

EXECUTIVE SUMMARY

For

**“Proposed expansion in industrial Adhesives,
Rubber products and Polyurethane (PU) products
and enhancement of manufacturing facility.”**

By



M/s. Thejo Engineering Limited

AT

Survey No. 176/3, 181/5, 181/6A, 169/2B, 169/4D, 170/2B, 170/3B,
170/4, 175/3, 176/1, 176/2, 181/1B, 175/4B and 175/5B

Jaganathapuram Road, Irullipattu village

Ponneri Taluk

Tiruvallur District

Tamil Nadu State 600 067

CONSULTANT

M/s Enviroshere Consultant and Engineers LLP, Pune

Certificate No. NABET/EIA/23-26/IA 0130; Validity: December 8th, 2026

JUNE 2025

SUMMARY AND CONCLUSION

Introduction

This chapter aims to present the summary in wholesome of EIA report with conclusion and recommendation based on impact and mitigation measures suggested.

M/s Thejo Engineering Limited was the result of that dream set up by K.J. Joseph and Thomas John in 1974 as a company providing maintenance of belt conveyor systems, Thejo has grown today into India's foremost solution provider in the bulk material handling, conveyor systems, mineral processing, and corrosion protection sectors. 'THEJO', is a Pioneer in the field of Belt Conveyor Maintenance and a leading Engineering Services provider in the Mining and Material Handling Industry. 'THEJO', is a Pioneer in the field of Belt Conveyor Maintenance and a leading Engineering Services provider in the Mining and Material Handling Industry. Thejo has established globally through its offices in Australia, Saudi Arabia, Brazil and Chile.

M/s. Thejo Engineering Limited is an existing facility located at Survey No. 176/3, 181/5, 181/6A, 169/2B, 169/4D, 170/2B, 170/3B, 170/4, 175/3, 176/1, 176/2, 181/1B, 175/4B and 175/5B, Jaganathapuram Road, Irullipattu village, Ponneri Taluk, Thiruvallur Dist, Tamil Nadu State 600 067, proposed for expansion in production capacities and enhancement of manufacturing facilities with additional land.

Manufacturing of “Adhesives, Moulded rubber products and PU Products” is termed under Schedule 5(f), Synthetic Organic Chemicals, Category A as per the EIA notification dated 14th September 2006 and its subsequent amendments however and as the project is located at non notified industrial area hence the project will be appraised by the EAC, MOEF&CC. As a part of obtaining Environmental Clearance the Draft EIA report has been prepared as per the obtained ToR the draft report will be submitted to TNPCB for Public Consultation.

Project Description

Project proponent has currently manufactured 199.99 TPM of Rubber Molded products (11 Nos) and 2 Nos of Adhesive (Hot & cold) of 38.5 KL/Month. The existing facility was established in 16916.46 Sq. m of area. The existing project is operating with valid consent orders vide PROCEEDINGS NO.F.0380GMP/RS/DEE/TNPCB/GMP/W/2024 valid up to March 31st, 2026.

Now, M/s. Thejo Engineering Limited proposed expansion in production of Rubber molded products (199.99 TPM to 486 TPM) and Adhesives (38.5 KL/Month to 100 KL/Month) & proposed PU Products manufacturing with production capacity of 6.352 TPM due to increase in the demand of the existing and proposed projects along with enhancement of manufacturing facilities with additional area of 11.46 Acres (46364.97 Sq. m) The total area after expansion is 15.63 Acres (63221.43 Sq. m). The project cost for the proposed expansion proposal is 10699.99 Lakhs.

M/s. Thejo Engineering Limited applied for Environmental Clearance as the proposed expansion in production of Rubber molded products, Adhesives & proposed PU Products is termed under Schedule 5(f) Synthetic Organic Chemicals., Category A.' and Environmental Clearance (EC) to be obtained from EAC Delhi before the commencement of ground activity for the proposed expansion. Since the project site is categorized as non-Planned area. Hence, the project site is attracting Public Hearing.

