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1. EXECUTIVE SUMMARY

Got-Manglod Gypsum Mine having a lease area of 870.74 ha is located near Village- Got-Manglod, Tehsil- Jayal, District- Nagaur, Rajasthan. Location plan enclosed as **Annexure-1**. Mining lease of Got-Manglod Gypsum mine covering an area of 870.74 ha was renewed in favour of M/s Rajasthan State Mines & Minerals Ltd. (RSMML) vide GOR order no. P.15 (16) Khan/Group-1/2000, dated 13.07.2009 for a period of 20 years from 30.06.2000. (Copy of order enclosed as **Annexure-2**). Out of the total mine lease area of 870.74ha, an area of 670.74ha is agricultural land, 2.78 ha is Government barren land (wasteland), 169 ha is grazing land and 28.22 ha is roads and temples. No forest land is involved. Mining shall be carried out for a targeted production of 700405 tonnes per annum (say 0.7 million TPA) of gypsum by opencast semi-mechanized method without involving drilling and blasting.

In accordance with the schedule of EIA notification, September 14, 2006 and its amendment from time to time, The proposed project of Got-Manglod Gypsum mine is categorized under Category – "A" 1 (a) (mining lease area $\geq$ 50 ha) - {Mining of Minerals} as the lease area is 870.74 ha. Hence the proposed project is being presented to Expert Appraisal Committee (EAC), MOEF, GOI, New Delhi; for the purpose of granting prior Environmental Clearance for expansion of mines.

1.1 Salient features of the project

Project name	**Got-Manglod Gypsum Mine**
Location of mine	ML No. – 1/1990 Village – Got-Manglod Tehsil- Jayal District – Nagaur Rajashthan
Latitude	27°13'22.4"N to 27°14'56.3"N
Longitude	74°3'24.4"E to 74°4'11.7"E
Topo sheet number	45 I/3 & 4
Land use	Private Agricultural Land- 670.74 ha Govt. Waste Land- 2.78 ha Grazing Land – 169 ha Road & Temples- 28.22 ha
Minerals of mine	Gypsum
Life of mine	~ 10 years
Proposed annual production of mine	700405 TPA say 7 Lac TPA
Method of mining	Opencast semi-mechanized
No of working days in a year	300

Water demand	15 KLD
Sources of water	Tanker supply through private contractor from PHED supply
Man power	16
Nearest railway station	Khatu – 30 Km SE
Nearest state highway/national highway	NH-65
Nearest air port	Jodhpur airport – 144 Km SW
Seismic zone	Zone-III as per IS 1893:2002

1.1.1 Regulatory Compliance

- Mining lease of Got Manglod Gypsum Mine for an area of 1338.15 ha was granted by the mines department, Govt. of Rajasthan vide order no. 5(22)/Khan/group3/69, dated 10.04.1973 in favour of the then Rajasthan State Industrial & Mineral Development Corporation Limited (RIMDC) Jaipur for a period of 20 years w.e.f. 30.06.1970 (Copy of order attached as **Annexure-2**)
- The Mines department, Govt. of Rajasthan vide order no. P.7/41/Khan/Group-2/84, dated 18.03.1985 transferred the mines in favour of Rajasthan State Mineral Development Corporation Limited (RSMDC) (**Annexure-3**)
- First renewal of mining lease was granted in favour of RSMDC vide order no. P.3/49/khan/Group-1/1992, dated 05.12.1992. (Copy enclosed as **Annexure-4**)
- Mining lease was reduced to 870.74 ha vide order no. SME/Bika/Pra/Nagaur/ML-1/901256, dated 8.8.1999 . (Copy attached as **Annexure-5**)
- Second renewal of Got Manglod Gypsum Mine was granted in favour of RSMML vide Govt. of Rajasthan order no. P.15(16)Khan/Group-1/2000, dated 13.07.2009 for a period of 20 years w.e.f. 30.06.2000.(Copy of order enclosed as **Annexure-6**)
- Mine plan for Got Manglod gypsum Mine (ML area- 870.74 ha) was approved by Indian Bureau of Mines, Ajmer vide letter no. 326/95/ZN-16/90-MCCM(N) dated 25.1.1993 for a period of 5 years w.e.f. financial year 1992-93 (Copy of approval letter enclosed as **Annexure-7**)
- Previous Scheme of Mining along with Progressive Mine closure plan was approved by the Superintending Mining Engineer, Department of Mines & Geology, Bikaner vide letter no. SME/BKN/CC/Major/F/2007-08/1670, dated 12.06.2007. (Copy annexed as **Annexure-8**)
- Environment Clearance has been granted by the MOEF, GOI, New Delhi vide order no. J-11015/706/2007-IA.II (M), dated 28.05.2008 for an annual production of 3.5 lac TPA (**Annexure – 9**)

