EXECUTIVE SUMMARY

DRAFT ENVIRONMENT IMPACT ASSESSMENT REPORT

Proposed 45 KLPD Molasses Based Distillery Unit, at
Dattatrayanagar, A/P – Pargaon Via Awasari Bk.

Tal. – Ambegaon, District – Pune

PROJECT PROPONENT

M/s Bhimashankar Sahakari Sakhar Karkhana Ltd (BSSKL)

at Dattatrayanagar, A/P – Pargaon Via Awasari Bk.

Tal. – Ambegaon, District – Pune.

1.0 Introduction

M/s Bhimashankar Sahakari Sakhar Karkhana Ltd.(BSSKL) at Dattatrayanagar, A/P – Pargaon Via Awasari Bk. Tal. – Ambegaon, District – Pune, Maharashtra is registered as cooperative society vides PNA/AGN/PRG (A) S-47 / 1994 dated 31st March 1994 and with Sugar Directorate Licence No. LI-167 (94) dated 22nd March 1994.

The existing installed crushing capacity of sugar unit was 2500 TCD and expansion up to 6000 TCD is in progress and 19 MW bagasse based cogeneration unit. The sugar unit generates by-products viz. bagasse, molasses and press mud. To be economically and environmentally sustainable it is necessary for the sugar industries to convert these by-products into high value products. Hence BSSKL proposed to establish molasses based distillery unit having capacity of 45 KLPD within the existing premises of sugar unit.

The unit will be based on advance technology of cascade continuous fermentation. It has provision to switch over to Fed Batch fermentation when molasses quality is poor and Multi-pressure distillery. The raw material, molasses generated from the sugar plant will be utilized in the proposed distillery. The production level of Sugar unit will be kept the same as existing and consented.

Environmental clearance is obtained for 19 MW cogeneration & Expansion from 2500 TD to 6000 TCD sugar unit from SEIAA, Maharashtra.

As per EIA Notification S on 14th September 2006 issued by Ministry of Environment & Forests, Govt. of India *vide* Gazette Notification No. S.O. 1533(E) dt: 14thSep.'2006, and amended, the proposed 45 KLPD molasses based distillery shall be treated as Category–A; Schedule 5 (g). Accordingly, the project proponent has submitted prescribed application along with pre-feasibility report to the MoEF&CC, New Delhi. Standard Terms of Reference was granted by EAC (vide letter F. No. IA-J-11011/234/2018-IA-II(I) dated 16th August 2018). Based on standard TOR, Environmental Impact Assessment studies are carried out. Draft EIA and EMP report was prepared and submitted for public consultation.

1.1 Details of Project

The proposed project located at Dattatrayanagar, A/P – Pargaon Via Awasari Bk, Tal. – Ambegaon, District – Pune, Maharashtra. It is geographically located at latitudes – 18°58'30.35"N and longitude – 74°05'30.13"E.

1.1.1 Project Description

Sr. No.	Details	Sugar + Co-generation	Distillery
1	**Status**	Existing	Proposed
2	**Location**	Dattatrayanagar, A/P – Pargaon Via Awasari Bk, Tal. – Ambegaon, District – Pune, Maharashtra	
3	**Capacity**	6,000 TCD + 19 MW	45 KLPD +1.5 MW
4	**Working days**	180	300
5	**Raw material**	Sugarcane & Bagasse	Molasses
6	**Quantity of raw material**	Sugar Cane : 6000 TCD (1080000 MT) Bagasse: 1560 T/day (280800 MT)	Molasses Requirement : 52,000 T Molasses : 173.33 T/d
7	**Bioler Capacity**	37 TPH x 2 80 TPH	16 TPH
8	**Bioler Fuel**	Bagasse	Slop + Coal
9	**Water source**	Ghod River	Ghod River
10	**Water Requirement**	746 m^3/day	415 m^3/day
11	**Land ha**	Total land : 145 Acre Industrial Activity: 26.5 Acre Sugar & Cogeneration: 18 acre Proposed Distillery : 8.5 acre Green Belt : Existing: 25 acre & Proposed: 10 acre	
12	**Green Belt**	25 Acre	10 Acre
13	**Effluent Treatment facility**	Conventional Effluent Treatment Plant: 1350m^3/day (primary, secondary and tertiary treatment)	Spent wash will be concentrated at MEE, concentrated Spent wash will be used as fuel for 16 TPH Boiler and condensate will be treated in CPU and will be used in process

