# **PRE-FEASIBILITY REPORT**

# **SUBMISSION TO**

# **MINISTRY OF ENVIRONMENT, FORESTS & CLIMATE CHANGE,**

# NEW DELHI

PREPARED FOR

# **SRI ANJANI MINES & MINERALS**

# [MINE LEASE AREA – 208.300 HA.]

# SY. NO. 324 OF CHABALI VILLAGE AND SY.NO.628 OF THUMMALUR, VILLAGE,

PENDLIMARRI MANDAL, YSR-KADAPA DISTRICT,

ANDHRA PRADESH STATE.

PREPARED BY







ISO 9001: 2008 Certified

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#### **1.0 EXECUTIVE SUMMARY**

#### Introduction:

M/s Sri Anjani Mines & Minerals, has been granted a mining lease area for Iron ore & Laterite over an extent of 208.300 Ha in Sy. No. 324 of Chabali village and Sy.No.628 of Thummalur village, Pendlimarri Mandal, YSR–Kadapa District, Andhra Pradesh State by the Govt. of Andhra Pradesh, vide G.O.Ms.No. 260 I & C (M.III) Department, dated 3<sup>rd</sup> November 2004 for period of 20 years and Copy of the order is enclosed vide Annexure-I for your kind reference.

Later the Mining lease was executed on 27th Nov 2004 for a period of 20 years and copy of the executed lease deed in Form "K" is enclosed vide Annexure-II for your kind reference. Initial Mining Plan for lease grant was approved vide IBM vide Letter No. 659(510) Lat-Iron ore/2004/Hyd, Dated. 16-03-2004. Mining in the lease area was commenced on 15-12-2004. Later a modification in the approved mining Plan was submitted and approved vide Letter No. 659(510) Lat-Iron ore/2004/Hyd, Dated. 05-01-2007. The Scheme of Mining with Progressive Mine Closure Plan was submitted for the period 2009-10 to 2013-14, which has been approved by IBM vide Letter No. MS/AP/CDP/LAT & Fe-220-52 Dated 23-08-2010

#### Site Description:

The mine lease area for Iron ore & Laterite is over an extent of 208.300 Ha in Sy. No. 324 of Chabali village and Sy.No.628 of Thummalur village, Pendlimarri Mandal, YSR–Kadapa District, Andhra Pradesh State.

#### **Choice of Fuel:**

Diesel will be used in mining machinery and vehicles used for mineral transportation.

#### **Common Facilities:**

Office Room, Store Room, First-Aid station, Rest Shelter, Latrines and Urinals will be constructed and maintained at the mine Lease Area.

#### Source & Availability of Water:

Water will be required for dust suppression, plantation and for domestic purposes. Water for the mining activity will be sourced from Ground water.

#### **Pollution Control Measures:**

The air major emission of concern from this mining activity will be dust generation. Applying water for dust suppression on mine haul roads, other areas and development of greenbelt in the ML area. There will be no process waste water generation from the mine and only waste water generation will be sanitary wastewater, which will be treated in septic tank followed by sub surface dispersion. There waste/overburden generation from ML area will be stored in the MI area with necessary measures to stabilize the dump area.

#### **2.0 INTRODUCTION OF THE PROJECT / BACKGROUND INFORMATION**

#### **Identification of Project and Project Proponent:**

The mining activity is for extraction of Iron ore & Laterite excavation in 208.300 Ha. in Sy. No. 324 of Chabali village and Sy.No.628 of Thummalur village, Pendlimarri Mandal, YSR–Kadapa District, Andhra Pradesh State.

#### The Promoters:

The mining activity is for Iron ore & Laterite, excavation would be undertaken by Sri Ch. Krishnamacharyulu, Managing Partner of the firm. The mining activities will be undertaken under the supervision of mines manager.

#### Need For the Project And Importance To The Region:

#### Indian Iron ore – A Brief Snapshot.

India is one of the richest sources of iron ore deposits in the world. Iron ore, which is also known as hematite, occurs in abundance in the country. Interestingly, India holds a leading position in the global list of leading iron ore reserve countries. Moreover, the iron ore reserves are easily accessible and are also of high grade. They are also good for smelting as they are free from impurities like phosphorous and sulphur. Iron ore is vastly distributed throughout the country but its huge deposits are concentrated only in a few selected districts & states.

