

Executive Summary of Environmental Impact Assessment

(Draft EIA) Report

for

**Proposed Establishment of Sugar Unit of 7000 TCD, Along with
Establishment of 300 KLPD Syrup Based Distillery/ 300 KLPD B-
Molasses Based Distillery/ 300 KLPD Grain Based Distillery to
Produce RS/ Ethanol & Co-Generation Power Plant of 30 MW**

By

M/s. Saipro Biofuels Private Limited (SBPL)

Here

**Gat No. 163/2, 164 & 165 Kadlas village, Taluka Sangola, District
Solapur, Maharashtra**

Environment Consultant

Mantras Innovation and Solutions Pvt. Ltd.

EXECUTIVE SUMMARY

1.0 Introduction

The proposed activity for establishing sugar cane crushing, syrup/ molasses/ grain based distillery along with cogen activity is being promoted by M/s. Saipro Biofuels Private Limited Kadlas village, Taluka Sangola, District Solapur, Maharashtra is registered under the companies act, 1956 (No.1 of 1956) vide Registration No. U40106PN2021PTC202428 dated 7th July 2021. The company's registered office is located at Plot No. 38, Sr. No 23/1B, Dharamveer Nagar, Lane No 7 Baner, Pune, Maharashtra, India 411045.

The industry proposes to install a new sugarcane crushing unit of 7000 TCD capacity along with 300 KLPD Syrup Based Distillery / 300 KLPD B-Molasses Based Distillery/ 300 KLPD Grain Based Distillery along with 30 MW Biomass based Co-gen plant to fulfil power requirement of the plant.

2.0 Project Location

The proposed sugarcane crushing unit and establishment of distillery and co-gen plant will be done within the company's project premises, i.e. at Gat No. 163/2, 164 & 165 Kadlas village, Taluka Sangola, District Solapur, Maharashtra, India.

As per geographical co-ordinates of the project site, the proposed activity is covered under SOI Toposheet No. 47O/3, while the study area of the project (10 km radius) is falling under SOI toposheet No: 47O/7. The project is located at elevation of 558 meters above mean sea level (AMSL).

3.0 Project Description

The command area of the factory has excellent cane potential and the sugarcane grown in this area is rich in sucrose content. Therefore, the industry proposes to install sugarcane crushing unit of 7000 TCD capacity along with 300 KLPD Syrup Based /B-Molasses/Grain Based Distillery to produce Rectified Spirit/ Ethanol, Co-Generation Power Plant of 30 MW is also proposed utilizing bagasse generated from sugar cane mill.

During cane crushing season i.e., 150 days distillery will be operated with a production rate of 300 KLPD using sugarcane syrup as main raw material; while during off-season i.e. 180 days distillery will be under operation with a production rate of 300 KLPD (90 days) using B molasses and 300 KLPD (90 days) using Grain as a raw material.

Also, to fulfil the power requirement of the factory company proposed to install an additional Co-gen unit of 30 MW capacity.

As per Environmental Impact Assessment Notification published by MoEF&CC vide S.O. 1533(E) dated 14th September, 2006 and its amendments till date, the proposed activity of the company requires prior Environmental Clearance as proposed activity is falling under schedule 5(g), 5(j) & 1(d) of the EIA notification; the project is to be appraised by EAC as Category A project for grant of Environmental Clearance.

As the distillery will be operated >100 KLPD Capacity.

The salient features of the proposed project are presented in **Table No. 1**.

