



## 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. Presently 3.0 MTPA capacity Barytes mine is operated after obtaining the necessary statutory clearances.

Considering the good demand for quality Barytes ore and with a view to capture the international market, now it is proposed to enhance the Barytes ore production capacity from 3.0 to 5.0 MTPA and also increase the existing pulverizing plant capacity to produce 0.30 MTPA Barytes powder from the existing level of 0.10 MTPA.

Mine movement and enhancement of production from this lease is planned along with simultaneous working by surface chopping of adjacent new Grey Barytes, Black Shale and Dolomite lease area of 114.14 Ha of APMDC up to 230m RL for which separate EC application is made. 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.

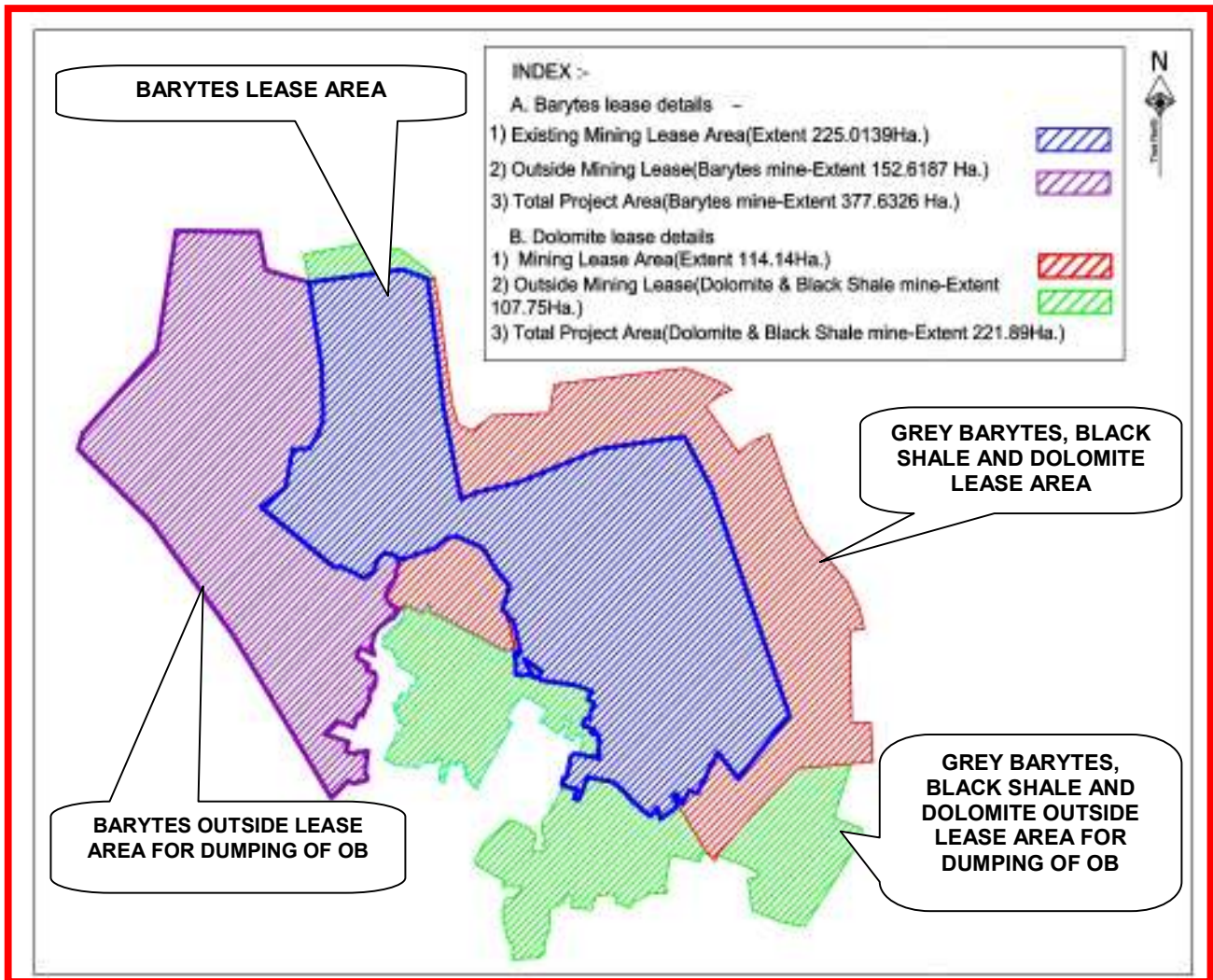
This project pertains to expansion of Barytes project for a total project area of 377.6326 Ha comprising 225.0139 Ha of lease area is with APMDC and out of 152.6187 Ha outside the lease area proposed for dumping of over burden, about 127.9566 Ha are Government land and the balance 24.6621 Ha are private lands. 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**





Figure No: 1

**PLAN SHOWING THE PROJECT AREAS**



Modified Mining Scheme was approved by Department of Mines & Geology vide their Lr.No. 2276/MS-KDP/2013, dated 25.05.2016.

