



SUMMARY OF ENVIRONMENTAL IMPACT ASSESSMENT & ENVIRONMENTAL MANAGEMENT PLAN REPORT

1.0 INTRODUCTION:

M/s. The Andhra Pradesh Mineral Development Corporation (APMDC) Limited, the State Government entity is operating Mangampet Barytes Project since year 1975 in Mangampeta & Govindampalli Villages, Obulavaripalli Mandal, YSR Kadapa District, Andhra Pradesh.

Adjacent to this barytes lease, on the eastern side, APMDC were granted a Grey Barytes, Black shale and Dolomite deposit lease over an extent of 114.14 Ha in Sy. No. 38, 39, 40, 41 etc., of Mangampeta Village, Sy. No. 490/1 of Govindampalli Village of Obulavaripalli Mandal and Sy. No. 1661/1 of Anantarajupeta Village of Railway Koduru Mandal, YSR Kadapa District, Andhra Pradesh for a period of 20 years (**Refer Annexure - 1**).

Mining plan for this new lease is prepared for a peak production capacity of 0.162 MTPA of Dolomite and 0.969 MTPA of black shale and it was approved by Department of Mines & Geology vide their Lr.No. 845/MP/KDP/2016, dated 25.05.2016.

Simultaneous working of this new lease along with the existing barytes lease is planned to enable advancement of mining operation in the barytes lease in the lower horizon and to enhance the production also. **Hence it is termed as Extension project.**

Since sufficient area for dumping the waste is not available within the lease area, additional land outside the lease area is also proposed to acquire for these 2 projects.

Details of the lease area and outside lease area proposed for dumping of over burden of the two adjacent projects of APMDC is given in **Figure No: 1**.

Towards obtaining Environmental Clearance, TOR from MOEF&CC is obtained vide their letter No. **J-11015/157/2016.IA.II(M)** dated 10th June 2016.

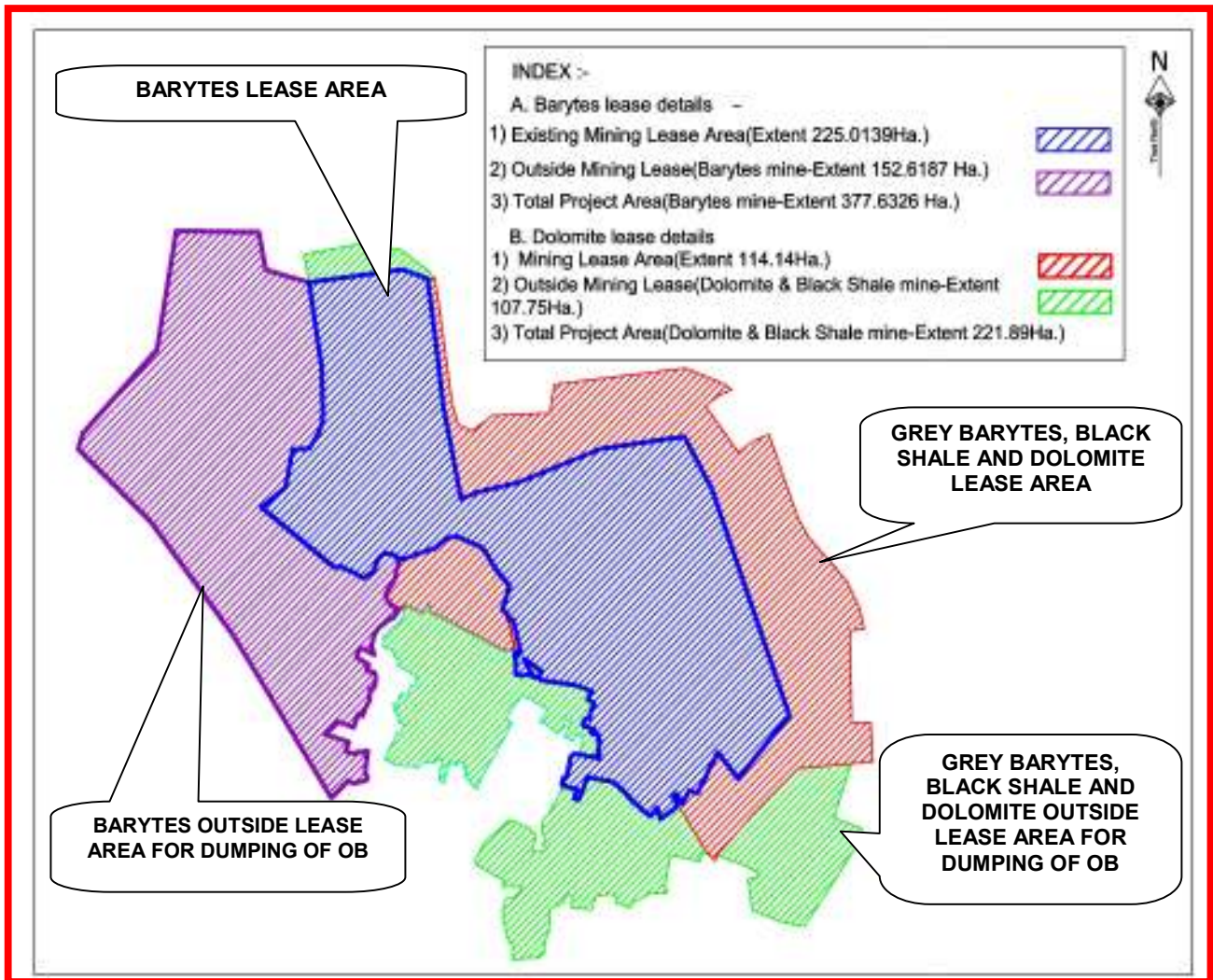
EIA / EMP report is prepared to obtain environmental clearance for this project based on the ToR approved by MoEF&CC.





