

# EXECUTIVE SUMMARY FOR SAIL Refractory Company Limited (SRCL)

**Mining Of Magnesite & Dunite Over an Area 622.69 Ha.**

**at**

**THATHAIYANGERPATTI, MOONGILPADI, KARUPPUR,  
VELLAKKALPATTI, MALLAMOOPANPATTI, TALUK - OMALUR  
& SALEM, DISTRICT-SALEM, TAMIL NADU**

**BASELINE STUDY PERIOD: March to May 2021**

**(Project is listed under activities 1(a) Mining of Minerals under the Schedule of  
EIA Notification, 2006 and categorized as Category-A.)**

**2023**

## **APPLICANT**

**M/s SAIL Refractory Company Limited (SRCL)  
P.B.No.565, Suramangalam, Salem-636 005, Tamil Nadu**

**ENVIRONMENT CONSULTANT  
VARDAN ENVIRONET**

**(QCI/NABET ACCREDITED NO. (NABET/EIA/2023/SA0158)**



## Project Summary

Mining of Magnesite & Dunite over an area 622.69 Ha, located at Villages Thathaiyangerpatti, Moongilpadi, Karuppur, Vellakkalpatti, Mallamoopanpatti, Taluk - Omalur & Salem, District-Salem (Tamil Nadu) By M/s SAIL Refractory Company Limited (SRCL).

### PROJECT DESCRIPTION

The present proposal is for mining of 26, 43,936 MTPA ROM for Magnesite and Dunite mineral at Village Thathaiyangerpatti, Moongilpadi, Karuppur, Vellakkapatti, Mallamoopanpatti Taluk Omalur & Salem, District Salem, Tamil Nadu.

The proposed project is listed under activities 1(a) under the Schedule of EIA Notification, 2006 and categorized as Category-A.

This is violation case as per S.O. 804 (E) dated 14.03.2017 under EIA notification 2006. Mine has violate the EIA notification 1994 as the mining was carried out without obtaining EC since the inception of mining lease and during renewal of lease in year 2000.

Necessary application has been filled before respective competent authority for obtaining statutory approvals applicable for operation of the mine. The status of the statutory approvals are given below.

STAGES OF CLEARANCE	DATE
The mining lease was granted to M/s Burn Standard Company Ltd. (BSCL, A Govt. of India Undertaking) Salem-636005, Tamil Nadu for a period of 20 years.	05.06.1979
The lease deed was executed on 21.04.1980 for a period of 20 years	21.04.1980
supplementary lease deed was executed on for exploitation of Dunite in addition to magnesite	20.3.1989
The application for renewal of mining lease was made	14.4.1999
Ministry of Heavy Industries & Public Enterprises, transferred the Refractory unit of M/s BSCL at Salem with all assets, and liabilities to M/s Steel Authority of the India Limited (SAIL)	17.11.2011
M/s Steel Authority of the India Limited (SAIL) owned the entire lease and Refractory Plant and named the unit as SAIL Refractory Company Limited (SRCL)	16.12.2011
SRCL has applied for transfer of lease in the name of SRCL and the same was confirmed by Deputy Director, Department of mines and Geology vide letter no RC.No.45/2018/Mines A/Mag-1 on dated 24.09.2018, RC.N0.174/2018/Mine A on 22.02.2019 and 20.03.2020	
Industries, Investment Promotion and Commerce (MMA.1) Department, Secretariat, Chennai - 600 009, Tamil Nadu vide their letter No 10839/MMA.1/2019-2 Dated: 02.11.2022 issued Letter of Intent to SAIL Refractory Company Limited	02.11.2022
Terms of Reference (TOR) issued by the Ministry of Environment, Forest and Climate Change (MoEF&CC) letter no. 23-166/2018-IA.III(V)	17.09.2021





