

ENVIRONMENTAL IMPACT ASSESSMENT
FOR
**THE PROPOSED EXPANSION OF STEEL MELTING PLANT
AND ADDITION OF STEEL ROLLING MILL
AT KANUR VILLAGE, AVINASHI TALUK, TIRUPPUR DISTRICT**

EXECUTIVE SUMMARY

Sponsor :

**Govaan Steels Private Limited
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Prepared by :



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1.0 BRIEF DESCRIPTION OF THE PROJECT

Govaan Steels Private Limited (GSPL) is formed in the year 2009 to establish a steel melting plant with rolling mill at Kanur village, Avinashi taluk, Tiruppur district. The production capacity of the existing steel melting plant is 2850 Tons per month of MS Ingots. GSPL proposes to increase the production capacity of its plant to 10,000 Tons per month of MS Billets and also proposed to produce 9500 Tons per month of Steel Rods, Angels, squares, flats, channels and rounds with an estimated capital cost of about Rs. 21.0 Crores.

In order to assess the environmental impacts due to the proposed expansion of steel melting plant, Environmental Impact Assessment (EIA) report has been prepared. As per the latest Environmental Impact Assessment Notification dated 14th September 2006, the proposed expansion of steel melting plant (secondary metallurgy industry) falls under 'Category B' for which Environmental Clearance (EC) from State Level Impact Assessment Agency (SEIAA) is necessary. Inline with EIA Notification dated 14.09.06, a TOR meeting was held for determining Terms of Reference (TOR) on 19th & 20th February 2010 for the preparation of EIA report for the proposed expansion project. Based on TOR conditions given by SEAC vide its letter No. SEAC/F.No.303/TOR/2010 dated 11.03.2010, this EIA has been prepared.

1.1 Land Requirement

The proposed expansion activities will be carried out within the existing land of 6.45 ha. The land-use breakup of the existing plant and after the proposed expansion is given in **Table-1**.

**TABLE-1
LANDUSE BREAK-UP**

S. No.	Land use	Area (ha)	
		Before Expansion	After Expansion
1	Plant facilities	0.33	1.36
2	Road area	0.17	0.17
3	Green belt area	1.65	2.15
4	Open area	4.30	2.77
Total		6.45	6.45

1.2 Power and Fuel Requirement

The power requirement will be increased from 8500 KVA to 15 MW after the proposed expansion which will be sourced from TANGEDCO. To meet the emergency power requirement during the grid failure, a diesel generator with capacity of 160 KVA is available. After the proposed expansion a new DG set having capacity of 500 KVA will be installed.

Low Sulphur Heavy Stock oil (750 lit/hr) or pulverized coal (1250 kg/hr) is proposed to be use in the rolling mill for heating the billets / ingots for rolling based on the availability and economic viability. Furnace oil can be sourced from public sector oil firms, through their depot at Irugur. Coal can be sourced through imports via Cochin port or Tutocorin port.

1.3 Raw Materials Requirement

The raw materials are different type of MS scrap, Sponge Iron, Ferro Manganese, Ferro silicon and Aluminium ingots. The details of raw material requirement before and after the proposed expansion are presented in **Table-2**.

TABLE - 2
RAW MATERIAL REQUIREMENT

S. No.	Particulars	Quantity (Tons/Month)	
		Before Expansion	After Expansion
1	MS Scrap	2848	6000
2	Sponge Iron	---	4000
3	Ferro Manganese	28	100
4	Ferro Silicon	1.5	5.0
5	Aluminium	0.3	1.0
6	Ramming Mass	2.0	7.0

1.4 Water Requirement

Water requirement in the plant is for cooling tower make-up, scrubber make-up and domestic purposes. The entire required water will be purchased from the tanker suppliers. The total water requirement before and after expansion is given in **Table - 3**.

TABLE - 3
WATER REQUIREMENT

Sr. No.	Category	Requirement (KLD)	
		Before Expansion	After Expansion
1	Cooling Tower Make up	3.0	5.0
2	Scrubber make-up	3.0	4.0
3	Domestic purposes	3.2	5.5
Total		9.2	14.5

1.4 Man Power Requirement

The manpower in the existing plant is 70. It will be increased to 120 after the proposed expansion.

