

Executive Summary of Draft EIA Report
For
“PROPOSED EXPANSION IN SALEABLE CASTING PRODUCTS
FROM 27500 TPA TO 95040 TPA WITHIN THE EXISTING
PLOT AREA”

At

**S.F No 32/2, Plot No. A-3/1, SIPCOT Industrial Park, Thervoykandigai,
Gummidipoondi, Thiruvallur, Tamil Nadu-601202**

Existing Project Area: 8.0937 ha

Total Area After Expansion: 8.0937 ha

Proposed Production: Saleable casting: 27500 TPA to 95040 TPA

Activity and Category As per EIA Notification, 2006 : 3(a) Category ‘A’ (Appraised as Category ‘A’ due to GC applicability) and Industrial sheds & other building 8(a) Category ‘B’

TOR letter No: IA-J-11011/279/2024-IA-II(IND - I) dated 03.07.2025

PROJECT PROPONENT

M/s. BAETTR INDIA PRIVATE LIMITED

**Registered Address -: S.F No 32/2, Plot No: A-3/1, SIPCOT Industrial Park, Thervoykandigai
Village, Gummidipoondi Taluk, Tiruvallur District, Tamil Nadu-601202**

ENVIRONMENTAL CONSULTANT

M/S PERFECT ENVIROSOLUTIONS PVT. LTD. (PESPL)

**(NABET Registered List of Accredited Consultant Organisations/ NABET/EIA/
2225/RA 0284 (Rev.01) Valid Upto 26/11/2025)**

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1. INTRODUCTION

M/s. BAETTR INDIA PRIVATE LIMITED, a key entity within the global BAETTR Group, stands at the forefront of the renewable energy supply chain. Since its establishment in 2020, the company's advanced foundry in Tamil Nadu has become a pivotal supplier of large-scale cast components for the world's leading wind turbine manufacturers and its registered office at S.F No. 32/2, Plot No A-3/1, SIPCOT's Industrial Park, Gummidipoondi, Thervoy kandigai, Thiruvallur, Tamil Nadu-601202 is operating a Saleable casting unit mainly for wind turbine components, including design, casting, machining, surface treatment, and assembly solutions. The Manufacturing unit at Thervoy kandigai stands out for its focus on energy efficiency, logistical optimization, and sustainable practices.

The company's vision is aligned with the broader goal of reducing the total cost of ownership for wind energy, making it the most affordable and preferred global energy source. This commitment is underpinned by a robust policy on Health, Safety, Environment, and Quality (HSEQ), ensuring that all operations adhere to the highest standards of sustainability and legal compliance.

1.1 Project Description

M/s. BAETTR INDIA PRIVATE LIMITED proposes to expand its saleable casting unit for wind turbine components at S.F No. 32/2, Plot No A-3/1, SIPCOT Industrial Park, Gummidipoondi, Thervoy Kandigai, Tiruvallur, Tamil Nadu-601202. The expansion will increase production capacity from 27500 TPA to 95040 TPA and furnace panel board capacity from 5000 kW to 8000 kW within the existing 20-acre site, without additional land acquisition. The expansion project cost is ₹72.68 crore, bringing the total project cost to ₹287.59 crore.

The proposed expansion falls under EIA Notification 2006, Schedule No. 3(a) (Metallurgical Industries, Category A) and Schedule No. 8(a) (Industrial Sheds, Category B). Due to the Tamil Nadu-Andhra Pradesh interstate boundary (3.82 km WNW), the General Condition applies, classifying the project as Category A, requiring EC from the Expert Appraisal Committee, New Delhi. Terms of Reference (ToR) were granted by MoEF&CC on July 3, 2025 (Letter No. IA-J-11011/279/2024-IA-II(IND-I), Proposal No. IA/TN/IND1/479517/2024). An EIA study, compliant with ToR and EIA Notification 2006, assesses impacts on air, water, waste, and noise. Mitigation measures are proposed through an Environmental Management Plan. The EIA report and ToR compliance will be submitted to MoEF&CC for EC approval. The expansion will meet rising demand for wind turbine components, enhance energy efficiency, optimize logistics, and promote sustainability within the existing SIPCOT infrastructure.

1.2 About the Project

The existing unit operates under a Consent to Establish (CTE) issued by the Tamil Nadu Pollution Control Board on December 10, 2020 (Letter No. F.0969GMP/OL/DEE/TNPCB/GMP/A&W/2020, valid until March 31, 2025), which authorized the non-toxic secondary metallurgical process using an Electric Induction Furnace with a melting capacity below 30,000 TPA, exempting it from Environmental Clearance (EC). The current Consent to Operate (CTO), renewed on February 15, 2024

(Letter No. F.0969GMP/OL/DEE/TNPCB/GMP/A&W/2024, valid until March 31, 2026), permits ongoing operations. The proposed expansion falls under EIA Notification 2006, Schedule No. 3(a) (Metallurgical Industries, Category A) and Schedule No. 8(a) (Industrial Sheds, Category B), and is classified as Category A due to its proximity to the Tamil Nadu-Andhra Pradesh interstate boundary (3.82 km WNW), requiring EC from the Expert Appraisal Committee, New Delhi. The Ministry of Environment, Forest and Climate Change (MoEF&CC) granted Terms of Reference (ToR) on July 3, 2025 (Letter No. IA-J-11011/279/2024-IA-II(IND-I), Proposal No. IA/TN/IND1/479517/2024), guiding the Environmental Impact Assessment (EIA) study, which assesses impacts on air, water, waste, and noise, with mitigation measures outlined in an Environmental Management Plan. The EIA report and ToR compliance will be submitted to MoEF&CC for EC approval.

Table 1. Brief Description of site

Sr. No.	Particulars	Details			
1.	Location	S.F No 32/2, Plot No A-3/1, SIPCOT's Industrial Park, Thervoykandigai, Gummidipoondi, Thiruvallur, Tamil Nadu - 601202.			
2.	Project Coordinates	Latitude: 13°21'45.76"N Longitude: 79°59'27.05"E			
3.	Total Plot Area	Unit	Existing	Proposed	Total After Expansion
		ha	80,937.12	0	80,937.12
		Acres	20	0	20
4.	Total Build Up Area	Sq.m	18,471.82	27,979.288	46,451.108
5.	Project Cost	Unit	Existing	Proposed	Total After Expansion
		Crore	213.05	72.68	285.73
6.	Approach Road	Thervoy Kandigai Sipcot Road Road (0.02 km, south)			

Table 2. Land-use Breakup

S. No	Area Description	Unit	Plot Details			
			Existing Area	Proposed Area	After Expansion	Percentage (%)
1	Plinth Area	Sq.m	17089.93	4473.83	21563.76	26.64
2	Green belt Area*	Sq.m	20253.58	0.00	20253.58	25.02
3	Parking Area	Sq.m	2301.70	506.80	2808.50	3.47
4	Road/Pavement Area	Sq.m	12155.55	856.39	13011.94	16.08

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5	Utility Area (EB Yard)	Sq.m	137.33	702.72	840.05	1.04
6	Open Area	Sq.m	28999.01	22459.27	22459.27	27.75
Total		Sq.m	80937.1	28999.01	80937.1	100%

