

**ENVIRONMENT IMPACT ASSESSMENT
EXECUTIVE SUMMARY**

Expansion of existing Distillery from 45 to 95 KLPD of.,

Dattatraynagar, Tal. Ambegaon, Dist. Pune, Maharashtra

Bhimashankar Sahakari Sakhar Karkhana Ltd



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1. Introduction

M/s. Bhimashankar Sahakari Sakhar Karkhana Limited, (BSSSKL), Dattatraynagar, Pargaon via Awsari (Bk.) Tal. Ambegaon Dist. Pune, is registered under the Maharashtra Co-Operative Societies Act, 1960 vide Registration No. PAN/AGN/PRG/ (A) S-47/1994 dated 31/03/1994. It is one of the most progressive sugar factory in the state of Maharashtra. Factory is operating 6000 TCD sugarcane crushing capacity and 19 MW cogeneration power plant. Factory has recently obtained environmental clearance for 45 KLPD distillery. However, factory has not yet started its erection and commissioning work. Due to increase in cane crushing capacity to 6000 TCD in 2020-21, molasses availability will also be increased. Hence, considering molasses availability, management has decided to enhance distillery capacity from 45 KLPD to 95 KLPD within factory premises to produce fuel RS/ENA/ethanol from B-Heavy molasses or C heavy molasses as per availability.

2. Nature and Size of the project

M/s. Bhimashankar Sahakari Sakhar Karkhana Limited, (BSSSKL), Dattatraynagar, Pargaon via Awsari (Bk.) Tal. Ambegaon Dist. Pune, is registered under the Maharashtra Co-Operative Societies Act, 1960 vide Registration No. PAN/AGN/PRG/ (A) S-47/1994 dated 31/03/1994. It is one of the most progressive sugar factory in the state of Maharashtra. Factory is operating 6000 TCD sugarcane crushing capacity and 19 MW cogeneration power plant. Factory has recently obtained environmental clearance for 45 KLPD distillery (details are given in below table). However, factory has not yet started its erection and commissioning work. Due to increase in cane crushing capacity to 6000 TCD in 2020-21, molasses availability will also be increased. Hence, considering molasses availability, management has decided to enhance distillery capacity from 45 KLPD to 95 KLPD within factory premises to produce fuel RS/ENA/ethanol from B-Heavy molasses or C heavy molasses as per availability.

2.1 Project location

The proposed distillery is located at Gut no. 135, 148, 150, 151, 152, 153, 154, 155 & 157 of Dattatraynagar, Pargaon via Awsari Bk., Taluka Ambegaon, District Pune, Maharashtra. The existing Sugar unit is geographically located at Lat 18°58'45.11"N & Long 74° 5'27.18"E, at a maximum elevation of 617 m MSL. The land required for 95 KLPD project is under possession of PP. The entire 95 KLPD Distillery / Ethanol Plant project will be within existing factory premises. Project location on MRSAC map, General location map and proposed layout of the project site is shown in below Figures. The site is located in rural surroundings and lies at a distance of about 54 km from Pune Railway Station (WSW), 46.70 km from Pune International Airport (WSW), 15.19 km from Manchar, which is the nearest major settlement. Ghod River lies 640 m to the North from the Project site. There are no Eco-sensitive zones like Tropical Forests, Biosphere Reserves, National Parks, Wild Life Sanctuaries, and Coral Formation Reserves within 10 km Influence Zone of the Project site. Environmental setting of the project site is given in **Table 1** below.

Table 1: Environmental Setting in and around the proposed Project site

Site Location	Pargaon Tarf Awasari	1.95 Km towards W
Nearest Habitation	Pargaon Shingave Kathapur Bk	670 m towards NW 2.37 Km towards S
Nearest Town	Manchar	15.19 km towards W
District Headquarters	Pune	55 km towards SW
Nearest Railway Station	Talegaon Railway Station Pune Railway Station	51.60 km towards SW 54.50 km towards SW
Nearest Airport	Pune International Airport	46 km towards SW
Nearest IMD Observatory	Pune	55.84 km towards SW
Nearest River / Water Source	Ghod river	640 m towards N
Approach to site by Road	Pargaon Shingave – Kavathe Road	
Religious/ Historical/ Archaeological Place	None	
Ecological Sensitive / Reserve Forest	None	
Seismic Zone	III	
Average altitude above MSL	617 m	

