



EXECUTIVE SUMMARY

- 1. Project Name and Location:** The proposed 60 KLPD Distillery will be set up for production of Ethanol using B-Heavy molasses and Cane Juice along with 1.5 MW Captive Power Plant (CPP) with Zero Liquid Discharge system by **M/s. M.R. Krishnamurthy Cooperative Sugar Mills Ltd. (MRKCSML)**. The proposed project is located at Sethiyathope Village, Bhuvanagiri Taluk, Cuddalore District, and Tamil Nadu. **Survey Nos.:** 102/1, 102/2, 102/3, 102/4, 102/5A, 102/6, 110/1, 110/2, 110/3, 110/4, 110/5, 110/6, 110/7A, 110/7B, 110/7C, 110/8, 110/9, 110/10, 110/11A, 110/11B, 110/11C, 110/11D, 110/12, 110/13, 110/14, 110/15, 116/16A, 110/16B, 110/17, 110/18, 110/19, 110/20, 111A/1A, 111A/2, 111A/3, 113A/1, 113A/2A, 113A/2B1, 113A/2B2, 113A/4A, 113A/4B, 113A/4C, 113A/5, 113A/6, 114/1A, 114/1B, 114/2, 114/3, 114/4, 114/6A, 114/6B, 114/7, 114/8, 114/9.
- 2. Products and Capacities:** 60 KLPD capacity distillery to produce fuel grade ethanol by diverting about 36.0 % Cane juice and B – Heavy molasses. By products including Liquid CO₂ – 7725 TPA, Fusel Oil – 25.7 KL/Annum, Potash Rich Boiler Ash – 310 TPA.
- 3. Requirements**
 - Land** : 6.90 Ha. (17.06 Acres)
 - Raw Material** : B – Heavy molasses from own sugar mill – 20733 TPA
Cane juice diverted for ethanol production – 15797 TPA
 - Water Requirement:** Fresh Water Source – Ground Water
 - Molasses based – 1250.70 KLD (Before recycling)
 - Cane Juice based – 1250.82 KLD (Before recycling)
 - Molasses based – 496.30 KLD (After recycling)
 - Cane Juice based – 433.14 KLD (After recycling)
 - Power consumption** : 1350 to 1400 KWh
 - Captive Power Plant** : 1.5 MW Turbo Generator set Back Pressure 4.5 kg/cm²
 - Incineration Boiler** : 18 TPH Boiler, 45 kg/cm², Steam temperature 400°C
 - Operative Days** : About 272 days/Annum.
 - Manpower** : During the construction phase, laborers would be hired mostly from nearby areas. Subsequently, in operation, the man power of 74 Nos. shall be employed directly.
 - Project Cost** : INR 8500 Lakhs (Approx.)



4. Process Description:

- The proposed 60 KLPD Ethanol plant will be based multi pressure distillation, molecular sieve-based dehydration and standalone
- Multiple Effect Evaporation (MEE) Technology to achieve minimum energy consumption and consistency of the product quality.
- It has decided to establish 60 KLPD capacity distillery to produce fuel grade ethanol by diverting about 36.0% Cane Juice and B – Heavy molasses. The environmental protection measure, incinerator type boiler shall be used to incinerate the concentrated spent wash.
- The Condensate Polishing Unit (CPU) is used as a Water Conservation for clear liquids; thus, the distillery shall be Zero Liquid Discharge (ZLD) compliment.
- It is envisaged that the facility would generate its own Steam, thus an incineration boiler capacity of 18.0 TPH with working pressure of 45 Kg/cm² and Steam temperature 400°C is provided for steam generation.
- The power steam requirement is quite large and suitable for cheap power generation via cogeneration system. 1.5 MW X 1 no capacity Back Pressure Turbine will be installed for captive power generation.