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The total mining lease area is 622.69 Ha. Earlier, the mining lease was granted to M/s Burn Standard Company Ltd. (BSCL, A Govt. of India Undertaking) Salem-636005, Tamil Nadu for a period of 20 years vide G.O. No. 853 dated 05.06.1979. Ministry of Heavy Industries & Public Enterprises, Gol, vide memo dated 17.11.2011 transferred the Refractory unit of M/s BSCL at Salem with all assets, and liabilities to M/s Steel Authority of the India Limited (SAIL). Industries, Investment Promotion and Commerce (MMA.1) Department, Secretariat, Chennai - 600 009, Tamil Nadu vide their letter No 10839/MMA.1/2019-2 Dated: 02.11.2022 issued Letter of Intent to SAIL Refractory Company Limited in respect of the mining lease granted in G.o.(Ms).No.853, dated 05.06. 1979. As per the Review of Mining Plan along with Progressive Mine Closure Plan total mineral reserve and resources are 23.95 million tonnes of Magnesite and 16.423 million Tonnes of Dunite and Mineable reserve 0.745 million tonnes of Magnesite and 0.654 million tonnes of Dunite. Mining will be done by the other than Fully Mechanised opencast method using drilling and blasting.

## MINE SITE DETAILS

S. No.	Description	Particulars
1.	Mine lease area	622.69 Ha
2.	Forest Area	Not Applicable
3.	Lease Validity	Up to 20.04.2029
4.	Approval of Mining Plan	Approved by Office of Regional Controller of mines, Indian Bureau of Mines vide letter number TN/SLM/MG&DU/ROMP/-1589 MDS dated 30/07/2020 for period 2020-21 to 2024-25
5.	Type of mine	Opencast Mine
6.	Method of mining	Other than Fully Mechanized Opencast Mining method, excavators will be deployed for the excavation, development of benches, loading and for the formation of roads. Mining operation is carried out by engaging both jack hammers and wagon drills. Heavy blasting will be done as and when required, besides regular blasting will be carried out with jackhammer drilling. Loading and transport of the ROM will be done by Hydraulic excavator and tippers. But the collection, segregation, dressing and stacking of ore size as Lumps (> 75mm), Smalls (25-75mm) and Jelly (10-25mm) are done by manual means
7.	Existing Status of Mine	Mining activity has been stopped since 10.01.2017
8.	Proposed Capacity	ROM: 2643936 TPA





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S. No.	Description	Particulars					
		Magnesite: 115071 TPA Dunite: 67104 TPA					
9.	<b>Expected life of mine</b>	About 10 years (Based on details exploration life of mine can change)					
10.	<b>Production MT (for the planned period, first five years)</b>	<b>Year</b>	<b>Tentative excavation, MT</b>	<b>Magnesite, MT</b>	<b>Dunite, MT</b>	<b>Waste, MT</b>	<b>Ore to Waste Ration</b>
		<b>Block I</b>					
		20-21	178938	10736	67102	114520	1:1.47
		21-22	178852	10731	67070	114465	1:1.47
		22-23	178922	10735	67096	114510	1:1.47
		23-24	237944	13089	66954	171292	1:2.14
		24-25	471068	22416	67001	395052	1:4.41
		<b>Block II</b>					
		20-21	1993884	104274	-	1889610	1:18.12
		21-22	1851532	96660	-	1754872	1:18.15
		22-23	2452530	103974	-	2348556	1:22.59
		23-24	1653124	98160	-	1554964	1:15.84
		24-25	1903200	89856	-	1813344	1:20.18
		11.	<b>Ore to Waste ratio (t/t)</b>	1:2.26 (Block I), 1:18.99 (Block II)			
12.	<b>Total Mineral Reserve and resources</b>	Magnesite: 23.95 million tonnes Dunite:16.423 million tonnes					
13.	<b>Mineable reserves</b>	Magnesite: 0.745 million tonnes Dunite:0.654 million tonnes					
14.	<b>Working Regime</b>	300 days / one Shift per day / 8 hours per Shift					
15.	<b>Bench height /</b>	6 m/6 m					





