

EXECUTIVE SUMMERY

1.0 Introduction:-

M/s. Ghatge Patil Industries Ltd. (Plant No.2) Plot D-2, Kagal-Hatkanangale Five Star Indl. Area, MIDC-Kagal, Kolhapur is established by the efforts of Mr. Kiran J. Patil & associates. Promoters have very rich experience in casting line. He has strong techno commercial business acumen with more than five decades of work experience in the same line. Company proposed to manufacture Grey iron castings & S.G.Iron casting with capacity of 6000 MT/M.

The total area of plot is about 66,289 Sq. mtr. At Plot No D2, Kagal-Hatkanangale Five Star Indl. Area, MIDC-Kagal, Kolhapur. Existing Build-up area is 31527 sq. mtr. The proposed area of 13904 Sq Meter for Green belt development.

India would need approx. \$ 3 Billion in investment to meet the demand of growing domestic industry and strong export drive. The industry scenario in general appears to be promising. India is among the top four countries in the manufacture of iron castings. Production, sales as well as exports have been increasing at a rapid pace. With domestic auto industry growing at 13% per year there is a possibility of further growth in view of positive factors like cheap labour available in India. The proposed project has been planned in the backdrop of this positive market scenario.

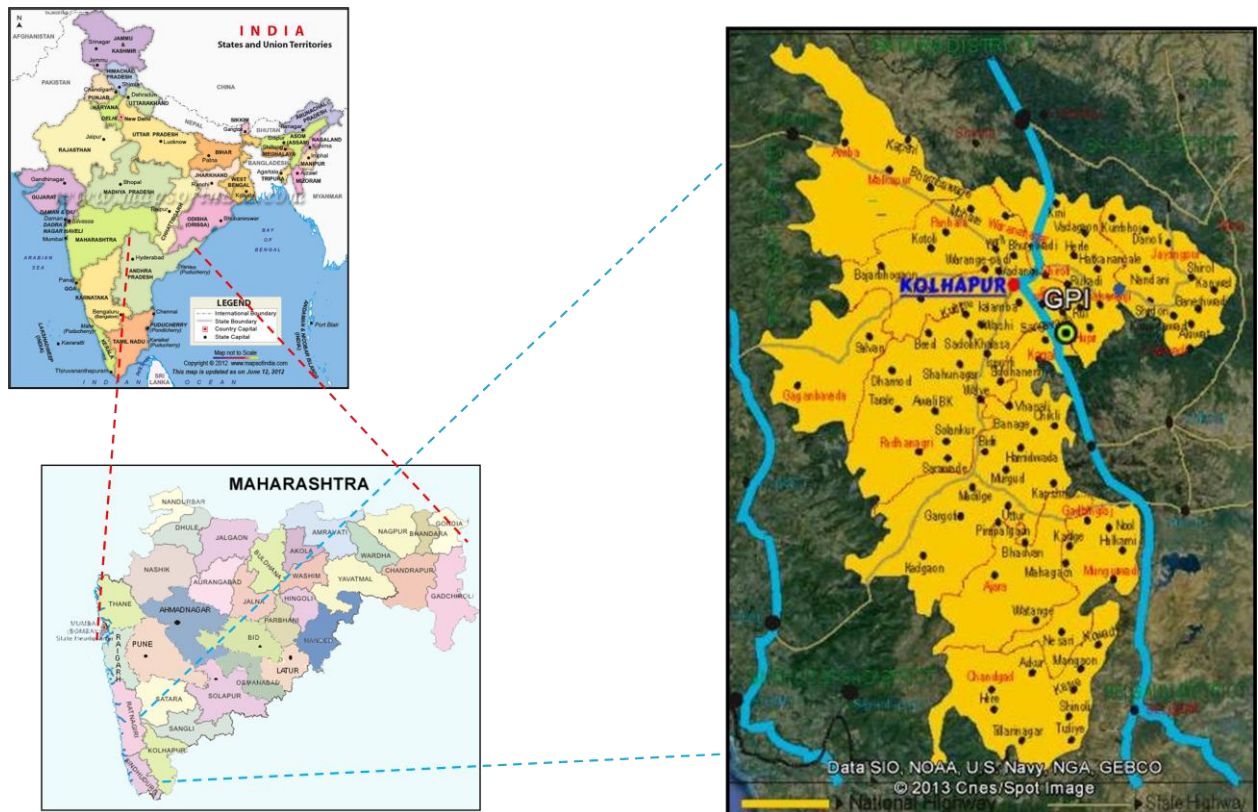
The company enjoys good relationship with the existing clients and having enough orders in hand. Atomization will be an added advantage and will ensure the new products from the existing as well new customers. The Project Cost of proposed project requires Rs 146.41 crores.