In line with the said notification, TOR application was filed to MOEF&CC on 6th, May 2024 with ADS, vide proposal No. IA/TN/466248/2024 dated 20.03.2024 for grant of Terms of References (TOR), The standard ToR has granted with Public Hearing. The Base line Studies are carried out during the period of January 2024 to March 2024 as per OM. No. J-11013/41/2006-IA-II (I) (Part) dated;29th August 2017 & the draft EIA report has been prepared in line with the prescribed ToR vide F. No. IA-J-11011/120/2024-IA-II(I) and TOR Identification No. TO24A2407TN5525112; dated 11.05.2024. The draft EIA report has been as per generic structure described in EIA Notification and will be submitted for Public Hearing. The Public Hearing details will be included in the Final EIA Report and will be submitted to EAC MOEFCC for project appraisal to obtain Environmental Clearance (EC).

The project site is well connected with National Highway NH - 16 (Chennai - Dankuni – Kolkata) ~0.82 Km (W), Chennai international airport at ~9.40 Km (S), the Nearest Railway station is Anuppambattu is located ~ 8.17 (ENE). Cholavaram town is the nearest to the project site at ~2.79 (S). The Raw materials and their consumption are shown in Error! Reference source not found..

Project Summary:

S. No	Particulars	Proposed Project details
1	Category of products	
	a. Rubber molded products	486 TPM
	b. Adhesives	100 KLPM
	c. PU Products	6.352 TPM
2	Total Land area	6.33 Ha (63221.43 Sq. m)
3	Total Built up area (sq .m)	22626.24
4	Total Water Requirement (KLD)	116
5	Recycled Water (KLD)	36
6	Fresh water (KLD)	80
7	Source of Water	Private suppliers
8	Effluent Generation (KLD)	13
9	Sewage Generation (KLD)	23
10	Wastewater Treatment System & capacity	15 KLD of ETP (ZLD Concept)
11	Domestic Wastewater treatment system	25 KLD of STP
12	Power (kVA) Source: TANGEDCO	1200
13	Power Backup-DGs (kVA)	1 x 250 KVA 1 X 500 KVA
14	Air Compressor (m ³ /minute)	141
15	Boilers (Ton/Hr)	2 X 2 Ton/hr 1 x 6 Ton/hr
16	Diesel for DG Sets (Lts/Day/DG)-During power failure only	800
17	Briquettes for Boilers (T/Month)	260
18	Grease (Kg/Month) as a lubricant	25
19	Permanent Manpower (Nos)	600
20	Temporary Manpower (Nos)-Construction Phase only	50
21	Project Cost in crores (INR Lakhs)	10699.99 (106.99 Crore)

22	Environmental Management Plan (EMP) Cost (INR Lakhs)-Construction Phase	5.0
23	Environmental Management Plan (EMP) Cost (INR Lakhs)-Operation Phase	63.72 (0.68 Crore)
24	CER -1.5 % of project cost (INR Lakhs)	160 (1.60 Crore)

Air Pollution control Measures:

The major air pollution sources from the DG sets, Boilers, shot blasting & Ban Bury Section. The major air pollution sources from the industry are Boilers, DG sets and Shot blasting. The DG set and boiler sources are provided with stacks of adequate height, Boiler having a Common stack to disperse the emanating flue gases containing suspended particulate matter, oxides of sulphur and nitrogen without affecting the ground level concentrations. Shot Blasting is facilitated with Dust Collector followed by Stack height of 5m AGL. Ban Bury Section having Inbuilt dust collector

Water requirement Wastewater Management:

The water requirement for the proposed project is 116 KLD (Fresh water is 80 KLD and recycled 36 KLD). Water requirements for the proposed project will be sourced from Private tankers. The total water requirement & breakup is shown in Error! Reference source not found.. The water balance for proposed expansion is shown in Error! Reference source not found.. The total Water requirement will be sourced from private water supplier. However, rainwater harvesting system will be implemented and Water conservation measures will be followed. Hence no major impact will be envisaged on the surface or ground water resources.