Towards obtaining Environmental Clearance, TOR from MOEF&CC is obtained vide their letter No. J-11015/156/2016.IA.II (M) dated 10<sup>th</sup> June 2016.

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

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 Expansion project of M/S. APMDC Limited
2	Village	Mangampeta & Govindampalli Villages
3	Taluk	Obulavaripalli
4	District	YSR Kadapa
5	State	Andhra Pradesh
6	Capacity	Expansion of Barytes production capacity from 3.0 to 5.0 MTPA and also to increase the existing pulverizing plant capacity to produce 0.30 MTPA Barytes powder from the existing level of 0.10 MTPA.
7	Extent	Out of total project area of 377.6326 Ha, lease area is 225.0139 Ha and outside lease area is 152.6187 Ha to be utilised mainly for dumping and other infrastructures.
8	Type of land	The entire lease area of 225.0139 Ha is with APMDC. Out of 152.6187 Ha of land outside the lease area, about 127.9566 Ha are Government land and the balance 24.6621 Ha are private lands. NOC from Tahsildar for waste dumping outside the lease area is already obtained.
9	Latitude	N14° 00' 52.44" to 14° 02' 15.06"
10	Longitude	E79° 17' 57.06" to 79° 19' 41.71"
11	Toposheet	57N/8
12	Surface elevation	Lease area - 180 m AMSL to 342 m AMSL Outside lease area - 190 m to 220 m above 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 400 m – E
17	Nearest Railway station	South Central main BG railway line connecting Renigunta – Kadapa passess 2.4 km west of the site, 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)	Core zone of Seshachalam Biosphere reserve – 10.7 km, SW from the lease boundary



S.No	PARTICULARS	DETAILS
20	Reserved / Protected Forests	Seshachalam Extension RF-7.3km (SW), Tunakonda RF-7.3km (S), Kodur Extension RF-6.0km (E), Maharajapuram Block RF-6.8km (NE), Chitvel Extn. RF-6.1km (N).
21	Other Industries in the study area	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 – 2.2 km (S), Mushti Eru – 5.0 km (S), Gundala Vanka – 8.0 km (SE) & Gunjana Eru – 3.1 km (SE) confluence with Gunjana Vagu flowing 2.8 km north. Few tanks are available in the area which are interconnected
25	Seismic Zone	Zone – II (Least Active)

## 2.0 PROJECT DESCRIPTION:

- Total reserves :47.32 Mil.t
- Total waste :Scheme period - 18.92 Mil.Cu.m  
Conceptual period - 82.83 Mil.Cu.m  
**Total - 101.75 Mil.Cu.m**
- Strip ratio :1:2.42 (T:Cum)
- Method of Mining : Mechanized Open cast Mining comprising drilling, controlled blasting, excavation using shovels, waste and ore transportation through dumpers.
- Bench height :10m
- Ultimate pit slope :45°
- Maximum mine depth :up to +10 RL
- Combined Man power :Direct – 692 persons; Indirect - 1000 persons
- Mode of transport :By Tippers/Dumpers
- Route :By road
- Combined Water requirement:280 KLD (Dust Suppression-200 KLD; Green Belt/Afforestation- 25 KLD; Drinking & Domestic- 55 KLD)
- Source of water : Bore well within project area & mine discharge water
- Combined Power requirement: 4200 KVA
- Life of the mine :10 years
- Project cost : Rs. 90.0 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 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 377.6326 Ha of project area and the buffer zone covers an area of 10 km radius from the periphery of the total project area.