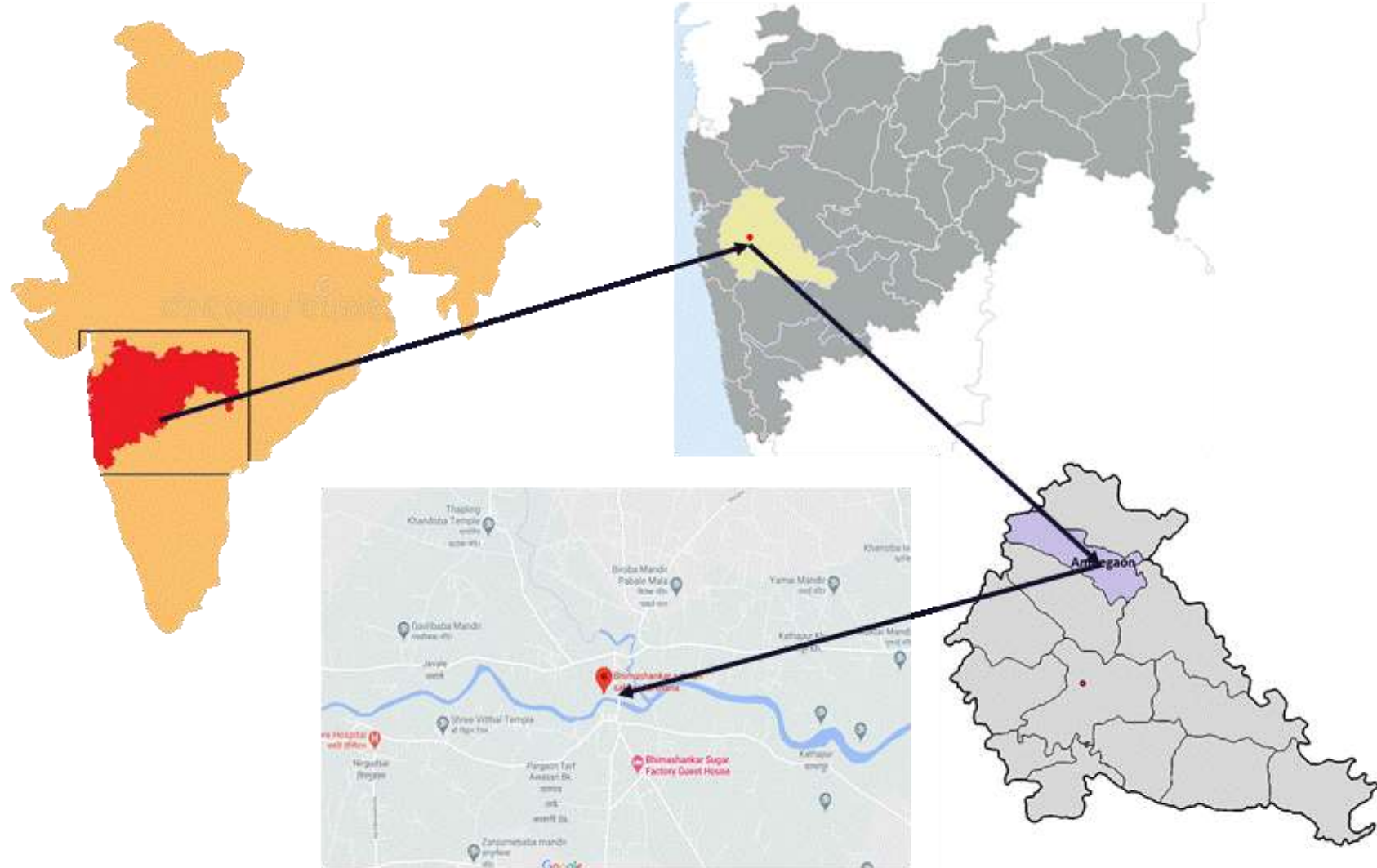


Figure 1: Map Showing General Location of the Proposed Project



Figure 2: Map showing project location on Google image with geographical coordinates





2.2 Land Details

The total area available with the factory is 58.00 Ha out of that total 19.53 Ha acres will developed under green belt.

Detailed area breakup is given below,

- Total Plot Area: 58.00 Ha
- Sugar factory area: 17 Ha.
- Greenbelt area: 19.53 Ha
- Proposed distillery area: 3.24 Ha

2.3 Size and Magnitude of Operation

The brief information of proposed expansion of integrated project details of sugar, distillery and cogeneration are given in Table 2.

