

## CHAPTER-1 INTRODUCTION

### Company Profile

**Shree Ram Electro Cast Pvt. Ltd.**, was incorporated on 12<sup>th</sup> August, 2004 having registered office 8 Camac Street Shanti Niketan Building 9<sup>th</sup> Floor Room No. 8 Kolkata-17, West Bengal. Directors of the company are Mr Mukesh Bhandari, Mr. Shailesh Bhandari, Mr. Avinash Bhandari and Mr R K Purohit.

**Table 1.1 Existing Manufacturing Facilities**

Unit	Capacity	Location
Pig Iron Plant	120,000 TPA	Honarhalli, Hatcholi Post, Sirguppa Talluk, Bellary
Captive Power Plant	2.5MW	District, Karnataka

### Project profile:

After successful operation of existing steel Plant and power plant at Honarhalli, Post - Hatcholi, Taluk- Siruguppa, Dist.- Bellary and keeping in view growth potential in the steel sectors, the promoters had decided to set up a Ductile Iron Pipe plant of 120,000 TPA as value addition project and obtained the MOEF clearance (vide No J-11011/498/2010-IA-II (I) dated 22<sup>nd</sup> June 2011). This project is in the implementation phase.

Now it is proposed to modernize the Pig Iron Plant to improve the fuel efficiency and capacity from 120,000 TPA to 200,000 TPA and set up the Coke Oven Plant, Expand the Ductile Iron Pipe plant from 120,000 TPA to 200,000 TPA, Sinter Plant, Cement grinding plant and Captive Power Plant at the existing Site for production of Metallurgical coke, D.I. Pipe, Sinter, Slag cement and Power. Due to total integration, the proposed project would improve the overall profitability of the project making it financially more viable. The proposed project envisages the followings manufacturing facilities:-

### Proposed Project Details

Sl.No	Items	Particulars
1	Objective of the Project	<ul style="list-style-type: none"><li>• <b>Expansion of Pig Iron Plant from 1,20,000 to 2,00,000 TPA</b></li><li>• <b>Coke Oven Plant - 1,60,000 TPA</b></li><li>• <b>Captive Power Plant - 30 MW</b></li><li>• <b>Expansion of Ductile Iron Pipe Plant from 1,20,000 to 2,00,000 TPA</b></li><li>• <b>Sinter Plant- 3,00,000 TPA</b></li><li>• <b>Cement Grinding Plant - 1,00,000TPA</b></li></ul>
2	Promoters	<b>M/s. Shree Ram Electro cast Pvt. Ltd.</b>

3	Investment for Expansion	415 Crores
4	Project location	Sy.No.s 80, 81/A3, 95/A1, 95/A3, 96/A1, 96/A3, 97/1, 97/3, 98/A/1A, 98/A/1B, 98/A3, 98/B1, 98/B3, 98/C1,98/C3, 98/D1, 98/D3, 99, 100, 103, 104, 105 and 106 of Honnarahalli Village and Sy, No57/C/1, 57/D/1, 57/A/1A, 57/A/2A, 57/A/3A, 57/B/A, 57/A/4A., 77/A, 77/B, 78/A and 78/B of Halkote Village, Post - Hatcholi, Taluk- Siruguppa, Dist.- Bellary, Karnataka - 583 114
5	Extent of land	The land available with SREPL is 114.97 acres. Proposed additional land to be acquired through KIADB is 25.42 acres.
6	Category of Project	A
7	Water demand and Source	Existing water consumption 1200 KLD (PIG Iron plant-500 KLD, DIP Plant- 700 KLD) Proposed plant requirement 2215 KLD Total water requirement after expansion = 3415 KLD. Source: Tungabhadra river. Withdrawal permission for 4150 KLD for the expansion seeking from Government. (Order No: CI 57 SPI 2011, Bangalore Dated 25.02.2011.)
8	Power demand	26000 KVA after expansion

**Environmental settings around the proposed project site (Within 10 kms radius)**

Sl. No	Feature	Particulars
1.	Location	Honnarahalli village, Siruguppa taluk, district, Karnataka.
2.	Present land use	Industrial and agricultural land
3.	Altitude above mean MSL	475 m
4.	Temp. <sup>o</sup> C (Range)	Max. 31.0 to 41.2 and Min. 10.7 to 20.6
5.	Mean Annual humidity & RF	65 % and 645 mm
6.	Soil type	Black cotton mixed loamy soil