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S. No.	Description	Particulars
	bench width	
16.	Overburden to be generated	Nil
17.	Topsoil to be generated	Nil
18.	Ultimate pit slope	45 <sup>0</sup>
19.	Ultimate working depth at the end of plan period	Block II: 48m
20.	No. of waste dumps at the end of plan period	Block I: 12 Nos. of Waste dump (11 is existing & 1 proposed) Block II: 28 Nos. of Waste dump (23 is existing & 5 proposed) Block III: 25 Nos. of Waste dump (25 is existing) Block IV: 13 Nos. of Waste dump (13 is existing)
21.	Employment Potential	<b>Total: 434 persons</b>
22.	Power requirement	Transformer: 200 KVA from TNEB (Tamil Nadu Electricity Board) 45 KVA DG Set
23.	Water requirement	<b>Source:</b> Through Bore wells & Mine Water Domestic Water Requirement: 10 m <sup>3</sup> /day Dust Suppression water requirement: 30 m <sup>3</sup> /day Water requirement for Plantation: 50 m <sup>3</sup> /day <b>Total Requirement: 90 m<sup>3</sup>/day</b>
24.	Fuel consumption	HSD: 2, 50, 000 Liter /year Lube OIL: 7000 Lit/Year
25.	Explosive Requirement	1057 kg/Day
26.	Transportation	<b>Within Lease</b> After drilling & blasting, excavated material will shifted to spoil bank through trippers 15 tonnes capacity. <b>Outside Lease</b> The magnesite and dunite minerals from spoil bank will be transported to SRCL factory hired trucks of 10 tonnes capacity.
27.	Project Cost	Rs. 3.0 crore





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### Need of Project:

Magnesite Mineral Ore is an essential raw material for manufacturing refractory materials used by Iron & Steel Industry. This is a rare mineral available in Salem region of Tamil Nadu state and also found in other states like Uttarakhand, Karnataka and Jammu & Kashmir. Magnesite of Salem region is relatively low in calcium oxide. Salem Magnesite reserves are famous worldwide for its Cryptocrystalline structure, which is best suited for manufacturing refractory bricks. The above said project plays significant role in meeting the refractory requirements of Iron & Steel industry.

Dunite and Pyroxinite are preferred as flux to dolomite as a source of MgO in sintering and also in Iron & steel Industry. Dunite is also useful in construction industry, Dunite rocks are used for construction of aggregates, construction of roads etc. Dunite is having refractory properties and plays a significant role in Refractory Industry. This is also a rare mineral mainly available in Salem region of Tamil Nadu State and also found in Karnataka. Generally, Magnesite and Dunite are minerals which coexist while mining.

### MACHINERY TO BE DEPLOYED IS LISTED BELOW:

Equipment	Specification	Existing Fleet, Nos.	Fleet required to hired, Nos.
Excavator	Bucket Capacity: 4.2 cu. m	1	-
Excavator	Bucket Capacity: 3.2 cu. m	1	-
Rear Dumper	Capacity: 35 t	4	-
Bull Dozer	Capacity: 9.5 cu. m	3	-
Compressor	Capacity: 7.5 kg/cm	1	-
Compressor	Capacity: 10.5 kg/cm	2	-
Wagon Drill	Capacity: 4.5 MCH	4	-
Jack hammers	Dia: 32 mm	6	-
Power Generator	45 KVA	1	-
Welding Generator	18.7/7 KVB	1	-
Excavator	-	-	7
Tipper	-	-	15

### BASELINE STUDY:





## Project Summary

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Environmental data have 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 pre-monsoon Season, i.e. March to May 2021. The EIA study is being done for the Mine Lease (core zone) and area within 10 Km distance from the mine lease boundary (buffer zone), both of which together comprise the study area.

Parameters	Baseline Status
<b>Ambient Air Quality</b>	PM <sub>10</sub> – 80.74 to 74.10 µg/m <sup>3</sup> PM <sub>2.5</sub> – 43.97 to 36.76 µg/m <sup>3</sup> SO <sub>2</sub> – 6.00 to 16.8 µg/m <sup>3</sup> NO <sub>x</sub> – 14.00 to 27.78 µg/m <sup>3</sup>
<b>Noise Level</b>	Noise Level During Day Time – 72.6 and 49.7 dB (A) Noise Level During Night Time – 64.65 to 41.96 dB(A)
<b>Water Quality</b>	<b>Ground Water:</b> All the Parameters Like pH varies from 7.42 to 7.77, Total Hardness varies from 308.45 to 378.46 mg/L, Total Dissolved Solids varies from 562 to 697 mg/L, Chlorides – 82.53 to 115.23 mg/l are found within the permissible limits. <b>Surface Water:</b> All the Parameters Like pH varies from 7.47 to 7.8, Total Hardness varies from 641 to 740.82 mg/L, Total Dissolved Solids varies from 818 to 1048 mg/L, Dissolved Oxygen – 5.1 mg/l to 6.5 mg/l etc. are found within the permissible limits.
<b>Soil Quality</b>	pH- 7.58 to 7.76 Organic matter 0.31% to 0.7 %
<b>Ecology And Biodiversity</b>	There are no wildlife sanctuary/biosphere reserve/national parks present within 10 Km radius of the study area.
<b>Socio Economic</b>	The proposed project will provide positive impact to the nearby area. The project will provide direct and indirect employment to nearby villagers.
<b>Traffic</b>	The proposed project will not cause major impacts due to increase in the PCU/Day which is 366 PCU/day. The LOS study shows that the existing traffic scenario is “good” and the free flow of vehicles is observed during the study period. Due to the mine project the traffic density will increase and the value of LOS will not change.

