Executive summary

of Draft EIA report

PROPOSED 300 KLPD SUGAR CANE SYRUP/MOLASSES & GRAIN BASED DISTILLERY PLANT

Gat. No. 2100, Village- Rajuri, Tal. Junnar, Dist. Pune, Maharashtra

PROPOSED BY

M/s. JUNNAR SUGARS LIMITED

Environmental Consultant and Laboratory

MITCON Consultancy & Engineering Services Ltd.
Environment Management and Engineering Division
Behind DIC Office, Agri College Campus, Shivajinagar,
Pune 411 005, Maharashtra (INDIA),
Tel.: +91- 020-66289400
QCI-NABET, Lab NABL, MOEF & CC, OHSAS 18001:2007 approved

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Executive Summary

1 Introduction

Junnar Sugars Ltd. Located at Gat No. 2100, Village – Rajuri, Tal. Junnar, Dist. Pune, Maharashtra is a limited company registered under the companies Act, 1946 (And its amendment of 2013) on 27th December 2010 having CIN No. U15400MH2010PLC211448 and registration number 211448.

Junnar Sugars Ltd. proposing to install a 300 KLPD Sugar Syrup/ Molasses & Grain based distillery. The industry shall be situated in total area of 10.23 Ha. Industry will be using Sugar Syrup/ Molasses & Grains for manufacturing the product.

The industry is fully geared up to implement and commission the proposed project. Latest technologies will be employed in this project, to ensure efficiency and optimum operating performance for all the products, with ZLD

2 Project Location

The proposed unit will be established at Gat No. 2100, Village Rajuri, Taluka Junnar, District Pune, Maharashtra, with geo-coordinates of Latitude 19°8'52.27"N, Longitude 74°9'54.41"E, situated at an elevation of approximately 702 meters above MSL.

The required land for the proposed industrial unit is in possession. There are no tropical forests, biosphere reserves, national parks, wildlife sanctuaries, or coral formation reserves within a 10-kilometer influence zone of the site.

Figure 1 Google map showing plot boundary of the project

Table 2-1Geographical co-ordinates of project site

Sr. No	Latitude	Longitude	Sr. No	Latitude	Longitude
A1	19° 8'54.49"N	19° 8'54.49"N	A2	19° 8'55.32"N	74°10'1.24"E
A3	19° 8'48.67"N	74°10'0.61"E	A4	19° 8'48.27"N	74° 9'59.26"E
A5	19° 8'48.64"N	74° 9'58.49"E	A6	19° 8'48.59"N	74° 9'57.01"E
A7	19° 8'47.94"N	74° 9'54.76"E	A8	19° 8'48.51"N	74° 9'54.72"E
A9	19° 8'48.32"N	74° 9'48.76"E	A10	19°8'47.69"N	74° 9'48.73"E
A11	19° 8'48.03"N	74° 9'43.30"E	-	-	-