5. Measures of mitigating the impact:

Environmental Attributes	Mitigation Measures
Air Quality Management	<p>Process Emission</p> <ul style="list-style-type: none"> • ESPs shall be provided for PM emissions. • The whole process will be carried out in closed condition so as to avoid any chances of VOC emissions. <p>Utility Emission</p> <ul style="list-style-type: none"> • All the D.G. sets shall be standby arrangement and will only be used during power failure. • Adequate stack height shall be provided to Boiler and D.G. sets. • Electrostatic Precipitator shall be provided as an air pollution control device to the boiler with approximately 99.99 % efficiency to capture maximum boiler fly ash. <p>Fugitive Emission</p> <ul style="list-style-type: none"> • The main raw material and product shall be brought in and dispatched by road in covered enclosures. • Dust suppression on haul roads shall be done at regular intervals.



Water & Wastewater Management	<ul style="list-style-type: none">• The distillery would be based on 'Zero Liquid Discharge' technology.• Spent wash will be through Biogas followed by MEE and then sent to bio-composting.• The Process condensate, spent lees will be cooled and will be treated in Condensate Polishing Unit, after treatment of which it will be recycled back to the process again.• The treated water will be used for gardening.• Proper storm water drainage will be provided during rainy season to avoid mixing of storm water with effluent.• Rain water harvesting
Noise Management	<ul style="list-style-type: none">• Closed room shall be provided for all the utilities so as to attenuate the noise pollution.• Acoustic enclosure shall be provided to D.G sets.• Free flow of traffic movement shall be maintained. Earmuffs shall be used while running equipment's of the plant.• Proper maintenance, oiling and greasing of machines at regular intervals shall be done to reduce generation of noise.• Greenbelt shall be developed around the periphery of the plant to reduce noise levels.
Odour Management	<ul style="list-style-type: none">• Odour shall be primarily controlled at source by good operational practices, including physical and management control measures.• Better housekeeping will maintain good hygiene condition by regular steaming of all fermentation equipment.• Use of efficient biocides to control bacterial contamination.• Control of temperature during fermentation to avoid in-activation/ killing of yeast.• Avoid staling of fermented wash.
Solid & Hazardous Waste Management	<ul style="list-style-type: none">• The hazardous waste i.e. spent oil generated shall be very minor and shall be burnt in boiler along with fuel.• Boiler coal ash shall be sold to brick manufacturer.• Spent wash ash will be sold to authorized dealers.• ETP & yeast sludge can be sold as fertilizers



Traffic Management	<ul style="list-style-type: none"> • Culverts shall be maintained. • The trucks carrying raw material & fuel shall be covered to reduce any fugitive dust generation. • Good traffic management system shall be developed and implemented for the incoming and outgoing vehicles so as to avoid congestion on the public road.
Green Belt Development / Plantation	<ul style="list-style-type: none"> • Plantation shall be done as per Central Pollution Control Board (CPCB) Norms. • The plantation in and around the plant site helps/will help to attenuate the pollution level. • Native species shall be given priority for Avenue plantation.
Corporate Environmental Responsibility	<ul style="list-style-type: none"> • An amount of INR 173.20 Lakhs (As CER OM dated 1.05.2018 Greenfield project. 2% of total project cost) will be allocated for CER activities in the coming 3 years which will be utilized on the basis of requirement for weaker sections of the society for next 3 years.

6. Capital Cost of the Project:

The total capital cost of the proposed project is estimated as 8500 Lakhs, which includes CER activities with working capital margin, machinery as well.

7. Environmental Setting of the Project:

S.No	Particulars	Location	Approximate Aerial distance from project site area		
			Description	Points	Latitude
1.	Site Latitude & Longitude	MRKCSMLL 60 KLPD Fuel based Ethanol Plant	A	11°26'45.34"N	79°32'43.84"E
			B	11°26'51.02"N	79°32'43.54"E
			C	11°26'51.64"N	79°32'53.30"E
			D	11°26'48.13"N	79°32'53.78"E
			E	11°26'46.56"N	79°32'54.92"E
			F	11°26'43.39"N	79°32'55.26"E
			G	11°26'43.00"N	79°32'49.91"E
			H	11°26'45.54"N	79°32'49.84"E