## ECONOMIC PROVISION FOR BASIC AMENITIES (CER)

The project cost is 3.0 Crores. The activities to be undertaken under CER shall be as per issues which will be raised during the public hearing.





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### ECONOMIC PROVISION FOR ENVIRONMENTAL MANAGEMENT

Sl. No.	Environmental Protection Measures	Capital Cost	Recurring Cost
		(Rs. In lakhs)	(Rs. In lakhs/year)
1	<b>Air Pollution Control Measures</b> <input type="checkbox"/> Dust Suppression Systems at haul road	60.0	3.0
2	<b>Water Pollution Control Measures</b> <input type="checkbox"/> Construction of Garland drain	-	10.0
	<input type="checkbox"/> Dewatering of mine water in rainy season	30.0	
3	Noise Pollution Control Measures <input type="checkbox"/> Maintenance of Machineries	2.0	3.0
4	Greenbelt Development	-	3.0
5	Rain Water Harvesting	103.95	4.0
6	Fire Fighting and Safety measures	5.0	1.0
<b>Total</b>		<b>203.95</b>	<b>45</b>
<b>Total EMP Budget</b>		<b>248.95</b>	

#### WATER REQUIREMENT:

Domestic Water Requirement: 10 KLD

Greenbelt requirement: 50 KLD

Dust Suppression: 30 KLD.

Hence, the Total water requirement 90 KLD will be sourced through the ground water source.

#### MAN POWER REQUIREMENT:

Estimated direct manpower requirement for the project will be 434 persons which include high skilled, skilled, semi-skilled and unskilled. In addition, more people will be benefited indirectly.







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### Environment Management Plan:

The environment management plan is prepared with a view to facilitate effective environment management of the project, in general and implementation of the mitigation measures. The EMP provides a delivery mechanism to address potential adverse impacts and to introduce standards of good practice to be adopted for all project works. For each stage of the program, the EMP lists all the requirements to ensure effective mitigation of every potential biophysical and socio-economic impact identified in the EIA. For each operation, which could otherwise give rise to impact, the following EMP is programed at SRCL mine:

#### (Anticipated Environmental impacts and mitigation)

Environmental Component	Project Activities	Impacts	Adverse / Beneficial	Mitigative Measures
Air Quality	Drilling and Blasting	PM <sub>10</sub> , PM <sub>2.5</sub> , SO <sub>2</sub> and NO <sub>2</sub>	Adverse	<p>Use of dust aprons by drillers and adopting wet drilling methods.</p> <p>A. The production of blast fumes containing noxious gases will be reduced by the following methods:</p> <ul style="list-style-type: none"> <li>• Use of adequate booster/primer; and</li> <li>• Proper stemming of the blast hole.</li> <li>• Scientific design of blast.</li> </ul> <p>B. Wet drilling method.</p> <p>C. Development of greenbelt.</p>
	Extraction of mineral Loading / unloading of mineral and	Increase in SPM levels in ambient air due to dust generation	Adverse	<ul style="list-style-type: none"> <li>• Sprinkling of water on haul roads at regular intervals.</li> <li>• Installing permanent water sprinklers at strategic areas/locations/stretchches.</li> <li>• Regular maintenance of vehicles and machinery will be carried out.</li> </ul>