Of the total iron ore reserves in the country, Chikkamagaluru in Karnataka, Singhbhum in Jharkhand, Sundargarh and Kendujhar in Orissa, Bellary District, Shimoga and Goa accounts for a major portion. Further, in Bihar and Orissa, huge deposits of High grade iron ore occur as huge masses that rise above the adjoining plains. Iron ore generally occur near top of the hills and thus aerial /roadways are used by the iron ore companies to bring down the ore and for loading it directly into the railway carriages. Singhbhum district in Bihar and the neighbouring districts of Mayurbhanj, Sundargarh and Keonjhar constitute the richest high grade iron ore reserves.

In India, the chief mining centres are Sulaipat and Badampur in Mayurbhanj District in Orissa and Gua and Noamundi in Singhbhum district in Jharkhand. The iron ore from these mines is supplied to the iron and steel works located at Jamshedpur, Durgapur, Asansol and Raurkela. The Rajhara and Dhali Hills located south of Bhilai Steel Works are other major sources of iron ore with huge iron content. These hills provide iron ore to the Bhilai Steel Works. Moreover, apart from these places, there is a large high-grade iron ore deposit at Kemmangundi in the Bababudan Hills of Chikmagalur district in Karnataka. This deposit is used for supplying iron ore to steel plant located at Bhadravati.

Interestingly, iron ore found in Goa is basically of high grade and is situated in close proximity to the port of Marmagao. Rich deposits are also found in other areas of the country. Like for instance, eastern region of

Madhya Pradesh and adjacent districts of Maharashtra, rich deposits of iron ore or hematite occur at a number of places. Hematite occurring in regions like Rowghat and Bailadila in Bastar District and Lohara and Pipalgaon in Chandrapur District are generally very large. After the iron belt of Orissa and Bihar, Bailadila and Rowghat constitute the richest high grade iron ore area.

Mining of iron ore on modern lines has been started in the country. Mines in different places have been made fully mechanized and also export oriented. The mines are fully equipped with modern machinery. Other areas with sizeable deposits of iron ore occur are the Salem and Ratnagiri districts Kudremukh in Chikkamagaluru district. These regions consist of low grade magnetite iron ore. Iron ore mines in Kudremukh hills are very developed. Few places in Andhra Pradesh like Kurnool, Kadapa and Anantapur districts and Palamau in Bihar also produce some quantity of iron ore. Production of iron ore in the country has also increased with the passage of time.

#### Demand – Supply Gap & Imports V/s Indigenous generation

#### Indian Iron Ore Industry The World Iron Ore and Steel Industries

Global consumption of iron ore is rebounding strongly. Iron ore is the fundamental raw material in steel-making, and last year's world output of 1.2 billion tonnes of crude steel generated against a demand for 1.7 billion tonnes of iron ore. Even though steel is one of the most recycled materials on earth, scrap provides feed for only about 40% of world output, the balance coming directly or indirectly from newly-mined iron ore. Worldwide, this growth will require an additional 155 Mtpa of iron ore, and will underpin continued strength and market tightness in the iron ore industry.

The world's largest steel producing country is China, where industrialisation and urbanisation have created a new focus of global steel demand. Chinese steel output posted a compound annual increase of 18% between 2000 (127Mt) and 2009 (568Mt). It now matches that of all the advanced economies combined.

#### **Production and Seaborne Trade**

The four major iron ore producing countries are Australia, China, Brazil and India, with each of these countries produce more than 200 Mtpa and since 2000 have provided almost 90% of new global supply. As well as being concentrated geographically, much of the iron ore industry is in the hands of a fewf large companies, with the "Big Three" (Vale, Rio Tinto and BHP Billiton) controlling 35% of world production and 68% of international seaborne trade over the last two years.

Iron ore is sold in a number of forms, of which the most common are the "fines" and "lump" products generated from the crushing and screening of directly mined material. Lower grade ores require further beneficiation to produce concentrates, and both fines and concentrates may also be agglomerated for sale as pellets by mixing them with a binder and baking them in a Rotary grate kiln.

