PRE-FEASIBLITY REPORT

FOR

PROPOSED 2 MTPA PELLET PLANT
AT RINL
VISAKHAPATNAM, ANDHRA PRADESH

MEC/1978/01/S2/001-R2 ***March - 2019***

KIOCL & RINL (Joint Venture)
(Govt. of India Enterprise)
Bangalore

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(A Govt. of India Enterprise)
Bangalore, Karnataka.

CERTIFICATE NO: NABET/EIA/1619/RA0068

Project Proponent ***Environmental Consultant***

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EXECUTIVE SUMMARY

Introduction

KIOCL, a pioneer in the field of pelletisation, under the vision of "Make in India" initiative, is planning to expand its pellet production and sale the final products to steel making companies.

Rashtriya Ispat Nigam Limited (RINL) is a market leader in steel long products and it caters to the needs of diverse Industrial sectors.

KIOCL and RINL entered into a MoU for setting up of a state-of-the-art pellet plant at RINL premises, Visakhapatnam, Andhra Pradesh to meet the internal requirement of pellets of RINL.

The Joint Venture (JV) company has planned to set up 2 MTPA pellet plant at RINL premises, Visakhapatnam.

The proposed project falls under 3 (a) Metallurgical industries (Ferrous and Non-ferrous) of MoEF & CC, EIA notification 2006. Travelling grate technology of pelletisation is selected to be adopted for the proposed project.

From the demand and supply analysis, it is expected that India may import pellets to meet our existing blast furnace requirement. In view of this, the JV company has planned to produce pellet to meet the requirement of RINL plant.

About 197 persons are likely to be employed due to the proposed project.

Project description

The proposed project site is spread over 92 acre of land. The actual foot print for the construction will be about 55 acre and balance area i.e 37 acre will be covered with green belt.

The process stages for production of pellets from iron ore fines consists of grinding of ore fines (Feed preparation),Iron ore slurry handling, filtration of iron ore slurry and producing filter cake, formation of green balls and Induration of green balls to convert into pellets. The plant will have suitable dust control measures like ESP and send the collected dust into slurry tank for reuse. The plant will not produce any solid or liquid waste.

The raw materials required are iron ore fines, limestone, coke breeze and bentonite of about 2065380.4; 59098.21; 28859.63 and 13,592.59 T/yr respectively. The raw material will be sourced indigenously.

The estimated water requirement of the project is 84 m^3/hr which will be drawn from existing raw water treatment plant of RINL. The estimated power requirement of the proposed plant is 20 MVA which will be drawn from Gangavaram port grid sub-station of APTRANSCO, through double circuit 132 kV overhead transmission line.

Site analysis

RINL requires pellet for their existing blast furnace. The proposed plant is planned to be co-located within the RINL premises.

The site has well established infrastructure facilities like road, rail , air and sea route. Site is approachable from Gajuwaka on NH 5 connecting Howrah and Chennai. Approach to site is existing through the road network within the RINL premises. Hence, alternative site is not considered.

The terrain elevation ranges between 3m to 5m MSL. The plant is proposed at +4.5 m FGL. The existing land use pattern is industrial. There is no national park, wild life sanctuary, eco sensitive areas within 15 km radius of study area. The area is not falling in CRZ act.

Planning

The project is planned to be executed in 24 months after obtaining statutory clearances. The tentative target of completion is 2021.

Proposed infrastructure

Since, RINL is operating the steel plant, the site is well established and no new infrastructure is required. A green belt of 37 acre is planned within the premises. An individual STP of capacity 10 m^3 is also envisaged.

Rehabilitation & Resettlement (R&R) plan

Rehabilitation & Resettlement is not applicable as the land is designated as industrial land of RINL.

Estimated project cost

The total investment required for this project has been estimated as Rs.1032.8 Crore (INR).

Analysis of proposal

The project will meet the pellet requirement of RINL blast furnace. Social benefits like direct, indirect employment opportunities and CSR activities will further enhance the

socio economic status of the surrounding area. In addition, it will also generate revenue for the district/state. The project may also reduce the import burden of India.

2.0 INTRODUCTION

2.1 General

KIOCL Limited, a flagship company under the Ministry of Steel, Government of India, with Mini Ratna status was formed in 2nd April 1976. The country's prestigious export oriented unit having expertise in iron ore mining, filtration technology & production of high quality pellets has its corporate office at Koramangala, Bangalore & pelletization complex & Blast Furnace Unit at Mangalore, in the coastal city of Karnataka. KIOCL has to its credit ISO 9001:2008, ISO 14001:2004 & OHSAS 18001:2007 certifications. The annual capacity of the pellet plant at Mangalore is about 3.5 Million tons. Pellets produced at the Mangalore plant have excellent metallurgical properties and are an ideal feed for blast furnace and DRI units.

Rashtriya Ispat Nigam Limited (RINL), the corporate entity of Visakhapatnam Steel plant is a Navaratna PSE under the Ministry of Steel. It is the first shore based integrated steel plant in the country and is known for its quality products delighting the customers. It is a market leader in long products and it caters to the needs of diverse industrial sectors. It is the first steel plant to be certified ISO 9001:2008 (presently 2015), ISO 14001:2004 (presently 2015), OHSAS 18001:2007 and ISO/IEC 27001:2013 standards. It is also the first PSE to be certified ISO 50001:2011 - energy management systems and has acquired CMMI level 3 certification for S/W development.

KIOCL, a pioneer in the field of pelletisation, under vision of “Make in India” initiative, is planning to expand the pellet production and sale the final products to steel making companies.