Figure No: 1

PLAN SHOWING THE PROJECT AREAS



Salient details of the EIA/EMP report are as follows:

1.1 SITE DESCRIPTION:

The salient features of the project are briefly given below.

S.No	PARTICULARS	DETAILS
1	Name of the project	Mangampet Barytes Extension Project (Project area – 221.89 Ha) of M/S. APMDC Ltd
2	Villages	Mangampeta, Govindampalli & Anantarajupeta
3	Taluk	Obulavaripalli & Railway Koduru
4	District	YSR Kadapa
5	State	Andhra Pradesh
6	Peak Capacity	Dolomite - 0.162 MTPA & Black shale – 0.969 MTPA
7	Extent	221.89 Ha comprising M.L. area - 114.14 Ha and dump area &





**SUMMARY FOR MANGAMPET BARYTES EXTENSION PROJECT (PROJECT AREA - 221.89 HA) OF
M/S. THE ANDHRA PRADESH MINERAL DEVELOPMENT CORPORATION (APMDC) LIMITED.**

S.No	PARTICULARS	DETAILS
		its safety zone of 107.75 Ha
8	Type of land	Out of the total project area of 221.89 Ha, 114.14 Ha is lease area and 107.75 Ha is outside the lease area. Out of 114.14 Ha of lease area, 101.31 Ha are Government waste land and the remaining 12.83 Ha are private lands. The Government lands are already alienated and the private lands within the lease area are also already acquired. Out of 107.75 Ha of land outside the lease area mainly for dumping of waste and its safety zone, 60.49 Ha are Government land and remaining 47.26 Ha. The private lands are to be acquired. NOC from Tahsildar for waste dumping outside the lease area is already obtained.
9	Latitude	N14 ^o 0' 32.42" to 14 ^o 2' 07.96"
10	Longitude	E79 ^o 18' 28.97" to 79 ^o 19' 54.14"
11	Toposheet	57N/8
12	Mine site topography	180 m AMSL & 360 m AMSL
13	Forest land	Nil
14	Temperature (°C) (Maximum)	46 °C
15	Average Annual Rainfall (mm)	675 mm during 2004 – 2014
16	Nearest highway	Tirupathi – Kadapa Highway (SH-31) – more than 60 m – E
17	Nearest Railway station	South Central main BG railway line connecting Renigunta – Kadapa passess 2.8 km - W, Koduru – 9.0 km - SE
18	Nearest Airport	Tirupathi Airport – 69 km, Chennai Airport – 190 km
19	Environmental sensitive areas, Protected areas as per Wildlife Protection Act, 1972 (Tiger reserve, Elephant reserve, Biospheres, National parks, Wildlife sanctuaries, community reserves and conservation reserves)	The core zone of Seshachalam Biosphere reserve – 10.8 km – SW from the mine boundary
20	Reserved / Protected Forests	Seshachalam Extension RF – 7.4 km – SW, Tunakonda RF – 6.6 km – S, Kodur Extension RF – 5.7 km – E, Maharajapuram Block RF – 6.3 km – NE, Chitvel Extn. RF – 6.0 km – N.
21	Other Industries in the study area	Existing Barytes mines of APMDC, Many pulverizing units & a Ferro alloy plant
22	Nearest town/City	Koduru is 9.0 km away
23	Nearest villages/Habitation	Kapupalli & APMDC Colony