2.0 DESCRIPTION OF THE ENVIRONMENT

2.1 Location and description of the site

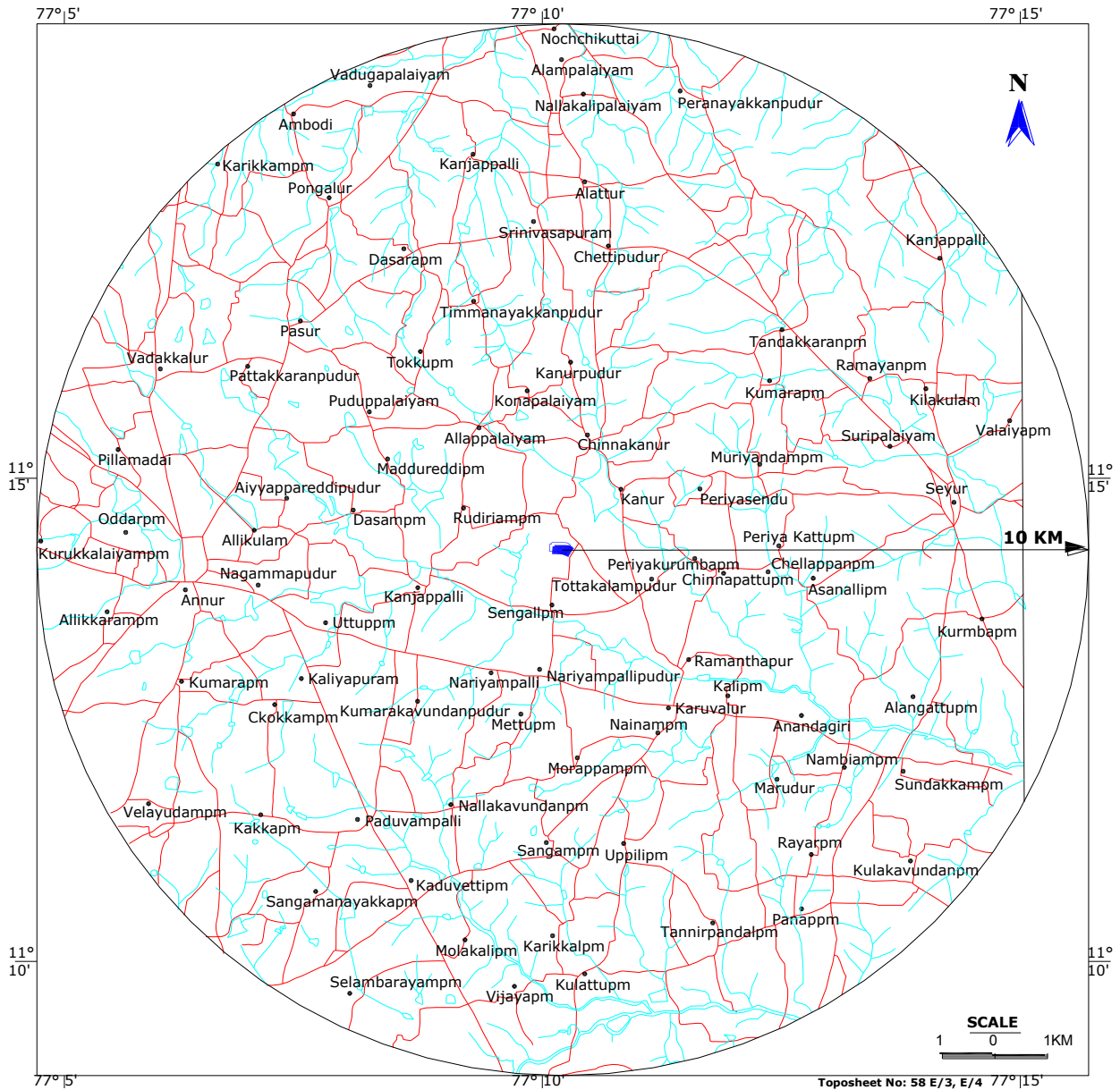
The terrain of the land in the plant site is plain and no water streams present in the plant site area. The environmental setting of the proposed plant site is given in **Table-4**. Study area of 10-km radius around the plant site is shown in **Figure-1**.