In the light of above, KIOCL and RINL entered into a MoU for setting up of a state-of-the-art pellet plant at RINL premises, Visakhapatnam, Andhra Pradesh. The high flux blast furnace grade pellets produced are intended for usage in blast furnace of RINL.

2.2 Identification of project and project proponent

It has been planned to set up 2 MTPA pellet plant at RINL premises, Visakhapatnam. KIOCL & RINL joint venture is proponent of the project. The corporate office of KIOCL will be involved in obtaining statutory clearances from State & Central Government authorities.

2.3 Brief description of nature of project

The proposed project falls under 3 (a) Metallurgical industries (Ferrous and Non-ferrous) of MoEF & CC, EIA notification 2006. Travelling grate technology of pelletisation is planned to be adopted for the proposed project.

2.4 Need for project and its importance

Steel is material of choice for industrial application due to its high specific strength and relatively low cost for unit weight. Present per capita steel consumption in India is about 59 kg when compared to per capita steel consumption of 500 to 700 kg in developed countries like Japan, European countries, South Korea, USA etc. The developing countries like Brazil, Mexico, and China have per capital consumption of about 110 kg to 150 kg and the world average is about 150 kg which is also very high when compared to Indian per capita consumption. Hence, there is a large scope in India to improve the per capita consumption and thereby need arise to increase the production of steel.

Steel is either produced through blast furnace, basic oxygen furnace route (BF-BOF-CC) or sponge iron/electric arc furnace route (DR-EAF-CC). Principal raw material in BF route is iron ore lumps/sinter and in DR route iron ore lumps/pellets. With a view to minimize the losses of iron bearing materials in the form of fines, utilization of very low grade iron ore in blast furnaces/corex units/DR units after its beneficiation and agglomeration has been an established practice. Blast furnace operators worldwide are using either sinter or pellets or combination of sinter, pellets and lump ore in varying proportions depending on the availability and cost consideration. RINL is presently producing steel through blast furnace route and in order to improve the quality of the steel it intended to establish a 2 MTPA pellet plant to meet their requirement. The entire product will be consumed by RINL.

To meet the demand of pellets for RINL and availability of existing resources like land, water and infrastructures in the site, it is planned to establish the proposed project within the RINL premises.

2.5 Demand and supply gap

Due to availability of high-grade iron ore in the country, iron ore lumps were the main iron bearing material for blast furnaces. However, the sintering technology was adopted gradually keeping in view the utilisation of huge quantity of fines generated during production of calibrated iron ore lumps.

Use of pellets is restricted in the Indian blast furnaces mainly due to high cost of pellets compared to lump ore and sinter. Availability of pellets was also limited in the country as the existing pellet plants are either captive for internal use like Essar-Hazira & Jindal-Vijaynagar or the pellets are exported from the plants like KIOCL & Mandovi Pellets Ltd due to high demand in the international market.

In the recent past, Indian steel producers with major blast furnaces felt the necessity of using pellets in blast furnaces to utilize the iron ore ultra fines generated during mechanized mining.

Tata steel executed a 6 MTPA pellet plant in Jamshedpur to meet the requirements of 10 million tons per annum liquid steel production. Today, Indian blast furnaces are using sinter as major iron bearing material, thus making sinter plant as the integral part of integrated steel plant.

Based on the demand and availability discussed above, the resultant gaps/surpluses of pellets have been worked out and presented in **Table 01**.

Table 01

Demand, availability and resultant gap (-) surplus (+) for pellets in (Million Tonnes)

Year	Demand		Total	Availability	Gaps (-)I surplus (+)	
	Domestic	Exports			Domestic	Exports
2018-19	59.2	0.8	60.0	54.3	-4.9	-5.7
2021-22	80.9	1.0	81.9	74.8	-6.1	-7.1

From the above table, it is evident that country is likely to face a shortage of about 6 million tonne of pellets by 2021-22. It is also expected that the export demand, the gap may widen further.

2.6 Import Vs Indigenous production

In future all the steel making companies have planned to use pellet in their steel production process. From the above gap analysis, if indigenous production is not enhanced India may land into import of pellets. In view of this, increasing the indigenous production would reduce our import burden.

2.7 Export possibility

As stated earlier, there is a good market for pellets. Presently KIOCL is exporting their pellets from Mangalore.

2.8 Employment generation due to the project

The total direct employment likely to be generated due to the proposed project is about 197 personnel of different grades/categories.

3.0 PROJECT DESCRIPTION

3.1 Type of Project Including Interlinked and Interdependent Project, if any.

The proposed project falls under Category “A”, as per EIA notification – 2006 and subsequent Amendments of the Ministry of Environment, Forest & Climate Change, New Delhi. This project is a front-end facility for RINL steel plant.

3.2 Location (map showing general location, specific location and project boundary & project site layout with coordinates).

The proposed area is bounded by
(a) Lat. 17°38'42.22"N, Long. 83°11'42.59"E,
(b) Lat. 17°38'31.35"N, Long. 83°12'09.84"E,
(c) Lat. 17°38'20.87"N, Long. 83°12'04.39"E,
(d) Lat. 17°38'30.00"N, Long. 83°11'40.26"E in Topo sheet no. E44 R2 & R3.

The key map of project location, topographical location and general layout are shown in **Fig. 01** to **03** respectively.