Table 2: Salient features of integrated project

#	Particulate	Description									
1.	Project	Expansion of existing Distillery from 45 KLPD to 95 KLPD by M/s. Bhimashankar Sahakari Sakhar Karkhana Limited, Dattatraynagar, Pargaon via Awsari (Bk.), Tal. Ambegaon, Dist. Pune – 412 406, Maharashtra.									
2.	Product	Fuel ethanol* : 95 KL/D or ENA* : 90 KL/D Technical alcohol * : 5 KL/D or Rectify Spirit* : 92.65 Impure spirit * : 2.35 and Fusel Oil : 0.19 *One at a time or in combination									
3.	From Existing 6000 TCD Sugar										
	Bagasse (TPD) (30%)	1800									
	Press mud (TPD) (4.0%)	240									
	C Molasses (TPD) (4.5%)	270									
	B heavy molasses (6.5%) (TPD)	390									
4.	Operation days	330 days									
5.	Molasses requirement	<table> <tr> <td>Raw material</td><td>Existing 45</td><td>Proposed 95</td></tr> <tr> <td>C – Molasses</td><td>173.33 TPD</td><td>365 TPD</td></tr> <tr> <td>B – Molasses</td><td>--</td><td>297 TPD</td></tr> </table>	Raw material	Existing 45	Proposed 95	C – Molasses	173.33 TPD	365 TPD	B – Molasses	--	297 TPD
Raw material	Existing 45	Proposed 95									
C – Molasses	173.33 TPD	365 TPD									
B – Molasses	--	297 TPD									
6.	Sugarcane juice (MTD) from Sugar cane 1000	1500 TPD									

	TCD to Ethanol production in season	
7.	Water requirement	Existing 45 Distillery– Fresh Water - 390 CMD Proposed 95 KLD distillery Fresh Water – 590 CMD Domestic – 10 CMD Recycled Water – 778 CMD
8.	Source of water	Water Source is Ghod River (Permission obtained)
9.	Boiler	Proposed 22 TPH Incineration boiler Existing Sugar : 37 x 2 TPH and 80 TPH
10.	TG	Proposed Distillery TG: 2.0 MW Existing Cogeneration TG: 19 MW
11.	DG	Existing DG 1010 kVA Proposed DG 1250 kVA
12.	Fuel	For 22 TPH Incineration boiler Bagasse 5 TPH Con. SW 4.45 TPH For existing sugar Bagasse – 1379 MT/day
13.	Steam	Total steam requirement for proposed Distillery: 20.54 TPH
14.	Total effluent generation	Existing : Sugar 817.3 CMD (762.3 Industrial + 55 Domestic) Existing 45 KLPD Distillery: 793 CMD Proposed 95 KLPD distillery effluent: Condensate, spent lees, and blow down 864 CMD will be treated in CPU of capacity 900 CMD. Treated water will be partly recycled for cooling tower make up, washing and fermentation process. Raw Spent wash 760 m3/day is concentrated in multi-effect evaporator (MEE) and then concentrated spent wash 107 CMD will be used in slop fired boiler as fuel. Proposed domestic waste water 4.5 CMD will be treated in existing sugar ETP.
15.	Solid waste	Used Oil/Spent Oil 0.2 MT/M Bagasse ash 75 MT/M Concentrated spent ash 481 MT/M Yeast sludge 2-5 TPD Sugar unit Bagasse ash 27.58 TPD ETP Sludge – 1 TPD

		Ash is rich in potash content will be directly use as a fertilizer. Ash will be provided to farmers. Yeast, ETP & CPU Sludge will be mixed with Compost. Spent oil will be used as a fuel to boiler
16.	Air pollution control measures	Incineration boiler 22 TPH with stack height 60 m. Air pollution control equipment: Electrostatic precipitator Adequate stack height will be provided to DG as per CPCB norms. DG set will be used in case of emergency. Sugar 37 X 2 boiler, stack height 60 m with Wet Scrubber and 80 TPH Boiler with stack height of 72 m with ESP
17.	Man-power	For proposed distillery 100
18.	Total project cost	Rs 99.29 Cr
19.	EMP capital cost	Rs. 3.43 Cr
20.	CER Cost	99 lakhs
Environment Sensitivity		
21.	Nearest Village	Pargaon Shingave 670 m towards NW Pargaon Tarf Awasari 1.95 Km towards W Kathapur Bk 2.37 Km towards S
22.	Nearest Town / City	Manchar 15.19 km towards W
23.	Nearest National Highway	Pune Nashik Highway (NH60) 15.2 km
24.	Nearest Railway station	Talegaon Railway Station 51.60 km towards SW Pune Railway Station 54.50 km towards SW
25.	Nearest Airport	Pune International Airport 46 km towards SW
26.	National Parks, Reserved Forests (RF) / Protected Forests (PF), Wildlife Sanctuaries, Biosphere Reserves, Tiger/ Elephant Reserves, Wildlife Corridors etc. within 10 km radius	None
27.	River / Water Body (within 10 km radius)	Ghod river 640 m towards N