**TABLE - 4
ENVIRONMENTAL SETTING IN 10-KM RADIUS**

Sr. No.	Particulars	Details
1	Location	
	Village	Kanur
	Taluk	Avinashi
	District	Tiruppur
	State	Tamilnadu
	Latitude	11°14'17" North
	Longitude	77°10'10" East
	Elevation above MSL	365-m
2	Geographical location in Toposheets	58-E/3 and 58-E/4
3	Present Land use	Unclassified land
4	Climatic conditions	1. Annual Max. Temp: 38.0°C 2. Annual Min. Temp: 15.0°C 3. Annual average rainfall: 574.3 mm
5	Nearest Highway	SH connecting Annur & Avanashi – 2.25 km, South NH-209 connecting Coimbatore and Sathy – 6.5, SW
6	Nearest Railway Station	Somanur R.S. – 17 km, SSE
7	Nearest Air Port	Coimbatore Airport - 25 km, SW
8	Nearest habitation	Kanur – 1.4 km, NE
9	Nearest major town	Tiruppur – 25 km, SE Coimbatore – 30 km, SW
10	Nearest river	Noyal River – 17 km, SE Bhavani River – 21 km, NW
11	Sanctuaries/National parks/biospheres, etc	Nil in 10 km radius
12	Reserved Forests	Nil in 10 km radius
13	Defense Installation/ Historical Monuments/ Archaeological/ ports	Nil in 10 km radius
14	Historical places	Nil in 10 km radius
15	Socio-economic factors	No resettlement and rehabilitation involved
16	Seismicity	Zone-II as per IS 1893 (Part-1): 2002

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**FIGURE-1
STUDY AREA MAP - 10-KM RADIUS**

2.2 Baseline environmental monitoring

Baseline environmental monitoring studies for the various environmental attributes were carried out during 1st December 2010 to 28th February 2011 covering the winter season. The details of the base line study are presented as follows:

2.2.1 Meteorology

The maximum and minimum temperatures recorded during the study period are 33.20°C and 13.8°C respectively. The maximum and minimum relative humidity was observed to be 98.30% and 44.30% respectively during the study period. The predominant winds are mostly from NE followed by East direction. Predominant winds from NNE direction were observed for 35.7% of the total time and in East direction the winds were observed for 16.4% of the total time. The calm conditions were observed for 12.2% of the total time.

2.2.2 Air Quality

Ambient Air Quality Monitoring (AAQM) stations were set up at eight locations. The air samples were analyzed as per standard methods specified by Central Pollution Control Board (CPCB), IS: 5184 and American Public Health Association (APHA).

The maximum value for PM₁₀ was observed at Plant site as 56.1-µg/m³ and minimum value for PM₁₀ was observed at Chinna Kanur as 38.1-µg/m³. The maximum value for PM_{2.5} was observed at Plant site as 19.2-µg/m³ and minimum value for PM_{2.5} was observed at Periyakurumbapalayam as 12.5-µg/m³. The maximum value for SO₂ was observed at Plant site as 8.8-µg/m³ and minimum value for SO₂ was observed at Nallakavundanpalayam and Periyakurumbapalayam as 5.6-µg/m³. The maximum value for NO₂ was observed at Plant site as 14.6-µg/m³ and minimum value for NO₂ was observed at Nallakavundanpalayam as 7.0-µg/m³. The maximum value for CO was observed at Plant Site as 475-µg/m³ and minimum value for CO was observed at Kanjapalli as 180-µg/m³. The concentrations of PM₁₀, PM_{2.5}, SO₂ and NO₂ are observed to be well within the standards prescribed by Central Pollution Control Board (CPCB) for rural/residential zone.

Other gaseous contaminants including Benzene (C₆H₆), Benzo(a)Pyrene (BaP), Ammonia (NH₃), Ozone (O₃) and heavy metals like Lead (Pb), Arsenic (As), Nickel (Ni) were found to exist below detectable limits.

2.2.3 Water Quality

Ground water samples were collected from eight (8) ground water sampling locations during winter season of 2008-09 and analyzed for various parameters to compare with the standards as per IS: 10500. The analysis results indicate that the pH ranges in between 7.2 to 7.5, which is well within the specified standard of 6.5 to 8.5. Total hardness was observed to be ranging from 412 to 850 mg/l. The Total Dissolved Solids (TDS) concentrations were found to be ranging in between 650 to 1620 mg/l. Chlorides was observed to be ranging in between 90.9 and 440-mg/l. Fluorides are ranging in between 0.6 to 1.2 mg/l and are found to be within

the permissible limit. Nitrates were found to be in the range of 4.41 to 59.59 mg/l. Bacteriological studies reveal that coliform bacteria is not present in the samples. The heavy metal content is below detectable limits.

2.2.4 Soil Quality

Six locations within 10-km radius from the center of the existing plant site were selected for soil sampling. At each location, soil samples were collected from three different depths viz. 30 cm, 60 cm and 90 cm below the surface and homogenized. The homogenized samples were analyzed for physical and chemical characteristics.

It has been observed that the texture of soil is mostly 'Clay' in the study area. The common color of the soil is light brown. It has been observed that the pH of the soil quality ranged from 7.6 – 8.0 and the bulk density of soil ranges in between 1.0 to 1.2. The Electrical Conductivity was observed to be in the range of 194 and 397 $\mu\text{S}/\text{cm}$. The Nitrogen values ranged between 25.3 and 51.3 kg/ha indicating that the soil has 'very less' quantity of nitrogen. The Phosphorus values range in between 42.0 and 60.3 kg/ha indicating that the soil is having 'average sufficient' quantity of Phosphorous. The Potassium values range in between 78.9 – 130.0 kg/ha indicating that the soils in the area have 'less' quantity of Potassium.