14	**APC measures for boiler**	Stack Height 60 m for 37 TPH with Wet scrubber & 72 m for 80 TPH with ESP	Stack 60 m and ESP with 99.9% efficiency

1.1.2 Basic Requirement of the proposed project

i. Land: The Company owns total 145 Acre out of which for distillery require 8.5 ha of land. The project will be accommodated in the existing factory premises.

ii. Raw Material: Molasses is one of the waste products produced from sugar factory. Molasses can be used as raw material for distillery. The resultant alcohol has various uses in chemical industry, pharmaceutical industry and as Ethanol. Distillery unit needs the raw material as molasses & this can be fulfilled by sugar factory of our own. Total requirement of Molasses will be 52000 MT. 41000 MT Molasses will be available from own sugar factory and remaining 11000 MT molasses will be purchased from nearer factories.

iii. Water: Fresh Water demand is 415 m3/day. Permission of Irrigation Department is obtained. Water source is Ghod River.

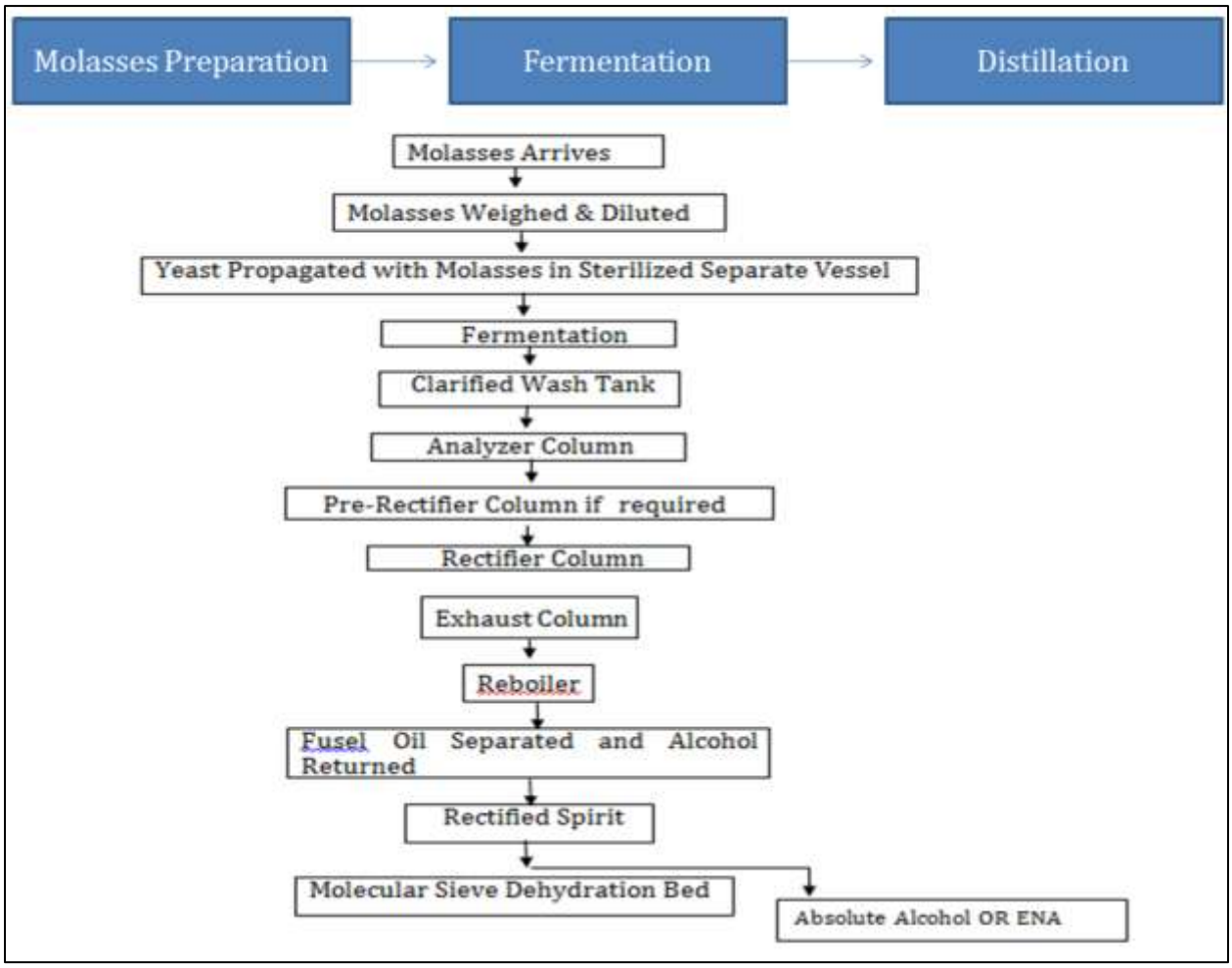
iv. Power: The steam and power requirement for the proposed ethanol plant will be made available by installing separate 16 TPH boiler.