- Latest Compliance report for the granted Environment Clearance has been submitted to Regional office, Lucknow. (Copy enclosed as **Annexure-10**)
- Consent to operate for Got-Manglod Gypsum Mine has been granted by Rajasthan State Pollution Control Board vide order no. 2011-12/Mines/1163, dated 05.09.2011 for a period of 3 years from 01.06.2011 to 31.05.2014 (**Annexure-11**)
- Mining operations at Got-Manglod Gypsum Mine resumed from 01.10.2008. Production since 01.10.2008 has not exceeded the approved figure of 3.50 Lakh Tonnes per annum, hence there has been no violation in the mining activity.
- Latest Mining scheme including Progressive mine closure plan has been prepared on the basis of low grade gypsum which is now salable reserves & is approved by the Superintending Mining Engineer (SME), Bikaner Circle, Bikaner vide their letter no. SME/BKN/Nagaur/Major/ML-1/90/1425 dated 30.10.2012 (Copy enclosed as **Annexure- 12**)

1.2 Proposed Planning

Mining is proposed to be carried out by semi-mechanized method of opencast working. Drilling and blasting is not involved. Excavation of mineral will basically involve removal of overburden by scraper plough tractor attachment and then extracting gypsum from the gypsiferous bed. Proposed mining shall be carried out for a target production of 700405 tonnes per year say 7 lac TPA. The excavated pits at the conceptual stage shall be backfilled with the overburden generated during overburden removal and shall be given back to the farmers (respective owners) after leveling for the purpose of cultivation.

2. INTRODUCTION OF THE PROJECT / BACKGROUND INFORMATION

2.1 Identification of the Project Proponent

Rajasthan State Mines and Minerals Limited (RSMML) is one of the leading and progressive undertakings of the Government of Rajasthan. It occupies a place of pride in production and marketing of non metallic minerals in India. RSMML is multi mineral and multi location enterprise engaged in mining of Rock Phosphate, Lignite, SMS grade Limestone and Gypsum. RSMML is not only the leader in Mining & Selling of Rock Phosphate, Gypsum across the country, but also a global pioneer in technology in open cast mining and mineral beneficiation of Carbonate Rock Phosphate.

Besides minerals, RSMML has also forayed into Energy Sector and has setup 106.3 MW installed capacity Wind Power Project at Jaisalmer, Rajasthan.

2.2 Brief Information about the Project

Got-Manglod Mine is a mine lease (area – 870.74 ha) having deposits of Gypsum. Out of total land of 870.74 ha, an area of 670.74 ha is agricultural land, 2.78 ha is Government barren land (wasteland), 169 ha grazing land and 28.22 ha is roads & temple. Gypsum bearing private agricultural land has been temporarily provided by the respective land owner (farmer) on mutual agreement of land and crop compensation @ Rs40 per metric ton gypsum production with commitment for backfilling of overburden and leveling in mined out pit to RSMML for mining activities and after excavation, the backfilled & leveled land finally returned back to the farmers for agricultural use.

It is proposed to carry out mining operation by opencast semi-mechanized method. The overburden comprises of desert sand. No drilling & blasting is required as the mineralized bed is soft & friable. The mined out area shall be backfilled with the overburden for ensuring reclamation of the area and restoring original topography of the area.

