

**EXECUTIVE SUMMARY OF DRAFT ENVIRONMENTAL  
IMPACT ASSESSMENT (EIA) REPORT**

FOR

“Proposed expansion of existing molasses based distillery unit from 30 KLPD to 140 KLPD using Syrup & Molasses along with increasing the existing Sugarcane crushing capacity from 2500 TCD to 5000 TCD and establishment of proposed 5.4 MW Co-generation Power Plant for distillery unit (Existing 8 MW TG set at Sugar Unit)”

BY

**“JAIBHAWANI SAHAKARI SAKHAR KARKHANA LIMITED”**

AT

Survey No.138, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164 & 170 Of Talewadi Village And 165, 167 & 168 Of Gadhi Village, Taluka Georai, District Beed, Maharashtra.

PREPARED BY

**MANTRAS GREEN RESOURCES LTD., NASHIK**

<p style="text-align: center;">Jaibhawani Sahakari Sakhar Karkhana Limited (JBSSKL)</p>	<p>Draft Environmental Impact Assessment (EIA) Report of Jaibhawani Sahakari Sakhar Karkhana Limited (JBSSKL) for Proposed expansion of existing Molasses based distillery unit from 30 KLPD to 140 KLPD using Syrup &amp; Molasses along with establishment of proposed 5.4 MW Co-generation Power Plant for distillery unit (Existing 8 MW TG set at Sugar Unit), while increasing the existing Sugarcane crushing capacity from 2500 TCD to 5000 TCD.</p> <p style="text-align: right;"><b>EXECUTIVE SUMMARY</b></p>
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## EXECUTIVE SUMMARY

### **1.0 Introduction**

Jaibhawani Sahakari Sakhar Karkhana Limited (JBSSKL) Proposes Expansion of Molasses based Distillery unit using Syrup & Molasses along with establishment of co-generation Power Plant for distillery unit while increasing the existing Sugarcane crushing capacity.

Jaibhawani Sahakari Sakhar Karkhana Limited (JBSSKL) Talewadi and Gadhi Village, Taluka Georai, District Beed, Maharashtra registered under Section 9(1) of the Maharashtra Co-operative Societies Act, 1960 (Maharashtra act XXIV of 1961), vide Registration No. "BHR/PRG/(A)-2" dated 02/10/1973 (Govt. of India - Ministry of Agriculture and Farmers' welfare, Dept. of Agriculture, Co-operation and Farmers welfare).

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 expansion of molasses based distillery unit from 30 KLPD to 140 KLPD using Syrup & Molasses along with establishment of proposed 5.4 MW Co-generation Power Plant for distillery unit (Existing 8 MW TG set at Sugar Unit), while increasing the existing Sugarcane crushing capacity from 2500 TCD to 5000 TCD.

### **2.0 Project Location**

The proposed expansion activity will be carried out at Survey No.138, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164 & 170 of Talewadi village and 165, 167 & 168 of Gadhi village, Taluka Georai, District Beed, Maharashtra.

As per geographical co-ordinates of the project site, the proposed activity is covered under SOI Toposheet No. 47M/16, while the study area of the project (10 km radius) is falling under SOI toposheet No: 47M/11, 47M/12, 47M/15 & 55M/16. The project is located at elevation of 529 meters above mean sea level (AMSL).

### **3.0 Project Description**

During the crushing season, i.e. 180 days. The company will operate a distillery with a production rate of 140 KLPD using sugarcane syrup as the primary raw material; during the off-season, i.e. 150 days distillery will be under operation with a 140 KLPD using molasses as a source of raw material.

Industry has existing 8.0 MW Co-generation power plant at Sugar Unit and proposes to install 5.4 MW co-generation power plant to fulfil the power requirement of Sugar and Distillery unit.

Jaibhawani Sahakari Sakhar Karkhana Limited (JBSSKL)	Draft Environmental Impact Assessment (EIA) Report of Jaibhawani Sahakari Sakhar Karkhana Limited (JBSSKL) for Proposed expansion of existing Molasses based distillery unit from 30 KLPD to 140 KLPD using Syrup & Molasses along with establishment of proposed 5.4 MW Co-generation Power Plant for distillery unit (Existing 8 MW TG set at Sugar Unit), while increasing the existing Sugarcane crushing capacity from 2500 TCD to 5000 TCD.
	<b>EXECUTIVE SUMMARY</b>

As per the Environmental Impact Assessment Notification published by MoEF&CC vide S.O. 1533 dated 14<sup>th</sup> September 2006 and its amendment till date, the proposed activity of the industry requires prior environmental clearance as the proposed activity falls under schedule 5(j) & 5(g) of the EIA notification, the project is to be appraised by MoEF & CC as Category A project.