7.	<b>Topography</b>	<b>Plain terrain sloping towards NW</b>
8.	<b>Nearest State Highway</b>	<b>S.H.-19(Srirangapatna - Bidar), 8.2 km,</b>
9.	<b>Nearest railway station</b>	<b>None with in 10 km radius (Adoni-36.4 km in NE direction (S.C. Railway)</b>
10.	<b>Nearest airport</b>	<b>None with in 10 km radius. Bellary air strip; 63 kms (S) Hyderabad air port is about 227 km in NE.</b>
11.	<b>Nearest village</b>	<b>Honnarahalli, 1.4 km. in N</b>
12.	<b>Nearest town</b>	<b>Siruguppa 13.5 km, SW</b>
13.	<b>Nearest major city</b>	<b>None with in 10 km radius, Bellary, 66.4 km, SW</b>
14.	<b>Nearest river</b>	<b>Tungabhadra river , 1.8 Km , NW</b>
15.	<b>Nearest industry</b>	<b>None with in 10 km radius, Siruguppa Sugar 12 km.</b>
16.	<b>Sensitive locations</b>	<b>No Archeological structures, Historical places, Protected Forests, Sanctuaries and Biosphere Reserves present within 10 kms from the Industry.</b>

## **CHAPTER-2 PROJECT DESCRIPTION**

### **MODERNISATION OF PIG IRON PLANT**

In order to modernize the pig iron plant the following units will be installed:

- Hot blast stoves
- Pulverised coal injection system
- Oxygen injection unit
- Steam Injection unit

### **COKE OVEN PLANT**

Shree Ram Electrocast Pvt Ltd plans to set-up a heat recovery type stamp charged coking plant to produce about 160,000 tons of gross coke per year and to generate electricity by making use of the waste flue gas from coking plant. The production facilities will contain coal preparation plant, coking plant and coke screening plant and waste heat recovery boilers.

### **CAPTIVE POWER PLANT**

The Waste heat recovery boilers will utilize the latent heat of the flue gas from the coke ovens. AFBC boiler will utilize non coking coal for firing in the boiler. The coal requirement will be 125,000 TPA or equivalent. The power generation capacity will 30 MW.

### **DUCTILE IRON PIPE PLANT**

Hot metal received from blast furnace is charged along with steel scrap and ferro alloys. Magnesium is added The ductile iron pipes are made using centrifugal casting machine and heat treatment is carried out in annealing furnace. Zinc coating, pressure testing, cement mortar lining and bituminous coating will be carried out.

### **SINTER PLANT**

Sintering is a technology for agglomeration of iron ore fines into useful Blast Furnace burden material. The raw materials used in sinter plant are - Iron ore fines (-10 mm), coke breeze (3 mm), Lime stone & dolomite fines (3mm) and other metallurgical wastes. The proportioned raw materials are mixed and moistened in a mixing drum. The mix is loaded on sinter machine. The top surface of the mix is ignited through stationary burners at approximately 1200 °C. Sinter is produced as a combined result of locally limited melting, grain boundary diffusion and recrystallisation of iron oxides. On the completion of sintering process, finished sinter cake is crushed and cooled.

### **Cement grinding unit**

The raw materials Clinker and Granulated Slag are stocked in separate hoppers. These are discharged from the hopper with the help of two table feeders to the belt conveyor. Gypsum is added and all the materials are properly mixed and through a feeder materials are charged into the ball mill for grinding into powder form. The product is packed and sold out.

### CHAPTER-3.0 BASELINE ENVIRONMENTAL SCENARIO

<b>Environmental Attributes</b>	<b>No of Locations</b>	<b>Observations</b>
<b>Meteorology</b>	1	Hourly observations for Temperature, Relative Humidity, Wind direction, wind speed & Rain fall during 3 month study period
<b>AAQ</b>	8	For all the parameters as per National Ambient Air Quality Standards, 2009 for 24 hours duration, 2 times in each week during 12-week study period
<b>Water</b>	9	3 Surface water Locations 6 Ground water locations (including the place near to the plant site) Parameters that are analyzed are as per <b>Analysis of Drinking Water Quality</b> had been carried out
<b>Noise</b>	6	Day and night noise levels once in every location
<b>Soil</b>	05	At 5 locations.
<b>Ecology</b>	Flora-Fauna & Ecosystem	Total study period is 90days. However predicted flora - fauna also included for non-seasonal plant species (ephemerals) based on existing secondary data and field conditions
<b>Land use</b>	10 km radius study area	Land use data based and satellite imagery data of the 10 km study area.
<b>Socio-</b>	Demography	Secondary data from the existing literature (Census

<b>economic data</b>	&Occupation al details	2001)
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**CHAPTER-4.0 ANTICIPATED IMPACT AND MITIGATION MEASURES  
IMPACT IDENTIFICATION MATRIX**