24	Nearest major water bodies	Streams namely Gundala Eru – 1.4 km (S), Mushti Eru – 4.3 km (S), Gundala Vanka – 7.4 km (SE) & Gunjana Eru – 2.9 km (SE) confluence with Gunjana Vagu flowing 2.4 km north. Few tanks are available in the area which are interconnected
25	Seismic Zone	Zone – II (Least Active)





2.0 PROJECT DESCRIPTION:

1. Mineable reserves : 3.120 Mil.T
2. Waste : Total waste of 19.326 Mil.Cum during the plan period
3. Strip ratio : 1:6.19 (T:Cum)
4. Method of Mining : Open cast Mechanized Mining Technique
5. Bench height : 10m
6. Depth of over body : up to +230m RL considered now
7. Combined Man power : Direct –692 persons; Indirect - 1000 persons
8. Mode of transport : By Tippers/Dumpers
9. Route : By road
10. Combined Water requirement : 280 KLD (Dust Suppression-200 KLD; Green Belt/Afforestation- 25 KLD; Drinking & Domestic- 55 KLD)
11. Source of water :Bore well within project area & mine discharge water from existing Barytes area
12. Combined Power requirement : 4200 KVA
13. Life of the mine : At present the reserves were estimated up to 230 RL. for 5 years. This may get revised after carrying out further exploration.
14. Project cost : Rs. 60.0 lakhs

3.0 EXISTING ENVIRONMENTAL SCENARIO:

3.1 GENERAL

The studies and data collection have been carried out systematically and meticulously as per relevant IS codes, CPCB & MoEF&CC guidelines. The data collected are during **Summer Season (March to May, 2016)**.

For the purposes of this study, the area has been divided into two zones, namely, core and buffer zones. Core zone covers 221.89 Ha of project area and the buffer zone covers an area of 10 km radius from the periphery of the total project area of both the projects.

3.2 SOCIO-ECONOMIC STATUS:

Based on 2011 census data, there are 34 rural villages and 1 urban area namely Mangampeta falling in 4 Taluk namely Obulavaripalle, Kodur, Chitvel & Pullampeta are falling within 10-km radius of this dolomite & black shale mine. The distribution of population is as below:

- Male - 78126 (50.65%)
- Female - 76117 (49.35%)
- Total - 154243

Among the population 32.87% are literate males and 23.84% are literate females. This shows that the male literates are slightly more than the female literates. Among the total population the





workers are 42.06% and remaining part constitute non-workers i.e. 57.94%. Basic amenities like school and other infrastructure facilities are almost available in most of the villages.

3.3 AMBIENT AIR QUALITY:

No of AAQ Monitoring locations – 9		Season – Summer (March – May 2016)	
Parameter	Range of Result ($\mu\text{g}/\text{m}^3$)	*Limit ($\mu\text{g}/\text{m}^3$)	
PM ₁₀	42.8 – 90.7	100	
PM _{2.5}	21.2– 48.7	60	
SO ₂	BDL (DL-3.0) - 6.7	80	
NO ₂	6.4 – 15.6	80	
* NAAQ standards as per CPCB Notification, 2009			

From the table it can be seen that the existing Ambient Air Quality levels for PM₁₀, PM_{2.5}, SO₂ and NO₂ are within the prescribed limits.