Table 1: Salient Features of Project

Sr. No.	Component	Details	
1	Name & Address of Company	M/s. Saipro Biofuels Private Limited (SBPL). Gat No. 163/2, 164 & 165 of Kadlas village, Taluka Sangola, District Solapur, Maharashtra.	
2	Product Type	Proposed Establishment of Sugar Unit of 7000 TCD, Along with Establishment of 300 KLPD Syrup Based /B-Molasses/Grain Based Distillery to Produce RS/ Ethanol & Co-Generation Power Plant of 30 MW.	
3	Project Type	Green Field project to produce sugar and RS/Ethanol with Co-gen plant.	
4	Schedule of the project as per EIA Notification, 2006	5(g), 5(j) & 1(d)	
5	Category of Project*	'A' Category Project	
Plot Area Details			
6	Particulars	Area in Sq. m.	% of Total Plot Area
1	Total Built-up Area (Ground Coverage)	48,346.63	32.80 %
2	Green Belt	54,038.3	36.65 %
3	Parking Area	23,140.23	15.70 %
4	Area Under Internal Roads	15,937	10.80 %
5	Open Space	5,977.84	4.05 %
	Total Plot Area	1,47,440.00	100%
Production Details			
7		Name of Product	Proposed
		Main Product	
	1	Sugar	391.7455 TPD
	2	Rectified Spirit/ Ethanol (Syrup Based-150 days)	300 KLPD
	3	Rectified Spirit/ Ethanol (B-Molasses -90 days)	300 KLPD

	4	Rectified Spirit/ Ethanol (Grain Based-90 days)	300 KLPD
	5	Power (Co-generation Power Plant)	30 MW
	By-product		
	6	Fusel Oil	148.5 TPD (330 Days)
	7	CO ₂ Gas	75150 TPD (330 Days)
	8	Spent Wash Powder during Syrup based production (150 Days)	2965.5 TPD (150 Days)
	9	Spent Wash Powder during B Molasses based production (90 Days)	4338 TPD (90 Days)
	10	Bagasse	294000 TPD (150 Days)
	11	Biogas	17941650 Nm ³ /A (240 Days)
	12	Press Mud	36750 TPD (150 Days)
	13	DDGS (During off season)	20250 TPD (90 Days)
8 Budgetary Estimation			
a	Project Cost (Indian Rs.)	Rs. 350 Cr.	
b	EMP Cost (Indian Rs.)	Capital Cost – Rs. 66.2051 Cr Recurring Cost – Rs. 14.11 Cr.	
9 Power Requirement			
a	Proposed Power requirement	30 MW	
b	Source	30 MW TG set Self-Consumption: 16.69 MW Export to MSLDCL: 13.31 MW	
10 Fuel Requirement			
During Season (Syrup)			
a	Bagasse	257.76 TPD (For 50 TPH Boiler)	
b	Bagasse	960 TPD (For 120 TPH Boiler)	
c	Biogas	60565 NM ³ /D	
During Off-Season (B-molasses)			
a	Bagasse	222.912 TPD	
b	Biogas	98410 NM ³ /D	
During Off-Season (Grain)			

a	Bagasse	399.98 TPD
11 Diesel Generator (D.G.) Details		
11	Capacity & No.	2 x 1250 KVA
12 Boiler Details		
a	Steam Boiler	1 x 120 TPH 1 x 50 TPH
13 Stack Details		
a	Boiler Stack (from ground level)	Common stack of 75 meter height for 120 TPH & 50 TPH Boiler {APCD: ESP with 99.5% Efficiency}
b	D.G	2 x 1250 kVA- 7.5 meters above roof (for each D.G)
14	Man Power	Construction Phase -100 Nos. & Operation Phase- Skilled: 180 Nos. Unskilled: 100 Nos. Total: 280 Nos.
15 Water Requirement		
	Particular	Quantity (m³/day)
	Water requirement	<p>The company will categorize the total water requirement of the project based on activity.</p> <ul style="list-style-type: none"> • For Sugar manufacturing including power generation: 1st Cycle water consumption rate for the sugar unit and 30 MW Cogen will be 8038.7 KLD; Due to excess condensate available from the Sugar unit, the fresh water requirement for sugar and co-generation unit from the second cycle will be NIL. However, due to availability surplus condensate it will be used in Distillery & Greenbelt ➤ During “Syrup” based production (300 KLD): 1st Cycle Water consumption rate for the distillery unit will be 4010.75 KLD; during 2nd Cycle: It will be 0 KLD (0 KL/KL) ➤ During “B” Molasses (300 KLD): 1st Cycle Water consumption rate for the distillery unit will be 4702 KLD; during 2nd Cycle: It will be 1192.68 KLD (3.97 KL/KL) ➤ During “Grain” (300 KLD): 1st Cycle Water consumption rate for the distillery unit will be 4932 KLD; during 2nd Cycle: It will be 1161.2 KLD (3.87 KL/KL)
16 Effluent Load on CPU		
	Particulars	Quantity (m³/day)