Sl.No	ACTIVITIES	ENVIRONMENTAL ATTRIBUTES									
		Air	Noise	Surface Water	Ground water	Climate	Land /soil	Ecology	Socio Economics	Aesthetics	Health
		<b>CONSTRUCTION PHASE</b>									
1.	Site Clearing/leveling	✓	✓				✓				✓
2.	Excavation activities	✓	✓				✓				
3.	Ready-mix concrete preparation (indirect)	✓	✓				✓				
4.	Transportation of Construction materials	✓	✓								✓
5.	Construction activities on land	✓	✓				✓				✓
6.	Laying of roads	✓	✓				✓				
7.	Labour camps	✓		✓			✓			✓	
8.	Movement of Vehicles	✓	✓								
9.	Construction Debris	✓					✓				
10.	Excavated Earth									✓	
11.	Disposal of Sewage			✓						✓	✓
12.	Disposal of Solid waste						✓			✓	✓



## CHARACTERISTICS OF ENVIRONMENTAL IMPACTS FROM CONSTRUCTION ACTIVITIES

Activity	Environmental Attributes	Cause	Impact characteristics			
			Nature	Duration	Reversibility	Significance
Site clearing/ Leveling activities	Air Environment	Dislodging of particles from the ground	Direct, Negative	Short-Term	Reversible	Medium
	Noise Environment	Noise generation from earth excavating equipment	Direct, Negative	Short- Term	Reversible	Medium
	Land use/Soil Environment	Excavation	Direct, Negative	Long Term	Irreversible	High
	Ecology	Removal of vegetation or loss of flora	Direct, Negative	Short- Term	Reversible	Medium
	Health	Dislodging of particles (SPM/RSPM) from the ground	Direct, Negative	Short- Term	Reversible	Medium
	Air Environment	Dislodging of particles from the ground	Direct, Negative	Short-term	Reversible	Medium
Excavation Activities	Noise Environment	Noise generation from earth excavating equipment	Direct, Negative	Short- Term	Reversible	Medium
	Land use/Soil Environment	Excavation	Direct, Negative	Long Term	Irreversible	High
	Health	Dislodging of particles (SPM/RSPM) from the ground	Direct, Negative	Short- Term	Reversible	Medium
Ready Mix Concrete preparation	Noise Environment	Noise generation from batching plants/tools, machineries	Direct, Negative	Short- Term	Reversible	Medium
	Land use/Soil Environment	Mixing up with soil	Direct, Negative	Short Term	Reversible	Low

Transportation of construction materials	Air Environment	Transport of construction material in trucks & Exhaust emission from vehicles	Direct, Negative	Short- Term	Reversible	Medium
	Noise Environment	Noise generation from vehicles	Direct, Negative	Short- Term	Reversible	Low
	Health	Risk of accidents during transit	Direct, Negative	Short- Term	Reversible	Medium
Construction activities on Land	Air Environment	Operation of construction machinery, welding activities and others	Direct, Negative	Short- Term	Reversible	Low
	Noise Environment	Noise generation from use of machinery	Direct, Negative	Short- Term	Reversible	Medium
	Land use/Soil Environment	Setting up of Project	Direct, Negative	Long Term	Irreversible	Low
	Ecology	Loss of vegetation	Direct, Negative	Short -Tem	Reversible	Medium
	Health	Various construction activities	Direct, Negative	Short -Tem	Reversible	Low
	Air Environment	Operation of construction machinery, Movement of Vehicles	Direct, Negative	Short- Term	Reversible	High
Laying of Roads	Noise Environment	Noise generation from use of machinery, Vehicular movement	Direct, Negative	Short- Term	Reversible	High
	Land use/Soil Environment	Development of Roads	Direct, Negative	Long Term	Irreversible	Medium
	Ecology	Loss of vegetation	Direct, Negative	Short -Term	Reversible	Medium
Labour Camps	Air Environment	Burning of Fuels	Direct, Negative	Short -Term	Reversible	Low

	Water Environment (Surface and Ground)	Disposal of Sewage	Direct, Negative	Short -Term	Reversible	High
	Land/Soil Environment	Disposal of Sewage	In Direct, Negative	Short -Tem	Reversible	Medium
	Socio-Economic	Employment Opportunities, Influx of people	In Direct, Negative	Short -Term	Reversible	Medium
	Health	Disposal of Sewage/Solid wastes	Direct, Negative	Short -Term	Reversible	High
	Air Environment	Transportation of Construction Materials	Direct, Negative	Short -Term	Reversible	Medium
	Noise Environment	Vehicular movement	Direct, Negative	Short -Term	Reversible	Low
	Land/Soil Environment	Various construction works	Direct, Negative	Short -Term	Reversible	Low
	Land/Soil Environment	Foundation works	Direct, Negative	Short -Term	Reversible	Medium
	Water Environment (Surface and Ground)	Domestic activities from Labour camps	Direct, Negative	Short -Term	Reversible	High
	Aesthetics	Odour nuisance	In Direct, Negative	Short -Term	Reversible	Medium
	Health	Disposal of Sewage	Direct, Negative	Short -Term	Reversible	High
	Land/Soil Environment	Solid waste generation, Land contamination	Direct, Negative	Short -Term	Reversible	Medium
	Aesthetics	Odour nuisance	In Direct, Negative	Short -Term	Reversible	Medium
	Health	Degradation of Solid waste, attraction of flies	Direct, Negative	Short -Term	Reversible	Medium
	Health	Mosquito breeding sites	Direct, Negative	Short -Term	Reversible	High
	Movement of Vehicles					
	Construction Debris					
	Excavated Earth/Muck					
	Disposal of Sewage					
	Disposal of Solid wastes					
	Stagnation of Water					