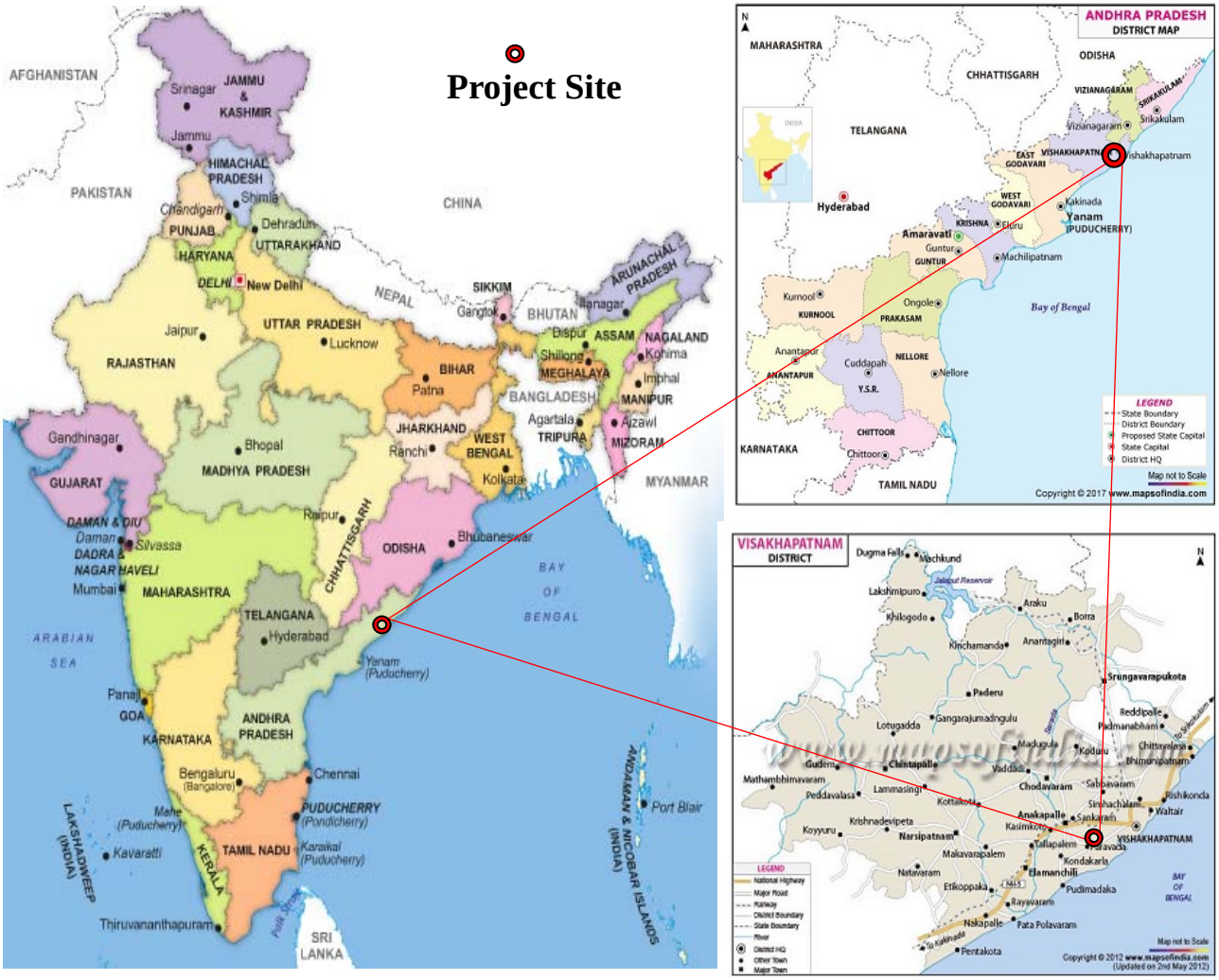
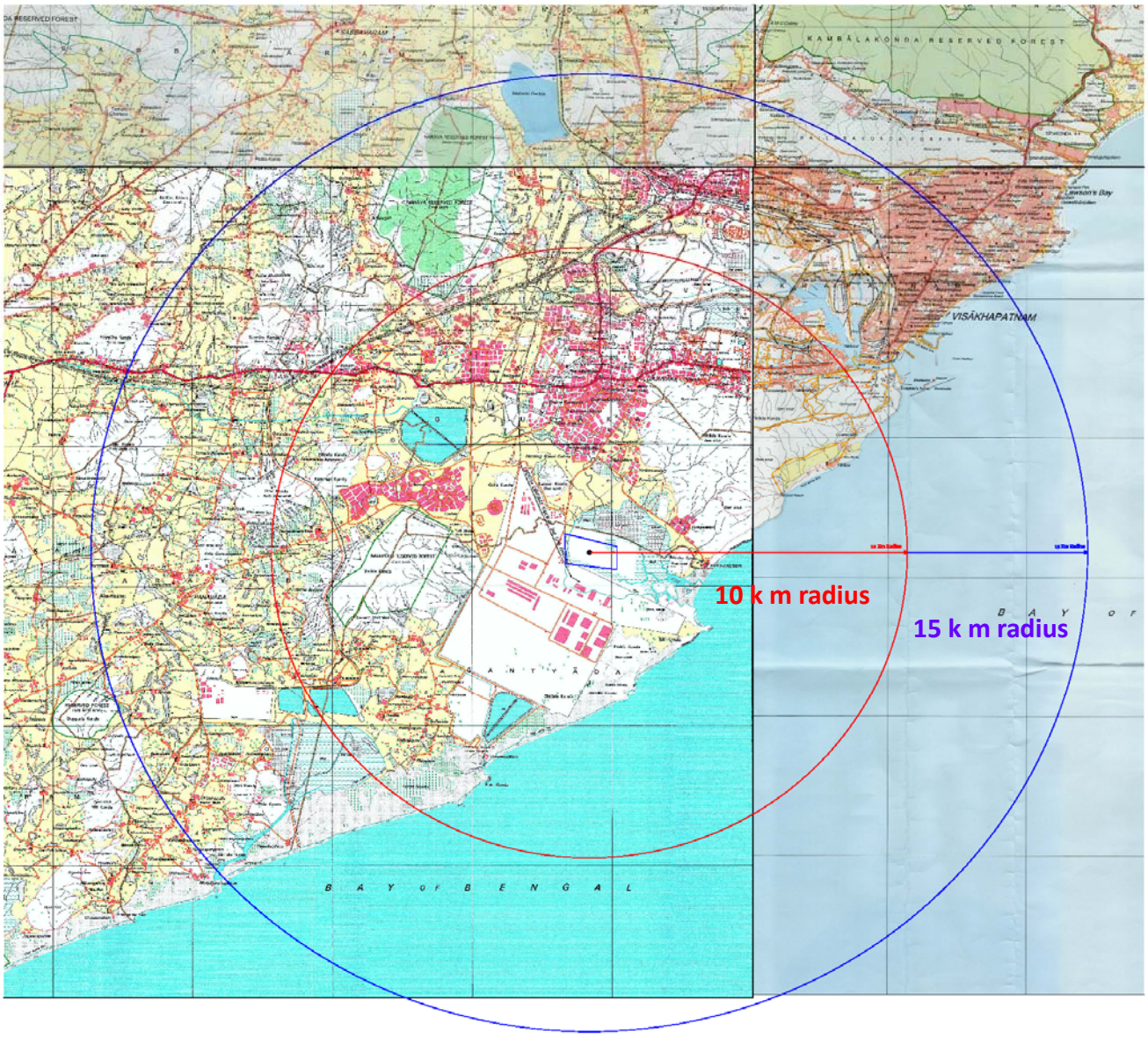