1.3 Location & Accessibility

- **Address:** S.F No 32/2, Plot No. A-3/1, SIPCOT Industrial Park, Thervoykandigai, Gummidipoondi, Thiruvallur, Tamil Nadu-601202.
- **Coordinates:** 13°21'45.76"N Latitude, 79°59'27.05"E Longitude.
- **Elevation :** 69 – 67 m (MSL)

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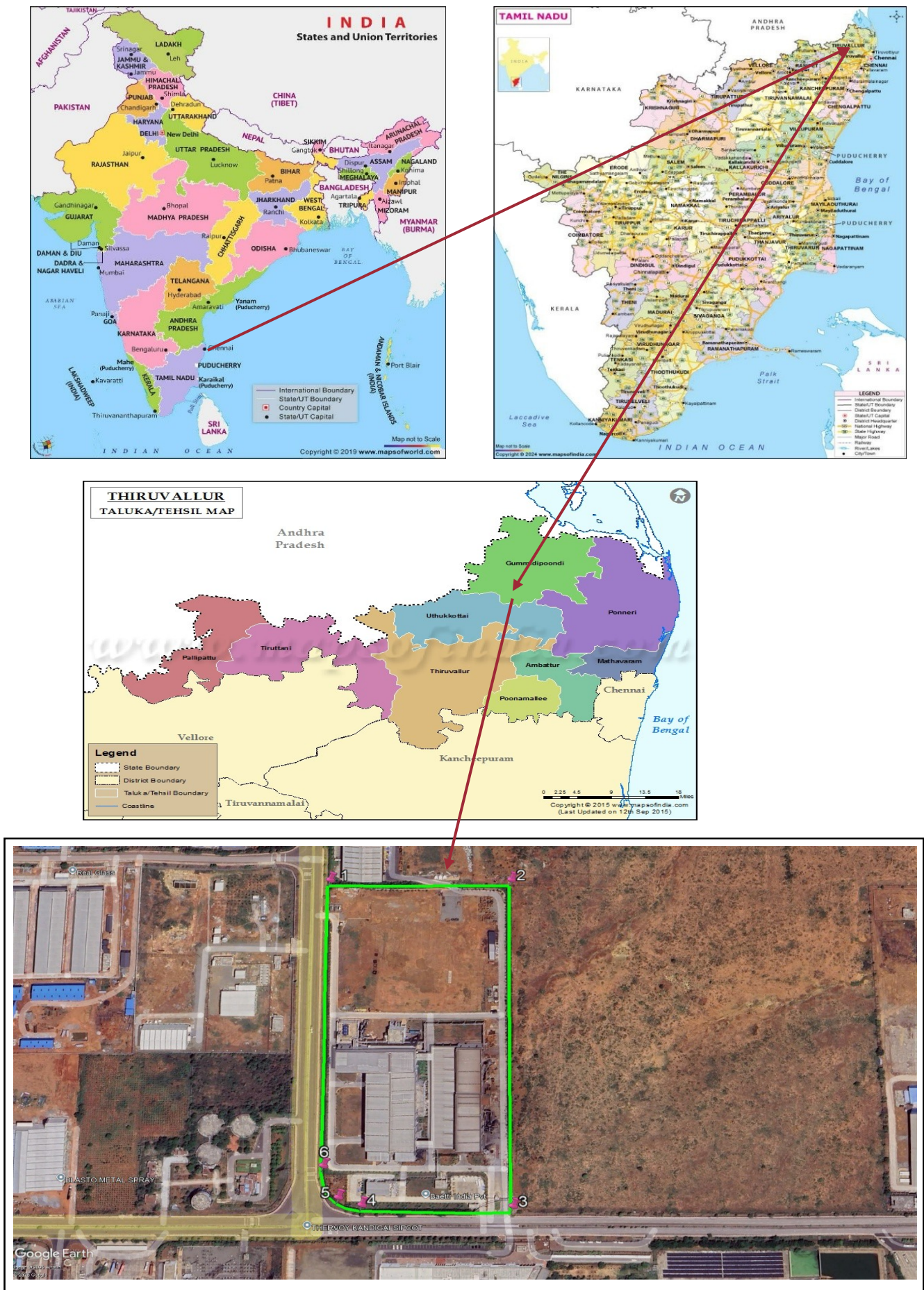


Figure 1. Site Location

Table 3. Site Coordinates

S. No	Latitude	Longitude	Mean Sea Level (MSL) m
1	13°21'52.48"N	79°59'23.73"E	60 - 67 m
2	13°21'52.52"N	79°59'30.34"E	
3	13°21'39.14"N	79°59'30.31"E	
4	13°21'39.20"N	79°59'25.06"E	
5	13°21'39.49"N	79°59'24.24"E	
6	13°21'40.73"N	79°59'23.69"E	

Environment Sensitivity :

Table 4. Project Site Specific Environmental Sensitivity Details

S. No	Description	Distance (Km)	Direction
Water Bodies			
1	Lake near Site	0.54	N
2	Lake near Gopalareddikandigai	1.15	NNW
3	Lake near Teruvai	1.16	NNE
4	Canal	2.04	SSE
5	Lake near Karadiputtur	2.44	W
6	Lake near Tambunaidupalaiyam	2.68	SSE
7	Lake near Kollanur	2.77	E
8	Sulameni Eri	3.05	S
9	Lake near Irukulam	3.58	N
10	Lake near Kannakottai	3.93	NW
11	Lake near Periyapuliur	4.42	ENE
12	Lake near Kakkavakkam	5.81	S
13	Lake near Errukuvay	5.99	E
14	Lake near Pettai	6.05	NE
15	Sathya Sai Canal / Telugu Ganga Canal	6.07	W
16	Arani River	6.85	SSE
17	Lake near Palavakkam	7.58	E
18	Lake near Kadarvedu	7.65	NNW
19	Uttukkottai Eri	7.89	WSW
20	Lake near Puvalambedu	8.11	NE
21	Canal	8.19	NW
22	Lake near Budur	8.52	NNW
23	Lake near Madarpakkam	8.64	N
24	Lake near Sengattakolam	8.74	SSE
25	Lake near Rajugunta	9.38	NW
26	Lake near Pallapadi	9.44	ESE
27	Lake near Mambakkam	9.65	SW

Forests			
1	Malandur RF	0.48	SSW
2	Palavakkam RF	0.61	ESE
3	Manali RF	2.53	ESE
4	Palavakkam RF	2.92	E
5	Sirurvedu RF	3.54	N
6	Panchali RF	3.62	N
7	Nemalur RF	5.23	N
8	Senjiyagaram RF	6.19	WSW
9	Ambakkam RF	7.84	WNW
10	Rajugunta RF	7.88	WNW
11	Sathyaveed RF	8.63	NW
Archaeological Areas			
1	Cairn site Sengarai	2.99	SSW
2	Megalithic cists and cairns Siruvadu	3.22	N
3	Megalithic cists and cairns Panchali	4.23	NNE
4	Urn burials Palavakkam	5.49	SSE
5	Megalithic cists and cairns Amirthanayagam	7.68	ENE
6	Megalithic cists and cairns w/ bounding stones Vanmalli	7.80	NE
Nearest Habitats			
1	Thandalam	5.49	SSE
2	Periyapalayam	7.80	SE
3	Satyaveedu	8.02	NNW