CO values in the all locations were found to be below detectable limit (DL – 1144 $\mu\text{g}/\text{m}^3$). Silica values in the study area are found to be below detectable limit.

3.4 WATER QUALITY:

The results of the mine pit water quality is found to be within the limit prescribed by MoEF&CC vide GSR (801) (E), EPA, 1986, 1993 Limits for discharge on land for irrigation. In case of the ground water samples the results are as follows:

No of Samples – 6 Ground Water Samples		Season – Summer (March – May 2016)	
Physical/Chemical Parameter	Water Samples (Bore Well)	*Limits	
pH at 25 °C	6.53 – 7.87	6.5-8.5	
Total Dissolved Solids, mg/L	58 – 1240	2000	
Chloride as Cl ⁻ , mg/L	20.5 – 108	1000	
Total Hardness (as CaCO ₃), mg/L	31.0 – 912	600	
Total Alkalinity (as CaCO ₃), mg/L	11.8 – 402	600	
Sulphates as SO ₄ ²⁻ , mg/L	13.3 – 794	400	
Iron as Fe, mg/L	BDL (D.L-0.01) - 0.25	0.3	
Fluoride, mg/L	0.12 – 0.88	1.5	
Nitrate as NO ₃ , mg/L	BDL (D.L-1.0) – 15.1	45	
*IS 10500:2012 – Permissible limits in the absence of alternate source			

In general the water quality of ground water is found to be mostly within the prescribed Permissible limits of IS: 10500 Norms in the absence of an alternative source as per Drinking Water Specifications. Total Hardness and few parameters in the bore well within the mineral bearing APMDC colony area is higher. However in other places it is within the prescribed limits. Mostly RO treated water is used for drinking purpose in the nearby area also.



3.5 NOISE ENVIRONMENT:

No of locations – 9		Season – Summer (March – May 2016)		
Noise Level In dB(A)	Core Zone dB(A)	*Work zone exposure limit dB(A)	Buffer Zone dB(A)	MOEF&CC Norms dB(A)
Day Equivalent	49.0 – 54.7	90	41.1 – 45.8	55
Night Equivalent	39.6 – 44.7		38.8 – 40.1	45
*Permissible noise for industrial workers as laid down by CPCB (at 8 hrs Exposure Time)				

While comparing with the MoEF&CC Norms the monitored ambient noise levels were within the limit values for Residential areas.

3.6 SOIL QUALITY:

Soil samples collected from 5 locations show that the pH values were ranging between 6.98 to 8.44 and Electrical Conductivity values were ranging between 63.92 to 162.6 $\mu\text{s}/\text{cm}$. Soils are generally loam and Clay loam type.

3.7 LAND ENVIRONMENT:

Land use & Land cover pattern of 10 km radius study area is carried out through remote sensing satellite data of IRS Resourcesat2 of LISS IV. From the study it is seen that, nearly 50% of the total buffer area is covered by agricultural activities mostly by crop land, farmland, plantation & fallow land. Forest category covers about 26.26 % of the total buffer area. Waste land is about 9.95% of the study area. Area proximate to the lease and dump area are mostly coming under waste land or land with scrub category.

3.8 BIOLOGICAL ENVIRONMENT:

Seshachalam Extension RF, Tunakonda RF, Kodur Extension RF, Maharajapuram Block RF, Chitvel Extn. Coming in the study area. There is no major vegetation and few numbers of *Azadirachta indica*, *Senna auriculata* and thorny plants were observed in core zone. The dump area dominated with *Prosopis juliflora*, *Dodonaea viscosa* and thorny species. Few mango orchards are also seen in the proposed dump area.