Fig. 01 Key map of project location



Topo sheet no. E44 R2 & R3
E44R5
E44R6
E44R1

Source :SOI Toposheet

Fig. 02 Topographical map of project site

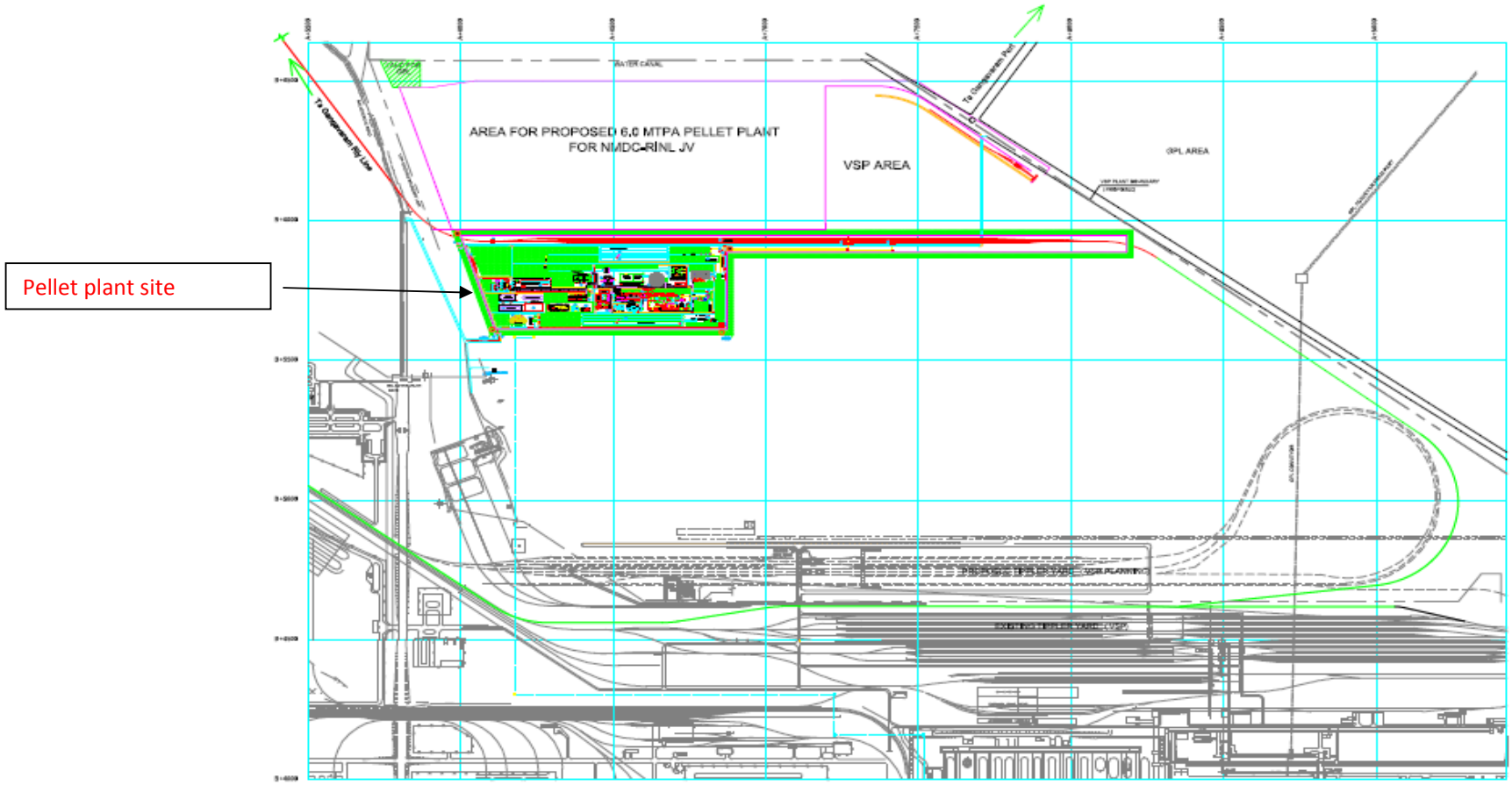


Fig. 03 General layout of pellet plant

3.3 Details of alternate sites considered and the basis of selecting the proposed site, particularly the environmental considerations gone into should be highlighted.