2.4. Process Description

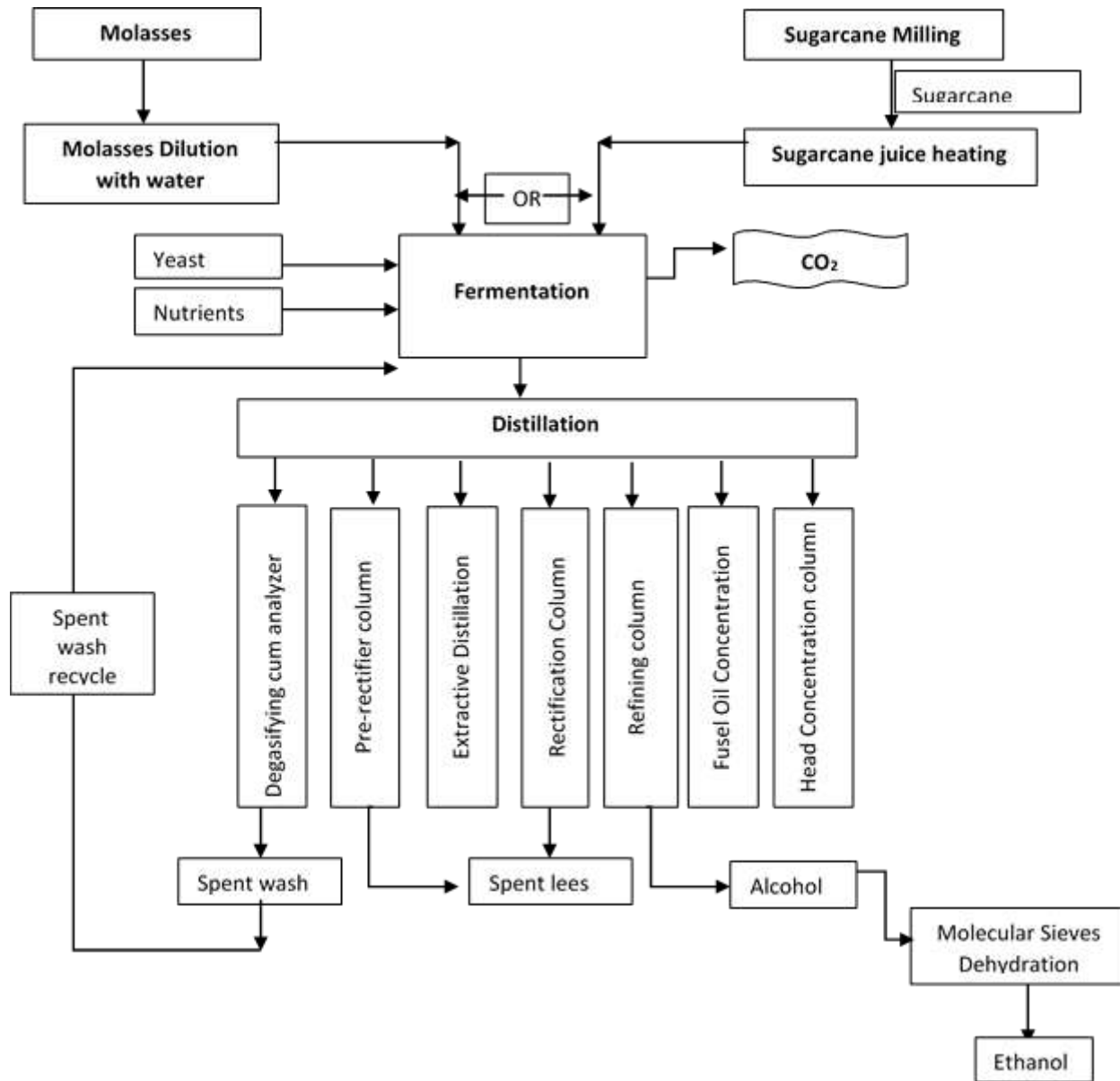


Figure 5: Diagrammatic representation of Manufacturing flow char for the distillery

3. Description of Environment

Field monitoring was done for primary data collection of various environment components such as air quality, water quality, soil quality, noise. The entire data has been collected through actual physical surveys and observations, literature surveys, interaction with locals, government agencies and departments. The baseline study begins with reconnaissance survey and site visits in the study area.