2.2.5 Noise Levels

The noise monitoring has been conducted for determination of ambient noise levels at ten locations in the study area. Daytime and nighttime noise levels in all the residential locations were observed to be in the range of 46.5 dB (A) to 54.4-dB(A) and 42.6 dB(A) to 44.8 dB(A) respectively. The daytime and nighttime noise levels at all the locations were found to be within the prescribed limit of 55 dB(A) and 45 dB(A) respectively.

2.2.6 Ecology

Flora and Fauna studies were conducted to assess the existing floristic composition and faunal components in and around project area. As per the records of forest department, no reserved forest exists in 10-km radius of the study area. In the study area, maximum number of species are therophytes (35.28%) followed by phanerophytes (43.25%). These classes are followed by hemicryptophytes (13.19%), hydrophytes (4.91%), Geophytes (3.37%) and Epiphytes were found in very few numbers.

Faunal studies, primary survey were conducted to assess the faunal components in selected villages and near ponds, lakes and in the vicinity commercial plantations. 92 species of fauna components recorded/reported from study area which are mainly belongs to mammals, birds, reptiles, amphibians and butterflies. Out of observed faunal components 6 species belongs to Schedule-II, 10 species belongs to Schedule-III and rest of species belongs to Schedule-IV and V as per Wildlife

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Protection Act, 1972. On the basis of records of forest department and also from literature survey pertaining to study area reveals that there are no protected areas and also no endangered, threatened plant and animal species present in 10-km radius.

3.0 ANTICIPATED ENVIRONMENTAL IMPACTS & ENVIRONMENT MANAGEMENT PLAN

The anticipated environmental impacts and mitigation measures are presented in **Table - 5**.

**TABLE - 5
ANTICIPATED ADVERSE ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES**

Discipline	Potential Negative Impacts	Probable Source	Mitigative Measures	Remarks
Constructional Impact				
Water Quality	Increase in suspended solids due to soil run-off during heavy precipitation	Loose soil at construction site	During monsoon season run off from construction site will be routed to a temporary sedimentation tank for settlement of suspended solids.	-
Air Quality	Increase in dust and NOx concentration	Leveling activity and Heavy vehicular movement	Sprinkling of water in the construction area and unpaved roads. Proper maintenance of vehicles will be done.	The impact will be low, as the main approach road will be tarred.
Noise	Increase in noise level	Construction equipment	Equipment will be kept in good condition to keep the noise level within 85-dB (A).	Workers will be provided with necessary protective equipment e.g. ear plug, earmuffs.
Terrestrial Ecology	Clearing of Vegetation	Soil enabling activities	Landscaping and extensive plantation will be done.	Plantation will be done in consultation with the local forest department.
Operational Impact				
Water Quality	Deterioration of surface water quality.	Discharge from domestic usages.	Adequate volume of septic tanks and dispersion trench will be provided.	---
Air Quality	Increase in PM, SO ₂ and NO ₂ levels in ambient air.	Stack emissions and raw material storage yards.	High efficiency wet venturi scrubber will be installed to control the emission from proposed induction and reheating furnaces. Adequate stack height will be provided as per CPCB guidelines for the proper dispersion of pollutants. Motorable roads in the plant area will be paved to reduce dust emission. Plantation programs will be undertaken around the plant area. Dust suppression measures will be implemented raw material handling area.	The resultant air quality will confirm to the stipulated standards. Particulate emission from the proposed furnaces stack will be kept below 150 mg/Nm ³ .

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Discipline	Potential Negative Impacts	Probable Source	Mitigative Measures	Remarks
Solid waste	Runner & Riser, Furnace slag, steel scraps, mill scale, ash	From furnaces, rolling mill, burners	Runner & Riser, steel scrap & mill scale will be recycled in process. The furnace slag will be used in cement plant / road laying material. Ash will be used in brick making units	Efforts will be made to utilize the solid waste to the extent possible.
Ecology				
a. Terrestrial	Impact on plant species	Emissions from stack	Emission will be controlled as well as dispersed through appropriate design.	As ambient air quality will be within limits, no active injury to the vegetation is expected.
b. Aquatic	Impact on aquatic life of the water bodies	Treated waste water	The domestic wastewater will be provided with adequate treatment facilities	As the sewage water will be treated properly no significant impact on aquatic life is expected.
Noise	Increase in noise levels in the plant area.	Equipment in main plant and auxiliaries	Equipment will be designed to conform to noise levels prescribed by regulatory agencies. Provision of green belt and plantation would further help in attenuating noise.	Employees working in high noise areas would be provided earplugs/ earmuffs as protective device.
Demography and Socio-economics	Strain on existing amenities like housing, water sources and sanitation, medical and infrastructure facilities.	Influx of people of proposed expansion employees as well as contractor's employees/labourers.	Most the workers requirement will be fulfilled by local people. No significant impact is envisaged	Overall socio-economic status of the area is expected to improve.