2.3 Need for the Project and Its Importance to the country or Region

Mining of gypsum deposits in the western Rajasthan area is an eco-friendly work rather than the adverse effect on environment of the Desert. Cement, Fertilizer (Ammonium sulphate)

and Plaster of Paris are the three important industries in which the gypsum is utilized. Both Mineral and by-product gypsum are used in Cement manufacturing. Considering the present development scenario; India's main focus is the creation of more infrastructures with a view to infuse momentum in its economy and participation in its industrial development. These activities will keep the cement industry to grow and accordingly, the consumption of gypsum will increase. Hence, with the upcoming growth of industry in a developing nation like India, extraction of gypsum will cater the demand of raw material used in Cement plants & Plaster of Paris manufacturing units located in Rajasthan and other nearby states like Madhya Pradesh, Chhattisgarh, Punjab, Haryana & Uttar Pradesh etc. Also the mining operation will be legally valid and it will bring income to the state exchequer.

2.4 Demand-Supply Gap

Gypsum extracted from Got-Manglod Gypsum Mine will cater the demand of various cement plants and POP units located in Rajasthan and other North Indian States. Gypsum powder may be produced to fulfill the demand of agricultural sector for treatment of alkaline soil in the state of Rajasthan, Haryana, Punjab, Uttar Pradesh and other nearby states.

As per the demand the type of mineral reserves required (in terms of % $CaSO_4.2H_2O$ purity) Cement Industry is demanding Gypsum having at least 50% $CaSO_4.2H_2O$ while the other users including POP manufacturers, Agricultural sector (fertilizer manufacturing), and manufacture of Gypsum board etc. are demanding for +70% $CaSO_4.2H2O$ purity gypsum.

2.5 Imports vs. Indigenous production

The present demand of gypsum in India is about 15 million tones out of which the share of mineral gypsum is only about 4 million ton. There is huge gap in demand and production of gypsum in India. The increase in production of Gypsum in India will defiantly reduce the import of gypsum from Pakistan, Iran, Oman etc.

2.6 Export Possibility

As per the present scenario the export of gypsum is neither plausible nor is there such demand from outside India.

2.7 Domestic/ Export Markets

At present Got-Manglod gypsum mine is selling the extracted gypsum to the Cement plants, Plaster of Paris manufacturers, Fertilizer industries etc. mainly in the Northern India. Gypsum fulfils the demands of the cement industries and powder Gypsum is used by farmers

as a direct fertilizer for reconditioning of alkaline soils for reducing alkalinity and improving crop production.

2.8 Employment Generation

Mining at Got-Manglod Gypsum Mine is being carried out by Opencast Semi-mechanized method. As per MMR 1961, Mines officials & other competent persons are deployed for effective supervision of mines. Mostly supervisors & skilled persons are required for looking after various aspects of operations including gypsum mining, loading & quality control etc.

Details of manpower deployed in Got-Manglod Gypsum Mine is as given below:

Table 2-1 : Employment details

S. No.	Details	Number
1.	Mines manager (Mining Engineer)	1
2.	Foreman	3
3.	Mining mate	3
4.	Operators	3
5.	Helpers	3
6.	Unskilled labourers	3
Total		16

3. PROJECT DESCRIPTION

3.1 Type of Project Including Interlinked and Interdependent Projects, If Any

Proposed project of Got-Manglod Gypsum Mine is an independent mining project proposed for extraction of gypsum by opencast semi-mechanized method, and does not entail any interlinked or interdependent project. Mineral produced shall be directly sold to the buyers as per demand.

3.2 Location

Got-Manglod Gypsum Mine is a mine having a lease area of 870.74 ha located near Village – Got-Manglod, Tehsil- Jayal, District- Nagaur, Rajasthan. The mine is approachable by village road that merges with Nagaur – Deedwana Road. The area falls under Survey of India toposheet no. 45 I/3 & 4 (scale 1:50000) and is bounded by the Latitude 27°13'22.4"N to 27°14'59.01"N & Longitude 74°3'23.65"E to 74°5'11.73"E Geographical location of the mine site is as given below:

Latitude	**27°13'22.4"N to 27°14'59.01"N**
Longitude	**74°3'23.65"E to 74°5'11.73"E**

Key plan of the mine site is given in **Annexure- 13**.

3.3 Details of Alternate Sites

No alternate sites have been examined as the mine lease has been granted for this specified purpose.