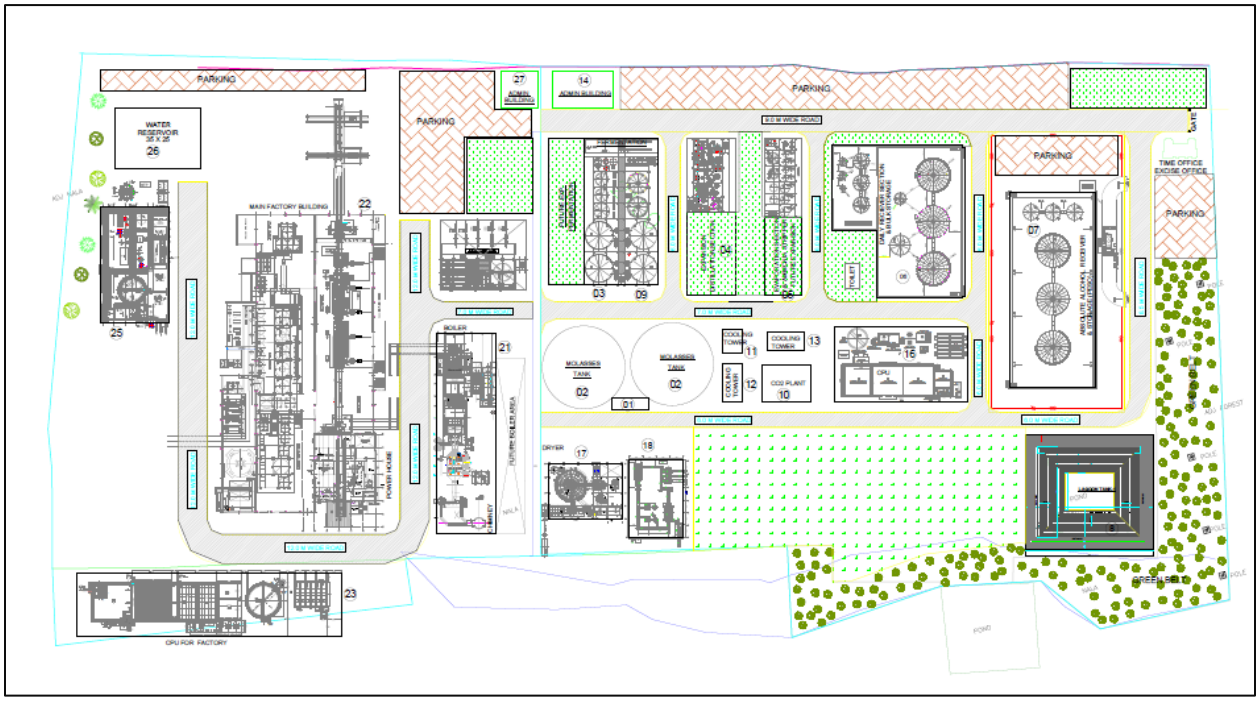

Figure 2 Plant Layout

Salient features of integrated project

Table 2-2 Brief information of the project

Particulars	**Details**		
Project	Proposed 300 KLPD Cane Syrup/Molasses & Grain Based Distillery Plant		
Location	Gat No. 2100, Village- Rajuri, Tal. Junnar, Dist. Pune, Maharashtra		
Screening category *(as per SO 1533 timely amended)*	5 (g) Distilleries		
Product	**#**	**Product Name**	**Qty.**

	1	Ethanol/ RS/ ENA/AA - (Cane syrup/ Molasses based) Or Ethanol/ RS/ ENA/AA - (Grain based)	300 KLPD
	2	Co-generation Power	8 MW
By Products	1	CO2	237 TPD
	2	DDGS	190 TPD
Operation days	Distillery (Sugar syrup)-160 days Distillery (B heavy molasses)- 9 days; Distillery (Grain)- 81days		
Total plot area of distillery	10.23 Ha.		
Green belt area	3.38 Ha. *(33% of the total plot area)*		
Fresh Water requirement	Distillery Unit: - Syrup based – 200 CMD - Molasses based – 200 CMD - Grain based – 300 CMD		
Source of water	Jadhavwadi Dam, Kukadi River. Permission is applied towards Water Resource Department, Government of Maharashtra		
Boiler	Sugar: 50 TPH Distillery: 50 TPH		
APCD	Common 65-meter stack will be provided for both boilers: • 50 TPH Sugar Boiler equipped with an ESP • 50 TPH Distillery Boiler equipped with an ESP		
Steam requirement for distillery	46 TPH		
Fuel for Boiler	Distillery: 16.4 TPH		
Power generation	Sugar TG: 10.0 MW Distillery TG: 8 MW		
Power requirement	4.5 MW		
Man-power requirement	Construction phase: 150 (Skilled + Unskilled) Construction phase: 150 (Skilled + Unskilled)		
Total project cost	207.27 Cr.		
EMP capital cost	Capital: ₹ 41.5 Crore Operational: ₹ 54 Lakh/Annum		
CER Cost	3.0 Crore (1.5% of the total project cost)		
CPU capacity	1600 CMD		
STP capacity	10 CMD STP		
Solid & Hazardous Waste Generation	Bagasse Ash: 7.9 TPD Yeast Sludge: 40 TPD STP Sludge: 0.068 TPD CPU sludge: 4.6 TPD Spent oil : 0.004 CMD Spent wash powder: 43 TPD		