Storm water Run-off	Water Environment (Surface)	Construction site areas	Direct, Negative	Short -Term	Reversible	Medium
	Land/Soil Environment	Flooding	Direct, Negative	Short -Term	Reversible	High

## CHARACTERISTICS OF ENVIRONMENTAL IMPACTS FROM OPERATIONAL PHASE

Activity	Environmental Attributes	Cause	Impact characteristics			
			Nature	Duration	Reversibility	Significance
Operation of Pig Iron plant	Air Environment	Operation of Blast furnace	Direct, Negative	Long - Term	Reversible	High
	Noise Environment	Operation of Blast furnace	Direct, Negative	Long - Term	Reversible	Low
Operation of coke oven plant	Air Environment	Operation of coke oven	Direct, Negative	Long - Term	Reversible	High
Operation of DIP plant	Air Environment	Operation of annealing furnace	Direct, Negative	Long - Term	Reversible	Low
	Noise Environment	Operation of annealing furnace	Direct, Negative	Long - Term	Reversible	Low
Operation of Power plant	Air Environment	Operation of boiler	Direct, Negative	Long - Term	Reversible	High
	Noise Environment	Operation of boiler	Direct, Negative	Long - Term	Reversible	Low
Operation of Cement grinding unit	Air environment	Operation of grinding unit	Direct negative	Long - Term	Reversible	High
Operation of sinter plant	Air Environment	Sintering	Direct negative	Long - Term	Reversible	High
D.G Set operation	Air Environment	Operation of D.G Set during power failure	Direct, Negative	Long - Term	Reversible	Low
	Noise Environment	Noise generation D.G Set	Direct, Negative	Long - Term	Reversible	Low
Afforestation / Green belt development/Parks	Ecology	Planting of trees/Development of Landscape/Parks	Direct, Positive	Long - Term	Irreversible	High

	Aesthetics	Planting of trees/Development of Landscape/Parks	Direct, Positive	Long - Term	Irreversible	High
Solid Waste generation	Land/Soil Environment	Solid waste generation, Land contamination	Direct, Negative	Long - Term	Reversible	Medium
	Water Environment (Surface and Ground)	Leachate generation, Land contamination	Direct, Negative	Long - Term	Reversible	Medium
	Aesthetics	Odour nuisance	In Direct, Negative	Long - Term	Reversible	Medium
	Health	Degradation of Solid waste, attraction of flies	Direct, Negative	Long - Term	Reversible	Medium
D.G maintenance	Land/Soil Environment	Used oil generation	Direct, Negative	Short - Term	Reversible	Low
Vehicular traffic	Air Environment	Vehicle operation and fuel combustion	Direct, Negative	Short - Term	Reversible	Medium
	Noise Environment	Noise generation from vehicles	Direct, Negative	Short-term	Reversible	Low
Quality of Life	Socio- Economic	Employment generation, Quality of life, In-flow of funds in the region, Increase in housing accommodation	In Direct, Positive	Long - Term	Irreversible	High
Storm water Run-off	Land Environment	Flooding	Direct, Negative	Long term	Reversible	Medium

**CHAPTER-5.0 ENVIRONMENTAL MONITORING PLAN**

Sl. No.	Particulars	Monitoring frequency	Duration of monitoring	Important parameters for monitoring
I	<b>Air Quality</b>			
1	Ambient Air Quality Monitoring within premises	Once in a month	Grab, 24 hrly sample	PM10, PM 2.5, SO <sub>2</sub> , NO <sub>2</sub> .
2	Stack/Chimney Monitoring	Once in a month	Grab	Temperature, Velocity, SO <sub>2</sub> , PM, NO <sub>x</sub> , HC, CO
3	Fugitive emissions monitoring	Once in a month	24 hourly	PM 10 and PM 2.5
II	<b>Water Quality</b>			
1	Ground Water Analysis	Once in a month	Grab	As per KSPCB requirements
III	<b>Soil Quality</b>			
1	Soil quality analysis	Pre monsoon and post monsoon	Grab	Colour, Textural Class, pH, C, Infiltration rate, Moisture retention capacity, Organic matter, Na, K,P,Pb,Cu,Zn,Cd,Fe
V	<b>Noise Quality</b>			
	<ul style="list-style-type: none"> <li>• Main Gate/Boundary</li> <li>• Power Plant</li> <li>• D.G Set Room</li> <li>• Crushing Areas</li> <li>• Vibrators</li> <li>• Compressor</li> <li>• Loading and Unloading</li> <li>• Others as notices</li> </ul>	Once in a Month	24Hrs Monitoring	Noise levels in dB(A)