	Effluent generation rate	Effluent from Sugar Process: 379.1 KLD Effluent from Syrup Based Distillery: 1813.1 KLD Effluent from B Molasses Based Distillery: 2518.18 KLD Effluent from Grain Based Distillery: 2165 KLD			
17 CPU Capacity					
a	The capacity of ETP, MEE & CPU	Sugar ETP: 450 KLD Distillery CPU: 3200 KLD MEE & Spent wash Dryer: 2200 KLD			
18 Details of Hazardous Wastes					
Sr. No	Particulars	Category*	UOM	Quantity	Method of Disposal/Management
a	Used/Spent Oil	5.1	KL/A	1.0	Disposal through SPCB-authorized recycler
*Schedule I of The Hazardous and Other Wastes (Management and Trans boundary Movement) Rules, 2016.					
19 Details of Non-Hazardous Solid Wastes					
Sr. No	Particulars	Category	UOM	Quantity	Method of Disposal/Management
a	Boiler Ash	-	TPA	3578.7	For in-house brick manufacturing
b	Sludge generation from distillery CPU	-	TPA	303	It will be used/sold as manure
c	Sludge generation from sugar ETP & CPU	-	TPA	225	It will be used/sold as manure

4.0 Description of the Environment

Primary baseline environmental monitoring studies in a 10-km radius were conducted through a NABL-approved laboratory – Shreeji Aqua Laboratories, from March 2023 - May 2023.

4.1 Topography, Land Use & its Classification

The elevation of the region varies from 409 m to 519 m. The physical setting of study area shows a relatively planar pattern with certain patches that has both higher and lower elevations. Patches in the Northern region, Western region and Southern tip shows a relatively higher elevation feature. A patch in the North Eastern region shows a relatively lower elevation region. This elevation pattern also affects the drainage pattern of the region. The region is occupied by Rivers and Nallas. The area shows a variation of approximately 9 m- 92 m from North East to South West and approximately 14 m-59 m from North West to South East. Overall, there is no major variation with respect to relief features.

4.2 Soil Environment

The soil samples were derived from 8 different locations within the study area of the project. Analysis results of the same, revealed that the pH values of soil samples were varying in range of 7.4 to 7.64; which indicated slightly alkaline nature of soil samples. The organic matter content in soils was varying between the range from 1.48-2.54 percent. The values for Nitrogen at all locations varied between 198.6 to 312.4 mg/Kg. & maximum concentration of Nitrogen was observed at location S2. Concentrations of Phosphate were found to be in the range of 53.4 to 88.6 mg/kg. Whereas highest concentration was observed at location S2, while the lowest concentration was observed at location S4. Concentration of potassium amongst all locations was found to be ranging between 65.5 to 98.6 mg/Kg. Heavy metals viz. As, Cr, Hg & Pb were below detection limit.

4.3 Air Environment

Ambient Air Quality for criteria pollutants viz. PM₁₀, PM_{2.5}, NO_x, SO₂ and CO were monitored at eight (8) locations in the study area, whereas additional parameters viz. NH₃, C₆H₆, BaP, O₃, Pb and Ni, and criteria pollutants were monitored at the proposed project location.

Particulate Matter (PM₁₀)

The study reveals that maximum concentration was observed to be in the range of 46.9 to 57.7 µg/m³. The minimum concentration was observed to be in the range of 36.7 to 46.4 µg/m³ the highest 24-hourly concentration was recorded at sampling location A3. At the same time minimum concentration was observed at location A8. The average concentration of PM₁₀ can be said to be ranged between 40.56 to 50.92 µg/m³. The high average concentration of particulate matter recorded at project site (A3), due to vehicular movement on nearby roads. It should be noted that the concentration of PM₁₀ was not observed to be exceeding the standards prescribed by the CPCB on any occasion.