Although China is the world's second largest producer of iron ore, domestically-mined products accounted for only 38% of its iron ore requirement last year, with the remainder being imported from a wide variety of

countries. China's iron ore consumption and imports have continued to rise and global seaborne trade doubled between 2000 and 2009. The three most important suppliers into this market are Australia, Brazil and India. China imported 628 Mt last year, and is by far the largest destination, having overtaken Japan in 2003.

#### India's Place in World Iron Ore and Steel

With total potential resources estimated at 55-65 billion tonnes, India is the world's fourth largest producer of iron ore and the third largest exporter. Production in the Indian Fiscal Year ending March 2009 amounted to 223 million tonnes, from over 300 active mines. Though more fragmented than in Australia or Brazil, India's iron ore industry is served by an extensive network of rail and port infrastructure. It is also growing rapidly – at a compound average rate of around 12.5% per year over the last five years – and during this period exports have consistently accounted for around half of mined output. About two thirds of the country's iron ore production occurs in states connected to eastern ports and broadly matches the location of steel plants. The remainder comes mainly from Goa and Karnataka in the south, and is heavily export-oriented.

India's mines generally have relatively low costs of production, and are very competitive with Australia's Pilbara producers, with shipping distances to China only slightly longer. While their ore quality is variable and there are some constraints on port capacity and vessel size, Indian producers are able to compete effectively on the Chinese spot market by virtue of their ready availability of tonnage.

Some higher-cost marginal operations became unviable in late 2008 when spot prices fell sharply in response to steel industry cut-backs, but they were soon able to return to production when the market improved and the Indian government dropped export taxes on fines.

India's exports to China have grown steadily from 11Mt in 2000 to 108Mt in 2009. The other principal export destinations are Japan, South Korea and Taiwan. Export volumes are indirectly linked to domestic demand because the Indian steel sector's traditional preference for lump creates a fundamental mismatch with the natural lumps-to-fines ratio of the country's mines and deposits. At best, lumps make up 40-60% of average mine production in India's Eastern states, and the figure is as low as 20% for Goa. The growing surplus of fines in India and Chinese import demand provides the basis for India's export success. Fines provided only 11% of the domestic steel industry's feed mix in FY2008- 09, but accounted for 86% of iron ore exports.

Long-term export volumes will be limited by rising domestic demand. The steel industry continues to lobby hard to have iron ore exports restricted. In December 2009 the government reintroduced a 5% export duty on fines and 10% on lumps, but this only added to upward price pressures as Indian producers passed on the increased costs to customers.

The Indian domestic steel industry is well established, and poised to embark on a period of rapid growth to meet expanding domestic demand. India is the world's fifth largest producer of crude steel. Finished steel production in 2008-09 was 56.4 Million tonnes, from capacity of 64.4 Mtpa. In June 2009 the new government announced a policy priority making all endeavours to facilitate achieving steel capacity of 124 Mtpa by 2011-12.One of the most important impediments to developing new steel projects is securing access to raw materials, with

applications for mining leases accompanying many proposals. Most of India's undeveloped iron ore resources occur in protected forest areas, and obtaining permits to mine is a long process. This puts a premium on established mining rights.

#### **Iron Ore Prices and Markets**

Pricing systems for internationally traded iron ore are rapidly evolving. Historically, lumps, fines and pellets were sold on long-term contracts with prices agreed annually. Each year, the major suppliers and steel mills enter into separate negotiations and the first settlement reached sets a benchmark in terms of percentage change, which others have traditionally followed. In 2008, Australian producers broke from this practice and negotiated larger increases than those set in the first settlement between Vale and Nippon Steel. In 2009, no official settlement was reached in China, but "provisional" prices that followed the Japanese market benchmark were applied. Over the last five years a large spot trade for iron ore has developed in China, which the major exporters now consider to be the true indicator of the state of the global market. Spot prices and derived price indexes have become fundamental determinants of "benchmark" prices, which are now expected to become more flexible and responsive to changes in the spot market within each contract year.