**CHAPTER-6.0 RISK ASSESSMENT AND DISASTER MANAGEMENT PLAN**  
**Identified Hazards**

<b>SL NO</b>	<b>NAME OF THE DEPARTMENT/SECTION</b>	<b>TYPE OF HAZARD</b>	<b>PRECAUTIONS TAKEN</b>	<b>MITIGATION MEASURES</b>
1	Storage / stores	<ul style="list-style-type: none"> <li>• Fire</li> </ul>	Good Housekeeping practice will be followed , Smoke detectors will be provided	<ul style="list-style-type: none"> <li>• Fire extinguishers will be provided</li> <li>• Fire hydrant system shall be installed.</li> <li>• First aid Box will be provided.</li> </ul>
2	Production <ul style="list-style-type: none"> <li>• Blast Furnace Area</li> <li>• Sinter Plant area</li> <li>• Power Plant Area</li> <li>• DIP plant area</li> <li>• Cement grinding unit</li> <li>• Coke oven</li> </ul>	<ul style="list-style-type: none"> <li>• Carbon Monoxide leakage.</li> <li>• Explosion.</li> <li>• Fire.</li> </ul>	Good Housekeeping practice is followed. Online CO monitors shall be provided. By following standard operating procedures for each activity.	<ul style="list-style-type: none"> <li>• Fire extinguishers / Fire hydrant will be provided</li> <li>• Proper training to the concerned through mock drills etc.</li> <li>• First aid boxes &amp; plant medical unit are provided.</li> <li>• Evacuate the place.</li> </ul>
3	Quality Control	<ul style="list-style-type: none"> <li>• Fire</li> </ul>	Good Ventilation exhaust shall be provided.	Fire extinguishers will be provided, suitable clothing like Mask, Caps are provided. First Aid facility.
4	Finished Goods	<ul style="list-style-type: none"> <li>• Moving machine Parts.</li> <li>• Physical accidents</li> </ul>	Emergency Stop devices shall be provided. Apply Standard Operating Procedures. Conducting regular mock drill	Medical unit, First aid facility.

### Identified Occupational Health Hazards

Type of Hazard	Areas	Preventive / Mitigation measures
Dust	Raw material handling & storage yard	Will be transported in the trucks with tarpaulin covers. Envisaged to install a truck tipler. Water sprinklers in the yard. Covered conveyor belts for RM feeding to RMHS bunkers as well to BF. Pneumatic conveyor for dust handling from Dry GCP to Sinter. Providing personnel protective equipments like respirators, caps, aprons. Development of greenary all around the yard. Developing Roads, ashphalting etc.
Noise	Blower house, ID fan house, Turbine hall, Air compressor house, DG & Pump houses.	Selection of equipments confirming to standards. i.e. < 90dBA at 1 mtr distance. All these areas shall be unmanned due to high level automation. Suitable Ear muffs will provided to the workers during inspections. Green belt corridor will be developed along the periphery of the plant.
Extreme Heat	Cast house, Pig Casting Machine, Sintering platform, Steam piping	Providing proper PPE like leg gaurds with shoes, Face sheild, leather hand glove, Leather Aprons, helmets etc. Thermal insulation for steam line. Providing fans, personnel cooling devices, water showers etc.
BF Gas - CO	BF Top, Stove, GCP, Cast house, Sinter plat form, Boiler.	Online gas detector systems shall be installed in addition to portable CO monitors. O <sub>2</sub> masks & kits shall be provided.
Noise	Blower house, ID fan house, Turbine hall, Air compressor house, DG & Pump houses.	Selection of equipments confirming to standards. i.e. < 90dBA at 1 mtr distance. All these areas shall be unmanned due to high level automation. Suitable Ear muffs will provided to the workers during inspections. Green belt corridor will be developed along the periphery of the plant.