Particulate Matter (PM_{2.5})

The major source of PM_{2.5} is said to be the combustion of fuels, fire wood and industrial emissions etc., present within study area. The maximum of PM_{2.5} (35.9 µg/m³) during the study period was recorded at location A3, whereas the minimum value (17.6 µg/m³) concentration was recorded at A8 location. The average concentration of PM_{2.5} during the study period was computed to be in the range of 20.99 to 29.18 µg/m³.

Sulphur Dioxide (SO_x)

High level of SO_x in ambient air indicates the presence of combustion of fossil fuel in the vicinity. The ambient air monitoring results indicate that the highest concentration of SO_x is experienced at A1. The burning of fuel in boiler is main source of emission for SO_x. The average concentration of SO_x recorded during the study period ranged between 13.65 to 22.30 µg/m³ respectively. It was noted that maximum average concentration was recorded at location A3 while the lowest was observed at location A8.

Oxides of Nitrogen (NO_x)

The various forms of Nitrogen in NO, NO₂ and N₂O are collectively called as Oxides of Nitrogen. The highest value of NO_x during the monitoring period was observed at location A3 while the minimum average was recorded at A8. The average concentrations were in the range of 17.99 to 27.26 µg/m³. The maximum 24 hourly value of NO_x was recorded at the monitoring location A3 (30.9 µg/m³) whereas the minimum concentration of NO_x was recorded at location A8 (14.1 µg/m³).

Carbon Monoxide (CO)

The anthropogenic source of CO is due to incomplete combustion of fuel majorly in absence of air. The maximum concentration of CO estimated at all locations during the study period can be observed is 0.07 to 0.7 mg/m³.

All the parameters were found to be within the desired limits specified by NAAQ Standard.

Additional Parameters

The Ozone, Lead, Ammonia, Benzene, Benzo (a) pyrene, Arsenic, Nickel and VOC's were below detection limit.

Thus it is concluded that the concentration of additional parameters at project was also within the prescribed NAAQS, 2009.

4.4 Noise Environment

Ambient noise levels were monitored at eight (8) locations in the study area during the study period.

Industrial Zone

The day time noise level at the project premises was observed to be 51.63 dB (A) while during night time the noise level was recorded to be 41.50 dB (A). It was observed that the noise levels during the day time as well as night time were estimated to be under the prescribed standards by CPCB.

Residential Zone

The minimum noise level recorded during the daytime was observed at location N5, whereas the maximum noise levels can be observed at location N3 during the daytime.

The maximum noise level recorded during the Night-time was observed at location N4, whereas the minimum noise levels can be observed at location N6 during. It was observed that the permissible limits for noise did not exceed at any of the locations selected for sampling.

4.5 Ground Water Environment

The ground water testing results revealed that values/ concentrations of various parameters amongst all the samples were in the range of pH – 7.34 to 7.62, TDS – 409.6 to 466.5 mg/l, Sulphates – 60.2 to 73.4 mg/l, Phosphates – 1.72 to 2.42 mg/l, Total Hardness – 148.6 to 186.9 mg/l, Nitrate – 13.5 to 21.4 mg/l, Bicarbonate – 21.3 to 34.3 mg/l, Calcium – 38.4 to 46.4 mg/l, Sodium – 47.4 to 72.1 mg/l, Potassium 18.9 to 41.3 mg/l, Magnesium – 14.1 to 20.3 mg/l, COD

- <5.00 mg/l, BOD - <1.00 mg/l, whereas concentrations of Arsenic, Lead were <0.01 mg/l and Cadmium - <0.001 mg/l, Iron 0.12 to 0.13 mg/l, Chromium- <0.05 mg/l, Mercury- <0.001 mg/l, Nickel- <0.01 mg/l & Zinc- <0.05 mg/l. Total Coliforms & E. Coli were <2 No/100ml in all samples.

4.6 Surface Water Environment

The quality assurance for collected data has been done. The values were checked and found to be in co-relation as per Ionic balancing done for the each sample report.