#### 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 Barytes 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 <sub>10</sub>	42.8 – 90.7	100	
PM <sub>2.5</sub>	21.2– 48.7	60	
SO <sub>2</sub>	BDL (DL-3.0) - 6.7	80	
NO <sub>2</sub>	6.4 – 15.6	80	
<b>* NAAQ standards as per CPCB Notification, 2009</b>			

From the table it can be seen that the existing Ambient Air Quality levels for PM<sub>10</sub>, PM<sub>2.5</sub>, SO<sub>2</sub> and NO<sub>2</sub> 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 <sup>-</sup> , mg/L	20.5 – 108	1000	
Total Hardness (as CaCO <sub>3</sub> ), mg/L	31.0 – 912	600	
Total Alkalinity (as CaCO <sub>3</sub> ), mg/L	11.8 – 402	600	
Sulphates as SO <sub>4</sub> <sup>2-</sup> , 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 <sub>3</sub> , mg/L	BDL (D.L-1.0) – 15.1	45	
<b>*IS 10500:2012 – Permissible limits in the absence of alternate source</b>			

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 µs/cm. Soils are generally Clay loam type.

### 3.7 LAND ENVIRONMENT:

Landuse & 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 25.76 % of the total buffer area. Waste land is about 10.45% 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. The entire mine area is already mined and it is free from vegetation. Other than vegetation carried out by APMDC, the project area is mostly dry with few thorny plants and shrub like *Lantana camara*, *Dodonaea viscosa*. The dump area dominated with *Prosopis juliflora*, *Azadirachta indica*, *Acacia nilotica* and *Dodonaea viscosa* 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 10.7 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 Mangampet Barytes lease area 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 the following:

- 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. Besides, in the Barytes mine lease, the general elevation of the mine surface is at 180m RL. However, the present working is at +35m RL which is about 145m deep. Hence the effect of dust generated at the actual working face at about 145m deep is not felt at the surface.

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

After enhancement, increase in production in the existing lease will be achieved by improving the operating efficiency and increasing the size of the shovels and dumpers than its fleet to minimize the impact on environment.

In the new adjacent lease also systematic and scientific mining adhering to all the stipulated standards and guidelines will be followed to ensure that there is 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 enhanced mining and allied operation in the existing lease and the operation of the new adjacent mining lease area.







The cumulative impact on air quality due to fugitive emissions consequent to both this Expansion & Proposed Extension Mangampet Barytes Project operation and enhanced pulverizing plant is 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 **10.98  $\mu\text{g}/\text{m}^3$**  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 94.2  $\mu\text{g}/\text{m}^3$**  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 this existing lease and the operation of the new adjacent mining lease area.

#### **4.3 WATER ENVIRONMENT:**

Total water requirement for both Mangampet Barytes Expansion & Extension Project of APMDC is estimated to be 280  $\text{m}^3/\text{day}$  comprising 200  $\text{m}^3/\text{day}$  for dust suppression, 25  $\text{m}^3/\text{day}$  for Green belt development and 55  $\text{m}^3/\text{day}$  for drinking & domestic activities. The entire water requirement is & will be met from the mine discharge water, whereas the drinking water requirement will be sourced from the bore well within project area.

This being a mining project, there are 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. ETP for workshop facility is proposed. 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. The existing active dumps comprises mostly rocky boulders.

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.

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. Ground water level in general during post monsoon season is comparatively better whereas it reaches 40m to 60m depth and sometimes even more during summer season.

The water seepage is generally observed in patches at deeper level from the general ground level of 180m RL. Seepage is observed at different levels in the hard rock formation of the mines based on the fractures and fissures at various depths. Hence the seepage is not uniformly observed at the same level. The seepage water is also allowed to accumulate in the sump at the mine pit bottom at 35 RL from where the water is being pumped out. Besides rain water is also accumulated in the sump.

About 2328 m<sup>3</sup>/Hr of water is pumped out from the mine sump. Almost the entire quantity of mine discharge water flows out to Govindampalle tank & Surabhi Kunta tank for irrigating vast stretch of land in the region and hence it is re-circulated back in to the ground water regime only. Further the mine seepage appears to have minimum effect on the adjoining areas as there no hydraulic continuity which is established from the water levels in the surrounding bore wells which indicates that the cone of depression is limited within the project area. Hence, the mining activity directly may not have caused any substantial hydro geological imbalance in the area. The adequate rainwater harvesting measures have been proposed in and around the mine lease area. In addition, desilting of ponds, construction of check dam have been initiated in the surrounding villages to bring the sustainability of the groundwater regime.