v. Fuel: Coal and Slop will be used as fuel for the 16 TPH boiler.

vi. Man Power: During construction: 50 peak, short duration, during operation: Distillery 72 Nos. (34 skilled and 30 unskilled for production and pollution control).

1.1.3 Manufacturing Process:

There are four major steps in preparation of alcohol. (a) Substrate (feed) preparation for fermentation, (b) Yeast propagation and continuous fermentation, (c) Multi-pressure distillation and (d) Dehydration of RS to anhydrous alcohol or it will be purified to get ENA.



1.2.4 Pollution control Technology & Equipment

i. Air Pollution Control: For 16 TPH boiler, stack height will be 60 m and ESP will be provided to control the particulate matter

ii. Water and waste Water: 360 M3/day spent wash will treated through evaporation – Incineration and Condensate will be treated in CPU and reused in process

iii. Solid Waste: Ash will be sold to brick manufacturing.

Total project cost: Rs. 6278 lakh. (distillery unit), Funds allocated for pollution control equipment will be Rs. 1370 lakh and for O & M will be Rs. 47 lakh per year. Funds earmarked for CER activity will be Rs 63 lakh.

2.0 Description of Environment

The area around the proposed Distillery Plant is being surveyed for physical features and existing environmental scenario. The field survey and baseline monitoring has been has been done from the period of October 2018 to December 2018.

Environmental Setting of the Study Area: The site is located in the rural area. No other industries are found in the region. Location features of the Study area are given in Table below.

Environmental Setting (10 km radius)

Particulars	Details
Latitude	18°58'30.31 "N
Longitude	74°05'26.98 "E
Site Address	A/P – Pargaon Via Awasari Bk, Tal. – Ambegaon, District – Pune, Maharashtra
No. of villages in the study area	42
Total Population	114351
Nearest Habitation	Pargaon Shingave (1km North West)
Nearest River /Water Body	Ghod River 2.0 km
Nearest IMD Observatory	Pune – 85 km
Nearest Town	Manchar 20 km
Nearest Railway Line	Pune – 85 km
Nearest Air Port	Pune – 85 km
Approach to site by Road	Pargaon Shingave – Kavathe Road
Religious / Historical Place	None
Archaeological monuments	None
Ecological Sensitive Area/ Reserve Forest	None
Seismic Zone	III
Average altitude above mean MSL	615 m above MSL

Temperature in °C	The highest temperature is usually observed during the months of April–May and lowest temperature during December/ January. Annual average is 25.2°C
Rain fall in mm	Total annual average: 1,058 mm
Wind velocity	This region is characterized by low to moderate wind velocities. The mean annual velocities are in the range of 4 to 6 Km/h and especially high during pre-monsoon period of June to August.