The proposed project site is within RINL premises. As such, alternative sites are not considered because the pellets are planned to be consumed for RINL steel plant.

3.4 Size & Magnitude of Operation.

The proposed project site is spread over 92 acre of land. The actual foot print for the construction will be about 55 acre. The magnitude of operation is 2 MTPA.

3.5 Project description with process details (a schematic diagram/flow chart showing the project layout, components of the project, etc. should be given)

The process stages for production of pellets from iron ore fines are as follows:

i) Grinding of ore fines (Feed preparation)
ii) Iron ore slurry handling
iii) Filtration of iron ore slurry and producing filter cake
iv) Formation of green balls
v) Induration of green balls

Grinding (Feed preparation)

- In the first phase of the project, iron ore fines will be received from Gangavaram port by road. Truck tippling station is envisaged inside the pellet plant boundary and a conveyor system will stockpile iron ore fines in open yard. Necessary water spray arrangements along the length of the bed shall be provided for dust suppression system to ensure clean air in the surroundings
- It is planned to have wet grinding circuit instead of dry circuit, to reduce the pollution and lower energy consumption. Ball mills are envisaged in closed circuit with hydrocylones for grinding. The ground material will be sent to thickeners from where it will be pumped to filtration unit.

Filtration of iron ore slurry

The slurry from thickener is filtered to obtain filter cake. Four number of pressure filters have been considered to filter the ball mill slurry.

Formation of green balls

The filter cake along with additives are converted to green pellets after thorough mixing. The degree of fineness of input materials, critical amount of water, amount of binder in the mix, etc. are most important for production of green pellets with adequate compression strength and size. The critical amount of water varies from 8 to 13% depending upon the nature of feed material.

The type of equipment selected for production of green pellets is disc pelletiser.

Induration of green balls

The green pellets of desired size are subjected to thermal treatment viz. drying, preheating, firing and cooling; during which the pellets attain adequate strength to withstand handling, transportation and charging into furnace besides increased porosity, reducibility, reduction strength, etc. The travelling grate process is selected for induration.

Travelling grate process

The travelling grate machine consists of three main parts:

- The central part is movable and consists of pallets, composed of a frame and a supporting structure into which grate bars are inserted. The pallets are connected by means of sliding seal bars with the wind boxes in a gas tight manner

- The bottom part is composed of stationary wind boxes connected with gas mains and the moving grate.

- The upper part comprises the heat energy and air supply system in a stationary hood above the grate.

The system serves to carry the necessary drying, heating or cooling gases through the pellet bed. Important process equipment are the fans with which the process gases are moved through the charge. At one end, the green balls are charged and the indurated pellets leave the grate at the opposite end. The entire thermal treatment is achieved during one passage of pallets. To protect the grate bars from thermal shocks, hearth and side layers of indurated pellets are used.

The list of facilities for the proposed plant are given in **Table 02**.

Table 02
List of facilities for the proposed pellet plant

Sl. No.	Unit name
1	Iron ore day bin building
2	Iron ore grinding building
3	High rate thickener
4	Slurry storage tank
5	Filter feed pump house
6	Filtration building
7	Storage shed for filter cake
8	Storage shed for bentonite
9	Storage shed for coke breeze
10	Additive grinding building
11	Mixing & balling building
12	Induration building for straight grate machine
13	ESPs & process fans
14	Process chimney
15	Central control room
16	Hearth layer separation building & product screening

Sl. No.	Unit name
17	Dedusting unit for hearth Layer Separation Building (HLSB) & chimney
18	Dedusting unit for Induration discharge end & chimney
19	Fines bin building
20	Pellet stockyard
21	Furnace oil and Light Diesel Oil (LDO) storage unit & fuel oil pump house
22	Main Receiving Sub Station (MRSS)
23	Diesel generator
24	Load Centre Sub Station (LCSS)
25	Central laboratory
26	Compressed air station
27	Water pump house and soft water treatment plant