Table 5. Site Specific Social Infrastructure Details

S. No.	Description	Distance (km)	Direction
Common Places/Public Utility Centers			
1	Uthukkottai Police Station	0.59	WSW
2	Uthukottai Taluk Office	0.64	WSW
3	Fire Station	0.94	N
4	Soolaimeni Panchayat Office	5.26	S
5	Library	6.14	SE
6	Perandur Post Office (PO)	7.22	SW
7	Nemalur Panchayat Office	7.44	N
8	Panchayat Union Office	7.80	SE
9	Enambakkam Post Office (PO)	7.97	S
10	Periyapalayam Police Station	8.03	SE
11	Satyaveedu Mini Stadium	8.12	NNW
12	Arani Town Panchayat Office	9.87	SSW
13	Arani Branch Library	9.88	SSW
Religious Places			
1	Arulmigu Kattu Selli Amman Temple	0.78	SW
2	CSI St Marks Church	0.96	NNE

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3	Pitchaleeshwarar Temple	1.43	WSW
4	Perumal Kovil	1.46	NNE
5	C.S.I Yesu Anbar Aalayam	2.55	W
6	Karadiputhur Vinayagar Temple	2.62	W
7	Sri Rukmani Sametha Venugopala Temple	2.83	ENE
8	ECI Church	3.61	NNW
9	Bethel Church of Christ	4.96	S
10	Sri Kalahasti Sivan Temple	6.79	SW
11	Srinivasa Perumal Temple	7.03	NE
12	Sri Shakthi Amman Temple	7.14	SW
13	Shri Lakshmi Narayan Temple	7.23	SSW
14	Periyapalayam Amman Temple	7.86	SE
15	Sai Baba Temple	7.88	ENE
16	Sri Kalabhairavar Temple	8.25	WSW
17	Venugopalaswamy Temple	8.36	NNE
18	Ankamma Temple	8.42	NW
19	Sri Saibaba Temple	8.42	ESE
20	Shivan Temple	8.49	SE
21	West Madharpakkam Church of Christ	8.50	N
22	Sri Angala Parameswari Amman Temple	8.57	NNE
23	Masjid-E-Mohamed	8.63	N
24	Venkateshwara Swamy Temple	8.63	NNW
25	Sri Anjathamman Temple	8.78	ESE
26	Venkaya Swamy Temple	8.88	ENE
27	Sri Ramalinga Chowdeswari Temple	9.05	N
28	Avinasiyappar Temple	9.11	E
29	Church of Christ Madarapakkam	9.39	NNE
30	Jamia Masjid	9.87	WSW
31	Chinna Malayanore Kovil	9.90	E
32	Shri Sundara Vinayakar Temple	9.99	N
Hospitals			
1	PHC	3.59	NNW
2	PHC Kannakottai	3.68	NNW
3	PHC Perambur Kandigai	5.93	SSW
4	GPHC Periyapalayam	7.74	SE
5	PHC Enambakkam	7.97	S
6	Nalam Clinic	8.83	N
7	MMC	9.08	N
8	GH Madarpakkam	9.20	N
9	GH (Sub)	9.48	N
Schools & Colleges			
1	Thervoi Kandigai Anganwadi	0.91	NNE
2	Govt ADW High School	1.03	NE

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3	PUMS GR Kandigai	2.09	WNW
4	GHSS Kannankottai	3.38	NNW
5	Sri Sankara Mat School	5.59	S
6	PUMS Nelvoy	5.59	SE
7	GHSS Palavakkam	5.68	SW
8	Sri Lakshmi Vidyalaya Matriculation School	5.87	SW
9	CAAD - Chennai Academy of Architecture and Design	6.12	SSE
10	Govt Middle School	6.22	NNE
11	GHS Poovalambedu	6.88	NE
12	Govt. School	7.17	SSW
13	GHSS	7.57	SE
14	Maharishi Vidya Mandir	7.60	N
15	GHSS Periyapalayam	7.85	SE
16	GHSS	7.87	ENE
17	GHSS	8.00	NW
18	Victoria Matric Hr Sec School	8.04	SE
19	Sri C Dass Arts & Science College	8.25	NNW
20	ZPHS	8.29	WNW
21	Don Bosco Matriculation School	8.33	N
22	Govt College	8.42	NW
23	Govt Junior College	8.44	NNW
24	St. Joseph Mat. HSS	8.57	SE
25	ZPHS Pudupakkam	9.25	W
26	GGHSS Madharpakkam	9.34	NNE
27	Don Bosco Mat.HSS	9.36	WSW
28	GBHSS Madharpakkam	9.43	NNE
29	APSWREIS School	9.54	NNW
30	Govt Polytechnic College	9.63	NNW
31	GHS Mambakkam	9.68	SW
32	Venkateshwara Mat. School	9.89	WSW
33	PUP School	9.96	E
34	Govt PS	9.92	ESE

Table 6. Project Site Specific Connectivity Details

S. No	Description	Distance (Km)	Direction
Railway Connectivity			
1	Gummidipoondi Railway Station	~15.09	NNE
2	Chennai International Airport	~42.86	SE
Nearest Town, City, and District Headquarters			
1	Town: Periyapalayam	~7.80	SE
2	City: Chennai	~25.34	SE
3	District HQ: Tiruvallur	~23.42	SSW

Road Connectivity			
1	NH 716A: Tirupathi Road (NH 16 near Chennai, TN – NH 40 near Kadapa, AP)	~5.25	S
2	SH 52: Kavarapettai – Sathiyavedu	5.92	NNE

1.4 Project Description

Product Capacity :

Table 7. Production Capacity

S. No.	Name of Unit	Unit	Capacity			End use of Product
			Existing	Proposed	After Expansion	
1.	Saleable casting	TPA	27500	67540	95040	Components are mainly used for wind turbine.
2	Industrial Sheds & Buildings	Sq.m	18471.82	27979.288	46,451.108	Mainly for Industrial Sheds, Admin Building, RM & FM storage

Production Process and Major Machinery

The manufacturing process for saleable castings begins with the receipt and inspection of ferrous scrap and alloying materials, which are stored in covered yards with impervious flooring to prevent contamination. The materials are charged into **electric induction furnaces** where they are melted under controlled conditions to achieve the desired metallurgical specifications. The molten metal is transferred in preheated ladles for refining and deoxidation before being poured into moulds prepared using automated and semi-automated moulding lines. Sand preparation units ensure uniform mould quality, while core making machines produce complex internal shapes where required. After pouring, moulds are allowed to cool, and the solidified castings are separated, fettled, and cleaned through **shot blasting** to remove residual sand and surface impurities. The castings are then precision-machined in **CNC machining centres** and conventional machines to meet dimensional accuracy and finish requirements. Throughout the process, dust and fume emissions are captured through high-efficiency air pollution control devices to ensure compliance with CPCB/TNPCB norms.

Major machinery and equipment proposed/installed include:

- Electric induction furnaces for melting operations.
- Metal handling ladles for molten metal transfer.
- Automated and semi-automated moulding lines.
- Sand preparation units for mould quality control.
- Core making machines for internal casting geometries.
- Shot blasting machines for cleaning and surface finishing.
- CNC machining centres for precision finishing.
- Conventional machining equipment (lathes, milling, drilling).
- Overhead cranes, forklifts, and conveyors for material handling.
- Air pollution control devices (bag filters, dust collectors).
- CPCB-compliant DG sets with acoustic enclosures and stack height as per norms for backup power.