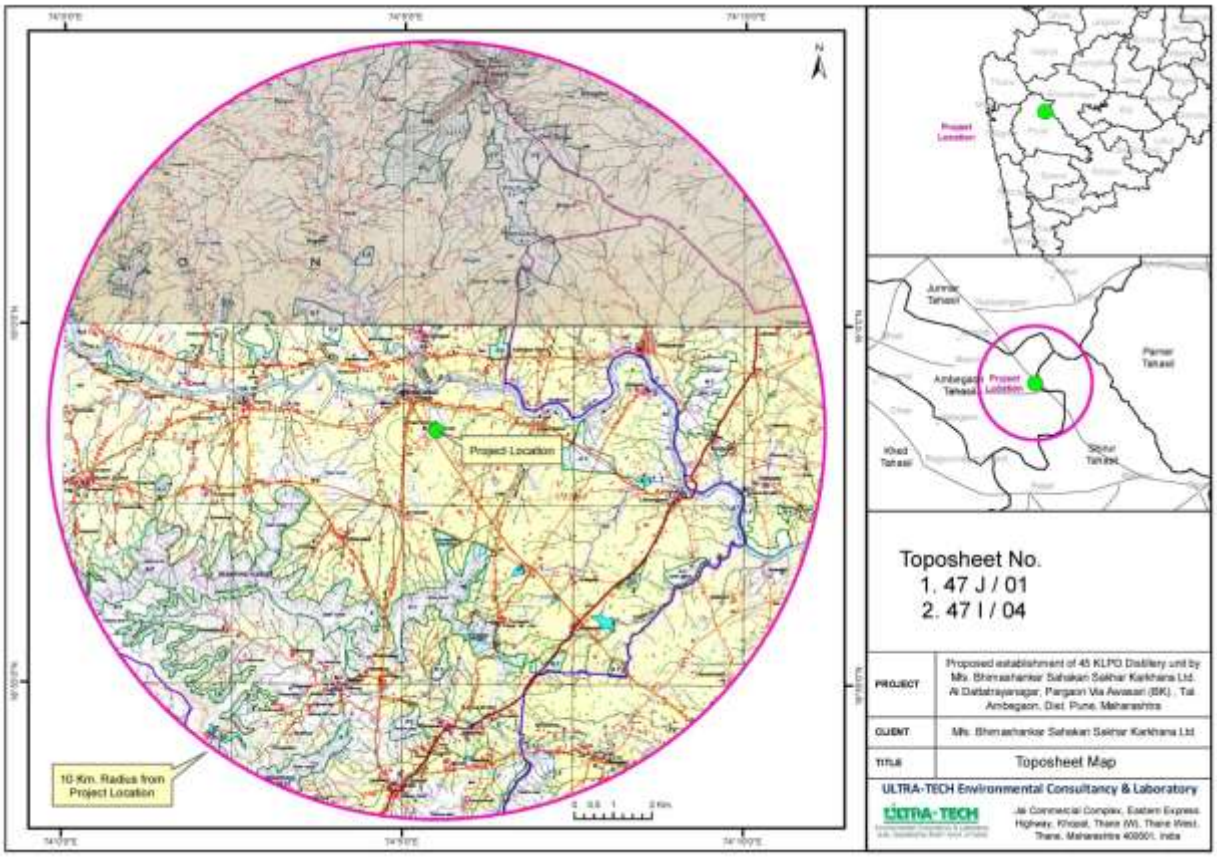


Figure 10 km Radius area from Project Site

2.1 Ambient Air Quality

To understand the AAQ within the study area, nine locations were selected and AAQ monitoring was carried for the period October to December 2018.

PM_{10} Maximum 80 µg/m^3 value of PM_{10} recorded at project site (AAQ 1) and minimum 49 µg/m^3 value of PM_{10} recorded at Shingave Village (AAQ3) during monitoring. Higher value recorded at project site due to the project activities and vehicular movement. The standard limit of PM_{10} for the 24hr average is 100µg/m^3, hence all the values recorded at nine locations are well below the CPCB standard.