The purpose of the preparation of Environment Impact Assessment (EIA) report is not only to obtain Environment Clearance from DoE, Govt. of maharastra, but also to understand the likely impacts and to take Environment Protection measures during and after commissioning of the project.

2.0 PROJECT DETAILS:-

Ghatge Patil Industries Ltd is engaged in Manufacturing and Supplying of top quality industrial castings. They offer a gamut of industrial castings Grey iron casting & SG Iron castings. The Industry intends to augment the production of Grey iron & S.G iron casting - 6000 MT/M.location at Talandge, Kolhapur.

Fig 1.1 Location Site Map:



1 Director Body of GPI:-

Table No.-1.1: Name & Designation of the Promoters are as under

Sr.No.	Name	Designation
1	Mr. J.B.Patil	Chairman & Managing Director
2	Mr.K.J.Patil	Vice-Chaiman & MD
3	Mrs.M.K.Patil	Whole Time Director
4	Mr.P.D.Gune	Director

5	Mr.J.B.Diwale	Director
6	Mr.A.V.Chowgule	Director
7	Mr.Luciano Gilardo	Director

The proposed project is located at Plot No. D-2, Kagal- Hatkanangale Five Star Indl. Area, MIDC-Kagal, Dist. - Kolhapur .The project falls at North Latitude: 16°36'47.99" & East Longitude: 74°22'27.97"