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 Guidelines Manual for Distilleries and Sugar industry.

Study area for preparation of the EIA-EMP report comprised the Project site and a 10 km Study Area around the Project site.

Study Period: 1st December 2020 to 28th February 2021

Table 3: Environmental Parameters and Frequency of Monitoring

Components	Parameters	Frequency	Methodology adopted
Ambient Air Quality	As per the NAAQS dated 16 th November 2009: PM _{2.5} , PM ₁₀ , SO ₂ , NO _x	Ambient air quality samples are monitored at 9 locations for 24 hours twice a week for the study period. Sampling locations were chosen, such that: Upwind (2 no.) Crosswind (4 nos.) Downwind (4 nos.)	PM ₁₀ / PM _{2.5} : Gravimetric method SO ₂ : Modified West and Gaeke Method. (IS: 5182, Part II) NO _x : Jacobs and Hochheiser Method. (IS 5182 Part VI)
Meteorology	Wind Speed & Wind Direction, Temperature, Relative Humidity and Rainfall	Secondary data like average annual meteorological data was collected from IMD – Pune.	Monitoring data for primary data IS: 8829
Water quality	Physical, Chemical and Biological parameters.	Sampling was done twice during the study period at 8 locations for groundwater quality and 2 locations for surface water quality.	Standard methods for Examination of Water and Wastewater' published by American Public Health Association (APHA)
Ecology	Flora & Fauna within study area (Terrestrial & Aquatic)	Field survey conducted in 10 km Study area, once during the study period and secondary data.	Listing of floral and faunal species.
Ambient Noise	Noise levels in dB(A)	Continuous 24 – hourly readings were taken once during the study period at 10 locations including Project site, within the 10 Km Study Area.	IS: 4954 as adopted by CPCB.

Soil	Physico-chemical parameters as per BIS standards	Sampling at 9 locations at and around the Project site, once during the study period.	BIS specifications
Socio-economic Data	Socio-economic characteristics of the local population in the Study Area.	Based on data collected from the year 2011 Census Abstract.	-
Land use pattern	Land use for different categories	10 km radius, based on data published in Primary Census Abstract and satellite imagery LISS –III	Toposheets Satellite imageries
Geology and Hydrogeology	Lithological types, drainage basins, etc.	Field observations in 10 km study area and from secondary data from authenticated sources like GSI, Sol, etc.	Authenticated published data.

Table 4: Observation of Environmental monitoring

Environmental Attributes	Frequency of monitoring	Parameters	Observed Results	
Ambient Air Quality	10 Locations 24 hourly samples Twice a week for 3 months (in $\mu\text{g}/\text{m}^3$)	PM10	PM10 – 43.6 to 72.5 $\mu\text{g}/\text{m}^3$	
		PM2.5	PM2.5 – 15.2 to 29 $\mu\text{g}/\text{m}^3$	
		SO ₂	SO ₂ – 6.2 to 24.7 $\mu\text{g}/\text{m}^3$	
		NO _x	NO _x – 9.6 to 28.6 $\mu\text{g}/\text{m}^3$	
		CO	All parameters are within NAAQ 2009 standards.	
Water Quality (Ground & Surface)	Primary data Ground water samples were collected from 9 locations and 2 surface water samples were collected from one location	Colour	SW	GW
		pH	pH – 7.25 to 7.55	pH – 7.08 to 7.63
		TDS	TDS – 205 to 264 $\mu\text{g}/\text{m}^3$	TDS – 320 to 485 $\mu\text{g}/\text{m}^3$
		EC	EC – 403.1 to 489.3 $\mu\text{S}/\text{cm}$	EC – 576 to 834 $\mu\text{S}/\text{cm}$
		E - Coli – Not detected	E - Coli – Not detected	E - Coli – Not detected.
Soil Quality	Once in season at 9 locations	E-Coli	All parameters are within limit.	
		Soil type and texture, Physico-chemical properties, NPK	pH – 7.68 to 8.13 Organic Carbon – 0.58 to 1.12 % Water Holding Capacity – 41.8 to 55.4 % Nitrogen – 167.3 to 220.4 kg/ha Phosphorous – 18.2 to 37.6 kg/ha	

			Potassium – 189.7 to 245.3 kg/ha Dark brown to black, clay loam, soil is good in fertility, good water holding capacity, heavy metal contamination signs not seen.
Noise Quality	Once in season at 10 Locations (Noise levels in dB (A))	Day	48 – 63.3
		Night	39.4 – 47.6
Land use Pattern	One time visit of the study area for ground truthing	Identification & classification of land use	Most of the land is Agricultural land followed by Barren land
Ecology	General in 10 km radial study area and data collected around the project site through field visits	Flora	Accasia sp. Azadirachta indica , Cassia tora, Senna siamea etc.
		Fauna	Common mormon, Lemon pansy, green bee-eater, Drongo etc.