3.4 Size or Magnitude of Operation

Got-Manglod Gypsum mine is having a lease area of 870.74 ha comprising of 670.74ha agricultural land, 2.78ha Government barren land (wasteland), 169 ha grazing land and 28.22 ha roads & temple. Surface plan attached as **Annexure-14**. Proposed project is for the production of gypsum at the rate of 700405 tonnes per annum. Mining will be carried out by the opencast method using semi-mechanized means without involving drilling & blasting. Mine will be worked in two shifts only & total number of working days in a year will be 300.

3.4.1 Geology

Western Rajasthan is covered mostly by blown sand dunes. There are two main arms of sand hills extending North of Rann of Kutch. One runs from Umarcoat, passing around Jaisalmer & northwestwards to Bikaner. While the other runs northeastwards from Barmer to Jodhpur & coalesces with the first around Bikaner. The enclosed track of Jaisalmer, Bikaner & Pokharan is rocky and contains a few scattered sand hills. The stratigraphy of the area is as follows:

Recent	:	Wind-Blown sand, Alluvium & evaporates, gypsum
Sub-recent	:	Conglomerate
		UNCONFORMITY
Tertiary (mostly Eocene)	:	Limestone, Marly Limestone, Nummulitic limestone, Shales, Bentonite, Fuller's Earth, Gypsum etc.
Mesozoic-Cretaceous	:	Habur limestone & sandstones, Barmer sandstone
Jurassic	:	Parihar sandstone Bedasar sandtone and grits Baisakhi sandstone, shales & silt-stone Lathi sandstone, shales & silts
		UNCONFORMITY
Paleozoic Permo Carboniferous	:	Bap boulder bed,; Badhaura formation as sandstone & shales
Early Paleozoic	:	Birmania formation limestone & shales
		UNCONFORMITY
Cambrian	:	Vindhyan sandstone & shale
Precambrian	:	Malani suite of Igneous rocks

The sub-surface gypsum deposits of commercial importance have discovered in tertiary formation near Nagaur and as surface deposit in the evaporates of recent age in areas surrounded by sand dunes in district Hanumangarh, Sriganganagar, Bikaner, Jaisalmer, Barmer, Jalore & Pali.

Geological deposits of the mine lease have been shown in Geological plan enclosed as **Annexure-15.**

3.4.2 Mineral reserves

New geological resources & minable reserves of gypsum has been estimated on the basis of running face positions, old prospecting pits and core drilling as marked on Surface Geological Plan attached as **Annexure-15**. The minable resources of gypsum as per approved scheme of mining are as under:

Table 3-1 : Estimation of mineral reserves

S.No.	Source	UNFC category	Measured Mineral Resources of Gypsum in Lakh Metric Tonne	Proved Mineral Reserve of Gypsum in Lakh Metric Tonne	Average grade of Gypsum in terms of $CaSO_4 2H_2O$%
1	As per approved mining plan	111	72.50	61.63	60%
2	As per proposed scheme of mining as on 30.9.2011 (after adding new additional resources &reserve and subtract actual production	111	69.64	48.75	50%
3	Actual production of gypsum from mines up to 30.09.2010	--	53.81	53.81	60%
4	Prefeasibility Mineral Resources as on 30.9.2010 (category 121)	121	8.04	0.00	20%to 40%
	Total identified measured mineral resources/proved mineral reserve position since commencement of mining operation at mines.(2+3+4)		131.49	102.56	

As per the geological resources the remaining life of mine is more than **12 years**. However, the estimated geological resources may increase or decrease subject to the variation in volume to weight conversion factor from place to place, variation in ratio of gypsum bed to earth/argillaceous pockets within gypsum bearing area, acceptance of low grade gypsum by customers, identification of additional reserve if any in the remaining mining lease area etc.

Therefore the life of mines for granting Environment Clearance may be considered as **12 years** on the basis of available geological resources as estimated in approved scheme of mining & possibility of additional resources in remaining mining lease area.

3.4.3 Production Parameters

Proposed targeted production of the mine is at the rate of 700405 Tonnes per year say 7 lac TPA.