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Environmental Component	Project Activities	Impacts	Adverse / Beneficial	Mitigative Measures
	waste, stock piling of ore, dumping of waste at dump sites within ML area	and NO <sub>2</sub> , HC, SO <sub>2</sub> and CO concentration levels in ambient air due to vehicular emissions.		<ul style="list-style-type: none"> <li>• Cabins for shovel and dumpers and dust respirators to workmen will be provided.</li> <li>• Dust suppression will be done on exposed area using water sprinkler.</li> <li>• Greenbelt development will be taken up on dump, haul roads and statutory barrier.</li> <li>• A good housekeeping and proper maintenance will be practiced which will help in controlling pollution.</li> </ul>
	Transportation of mineral and waste	-do-	Adverse	<ul style="list-style-type: none"> <li>• Use of tarpaulin covered trucks for transportation of mineral outside the ML area.</li> <li>• Regular water sprinkling on haul, access roads and all transfer points.</li> <li>• Haul roads to be maintained by surface grading to minimize excessive road surface wearing.</li> <li>• Roads no longer required will be re-vegetated as soon as possible.</li> </ul>
	General equipment operations	Increase in SPM, NO <sub>2</sub> and CO concentrations in ambient air.	Adverse	<ul style="list-style-type: none"> <li>• Regular maintenance of all equipment to minimize particulate matter and gaseous emissions from diesel driven vehicles &amp; equipment.</li> </ul>
	All activities	Excessive exposures to airborne particulate	Adverse	Personal protective equipment (PPE) will be provided to all workers working in dusty environment.





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Environmental Component	Project Activities	Impacts	Adverse / Beneficial	Mitigative Measures
		matter.		
Noise Levels and Ground Vibrations	Drilling and Blasting	High impulsive noise levels, overpressure and ground vibrations impacts and noise related community annoyance	Adverse	<ul style="list-style-type: none"> <li>➤ <b>Noise Control Measures</b> <ul style="list-style-type: none"> <li>• Controlled blasting with proper spacing, burden and stemming will be maintained;</li> <li>• The blasting will be carried out during favorable atmospheric condition and less human activity timings;</li> <li>• Provision of sound insulated chambers for the workers deployed on machines</li> <li>• Green belt (7.5 m wide) has been developed all along the lease boundaries to attenuate noise.</li> <li>• A thick tree belt will be provided in phased manner around the periphery of the mine to attenuate noise;</li> <li>• Trees will be planted on both sides of haul roads.</li> <li>• Personal Protective Equipment (PPE) like ear muffs/ear plugs will be provided to the essential workers working in high noise area</li> <li>• Reducing the exposure time of workers to the higher noise levels.</li> <li>• Regular monitoring of Noise level will be carried out.</li> </ul> </li> <li>➤ <b>Measures to Control Ground Vibration</b> <ul style="list-style-type: none"> <li>• Proper quantity of explosive, suitable stemming materials and appropriate delay system are to be adopted for safe blasting.</li> <li>• A safe blasting zone is kept around the periphery of the quarry.</li> <li>• Overcharging will be avoided;</li> <li>• The charge per delay will be minimized and preferably more</li> </ul> </li> </ul>
	Machine and transportation of overburden and Iron ore within the ML area.	Increase in noise levels occupational hazard due to noise exposures and increase in ambient noise levels.	Adverse	





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Environmental Component	Project Activities	Impacts	Adverse / Beneficial	Mitigative Measures
				number of delays will be used per blasts;
Water Resources and Quality	Water required for mine, (dust suppression systems, domestic facilities and greenbelt development)	Depletion of resources	Adverse	<p>Main source of industrial water will be through borewells and mine water.</p> <p>➤ <b>Mine Drainage:</b></p> <ul style="list-style-type: none"> <li>The garland drains will be developed in advance for each mine stage such that water is collected in these garland drains and discharged properly into settling tanks to settle out suspended solids in the storm water. The clarified water is reused for green belt development.</li> <li>The overall drainage planning will be done in such a manner that the existing drainage conditions should be maintained to the extent possible, so that run off distribution is not affected.</li> <li>The settling tank and drains are cleaned periodically, especially during monsoons.</li> </ul> <p>➤ <b>Surface Water Pollution Control Measures</b></p> <ul style="list-style-type: none"> <li>Retaining walls of adequate dimensions will be provided at the toe of dumps to prevent wash off from dumps. This will help in preventing silting of water drains/channels;</li> <li>The worked out slopes will be stabilized by planting appropriate shrub/grass species on the slopes. This will help in preventing wash-off from these slopes;</li> <li>The mine water will be regularly tested for presence of any</li> </ul>
	Waste water generated from domestic usage at mine.	Depletion of ground water land soil quality when domestic waste water discharge improperly .	Adverse	