S.No	Particulars	Location	Approximate Aerial distance from project site area
2.	Archaeologically important places	Nil within 10 km radius	
3.	National parks/ Wildlife Sanctuaries	Nil within 10 km radius	
4.	Nearest Villages/ Town/City	<ul style="list-style-type: none"> • Sethiyathope • Anaivari • Miralur • Nellikollai • Ambapuram • Sathamangalam 	<ul style="list-style-type: none"> • 0.34 km (WNW) • 1.10 km (N) • 1.61 km (N) • 3.01 km (NNW) • 3.93 km (NE) • 1.19 km (SE)
5.	Nearest Water bodies	<ul style="list-style-type: none"> • Vellar River • Paravanaru River • Paravanaru Dam • Veeranam Lake 	<ul style="list-style-type: none"> • 0.82 km (E) • 4.79 km (NNW) • 3.80 km (NNE) • 6.96 km (SSW)
6.	Nearest School/Institutions	<ul style="list-style-type: none"> • SD Eaden Matriculation School, Sethiyathope • DGM Higher Secondary School • Chandra Higher Secondary School. • Government Middle School • Panchayat Union Middle School 	<ul style="list-style-type: none"> • 0.52 km (N) • 1.37 km (SSW) • 1.34 km (SSW) • 8.90 km (ENE) • 9.21 km (SW)
7.	Nearest Hospital	<ul style="list-style-type: none"> • Government Hospital • Orathur PHC • AMC Hospital • Amsa Hospital 	<ul style="list-style-type: none"> • 1.37 km (SSW) • 4.28 km (SSE) • 0.82 (SW) • 0.86 km (SW)
8.	Nearest Police Station	<ul style="list-style-type: none"> • Sethiyathope Circle Police Station • Boothangudi Women's Police Station • Orathur Police Station 	<ul style="list-style-type: none"> • 1.54 km (SSW) • 2.08 km (SSW) • 4.80 km (SE)
9.	Nearest Religious spot	<ul style="list-style-type: none"> • Madurakaliamman Temple • Sri Pidari Amman Temple • RC Church 	<ul style="list-style-type: none"> • 0.38 km (SSW) • 0.60 km (NNW) • 0.83 km (SSW)
10.	Nearest Bus Stop	<ul style="list-style-type: none"> • Sethiyathope Bus Stop 	<ul style="list-style-type: none"> • 1.58 km (SSW)



S.No	Particulars	Location	Approximate Aerial distance from project site area
11.	Nearest Roadways	<ul style="list-style-type: none"> • NH - 36 • SH - 70 • MDR - 817 • MDR - 295 • MDR - 583 • MDR - 542 • Other Road 	<ul style="list-style-type: none"> • 0.24 km (W) • 0.57 km (N) • 4.19 km (SW) • 5.86 km (WNW) • 4.89 km (S) • 2.15 km (SSW) • 0.36 km (W)
12.	Nearest Railway	<ul style="list-style-type: none"> • Vadalur Railway Station 	<ul style="list-style-type: none"> • 12.09 km (N)
13.	Nearest Airport	<ul style="list-style-type: none"> • Neyveli Airport • Puducherry Airport 	<ul style="list-style-type: none"> • 18.53 km (N) • 64.17 km (NNE)
14.	Nearest Reserved/Protected Forest	Nil within 10 km radius	
15.	Defence Installations	Nil within 10 km radius	
16.	Nearest Port	Nil within 10 km radius	
17.	Other sensitive areas	Nil within 10 km radius	
18.	Seismic Zone	Zone III	

8. Baseline Environment Data:

The baseline data monitoring data was carried at site during the period of March 2022 to May 2022 which represents the pre monsoon season. Baseline data generated from per monsoon season for the parameters of ambient air quality (PM₁₀, PM_{2.5}, SO_x, NO_x at 8 stations), noise quality (Leq day & night at 9 stations), soil sampling (9 Stations), water sampling (9 GW + 4 SW), ecological biodiversity (10 km study area) was carried out. The observed parameters are found to be well within the standards prescribed by CPCB.