In the non-forest area of the buffer zone, the dominant species are *Azadirachta indica*, *Prosopis juliflora*, *Saraca indica*, *Tamarindus indica*, *Zizyphus jujube* etc. In the forest area within the buffer zone, the dominant species are *Albizza amara*, *Delonix regia*, *Azadirachta indica*, *Ficus bengalensis*, *Morinda tinctoria*, *Odina wodier*, *Prosopis spicigera* etc. In the study area mainly in the forests the endangered, vulnerable species recorded are *Pterocarpus marsupium* (Yegisi), *Pterocarpus santalinus* (Raktachandanam) and *Santalum album* (Srigandam).

There is no Wild Life Sanctuary or National Park within the study area of 10 km. The core zone of Seshachalam Biosphere Reserve is 10.8 km away from the lease boundary. For Schedule-I fauna, Combined Site Specific Wild life conservation plan both for Barytes Expansion & Extension projects is



being prepared in consultation with the forest department. Necessary approval from the concerned department will be obtained and all the measures mentioned in the report will be implemented.

4.0 ANTICIPATED ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

4.1 GENERAL:

Mining operations in the existing lease area of Mangampet Barytes project is carried out since year 1975 by M/s. APMDC Limited and the entire Barytes ore produced is used by the consumer industries in the form of ROM or supplied to the pulverizing units. Scientific and systematic development of mines are carried out by the project authorities for preserving as well as improving the environmental conditions in and around the mining lease area.

The existing environmental status in the area is so far devoid of any adverse impacts due to adoption of the following in the existing working mines:

- Deployment of mobile water sprinklers for fugitive dust suppression in haul roads during transportation.
- Black topping of permanent transport roads.
- Construction of retaining wall, drains etc., as runoff management.
- Periodical maintenance of plant & machinery.
- Installation of Bag filters in the pulverizing unit for dust collection.
- Rain water harvesting in the mine sump and supplying to the nearby agricultural fields and to nearby ponds.
- Planting of trees in various places like near mines office, mine periphery, & avenue plantation & other possible places.
- Development of good R & R colony with all the basic amenities.
- Carrying out CSR activity as per the local need.

The environmental quality of the project area is within limits prescribed by statutory bodies and it is amply supported by the periodical monitoring of the environmental quality and the monitored data on various environmental attributes are found to be within permissible limits. Besides this, awareness programme on safety, health, environment are also conducted periodically to the staff and workers of the mines.

Detailed assessment of cumulative impacts and mitigative measures for both the leases are carried out for various environmental components like Air, water, noise, land etc., and salient details are as follows:





4.2 AIR ENVIRONMENT:

In general, mining operations and its allied activities may result in deterioration of air quality due to pollution by way of dust generation and gaseous emission arising from the project operation if appropriate measures are not taken.

In this mine, the ore and waste occur mostly in boulder form and as such there is less finer dust formation during excavation and dumping.

In the existing mine workings of Mangampet Barytes Project, due to adoption of various mitigative measures, presently no major impact in air quality has been caused.

While carrying out mining activities in this proposed mining project systematic and scientific mining adhering to all the stipulated standards and guidelines will be followed to ensure that there are no major impact on the environment.

In addition to continuation of the existing mitigative measures, it will be further augmented to ensure that there are no adverse impact on air quality due to operations in the new mining lease and enhanced mining & pulverizing plant operation in the existing lease.

The cumulative impact on air quality due to fugitive emissions consequent to both Proposed Extension Mangampet Barytes Project operation and increase in capacity of the existing mining & pulverizing plant operation was estimated based on the latest computer model – **ISCST (Industrial Source Complex Short Term Model)**.

Cumulative Peak hourly incremental concentrations have been computed using hourly meteorological data and from the study it is observed that the peak incremental 24 hourly particulate matter concentration under worst scenario works out to **14.51 $\mu\text{g}/\text{m}^3$** and the distance of occurrence of the peak concentration is near the active working area.

It can be seen that the resultant added concentrations with baseline figures even at worst scenario due to both the projects, show values of ambient air quality in the range of **58.4 $\mu\text{g}/\text{m}^3$ to 95.7 $\mu\text{g}/\text{m}^3$** which are within the statutory stipulations in each case. Besides, this maximum background concentration already reflects the existing air quality due to present mining operations also.