Surface water samples were derived from 4 locations in different surface water bodies within study area, analysis results of the same revealed that pH values amongst all samples varied in the range of 7.14 to 7.54, Total Hardness concentration varied in the range of 121.4 mg/l to 148.9 mg/l & maximum concentration was recorded at SW2, TDS concentration varied in the range of 302.4 to 412.6 mg/l whereas maximum concentration 412.6 mg/l was recorded at SW2 & minimum concentration 302.4 mg/l at SW4. Electrical Conductivity was found to be ranging in between 464.3 to 634.5 μ S/cm. The concentrations of Dissolved Oxygen, BOD & COD were found to be varying in the range of 3.7 to 6.1 mg/l, 1.0 to 8.0 mg/l & 4.0 to 24.0 mg/l respectively whereas the concentrations of Phosphates, Nitrate & Ammonical Nitrogen varied in the range of 2.14 to 3.64 mg/l, 10.3 to 20.4 mg/l & <0.01 mg/l respectively.

Concentrations of elements such as Calcium, Sodium & Potassium were found to be in the range of 33.6 to 41.1 mg/l, 40.3 to 53.6 mg/l & 8.98 to 12.6 mg/l respectively.

Heavy metals viz. Lead, Chromium, Mercury, Cadmium, Arsenic & Nickel were found to be in <0.01 mg/l, <0.05 mg/l, <0.001 mg/l, <0.001mg/l, <0.01 mg/l & <0.01 mg/l.

To ascertain the best suited use of sampled surface water bodies, the analysis results were compared with the Designated Best Use Water Quality Criteria & the analysis revealed that sampled surface water bodies in study area be suited for Class "E" Water i.e., Irrigation, Industrial Cooling, Controlled waste disposal.

4.7 Biotic Environment

The scrub forest, wetland and grassland of study area support several ecological important plant species which plays crucial role for the conservation of birds, insects, and mammals. Total 114 plant species were reported during survey of which, 35 are tree species, 15 shrubs, 57 herbs and 7 were climbers. In faunal diversity, 9 odonates, 21 butterflies were also found during field visit, which shows a greater diversity. Species composition of insects is very peculiar of study area; total 22 insects were recorded of which beetles and bugs were more divers among all insect groups. 54 bird species were recorded in the study area, most of them around the water bodies and grassland. Mammals observed during field survey were 8 species which are mostly common, no threatened taxa have been reported from proposed project site. Reptiles and amphibian's diversity were also noteworthy in study area, 4 reptiles and 4 frog species were documented from study area.

4.8 Socio-Economic Environment

The 10 km study area includes 1 Taluka of Solapur District. There are total of 18 villages in the study area. The study area is essentially rural. The socio-economics of the study area is studied through primary and secondary surveys. The socio-economic aspects of the study area are summarized in the table below.

Table 2: Summary of Socio-Economic Aspects

Demographic Parameters	Details
No. of States	1
No. of District	1
No. of Tehsil	1
No. of Villages	18
Total No. of Households	12,762
Total Population	61,351
Child Population	7960
Scheduled Castes	7654
Scheduled Tribes	505
Literacy	72.41 % (Average)

Source: Primary Census Abstract 2011, Solapur District, State Maharashtra

5.0 Anticipated Environmental Impacts and Mitigation Measures

Table 3: Summary of Anticipated Impacts and its Mitigation Measures

Sr. No	Environmental Parameters	Aspect Attributes	Anticipated Impacts	Proposed Mitigation Measures
Construction Phase				
1.	Air Quality	Dust during handling of cement/concrete/stone aggregates & other construction materials.	<p>The estimated generation would be around 1692.13 tons of the activity.</p> <p>Exposure of construction workers to such dusts may lead to short term respiratory problems, whereas, prolonged & continuous exposure may lead to malfunctioning of lungs.</p> <p>The anticipated construction period will be 8 months after grant of all Environmental Clearance, Consent To Establish & all other Statutory Permissions.</p>	<p>Proper loading and unloading of the materials to ensure minimum dust. Managing & covering the stockpiles. Regular sprinkling of water on the working site,</p> <p>Installing wind barriers around working site & all around the plot boundary for containing the dust.</p>
2.	Noise Levels	Noise generated from construction machineries like Poclain, Lift Crane, Jack Hammer Drill, Digger, Compactor, Roller etc. & by use of construction equipment like Jack Hammer, Cutter, Drill Concrete vibrator etc. and by arrival & depart of transport vehicles.	It is anticipated that the cumulative noise levels by all construction machineries, equipment & activities at propagating at plant boundary will be within a range. Significant impacts outside plant premises are not anticipated.	PPEs viz. Ear Plugs/Muffs will be provided to workers, Construction activities will be limited from 9.00 AM to 5.00 PM, Installation of noise barriers around project plot will further minimize the intensity of propagating noise.
3.	Water Quality	Surface runoff generated Water used for construction activities mainly for concrete mixing, sprinkling etc. Sanitation waste water by construction workers.	If such runoff water & sanitation waste water finds way to surrounding soils & water body, may lead to contamination of surrounding soils & increased	The surface runoff generated during construction activities will be properly filtered and utilised for gardening or sprinkling & Mobile sanitation facilities will be