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

**Table No. 1 : Salient Features of Project**

Sr. No.	Component	Details	
1	<b>Name &amp; Address of Industry</b>	Jaibhawani Sahakari Sakhar Karkhana Limited.  Survey No.138, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164 & 170 of Talewadi village and 165, 167 & 168 of Gadhi village, Taluka Georai, District Beed, Maharashtra.	
2	<b>Product Type</b>	Proposed expansion of existing Molasses based distillery unit from 30 KLPD to 140 KLPD using Syrup & Molasses along with establishment of proposed 5.4 MW Co-generation Power Plant for distillery unit (Existing 8 MW TG set at Sugar Unit), while increasing the existing Sugarcane crushing capacity from 2500 TCD to 5000 TCD.	
3	<b>Project Type</b>	Expansion	
4	<b>Schedule of project as per EIA Notification, 2006 &amp; further amendments till date</b>	5 (j) 5 (g)	
5	<b>Category of Project</b>	'A' Category Project	
6	<b>Plot Area Details</b>		
	<b>Particulars</b>	<b>Area in Sq. m.</b>	<b>% of Total Plot Area</b>
a	Green Belt	204468.00	33 % of total plot area
b	Parking Area	92947.00	15% of total plot area
c	Total Built-up Area (Ground	100727.79	16.26% of total plot area

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	<b>EXECUTIVE SUMMARY</b>

	Coverage)		
d	Area Under Internal Roads	36705.02	5.92% of total plot area
e	Open Space	184752.19	29.82% of total plot area
f	<b>Total Plot Area</b>	<b>6,19,600.00</b>	<b>100%</b>

7	<b>Production Details</b>			
	<b>Name of Product</b>	<b>Existing</b>	<b>Proposed</b>	<b>Total after expansion</b>
<b>Main Product</b>				
a	Rectified Spirit/ Extra Neutral Alcohol/ Ethanol	30 KLPD	110 KLPD	140 KLPD
b	Sugar	9000 MT/M	-1752 MT/M	7248 MT/M
c	Power (Co-generation Power Plant)	Distillery Plant- NIL Sugar Unit- 8.0 MW (Earlier, Power Required for 30 KLPD Distillery plant was taken from TG set Plant of Sugar Unit)	5.4 MW	13.4 MW (10.3 MW will be used in Sugar & Distillery Plant and 3.1 MW will be sold to Grid)
<b>By-product</b>				
a	Fusel Oil	0.045 KLD	0.165 KLD	0.21 KLD
b	CO <sub>2</sub> Gas	--	105.66 TPD	105.66 TPD
c1	Spent Wash Powder during Syrup based production (180 Days)	(Existing Bio-composting Unit 116.67 MT/D) Note: The existing bio-composting activity will be discontinued	27.84 TPD	27.84 TPD
c2	Spent Wash Powder during B-Molasses based production (100 Days)		62.8 TPD	63.23 TPD
c3	Spent Wash Powder during C-Molasses based production (50 Days)		104.13 TPD	104.13 TPD
d	Molasses	100 TPD	39.655 TPD	139.655 TPD

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	<b>EXECUTIVE SUMMARY</b>

e	Bagasse	126000 MT/A	126000 MT/A	252000 MT/A
f	Press Mud	15750 TPA	15750 TPA	31500 TPA
<b>8 Budgetary Estimation</b>				
a	Project Cost (INR)	64.97 Cr	147.16 Cr	212.13 Cr
b1	EMP Capital Cost (INR)	2.31 Cr	41.25 Cr	43.56 Cr
b2	EMP Recurring Cost (INR)	3.707 Cr		
9	Operation Days	330 Days (Syrup Based: 180 Days, B-Molasses based: 100 days, C-Molasses based: 50 days)		
<b>10 Power Requirement</b>				
a	Power required	4.4 MW	5.9 MW	10.3 MW
b	Source	8 MW TG set	5.4 MW TG set	13.4 MW
<b>11 Fuel Requirement</b>				
<b>During Season</b>				
a1	Biogas	NIL	12111 NM <sup>3</sup> /D	12111 NM <sup>3</sup> /D
b1	Bagasse	625 MT/D	267.44 MT/D	892.44 MT/D
<b>During Off-Season (B-molasses)</b>				
a2	Biogas	NIL	22613 NM <sup>3</sup> /D	22613 NM <sup>3</sup> /D
b2	Bagasse	62.5 MT/D	183.94 MT/D	246.44 MT/D
<b>During Off-Season (C-molasses)</b>				
a3	Biogas	NIL	45635 NM <sup>3</sup> /D	45635 NM <sup>3</sup> /D
b3	Bagasse	62.5 MT/D	137.9 MT/D	200.40 MT/D
c	High Speed Diesel (HSD)	135.13 lit/hr	216 lit/hr	351.13 Lit/hr
<b>12 Diesel Generator (D.G.) Details</b>				
	Capacity & No.	1 X 500 kVA	1 x 1000 kVA	1 X 500 kVA & 1 X 1000 kVA