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Environmental Component	Project Activities	Impacts	Adverse / Beneficial	Mitigative Measures
				<p>undesirable elements and appropriate measures will be taken in case any element is found exceeding the limits prescribed by CPCB;</p> <p>➤ <b>Ground Water Pollution Control Measures</b></p> <ul style="list-style-type: none"> <li>The domestic sewage will be routed to septic tanks followed by soak pits.</li> <li>Regular monitoring of water levels and quality in the existing open wells and bore well in the vicinity will be carried out.</li> </ul>
Drainage pattern and Hydrogeology	Quarries, Ore stack yards and waste dump	Catchment area inside the mine will be affected.	Adverse	No surface streams have been proposed to be diverted for the project. The pre-mining surface drainage pattern shall be maintained as far as possible.
Landuse and Soil Characteristics	Mining & allied activities	Existing landuse of the core zone will alter.  Land degradation due to disposal of	Adverse	<p>Following measures will be taken:</p> <ul style="list-style-type: none"> <li>Construction/ Installation of diversion drains and settling ponds</li> <li>Dust suppression on exposed areas using water tankers and automatic sprinkling systems.</li> <li>Properly terracing of dump to minimize erosion.</li> <li>Plantation along road in and around the safety zone using native plant sapling.</li> <li>Compliance with mine decommissioning plan.</li> </ul>





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Environmental Component	Project Activities	Impacts	Adverse / Beneficial	Mitigative Measures
		waste materials.		
Flora and Fauna	Mine development and operations  Mineral Transportation	Displacement of existing fauna.  Loss of vegetation	Adverse	<ul style="list-style-type: none"> <li>Progressive afforestation and green belt development in the ML area has been carried out and shall continue till the life of the mine.</li> </ul>
Occupational Health & Safety	Overall Mining & allied activities	Occupational health problems due to dust & noise.  Accident probability	Adverse	<ul style="list-style-type: none"> <li>Adoption of dust suppression measures like spraying water, wet drilling etc.</li> <li>Plantation</li> <li>Avoid blasting during unfavorable wind &amp; atmospheric conditions</li> <li>Use of personal protective equipment.</li> <li>Periodical training of workers</li> <li>Compliance with DGMS circulars</li> </ul> <p>Emergency response plan that includes installation of emergency response equipment to combat events such as fire. All personnel</p>





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Environmental Component	Project Activities	Impacts	Adverse / Beneficial	Mitigative Measures
		due to slope failure, movement of machineries, handling of explosives.		required to handle hazardous materials will be provided with personal protective equipment suitable for the hazardous material being handled.  On-site first aid facilities will be provided to employees and are being extended to the local community in emergencies.
Socio-economic Aspects	Land acquisition for mine site	No displacement of people & loss of properties.	-	The project does not envisage any leasing or acquisition of private land. Hence, there won't be any land oustees who have to be resettled or rehabilitated.
	Mining operations	Increase in economic status of local people & in the region due to Increase in employment opportunities both direct and indirect.	Beneficial	The project will provide ample opportunity to the local people for direct and in-direct employment. The proposed project may create opportunities for indirect employment in the field of transportation business, vehicle hiring, labours, trading of construction materials, carpenters etc. necessary budgetary allocations for social development will be for the upliftment of villages as per the requirement of regulations.





### Project Summary

Mining of Magnesite & Dunite over an area 622.69 Ha, located at Villages Thathaiyangerpatti, Moongilpadi, Karuppur, Vellakkalpatti, Mallamoopanpatti, Taluk - Omalur & Salem, District-Salem (Tamil Nadu) By M/s SAIL Refractory Company Limited (SRCL).

Environmental Component	Project Activities	Impacts	Adverse / Beneficial	Mitigative Measures

Damage Assessment with reference to notification Ref. No. S.O. 804 (E), dated 14.03.2017 has been done and Remediation Plan, Natural Resource Augmentation Plan and Community Resource Augmentation Plan along with budget are prepared and will be implemented after approval of EAC.