4. Anticipated Environmental Impacts

Anticipated environmental impacts due to operation of the proposed project are given in below **Table 5.**

Table 5: 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 factory 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 6: Post – Project Environmental monitoring schedule

Sr. No.	Particulate	Parameters	Number of location	Frequency
1.	Ambient air quality	PM ₁₀ , PM _{2.5} , SO ₂ , NO _x etc.	Ambient air quality at minimum 3 locations. Two samples downwind direction at 500m and 1000m respectively. One sample upwind direction at 500m.	Monthly
2.	Stack gas	PM, SO ₂ and NO _x	Number of stacks	Monthly
			Online stack monitoring is installed for existing system.	-
3.	Work place	PM _{2.5} , SO ₂ , NO _x , O ₃	Process emission in workplace area/plants (for each area/plant minimum 2 locations and 1 location outside plant area near vent)	Monthly
4.	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 is also installed.	
5.	Surface water and ground water	pH, Salinity, Conductivity, TDS, Turbidity, DO, BOD, Phosphate, Nitrates, Sulphates, Chlorides, Total Coliforms (TC) & <i>E.Coli</i>	3-5 location Ground as well as Surface water. Within 1 km radius from spent wash tank and compost yard. 2 locations downward 1 location upward additional three locations within 10 km radius from the site. River sample One each at upstream and downstream	Half yearly

6.	Solid waste	Ash	Process dust generated sludge and ash. Before used as manure if used manure	Monthly
7.	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
8.	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
9.	Green belt	Number of plantation (units), number of survived plants/ trees, number of poor plant/ trees.	In and around the plant site	Monthly
10.	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
11.	Occupational health	Health and fitness checkup of employees getting exposed to various hazards and all other staff	All worker	Yearly/ twice a year
12.	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 Studies are to be done in reference to the awarded Terms of References issued by MoEFCC, New Delhi.

8. Project Benefits

- Readily available infrastructure, fuel, & water for renewable energy power generation project.
- Provides an initiative to sugar mill to concentrate more on conservation of energy & reduction of operating cost, thereby improving their profitability of operation.
- Saves the expenditure on safe storage and disposal of bagasse.
- Benefits of quick return on biomass power capital investment and generation of additional revenue.
- The economic benefits available to the sugar factories from sale of exportable surplus and improvement in the operations
- Entire integrated project is proposed to be set up based on the stand-alone commercial viability of each component of the project.
- The current bio-fuel policy of the Government of India, the government has allowed the use of B- heavy molasses, cane juice and waste grain for production of fuel ethanol and is pushing the use of these feedstock (B-molasses & Cane juice in particular) by fixing better prices for ethanol manufactured from these raw materials as compared to Sugar.

9. Environmental Management Plan

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

Table 7: Implementation of Environment Management Plan during Construction Stage

Aspect	Description	Responsibility	Record
Site preparation	<ul style="list-style-type: none"> • Regular sprinkling of water around vulnerable areas of the construction sites to control the dust spread or emission into the atmosphere. Excavated soil will be covered with tarpaulin sheet or shall be kept in such way that dust emission will be avoided. • Top excavated soil be used in greenbelt development, rest hard 	<ul style="list-style-type: none"> • Construction supervisor/ Contractor • Safety officer/ Site Engineer 	<ul style="list-style-type: none"> • Water consumption • Excavated soil quantity and utilization