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	<b>EXECUTIVE SUMMARY</b>			

13	<b>Boiler Details</b>			
a	Steam Boiler	2 x 20 TPH 1 x 35 TPH	1 x 35 TPH	2 x 20 TPH 2 x 35 TPH
14	<b>Stack Details</b>			
a	Boiler Stack (from ground level)	<p>2 x 20 TPH Boiler : existing 40 meter common Stack height will be extended to 50 meter</p> <p><i>(APCD- existing scrubber will be discontinued and ESP will be provided)</i></p> <p>35 TPH Boiler: existing 25 meter Stack height will be extended to 45 meter</p> <p><i>(APCD- existing scrubber will be discontinued and ESP will be provided)</i></p>	<p>35 TPH Boiler: 45 meter stack will be provided {APCD: ESP with 99.5% Efficiency}</p>	<p>2 x 20 TPH Boiler : existing 40 meter common Stack height will be extended to 50 meter</p> <p><i>(APCD- existing scrubber will be discontinued and ESP will be provided)</i></p> <p>35 TPH : existing 25 meter stack height will be extended to 45 meter</p> <p><i>(APCD-existing scrubber will be discontinued and ESP will be provided)</i></p> <p>Proposed 35 TPH) : 45 meter stack height will be provided (APCD: ESP with 99.95% Efficiency)</p>
c	D.G. Set	4.5 meters above roof	6.5 meter above roof	500 kVA D.G. Set- 4.5 meters above

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	<b>EXECUTIVE SUMMARY</b>

				roof 1000 kVA D.G. Set- 6.5 meters above roof
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15	Man Power (Nos.)	--	Construction Phase - 100	Construction Phase - 100
		Operation Phase: Skilled -90 Unskilled -100 Total: 190	Operation Phase : Skilled - 70 Unskilled -140 Total: 210	Operation Phase : Skilled - 160 Unskilled - 240 Total - 400

16	<b>Water Requirement</b>			
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	Particular	Quantity
	Water requirement Quantity & its Source	<p>For 5000 TCD Sugar &amp; 13.4 MW Co-generation Power Plant 1<sup>st</sup> Cycle: 5446.22 KLD 2<sup>nd</sup> Cycle : 0 KLD</p> <p>During Syrup based production (140 KLPD): For 1<sup>st</sup> Cycle: 2353.04 KLD (Distillery Operation) 2<sup>nd</sup> Cycle: 0 KLD (0 KL/KL)</p> <p>During B-Molasses based production (140 KLPD): 1<sup>st</sup> Cycle: 2388.92 KLD (Distillery Operation) 2<sup>nd</sup> Cycle: 409.03 KLD (2.92 KL/KL)</p> <p>During C-Molasses based production (140 KLPD): 1<sup>st</sup> Cycle: 2617.37 KLD (Distillery Operation) 2<sup>nd</sup> Cycle: 427 KLD (3.05 KL/KL)</p> <p style="text-align: center;"><b>Domestic + Greenbelt: 218 KLD</b> Source-Surface water (Govindwadi Minor Irrigation Tank)</p>

17	<b>Effluent Load on ETP &amp; CPU &amp; STP</b>	
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	Particulars	Quantity
a	Effluent in Sugar Unit ETP	336.5 KLD
b	Effluent in Sugar Unit CPU	787 KLD
c	Effluent in Distillery Unit	During Syrup based production (140 KLPD):

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	CPU	1363.47 KLD During B-Molasses based production (140 KLPD): 1351.59 KLD During C-Molasses based production (140 KLPD): 1562.2 KLD			
18	<b>Capacity &amp; Treatment Scheme</b>				
a	MEE & CPU Capacity & Effluent Treatment Scheme	ETP Capacity (Sugar Unit) : 600 KLD CPU Capacity (Sugar Unit) : 800 KLD CPU Capacity (Distillery Unit): 1600 KLD MEE + Spent Wash dryer Capacity: 1200 KLD			
19	<b>Details of Hazardous Wastes</b>				
<b>Sr. No.</b>	<b>Particulars</b>	<b>Category*</b>	<b>UOM</b>	<b>Quantity</b>	<b>Method of Disposal/Management</b>
a	Used/Spent Oil	5.1	KL/A	1.0	Disposal through SPCB authorised recycler
*Schedule I of The Hazardous and Other Wastes (Management and Trans boundary Movement) Rules, 2016.					
20	<b>Details of Non-Hazardous Solid Wastes</b>				
<b>Sr. No.</b>	<b>Particulars</b>	<b>Category*</b>	<b>UOM</b>	<b>Quantity</b>	<b>Method of Disposal/Management</b>
a.	Boiler Ash	-	TPA	2929.55	For in-house brick manufacturing
b.	Sludge from Waste water treatment	-	TPA	688	Will be used as Manure