3 Process description

A. Distillery Process based on Molasses/ Cane Syrup

- Molasses preparation
- Yeast propagation
- Fermentation
- Distillation

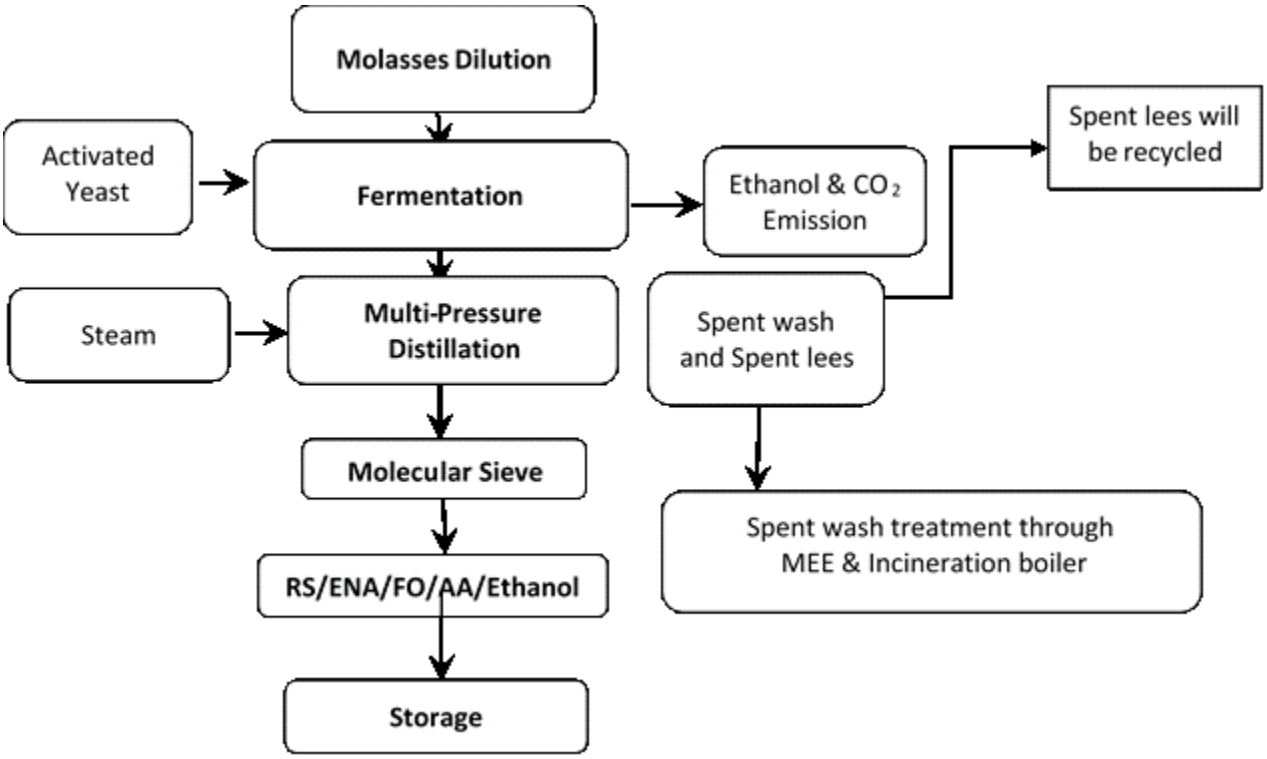

Figure 3 Distillery Process Flow Chart of (Molasses Based)