Adopting various mitigative measures like proper maintenance of haul roads, adding one more mobile water sprinkler, Installation of fixed water sprinkler along the main road leading from mine entry to main haul road, Covering ore transport vehicles with tarpaulin, Using Electronic detonators, Periodical monitoring of environmental parameters, Development of extensive Plantation around the mine area, dump area and also in the safety zone area left between nearby habitation and the proposed dump, development of retaining wall and garland drain at the toe of the dump to prevent wash off, Housing of Pulverizing mill in fully enclosed building, Providing bag filters at all the transfer &





junction points, Providing safety mask for workers exposed to the active working area, etc., will ensure that there will be no major impact on air quality due to the expansion of existing lease and the operation of this new mining lease area.

4.3 WATER ENVIRONMENT:

Combined total water requirement for the existing Barytes mining project and this proposed Grey Barytes, Black Shale and Dolomite lease of APMDC is estimated to be 280 m³/day comprising 200 m³/day for dust suppression, 25 m³/day for Green belt development and 55 m³/day for drinking & domestic activities. The entire water requirement is and will be met from the existing Barytes mine discharge water, whereas the drinking water requirement will be sourced from the bore well within project area.

This being a mining project, there will be no process effluent. As far as pulverizing unit is concerned, since it is of dry crushing type, no direct water pollution or effluent generated from the plant. The work shop facility available for the existing barytes mining operations will be suitably upgraded and used for this proposed project also. Treated water will be reused in the workshop.

Runoff from waste dumps, ore stockpiles during monsoon may carry the silt / ore residues and pollute the nearby streams /ponds, land if it is let-out as such.

Various mitigative measures like dozing and leveling of inactive waste dumps, spreading of top soil on the top and slopes of the inactive dumps, planting native tree species on the dump tops and slopes with grasses and shrubs to arrest and prevent erosion, construction of garland drains, retaining wall around mine area and external dump with proper gradients to prevent rain water descent into active mine area, connecting the garland drains to settling tank to collect surface runoff, mine water and arrest siltation will be carried out for both the Mangampet projects.

Surface runoff management structures like 7.9 km of garland drains, 9.8 km of retaining wall / bund, six settling ponds with silt traps and construction of check weirs at different places will be carried out to arrest silt flow if any.

By adoption of various above said mitigative measures, the impact on water quality due to runoff from dumps, stock piles will be effectively controlled.

4.3.1 IMPACT ON HYDROLOGY:

There are no drainage course within the lease area. Since the mining operations in the proposed lease area will be carried out at a higher elevation, there will not be any water seepage or discharge from this project. In the study area, ground water level in general during post monsoon season is comparatively better whereas during summer it reaches 40m to 60m depth and sometimes even deeper during summer season.





The water pumped out from the existing Barytes mine sump is discharged into the channels made exclusively to carry water to Govindampally tank and Surabhi Kunta. The average total quantity of water pumped out of the mine pit is 16.7616 lakhs cum/month (2328 m³/Hr). Almost the entire mine discharge water flows out to Govindampally tank & Surabhi Kunta tank for irrigating vast stretch of land in the region.

However, in case of this proposed Grey Baryte, Black Shale & Dolomite lease area project, since the mining operation will be carried out in an elevated hilly area above +230m RL, which is more than 50m above the general ground surface, there will not be any intersection of ground water table and water seepage into the mine.

4.4 NOISE ENVIRONMENT:

Noise will be heard only at the active mine area, at faraway places from the actual mine workings there will not be any impact of noise due to mining operations and will not be felt in the nearby villages. Further green belt/afforestation and other mitigative measures will be carried out to abate noise propagation in the area.

4.4.1 IMPACT DUE TO GROUND LEVEL VIBRATIONAL EFFECTS FROM BLASTING OPERATIONS AND CONTROL MEASURES THEREON:

In the present mine workings of Baryte lease area, blasting & vibration effects are well controlled by following measures.