- ✓ After expansion the Domestic wastewater generation will be 23 KLD, will be treated in proposed 25 KLD STP and treated water (23 KLD) will be used for Greenbelt.
- ✓ STP Sludge/Other Solid waste will be composed and reused as manure for internal greenbelt.
- ✓ The total effluent generation of 13 KLD from process, coolant water, cooling tower blowdown, boiler blowdown, and RO rejects will be treated in the proposed 15 KLD Effluent Treatment Plant (ETP). The treated effluent will be reused within the plant for fire hydrant storage and greenbelt development.
- ✓ The sludge will be stored in a designated Hazardous waste room and sent to TSDF or Authorized recycler.
- ✓ Thejo will construct separate storm water drains and provide rainwater harvesting structures.

Effluents/Sewage will not be discharged into any water bodies or aquifers under any circumstances. There is no liquid discharge from project in any means in to the any water bodies or inland surfaces. Treated wastewater will be utilized for gardening purpose and hence achieve zero liquid discharge concept.

Solid -Hazardous Waste Management:

The collection, storage and disposal of solid/ hazardous waste shall be carried out as per Hazardous and Other Wastes (Management & Transboundary Movement) Rules, 2016. The ETP sludge will be sent to the TSDF site, waste used oil will be collected and disposed of properly by selling it to registered refiners. Discarded containers will be sold to approved recyclers. STP Sludge will be used as manure within the project premises and metal scrap will be collected, stored in scrap yard and reused.

Implementing Soil Conservation methods like 33 % of Greenbelt development with native plants, Windbreaks are composed of shrubs, plants and trees in garden/lawn areas, Regular watering soil along with plants, adding earthworms to soil and Control Storm Water.

Thus, no impact on land is envisaged due to discharge of gaseous emission, solid waste or liquid effluent from the proposed production capacity.

Description of the Environment

Meteorological Data for the Study Period (January 2024 - March 2024)

S. No	Parameter	Observation
1.	Temperature	Max Temperature: 38 °C Min Temperature: 23 °C Avg Temperature :30.32 °C
2.	Average Relative Humidity	75.73 %
3.	Average Wind Speed	2.93 m/s
4.	Predominant Wind Direction during study period	East

Air Environment:

The ambient air quality has been monitored at 8 locations for 12 parameters as per NAAQS 2009 guidelines within the study area. All the parameters are well within the National Ambient Air Quality Standards at all monitoring locations during the study period.

- *PM₁₀ (37.2 – 67.6 µg/m³)*
- *PM_{2.5} (20.5 – 37.2 µg/m³)*
- *SO₂ (5.1 – 13.4 µg/m³)*
- *NO₂ (13.2 – 26.9 µg/m³)*

Noise Environment:

- *In Industrial areas daytime noise levels are 53.4 dB(A) and 43.8 dB(A) during nighttime, which is within prescribed limit by CPCB (75 dB(A) Day time & 70 dB(A) Nighttime).*
- *In residential areas daytime noise levels varied from 50.9 dB(A) to 54.1 dB(A) and nighttime noise levels varied from 40.9 dB(A) to 43.8 dB(A) across the sampling stations. The field observations during the study period indicate that the ambient noise levels are well within the prescribed limit by CPCB (55 dB(A) Day time & 45 dB(A) Nighttime).*

Water Environment:

Surface Water:

The surface water results were compared with IS 2296:1992 standard and in respect of CPCB water Quality Criteria for designated best use. Based on comparison study of test results with Surface water Quantity Standards (Is 2296 Class A), it is interpreted that water qualities of studied locations are classified under Class E, which can be used for irrigation industrial cooling, and controlled waste disposal.

- *The pH value ranges from 7.26 to 7.89 are within the limits (6.5 – 8.5) of IS 2296:1992.*
- *The Electrical Conductivity (EC) of the collected surface water ranges from 250 µS/cm to 920 µS/cm.*
- *The chloride content in the collected surface water ranges from 58 mg/l to 142 mg/l.*
- *The sulphate content in the collected surface water sample ranges from 14.5 mg/l to 35.5mg/l.*
- *The total hardness of the collected surface water sample ranges from 49.5 mg/l to 480.0 mg/l.*

- COD of the collected surface water sample ranges from 16.3 mg/l to 65.5 mg/l.
- BOD of the collected surface water sample ranges from 1.5 mg/l to 17.7 mg/l.

