategic and prime position.

Regular monitoring of implementation of various control measures in respect of air quality, meteorology, water quality, noise levels, biological status, land environment, socioeconomic factors, occupational health, etc. is most important to ensure that the project operations do not deteriorate the environmental status of the area at any point of time and environmental quality in respect of above parameters are kept well within the statutorily sustainable levels, as prescribed by CPCB, MOEF&CC and State Pollution Control Board.

A full-fledged environment cell is operating in the Anandavadi. This cell will undertake effective monitoring and implementation of various environmental control measures promptly and effectively and to oversee various environmental management schemes for air quality control, water quality status, noise level control, plantation programmes, social development schemes, construction of garland drains, etc. in the cement plant and all the working mines in the area.

The total recurring costs per annum for environmental control, excluding man power cost, work out to Rs.43.25 lakhs. In case of any further necessity for funds for implementation of control measures

Greenbelt Development

The green belt plantation programme will be continued till the end of the mining operation in the area. In framing out this programme on a sustainable and scientific base, due consultation and coordination with the forest department will be sought. The plantation will be developed in 36.5% (33% of the project area). The overall plantation will be developed at the rate of 1500 saplings /Ha. Plants are chosen to provide aesthetic, ecological and economical value. Trees will help to arrest propagation of noise and help to lessen dust pollution due to dust arresting action

Total cost for green belt development will be Rs. 29,87,100 lakh as capital cost and Rs 9,95,700 Lakh as recurring cost.

7 Additional studies

M/s Tamilnadu Cement Corporation Limited has formulated a disaster management plan for Emergency Preparedness & Responses.

The salient features are elaborated as below.

- Emergency response Organization
- Communication System

- Action on the site
- Facilities available at site.

Emergency Response organization

Following officers of the mines will be responsible for co ordination in case of emergency situated in any section of the mine.

Person	Name	Contact No.	Responsibility
Head of the department	Mr. K. Senthil Kumar	9943844086	Site Controller
Section In charge	Mr. T. Santha Kumar	9047872442	Accident Controller/ Communication officer
Employee who gives the first information about the accident/ Shift in charge	Mr.K .Senthil Kumar	9943844086	Primary Controller
P & A Dept. (HOD)	Mr. Balachandar	8056902430	Liaison officer

8 Project benefits

Project has positive impact to the local people as direct and indirect employment opportunity have been generated. M/s TANCEM had incur approx. Rs. 233.68 Lakh invested towards Corporate Social Responsibility.

9 Environmental management plan

9.1 AIR QUALITY MANAGEMENT

- Proper mitigation measures like water sprinkling on haul roads will be adopted to control dust emissions.
- To control the emissions regular preventive maintenance of equipments will be carried out on contractual basis.
- Plantation will be carried out along approach roads & mine premises.
- It shall be ensured that all transportation vehicles carry a valid PUC certificate.

9.2 WATER MANAGEMENT

No waste water will be generated from the mining activity of minor minerals as the project only involves lifting of over burden from mine site.

9.3 NOISE MANAGEMENT

- Periodical monitoring of noise will be done.
- No other equipments except the Transportation vehicles and Excavator (as & when required) for loading will be allowed at site.
- Noise generated by these equipments shall be intermittent and does not cause much adverse impact.
- Plantation will be carried out along approach roads. The plantation minimizes propagation of noise and also arrest dust.

9.4 SOLID WASTE MANAGEMENT

No solid waste will be generated from the said mining operations.

9.5 OCCUPATIONAL HEALTH & SAFETY

- Dust masks will be provided as additional personal protection equipment to the workers working in the dust prone area.
- No, occupational health hazards is reported till date from this activity.
- Workers are informed, kept aware and trained about occupational health hazards, due to such activities and preventive measures.
- Workers health related problem if any, will be properly addressed.

10 Conclusion

The project has positive impact to the local people as direct and indirect employment opportunity have been generated. There will be no significant pollution of air, water, soil and noise. Regular monitoring of all the components of environment will be done. Increased social welfare measures taken by the company. All possible environment aspects have been adequately assessed and necessary control measures have been formulated to meet statutory requirement.