B. Distillery Process based on Grains

- Raw Material Handling
- Milling
- Slurry Preparation & Liquefaction
- Saccharification
- Fermentation
- Distillation
- Dehydration

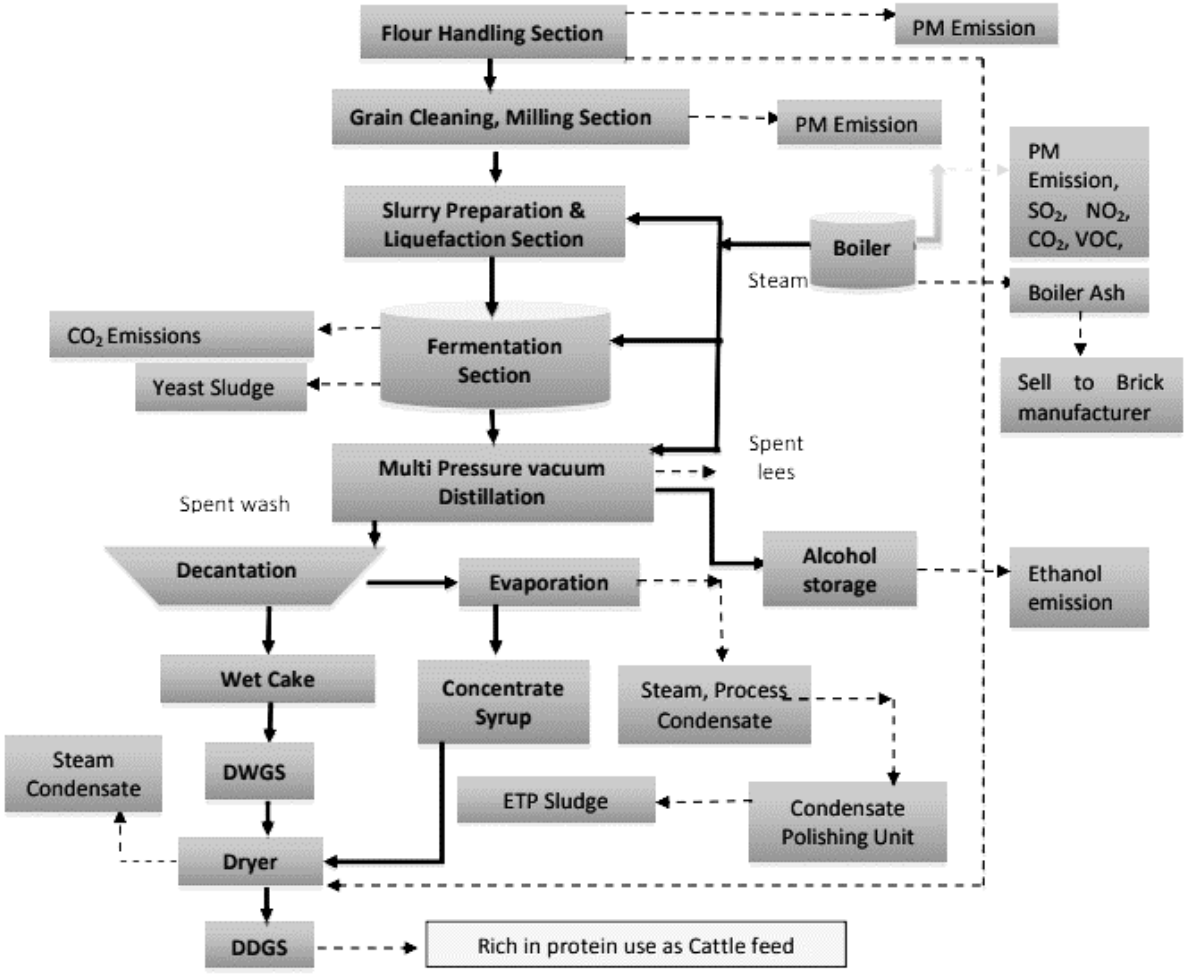

Figure 4 Distillery Process Flow Chart (Grain Based)