Ground Water:

Based on comparison study of test results with drinking water standard, it is interpreted that water qualities of studied locations meet with the drinking water standards as per IS 10500: 2012. These interpretations relate to the sample tested for location only. To prevent ground water contamination and improving the quality and Quantity, rainwater harvesting, and groundwater recharging may be helpful.

- The ground water results of the study area indicate that the pH range varies between 7.40 and 7.79. It is observed that the pH range is within the limit of IS 10500:2012.
- The Total Dissolved Solids range varies between 160 mg/l – 952 mg/l for ground water. All the samples are well within the permissible limit of IS 10500: 2012.
- The acceptable limit of the chloride content is 250 mg/l and permissible limit is 1000 mg/l. The chloride content in the ground water for study area ranges between 40 mg/l – 219 mg/l. It is observed that all are well within the Acceptable Limit and permissible limit of IS 10500: 2012.
- The desirable limit of the sulphate content is 200 mg/l and permissible limit is 400 mg/l. The sulphate content of the ground water of the study area varies between 9.9 mg/l – 54.8 mg/l. It is observed that all the samples are within the Acceptable Limit and permissible limit of IS 10500: 2012.

Soil Environment:

As per the Indian Council of Agricultural research characterization all locations soils are having PH, Neutral, Slightly Acidic and Slight Alkaline range, Electrical conductivity is Sensitive to salts, potassium as Sufficient, Nitrogen as N is better range and Phosphorus range from average range.

- ✓ The pH of the soil samples ranged from 6.17 to 7.59 Indicating that the soils are slightly acidic to slightly alkaline in nature.
- ✓ The conductivity of the soil samples ranged from 41 $\mu\text{mhos/cm}$ to 180 $\mu\text{mhos/cm}$.
- ✓ Nitrogen content ranged from 211 kg/ha to 325 kg/ha.
- ✓ Phosphorous ranged from 49 kg/ha to 92 kg/ha.
- ✓ Potassium content ranges from 182 kg/ha to 258 kg/ha.

Biological Environment:

○ During the primary survey, about 105 floral species were observed. The most dominant tree species in the entire study area dominated *Eucalyptus globulus*, *Mangifera indica*, *Anacardium occidentale*, *Tectona grandis*, *Acacia auriculiformis*, *Azadirachta indica*, *Delonix regia*, *Borassus flabellifer*, *Carica papaya*, etc. Most dominant shrubs in the study area were, *Calotropis procera*, *Datura metel*, *Euphorbia hirta*, *Lantana Camara*, etc. Among the herb species observed are *Cynodon dactylon*, *Chrysopogon aciculatus*, *Tridax procumbens*, *Achyranthes aspera*, *Catharanthus roseus*.

○ Both direct (sighting) and indirect (evidence) observations methods were used to survey the faunal species around the study area. Additionally, references of relevant literatures (published/unpublished) and dialogues with local villagers were also carried out to consolidate the presence of faunal distribution in the area.

○ A total of 57 species belonging to different families have been identified from Agricultural and nearby forest areas. A comparative chart of the total number of bird species belonging to different families along with their feeding preference and abundance, blue rock pigeon (*Columba livia*) categorized under Sch – IV, *Naja naja* & *Ophiophagus hannah* categorized under Sch II (Part II) as per WPA 1972.

Socio Environment:

- ✓ *The total population of the project area is 168245. The total number of villages in the study area is 47 Nos. The area has 84837 male and 83408 female population*
- ✓ *73.87% of Literacy and 59.24% of Non-Workers in 0-5 km zone and 67.11% of Literacy and 54.93% of Non-Workers in 5-10 km zone. The literacy rate of the study region is 70.52%. The study area has more than 55% non-workers.*
- ✓ *There is a need to establish more industries so that the maximum number of employments can be generated*