Indian export ore contract prices basically follow Australian benchmark price movements, but these mainly apply to traditional Japanese and Korean customers. Contract prices rose 377% between 2003 and the peak in 2008 before the impact of the global financial crisis. They are expected to return to at least that level in 2010. Most Indian ore exported to China is sold into the spot market. In early 2010 it became clear that contract prices would need to almost double in order to equalise with spot market levels. Some Chinese steel mills were already paying provisional price increases, and consensus forecasts as high as +50% for the new contract year were seen as having upside risk. By mid-February 2010 spot prices for 63.5% fines reached US\$115/tonne FOB, more than 90% above contract rates. Furthermore, the global seaborne trade balance is forecast to remain very tight for at

**Employment Generation (Direct & Indirect):** Following man power is proposed for deployment at the mines for the current levels of production planning.

least the next two years, indicating a likely further price increase in 2011.

SI No	Cadre /Designation/Qualifications	Total Employed
1	Mines Manager cum Mining Engineer (B.E (Mining)	) 1
2	Asst Manager (Mines) –Dip in Mining Eng	1
3	Geologist ( M.Sc, Geology)	1
4	Foreman ( Dip Mining Eng/BA(HEP)	1
5	Blaster ( SSC)	1
6	Secretarial Staff (Under Graduate)	1

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7	Drill Operator/ compressor operator	3
8	Shovel & Wheel loader Operator	4
9	Drivers (Tipper)/ others	11
10	Screening plant operators	4
11	Mechanic	1
12	Vehicle Driver	1
13	Unskilled Labour	20
	Total	50

#### **3.0 PROJECT DESCRIPTION**

#### Type of project including interlinked and interdependent projects, if any:

M/s Sri Anjani Mines & Minerals, a mining lease area for Iron ore over an extent of 208.300 Ha in Sy. No. 324 of Chabali village and Sy.No.628 of Thummalur village, Pendlimarri Mandal, YSR–Kadapa District, Andhra Pradesh State was granted by Govt. of Andhra Pradesh vide G.O.M's.No. 260 I & C (M.III) Department Dated 3rd November 2004 for period of 20 years. There are no interlinked and interdependent projects.

It is a category-A project that necessitates obtaining Environmental Clearance from MoEF&CC, Government of India.

#### Location:

The Mine Lease area is located in Sy. No. 324 of Chabali village and Sy.No.628 of Thummalur village, Pendlimarri Mandal, YSR–Kadapa District, Andhra Pradesh State. The ML area is a part of the Survey of India Toposheet No. 57 J/11. The following are the geo-coordinates of the ML area.

B.P. Number	Latitude (N)	Longitude (E)
1	14° 29' 09.6" N	78° 34' 54.6" E
2	14° 29' 00.5" N	78° 34' 55.0" E
3	14° 28' 54.6" N	78° 34' 56.9" E
4	14° 28' 38.9" N	78° 35' 08.7" E
5	14° 28' 36.5" N	78° 35' 17.6" E
6	14° 28' 31.7" N	78° 35' 21.7" E
7	14° 28' 26.2" N	78° 35' 10.6" E
8	14° 28' 20.8" N	78° 35' 13.0" E
9	14° 28' 27.2" N	78° 35' 25.7" E
10	14° 28' 11.1" N	78° 35' 39.9" E
11	14° 28' 00.7" N	78° 35' 49.9" E
12	14° 28' 14.2" N	78° 36' 02.5" E
13	14° 28' 13.2" N	78° 36' 27.6" E
14	14° 28' 24.0" N	78° 36' 29.8" E
15	14° 28' 24.7" N	78° 36' 11.2" E
16	14° 28' 28.9" N	78° 36' 14.5" E
17	14° 28' 29.4" N	78° 36' 33.6" E
18	14° 28' 24.3" N	78° 36' 34.1" E
19	14° 28' 07.9" N	78° 36' 30.3" E
20	14° 27' 59.9" N	78° 36' 29.3" E

21	14° 27' 53.9" N	78° 35' 43.4" E
22	14° 27' 40.9" N	78° 35' 44.4" E
23	14° 27' 44.0" N	78° 36' 27.9" E
24	14° 27' 35.6" N	78° 36' 23.8" E
25	14° 27' 33.2" N	78° 35' 39.6" E
26	14° 27' 53.1" N	78° 35' 37.3" E
27	14° 27' 49.4" N	78° 35' 14.2" E
28	14° 28' 55.6" N	78° 35' 12.8" E
29	14° 28' 06.1" N	78° 35' 35.0" E
30	14° 28' 11.0" N	78° 35' 31.8" E
31	14° 28' 00.8" N	78° 35' 12.0" E
32	14° 28' 40.0" N	78° 35' 05.3" E
33	14° 28' 53.4" N	78° 34' 54.4" E
34	14° 29' 09.5" N	78° 34' 52.0" E

The following is the general location map, surrounding 10 Km. Radius topographical map and. MI area lease sketch maps shown in below.