Aspect	Description	Responsibility	Record
	rock will be used in leveling work. First Aid facilities shall be made available during construction		
Noise	<ul style="list-style-type: none"> No idling of machine shall be allowed during construction activities. Night time construction activities and vehicular movement shall not be allowed. Personal protective equipment like ear muffs or ear plugs, masks etc. will be provided to workers who will be exposed to high noise. 	<ul style="list-style-type: none"> Construction supervisor/ Contractor Safety officer/ Site Engineer 	Vehicular and construction equipment check record
Construction equipment and waste	<ul style="list-style-type: none"> Transport vehicles as well as transport routes should be properly maintained during whole construction phase to minimize smoke / dust emission from vehicle exhausts and unpaved roads. Composite solid wastes including metal scrape, earthwork, other wastes, getting generated in construction process should be disposed as per construction waste disposal guidelines. 	<ul style="list-style-type: none"> Construction supervisor/ Contractor Safety officer/ Site Engineer 	Record of transport vehicles Generation of solid waste, its storage and its disposal
Site security and Occupational Health	<ul style="list-style-type: none"> Construction site has a potential hazardous environment. To ensure that the local inhabitants are not exposed to these hazards, the site shall be secured by fencing and manned entry points. It will be fully illuminated during night time Necessary care will be taken as per the safety norms for the storage of the chemical products Contractor will supervise the safe working of their employees. Barricades and fences are provided around the construction area personnel protective equipment's e.g. safety helmet, 	<ul style="list-style-type: none"> Construction supervisor/ Contractor Safety officer/ Site Engineer 	<ul style="list-style-type: none"> Record and Supervision of Personal protective equipment's provided Record of all safety signs Record of First aid kits Record of medical check up Supervision and record of good house keeping

Aspect	Description	Responsibility	Record
	<p>goggles, gumshoes, etc. will be provided to the workers.</p> <ul style="list-style-type: none"> • Accidental spill of oils from construction equipment and storage sites will be prevented. • Tree plantation will be undertaken during the construction phase for to prevent air pollution will be nullify in operation phase of the project. • Personal Protective Equipment like ear muffs or ear plugs, masks etc. will be provided to workers who will be exposed to high noise. • First Aid facilities shall be made available during construction. • All necessary infrastructural services like water, drainage facilities and electrification will be provided as per requirement • Drainage network will be properly channelized. Storm water drainage will be developed properly. This network will be checked & maintained regularly. 		
Greenbelt development	<ul style="list-style-type: none"> • Green belt shall be develop well before starting construction. • Green cover shall be increase all around factory in in tiers and along the road with native and thick canopy forming plants. • Green belt development will help to reduce Air and Noise pollution during construction works 	<ul style="list-style-type: none"> • Construction supervisor/ Contractor • Safety officer/ Site Engineer 	Record of planting, mainly around the factory supervision on irrigation facility and survival rate.

Table 8: EMP for Operation Phase

S.N.	Activity	Responsibility	Implementation	Record
1.	Water Pollution Control devices	Process manager/ Distillery manger/ Environment Officer	Existing: Sugar 817.3 CMD (762.3 Industrial + 55 Domestic) Existing 45 KLPD Distillery: 793 CMD	Monitoring of wastewater Treatment All the treated effluents will be monitored regularly for

			<p>Proposed 95 KLPD distillery effluent: Condensate, spent lees, and blow down 864 CMD will be treated in CPU of capacity 900 CMD. Treated water will be partly recycled for cooling tower make up, washing and fermentation process.</p> <p>Raw Spent wash 760 m³/day is concentrated in multi-effect evaporator (MEE) and then concentrated spent wash 107 CMD will be used in slop fired boiler as fuel.</p> <p>Proposed domestic waste water 4.5 CMD will be treated in existing sugar ETP.</p>	<p>flow rate and its characteristics in order to assess the performance of the CPU. Appropriate measures will be taken if the treated effluent quality does not conform to the permissible limits.</p> <p>Record of ETP & CPU performance. Spent wash, spent lees, condensate analysis.</p> <p>Record of third party laboratory analysis report.</p> <p>Regular inspection record, control & necessary maintenance for reduction of evaporation loss and blow down from cooling system, Optimization of COC in cooling system.</p>
2.	Air Pollution Control devices	Process manager/ Distillery manger/ Environment Officer	Commissioning of boiler, ESP/ wet scrubber before starting operation.	<ul style="list-style-type: none"> • Ambient Monitoring record. Maintains record for storage of raw material and products. The emissions from the stack will be monitored continuously for exit concentration of the suspended particulate matter, SO₂ µg/m³ and NO_x µg/m³. • Sampling ports will be provided in the stacks as per CPCB guidelines. If the concentration of these pollutants exceeds the limits, necessary control measures will be taken.