#### **4.4 NOISE ENVIRONMENT:**

In the existing Barytes mines, the general surface RL is in the range of +180m AMSL, whereas the mining operations are carried out at a depth of 145m depth (35m RL) from the general ground level of 180 AMSL. As such no noise is felt at the surface of the mine pit itself. Besides, the existing and the proposed dumps almost all around the mine workings acts as a natural barrier for attenuation of noise generated from the mine workings. As such practically no appreciable noise is and will be felt in the nearby villages. Further green belt/afforestation and other mitigative measures are and 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, 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) The charge per delay is minimized and preferably more number of delays are used per blasts.
- g) Blasting operations are carried out 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 mine, no adverse effects have been noticed so far. All these measures will be continued after 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 377.6326 Ha, lease area is 225.0139 Ha and outside lease area is 152.6187 Ha to be utilised mainly for dumping and other infrastructures.

The entire lease area of 225.0139 Ha is with APMDC. Out of 152.6187 Ha of land outside the lease area, about 127.9566 Ha are Government land and the balance 24.6621 Ha are private lands. There are no forest land in the project area. The private lands are mostly barren with some sparse vegetation, few mango orchards. Besides some grazing lands are also found in the waste dumping area which is already alienated vide G.O.M.S.NO. 165 dated 14.05.15.





Since this lease is under mining operation since year 1975, major part of the lease area is already used for mining and allied activities. Future mining activities will be confined mainly only depth wise with little lateral extension.

In the post mining stage about 32.3315 Ha of the backfilled mined out area will be reclaimed back with vegetation. Remaining 74.4854 Ha of mined out area will be left as water body. This area will be properly fenced to prevent unauthorized entry of men and animals. The ultimate water body left in the mined out area, will also help to recharge the ground water potential in the area as well as help to supply water needs of nearby communities. Ultimately waste will be dumped over an area of 169.3049 Ha both inside (36.3691 Ha) and outside the lease area (132.9358 Ha) and it will be properly reclaimed with vegetation.

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 including dump & avenue plantation.

In the post mining stage backfilled mine area, external dump area, Mineral Storage area etc., covering an area of 101.5336 Ha within the lease and 152.6187 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, 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.



For the existing Barytes mining operations, APMDC acquired lands and structures as per LA act 1894 by paying necessary compensation / exgratia and implemented the national Rehabilitation and Resettlement Policy 2007 for each family.

Earlier, the rehabilitated hamlets namely Balijapalli, Ayyappureddipalli, Guttikottalu, Bus stand area and Agraharam were less developed. However the newly developed R & R colony is provided with all the amenities like cement concrete roads, Electricity, drainages, R.O water plant, hospital, school etc. Certain facilities are utilized by the other nearby villagers also.

The State and the Central Governments also benefit through financial revenues by way of royalty, tax, duties, DMF etc., from this project directly and also indirectly.

In case of the proposed expansion, out of the total project area of 377.6326 Ha 225.0139 Ha is lease area and 152.6187 Ha is outside the lease area. The entire lease area of 225.0139 Ha is with APMDC. Even after expansion, quarrying will be within the present mine lease area only. The 152.6187 Ha of land outside the lease area is mainly for dumping of waste and its safety zone. In this, 127.9566 Ha are Government land and remaining 24.6621 Ha are private lands. The area outside the lease for dumping is selected after avoiding the habituated Kapupalli and Harijanawada village on the south western side.

Private lands consists of trees, bushes, mango orchards and some agricultural lands also. Grazing lands are also falling in the project area. The affected families in APMDCs Barytes Expansion project would primarily be losing their income through loss of land. Lot of structures have been constructed in half, one/two cents of land, also called 'settings in the local parlance' to derive R & R benefits. The structures that were not registered prior to the preliminary notification have been considered as illegal structures and excluded from the notification. The loss of dwellings if any in the proposed area is being identified.

**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 or lively hood if any 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. Besides, the Central and State Government will also derive good financial benefits by way of receipt of taxes, duties, cess and DMF. This being only Barytes mine in our country accounting for almost the entire production of barytes from our country, increase in production from this area is imperative and it will help to meet the future demand of this mineral both in local market and also for export.

In view of above aspects, the proposed expansion 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. 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 will 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 this 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 & the 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 is blessed with mineral which is exploited by mining activities and 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 fronts which outweigh the negative aspects if any. Proper and timely execution of various environment management plan suggested in the report like effective utilization of mine discharge water from existing Barytes lease area, rainwater harvesting, controlled blasting practices, adopting effective solid waste management technique, carrying out need based CSR activities, etc., will ensure maintenance of future environmental quality within statutory limits after expansion also.

The environmental management strategy as explained above will prove that industrial growth is eminent with 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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