### Preliminary Hazard Analysis for Process and Storage Areas

Equipment	Process	Potential Hazard	Provision

<b>BF</b>	Reduction of Iron Ore	Explosion, Gas leakage - air pollution	Gas leakage detection system, Strict follow up of Std Operating Practices
<b>Blower House</b>	Generation of blast	Noise	Proper selection of machinery. Remote controlled.
<b>Stoves</b>	Pre heating of blast	Gas leakage, Fire & Explosion	Safety inter-locking, gas detectors.
<b>RMHS</b>	Raw material handling & transportation	Dust	Closed system, dust extraction system / dry fog dust suppression system.
<b>GCP - Dry type</b>	Cleaning of BF gas	Dust & Gas leakage	Pneumatic conveyor, Gas detector system
<b>Pump House</b>	Water pumping	Noise	Remote control system. Proper selection of m/c.
<b>Compressor House</b>	Generation of compressed air.	Usage of compressed air for human body cleaning	Creation of awareness & training.
<b>Pig casting machine</b>	Pigging	High ambient temperature, Spurting of HM.	Isolation, barricading, engg controls. Std operating practices.
<b>Sinter Plant</b>	Crushing & Sintering	Excess heat	Isolation & unmanned operation
<b>Ductile iron pipe plant</b>		High ambient temperature	Isolation, barricading, engg controls. Std operating practices.

<b>Coke oven plant</b>	Coke manufacture from coal	High ambient temperature, spillage of hot coke, movement of machines.	Isolation, barricading, engg controls. Std operating practices
<b>Power Plant</b>	Power generation	Explosion, electric shocks. Steam leakage.	Safety inter locking, gas leakage detector system, Electrical safety gadgets & training. Insulation.
<b>Cement grinding</b>	Crushing and grinding unit	Movement of machineries	Safety inter locking
<b>Switch Yard</b>	Receiving SS for voltage stepdown	Fire, electric shock	All electrical fittings and cable are provided as per the specified standards. Barricading. Restricted entry. Protection sys. Earthing. Smoke detectors.
<b>Switch Yard control room</b>	---	Fire in cable galleries and switch	

## CHAPTER-7.0 PROJECT BENEFITS

The benefits from the project, listed as follows:

- Increase in direct and indirect employment opportunities
- Zero discharge of water
- The proposed green belt development program will increase biomass and biodiversity and leads to sustainable environment
- The proposed green belt will not give opportunities for suitable habitat to animals but also attracts avifauna
- The existing infrastructure will be utilized as far as possible, and therefore disturbance ecosystem balance is negligible due to infrastructure facilities
- The industry spend money for their social activities for the benefit of the nearby living people with in 10 km radius
- CSR activities CSR Activities conducted and proposed around factory premises

Programme	Conducted	Proposed	Time frame
Health	Conducted medical camp at Honnarahalli Village	Construction of ladies toilet in Kudadarahal Village	Before April 2013
		Free medical checkup camp at Kudadarahal and Hatcholli villages	Twice in a month. Started from Jan,2012
		Up gradation of toilets and wash rooms in the Govt Schools	December 2013
		Free eye check up camps at villages and provision for free cataract operation for aged persons will be made	December 2012

Education	Distribution of note books to school children (each child 7 note books) of Kudadarahal villages	<ul style="list-style-type: none"> <li>• Higher education programme: Sponsorship to meritorious and under previllaged students for Diploma Courses at the private &amp; Govt. polytechnics.</li> <li>• Opportunity for employment upon completion of course</li> <li>• Distribution of note books to school children (each child 7 note books) of Kudadarahal villages</li> </ul>	Started from academic year 2011.
	Workshop was conducted to farmers on scientific irrigation, soil management and economic feasibility of crops by agricultural scientists	Workshop will be conducted to farmers on scientific irrigation, soil management and economic feasibility of crops by agricultural scientists	Started from the year 2010.
Welfare	Electrification: Distribution of streetlights to Kudadadarahal, Sridharagadda and Nagalapura Villages	Training on vocational courses in tailoring, candle making, book binding, etc., for economic upliftment of poor woman.	During financial year 2012
	Provided temporary shelters and food to flood affected population of Honnarahalli, Chikballary, Shridharagadda villages (about 65 families still dwelling in our premises)	Distribution of tricycle to physically handicapped persons in Kudadarahal and Hatcholli Villages.	Before December 2012

		Distribution of streetlights to Honnarahalli, Chikballary and Bagevadi Villages	December 2012
Infrastructural welfare		Upgradation of MDR road from Siruguppa junction to Hatcholli with state PWD under PPP scheme	On or before 2015
		Concreting of village internal roads in Kududarahal, Honnarahalli and Hatchcholli grampanchayaths	On or before 2015
		Road barricades will be distributed to Hatcholli village police station.	Jan- Feb 2012
		Shelter to traffic police	Jan- Feb 2012
		Traffic signage/ control boards	Jan- Feb 2012
		Providing safe drinking water, scientifically.	During financial year 2012
		Distribution of saplings to panchayaths & schools.	Before March 2012
		Sports	Distribution of sports kits and materials to schools at Kudadarahal Village

The budget for CSR activities will be 5% of the project cost to be spent over 5 years period.

## CHAPTER-8.0 ENVIRONMENTAL MANAGEMENT PLAN

M/s Shree Ram electrocast Pvt Limited will develop the following management activities for the Environmental Management Programme which will meet all statutory requirements and help to improve environmental quality.