Year wise production for the first five years is as given below:

Table 3-2 : Year-wise Production Parameters for the first five years of mining

Year	Total ROM (m^3)	Overburden (m^3)	Excavated Mineral (m^3)	Excavated Mineral (in tonnes)	Saleable mineral (in tonnes)
1st Year	380453	95113	285340	499345	349542
2nd Year	413540	127939	285601	499802	349861
3rd Year	927588	355829	571759	1000578	700405
4th Year	924699	353290	571409	999966	699976
5th Year	1232991	661605	571386	999926	699948
Total	**3879271**	**1593776**	**2285495**	**3999617**	**2799732**

Five year working Plan is attached as **Annexure- 16.**

3.5 Project description with process details

3.5.1 Method of Mining

Mining of gypsum shall be accomplished by opencast semi-mechanized method of working. It is planned to achieve a target production of 700405 tonnes per annum. A barrier zone of 7.5 m will be left all along the lease boundary.

Mining shall include mainly two phases:

i. **Overburden removal**

Overburden shall be scraped by using a tractor having a 2.3 m long iron scraper blade attachment having a height of about 0.6 m to 0.75 m. Scraped Overburden is disposed off into the worked out area. The tractor makes requisite number of passes

and clears the area of overburden exposing gypsum bed ready for extraction. The earth/clay/silt pockets in the gypsum bearing area are isolated during the mining operations are further loosened and almost leveled with the help of tractor/scraper/ plough attachment for making the land suitable for cultivation.

ii. **Extraction of gypsum by opencast mining method**

Extraction of gypsum will be carried out by using hydraulic excavator of 0.9 m^3 capacity with engine of 135 H.P. After extraction gypsum shall be loaded directly to buyers' trucks for dispatch to destined places or may be sent to unload at separate place earmarked as stockyard for blending of low grade gypsum with high grade gypsum before the final dispatch to the buyers.

3.5.2 Blasting

Drilling & Blasting is not involved in the proposed mining activity.

3.6 Raw Material Required Along With Estimated Quantity, Likely Source, Marketing Area of Final Product/S, Mode of Transport of Raw Material and Finished Product

No raw material is required for the extraction of Gypsum. Proposed project is planned to achieve a target production of 700405 tonnes per annum using opencast semi-mechanized method of mining.

Final products after extraction include Gypsum of different grades that is sold to multiple users like Cement Plants, POP manufacturing plants, Fertilizer industries etc. in North Indian states viz. Rajasthan, Punjab, Haryana, Uttar Pradesh etc.

Approximately 2335 TPD of mineral is estimated to be transported through road to the consumers by trucks/tractor-trolleys

3.7 Resource Optimization/ Recycling and Reuse

During the mining operation efforts will be made to push low grade gypsum as much as possible from the mineral conservation point by blending of different grade gypsum. It will also increase the life of mines.

3.8 Availability of Water Its Source, Energy / Power Requirement & Source

Being located in desert area having scanty rainfall, the study area is devoid of any natural drainage. Ground Water table in the study area is also reported 70 meter below the surface. Hence the water demand for the proposed Got-Manglod Gypsum Mine is sourced from the PHED supply by tanker through contract with private parties.

3.8.1 Water requirement

Water will be required for the Domestic purpose, dust suppression & green belt development. Break up of water requirement along with the source of supply for the proposed mining activity is as given below:

Table 3-3 : Water requirement & supply source

S. No.	Water demand	Requirement (in KLD)	Source of supply
1.	Domestic	2	By Tanker from PHED Supply
2.	Dust suppression	10	
3.	Green belt development	3	
TOTAL		15 KLD	

3.8.2 Power requirement

As the mining will be carried out mainly during daytime, hence power is not required for the mining operations. Also for the power requirements of mine office and other ancillary facilities power shall be taken from the Electric supply of Ajmer Vidyut Vitran Nigam Limited (AVVNL)

3.9 Quantity of Wastes to Be Generated (Liquid and Solid) and Scheme for Their Management/ Disposal

Only solid waste shall be generated from the proposed mining and allied activities.