9. Identification of Hazards:

Possible Hazardous Locations on Site

S.No.	Hazardous Area	Likely Accident
1.	Boiler Area	Fire and Explosion
2.	Turbine Room	Explosion
3.	Electrical Rooms	Fire and Electrocution
4.	Transformer area	Fire and Electrocution



S.No.	Hazardous Area	Likely Accident
5.	Cable tunnel/trays	Fire and Electrocution
6.	Storage yard (Bagasse/Coal)	Fire
7.	Alcohol Storage (Tanks)	Fire
8.	Stack	Uncontrolled Air Pollution due to failure of Bag Filter/ESP
9.	Lagoon Storage	Odour

10. Likely Impact of the Project in the Environment:

There will be no significant impact on the area, as adequate preventive measures will be adopted to maintain the various pollutants within permissible limits. Regular monitoring of all the components of environment will be done. Greenbelt development around the area will be also taken up as an effective pollution mitigation technique, as well as to control the pollutants.

11. Emergency Preparedness Plan:

- Identification of various types of expected disaster depending upon the type of the industrial unit.
- Identification of various groups, agencies, departments etc. necessary for dealing with a specific disaster effectively.
- Preparation – by intensive training of relevant teams/groups within the organization to deal with a specific disaster and keep them in readiness.
- Establishment of an early detection system for the disaster.
- Development of a reliable instant information/communication system.
- Organization and mobilization of all the concerned departments/ organizations / groups and agencies instantly when needed.
- A major disaster that can be expected due to fire in this distillery
- Duties and Responsibility of Key Personnel of Environmental Management Cell Site main Controller, Incident Controller, Distillery manager, Security officer, Maintenance manager, Personnel Manager, Shift in charge after office hours.
- Occupational Health and safety:
 - Factory shall monitor the health of its worker before placement and periodically examine during the employment
 - Health effects of various activities and health hazard if any observed shall be recorded and discussed with the health experts for corrective and preventive actions need to be taken by the industry.
 - All safety gear shall be provided to workers and care shall be taken by EMC that these are used properly by them. All safety norms shall be followed



12. CER Plan with Proposed Expenditure:

As per circular dated 1st May, 2018 on CER, for this Greenfield project, INR 173.20 lakhs i.e.2 % of the total project cost (INR 85 Crore) has to be spent on CER activities. Thus, the company will undertake measures and activities that will raise the socio-economic status of the area along with environment benefits attainment.

13. Post Project Monitoring Plan:

The proposed project are planning on monitoring different environmental aspects in both Operational Phase and construction phase.

During Construction Phase is proposed to monitor 2-3 location each of the following as per CPCB norms:

- Ground water physio-chemical Parameters
- Ambient air quality monitoring and
- Noise monitoring

During Operation Phase the following parameters are to be monitored accordingly to the CPCB norms of different aspects:

- Industrial effluent
- Surface and Ground water
- Ambient air quality
- Stack emission
- Noise monitoring
- Solid and Hazardous waste

CONCLUSION

As the proposed project is found to be viable from techno-economic considerations as well as social aspects. The proposed project will prove beneficial to the local people as more infrastructure development, improvement in education and health facilities, roads, availability of drinking water, etc. in near-by villages will be done. Increased social welfare measures will be taken by the company that will bring development in the near-by villages. The production of Ethanol, having prior Environmental Clearance for the proposed unit, to be used completely for Ethanol blended Petrol (EBP) program only.



**Proposed 60 KLPD Capacity Cane Juice and B-Heavy Molasses based
Distillery and 1.5 MW Captive Power Plant at Village- Sethiyathope,
Taluk-Bhuvanagiri, District- Cuddalore, Tamil Nadu by
M/s. M.R.Krishnamurthy Cooperative Sugar Mills Ltd. (MRKCSML)**

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