4 Description of the Environment

ToR was granted by the Ministry of Environment, Forest & Climate Change (MOEFCC) on 15th March 2023, under No. IA-J-11011/64/2023-IA-II(I). Subsequently, due to a revision in project planning, the industry decided to amend the existing ToR for plant capacity. Revised ToR was granted by the Ministry of Environment, Forest & Climate Change (MOEFCC) on 20th December 2024, under File No.: IA-J-11011/64/2023-IA-II(I). The study period conducted was from November 2022 to January 2023. The guiding factors for the present baseline study are the requirements prescribed by the guidelines given in the EIA Manual of the MoEF&CC and methodologies mentioned in Technical EIA Guidelines Manual for Distilleries by IL&FS Ecosmart Ltd., approved by MoEF&CC.

Table 2 Observation of Environmental monitoring

Environmental Attributes	**Frequency of monitoring**	**Parameters**	**Observed Results**
Meteorology	Microprocessor based Weather Monitoring Station Continuous hourly recording	Wind direction	West followed by West North West
		Max. Temp.	43.3 ^{0}C
		Mini. Temp.	1.7 ^{0}C
		Relative Humidity	47-74 %
		Precipitation	Annual avg. 789.7 mm
Ambient Air Quality	8Locations 24 hourly samples Twice a week for 3 months (in µg/m$^{3)}$	PM_{10}	All parameters are within limit of NAAQ 2009 **PM_{10} : 66.20 to 81.50 µg/m^3** **$PM_{2.5}$: 25.51 to 36.89 µg/m^3** **SO_2 : 6.10 to 16.50 µg/m^3** **NO_x: 9.70 to 23.64 µg/m^3** **CO : 0.10 to 0.46 µg/m^3** **O_3 : 10.04 to 17.65 mg/m^3**
		$PM_{2.5}$	
		SO_2	
		NOx	
		CO	
		O_3	
Water Quality (Ground & Surface*)	8 no. of locations – Ground water 4 no. of locations – Surface water (Physical, chemical and biological parameters)	**Parameter**	Maximum the constituents are within the permissible limits prescribed standards promulgated by Indian Standards. **<u>Ground water :</u>** **pH : 7.1 to 7.54** **TDS : 32 mg/lit to 804 mg/lit** **Hardness: 14.02 mg/lit to 350.53 mg/lit.** **<u>Surface water :</u>** **pH : 7.34 to 7.21** **DO : 4.2 mg/lit to 4.6 mg/lit**
		pH	
		TDS	
		BOD	

Environmental Attributes	Frequency of monitoring	Parameters	Observed Results
			BOD: 14 mg/l to 18 mg/l
Soil Quality	Once in season at 8 locations	Soil type and texture, Physio-chemical properties, NPK	Red sandy soil. Soil is medium in fertility, good water holding capacity, heavy metal contamination signs not seen.
Noise Level	Once in season at 10 Locations (Noise levels in dB(A)	Day	**42.5-56.7 dB**
		Night	**40.32 – 54.70 dB**
Land use Pattern	One time visit of the study area	Identification & classification of land use	Most of the land is Agricultural land followed by Barren land
Geology and hydrogeology	Based on secondary data	Geology and hydrogeology of the study area	Basaltic lava flows, the ground water in Deccan trap basalt occurs mostly in the upper weathered and fractured parts down to 20-25 m depth, alluvium occurs in small areas.
Ecology	General in 10 km radial study area and data collected around the project site through field visits	Flora	The most abundant species in the study areas are, Abrus precatorius L.., Abutilon indicum (L.) Sweet, Acacia concinna (Willd.) DC., etc.
Socioeconomic Data	General in 10 km radial study area and data collected around the project site through field visits	Socio-economic characteristics of the affected area	Sanitation facilities are satisfactory, Power supply facility is available in almost villages and town, Drinking water sources is mostly from ground water. Medical facilities in terms of primary health centre and primary health sub centres in the rural areas are good.