			turbidity & contamination in water body.	provided to workers which will be periodically cleaned through night soil tankers.
4.	Construction & Demolition Wastes Management	<p>Proposed project being a green field project demolition waste will not occur however inert construction wastes such as: Cardboards, Wooden Boxes, Wooden planks, Metal rods, HDPE bags, Felled Concrete, Stones, Aggregates & debris will be anticipated to be generated.</p> <p>Excavated/Dug soil/earth will be generated during site preparation activities.</p>	<p>Haphazard handling of such wastes may lead to advent of Rodents, Reptiles within project plot, thereby causing dangers to workers working on site.</p> <p>Disposal of such wastes on land will lead to degradation of soils.</p>	<p>Excavated/ dug soil/earth will be stored appropriately in dedicated space within project plot & will be used for green belt development activity along with mix of new soil.</p> <p>Inert construction wastes viz. Cardboards, Wooden Boxes, Wooden planks, Metal rods, HDPE bags will be stored in dedicated space & sold to recyclers.</p> <p>Felled Concrete, Stones, Aggregates & debris will be used as filling material for internal roads in consonance with Construction & Demolition Wastes Management Rules 2016.</p>
Operational Phase				
1.	Air Quality	<p>Utilities stack emissions viz. Particulate Matter, SO₂, NO_x & CO from boiler & D.G operations & Process emissions viz. CO₂ & VOC's.</p> <p>VOC emission generated due to the handling and storage of the Ethanol.</p>	<p>The anticipated maximum incremental concentration due to steam boiler operation for criteria parameter will be</p> <p>PM₁₀ – 1.02 µg/m³, SO₂ – 3.41 µg/m³, NO_x – 4.35 µg/m³ CO – 0.0635 µg/m³</p> <p>Anticipated health effects: People</p>	<p>1. ESP is attached to Common stack of 75 meter height for 120 TPH & 50 TPH Boiler Capacity will be provided. Common ESP with 99.5% efficiency will be provide to control PM emission.</p>