In order to improve the aesthetic look of the area and enhance the land use as well as to compensate for any loss in ecology during construction, adequate plantation programmes around the project site have been planned and will be adopted. Development of green belt will include plantation of trees along boundary of the factory, roads, raw material yard and other available spaces. Over 35% of total area of factory will be covered under green cover.

A detailed monitoring for different environmental parameters will be carried out as per direction of Karnataka State Pollution Control Board.

An environmental management group would be established to implement the management plan.

### AIR ENVIRONMENT

The mitigation measures needs to be adopted during the operation stage to control the negative impacts on air environment surrounding the project area are given below:

- Gas cleaning plant for BF gas is provided to supply clean gas to consuming units. Viz BF stoves , power plant boiler and sinter pant
- Annealing furnace, MG treatment and zinc coating unit will be provided with stacks as stipulated by KSPCB norms.
- Magnesium converters and zinc coating units will be provided with Bag filters.
- Sinter plant will be connected to ESP to minimize the impact of air pollution.
- AFBC boiler will also be connected to ESP.
- Reducing VOC emissions from sinter plant by process optimization, including minimizing stoppages and maintaining consistent operation in terms of strand speed, bed composition (particularly consistent blending of reverts which should not contain oil), bed height, use of additions such as burnt lime; and keeping the strand, ductwork, ESP and bag filter air tight
- Pollution reduction from coke making relies as much on techniques and operation.
- By stamp charging the emission during charging can be minimized.
- Water spraying will be adopted at loading and unloading points and storage yards which will reduce fugitive emissions due to movement of truck.
- All the internal roads will be asphalted to reduce the fugitive dust due to truck movement.
- Green belt cover will be provided. For this, the project has proposed to have green belt cover to an extent 35% of total area of the land has been demarcated as Green Belt. Already 12000 plants have been planted maintaining the good Flora & Fauna. Further, we are planned to plant around 5000 plants during the

financial year 2011-2012. Further 15,000 trees are proposed to be planted as a part of greenbelt development.

### **CONTROL OF FUGITIVE EMISSIONS AT VARIOUS AUXILIARY FACILITIES INSIDE THE PLANT**

#### **CONTROL OF PRIMARY AND SECONDARY EMISSIONS FROM SINTER PLANT**

The source of dust emissions will be at the transfer points of the raw materials, which will be contained by the installation of Agglomerative Dust Suppression (ADS) system. The emissions from the sintering process, where combustion take place, will be routed through Electrostatic Precipitator, ultimately to be released into the atmosphere through stack.

### **CONTROL OF FUGITIVE EMISSIONS AT VARIOUS AUXILIARY FACILITIES INSIDE THE PLANT**

There will be Dust Suppression Systems/ Foggy Dust Arresters to control fugitive emissions at various facilities inside the plant

### **WATER POLLUTION**

The plant will be designed as a zero discharge plant as far as the process effluents are concerned. The water will be recirculated through required cooling and treatment. In cases were contamination will take place during cooling, a treatment plant will be installed inside the plant. After treatment, the supernatant water will be sent back to the plant. No plant effluent will be discharged outside the plant premises.

- There is no effluent water in this process
- Use of high pressure hoses for area cleaning
- House maintenance and floor wash wastewater will be reused after treatment.
- No wastewater will be discharged to any ground water or to the surface water body.
- Storm water drains will be provided to avoid flooding in the proposed project site area and provision will be made for runoff get diverted to recharge pits with pre oil and grease trap there by increasing the groundwater table.
- No water will be drawn during lean season. Excess water will be drawn and stored during rainy season and that will be used during lean season.

### **NOISE ENVIRONMENT**

- Proper mounting of equipments and providing noise insulating enclosures or paddling where practicable.
- The equipments will be maintained at all times to ensure permissible noise levels.
- Appropriate advanced silencers, acoustic barriers; vibration-reducing pads will be provided for all noise generating equipments.

- Boundary walls and dense green belt will be erected to act as acoustic barriers.
- Adequate and appropriate type of green belt would be developed in and around the proposed project site for noise mitigation in the area.
- Use of personnel protective to persons working near noise creating locations.
- Plantation of green trees around the factory building and premises to control the intensity of noise to the surrounding area.
- 35 % land area around the factory is covered with green belt. It includes green belt of 6 to 10 m width around storage yards.