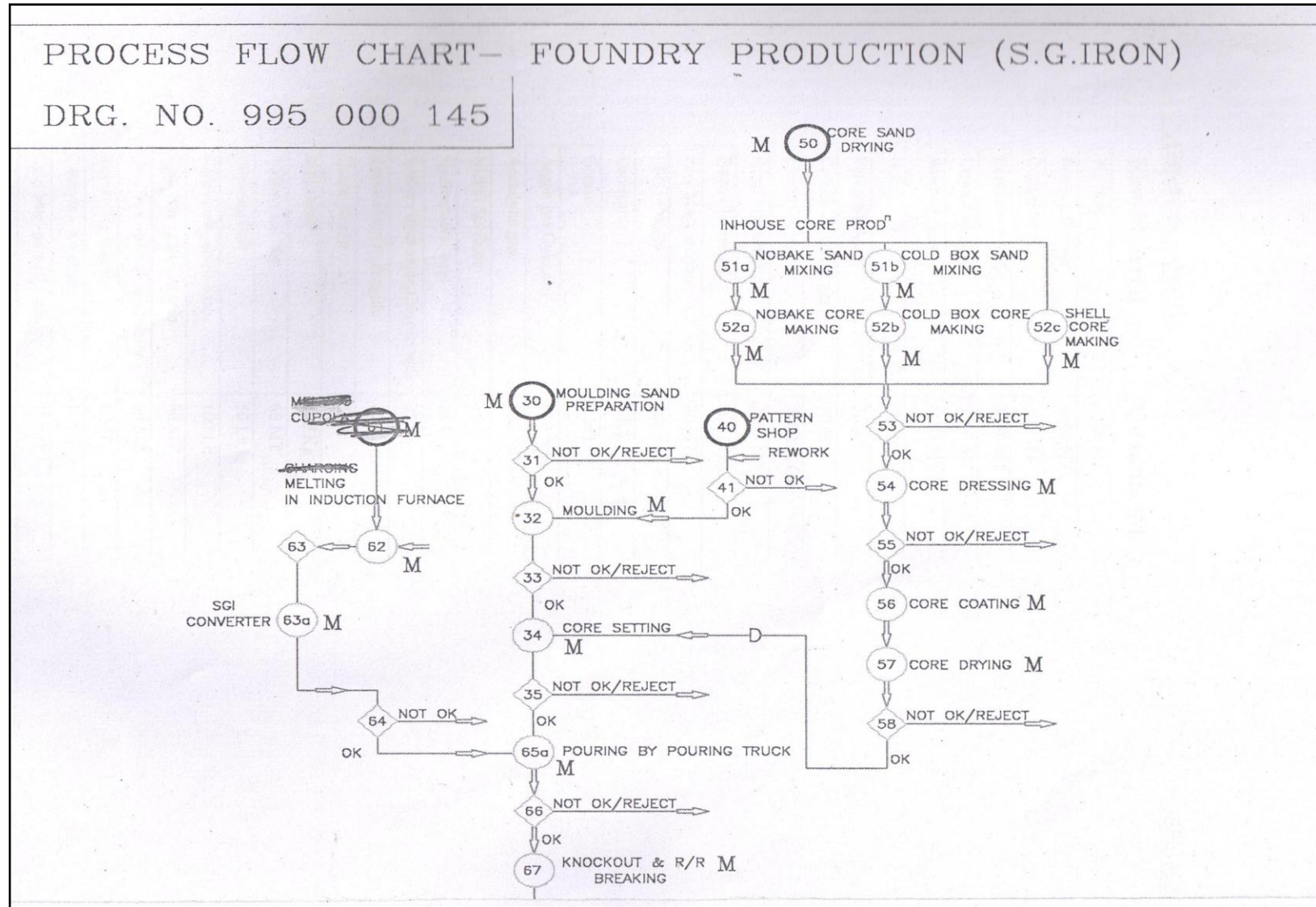
Table No.-2.1: Location Details

Sr. no.	Particulars	Details
1	Name of the Project	Proposed Metallurgical Industrial activity with production capacity 6000MT/M of Ferrous castings (SG Iron & Grey Iron), components and Machine Parts.
2	S. No. in the Schedule	3(a) to sub category B , 5(K) to sub category B
2	Latitude	16°36'47.99"N
	Longitude	74°22'27.97"E
3	Locations	Plot No. D-2
	Village	Talandage
	Taluka	Hatkanangale
	District	Kolhapur
	State	Maharashtra
4	Nearest railway station	Kolhapur Railway Junction (15 Km SW)
5	Nearest airport	Town/ City/ District – Kolhapur (15 Km) & 3 km from the National Highway-4 (Mumbai-Bangalore)
6	Nearest water body	The Panchganga River which is approx. 15 km from the site. SE direction.
7	Reserved forest/ Protected forest/Wild life sanctuary / Biosphere reserves.	No
8	Soil type	-

2.1 Process Description

The flow diagram of foundry production grey iron & S>G> Iron are given in below figure.

Figure 2.2 Flow Diagram of foundry production (S.G. iron)



2.3 Water Requirement:

During construction water required will be supplied through registered water supply tankers from the existing water supply system. Main Source is Water supplied by MIDC. The water requirement during construction 30 KLD and during operation 805 KLD for domestic, cooling and process purposes. Water will be supplied by Kagal-Hatkanangale, 5 star MIDC. It will not encroach on anybody else's water source.

2.4 Fuel & Electricity Requirement

The total Power Consumption is estimated at 16000 KVA. Total units required at 100% utilization are 340000. Which works out to be 1214 Kwh per MT of good casting per day. Rate of power is Rs.7.62 per Kwh. Total fixed charges (Max Demand charges) will be Rs.150 per 50% of total Kva per month. Company will require 33KV HT switch Yard is nearby to the company and application is made to MSEDCL For getting the supply.

2.5 Raw Material Requirement

Since 2003 the steep increase in cost of raw materials and energy have resulted in the closure of approx. 500 units, Overall India is exporter of Pig Iron but must import Scrap metals and Coke etc. Cost recovery for material and energy is very difficult as most contracts are long term contracts without any clause for price adjustment.

Sr. No.	Name of Raw Material	Quantity/M
1.	Grey Iron Castings	5000 MT
2.	S. G. Iron Castings	1000 MT

Table 2.2 Name of Raw Materials

Sr. No.	Name of Raw Material
1	Pig Iron
2	Ferrous Silicon
3	Copper Scrap
4	Bentonite Powder
5	Unwashed Sand
6	Washed Sand

7	H.S.Diesel
8	Furnace Oil
9	Carbon Dioxide Gas
10	Liquid Oxygen
11	Ferro Magnesium
12	Ferro Chromium
13	Pure Magnesium
14	LPG (19KG)
15	Lubricants
16	Grease
17	Argon Gas Cylinder
18	Acetylene Gas
19	Nickel Sulphate
20	Hydrochloric Acid
21	Sodium Hydroxide/Caustic Soda
22	Ammonium Hydroxide
23	Common Salt
24	Boric Acid
25	Sodium Silicate
26	Citroninol Oil
27	Core Wash-Spirit base
28	Cold Box-Part I-Resin
29	Cold Box-Part II-Activator
30	Resin- no Bake
31	Catalyst- no Bake
32	Cold Box-Part III-Amine
33	Nitrogen Gas