#### 4.0 Description of the Environment

Primary baseline environmental monitoring studies in 10 km radius study area were conducted through NABL approved laboratory – **Shreeji Aqua Laboratories** during **March 2023 – May 2023**.



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#### **4.1 Topography, Land use & its Classification**

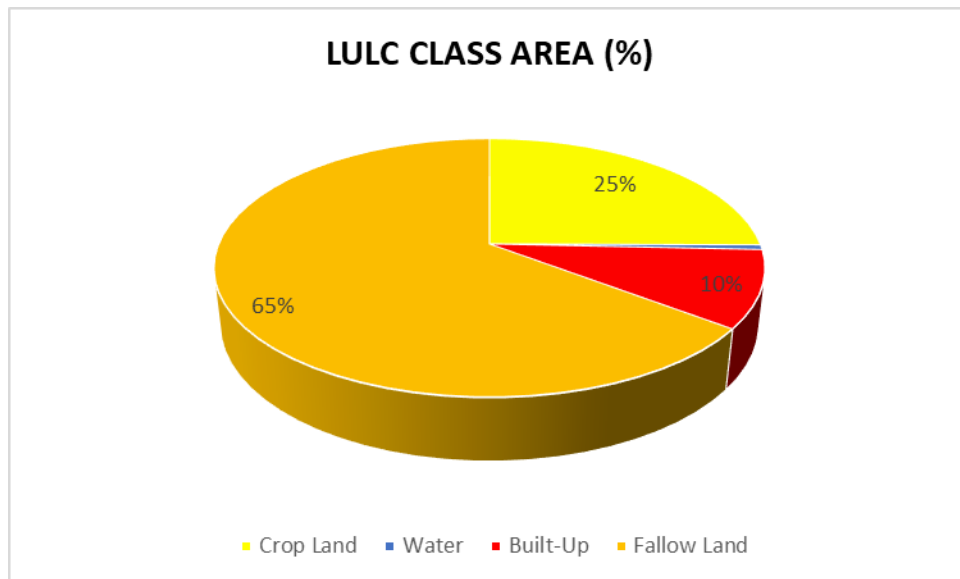
The elevation of the region varies from 363 m to 529 m. The physical setting of study area shows a relatively planar pattern with some elevated patches especially towards West and West North West region. The North West and North East patch shows the presence of relatively lower elevation region. One of the water body present here is a Canal as well as a River. The area shows a variation of approximately 15 m-70 m from North East to South West and approximately 25 m-45 m from North West to South East. Overall, there is relatively moderate variation with respect to relief features. The drainage pattern has moderate influence due to the elevation pattern.

**Land Use:** Total three major land use/land cover classes were demarcated in the study area following Level I classification furthermore a level II classification also adopted as per the requirement of **MoEF & CC** in the study area. A thematic map of 1:50,000 scale was generated incorporating these classified categories considering the area of the project.

#### **CORE LAND USE:**

Of the 6 LU/LC classes as per NRSA-TR-LU & CD-01-90 the 10 Km radius study area has presence of mainly 3 LU/LC classes are shown in **Table 1 and Figure 1** of which the Agricultural Land has the highest category of land use covering as much as 89.77 % (31,746 Ha) which is constituted by Fallow Land (22,862 Ha & 64.65 %) & Crop Land (8,884 Ha & 25.12 %), thereafter Built-Up Land (9.64 % & 3,408 Ha) and finally by Water bodies which is 0.59 % (209 Ha). There are no regions which are classified under Forests, Others & Wastelands. It is also observed that the study area is well connected to roads and no railway line. The road includes Jalna-Beed Road, Road, Gevari Road and Solapur-Aurangabad Highway, Georai-Kharwandi Kasar Road and SH-144.