Greenbelt Development

In line with CPCB and TNPCB guidelines, a greenbelt covering about **33% of the 20-acre (80,937 m²)** plot has been established to mitigate dust, noise, and fugitive emissions. Currently, **6.8 acres (27,518 m²)** are under plantation with around **800 native and pollution-tolerant trees** such as *Azadirachta indica* (Neem), *Polyalthia longifolia* (Ashoka), *Cassia fistula* (Golden Shower), and *Ficus religiosa* (Peepal). An additional **0.8 acres (3,237 m²)** will be developed with approximately **200 new trees**, bringing the total greenbelt to **7.6 acres (30,755 m²)**. The layout follows a three-tier plantation system to enhance air quality, reduce noise, improve the microclimate, and support local biodiversity.

Raw Material Requirement

The facility will continue to use ferrous scrap and alloying materials sourced from approved suppliers. Materials will be stored in covered yards with impervious flooring, and handling systems will be upgraded to minimise dust generation and prevent environmental contamination, ensuring efficient supply chain integration with the enhanced production scale.

Fuel Requirement

Production uses electric induction furnaces, eliminating fossil fuel consumption in the core process. High-speed diesel (HSD) will be required only for DG sets during power outages, with minimal annual consumption sourced from authorised dealers. DG sets will comply with CPCB emission and noise control norms.

Water Requirement and Rainwater Harvesting

Water will be sourced from SIPCOT's industrial supply, with total demand increasing from **261 KLD to 401 KLD** for process, cooling, domestic, and greenbelt use. A rainwater harvesting system will capture rooftop and paved area runoff after first-flush diversion and filtration, yielding an estimated **4,164.66 m³/year**. Recharge will be facilitated through over 20 percolation pits, recharge trenches, and borewell linkages to reduce dependence on external sources.

Solid and Hazardous Waste Management

The facility generates about **4,500 TPA** of metallic scrap, **2,000 TPA** of non-hazardous furnace slag, and **250 TPA** of dust from air pollution control devices, all recycled or disposed of through authorised agencies. Hazardous wastes include **0.5 KL/year** of spent oil, **0.2 TPA** of oil-contaminated rags/PPE, **~100 used containers/year**, and **5 TPA** of ETP/STP sludge, stored in a secured impervious-floored area before disposal to authorised TSDFs or recyclers in compliance with CPCB/TNPCB norms.

Employment Potential

The facility will employ **250 permanent** and **459 contractual** workers during operations, along with around **100 indirect jobs** in logistics, maintenance, raw material supply, and ancillary services, contributing to sustained income generation and regional economic growth.

2. BASELINE ENVIRONMENTAL STUDIES

The baseline environmental study was undertaken for the period from April 2025 to June 2025, covering the summer season. The assessment encompassed a 10 km radius from the project site and included a detailed evaluation of air, noise, water, soil, ecological, and socio-economic components. The findings provide a stable environmental reference framework to support the proposed expansion.

Meteorology

Meteorological observations during the study period recorded a mean maximum temperature of 35.5°C and a minimum of 25.2°C, with relative humidity ranging between 60% and 85%. Wind speeds averaged 3.5 m/s, predominantly from the southeast to northwest direction, while total rainfall during the season averaged 50 mm. Micro-meteorological monitoring confirmed a temperature variation from 25.2°C to 35.5°C, relative humidity between 60% and 85%, and wind speeds from 2.0 to 5.0 m/s, maintaining a consistent SE directional flow. The stable meteorological pattern supports reliable environmental monitoring and reflects low variability in climatic stress during the period.

Ambient Air Quality

Core Zone:

During the monitoring period, the mean PM₁₀ concentrations in the core zone ranged from 46.92 to 48.33 µg/m³, while PM_{2.5} ranged from 22.09 to 22.75 µg/m³, both within the NAAQS limits of 100 µg/m³ and 60 µg/m³ respectively. Sulphur dioxide (SO₂) levels were between 6.29 and 6.48 µg/m³, and nitrogen dioxide (NO₂) ranged from 19.13 to 19.70 µg/m³, well below the NAAQS limit of 80 µg/m³. Carbon monoxide (CO) was consistently measured at 0.18 mg/m³, against the standard of 2.0 mg/m³. Ozone (O₃) levels ranged from 15.49 to 15.96 µg/m³, significantly below the permissible limit of 180 µg/m³. Volatile organic compounds (VOC), Total hydrocarbons- µg/m³, (THC), Hg, NH₃, BaP, As, Ni, Pb and benzene (C₆H₆) are below the detection levels.

Based on CPCB's Air Quality Index (AQI), the air quality in the core zone was classified as **Satisfactory** during the study period (1st April 2025 to 30th June 2025 , Summer season).

Buffer Zone:

The mean value of PM₁₀ at buffer zone locations ranges from (49.74 µg/m³ -58.18 µg/m³) & PM_{2.5} ranges from (23.41 µg/m³ -27.38 µg/m³), SO₂ ranges from (6.66 µg/m³ -7.79 µg/m³), NO₂ ranges from (20.27µg/m³ - 23.72 µg/m³), CO (0.19 µg/m³ -0.22 mg/m³), O₃ (16.42µg/m³ -19.21 µg/m³) which are within the limits of National Ambient Air Quality Standards (NAAQS).

According to CPCB AQI categorisation, the buffer zone air quality during the monitoring period (1st April 2025 to 30th June 2025 , Summer season) was assessed as **Satisfactory**.

Ambient Noise Quality

Core Zone :

The ambient noise level during day time at the proposed project site varies from 55.7 dB (A) to 55.9 dB (A) which are within the day time standard limit of Industrial area ~75.0 dB (A). During night,

the noise level at the project site ranges from 44.6 dB (A) to 44.8 dB (A) which are within the night time standard limit of Industrial area 70.0 dB (A).

Buffer Zone :

N3: The daytime ambient noise level at Periyapuliur Village is 53.7 dB (A) which is within the daytime noise standard limit of the Residential area of ~ 55.0 dB (A). During the night the noise level was recorded at 42.8 dB (A) which is within the night-time noise standard limit of ~ 45.0 dB (A).

N4: The daytime noise level at Aramani is 52.8 dB (A) which is within the day time noise standard limit of ~ 55 dB (A). During the night the noise level was recorded at 42.5 dB (A) which is within the night-time noise standard limit of ~ 45 dB (A).

N5: The daytime ambient noise level at Manali is 53.1 dB (A) which is within the daytime noise standard limit of the Residential area of ~ 55.0 dB (A). During the night the noise level was recorded at 43.7 dB (A) which is within the night-time noise standard limit of ~ 45.0 dB (A).

N6: The daytime ambient noise level at Nelvay is 53.3 dB (A) which is within the daytime noise standard limit of Residential area ~ 55.0 dB (A). During the night the noise level was recorded at 43.1 dB (A) which is also within the night-time noise standard limit of ~ 45.0 dB (A).

N7: The daytime noise level at Lachivakkam is 54.7 dB (A) which is within the daytime noise standard limit of Residential area ~ 55 dB (A). During the night the noise level was recorded at 44.2 dB (A) which is within the night-time noise standard limit of ~ 45 dB (A).