3.0 Baseline Environment

The climate of this district is on the whole agreeable and is characterised by general dryness in the major part of the year. The cold season is from December to about the middle of February. The hot season which follows, lasts till the end of May. June to September is the south-west monsoon season and the two months, October and November, constitute the post-monsoon or retreating monsoon season

A detailed survey of the quality of environment with relation to water, air, soil, noise, meteorology, land-use, flora, fauna, socio-economic and demographic pattern is carried out. EIA needs a datum on which the evaluation can be done. Therefore through baseline studies on present quality of the environment has been done.

3.1 Micro-Meteorology:-

The climate of this district is on the whole agreeable and is characterised by general dryness in the major part of the year. The cold season is from December to about the middle of February. The hot season which follows, lasts till the end of May. June to September is the south-west monsoon season and the two months, October and November, constitute the post-monsoon or retreating monsoon season.

The climate of Kolhapur district is, by and large, a temperate climate, characterized by hot summer. The year is usually divided into four seasons. The period from March to May is reckoned as the summer season, June to September monsoon and October to February as winter.

3.2 Air Environment:-

In general air quality is expressed in amount of pollutants present in air at respective time like Particulate Matter, Sulphur Dioxide and Oxides of Nitrogen. Many sources add to concentrations of these agents in ambient air like vehicular movement, venting of gases from industrial processes, construction and erection activity, units in the vicinity, dust storms, high speed winds etc.

The ambient air quality i.e. Suspended Particulate Matter (SPM), Respirable Particulate Matter (RPM), Sulphur Dioxide (SO₂) and Oxides of Nitrogen (NO_x) levels in the area are well within the limits prescribed by National Ambient Air Quality Standards.

Air quality was monitored and reported at surrounding villages like Rendal, Pattan Kodoli, Ingali, Yalgud, Kasaba Sangaon & Halsavade at GPI, ambient air monitoring is performed each year and always observed well in limits prescribed by MPCB.

3.3 Noise Environment

A preliminary reconnaissance survey has been undertaken to identify the major noise generating sources in the area. Noise at different noise generating sources has been identified based on the activities in the village area, ambient noise due to industries and traffic and the noise at sensitive areas like hospitals and schools. The noise monitoring has been conducted for determination of noise levels at select locations in the study area. Except for occasional time noise levels have been generally within limits.

3.4 Water Environment

The main source of water in the study area is Panchaganga River. Surface water samples and Ground water analyzed during the study period indicate that the water is free from the industrial pollution. Water from these wells is used for drinking, gardening, industrial and agricultural purposes.

3.5 Land Environment

The land in the surrounding area of the industry is fertile and irrigated with surface water, bore well and well Water. Geologically the depth of hard strata is after 9 meters with a ground water level is 30-35 meter. Soil is derived from the Latin word solium, which means upper layer. The physical properties of soil are important to be considered from engineering point of view.

3.6 Biological Environment

The important features of environment are flora and fauna. They have countless life cycle modes, forms and activities that are important to be considered in EIA.

The facet of the natural environment includes vegetation and animals, flora & fauna. Human activity should not disturb the biological habitat, because then the man-kind itself will be harmed in turn. It will be necessary to know the natural existing environment as a background inventory. In the study area of 10 km radius of GPI, the Biological survey conducted and the list of flora and fauna given in the EIA report.

3.7 Socio –Economic Environment

Socio-economic environment forms an integral part of an EIA study. As regards to baseline environmental data in respect of Demography, Occupational Structure, Community Services such as Post Offices, Post & Telegraph Offices, Telephone, Educational and Health Care Facilities, Banks and Co – Operative institutes, social and Cultural Institutions present Buffer zone were collected from Department of Census operations, Government of India, Department of Statistics and Economics of the Government of Maharashtra, Village for preparation of existing environmental scenario in respect of these parameters. The amenities available in the villages under the study area denote the economic well being of the region. The study area as a whole possesses poor to moderate level of infrastructural facilities. The above data is obtained from Census 2001

4.0 Environmental Impact Prediction

4.1 Impacts during Construction & operation Phase and Mitigation Measures

Probable environmental impacts during construction phase are typically due to activities related to clearing of vegetation, leveling of site, civil constructions erection of structures and installation of equipment. During the Operation Phase the establishment of the project, results in emissions, generation of wastewater and solid waste.