5 Anticipated Environmental Impacts

Table 3 Anticipated Impacts

Environmental Facets	Anticipated Impacts
Air Environment	Probable increase in concentration of air pollutants due to process, fugitive and utility emissions.
Water Environment	Generation of industrial & domestic wastewater.
Land Environment	Impacts on land due to improper disposal of hazardous/ solid waste.

Ecological Environment	Positive as greenbelt of appropriate width will be developed and maintained by the company in the area. No impacts are envisaged on aquatic flora & fauna as there will be zero effluent discharge outside the plant premises.
Social Environment	Overall development of the area in respect of the infrastructure development, educational growth, health facilities etc.
Economic Environment	Positive impacts on economy of the region and the country as the Alcohol will be exported and revenue generation.
Noise Environment	Minor increase in noise level within the project area.
Occupational Health & Safety	Major health hazards are identified in worst case scenario.

6 Environmental Monitoring Program

Table 4 Environmental monitoring schedule

Particulate	Parameters	Number of location	Frequency
Ambient air quality	PM_{10}, $PM_{2.5}$, SO_2, NOx etc.	Ambient air quality at minimum 3 locations. Two samples downwind direction at 500 m and 1000 m respectively. One sample upwind direction at 500m.	Monthly
Stack emission	PM, SO_2 and NOx	All stacks	Monthly
		Online stack monitoring will be installed	-
Work place	$PM_{2.5}$, SO_2, NOx, CO, O_3	Process emission in workplace area/plants (for each area/plant minimum 2 locations and 1 location outside plant area near vent)	Monthly
Waste water	pH, EC, SS, TDS, O&G, Ammonical Nitrogen, COD, BOD, Chloride, Sulphides etc.	Wastewater from all sources. Inlet & outlet of ETP, spent wash, Condensate treatment plant	Monthly
		Online Monitoring machine is already installed at existing ETP. Camera at spent wash tank will be installed.	
Surface water and ground water	pH, Salinity, Conductivity, TDS, Turbidity, DO, BOD, Phosphate, Nitrates, Sulphates, Chlorides, Total Coliforms (TC) & *E.Coli*	3-5 location Within 1 km radius from spent wash tank and compost yard. 2 locations downward 1 location upward additional three	Half yearly

Particulate	Parameters	Number of location	Frequency
		locations within 10 km radius from the site.	
Solid waste	Ash	• Process dust generated sludge and ash. • Before used as manure if used manure	Monthly
Soil Organic and Inorganic matter	N, P, K, moisture, EC, heavy metals etc.	At lands utilizing compost manure and treated effluent, 3 locations	Pre – monsoon and Post monsoon
Noise	Equivalent noise level - dB (A) at min. Noise Levels measurement at high noise generating places as well as sensitive receptors in the vicinity	5 location At all source and outside the Plant area.	Monthly
Green belt	Number of plantation (units), number of survived plants/ trees, number of poor plant/ trees.	In and around the plant site	Monthly
Soil	Texture, pH, electrical conductivity, cation exchange capacity, alkali metals, Sodium Absorption Ratio (SAR), permeability, porosity.	2-3 near Solid/ hazardous waste storage. At least five locations from Greenbelt and area where manure of biological waste is applied. Near spent wash storage lagoon	Quarterly
Occupational health	Health and fitness check-up of employees getting exposed to various hazards and all other staff	All worker	Yearly/ twice a year
Emergency preparedness, such as fire fighting	Fire protection and safety measures to take care of fire and explosion hazards, to be assessed and steps taken for their prevention.	Mock drill records, on site emergency plan, evacuation plan	Monthly during operation phase

7 Additional Studies

The following additional such as risk assessment for storage and handling of alcohol and mitigation measure due to fire and explosion and handling area has been carried out.

8 Environmental Management Plan

Following mitigation measures shall be adopted by factory to minimize the impact of project on the surrounding environment.