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**Figure 1: Pie Chart of the LU/LC Classification within 10 Km Radius**

**Table 1: LU/LC and Its Coverage within 10 Km Radius**

Level – I		Level – II	Level –III	Area (Hectare)	Percentage (%)
1.	Built – up land	1.2 Built-up Rural	1.2.1 Built-up Rural	3,408	9.64
2.	Agricultural land	2.1 Cropland	2.1.1 Irrigated Cropland	8,884	25.12
		2.2 Fallow Land	2.2.1 Fallow Land for Cultivation	22,862	64.65
3.	Forests	-	-	-	-
4.	Wastelands	-	-	-	-
5.	Water bodies	4.1 River/Stream	4.1.1 Vidrupa River	209	0.59
		4.2 Lake/Reservoir/tank /Canal	4.2.1 Sindewadi Talav 4.2.2 Paithan Right Bank Canal		
6.	Other	-	-	0	0
				35,363	100

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<p><b>EXECUTIVE SUMMARY</b></p>	

#### **4.2 Soil Environment**

The Beed District has mainly rocky and thin layered soils are observed in major part of the district except on the banks of Godavari and Sindphana Rivers, where dark brown to black and clayey loamy soils are observed. The nutrient levels in almost all the soils are low.

#### **4.3 Air Environment**

Ambient Air quality for criteria pollutants viz. PM<sub>10</sub>, PM<sub>2.5</sub>, NO<sub>x</sub>, SO<sub>2</sub> and CO was monitored at eight (8) locations in study area.

##### **Particulate Matter (PM<sub>10</sub>)**

The study reveals that maximum concentration was observed to be in the range of 52.4-65.2 µg/m<sup>3</sup>. The highest 24-hourly concentration was recorded at sampling location A1. At the same time minimum concentration was observed in the range of 45.7 to 53.3 µg/m<sup>3</sup>. The average concentration of PM<sub>10</sub> can be said to be ranged between 50.02-57.6 µg/m<sup>3</sup>. The highest average concentration of particulate matter PM<sub>10</sub> recorded at project site (A1) may be due to local vehicular movement on nearby road. It should be noted that the concentration of PM<sub>10</sub> was not observed exceeding the standards prescribed by the CPCB.

##### **Particulate Matter (PM<sub>2.5</sub>)**

The major source of PM<sub>2.5</sub> is said to be the combustion of fossil fuels, fire wood and industrial emissions etc, present within study area. The maximum of PM<sub>2.5</sub> (38.4 µg/m<sup>3</sup>) during the study period was recorded at location A1, whereas the minimum value (25.3 µg/m<sup>3</sup>) concentration was recorded at A2 & A6 location. The average concentration of PM<sub>2.5</sub> during the study period was computed in the range of 33.20-38.21 µg/m<sup>3</sup>.

##### **Sulphur Dioxide (SO<sub>x</sub>)**

High level of SO<sub>x</sub> 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<sub>x</sub> is experienced at A1. The presence of NH52 road is the principle source of emission for SO<sub>x</sub>. The average concentration of SO<sub>x</sub> recorded during the study period ranged between 18.13-22.23 µg/m<sup>3</sup>. It should be noted that maximum average concentration was recorded at location A1 while the lowest was observed at location A4 & A6.

##### **Oxides of Nitrogen (NO<sub>x</sub>)**

The various forms of Nitrogen in NO, NO<sub>2</sub> and N<sub>2</sub>O are collectively called as Oxides of Nitrogen. The maximum 24 hourly value of NO<sub>x</sub> was recorded at the monitoring location A1 (34.4 µg/m<sup>3</sup>) while the minimum was recorded at A2 & A5 (20.5 µg/m<sup>3</sup>). The average concentrations were in the range of 23.10-27.51 µg/m<sup>3</sup>.

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<b>EXECUTIVE SUMMARY</b>	

### **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 A1 during the study period can be observed is 0.9 mg/m<sup>3</sup>.

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

### **Additional Parameters**

From the monitoring results of additional parameters, it is evident that Ozone, Lead, Benzene, Benzo (a) pyrene, Arsenic, Nickel and VOC's were below detection limit and maximum concentration of Ammonia 9.9 µg/m<sup>3</sup> and minimum 5.6 µg/m<sup>3</sup> was observed. . maximum concentration of Ozone (O<sub>3</sub>) 13.9 µg/m<sup>3</sup> and minimum 9.3 µg/m<sup>3</sup> was observed.

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 62.27 dB (A) while during night time the noise level was recorded to be 51.88 dB (A). It shall be noted 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 was recorded during the day time at location N2, whereas the maximum noise level was observed at location N7. The location N7 is well populated in the surroundings. It shall be noted that the permissible limits for noise did not exceed at any of the locations selected for sampling.

### **4.5 Ground Water Environment**

It can be concluded that the prevailing ground water in study area is not polluted.