I) Impact on Air Quality

The main sources for impact of air quality during construction period is due to movement of vehicles and construction equipment at site, dust emitted during leveling, grading, earthmoving, foundation works, transportation of construction material etc.

Air Pollution Mitigation Measures

The dust generated will also be fugitive in nature, which can be controlled by sprinkling of water. Frequent water sprinkling in the vicinity of the construction sites would be undertaken and will be continued after the

completion of plant construction as there is scope for heavy truck mobility. It will be ensured that diesel powered vehicles will be properly maintained to comply with exhaust emission requirements.

ii) Impact on Noise Levels

The major sources of noise during the construction phase are vehicles and construction. The operation of the equipment can generate noise in the range 85-90 dB (A) near the source.

Noise Levels Mitigation Measures

The noise control measures during the construction phase include provision of caps on the construction equipment and regular maintenance of the equipment. High noise producing construction activities will be restricted to daytime only.

iii) Impact on Water Resources and Quality

Impact on water quality during construction phase is due to non-point discharges of sewage generated from the construction work force stationed at the site. Runoffs from the construction yards and worker camps during monsoon could affect the quality of water bodies in the project area.

Water Pollution Mitigation Measures

Toilets with septic tanks will be constructed at site for workers. Construction yards will be constructed properly.

IV) Solid Waste Management:

Waste management during construction phase:

Minimum amount of solid waste will be generated as there will be small construction work which will be confined within the existing building structure.

iv) Impact on Land use

Preparatory activities like construction of access roads, temporary offices, and go-downs, piling, storage of construction materials etc. will be confined within the project area. No forestland is involved. Therefore, impact will be negligible.

v) Impact on Topography

Most of the area forms plain land covered with mixed soil. Adequate storm water drains will be provided to collect and carry the surface runoff during monsoon to the natural drainage system of the project area.

vi) Socio-economic Environment

The socio-economic impacts during the construction phase of the plant could result due to migrant workers, worker camps, induced development etc. The local population will have employment opportunities in related service activities.

4.2 Waste water generation

The water requirement during construction 30 KLD and during operation 805 KLD for domestic, cooling and process purposes. Water will be supplied by Kagal-Hatkanangale, 5 star MIDC. It will not encroach on anybody else's water source.

The waste water generated in the collective activity thus will be the domestic, sewage. The treatment through well-designed septic tank followed by S.T.P (with MBR) will be provided. Trade effluent will be treated in ETP.

The disposal will be for greenery in absorbing at root zone by sub surface irrigation. There will be no discharge of effluent outside.

4.3 Impact on Ecology

The enhanced project will not have any significant impact on ecology as there are no reserve forests in the study area and in addition to that the project will implement an effective environmental management plan to control the emissions from the project.

4.4 Green belt development

Since the green belt is expected to neutralize pollutants their location plays an important role like areas around Industries, Residential areas, Road side, Canal side, Open areas, Playground, Community land and Barren land etc. Since the project aims at mitigation of air pollutants with plants, discussion here is confined to air pollutants interaction with plants. Other forms of life are not considered.

4.5 Impact on Health

Adequate air pollution and noise control measures will be provided. The environmental management and emergency preparedness plans will be prepared to ensure that the probability of undesired events and consequences would be reduced, and adequate mitigation measures will be provided in case of an emergency. The overall impact on Human health is negligible during operation of plant.

4.6 Rain Water harvesting System

The rain (storm) water from the building roofs, non-process area and grade level surfaces will be directed through the rain water harvesting structures and excess water will be directed through open drains to the storm drainage system. The storm water from the storm drainage system will be discharged outside the plant boundary.

4.7 Environmental Impact

It is our endeavor to minimize the impact. Impact can normally be caused due to various reasons namely

- (1) By wrong site selection,
- (2) By accidents during construction,
- (3) By accidents during operation,
- (4) By accidents during decommissioning or
- (5) By accidents during rehabilitation of the project.

4.8 Measures for minimization

The principles of minimization or off-setting mal effects are based on the principle of prevention, abatement, treatment, reuse, and smooth disposal of wastes.