### SOLID WASTE

Solid waste generated from different operations of the unit is as shown in the table below:

#### Solid waste generated from different operations (after expansion)

<b>Pig iron plant</b>	<ul style="list-style-type: none"> <li>• Iron ore fines (97800 TPA)</li> <li>• Coke fines (11000 TPA)</li> <li>• B.F.Slag (58000 TPA)</li> <li>• GCP dust (6720 TPA)</li> <li>• GCP sludge (5430 TPA)</li> <li>• P.I. Scrap (15330 TPA)</li> </ul>	Used in sinter plant Used in sinter plant Used in cement grinding plant Used in sinter plant Used in sinter plant Sold out
<b>DIP PLANT 200,000TPA</b>	<ul style="list-style-type: none"> <li>• Burnt sand generated in casting section (5600 TPA)</li> <li>• MgO (200 TPA)</li> <li>• ZnO (100 TPA)</li> <li>• Slag (1000 TPA)</li> </ul>	Stored in the dump yard. Can be used for land filling Sold out to approved vendors. Sold out to approved reprocessors Used for land filling
<b>Metcoke plant</b>	Coke fines (5000 TPA)	Will be used in sinter plant
<b>Power Plant</b>	Coal ash/Fly ash (17500 TPA)	Will be sold out
<b>Sinter plant</b>	Sinter fines (6000) TPA ESP dust (5200 TPA)	Circulated back Circulated back
<b>Slag Cement grinding plant</b>	Nil	

### GREENBELT DEVELOPMENT

- Greenbelt is defined as the mass plantation of pollution tolerant trees and shrubs in an area for the purpose of minimizing air pollution by filtering, intercepting and absorbing pollutants in an effective manner for improve of the Environment.
- The proposed project plans to develop and maintain 35% of Greenbelt of the total plot area within its Industrial premises.

### **STORM WATER MANAGEMENT**

- Storm water drains will be provided within the premises of the industry to avoid mixing with affluent.
- Storm water drains will be provided on both sides of the roads. Rectangular drains will be provided based on the quantity of storm water to be conveyed and depth limitations.
- 40 recharge pits are provided for the purpose of ground water recharge.

### **ECOLOGICAL ASPECTS**

- Continuing greening efforts in and around the project site.
- Conservation of existing vegetation and afforestation covering larger areas near and around existing project area.

### **AESTHETICS ASPECTS**

- The entire area will be planted with local tree species of aesthetic value, fodder value, fruit bearing and birds attracting tree species. Hence it would be converted into a possible park for the nearby villages and project staff for recreation.

**INBUILT POLLUTION AND CONTROL MEASURES**

<b>NAME OF THE POLLUTION</b>	<b>SOURCE</b>	<b>POLLUTANTS</b>	<b>Control measures</b>
Air Pollution	Mini Blast Furnace (MBF)	Waste gases mainly consisting of carbon dioxide and nitrogen, iron ore dust, coke fines and ash.	<p>Gas from the furnace top will first enter a dust catcher where most of the coarse particles will settle. The gas is then received in a saturator where it will pass through wooden baffles. A wet type gas cleaning plant will be provided in the Blast Furnace plant as described below:</p> <ul style="list-style-type: none"> <li>• Dust catcher</li> <li>• Saturator</li> <li>• Venturi Scrubber</li> </ul> <p>The dust content in the clean gas will be of the order of 5 to 10 mg/Nm<sup>3</sup> of gas volume. The clean gas leaving the venture scrubbers will contain lot of moisture which shall be removed through a cyclone separator. The clean dry gas leaving the GCP will be used in the stoves and Captive Power Plant as fuel.</p> <p>Surplus clean gas when not in use will be burnt to CO<sub>2</sub> in a flare stack and released to atmosphere. The height of the stack will be in compliance with the pollution board norms.</p> <p>Waste flue gases with excess air from the hot stoves will be released to the atmosphere through a tall chimney.</p>
	<b>Sinter Plant</b>	Dust, Waste gas	Dust valves and electrically driven drag link

				conveyors will be provided for discharge of dust from dust collector main and electrostatic precipitator will be envisaged for dedusting of waste gasses. After treatment gas shall contain less than 100 mg/NM <sup>3</sup> of particles. The collected dust will be recycled.
	<b>Captive Power Plant</b>		Fly ash, Fugitive emission, SPM, SO <sub>2</sub>	High Efficiency Electro-Static Precipitators, De-dusting systems with water spraying and Stack
<b>Solid Waste</b>	<b>1. Power plant</b>		Bottom ash & fly ash	Will be sold out
	<b>2. MBF</b>		Slag	It will be utilised as raw material for the cement plant.
<b>Hazardous waste</b>	<b>1. Machineries 2. Gear boxes 3. Compressors 4. D.G.sets</b>		Used oils	They will be collected in drums and well-packed drums will be temporarily stored in specifically marked area.
<b>Noise Pollution</b>	<b>From all the units</b>		The major equipment of high noise can be identified as blast fans, ID and FD fans turbine and air compressor	Low noise design and suitable enclosures will ensure that the noise levels are restricted well within the stipulations of the PCB's norms (below 80 dB(A) at 1 m). The measures will include the reduction of noise at source providing acoustic enclosures for the equipment and isolating the noise producing equipment