Table 5: EMP for various environmental attributes

Environmental Attributes	Mitigation Measures
Air Quality Management	**Process Emission** • ESP 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. **Utility Emission** • 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. **Fugitive Emission** • 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	• The distillery would be based on 'Zero Liquid Discharge' technology. • Raw spent wash will be concentrated in MEE and sent to dryer to form spent wash powder which will further be sold. • Spent lees, blow down and condensate will be treated in CPU of capacity 1600 CMD and treated water will be recycled. Treated water will be recycled in process. • Effluent from sugar unit will be treated in 1000 CMD ETP. Treated effluent from sugar will be reused in greenbelt development and cooling tower. • Domestic sewage will be treated in 10 CMD STP and treated water will be recycled into gardening • Proper storm water drainage will be provided during rainy season to avoid mixing of storm water with effluent.
Noise Management	• 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	• 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	• The hazardous waste i.e. spent oil generated shall be very minor and shall be burnt in boiler along with fuel. • Bagasse ash will be mixed with press mud and utilized as a manure or sold directly to farmers. • Spent wash powder will be sold to farmers • ETP, CPU & STP sludge can be used in greenbelt development
Traffic Management	• 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	• Plantation shall been 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 Social Responsibility	• An amount of INR 3.11 Cr. (As CER OM dated 1.05.2018 greenfield project 1.5% of total project cost) will be allocated for CSR activities in the coming 2 years which will be utilized on the basis of requirement for weaker sections of the society for next 2 years.
Occupational Health & 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

9 Environment Management Cost

Table 6 Environment Management Cost

A	Construction phase (with Break-up)	Capital Cost (Amount in lakhs)	O & M (Annual) (Amount in lakhs)
1.	Environmental monitoring	_	3
2.	During site preparation	3	0
3.	Noise and solid waste management	2	0
4.	Water and waste water	5	0
5.	Occupational health	5	2
6.	Greenbelt development	5	5
	Total	**20**	**10**
B	**Operation Phase (with Break-up)**	**Capital Cost (Amount in lakhs)**	**O & M (Amount in lakhs)**
1	**Air pollution**	**700**	
	ESP	600	10
	Stack	70	
	ID fan and other auxillaries	30	
2	**Online Continuous Emission Monitoring System (OCEMS)**	**10**	1
3	**Water pollution**	**3250**	15
	ZLD	2500	
	Dyer	200	
	Decanter	200	
	CPU	300	
	STP	50	
4	**Noise pollution management**	**50**	
5	**Environmental Monitoring (Air, water, waste water, Soil, Solid waste, Noise)**	**15**	2
6	**Occupation health**	**30**	5
7	**Green belt**	**45**	5
8	**Solid waste**	**5**	2
9	**Rain water harvesting**	**25**	3
	Total	**4130**	**43**
	Total A+ B	**4150**	**53**

10 Project Benefits

Economic Development

- Creates jobs in farming, production, and logistics, boosting rural incomes.

- Provides stable markets for sugarcane and grain producers, enhancing livelihoods.

Energy Efficiency

- Utilizes bagasse for power generation, reducing energy costs and fossil fuel dependency.
- Ensures energy conservation through an integrated production system.

Waste Management

- Employs zero-liquid discharge systems and reuses by-products for bio-compost and livestock feed.
- Minimizes environmental impact with eco-friendly operations.

Revenue and Growth

- Generates revenue through sugar, ethanol, and surplus power exports.
- Contributes to GDP growth and aligns with the National Ethanol Blending Program.

Sustainability and Integration

- Synergized operations enhance resource efficiency and reduce operational costs.
- Promotes local infrastructure and aligns with the **Make in India** initiative.

11 Conclusion

- Zero liquid discharged is proposed with efficient mitigation measures implemented.
- Air emissions through stack will be controlled by ESP.
- Loss of vegetation and habitat will not be attributed.
- Personal protective equipment's, safety precautions, emergency plan & disaster management plan shall be in place to avoid the environment hazards.