3.9.1 Solid Waste Generation & its Disposal

Prior to mining of gypsum, the overburden above the gypsum bed comprising of thin layer of loose sand is excavated to expose the gypsum face. The volumes of Overburden to be handled

for achieving yearly production of Gypsum ROM for first five years are tabulated in **Table 3-4** and are shown in Reclamation plan attached **as Annexure - 17**

Table 3-4 : Overburden generation along with the broken area

Year	Overburden (m^3)	Broken area (m^2)
1st Year	95113	113230
2nd Year	127939	129231
3rd Year	355829	304127
4th Year	353290	307209
5th Year	661605	501216
TOTAL	**1593776**	**1355013**

The scraped and removed overburden is backfilled into the worked out pits & leveled with the help of Tractor plough attachment. The leveled land after mining operation becomes suitable for cultivation and is then returned to the respective owners (i.e. mostly farmers) for the agricultural purpose. Conceptual plan enclosed as **Annexure- 18**

3.9.2 Liquid Effluent

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

4. SITE ANALYSIS

4.1 Connectivity

Mine is well connected by village road passing through the mine site that merges with Nagaur Deedwana road.

Nearest railway station Khatu is situated at a distance of 30 Km in Southeast direction

Nearest airport facility is located at an aerial distance of 144 Km in Southwest direction at Jodhpur.

4.2 Landform, Land use & Land Ownership

4.2.1 Landform

Mine lease area is a part of arid region of Nagaur and is characterized by the typical desert landform.

4.2.2 Landuse

Got-Manglod Gypsum mine is having a lease area of 870.74 ha. Mining is proposed in an area of 150.566 ha. Proposed landuse of the mine lease area is as given below:

Table 4-1 : Proposed Landuse of the mine lease area

S. No.	Particulars	Area (ha)
1.	Area under mining	317.00
2.	Mineral storage	5.00
3.	Mineral blending area	4.00
4.	Vehicle parking place	4.00
5.	Agricultural Land	512.52
6.	Roads & Temple	28.22
Total		**870.74**

Gypsum bearing private agricultural land has been temporarily provided by the respective land owners (farmers) to RSMML for mining activities and after excavation, the land will be backfilled & leveled and then finally returned back to the farmers for agricultural use. The

land and crop compensation to the private land owners will be provided at the rate of Rs. 40/-per ton of gypsum excavated from their land.

4.2.3 Landownership

The total lease area of 870.74 ha comprises of government waste land, private agricultural land and roads/ village tracks (public utilities). Breakup of landownership is provided below:

Table 4-2 : Breakup of Land ownership in Mine lease area

S. No.	Particulars	Area (ha)
1.	Private Agricultural land	670.74
2.	Government barren land	2.78
3.	Grazing Land	169
4.	Roads Temples	28.22
Total		**870.74**

4.3 Topography

The topography of the area is more or less flat with a fine sand overburden. The lease area is having an elevation difference of 9 m with highest and lowest elevation being 298 m & 289 m AMSL respectively. The soil of interdunal depression of the area is underlain by gypsiferous materials as consolidated strata/ layer of varying depths.

4.4 Existing Land use Pattern

Existing land use of the mine lease area is as given below:

Table 4-3 : Existing Landuse of the mine lease area

S. No.	Particulars	Area (ha)
1.	Area under mining	258.685
2.	Agricultural Land	584.235
3.	Government barren Land	0.82
4.	Roads & Temple	27
Total		**870.74**

4.4.1 Environmental Sensitivity

No ecologically sensitive area such as National Park/ Wildlife Sanctuary/ Tiger Reserve/ Biosphere Reserve etc. is located in the study area covering 10 Km radius around the mine lease periphery. Also no forestland is involved. Buffer map showing study area covering 10 Km radius around the lease periphery is attached as **Annexure – 19.**

4.5 Existing Infrastructure

As the mine is running since 01.10.2008, hence all the infrastructure facilities required for mining activity is already available at the mine site. Major facilities include:

- ✓ Mines office .
- ✓ Rest shelter.
- ✓ Toilets
- ✓ Blending area as and when required.
- ✓ Parking area for vehicles.

4.6 Soil Classification

Soil of the area is predominantly coarse textured varying from fine sand to loamy fine sand, calcareous, occasionally saline and within short distance excessively drained located on nearly leveled land. Soil is mainly characterized by high infiltration rate, weak soil structure, low water holding capacity, poor fertility and high wind erosion. pH value of the soil ranges from 6.5 to 7.5. Porosity of loamy sand is 55% and its bulk density is 2.0 g/cc.