		<p>Fugitive emissions from material transport vehicles.</p>	<p>in downwind localities if prone to continuous & prolonged emissions may be susceptible to adverse health impacts related to respiratory & pulmonary due to particulate matter. Carbon monoxide decreases the oxygen carrying capacity of the blood by reducing the haemoglobin.</p> <p>The anticipated process generations are CO₂- 75150 TPA Which will be sent to CO₂ recovery plant.</p> <p>The health effects related to VOC's are eye, nose and throat irritation headaches.</p> <p>Environmental effects:</p> <p>The air emissions in long course of time may affect the immediate surrounding vegetation stature physically (leaf senescence, hampered growth etc.) & biologically thus may affect the overall surrounding ecology.</p>	<ol style="list-style-type: none"> 2. D.G will be provided with a stack of 7.5 m above roof as per CPCB guidelines for proper dispersion of emissions. 3. CO₂ Bottling plant is proposed for recovery of process emission. 4. Provision of closed feeding system for solvents. 5. The roads within the premises will be paved to avoid the dust generation from vehicular activity. 6. It will be ensured that all the transportation vehicles have a valid PUC (Pollution under Control) Certificate. 7. Regular sweeping of all the roads & floors will be done to avoid fugitive dust. 8. The proposed thick green belt of 10 m width along the plant periphery will help to capture the fugitive emissions. 9. Industry to ensure that at no point of time the air emission concentrations exceed the
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				prescribed CPCB/Consented standards.
2.	Noise Quality	Operation of Steam Boilers, Cooling Towers, Pumps, Blowers & material transport vehicles.	<p>It is anticipated that the cumulative noise levels by all machineries, equipment & operation activities at propagating at plant boundary will be within a limit</p> <p>Impacts of exposure to continuous & prolonged noise would be Temporary/Permanent hearing loss, Mental disturbances Increase in heart rate Reduced workers performance due to psychiatric disorder and Tinnitus in case of high level of noise exposure on regular basis.</p> <p>The intensity of propagating noise at a distance of 100 m from plot boundary will be almost nil, thus significant impacts outside plant premises are not anticipated.</p>	<p>1. Acoustic enclosures will be provided to high noise generating equipment for attenuation of noise level during operation.</p> <p>2. Steam boilers will be placed in a confined space viz. boiler house where the surrounding walls will acts as a barrier for propagating noise.</p> <p>3. PPE's viz. Ear muffs/plugs will be provided to workers working near noise generating equipment.</p> <p>4. The proposed thick green belt of 10 m width along the plant periphery will help to further minimise the intensity of propagating noise out of plant premises.</p>
3.	Water Quality	<p>1. Effluent from process, washings, Backwashes.</p> <p>2. Boiler & Cooling Tower blow-downs.</p> <p>3. Domestic wastewater.</p>	<p>The anticipated treated effluent characteristics area: pH - 7.5 to 8.0, TSS < 100 mg/lit., BOD < 100 mg/lit., COD < 250 mg/lit., TDS < 2100 mg/lit. and Oil & Grease < 10 mg/lit.</p> <p>Accidental/Deliberate release of treated/un-treated effluents in surface water bodies may lead to</p>	<p>Effluent and excess condensate from sugar unit will be treated in ETP and Sugar CPU respectively.</p> <p>Spent wash from syrup/molasses based production unit will be sent to biomethanation and after that treated in MEE followed by Spent wash dryer; The condensate from</p>

			<p>contamination/ eutrophication/ acidification/ toxification of the subjected water bodies and in of case land may lead to complete degradation of subjected land affecting, also may contaminate the ground water by way of percolation.</p> <p>Such affected soils, Surface water & ground water sources cannot be used for any purpose & depending terrestrial & aquatic ecology will be completely affected.</p>	<p>MEE unit will be collected and it will be further treated in CPU along with other effluent streams like Spent Lees, Blow downs from Boiler and Cooling Towers, Sealing water, WTP reject and Washing effluent.</p> <p>The CPU will be consist of Primary, Secondary and Tertiary unit.</p> <p>The Decanter will be recycle to MEE.</p> <p>Domestic effluent load will be connected and treated in secondary treatment facility.</p>
4.	Solid Waste Management - Hazardous	<ol style="list-style-type: none"> 1. Hazardous waste i.e. Spent oil generated from DG and maintenance of the plant. 2. Hazardous waste generated from maintenance operations. 	<p>Unscientific handling & disposal may lead to contamination of surrounding soils, water sources & there by affecting the ecology & health of the workers coming in direct contact with the hazardous waste like skin allergies/rashes/burns etc.</p>	<ol style="list-style-type: none"> 1. Spent oil generated from project activities will be handled, stored and disposed as per Hazardous Waste Management Rule, 2016 and its amendments till date. <p>Mainly it will be sold to MPCB authorised vendor.</p>
5.	Solid Waste Management (Non Hazardous Inert Waste)	<ol style="list-style-type: none"> 1. Scrap Metal 2. Scrap Plastic 3. Office Waste 4. Canteen Waste 5. Wooden Pallets 	<p>Hap-hazard handling & storage may lead to inadequate open space in plant premises & it may lead to rodent breeding thereby affecting the occupational health &</p>	<ol style="list-style-type: none"> 1. Designated area for Scrap materials (Metal, Plastic, Wooden Pallets, office Waste) storage will be provided in the plant.