The schematic flow diagram is shown in **Fig. 04.**

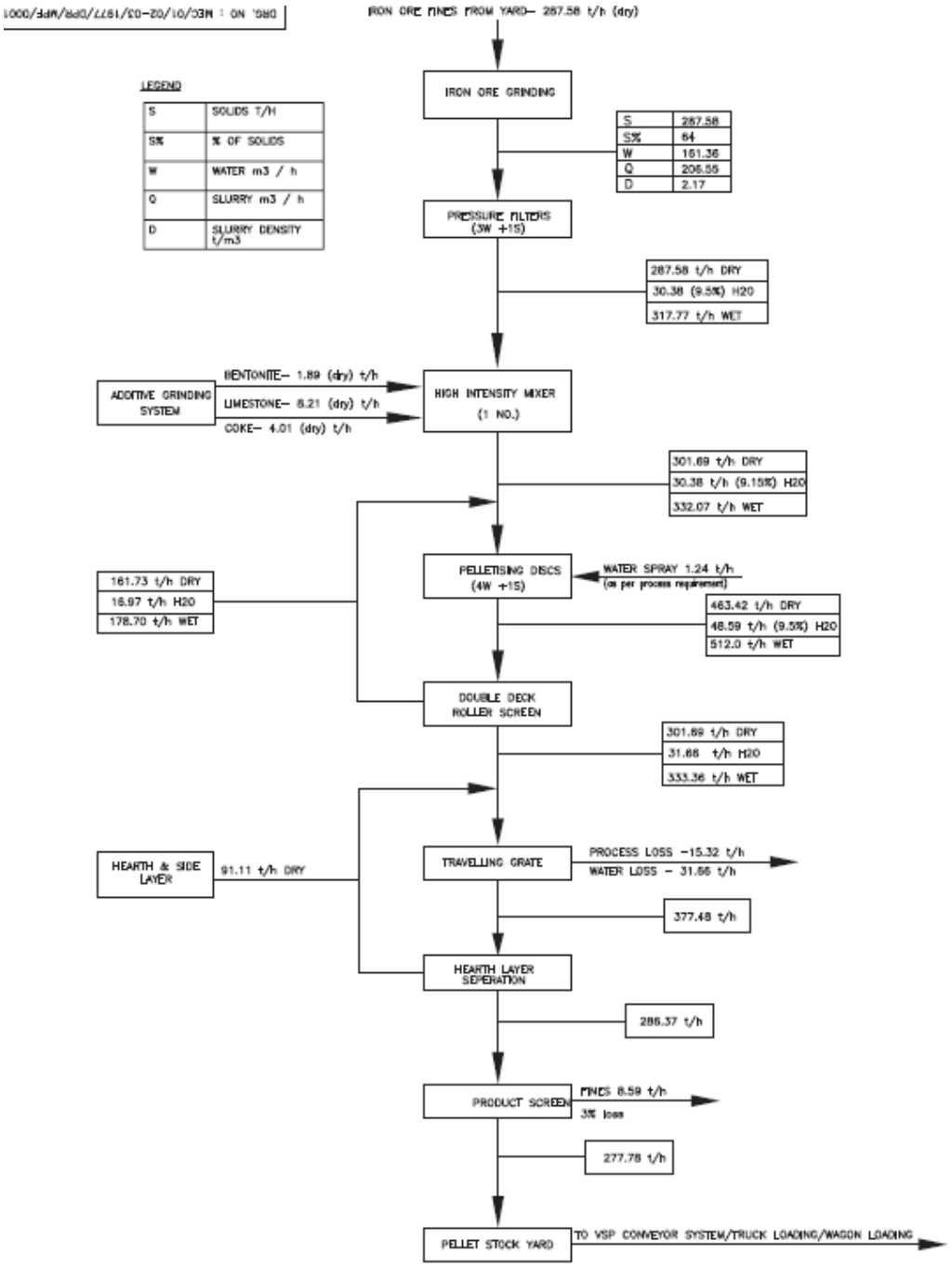


Fig. 04 Schematic flow diagram of pellet plant

3.6 Raw material required along with estimated quantity, likely source, marketing area of final products, mode of transport of raw material & finished product:

The raw material requirement for the project are given in **Table 03**.

Table 03
Raw material requirement

Sl. NO.	Raw material	Quantity (T/Year)	Source
1	Iron ore fines	2065380.4	Indigenous(NMDC, Chhattisgarh and other sources from Odisha)
2	Limestone	59098.21	Indigenous (Nearby locations)
3	Coke breeze	28859.63	Indigenous (From RINL and other sources)
4	Bentonite	13,592.59	Indigenous (From Kutch)

The final product will be used within RINL steel plant.

3.7 Resource optimization/recycling and reuse envisaged in the project, if any, should be briefly outlined

- The iron ore fines collected from ESP will be recycled back to slurry tank
- The used up engine oil/transmission oil/hydraulic oil will be collected and stored in barrels. The same will be then processed through an external agency to make it amenable for its re-use
- Extensive recycling will be adopted in the design of plant water systems. The filtrate water from pressure filters will be re-circulated back into thickener. Quality of circulating water will be maintained through dosing of conditioning chemicals for controlling corrosion, scale deposit and microbial growth
- Rainwater harvesting is planned to feed the make-up water

3.8 Availability of water its source, energy/power requirement and source

Water requirement

The water requirement of the pellet plant is estimated at about 84 m^3/h. This will be drawn from existing raw water treatment plant of RINL.

Power requirement

The estimated power requirement of the proposed plant is 20 MVA. A new transmission line is proposed for drawing power from Gangavaram port grid sub-station of APTRANSCO, through double circuit 132 kV overhead transmission line. The substation is located approximately 2.5 km away from the proposed MRSS considered for the pellet plant.

3.9 Quantity of waste to be generated (Liquid and solid) and scheme for their management:

No solid and liquid effluent will be generated from the pellet plant. Recirculation of waste water generated from filter plant is envisaged.

4.0 SITE ANALYSIS

4.1 Connectivity

Road: Site is approachable from Gajuwaka on NH 5 connecting Howrah and Chennai. Approach to site is existing through the road network within the RINL premises. Transportation of heavy equipment from manufacturer's works to site shall be by road and by railway network.

Rail: The nearest railway station is Duvvada which is about 12.6 km from project site.

Air: Visakhapatnam Airport is at a distance of 14 km

Port: Gangavarm port is adjacent to the site.

4.2 Land form/land use & its ownership

The proposed plant is co-located in RINL premises. The proposed plant site is barren and partially water logged and meant for industrial use. The land is belongs to RINL.

4.3 Topography (along with map)

The terrain elevation ranges between 3m to 4 m MSL. The topographical map is shown in **Fig. 02**.

4.4 Existing land use pattern (agriculture, non-agriculture, forest, water bodies (including area under CRZ)), shortest distances from the periphery of the project to periphery of the forests, national park, wild life sanctuary, eco sensitive areas, water bodies (distance from the HFL of the river), CRZ. In case of notified industrial area, a copy of the Gazette notification should be given.