#### Size Or Magnitude Of Operation:

The project will be for extraction of Iron Ore -1.2 MTPA and Laterite -1.3 MTPA.

#### **Topography:**

The iron ore on the regional scale is a land of low relief and undulating. The area and its environs constitute an undulating terrain with small hummocks and intervening saddles. The area is part of stony waste, (mostly quarzitic in nature). The area is a stony waste terrain through which a fair weather road from Pendlimarri to Chabali passes adjacent to the lease

The terrain of the lease area is almost plain with undulating topography. The lease is situated in a small mound its slope towards NE direction. There is a rain water valley passing through the area. The elevation varies in the lease area from 167 m to 212m from NE to westwards.

#### **Regional Geology:**

The geological formation of the region belongs to Vempalli stage of Papaghni series of Lower Cuddapah. The stratigraphic sequence of the rocks of Cuddapah basin as enunciated by GSI is as under.

System	Series	Stage /Formation
Upper Cuddapah	Krishna Series	Un–Conformity
		Srisailam Stage
		Kolemnala Stage
		Irlakonda Stage
	UNCONF	ORMITY
	Nalamalla Series	Cumbum Stage
		Bairenkonda Stage
	UNCONF	ORMITY
	Cheyair Series	Tadipatri Stage
		Pulivendka Stage
	UNCONFORMITY	
Lower Cuddapahs	Papaghni Series	Vempalli Stage
		Gulcheru Stage
	UNCONF	ORMITY
Arechean Gneisses and Schists		
	UNCONFORMITY	

Geology of the lease area :

The geological sequences of rock formation found in the area on the basis of field observation (marked on the Geological Plan) are as follows.

•	Soil Cover with Float ore	0.3 - 2.0m
•	Shale /Quartzite	1.0 - 5.0m
•	Ferruginous Shale	3.0 - 20 to 30m
•	Quartzite, Ferruginous Quartzite	18- 30.0 to 35m (at places)
•	Chert	> 35-40m

Details of few representative pits with litho units are appended below

The general strike direction of the iron ore formations is East-West direction and dipping about 15° to 20° towards North.

#### Soil Cover with Float Ore:

Some parts of the lease area is covered with soil cover, light reddish brown in colour, rich in iron content and admixed with float iron ore. The float ore is formed from the weathering action and deposited at the lower slopes of hillock.

#### **Quartzites:**

Below the soil cover Quartzite's are observed from the exploration data to a thickness of 3m to 5m.

#### Shale:

It is yellowish white in colour at the contact of the iron ore body. The thickness of the shale varies from 1-3m. At places enrichment of iron ore seen within the shale horizon.

#### **Ferruginous Shale:**

The ferruginous shale formation in this area is beded type which is reddish to grey in colour. The formation is overlying shale. The thickness of the formation is about 20m to 30m. Iron ore is recovered from this formation. The grade of Iron ore from Ferruginous Shale varies from 45% to 56.13% Fe., the recovery is 64% as per the recovery test conducted by Andhra University.

#### **Ferruginous Quartzites:**

Below the ferruginous shale Quartzite's are observed from the exploration data to a thickness of 30m to 35m. ferruginous shale formation in this area is beded type which is reddish to grey in colour. The thickness of the formation is about 25m to 35m. Iron ore is recovered from this formation. The grade of Iron ore varies from 15% to 30% Fe.,

#### **Project Description with Process Details**

#### Mode of Working:

#### Present Method of excavation:

At present, the mine is being operated by open cast other than fully mechanized (OTFM) method. The mine was developed in different pits with depth ranging from 3.0 m to 12.00 m. There are 15 such pits of different dimension in the lease area. Mining operations are being carried out by drilling & Blasting using slurry and ANFO.