N8: The daytime noise level at Taratshi village is 54.9 dB (A) which is within the daytime noise standard limit of Residential area ~ 55.0 dB (A). During the night the noise level was recorded at 44.4 dB (A) which is within the night-time noise standard limit of ~ 45 dB (A).

N9: The daytime noise level at Karadiputtur is 53.9 dB (A) which is within the daytime noise standard limit of Residential area ~ 55.0 dB (A). During the night the noise level was recorded at 43.8 dB (A) which is within the night-time noise standard limit of ~ 45 dB (A).

Groundwater Quality

Core Zone :

In the **core zone**, the groundwater analysis indicates a Total Dissolved Solids (TDS) level of **456 mg/l**, which is within the acceptable limit of 500 mg/l and well below the permissible limit of 2000 mg/l as per IS 10500:2012 standards. Total hardness is **100 mg/l**, within the acceptable limit of 200 mg/l and far below the permissible limit of 600 mg/l. Alkalinity is recorded at **64.41 mg/l**, well within the acceptable and permissible limits of 200 mg/l and 600 mg/l respectively. The chloride concentration is **86 mg/l**, comfortably within the acceptable limit of 250 mg/l. These results confirm that the groundwater quality in the core zone complies with IS 10500:2012 (Drinking Water Standards).

Buffer Zone :

In the **buffer zone**, TDS levels range from **160 mg/l to 748 mg/l**, with most locations within the acceptable limit of 500 mg/l and all below the permissible limit of 2000 mg/l. Total hardness varies between **64 mg/l and 412 mg/l**, remaining largely within the acceptable limit of 200 mg/l and well within the permissible limit of 600 mg/l. Alkalinity ranges from **34.30 mg/l to 354.47 mg/l**, again predominantly within acceptable and all within permissible levels. Chloride concentrations vary between **46 mg/l and 168 mg/l**, all within the acceptable limit of 250 mg/l. Overall, groundwater quality parameters across both the core and buffer zones are compliant with IS 10500:2012 standards.

Surface Water Quality

Surface water samples were collected for 8 locations namely "Kannankottai Thervoykandigai Reservoir", Telugu Ganga Canal, Sulameni Eri, Lake near Karadiputtur, Uttukkottai Eri, Puvalambedu Pond, Arani River upstream, Arani River downstream. As per the samples collected and analyzed from locations SW1, SW2, SW3, SW4, SW5, SW6, SW7 and SW8 surface water quality is meeting the criteria defined by class “E” as per the CPCB criteria. It is suitable for Irrigation, Industrial Cooling, Controlled Waste disposal.

1. The surface water quality of the "Kannankottai Thervoykandigai Reservoir" shows that the values of the parameters including TDS, total hardness chloride, fluoride, calcium, magnesium, iron, sulphate, nitrate nitrogen and alkalinity are within the IS drinking water quality standards. Electrical Conductivity value indicating that the surface water quality of "Kannankottai Thervoykandigai Reservoir" can be placed in Class “E” i.e. Irrigation, Industrial Cooling, Controlled Waste disposal per CPCB surface water quality - Designated Best Use Water Quality Criteria.
2. The surface water quality of the Telugu Ganga Canal shows that the values of the parameters including TDS, total hardness chloride, fluoride, calcium, magnesium, iron, sulphate, nitrate nitrogen and alkalinity are within the IS drinking water quality standards. Electrical Conductivity value indicating that the surface water quality of Telugu Ganga Canal can be placed in Class “E” i.e. Irrigation, Industrial Cooling, Controlled Waste disposal per CPCB surface water quality - Designated Best Use Water Quality Criteria.
3. The surface water quality of the Sulameni Eri shows that the values of the parameters including TDS, total hardness chloride, fluoride, calcium, magnesium, iron, sulphate, nitrate nitrogen and alkalinity are within the IS drinking water quality standards. Electrical Conductivity value indicating that the surface water quality of Sulameni Eri can be placed in Class “E” i.e. Irrigation, Industrial Cooling, Controlled Waste disposal per CPCB surface water quality - Designated Best Use Water Quality Criteria.
4. The surface water quality of the Lake near Karadiputtur shows that the values of the parameters including TDS, total hardness chloride, fluoride, calcium, magnesium, iron, sulphate, nitrate nitrogen and alkalinity are within the IS drinking water quality standards. Electrical Conductivity value indicating that the surface water quality of Lake near Karadiputtur can be placed in Class “E” i.e. Irrigation, Industrial Cooling, Controlled Waste disposal per CPCB surface water quality - Designated Best Use Water Quality Criteria.

5. The surface water quality of the Uttukkottai Eri shows that the values of the parameters including TDS, total hardness chloride, fluoride, calcium, magnesium, iron, sulphate, nitrate nitrogen and alkalinity are within the IS drinking water quality standards. Electrical Conductivity value indicating that the surface water quality of Uttukkottai Eri can be placed in Class “E” i.e. Irrigation, Industrial Cooling, Controlled Waste disposal per CPCB surface water quality - Designated Best Use Water Quality Criteria.
6. The surface water quality of the Puvalambedu Pond shows that the values of the parameters including TDS, total hardness chloride, fluoride, calcium, magnesium, iron, sulphate, nitrate nitrogen and alkalinity are within the IS drinking water quality standards. Electrical Conductivity value indicating that the surface water quality of Puvalambedu Pond can be placed in Class “E” i.e. Irrigation, Industrial Cooling, Controlled Waste disposal per CPCB surface water quality - Designated Best Use Water Quality Criteria.
7. The surface water quality of the Arani river Upstream shows that the values of the parameters including fluoride, calcium, iron, sulphate nitrate and nitrogen are within the IS drinking water quality standards. Electrical Conductivity value indicating that the surface water quality of Arani river Upstream can be placed in Class “E” i.e. Irrigation, Industrial Cooling, Controlled Waste disposal per CPCB surface water quality - Designated Best Use Water Quality Criteria.
8. The surface water quality of the Arani river Downstream shows that the values of the parameters including fluoride, calcium, iron, sulphate nitrate and nitrogen are within the IS drinking water quality standards. Electrical Conductivity value indicating that the surface water quality of Arani river Upstream can be placed in Class “E” i.e. Irrigation, Industrial Cooling, Controlled Waste disposal per CPCB surface water quality - Designated Best Use Water Quality Criteria.

Land Use and Land Cover

Land use and land cover analysis within the 10 km radius revealed that agricultural land is the predominant category, covering 16,761.45 hectares (50.39%), followed by open land at 6,042.23 hectares (18.17%), water bodies at 4,200 hectares (12.63%), forest areas at 3,500 hectares (10.52%), and built-up areas at 2,433.32 hectares (7.32%). This distribution reflects the rural nature of the study area, where agricultural and open lands dominate the landscape, maintaining a balanced ecological and human land use profile.

Soil Quality

Core Zone :

After analyzing the samples collected from the site, it shows that the soil texture is 6/6 Bright yellowish Brown and 5/4 Dull Reddish Brown, pH ranges from 7.58 to 7.79. The amount of primary nutrients like Organic matter ranges from 1.01 to 1.25 %, the available nitrogen 92.4 to 106.8 mg/kg is low to medium and available Potassium 15.9 to 21.3 is low to medium and the available Phosphorus 7.9 to 9.1mg/kg is medium to high range.