The results revealed that values/ concentrations of various parameters amongst all the samples were in the range of pH - 7.20 to 7.60, TDS - 392.6 to 454.6. mg/l, Sulphates - 58.9 to 75.3 mg/l, Total Hardness - 156.3 to 181.3 mg/l, Nitrate - 11.6 to 21.3 mg/l, Bicarbonate - 22.4 to 28.9 mg/l, Calcium - 39.6 to 47.6 mg/l, Sodium - 45.3 to 61.3 mg/l, Potassium 20.3 to 32.6 mg/l, Magnesium - 13.4 to 17.6 mg/l, COD - <5.0 mg/l, BOD - <1.0 mg/l, whereas concentrations of

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Arsenic, Lead were <0.01 mg/l and Cadmium <0.001, Iron<0.05 to 0.13, Chromium-<0.05, Mercury as Hg<0.001, Nickel<0.01 & Zinc<0.05. Total Coliforms & E. Coli<2 No/100 ml in all samples.

Observations during ground water sampling revealed that any of the sampled ground water sources were not subjected to releases, domestic activities like bathing, cattle washing etc. However as evidenced during sampling & field visits the study area was subjected to tremendous agricultural runoff which may be attributed to found concentrations of Nitrogen, Sulphates & Phosphates in ground water samples.

Further to assess the prevailing quality of ground water in study area, the analysis results are compared with the IS 10500 : 2012 viz. Drinking Water Standards by Bureau of Indian Standards which revealed that parameters viz. pH, Chlorides, Sulphates, Total Hardness, Nitrate, Arsenic, Calcium, Cadmium, Iron, Lead, Chromium, Mercury, Nickel, Zinc, Fluorides, total Coliforms and E. Coli were within acceptable concentrations whereas TDS & Magnesium were within permissible concentrations, However though the concentrations of COD, BOD, Sodium, Potassium & Phosphates being not specified in standards based on the specified standards it is can be interpreted that prevailing ground water in study area is fit for human consumption use, thus it can be concluded that the prevailing ground water in study area is by & large not polluted.

#### **4.6 Surface Water Environment**

Surface water samples were derived from 7 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 7.28 to 7.54, Total Hardness concentration varied in the range of 128.9 mg/l to 165.3 mg/l & maximum concentration was recorded at SW6, TDS concentration varied in the range of 321.6 to 406.3 mg/l whereas maximum concentration was recorded at SW1 & minimum concentration was recorded at SW3. Electrical Conductivity was found in the range between 493.6 to 624.5 µS/cm. The concentrations of Dissolved Oxygen in the range of 3.5 to 3.9 mg/lit, The concentration of BOD in the range of 1 to 4 mg/lit & COD were found in the range of 4 to 9 mg/l whereas the concentrations of Phosphates, Nitrate & Ammonical Nitrogen varied in the range of 3.16 to 4.02 mg/l, <0.01 mg/l and 0.01 to 0.26 mg/lit respectively.

Concentrations of elements such as Calcium, Sodium & Potassium were found in the range of 33.5 to 41.2 mg/l, 42.6 to 57.6 mg/l & 8.9 to 18.3 mg/l respectively.

Heavy metals viz. Lead <0.01 mg/lit, Chromium <0.05 mg/lit, Mercury <0.001 mg/lit, Cadmium <0.001 mg/lit, Arsenic <0.01 mg/lit & Nickel <0.01 mg/lit were below detection limits in all samples

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	<b>EXECUTIVE SUMMARY</b>

#### **4.7 Biotic Environment**

Based on field survey, total 137 plants species have been recorded, out of which 52 Tree species, 19 Shrubs species and 56 Herbs and 10 Climber species are identified in entire study area. Total 12 species of odonates of which 8 were dragonflies and 4 were tiny damselflies, 5 species of bugs and 5 species of beetles have been reported during entire field visit from different habitats on project site. 15 species of butterflies found during the field survey which shows greater diversity of butterflies. 67 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.

#### **4.8 Socio-Economic Environment**

**Table No. 2: Summary of Socio-Economic Aspects**

Demographic Parameters	Details
No. of States	1
No. of District	1
No. of Tehsil	2
No. of Villages	39
Total No. of Households	13,446
Total Population	67,436
Child Population	9,795
Scheduled Castes	7,741
Scheduled Tribes	513
Literacy	74.85 % (Average)

#### **Interpretation & Conclusion**

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.