#### Proposed method of excavation:

During the scheme period, it is proposed to continue the mining operation by mechanized method by drilling and blasting. Excavation of muck piles will be carried out by hydraulic excavators. Mineral will be dispatched to the destination after processing in crushing and screening in mobile crushing and Screening Plant.

It is proposed to continue the workings in the existing pits advancing towards south direction for systematic and scientific operations. It is proposed to work in general shift of 8 hrs. If necessary workings will be extended upto daylight.

The road gradient of 1 in 16 will be maintained as per MMR 1961. As the mine progresses the ramp positions and the haulage roads will be modified as per requirement. Fuel economy and longevity of transport is taken care while planning the haul roads. Alignment of ramps, linking the main haulage road will undergo changes from time to time, depending on the advancement of the mine.

S.	Type of Machinery	Capacity	Nos. to be
No.			Deployed
1	Excavator EX-60	0.90 cu.m	4
2	Wheel Loader	1.70 cu.m	1
3	Drill Machine	100 mm dia	1
4	Compressor	400cftm	2
5	Tippers	16 tonner	6
6	Water Tanker	5kl	3
7	Generators	63KVA	2

Extent of Mechanization: Details of equipments/machinery being used in the mine.

#### **Raw Materials Required**

Since it is excavation of iron ore, no raw materials are required.

#### Water requirement and its source

The Water required during mining operations will be mainly for dust suppression, plantation and Domestic purpose. The water required will be met from the bore well. The following will be the breakup of it.

S. NO.	ITEM	REQUIREMENT IN KLD
1.	For Dust Suppression within the ML roads	18
2.	For Domestic Use	2.2
3.	For plantation	60
	Total	80.2

#### **Quantity of Waste Generated**

#### Liquid wastes

There will be no wastewater generation from mining activities except the sanitary water which will be treated in septic tank followed by sub surface dispersion.

#### Solid wastes

#### Top soil:

Mine is located on elevated terrain, hence soil thickness is very less. No top soil handling is proposed during scheme period, as the mine workings are proposed in the already broken-up area.

#### Waste:

Waste generated at the mine will be transported to dumping site by 16 tonnes capacity tippers. A wheel loader will be provided to level waste material unloaded by tippers and spread laterally in the area earmarked. Continuous movements of tippers while unloading consolidate the ground. Water will be regularly sprinkled in rounds over the dumped area to control the blowing dust. Thus, with dozing/leveling, dumping will be done. Retaining wall and garland drain are proposed along the toe of the dump to prevent dump wash-off

### **4.0 SITE ANALYSIS**

#### Connectivity:

COMPONENT	DESCRIPTION
Road	The mining lease area is accessible through a Good Motorable asphalted road from Pendlimarri
Rail	Kamalapuram – 14.8 Kms.
Air	Kadapa – 17.3 Kms.
Sea Port	Krishnapatnam port – 164 Kms.

#### **Existing Land Use Pattern:**

Sri Anjani Mines & Minerals a mining lease area for Iron ore over an extent of 208.300 Ha in Sy. No. 324 of Chabali village and Sy.No.628 of Thummalur village, Pendlimarri Mandal, YSR–Kadapa District, Andhra Pradesh. The present land use pattern is Government barren land.

#### **Existing Infrastructure:**

Nil.

#### Soil Classification:

Some parts of the lease area is covered with soil cover, light reddish brown in colour, rich in iron content and admixed with float iron ore. The float ore is formed from the weathering action and deposited at the lower slopes of hillock.

#### **Climatic Data From Secondary Sources:**

The climate in Pendlimarri is referred to as a local steppe climate. During the year there is little rainfall. The climate here is classified as BSh by the Köppen-Geiger system. In Pendlimarri, the average annual temperature is 28.9 °C. The rainfall here averages 691 mm.

#### Social Infrastructure available:

Basic facilities like bus and road facilities are available in nearby villages and Mandal.

#### **5.0 PLANNING BRIEF**

#### **Planning Concept:**

The proposed project involves extraction of Iron ore and laterite.

#### **Population Projection:**

Pendlimarri Mandal of YSR district has **total population of 44,008** as per the Census 2011. Out of which 22,417 are males while 21,591 are females. In 2011 there were total 10,926 families residing in Pendlimarri Mandal. The **Average Sex Ratio of Pendlimarri Mandal is 963**.