The overall fertility of this soil would be considered moderate to low. The low levels of organic matter, nitrogen, phosphorous and potassium suggest that the soil may need amendments, particularly organic matter and fertilizers, to improve fertility.

Buffer Zone :

The soil texture is 5/8Bright Brown and 5/4 Dull Reddish Brown, pH ranges from 7.02 to 9.92. The amount of primary nutrients like Organic matter ranges from 0.78 to 1.84 %, the available nitrogen 76.4 to 174.6 mg/kg is low to high and available Potassium 19.4 to 49.5 is medium to high and the available Phosphorus 7.1 to 10.9 mg/kg is low to high range.

The overall fertility of this soil would be considered adequate due to high levels of phosphorus, organic matter, nitrogen, and potassium.

Biological Environment

The biological environment in the core and buffer zones is characterized by a diversity of native flora, including *Azadirachta indica* (Neem), *Ficus religiosa* (Peepal), *Ficus benghalensis* (Banyan), *Acacia nilotica* (Babul), *Prosopis juliflora*, *Abrus precatorius* (Gunja), and *Bombax ceiba* (Cotton Tree), along with various shrubs and herbs. Faunal diversity includes bird species such as *Corvus splendens* (House Crow), *Passer domesticus* (Sparrow), and *Acridotheres tristis* (Common Myna); mammals like *Funambulus palmarum* (Squirrel), *Macaca radiata* (Bonnet Macaque), and *Cervus unicolor* (Sambar); and reptiles including *Varanus bengalensis* (Bengal Monitor) and *Naja naja* (Indian Cobra). Ten Schedule I species, including the Bonnet Macaque and Peafowl, were recorded, underlining the ecological sensitivity of the area. The presence of these species reinforces the need for continued conservation measures, including habitat protection and native species greenbelt development.

Socio-Economic Environment

The socio-economic profile of the study area reflects a population of approximately 50,000 with a literacy rate of 70% and a sex ratio of 950 females per 1,000 males. The local economy is primarily driven by agriculture (50%), wage labor (30%), and private or government service (20%). The region has adequate infrastructure, including potable water supply, sanitation, healthcare facilities, roads, electricity, educational institutions, banking facilities, and public transport. The project is expected to contribute positively to local employment and infrastructure development through Corporate Environmental Responsibility (CER) initiatives. Educational and healthcare facilities are accessible within 0.5 to 5 km and 1 to 4 km respectively, with banking services available within a 2 to 6 km range. The socio-economic environment thus demonstrates a stable rural economy with strong potential for further improvement through project-driven community benefits.

3. ANTICIPATED ENVIRONMENTAL IMPACTS & MITIGATION STRATEGY

This chapter evaluates the potential environmental impacts of the proposed expansion project and outlines the corresponding mitigation measures. The assessment covers both the construction and operational phases, with specific attention to air, water, land, soil, socio-economic factors, biodiversity, noise, hydrology, waste management, and traffic.

3.1 Air Environment

During construction, dust emissions will result from excavation, material handling, and vehicular movement. In operation, the primary emissions will arise from melting furnaces and DG sets. Air dispersion modelling predicts that post-mitigation pollutant concentrations for PM₁₀, PM_{2.5}, SO₂, NO₂, and CO will remain within NAAQS limits.

Mitigation includes:

- Regular water sprinkling and covering of dusty materials.
- Enclosed raw material storage and covered trucks.
- High-efficiency pulse jet bag filters with adequate stack height.
- Routine maintenance of air pollution control devices.
- Implementation of a **35 % greenbelt** (inclusive of SIPCOT's **10 % OSR allocation**).

3.2 Water Environment

The project's total water requirement is **800 KLD**, sourced from SIPCOT supply. Domestic wastewater during construction will be treated in mobile STPs and reused for landscaping. In operation, process and utility wastewater will undergo treatment in a dedicated ETP, followed by RO and MEE. Key controls include segregation of wastewater streams, periodic monitoring, and prevention of any untreated discharge.

3.3 Land Use

The site occupies **10.76 hectares (26.59 acres)** within the SIPCOT Industrial Park, classified as **industrial use**.

- **Built-up area: ~6.99 acres (~26.3 %)** for buildings, paved yards, and process units.
- **Greenbelt and OSR: ~9.31 acres (~35 %)**, including **2.66 acres (10 % OSR)** handed over to SIPCOT.
- **Remaining area:** utilities, storage yards, and internal roads.

No forest land, wetlands, or ecologically sensitive zones exist within the core zone. The 10 km study area includes agricultural land, built-up areas, and water bodies, with no encroachment on reserved forest or notified wetlands.

The greenbelt will be developed with native, dust-tolerant species to act as dust/noise barriers, enhance aesthetics, and support biodiversity.

3.4 Soil Quality

Soils in the study area are sandy loam to clay loam, with pH between 6.5 and 8.1. Risks include contamination from hazardous material handling and erosion from site clearance. Measures include impervious flooring in hazardous storage, spill containment systems, and phased construction to minimise erosion. Any contaminated soil will be disposed of at an authorised TSDF.

3.5 Socio-Economic Environment

The project will generate {Direct_Jobs} direct and {Indirect_Jobs} indirect employment opportunities. Construction activities will prioritise local labour, and operational manpower will include skilled and semi-skilled personnel from nearby areas. CSR programs will focus on education, health, and vocational training.

3.6 Ecology and Biodiversity

No endangered floral species were recorded in the core zone. Three Schedule I faunal species were observed in the buffer zone. Impacts will be mitigated by dust suppression, noise control, and restricting nighttime heavy vehicle movement near sensitive habitats. The greenbelt will enhance biodiversity by providing microhabitats.

3.7 Noise and Vibration

Noise from construction machinery and operational equipment will be managed through acoustic enclosures, equipment maintenance, and restricting high-noise work to daytime hours. PPE such as earplugs will be provided to workers in high-noise zones.

3.8 Hydrology and Geology

The site's drainage pattern will be preserved via a stormwater network with silt traps. There is no significant impact on groundwater as water is supplied externally. Separate drains for stormwater and process water will be maintained.

3.9 Solid and Hazardous Waste Management

Solid Waste

- Municipal waste: ~30 kg/day (construction), ~50 kg/day (operation).
- Construction debris: reused for site levelling and road sub-base.

Hazardous Waste (as per Draft EIA)

- Used oil: ~1.5 KL/year (to authorised recyclers).
- ETP sludge: ~180 T/year (to TSDF).
- Discarded containers/barrels: ~2 T/year (to authorised recyclers).

All hazardous waste will be stored in an impervious, covered area with spill containment and disposed of only through TNPCB-authorised recyclers or TSDF facilities. Waste minimisation will

be pursued through material reuse and process optimisation.

3.10 Traffic Density

The expansion will increase truck movements for raw materials and product transport. Traffic studies confirm that existing SIPCOT internal roads and the connected NH/SH network can accommodate the additional load. Scheduling vehicle movement during non-peak hours and ensuring all vehicles meet emission norms will further reduce impacts.

4. ALTERNATIVE ANALYSIS

The proposed activity involves the **expansion of saleable casting products from 27,500 TPA to 95,040 TPA** within the existing industrial premises of **20 acres (8.0937 ha)** at Plot No. A-3/1, SIPCOT Industrial Park, Thervoykandigai, Gummidipoondi, Thiruvallur District, Tamil Nadu.