Anticipated Environmental Impacts and Mitigation Measures

The proposed project has no major adverse impact on the surrounding environment. During the movement of trucks, fugitive emissions will be minimized by water sprinkling on roads and regular vehicular maintenance. Trucks used for transportation shall be covered with tarpaulin sheets to avoid dust dispersion at site. Only PUC vehicles will be used for transportation. An air pollution control device will be installed to mitigate the impact of air pollution. Units will be provided with separate entry and exit for smooth traffic movement. The electricity will be supplied by TANGEDCO and hence D. G. set will be used only in case of power failure. Water shall be sourced from private suppliers; hence no major impact will be envisaged on surface or ground water resources. Effluent will be treated in proposed ETP. The treated effluent will be reused within premises. The sewage generated will be treated by proposed STP and treated sewage will be reused for gardening purposes. There is no liquid discharge from the proposed project in any means, hence it is a Zero Liquid Discharge unit. Proper sanitation facilities shall be provided within the premises to prevent contamination of water due to runoff. Solid/hazardous waste generated from the project activities only no waste generation from process and ETP shall be properly handled with adequate solid/hazardous waste management facilities. All the solid/hazardous waste generated shall be packed in HDPE bags and stored in Hazardous Waste Storage Facility. The ETP sludge will be sent to TSDF. Used oil will be collected and disposed of properly by selling it to registered refiners. Discarded containers will be sold to approved recyclers. STP Sludge will be used as manure within the project premises and recyclable scrap will be collected, stored in scrap yard, and reused. The collection, storage and disposal of solid/hazardous waste shall be carried out as per Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016. The adequate greenbelt developed in and around the plant shall greatly serve as an efficient barrier for the prevention of air outside the plant premises.

Analysis of Alternatives (Technology and Site)

The Proponent of the company are experienced in establishing the similar plants and manufacturing process. Although the site is a non-Industrial area already being used for industrial purposes and with excellent road connectivity, the Company felt the necessity of setting up a new facility to meet the future market demand. The company proposed the adoption of the best practices/ technology to develop this manufacturing facility.

Environmental Monitoring Program

The environmental monitoring plan enables an environmental management system with early signs of need for additional action and modification of ongoing actions for environment management, improvement, and conservation. The environmental monitoring locations will be decided considering the environmental impacts likely to occur due to the operation of proposed project as the main aim of the monitoring program is to track, timely and regularly, the change in environmental conditions and to take timely action for protection of surrounding environment. Environmental sampling and monitoring

will be done as per the guidelines provided by MoEF&CC /CPCB /TNPCB. The project cost for the proposed expansion proposal is 10699.99 Lakhs. Environmental Management Plan Capital cost of the proposed project is 60.77 Lakhs (0.6 Crore). CER -1.5 % of project cost (INR 1,60,50,000/-).

Additional Studies

Manufacturing of “Adhesives, Moulded rubber products and PU Products” is termed under Schedule 5(f), Synthetic Organic Chemicals, Category A as per the EIA notification dated 14th September 2006 and its subsequent amendments however and as the project is located at **non notified industrial area** hence, the project will be appraised by the EAC, MOEF&CC. As a part of obtaining Environmental Clearance the Draft EIA report has been prepared as per the obtained ToR the draft report will be submitted to TNPCB for Public Consultation.

In addition to the Public Consultation, Risk Assessment (RA), Disaster Management Plan, Occupational Health, and Safety and EIA & EMP reports have been carried out as obtained ToR for the proposed project as an additional study. Risk Assessment and hazard identification and control measures of the same have been carried out. Thejo has developed Emergency preparedness plan and Disaster Management Plan as a part of additional study and with appropriate personal protective equipment shall be provided to all workmen as and when required. All records of the On-Site and Off-Site Emergency Plan shall be well maintained and preserved.

Project Benefits

The proposed facility will bring business to many local vendors in terms of providing accommodation to contract workers, transportation, provision of construction equipment and getting subcontracts during infrastructure development and operational phases. The proposed project will provide employment for local people. During construction phase around 50 Nos. of workers and during operational phase 600 Nos. of workers will be employed.