4.7 Climatic data from Secondary sources

The area experiences arid type of climate. Mean annual rainfall (1971-2005) of the district is 297.7 mm whereas normal rainfall (1901-1971) is lower than average rainfall and placed at 257.8 mm. Almost 90% of the total annual rainfall is received during the southwest monsoon, which enters the district in the first week of July and withdraws in the mid of September. As the district lies in the desert area, extreme of heat in summer and cold in winter is the characteristic of the desert. Both day and night temperature increases gradually and reaches their maximum values in April, May and June. The temperature varies from 48 degree in summer to 1 degree in winter. Atmosphere is generally dry except during the monsoon period. The humidity is highest in August with mean daily relative humidity is 71% in the morning and 52% in the evening.

4.8 Social Infrastructure

As per the primary analysis and secondary data available the mine site is located in a remote location with scanty of available social infrastructure available. RSMML will make best of its efforts to provide:

- ✓ Medical Camp facilities for the neighborhood villages. In each camp Medicinal costs are met by the Company.

- ✓ First aid training will be regularly imparted to trainees from the neighboring villages.
- ✓ The Company also distributes saplings to the local villagers as a part of social forestry.
- ✓ Give financial assistance for construction work in schools, for community centre etc. through gram panchayat.
- ✓ Give financial assistance to Government Hospitals for their modernization and purchase of required equipments.

Table 4-4 : Activities under CSR in last 7 years by RSMML

Amount in Lakhs

S.No.	Activities	Year							Total
		2006 -07	2007 -08	2008 -09	2009 -10	2010 -11	2011 -12	2012 -13	
1	Medical & Health	201.73	453.62	457.00	512.85	8.38	375.00	412.50	**2422.33**
2	Education	135.67	67.32	89.61	79.24	47.24	146.32	82.12	**630.54**
3	Infrastructure Development	290.39	73.74	45.01	4.00	130.89	139.78	16.31	**612.74**
4	Community Development & Recreation	233.82	4.00	7.88	4.78	37.27	132.57	112.00	**423.95**
5	Water Supply	3.64	38.13	1.10	3.10	301.95	10.51	0.00	**149.02**
6	Environment Protection/ Plantation	48.74	32.84	55.67	50.95	38.02	1.00	2.50	**273.56**
	Total	**913.99**	**669.65**	**656.27**	**654.92**	**563.75**	**805.18**	**625.43**	**4512.14**

5. PLANNING BRIEF

5.1 Planning Concept

Open cast semi-mechanized mining method will be adopted for mining of gypsum without involving drilling & blasting. Project will annually produce gypsum @ 700405 ton per annum, which will be used for meeting the huge demand of Cement Plants , POP manufacturing units, Fertilizer Industries, agricultural sector etc in the states like Rajasthan Haryana, Gujarat, Punjab, Uttar Pradesh etc.

5.2 Assessment of Infrastructure Demand (Physical & Social)

On the basis of the preliminary site visit, the infrastructure demand in the villages was assessed on the basis of need and priority.

The health infrastructure of the study area requires improvement. The lack of hospitals & ambulances/ facilities needs improvement. Few village schools were informed of not having proper fans and cooling facilities.

The assessment will be made in the socio economic survey, after the grant of TOR and will be submitted at the time of final presentation regarding EC.

5.3 Amenities/Facilities

Proper site services such as First Aid, Canteen / Rest Shelter, Drinking Water, Maintenance Workshop, etc. will be provided to the mine workers.

The following site services shall be provided for effective and proper working of the mine

- ✓ Mine office cum Garage,
- ✓ Stores and water supply
- ✓ Rest Shelter
- ✓ First Aid Station

6. PROPOSED INFRASTRUCTURE

6.1 Industrial Area (Processing Area)

No new infrastructure is proposed. Existing facilities are sufficient.

6.2 Residential Area (Non Processing Area)

No residential area/ housing are proposed. House rent & Transportation facilities to the employees are being provided.

6.3 Green Belt

Plantation activity in an area of 6 ha was carried out as per the approved mine plan & granted Environment Clearance but the survival rate is about 50% due to desert climate.