- a) Performing blasting strictly as per the guidelines specified under blasting technology
- b) Optimum design for burden and spacing.
- c) Effective stemming of the explosives is done in the drill holes.
- d) Using good quality Non-Electric milli-second down the hole delay detonators and surface connectors.
- e) Avoiding Overcharging of explosives.
- f) Minimizing charge per delay and preferring more number of delays per blasts.
- g) Carrying out blasting operations only during day time as per mine safety guidelines.
- h) During blasting, other activities in the immediate vicinity is temporarily stopped.
- i) Avoiding blasting during inclement weather conditions.

Because of the controlled blasting in existing Baryte mine, no adverse effects have been noticed so far. All these measures will be continued after Barytes expansion & extension project also and it will be ensured that there will not be any appreciable impact due to blasting vibration on the environment.





4.5 IMPACT ON LAND ENVIRONMENT:

In Pre-mining stage, out of total project area of 221.89 Ha, the Lease area is 114.14 Ha & outside lease area is 107.75 Ha to be utilised mainly for dumping and other infrastructures. Out of 107.75 Ha of land outside the lease area 60.49 Ha are government lands and about 47.26 Ha are private lands. There are no forest land in the project area. The entire project area is mostly barren with bushes and shrubs and it is free from major vegetation. The private lands are mostly barren with some sparse vegetation, few mango orchards.

Since surface chopping at higher elevation is proposed in this lease so as to enable advancement of mining operation in the barytes lease in the lower horizon, ultimately there will not be any water body within the mined out area.

In the post mining stage mine area of 47.1708 Ha will be reclaimed back with vegetation. Thus in the post mining stage afforestation shall be done covering an area of 87.6316 Ha within the lease and 195.3816 Ha outside the lease area. Besides, all efforts will be made to enhance vegetation in all possible vacant lands. External dumps and other infrastructure areas will also be reclaimed ultimately.

In view of above factors, it can be seen that in comparison to original land status of barren lands, with limited vegetation, the post-mining land use status will have a remarkable improvement in land status in respect of reclaimed plantations to be developed in the area.

4.6 BIOLOGICAL ENVIRONMENT:

APMDC has developed a good vegetative cover in the APMDC colony and other places within the core zone. So far 48,641 saplings were planted over an area of 22.29 Ha in the existing Barytes project including dump & avenue plantation.

In the post mining stage, mine area, external dump area, Mineral Storage area etc., covering an area of 87.6316 Ha within the lease and 107.75 Ha outside the lease area will be reclaimed with plantation. Local native species in consultation with forest department will be selected for plantation. The green belt formation and development of greenery in the mine shall not only enhance the air quality and attenuate noise in the surrounding area but also enhances the aesthetic value.

4.7 SOCIO ECONOMIC ENVIRONMENT:

Mining operation in the existing Barytes lease area is in place since year 1975. Systematic and scientific mining operations are carried out with due care for minimizing environmental impacts with proper EMP measures for pollution control which will be continued in future also.

The existing project operation has resulted in positive benefits like Direct employment opportunities for about 692 persons including Regular employment to 105 persons, Outsource employment to 508 local persons and training to 70 local persons etc. Indirect employment for more than 1000 persons through various service related activities connected with the project operations like,





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Ore transport, Project related ancillary services, Various trading services for consumer goods, spare parts, sundry items, etc., Contractual services connected with the project., Green belt and horticultural works in the project etc.

Pumping of mine sump water from the existing Barytes lease area into nearby ponds for usage in agricultural activities through which vast stretch of land are benefitted.

In case of this proposed extension project, out of the total project area of 221.89 Ha, 114.14 Ha is lease area and 107.75 Ha is outside the lease area. Out of 114.14 Ha of lease area, 101.31 Ha are Government waste land and the remaining 12.83 Ha are private lands. The Government lands are already alienated and the private lands within the lease area are also already acquired. Out of 107.75 Ha of land outside the lease area mainly for dumping of waste and its safety zone, 60.49 Ha are Government land and remaining 47.26 Ha are private lands which has to be acquired. Private lands consists of trees, bushes, mango orchards and some agricultural lands also.

The area outside the lease for dumping is selected after avoiding the habituated Kapupalli and Harijanawada village on the south western side.

Compensation for the nearest habitation RR II on the eastern side of the lease area is already paid and they have to be shifted soon to prevent them from environmental concerns due to its proximity.