Site Assessment

- **Land Availability :** The total plot area of 20 acres under the possession of the proponent is adequate to accommodate the proposed expansion, including all associated facilities such as production units, greenbelt development, internal roads, parking areas, utilities, and designated zones for hazardous waste storage and handling.
- **Connectivity:** The site is strategically located with excellent multi-modal connectivity. It is 5.92 km NNE from SH-52 (Kavarapettai–Satyavedu corridor) and 5.25 km south from NH-716A, which links NH-16 (Chennai) to NH-40 (Kadapa). The Gummidipoondi Railway Station, located 15.09 km NNE, supports freight and cargo movement. Chennai International Airport (42.86 km SE) offers both passenger and cargo handling, while Chennai Port (39.9 km SE) facilitates containerised and bulk cargo operations.
- **Rehabilitation and Resettlement :** The proposed expansion will be carried out entirely within the existing premises; hence, no rehabilitation or resettlement issues arise.
- **Infrastructure Utilization :** Expansion within the current premises enables optimal use of the existing utilities, infrastructure, and environmental management systems, thereby reducing additional environmental and social footprints.

Conclusion:

Given the availability of adequate land, strategic connectivity, absence of displacement issues, and the ability to leverage existing infrastructure, the present site is the most suitable location for the proposed expansion. This approach ensures operational efficiency, cost-effectiveness, and minimal environmental impact.

5. ENVIRONMENTAL MONITORING PROGRAMME

A rigorous, multi-faceted environmental monitoring program will be instituted to ensure unwavering compliance and continuous improvement. This program will provide real-time and periodic data on all critical environmental parameters.

Monitoring Frequency	Parameters	No. of Locations	Numbers Per Year	Responsibility of Maintaining Records
Ambient Air Quality	PM ₁₀	2 in Onsite and 6 in Buffer	24	NABL Accredited Lab Result External Laboratory analyst & incharge
	PM _{2.5}			
	SO ₂			
	NO _x			
	VOCs			
Stack Monitoring	PM	All Stacks	12	NABL Accredited Lab Result External Laboratory analyst & incharge
	SO			
	NO _x			
	VOCs			
Day & Night level Noise Monitoring-Monthly	Leq Day & Leq Night	2 in Onsite and 6 in Buffer	24	NABL Accredited Lab Result External Laboratory analyst & incharge
Surface Water Quality	As per IS:2296	1 on-site and 7 offsite	2	NABL Accredited Lab Result External Laboratory analyst & incharge
Ground Water Quality	As per IS:10500	8 in offsite locations	2	NABL Accredited Lab Result External Laboratory analyst & incharge
Wastewater Quality	pH, TSS, BOD, COD, Oil & Grease, etc.	1	12	NABL Accredited Lab Result External Laboratory analyst & incharge

Soil Quality	All Parameters to check soil fertility & the presence of Pesticide	1 in onsite & 7 in Offsite	8	NABL Accredited Lab Result External Laboratory analyst & incharge
Records of generation, handling, storage, transportation and disposal-Daily	Hazardous, Non Hazardous, E waste, Organic waste, recyclable waste, manure generated	-	5	Logbooks
Sludge Characteristics and Quantity-Monthly	TCLP test and Quantity	ETP Sludge, STP sludge	24	NABL Accredited Lab Result External Laboratory analyst & incharge
Greenbelt Development & Montoring-Yearly	Survival rate of the planted Trees, Greenbelt development status	All plantation areas	1	Logbooks EMC (gardener) - External
Checking effectiveness of the Corporate Social Responsibility/ Corporate Environmental Responsibility Yearly	cost spent and where it is carried out	-	1	Audit Reports CSR Team
Energy Savings	Energy consumption in terms of 1. Quantity of fossil fuels 2. Power drawn Renewable energy 1. Solar harvesting 2. use of Alternate source of energy	-	1	Energy meter Utility Team

“ Proposed Expansion In Saleable Casting Products From 27500 TPA To 95040 TPA Within The Existing Plot Area ” at S.F No 32/2, Plot No. A-3/1, Sipcot Industrial Park, Thervoy kandigai, Gummidipoondi, Thiruvallur, Tamil Nadu-601202 by M/s. Baettr India Pvt.Ltd.,

Work Zone Monitoring	PM, SO ₂ , NO _x ,SO ₂ ,CO ₂ , CO VOCs	Process Area, DG Set Area	12	NABL Accredited Lab Result External Laboratory analyst & incharge
		Raw material and finished good Storage Area		

An estimated **INR 14.4 Lakhs** is budgeted annually for this comprehensive monitoring program during the operational phase.

6. ADDITIONAL STUDIES

6.1 Introduction

Hazard Identification and Risk Management

Hazard identification and risk management are critical to ensuring that plant operations remain safe, sustainable, and compliant with statutory requirements. This process begins with a systematic evaluation of the manufacturing activities, utilities, and associated infrastructure to identify potential hazards, assess their likelihood and consequences, and implement preventive and mitigative measures.

The analysis of the proposed facility indicates that hazards can broadly be classified into fire and explosion risks, chemical hazards, mechanical hazards, electrical hazards, and physical hazards. Fire hazards are associated mainly with the storage and handling of fuels, paints, and certain solvents. Chemical hazards arise from the use of substances such as resins, hardeners, fluxes, and cleaning agents. Mechanical hazards are linked to the movement of cranes, forklifts, conveyors, and other heavy machinery, while electrical hazards are present in high-voltage installations. Physical hazards such as elevated noise levels, heat stress near furnaces, and vibrations from operational equipment also require due attention.

Key Hazard Categories:

- **Fire and Explosion:** Fuel storage for DG sets, coating materials, and paints.
Chemical: Resins, fluxes, and other process chemicals.
- **Mechanical:** Crane operations, material handling systems.
- **Electrical:** High-voltage induction furnaces, panel boards.
- **Physical:** Heat, noise, vibration exposure.

General Safety Measures

The safety management system combines engineering controls, administrative measures, and personal protective equipment (PPE) to mitigate the identified hazards. Preventive measures are designed to either eliminate hazards at their source or reduce their impact to acceptable levels.

Routine safety inspections and preventive maintenance schedules are enforced to ensure the integrity of machinery, electrical systems, and fire protection equipment. Standard operating procedures (SOPs) for critical activities are displayed prominently in all relevant work areas, and lock-out/tag-out (LOTO) protocols are mandatory before any maintenance intervention.

In terms of fire protection, the facility is equipped with manual and automatic fire detection systems, strategically placed hydrants, and portable extinguishers. High-risk zones such as coating areas use intrinsically safe lighting systems. Hazardous material handling follows strict protocols, including the use of spill containment pallets and the availability of Material Safety Data Sheets (MSDS) for all chemicals.

Highlights of Safety Provisions:

- Fire detection and suppression systems across all plant zones.

- PPE mandatory for all personnel and contractors.
- MSDS availability and chemical labelling in storage areas.
- Induction safety training and regular drills for employees.

Production and Utility

The production process involves mould and core preparation, melting, pouring, fettling, heat treatment, machining, and surface treatment. Induction furnaces are the primary melting units, supported by cranes and forklifts for material movement. Utilities such as compressed air, cooling water, and standby DG sets support continuous operations.