3.	Noise pollution	Process manager/ Distillery manger/ Environment Officer	Immediate during Operation	Record of noise monitoring. The workers working in the high noise areas like Boiler house, Distillation, MEE, feed pumps, steam generation plant and turbo generator area will be provided with ear muffs/ear plugs. The silencers and mufflers of the individual machines will be regularly checked. Supervision record for Acoustic enclosure to DG, Boiler, insulation.
4.	Solid waste Management	Process manager/ Distillery manger/ Environment Officer	Immediate during operation	Records of generation of solid waste. Supervision record of storage and disposal solid waste.
5.	Greenbelt development	Process manager/ Distillery manger/ Environment Officer	Gradually during Operation	Record of planting/number of plants planted and to be plant, supervision on irrigation facility and survival rate ensuring healthy and dense greenbelt. Greenbelt development plan is described in section 10.5.
6.	Rainwater harvesting and storm water drainage	Process manager/ Distillery manger/ Environment Officer	<ul style="list-style-type: none"> • Gradually during construction and operation. Storm water drainage system will consist of well-designed network of open surface drains with rainwater harvesting pits. RWH structures will be provided to harvest the rain water from roof TOP and plant area. • The collected rain water will be utilized for plant uses to optimize the raw water requirement. The surface water run-off from the main plant area would be led to a 	<p>Record of rainwater harvesting plan in the factory, collection lines provided and location of the same.</p> <p>Record of supervision and maintenance.</p> <p>Monitoring of rainwater system to avoid mixing of effluent into storm water,</p>

			<p>sump for settling and the over flow would be collected in the common water basin for Industrial uses.</p> <ul style="list-style-type: none"> • Tentative Rainwater Harvesting System (RWHS) designs and construction details are given in section 10.4. 	
7.	Occupational Health and Safety	Process manager/ Distillery manger/ Environment Officer	During Operation	<p>Record and Supervision of Personal protective equipment's provided. Record of all safety signs. Record of First aid kits Record of medical check up Supervision and record of good housekeeping. Record ad supervision of firefighting equipment's provided and its regular check/</p>
8.	CER	Chairman/Managing Director /Process manager/ Distillery manger/ Environment Officer	During Operation	<p>Maintain separate record of CER activity carried out year wise and amount spent on that.</p>
9.	Resource saving, Recycle/ Recovery	Process manager/ Distillery manger/ Environment Officer	During Operation	<p>Reuse of process water, recycling of ETP treated water, recycling of used oil, use of power saving equipment's, natural ventilation designs in construction phase, use of thermal insulations wherever heat transfer is anticipated, CFL lighting, photosensitive switches, rainwater harvesting</p>

10. Budgetary Provision

On the basis of present market price and anticipated escalations up to the scheduled date of commissioning, the capital cost of the proposed scheme at a capacity of 95 KLPD will be Rs.

9929.54 lakh approximately. Environment management cost will be around Rs. 3.43 Cr. & recurring cost will be 21.5 Lakhs.

Table 9: Environmental Management Cost

No	Construction phase (with Break-up)	Capital Cost	O & M
		(Amount in lakhs)	(Amount in lakhs)
1.	Environmental monitoring	—	1.5
2.	Air Environment	—	0.5
3.	Health Check Up	—	1.5
4.	Occupational Health	—	2.5
	Total		6
Sr. No	Operation Phase (with Break-up)	Capital Cost	O & M
		(Amount in lakhs)	(Amount in lakhs)
1.	Air pollution - Electrostatic precipitator	150	2.5
2.	CPU	120	1.5
3.	Environmental Monitoring (Air, water, waste water, Soil, Solid waste, Noise)	—	3
4.	Occupation health	3	5
5.	Green belt	35	8
6.	Solid waste	-	1.5
7.	Rain water	35	1.5
	Total	343	23

11. Conclusion

- Proposed project does not attract rehabilitation and resettlement of people, since the proposed project will be located in the existing sugar factory premises.
- Proposed project does not anticipate any adverse impacts on environment.
- Production process is environmentally safe as ZLD is proposed with efficient mitigation measures implemented.
- Air emissions control through stack height and will be monitored regularly.
- Loss of vegetation and habitat will not be attributed.
- Workplace/ operation hazards, which will be minimized by providing personal protective equipment's, safety precautions, emergency plan & disaster management plan.
- Consequently, impacts on air, water, land and ecological environments are insignificant and the socio-economic benefits are predominantly positive.

- Thus, overall project features, process, potential of pollution, pollution prevention measures and environmental management plan proposed by proponent illustrates that proposed project will not have any considerable impacts on environment as well as on socio-economic & ecological conditions of the project area.