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<b>EXECUTIVE SUMMARY</b>	

## 5.0 Anticipated Environmental Impacts and Mitigation Measures

**Table 3: Summary of Impacts & Mitigations**

Sr. No	Environmental Parameters	Aspect Attributes	Anticipated Impacts	Proposed Mitigation Measures
<b>Construction Phase</b>				
1.	Air Quality	Dust during handling of cement/concrete/stone aggregates & other construction materials.	The estimated generation would be around 26.23 tons/month of the activity. Exposure of construction workers to such dusts may lead to short term respiratory problems, whereas, prolonged & continuous exposure may lead to malfunctioning of lungs. The anticipated construction period will be 8 months after grant of all Environmental Clearance, Consent To Establish & all other Statutory Permissions.	Proper loading and unloading of the materials to ensure minimum dust. Managing & covering the stockpiles. Regular sprinkling of water on the working site, Installing wind barriers around working site & all around the plot boundary for containing the dust.
2.	Noise Levels	Noise generated from construction machineries like Poclain, Lift Crane, Jack Hammer Drill, Digger, Compactor, Roller etc. & by use of construction equipments like Jack Hammer, Cutter, Drill Concrete	It is anticipated that the cumulative noise levels by all construction machineries, equipments & activities at propagating at plant boundary will be in the range of 13.81 dBA to 16.75 dBA &	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

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<b>EXECUTIVE SUMMARY</b>	

		vibrator etc. and by arrival & depart of transport vehicles.	propagating intensity of noise at distance of 100 m from plot will be 13.24 dBA, thus significant impacts outside plant premises are not anticipated.	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 turbidity & contamination in water body.	The surface runoff generated during construction activities will be properly filtered and utilised for gardening or sprinkling & Mobile sanitation facilities will be provided to workers which will be periodically cleaned through night soil tankers.
4.	Construction & Demolition Wastes Management	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 are anticipated to be generated.  Excavated/Dug soil/earth will be generated during site preparation activities.	Haphazard handling of such wastes may lead to advent of Rodents, Reptiles within project plot, thereby causing dangers to workers working on site.  Disposal of such wastes on land will lead to degradation of soils.	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.  Inert construction wastes viz. Cardboards, Wooden Boxes, Wooden planks, Metal rods, HDPE bags will be stored in dedicated space & sold to recyclers.



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<b>EXECUTIVE SUMMARY</b>	

				Felled Concrete, Stones, Aggregates & debris will be used as filling material for internal roads in consonance with Construction & Demolition Wastes Management Rules, 2016.
<b>Operational Phase</b>				
1.	Air Quality	<p>Utilities stack emissions viz. Particulate Matter, SO<sub>2</sub>, NO<sub>x</sub> &amp; CO from boiler &amp; D.G. operations &amp; Process emissions viz. CO<sub>2</sub> &amp; VOC's.</p> <p>VOC emission generated due to the handling and storage of the Ethanol.</p> <p>Fugitive emissions from material transport vehicles.</p>	<p>The anticipated maximum incremental concentration due to steam boiler operation for criteria parameter will be  PM<sub>10</sub>- 0.56 µg/m<sup>3</sup>,  SO<sub>2</sub> - 1.29 µg/m<sup>3</sup>,  NO<sub>x</sub> - 0.78 µg/m<sup>3</sup></p> <p>Which are likely to be carried in downwind direction.</p> <p>And maximum concentration due to vehicular movement will be  PM<sub>10</sub>- 0.04 µg/m<sup>3</sup>,  SO<sub>2</sub> - 0.1 µg/m<sup>3</sup>,  NO<sub>x</sub> - 0.06 µg/m<sup>3</sup></p> <p>Anticipated health effects: People in downwind localities if prone to continuous &amp; prolonged emissions</p>	<p>1. In current practice, Scrubber is attached to combined stack of 40 meter height for existing boiler of 2*20 TPH and one more scrubber is attached to stack of 25 meter stack height for 35 TPH boiler Capacity, However Scrubber will be replaced with ESP for existing stacks and existing 40 meter common Stack height of 2*20 TPH boiler will be extended to 50 meter and existing 25 meter stack height of 35 TPH boiler will be extended to 45 meter 2.</p> <p>After expansion; for additional boiler of 35 TPH capacity, stack of 45 meters height followed by</p>

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<p><b>EXECUTIVE SUMMARY</b></p>	