5.0 Environmental Monitoring Program

For Proposed Enhanced Indian Foundry Industry, the Indian Emission Regulations stipulate the limits for particulate matter emissions and appropriate stack heights will be maintained for keeping the emission levels in the ambient within the air quality standards. The characteristics of the effluent from the plant would be maintained so as to meet the requirements of the State Pollution Control Board and the National Standards for foundry unit stipulated by the Central Board for Prevention and Control of Water Pollution.

5.1 Air Quality monitoring programme

It is proposed to monitor particulate emission qualitatively and quantitatively in the stack and with the aid of a continuous particulate stack monitoring system. The stack monitoring data would be utilized to keep a continuous check on the performance of wet scrubber. Further it is proposed to monitor and record the weather parameters such as temperature (maximum & minimum), Relative humidity, wind direction, wind speed, rainfall etc. on daily basis, for this purpose, it is proposed to install Weather Monitoring Station with necessary gadgets.

5.2 Post Project Environmental Monitoring

Environmental monitoring will be conducted on regular basis to assess the pollution level in the plant as well in the surrounding area.

6.0 Risk Assessment and Disaster Management Plan

A Disaster Management System includes the following sub-systems:

- Hazard and Risk Analysis Studies;
- Safety Management System;
- On-site Emergency Management Plan; and
- Off-site Emergency Management Plan.

6.2 Objective

- ❖ Procedures for storing, handling, shipping, and transferring of HAZMAT;
- ❖ Facility information including: physical features and location of storm and sanitary sewer systems;

- ❖ Site measures for managing and controlling HAZMAT releases; and,
- ❖ Base emergency response and preparedness programs.

6.1 Methodology

The Risk Analysis Study carried out under the following task heads:-

- ❖ **System Study**

The system description covers the plant description, storage & handling of fuels / chemicals, etc.

- ❖ **Hazard Identification**

The hazards associated with the proposed Enhancement Project have been discussed in terms of material hazards due to fuel storage.

- ❖ **Frequency of Hazard Occurrence**

Based on the available international statistics and in-house risk database, the frequencies of occurrence for the different accident scenarios were determined. The frequencies derived from the historical database have been checked with the possible hazard scenario identified during hazard identification.

- ❖ **Consequence Analysis**

Based on the identified hazards, accident scenarios and the frequency of occurrence, consequence calculations were done for spreading distances (zone of influence) or risk distance for Pool fires.

- ❖ **Risk Reducing Measures**

Necessary risk reducing measures have been suggested based on the consequence scenarios.

6.2 Remedial measures:

- ✓ Storage in tightly closed containers in a cool, well-ventilated area away from WATER, HEAT, COMBUSTIBLES (such as WOOD, PAPER and OIL) and LIGHT.
- ✓ Storage away from incompatible materials such as flammable materials, oxidizing materials, reducing materials, strong bases.
- ✓ Use of corrosion-resistant structural materials and lighting and ventilation systems in the storage area.
- ✓ Wood and other organic/combustible materials will not be used on floors, structural materials and ventilation systems in the storage area.

- ✓ Use of airtight containers, kept well sealed, securely labelled and protected from damage
- ✓ Use of suitable, approved storage cabinets, tanks, rooms and buildings.
- ✓ Suitable storage will include glass bottles and containers.
- ✓ Storage tanks will be above ground and surrounded with dikes capable of holding entire contents.
- ✓ Limit quantity of material in storage. Restrict access to storage area.
- ✓ Post warning signs when appropriate. Keep storage area separate from populated work areas. Inspect periodically for deficiencies such as damage or leaks.
- ✓ Have appropriate fire extinguishers available in and near the storage area.

The following measures are adopted for reducing the risk involved in pipeline systems.

7.0 Project Benefits

This project development will give rise to social and economic development measures in the study area.

7.1 Improvement in Physical Infrastructure

- Road Transport facilities
- Rain Water Harvesting
- Educational facilities
- Water supply and sanitation

7.2 Improvement in Social Infrastructure

- ✓ Education facilities
- ✓ Banking facilities
- ✓ Post offices and Communication facilities
- ✓ Medical facilities
- ✓ Recreation facilities
- ✓ Business establishments
- Community facilities

7.3 Other tangible benefits

- ❖ Erosion control by rain water harvesting.
- ❖ Flood control by rain-water arresting, and harvesting
- ❖ Groundwater level enhancing by recharging
- ❖ Time saving by quicker transport
- ❖ Aesthetics improvement by general greening with emphasis on biodiversity
- ❖ Availability of nursery facilitates plantation
- ❖ Developed economy strengthens democratic set-up.
- ❖ Strengthened democratic set-up will bring weightage to secure better
- ❖ School / education and health-institutes
- ❖ Developed economy brings with it literacy and healthful living.
- ❖ Improved safety-security with better Law and Order.
- ❖ Symbiosis and sustainable development will be the ultimate objective.