The existing land use pattern is industrial. There is no National park, wild life sanctuary, eco sensitive areas within 15 km radius of study area. The area is not falling in CRZ act.

4.5 Existing infrastructure

The proposed site is well connected by road, rail, air and sea as such the site is within the existing RINL steel plant. The power and water is available at convenient distance and tapping arrangement will be carried out.

4.6 Soil classification

The soil type in Visakhapatnam is mostly sandy, sandy clay and loam.

4.7 Climate data from secondary sources

Visakhapatnam has a tropical wet and dry/savanna climate (Köppen-Geiger classification) with a pronounced dry season in the low-sun months, no cold season, wet season is in the high-sun months. According to the Holdridge life zones system of bioclimatic classification Visakhapatnam is situated in or near the subtropical dry forest

biome.The historical meteorological data collected from meteorological department are discussed below.

a) Wind speed and direction

The yearly frequency distributions (historical data) for the year 1991 to 2000 in the form of wind rose is shown in **Fig. 05.** From the figure (historical data) it is evident that the predominant wind direction is observed to be south west in day time and east in night time with a frequency of about 22.4% and 16.9% respectively. **Table 04** gives the summary of annual wind pattern for 10 years. This historical data has been used as a base for selecting the sampling locations.

Table 04
Summary of annual wind pattern (1991-2000)

Season	Predominant wind direction (%)		Predominant wind speed (kmph)		Calm (%)	
	08.30	17.30	08.30	17.30	08.30	17.30
Annual	SW (22.4)	E (16.9)	5.0-11.0 11.0-19.0 19.0->19.0	5.0-11.0 11.0-19.0 19.0->19.0	19.7	4.4

Source-IMD, Visakhapatnam (1991-2000)
IMD Lat: $17^0$53, 24" Long: 83^0 27, 03"

The ten years consolidate data reveals that the predominant wind direction is observed to be in SW direction. Generally, light to moderate winds prevail throughout the year. Winds were light and moderate particularly during the morning hours. While during the afternoon hours the winds were stronger.

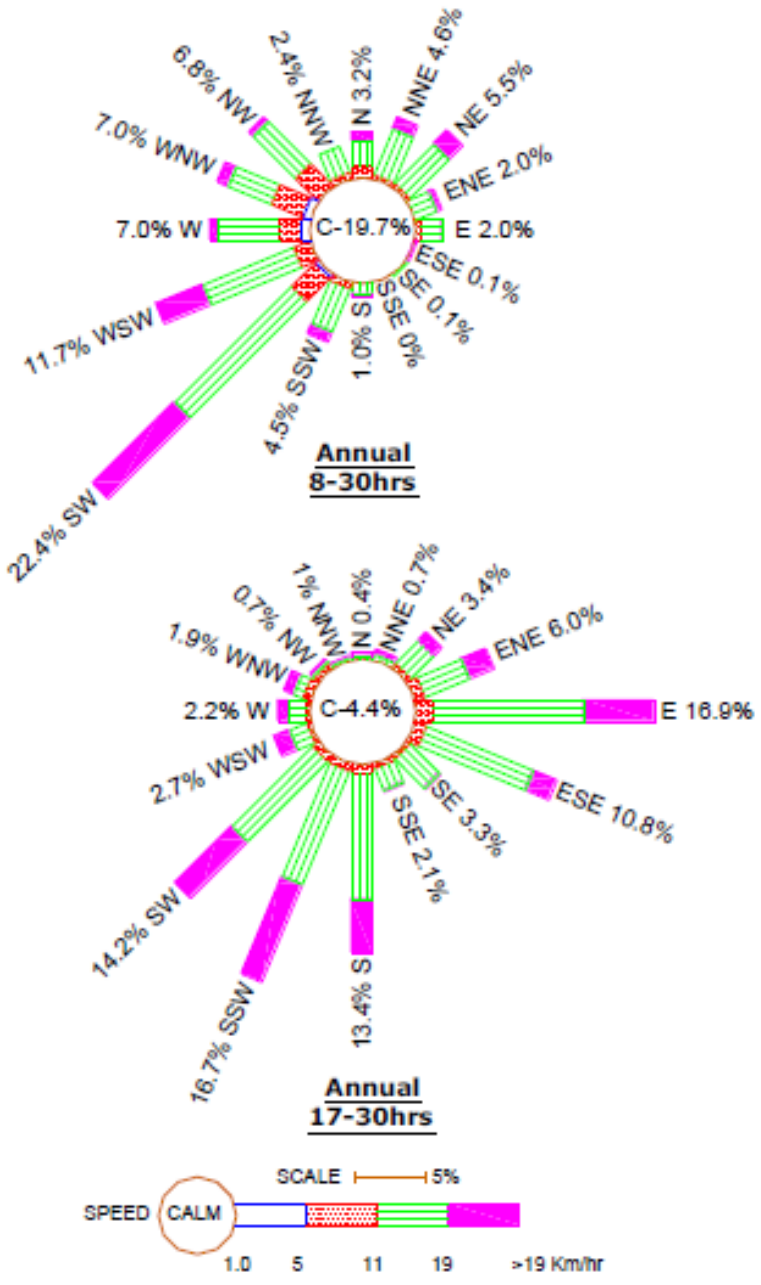


Fig. 05 Day and night wind rose for the year 1991-2000

b) Temperature

The monthly data of temperature for Visakhapatnam district were collected from Indian Meteorological Department, Visakhapatnam for the 10 years (1991- 2000) period and the same is presented in the **Table 05**. From the table, it can be observed that May is the hottest month of the year with maximum monthly temperature of 37.7°C while the coldest month is January with minimum monthly temperature of 15.8°C. The rest of the

months, the average maximum temperature varies between 30.3°C and 37.7°C while the average minimum temperature normally varies between 15.8°C and 26.7°C.