4.0 ENVIRONMENTAL MONITORING PROGRAM

Environmental monitoring will be conducted on regular basis by GSPL to assess the pollution level in the surrounding area. A comprehensive monitoring program is suggested in **Table - 6**.

**TABLE - 6
MONITORING SCHEDULE FOR ENVIRONMENTAL PARAMETERS**

Sr. No.	Particulars	Monitoring Frequency	Method of Sampling	Important Monitoring Parameters	
I	Air Pollution & Meteorology				
	A	Air Quality Monitoring			
	1	Eight locations in and around the plant	Once in a month	Fine Dust sampler	PM ₁₀ , PM _{2.5} , SO ₂ , NO ₂
	2	Work zone monitoring	Once in a month	Fine Dust sampler	PM ₁₀ & PM _{2.5}
	B	Stack Monitoring			
		All Stacks	Once in a month	Iso-kinetic	PM, SO ₂ & NO _x
C	Meteorology				

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Sr. No.	Particulars	Monitoring Frequency	Method of Sampling	Important Monitoring Parameters
	Wind speed, direction, temperature, relative humidity, atmospheric pressure, rainfall etc shall be monitored at plant site			
II	Water and Wastewater Quality			
	A Water Quality			
1	Ground Water 1. Wells in and around the plant	Once in a year	Grab	IS: 10500
III	Noise Levels			
	A Industrial Noise Levels			
	Major noise generating sources	Once in a month	8 hr continuous with 1 hr interval	Noise levels in dB (A)
	B Ambient Noise Levels			
	On the Plant Boundary at Ten directions	Once in a season	24 hr continuous with one hr interval	Noise levels in dB (A)
V	Soil Quality			
	In and around the plant at Six locations	Once in a year	Grab	Physio-chemical parameters

5.0 PROJECT BENEFITS

The proposed expansion project of GSPL will result in improvement of infrastructure as well upliftment of social structure in the area. The people residing in the nearby areas will be benefited directly and indirectly as well. It is anticipated that the proposed expansion of steel plant will provide benefits for the locals in two phases i.e., during construction phase as well as during operational phase of the steel plant.

5.1 Employment

The activity of project expansion will provide employment to persons of different skills and trades. The local population will have preference to get an employment. The employment potential will ameliorate economic conditions of these families directly and provide employment to many other families indirectly who are involved in business and service oriented activities. The total manpower required for the proposed expansion during the operation phase is about 80 persons which would be mainly sourced from local community in and around existing plant and few technical persons will be employed from outside area. In addition to the above, direct employment shall be provided to the contractual labour and indirect employment opportunities will also arise after expansion of steel melting plant.

5.2 Community Services

GSPL will employ local people to the extent possible. In addition, GSPL is developing necessary infrastructure like water supply, sewerage, medical facility, etc. for catering to the needs of the project personnel and their families, which will be also beneficial to the locals residing in the area. Some of the corporate social responsibility activities are listed below:

6.0 SOCIO-ECONOMIC DEVELOPMENT ACTIVITIES

It has been brought out during the socio-economic survey (based on census data) that non-workers constitute about 45.6 % of the total population in 10-km radius study area. Some of them will be available for employment in the proposed expansion project during construction activities. In addition to the opportunity of getting employment as construction labourers, the local population would also have employment opportunities in related service activities like petty commercial establishments, small contracts/sub-contracts and supply of construction materials for buildings and ancillary infrastructures etc. Consequently, this will contribute to economic upliftment of the area.

7.0 CONCLUSIONS

The proposed expansion of steel plant project will have certain level of marginal impacts on the local environment. However, development of this project has certain beneficial impact/effects in terms of providing the employment opportunities that the same will create during the course of its setting up as well as during operational phase of the project.

Thus, it can be concluded that with the judicious and proper implementation of the pollution control and mitigation measures, the proposed expansion project will be beneficial to the society and will help reduce the demand – supply gap of ingots and will contribute to the economic development of the region in particular and country in general.