Mitigation measures during production focus on reducing emissions, controlling dust and fumes through local exhaust ventilation, and optimizing raw material usage to minimize waste. Closed-loop cooling systems are employed to conserve water.

Risk Assessment and Disaster Management Plan

The Risk Assessment process determines the probability and severity of potential incidents, prioritizing risks that require active mitigation. The Disaster Management Plan (DMP) serves as the operational blueprint in case of emergencies, ensuring rapid response, minimal damage, and effective recovery.

Onsite Safety Measures

During normal operations, the plant maintains a state of readiness to handle emergencies such as fires, chemical spills, or mechanical failures. Emergency exits, assembly points, and clearly marked evacuation routes are part of the facility layout. In high-risk areas, automatic sprinkler systems and gas flooding systems are installed.

Fire and Hazard Mitigation:

- Hydrant networks and portable extinguishers for immediate response.
- CO₂ flooding in electrical panel rooms.
- Intrinsically safe electrical fittings in hazardous locations.

Chemical Spill Control:

- Absorbent pads, neutralizing agents, and drain covers to prevent contamination.
- Clearly defined spill response protocols with designated teams.

Offsite Action in Event of Fire

Should a fire or other emergency exceed onsite control capabilities, the facility coordinates with SIPCOT Fire Services, local police, and district disaster authorities. Public warning systems such as sirens are activated for community awareness, and traffic diversions are implemented if required. The designated spokesperson issues verified updates to prevent the spread of misinformation.

Action in Case of Flood & Tsunami

Recognizing the geographical and climatic context, the plant has flood and tsunami preparedness measures, including elevated placement of critical electrical systems, sump pumps for water removal, and pre-monsoon maintenance of drains. Emergency drills simulate such scenarios to ensure staff are familiar with procedures.

Study of Decarbonization Programme

The company's decarbonization programme aligns with national commitments to reduce greenhouse gas emissions and adopts a multi-pronged strategy. Energy efficiency measures include the installation of high-efficiency induction furnaces, variable frequency drives (VFDs) for motors, and process optimization to reduce energy per tonne of production. Renewable energy integration is planned through rooftop solar PV installations and procurement of solar/wind power via open access agreements. Material efficiency is improved through sand reclamation systems and optimization of charge composition, reducing the need for remelting. Waste heat recovery projects, including preheating of charge materials using furnace exhaust heat, are under evaluation. Emission monitoring through Continuous Emission Monitoring Systems (CEMS) enables data-driven interventions to further reduce the plant's carbon footprint. Annual progress reviews measure performance against defined CO₂ reduction targets, energy intensity benchmarks, and renewable energy penetration levels.

6.2. Public Hearing

The Draft EIA is being submitted with a request to conduct Public Hearing.

7. PROJECT BENEFITS

7.1 Environment Benefit

- The proposed expansion will adopt sustainable and energy-efficient practices to minimise environmental impacts. Advanced dust extraction and collection systems will control particulate emissions within statutory limits. Wastewater and sewage will be treated in ETPs and STPs, with complete reuse for greenbelt irrigation, fire safety systems, and process needs.
- A robust rainwater harvesting and stormwater management system will enhance groundwater recharge and reduce reliance on external water sources. Greenbelt development will cover 25% of the site with native species, along with 1,650 additional trees planted in the surrounding 2 km radius. Solid and hazardous wastes will be managed as per statutory norms, with organic waste composted on-site.
- The project also strengthens India’s renewable energy supply chain by supporting domestic wind turbine manufacturing, reducing imports, and promoting local employment, while maintaining full environmental compliance.

7.2 Economic Benefit

The proposed expansion will result in direct economic contributions to the Government and local panchayats through applicable taxes, statutory levies, and utility charges. Ancillary economic benefits are also anticipated in the form of increased demand for local goods and services, including small-scale vending, retail, and other support activities, thereby enhancing livelihood opportunities for the surrounding communities.

7.3 Social Benefit

The facility will employ **250 permanent** and **459 contractual** staff during operations, providing sustained employment opportunities for skilled, semi-skilled, and unskilled workers. In addition to direct employment, the project will generate indirect employment for approximately **100 persons** in upstream supply chains and ancillary sectors such as logistics, maintenance, and material handling. The increased economic activity will also stimulate local trade and services, thereby supporting broader socio-economic development in the project’s influence area.

7.4 Other Tangible Benefit

The project will promote the adoption of advanced manufacturing practices, ensuring improved operational efficiency and product quality. Utilisation of existing infrastructure will minimise additional land disturbance, thereby reducing the environmental footprint. The facility’s expansion will strengthen the local industrial base, enhance supply chain resilience, and support the growth of associated sectors. The project will also contribute to skill enhancement through on-the-job training and exposure to modern technologies, benefiting the regional workforce. Additionally, the development of greenbelt areas and environmental management systems will improve the local microclimate and support biodiversity.

8. ENVIRONMENT MANAGEMENT PLAN (EMP)

The Environment Management Plan (EMP) is a site-specific plan developed to ensure that the project is implemented in an environmentally sustainable manner where all stakeholders including the project proponents, contractors and subcontractors, including consultants, understand the potential environmental risks arising from the proposed project and take appropriate actions to properly manage that risk. Adequate environment management measures need to be incorporated during the entire planning, construction and operating stages of the project to minimize any adverse environmental impact and assure sustainable development of the area.

The Environment Management Plan presented below will be followed and regular monitoring of relevant parameters as stated in the post – project monitoring schedule will be carried out. The Environment Management Plan will be proactive in nature and will be upgraded if new facilities or modification of existing facilities, with environmental concerns, come up at a later stage.

i) EMP Capital Expenditure

Table 9. EMP Capital Expenditure

Sr. No.	Particulars	Unit	Existing	Proposed additions	After Expansion
1.	Air Pollution Control Systems	INR	932.08	130.34	1062.42
2.	Water Pollution Control Systems	INR	165.05	55.7	220.75
3.	Solid / Hazardous Waste management	INR	43	25.30	68.3
4.	Rainwater Harvesting & Storm Water Management	INR	38	16.4	54.4
5.	Greenbelt Development	INR	20	20	40
Total (in lakhs)		INR	1198.13	247.74	1445.87

ii) Recurring Cost

Table 10. Recurring Expenditure

Sr. No.	Particulars	Unit	Recurring Expenses
1.	Air Pollution Control Systems	INR	45.15
2.	Water Pollution Control Systems	INR	10.48
3.	Solid / Hazardous Waste management	INR	0.85

4.	Rainwater Harvesting & Storm Water Management	INR	0.27
5.	Greenbelt Development	INR	1.20
Total (in lakhs)		INR	57.96

9. CONCLUSION

The proposed expansion has been conceived with a focus on environmental sustainability, operational efficiency, and socio-economic advancement. Baseline assessments confirm that, with the adoption of the proposed environmental management measures, all anticipated impacts will remain within permissible limits. The project will capitalise on existing infrastructure, thereby reducing additional land use, and will integrate advanced systems for pollution control, waste and wastewater management, greenbelt development, and resource conservation. In parallel, it will generate significant direct and indirect employment, strengthen local economic activity, and contribute to regional development. Overall, the project is positioned to achieve sustainable industrial growth while preserving environmental quality.