8.0 Environmental Management Plan

The Environmental Management Plan (EMP) of the Expansion plant with respect to noise, air quality, water quality, solid waste, ecology, landscape socio-economic measures.

8.1 Air Environment

The air quality control equipment like Gas Cleaning Plant and dedusting equipments at the pig iron as well as Cement plant (grinder) should be operated continuously. Provision should be made for back-up power for this equipment.

- ii) Water spraying should be practiced at loading and unloading points, storage yards and near solid waste disposal areas, both at the pig iron as well as Portland Cement plant. Transport of material should be done in covered trucks only. Internal transport should be done with covered conveyor belts wherever applicable.
- iii) Monitoring of stack emissions and emissions from dedusting equipments should be carried out regularly to ascertain the efficacy of pollution control equipment.

- iv) All the internal roads should preferably be asphalted or at least regularly sprinkled with water to reduce the fugitive dust due to vehicle movement.
- v) Green belt cover in the plant should be increased, esp. in the northern and eastern sides which are towards the Mahavir Wild life Sanctuary. Plantation should also be carried out on solid waste disposal areas. A tentative plantation programme is given in subsequent section.

8.3 Noise Environment

- I. Provision for insulating caps and aids at the exit of noise source on the machinery;
- II. The use of damping materials such as thin rubber/lead sheet for wrapping the work places like MBF platform, Metallic Blast Preheaters, DG set etc.
- III. Shock absorbing techniques should be adopted to reduce impact;
- IV. All the openings like covers, partitions should be acoustically sealed;
- V. Inlet and outlet mufflers should be provided which are easy to design and construct;
- VI. Reflected noise should be reduced by absorbing material on roofs walls and floors.
- VII. Ear plugs should be provided to the workers in high noise areas, and it should be enforced to be used by the workers.
- VIII. Cumulative noise exposure to workers should not exceed 90 dB(A) for 8hr shifts.
- IX. Effective equipment maintenance like periodic lubrication, replacement of gears and dedusting should be done.
- X. Effective equipment maintenance like periodic lubrication, replacement of gears and dedusting should be done.
- XI. The industrial compound should be thickly vegetated with species of
- XII. rich canopy.

8.4 Waste water Management

The water is used mostly for cooling and the wastewater will be originating from GCP, Slag Granulation, Casting unit, Turbo generator, etc. All these wastes will be treated and most of it will be recycled for cooling purposes and remaining treated water should be used for gardening and plantations within the plant premises.

The details of treatment schemes for various effluents from the proposed plant have been discussed in Chapter-2.0. At present the domestic/ service wastes are sent to soak pits.

The treated water can be utilized for Greenbelt while the sludge can be used as manure for Greenbelt area

Apart from the proposed treatment schemes, some additional measures are given hereunder:

The treatment schemes should be operated on continuous basis.

GCP thickener should be cleaned regularly in order to avoid clogging. Sludge should be removed regularly and sufficient time should be given for proper thickening/ settling of solids.

8.5 Occupational Health & Safety

During operation stage, dust causes the main health hazard. Other health hazards are due to gas cutting, welding, noise and high temperature and micro ambient conditions especially near the boiler and platforms, which may lead to adverse effects (Heat cramps, heat exhaustion and heat stress reaction) leading to local and systemic disorders.

8.6 Design of Green Belt

Implementation of a forestation programmes is of paramount importance for any industrial development. In addition to augmenting present vegetation, it will also check soil erosion, make the ecosystem more complex and functionally more stable, and make the climate more

9.0 Conclusion

GPIIL will apply all measures stated in the EIA to prevent, mitigate, and deal with impacts related to propose established unit of foundry.

The impact on the social environment is positive given the job and business opportunities created for local residents during construction phase and the substantial taxes and revenues from the project and will be continued due to increase in production. Thus, the proposed project will help in accelerating socioeconomic growth, and improving quality of life.

In sum, the project is a positive contribution to local area, the region, and the country.