As per revised scheme of mining most of the land covered under mining has been taken from private land owner on the basis of mutual agreement and shall be returned back to them immediately after excavation of gypsum, backfilling & leveling; for use of cultivation. In such system it is difficult to propose plantation in the mined out area by RSMML but the plantation programme have been proposed along the village roads / tracks after consultation with *Panchayat*. The species of plants selected for proposed plantation are suitable to the desertic climate and the survival rate is expected to be better than before. The yearwise plants proposed to be provided to land owner through *Panchayat* during the tentative period of five years is given below:

Table 6-1 : Proposed year-wise plantation programme

Year	No. of plants	Species of Plants
1st Year	1000	Neem(*Azadirachta indica*), Ber (*Zizyphus jujube*), *Parkinsonia*, Khejri (*Prosopis cineraria*), babool (*Acacia indca*)
2nd Year	1000	
3rd Year	1000	
4th Year	1000	
5th Year	1000	
TOTAL	**5000**	

6.4 Social Infrastructure

As per the secondary data available study area has shortage of social infrastructure facilities like schools, hospital, community facilities etc.

Existing Social infrastructure in the mine vicinity is as given below:

Education Facility:

Health Facility:

6.5 Connectivity

Existing road facilities are very close to the site and are sufficient; hence there is no proposal for making any new road or rail connectivity.

6.6 Drinking Water Management

As the area lies in the arid desertic region and the ground water table is also very deep, hence the drinking water is sourced from the tanker supply on day to day basis.

6.7 Sewerage System

Domestic waste water will be treated into septic tank followed by soak pit.

6.8 Industrial Waste Management

No industrial waste is generated,

6.9 Solid Waste Management

A total of 1593776 m^3 overburden is generated during the first five years of mining activity. This scraped and removed overburden is backfilled into the worked out pits & leveled with the help of Tractor plough attachment. The leveled land after mining operation becomes suitable for cultivation and is then returned to the respective owners (i.e. mostly farmers) for the agricultural purpose.

6.10 Power Requirement & Supply/ Source

As per the facilities and services, Power is required only for the office lighting and cooling purpose which is being supplied by the common electric line of AVVNL.

7. REHABILITATION AND RESETTLEMENT (R&R) PLAN

There is no habitation/population in the mine lease area. Hence displacement of population Rehabilitation & Resettlement is not involved.

The gypsum bearing private land is temporarily provided by the land owners (farmers) on the basis of mutual agreement to RSMML for carrying out mining activities and after excavation, the land will be backfilled, leveled and returned back to the farmers for agricultural use.

8. PROJECT SCHEDULE & COST ESTIMATES

8.1 Likely Date of Start of Construction and Likely Date of Completion

No construction activity accept construction of temporary weighbridges for weighing of produced Gypsum is involved under the project activity. The mining is currently running for the target production of 3,50,000 Tonnes per annum as per the Environmental Clearance granted in 2008. Mining shall be started for the proposed production after getting environmental clearance.

8.2 Estimated Project Cost Along With Analysis In Terms Of Economic Viability of the Project

The lessee has all the mining equipments used for the scientific mining. The mine is eco-friendly.

Table 8-1 : Breakup of Project Cost per tonne

S.No.	Particulars	Cost per tonne (Rs.)
i.	Mining cost (inclusive of Salaries & Wages of employees & workmen, Stores consumables, Machineries Repairing & Maintenance, depreciation & overhead expenditures)	150.00
ii.	Royalty on Mineral & MR Cess.	105.00
iii.	Socioeconomic Development	2.00
iv.	Occupational Health and Safety	0.50
v.	Environment Management	0.50
	Total Cost per tonne	258.00

The selling rate of Gypsum is Rs.570 per ton. This mine in particular is operational and thus is feasible & economical.

9. ANALYSIS OF PROPOSAL (FINAL RECOMMENDATIONS)

9.1 Financial and Social Benefits with Special Emphasis on the Benefit to the Local People Including Tribal Population, If Any, In the Area

Mining of gypsum has resulted in the Socio-economic development of the local people, living in remote areas with poor permanent source of income for their livelihood. The payment of land and crop compensation @Rs.40 per ton is more than the value of land and it will uplift the Socio Economic Status of the local persons having gypsum bearing land in their possession. The increase in productivity of land after excavation gypsum will be resulted into permanent source of income for local persons.