Besides, proximity of Kappupalli village to the proposed dump area may also cause environmental concerns if proper measures are not taken. Safety barrier is left from the dump periphery to this habitation and the barrier will be developed with green barrier. Besides, all the mitigative measures given in the EIA/ EMP report will be implemented to prevent any adverse impact on these nearby habitations.

To obviate the impact on the social front, a systematic and scientific Social Impact Assessment (SIA) Study is carried out through Centre for Excellence in Management of Land Acquisition, Resettlement and Rehabilitation (CMLARR) Administrative Staff Colleague of India (ASCI), Hyderabad.

The private lands is being acquired under The Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act , 2013 (RFCTLARR Act 2013).

By providing proper compensation for the land losers and other affected due to loss of land or structure if any or lively hood and by providing other agreed benefits the negative impact due to loss of land can be obviated. This being a Government entity all the statutory rules will be followed and the locals will be taken into confidence in this front.





There will be continued substantial improvement in the positive impact already derived by the locals by way of employment generation, increase in income generation, creation of infrastructural facility, marked improvement in the life style and living standards of the population of the surrounding area. Etc., after Barytes expansion & Extension project.

The Barytes expansion & Extension project will further improve the social and physical infrastructural patterns of this interior area in its own way resulting in overall improvement of HDI (Human Development Index). Besides, the Central and State Government will also derive good financial benefits by way of receipt of taxes, duties, cess and DMF.

In view of above aspects, the proposed extension project can be said to be beneficial to the local community, the local region, the State and to the entire country on the whole.

APMDC gives lot of importance in developing the R & R colonies created by it. In addition to the monetary compensation to the Project Affected Families (PAF's) & Project Displaced Families (PDF's) various amenities like cement concrete roads, Electricity, drainages, R.O water plants, Panchayat office, DWACRA hall, Schools, Anganvadi centres, post office, veterinary hospital, 10 bedded Primary Health Centre, temple, burial ground are developed.

For the CSR activities M/s. APMDC so far spent more than Rs. 13 crores and its breakup details are given in Para 4.8.1, Chapter – IV. Every year for both the project together Rs. 50.0 lakhs will be spent under CSR. The breakup of the same will be decided based on the immediate need and priority. Based on its annual budget and based on need based assessment of the people the company can select and implement the activities each year. APMDC will also ensure that the planned CSR activities are effectively implemented through a monitoring team who can also discuss with the locals and get their feedback for future planning and improvement.

5.0 ENVIRONMENTAL MONITORING PROGRAMME:

In the adjacent Barytes operating mine, **Environmental Management Cell (EMC)** of the mine is and will be undertaking effective monitoring and ensure the implementation of various environmental control measures effectively and 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 both the existing Barytes mine after expansion & this proposed Extension Barytes mine.

So far APMDC spent Rs. 860 Lakhs for Environmental control. Additionally for the expansion and extension projects Rs. 235 Lakhs will be spent under capital cost. The recurring environment cost involving operation and maintenance of pollution control measures, environmental monitoring, CSR activities etc., will be met from revenue.





The suggestions given in the Environmental Monitoring Programme is and will be implemented by the EMC by following an implementation schedule.

The various methodologies and frequency of studies of all environmental quality parameters are and will be as per prescribed norms laid down by MOEF&CC and Consent to Operate issued by State Pollution Control Board.

6.0 CONCLUSION:

Lease area blessed with mineral is exploited by mining activities which is providing various social benefits for the locals in the region both directly and indirectly. The positive note more benefit is and can be derived by the locals on various front which outweighs the negative aspects if any. Sustainable mining in the adjacent working barytes mine is possible only after advancement of this proposed extension project.

Proper and timely execution of various environment management plan suggested in the report like rainwater harvesting, controlled blasting practices, adopting effective solid waste management technique etc., will ensure maintenance of future environmental quality within statutory limits.

The environmental management strategy as explained above will prove that industrial growth, if properly planned with all environmental concerns and appropriate remedial measures can go a long way to improve life pattern and living conditions of the local community around the project.

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