As per Census 2011 out of total population, 0% people lives in Urban areas while 100% lives in the Rural areas. The average literacy rate in urban areas is 60.44% while that in the rural areas is 60.4%. Also the Sex Ratio of Urban areas in Pendlimarri Mandal is while that of Rural areas is 963.

The population of Children of age 0-6 years in Pendlimarri Mandal is 5107 which is 12% of the total population. There are 2678 male children and 2429 female children between the age 0-6 years. Thus as per the Census 2011 the **Child Sex Ratio of Pendlimarri Mandal is 907** which is less than Average Sex Ratio (963) of Pendlimarri Mandal.

**The total literacy rate of Pendlimarri Mandal is 60.44%**. The male literacy rate is 63.59% and the female literacy rate is 42.88% in Pendlimarri Mandal.

#### Assessment Of Infrastructure Demand (Physical & Social):

The road facility already available will be used and maintained. The labour required in mining will be taken from the nearby villages and they will be trained for the requirement in mine.

#### Amenities/Facilities:

The area being an existing mine has adequate infrastructural facilities such as communication, power and water resources for carrying on the mining operations comfortably and efficiently. Other amenities for workers and staff will be provided in the mine lease area.

#### **6.0 PROPOSED INFRASTRUCTURE**

#### Industrial Area (Processing Area):

The existing facilities like office, first aid room, shelter room, electricity, drinking water, roads, etc are adequate for carrying out mining operations.

#### **Residential Area (Non-Processing Area):**

There is no proposal for residential area in the ML area or outside the ML area.

#### **Plantation:**

In the existing ML area, plantation has been taken up and more plantation will be developed in the ML area wherever possible with local growing species.

#### Social Infrastructure:

The proponent will extend social benefits like drinking water, health care measures, HIV awareness programme, educational support, promotion of cultural, religious & sports activities, and training for self-employment with initial investment to set up these schemes to the neighboring villagers. Repair & maintenance of school buildings, awarding scholarships for higher studies to the meritorious students from economically weaker section, supply of free books and uniforms to the socially deprived class of students, construction of temples, auditorium, halls for social gathering, clubs, co-operative stores will also be taken up.

Thus, this project is expected to yield a positive impact on the socio-economic environment of the area. It helps in sustainable development of this area including further development of physical & social infrastructural facilities.

#### **Connectivity:**

COMPONENT	DESCRIPTION	
	The mining lease area is accessible through a Good Motorable asphalted road from	
Road	Pendlimarri	
Rail	Kamalapuram – 14.8 Kms.	
Air	Kadapa – 17.3 Kms.	
Sea Port	Krishnapatnam port – 164 Kms.	

#### Industrial Waste Management:

No waste water generation from mining activity except sanitary waste water which will be treated in septic tank followed by subsurface dispersion.

#### Solid Waste Management:

The waste generated from working pits will be dumped in the no mineral bearing area in the existing mine.

## 7.0 REHABILITATION AND RESETTLEMENT (R & R) PLAN

As the ML area granted is Government land, hence no rehabilitation or resettlement plan is required as there are no habitations in the ML area.

## 8.0 PROJECT COST

The cost of mining operations, office room, road formation, and other amenities such as rest room First –Aid Station and so on will be Rs. 250 Lakhs.

#### 9. ANALYSIS OF PROPOSALS (FINAL RECOMMENDATIONS)

The proposed mining activity is for excavation of Iron ore and Laterite and will be beneficial financially and socially considering the project cost, mining costs, environmental cost, cost on health & safety and the various community improvement activities planned.

This mine will provide employment for local people by direct employment which include mine officials, skilled, semi-skilled and unskilled labour and indirect employment, in contractual works & transport. The project proponent will extend social benefits like drinking water, health care measures, HIV awareness programme, educational support, promotion of cultural, religious & sports activities, and training for self-employment with initial investment to set up these schemes to the neighboring villagers. Repair & maintenance of school buildings, awarding scholarships for higher studies to the meritorious students from economically weaker section, supply of free books and uniforms to the socially deprived class of students, construction of temples, auditorium, halls for social gathering, clubs, co-operative stores will also be taken up.