		<p>6. Boiler Ash 7. CPU Sludge 8. ETP Sludge 9. DDGS</p>	<p>environment.</p>	<p>2. Scrap materials will be recycled through scrap vendors.</p> <p>3. Daily housekeeping waste and canteen waste will be disposed through vermin composting facility (off-site).</p> <p>4. Boiler ash – 3578.7 TPA will be used in brick manufacturing unit.</p> <p>5. CPU Sludge- 303 TPA will be used/sold as Manure.</p> <p>6. ETP & CPU Sludge from sugar- 225 TPA will be used/sold as Manure.</p> <p>7. DDGS-225 TPD will be used/sold as Manure.</p>
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6.0 Quantitative Risk Assessment and Mitigation Measures

Quantitative Risks for the proposed project have been assessed based on ALOHA for tank storage.

Based on the unsafe distances plotted in ALOHA software output, the MCLS (Maximum Credible Loss Scenario) for the proposed factory is identified for Ethanol & the anticipated effect distance is 94 m. from the Ethanol PESO area in the factory premises.

The scenario considered for assessing the impact by quantitative risk assessment was taken from Thermal radiation from pool fire.

7.0 Disaster Management Plan

The Disaster Management Plan will be implemented in consultation with the District Administration to ensure health and safety during untoward incidents.

In view of handling of processes in the industry, On-site Emergency Plans are essential and hence has been prepared for the industry. Additionally, recommendations for and Off-site shall be provided to the District Administration. During the operational phase, the surrounding population shall be made aware of safety precautions to be taken in case of any emergency due to the overall project activity.

8.0 Occupational Safety & Health Management

The Project Proponent shall continue to strictly adhere to the rules of the Factories Act 1948 & the Maharashtra Factories Rules, 1963 regarding the occupational health facilities to be provided to the company's workers.

- The industry will provide decontamination facilities for the workers. The health records of the workers will be maintained.
- For continuous development, the company will continue to train & educate the operators and workers on the environment, health & safety rules & regulations, procedures and measures.
- Periodic medical check-ups will be carried out to ensure the health status of all workers.
- Job rotation will be done.

9.0 Post-Project Environmental Monitoring Plan

Post-project environmental status will be evaluated as per the Environmental Monitoring Plan framed in EIA along with additional parameters suggested if any Statutory Clearances/Permissions and frequency of environmental attributes, including monitoring locations, will be as per the guidelines provided by MoEF&CC/CPCB/MPCB. Monitoring shall be carried out by third-party laboratories that NABL and/or MoEF&CC accredits.

10.0 Environmental Management Plan

Conduction of Environmental monitoring program as per plan, periodic reviews & audits will be carried out for effective environmental management. Project Management and the EHS department will ensure the overall effective implementation of the management plan.

Systems will be in place to ensure compliance of all environmental statutory requirements & obligations and it will be ensured.

All recommendations given in the EIA report, including occupational health, risk mitigation and safety, shall be complied. In addition, the company have allocated Indian Rs.66.2051 Cr for environmental pollution control measures & environment management plan activities, which is ~18.91 % of the total project cost.

11.0 Project Benefits

The following benefits are expected from the proposed project:

- This project will have locale specific positive social and economic benefits.
- Some of these would be direct benefits of long term nature.
- The project will generate revenue for the State Government.
- The project will create additional direct/indirect employment at various downstream & upstream ends and largely for local people.
- Local people will be preferred for employment during the construction and operation stage.

12.0 Corporate Environment Responsibility (CER) Action Plan

Ideally, CER planning is envisioned from the perspective of need-based assistance in health, education, sustainable lifestyles, social mobilization, infrastructure, water harvesting, agriculture and environmental protection, considering locale-specific scenarios around the project area.

Company will carry out its duties under Corporate Environment Responsibility (CER) as per the MoEF&CC Office Memorandum - F.No.22-65/2017-IA.III dtd. 30th September 2020, by virtue of which the CER activities will be implemented as part of Environment Management Plan.

CER cost of 1.5 % of proposed project cost viz. 5.25 Cr is allocated for implementation of need based CER activities in project area.