- ✓ Thejo Engineering Limited is allocated 33% (20866.2 Sq. m) of land for green belt development as per norms.
- ✓ The width of the greenbelt will be maintained as per CBCB guidelines and there shall be 3 rows of plants with a gap of 2m between the plants.
- ✓ Thejo Engineering Limited is planted ~ 1000 in the existing facility. During expansion, 2000 trees under Greenbelt Development will be planted in a phased manner in and around the project boundary. Trees which are already within the project site same will be retained.

A capital cost of INR 3.0 Lakhs will be earmarked for this purpose and INR of 0.5 Lakhs will be allocated for recurring expenses towards green belt development and maintenance. The implementation of Rainwater Harvesting will help in decreasing the demand for freshwater consumption of the project as per 38 Nos of ground water recharge pits is proposed. Due to the operation of the proposed project, the surrounding areas would be expected to occur and generate revenue for local and state economies.

Environmental Cost Benefit analysis

Not recommended during scoping stage

Environmental Management Plan (EMP)

The main purpose of EMP is to minimize the identified potential environmental impacts to be generated from the proposed project and to mitigate the consequences. During construction phase, impacts are short period of time. Green belts will be developed to reduce noise impacts. Construction activities will be carried out during the daytime only. Regular water sprinkling will be done to reduce PM concentration in the atmosphere. PPEs will be provided to workers, and first aid facilities will be kept at designated locations during the construction phase. During the operation phase the industry will maintain an environment management plan for the proposed unit which will cover all the environment protection measures to mitigate identified environmental impacts. The EMC will work as an integrated managerial body from various disciplines to co-ordinate the project activities concerned with implementation of environment control measures and management. The proponent will carry out various activities under the EMP for various Environmental attributes like Air Environment, Water Environment, Biological Environment, Noise Environment, Occupational Health & Safety, etc. Apart from this, measures like the Water Management Plan, Greenbelt Development Plan and Sewage treatment System have been proposed. Proposed Environmental Management Cell (EMC) will address the different environmental aspects of the proposed project.

Budget of Rs. 60.77 Lakhs is allocated for ETP, STP, Air pollution control device, Solid/ Hazardous Waste Management, OH&S and Greenbelt Development. Positive impact will be on Socio economic environment Thejo allocated 1.5 % of the total project cost is 1,60, 49,985/- (Say 1,60,50,000) as the Project cost 10699.99 Lakhs, to nearby villages (Irullipattu village, Jaganadhapuram , Alinjivakkam, Janappan& Chattram).

Conclusion

The proposed project is in a non-Notified industrial area and would not have any considerable impact on the environment with efficient mitigation measures implemented. The waste generation in form of gas (flue and process), effluent and solid waste may have impacts on environmental parameters, but the proponent has planned & installed most efficient technologies for prevention of emission & treatment of effluent. Further, the solid/hazardous waste will be disposed of through TSDF site. Sewage generated from industry will be treated in proposed STP and treated sewage will be utilized for gardening purposes. Effluent generated from process washing activity will be treated in proposed ETP and treated effluent will be utilized for Greenbelt and other utilities.

There is no liquid discharge from projects in any means into the inland surfaces or water bodies. Treated wastewater will be utilized for gardening purposes and achieve the zero liquid discharge concept. Hence there would not be any considerable impact on the environment. With the implementation of the mitigation measures and EMP, the proposed project activities will have positive beneficial effect on the local population, economic output, and other related facilities viz. employment, development of business, transportation etc. Risk assessment including emergency response plan & DMP has been prepared to handle any sort of emergencies. The industry will be proposed 33 % green belt area.

Hence looking to the overall project justification, process, pollution potential and pollution prevention measures, technological adoption and Environmental Management activities of the proponent has been concluded that, the proposed project would not have any significant impacts on environment as well as socio-economic and ecological conditions of the project area as Thejo engineering Ltd allocated 1.5 % of the total project cost is 1,60, 49,985/- (Say 1,60,50,000) as the Project cost 10699.99 Lakhs, to nearby

villages (Irullipattu village, Jaganadhapuram , Alinjivakkam, Janappan& Chattram). Hence proposed project may be recommended, considering Environmentally safe.