			<p>may be susceptible to adverse health impacts related to respiratory &amp; 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 CO<sub>2</sub>- 453 TPD (Max during season), Which will be sent to CO<sub>2</sub> 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.) &amp; biologically thus may affect the overall surrounding ecology.</p>	<p>ESP will be provided.</p> <p>2. 1000 kVA D.G will be provided with a stack of 6.5 m above roof as per CPCB guidelines for proper dispersion of emissions.</p> <p>3. CO<sub>2</sub> Bottling plant is proposed for recovery of process emission.</p> <p>4. The roads within the premises will be paved to avoid the dust generation from vehicular activity.</p> <p>5. It will be ensured that all the transportation vehicles have a valid PUC (Pollution under Control) Certificate.</p> <p>6. Regular sweeping of all the roads &amp; floors will be done to avoid fugitive dust.</p> <p>7. The proposed thick green belt</p>
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<b>EXECUTIVE SUMMARY</b>	

				<p>of 10 m width along the plant periphery will help to capture the fugitive emissions.</p> <p>8. Industry to ensure that at no point of time the air emission concentrations exceed the prescribed CPCB/Consented standards.</p>
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, equipments &amp; operation activities at propagating at plant boundary will be in the range of 0 dBA to 0.10 dBA.</p> <p>Impacts of exposure to continuous &amp; 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>1. Acoustic enclosures will be provided to high noise generating equipments 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 equipments.</p> <p>4. The proposed thick green belt of 10 m width along the plant periphery will help to further</p>

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<b>EXECUTIVE SUMMARY</b>	

			<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>minimise the intensity of propagating noise out of plant premises.</p>
3.	Water Quality	<ol style="list-style-type: none"> <li>1. Effluent from process, washings, Backwashes.</li> <li>2. Boiler &amp; Cooling Tower blow-downs.</li> <li>3. Domestic wastewater.</li> </ol>	<p>The anticipated treated effluent characteristics area: pH - 7.5 to 8.0, TSS &lt; 100 mg/lit., BOD &lt; 100 mg/lit., COD &lt; 250 mg/lit., TDS &lt; 2100 mg/lit and Oil &amp; Grease &lt; 10 mg/lit.</p> <p>Accidental/Deliberate release of treated/un-treated effluents in surface water bodies may lead to 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</p>	<p>Effluent and excess condensate from sugar unit will be treated in ETP and Sugar CPU respectively. Spent wash from syrup/molasses based production unit will be treated using MEE followed by Spent wash dryer; The condensate from MEE unit will be collected and it will be further treated in CPU along with other effluent streams like Spent Lees, blowdowns from Boiler and Cooling Towers, Sealing water, WTP reject and Washing effluent. The CPU will be consisting of Primary, Secondary and Tertiary unit. Domestic effluent load will be connected and treated in secondary treatment facility after pre-primary treatment.</p>

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<b>EXECUTIVE SUMMARY</b>	

			& ground water sources cannot be used for any purpose & depending terrestrial & aquatic ecology will be completely affected.	
4.	Solid Waste Management - Hazardous	1. Hazardous waste i.e. Spent oil generated from DG and maintainance of the plant. 2. Hazardous waste generated from maintenance operations.	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.	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.  Mainly it will be sold to MPCB authorised vendor.
5	Solid Waste Management (Non-Hazardous Inert Waste)	1. Scrap Metal 2. Scrap Plastic 3. Office Waste 4. Canteen Waste 5. Wooden Pallets 6. Boiler Ash 7. CPU Sludge 8. Yeast Sludge	Hap-hazard handling & storage may lead to inadequate open space in plant premises & it may lead to rodent breeding thereby affecting the occupational health & environment.	1. Designated area for Scrap materials (Wooden Pallets, office Waste) storage will be provided in the plant.  2. Daily housekeeping waste and canteen waste will be disposed through vermin composting facility (off-site).  3. Boiler ash - 2929.55 TPA will be used in brick manufacturing unit

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<p><b>EXECUTIVE SUMMARY</b></p>	

				<p>4. CPU Sludge - 688 TPA will be used 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 expansion plant is identified for Ethanol & the anticipated effect distance is 22 from the Ethanol PESO area in the factory premises.

The scenario considered for assessing the impact by quantitative risk assessment was taken from Tank Failure- Leaking tank, chemical is burning and forms pool fire-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

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locations, will be as per the guidelines provided by MoEF&CC/CPCB/MPCB. Monitoring has been carried out by third-party laboratories that NABL and/or MoEF&CC accredit.

### **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 41.25 Cr for environmental pollution control measures & environment management plan activities, which is ~28.03 % of the total project cost.

### **11.0 Project Benefits**

The following benefits are expected from the proposed project:

- This project will have local 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 local-specific scenarios around the project area.

Industry 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. 30<sup>th</sup> September 2020, by virtue of which the CER activities will be implemented as part of Environment Management Plan.

CER cost of 0.75% of proposed project cost viz. 1.1037 Cr is allocated for the implementation of need based CER activities in project area.