Table 05
Temperature during 1991-2000

Source - IMD	Month	Mean temperature (^{0}C)	
		Minimum	Maximum
	Jan	15.8	30.3
	Feb	18.1	33.7
	Mar	22.3	35.4
	Apr	24.2	36.2
	May	26.6	37.7
	Jun	26.7	35.5
	Jul	25.3	35.1
	Aug	25.4	34.1
	Sep	24.5	33.5
	Oct	24.1	33.6
	Nov	19.9	32.3
	Dec	15.9	30.3
Range			
Annual		15.8-37.7	

c) Humidity

The monthly data of relative humidity for Visakhapatnam district were collected from IMD, Visakhapatnam for the 10 years (1991 - 2000) period is presented in the **Table 06.** From the table, it is evident that the annual average relative humidity for day and night is 81 and 63% respectively.

Table 06
Relative humidity during 1991 - 2000

Month	Relative Humidity (%)	
	08.30	17.30
Jan	80	66
Feb	77	65
Mar	72	65
Apr	68	68
May	68	70
Jun	72	70
Jul	78	74
Aug	79	74
Sep	81	79
Oct	77	77
Nov	72	70
Dec	71	63
Annual	63-81	

d) Rainfall

Ten years rainfall data for Visakhapatnam (1991 to 2000) as collected from IMD are provided in **Table 07.** From the table, it can be observed that the monthly rainfall in this region for ten years is varied between 5.0 mm and 337.2mm. The annual average rainfall in Visakhapatnam is 1296.4 mm.

Table 07
Rainfall during 1991-2000

Month	Rainfall in mm
Jan	11.9
Feb	13.2
Mar	5.0
Apr	20.0
May	69.9
Jun	132.8
Jul	116.8
Aug	233.4
Sep	201.5
Oct	337.2
Nov	147.4
Dec	7.3
Annual	1296.4

Source-IMD, Visakhapatnam

4.8 Social infrastructure available

The plant is located in Village Gajuwaka which is part of city Visakhapatnam, State Andhra Pradesh. The area is about 20 km from Visakhapatnam city where all social amenities and infrastructure are available.

5.0 PLANNING (TYPE OF INDUSTRIES, FACILITIES, TRANSPORTATION ETC) TOWN AND COUNTRY PLANNING/DEVELOPMENT AUTHORITY CLASSIFICATION.

The major phases of the project during its implementation are as follows:

These include

- Approval of the project for implementation
- Financial tie-up
- Appointment of EPCM consultant
- Finalization of modus-operandi for project
- Clearance from statutory authorities
- Site leveling, jungle clearance site survey and soil investigation
- Placement of order for site leveling work
- Enabling works like construction water lines, power lines and sewerages, labor camps, communication facilities
- Planning for construction materials like cement, steel, etc., wherever needed
- Planning and organizing structural steel availability, wherever needed

The project has to be executed in 24 months' time.

5.1 Population projection

The area surrounding the plant site is having many villages in 10 km radius. There would be meagre influx of population of about 1000 people for associated activities in the project nearby area.

5.2 Land use planning (breakup along with green belt etc.)

About 92 acre is allotted by RINL for the proposed project. Out of which 55 acre is earmarked for pellet plant and 37 acre is planned for green belt development.

5.3 Assessment of infrastructure demand (Physical & social)

The area is already developed and all ancillary facilities are available in RINL area.

5.4 Amenities/facilities

The area is already developed and all ancillary facilities are available in RINL area.

6.0 PROPOSED INFRASTRUCTURE

6.1 Industrial area (processing area)

The existing area of 80 acre will be used for construction and development of project.

6.2 Residential area (non-processing area)

Residential area is not planned for the project.

6.3 Green belt

About 24 acres of land is proposed for green belt development.

6.4 Social infrastructure

The project proponent will strengthen the existing social infrastructure under CSR activities as per guidelines.

6.5 Connectivity (traffic and transportation road/rail/metro/water ways etc.)

The site is well developed and no new road/rail/metro/water ways is required for the project.

6.6 Drinking water management (source & supply of water)

The fresh water requirement of the plant is estimated as 84 m^3/h. The requirement from the existing facilities of RINL.

6.7 Sewerage system

The estimate sewerage generation is about 10 m^3/day and it will be treated in a MBR based STP.

6.8 Industrial waste management

No industrial waste is likely to be generated.

6.9 Solid waste management

Municipal solid waste of about 120 kg is expected from the plant which will be disposed suitably.

6.10 Power requirement & supply/source

Refer section 3.8.

7.0 REHABILITATION & RESETTLEMENT (R&R) PLAN

Rehabilitation & resettlement is not applicable as the land is designated as industrial land of RINL.

8.0 PROJECT SCHEDULE & COST ESTIMATES

8.1 Likely date of start of construction & likely date of completion (Time schedule for the project to be given)

Implementation plan

The project is likely to be started after obtaining statutory clearance in 2019 and likely to be completed in 2021. The project schedule is 24 months.

8.2 Estimated project cost along with analysis in terms of economic viability of the project

Capital cost

The total investment required for this project has been estimated as Rs.1032.8 Crore (INR)

9.0 ANALYSIS OF PROPOSAL (FINAL RECOMMENDATION)

The proposed project will have the following benefits:

- The project will meet the pellet requirement of RINL blast furnace
- The following social benefits are expected from the project
  - Direct and indirect employment
  - CSR activities as per guidelines will uplift the socioeconomic condition of the area
- In addition, it will generate revenue for district/state
- The project may reduce the import burden of India