$PM_{2.5}$: Maximum 46 µg/m^3 value of $PM_{2.5}$ is observed at AAQ1 and as minimum 22.0 µg/m^3 value observed at Dhamani AAQ7 .The standard limit of $PM_{2.5}$ for the 24 hr hourly average is 60 µg/m^3 , hence at all locations $PM_{2.5}$ concentration was well below permissible standards.

SO_2: Maximum 36 µg/m^3 value of SO_2 is observed at AAQ1 and minimum 11 µg/m^3 value observed at AAQ2 & AAQ9 as during the study period.

CO: Maximum value 2.7 mg/$m^3$of Carbon Monoxide is observed at AAQ1 and minimum value 0.5 mg/m^3observed at AAQ4. All the observed values of CO well within the limit;

NOx: Maximum value 43 µg/m^3 observed at AAQ4 and Minimum value 16 µg/m^3 observed at AAQ9.

2.2 Ambient Noise Quality

Noise monitoring was carried out as per MoEF and CPCB guidelines. To understand the Noise Quality with respect to zone category, nine representative locations were selected. Noise monitoring was carried out from time 06:00 Hrs to 22:00 Hrs and Night Time – 22:00 Hrs to 06:00 Hrs.

Obtained results are compared with Noise pollution rules 2000. Higher noise level recorded at project site due to the project activities and vehicular movement. All values during day and night period are under the permissible standards.

2.3 Water Quality

Ground water samples were collected from 11 different locations and surface water samples were collected from 3 locations within the 10 km radius.

Ground water Quality

The analysis results indicate that the pH ranges in between 7.4 to 8.1, which is well within the specified standard of 6.5 to 8.5. The minimum pH of 7.4 was observed at Shingave and the maximum pH of 7.9 was observed at Mengadewadi. Chlorides were found to be in the range of 19 to 192 mg/l at all locations, the minimum concentration of chlorides (19 mg/l) was observed at Mengadewadi, whereas the maximum value of 192 mg/l was observed at Shingave. At all locations chloride values are within permissible limit i.e. 250mg/l. Sulphates were found to be in the range of 7 to 168 mg/l. The minimum value (7mg/l) observed at Devgaon Village whereas the maximum value (168 mg/l) observed at Shingave Village. At all locations sulphates values are within the permissible limit i.e. 200mg/l. The Total Dissolved Solids (TDS) concentrations were found to be ranging in between 110 to 988 mg/l, the minimum TDS observed at Mengadewadi (110 mg/l) and maximum concentration (988 mg/l) of TDS observed at Shingave.

Surface Water Quality

The analysis results indicate that the pH values at SW1, SW2 & SW3 were 7.7,7.9 & 7.9 BOD at three locations respectively. DO at SW1, SW2 & SW3 were recorded as 5.9, 5.9 & 5.8 mg/l respectively. TDS values at SW1, SW2 & SW3 locations were found as 272,220& 198 mg/l respectively. Total Coliform Bacteria at SW1, SW2 & SW3 were recorded to be 110, 80 & 34 MPN/100 ml.

2.4 Soil Quality

- All the samples having pH in range of 7.7 to 8.9.
- Conductivity of the samples is in between 0.122 to 1.9 mS/cm. Village Shingave has the highest conductivity value.
- The water holding capacity of a soil is a very important agronomic characteristic. All the soil samples shows, the good water holding capacity.
- Soil Organic Matter also acts the major sink and source of soil carbon. The concentration of the organic matter in the soil is 0.5 to 1.3 %.
- All the soil samples shows, the good NPK values.
- Overall it is observed that the soils of the region are good for agriculture

2.5 Ecology

Based on field survey primary data were generated by preparing a general checklist of the plants encountered in this area. The study shows overall 74 plant species comprising of 37 trees, 3 Palms, 15 shrubs, 10 herbs, 6 grasses and 3 climbers from 65 genera and 40 families. The floristic survey reveals that the study area is having dominance of trees viz. Acacia nilotica, Azadirachta indica, Ziziphus mauritiana, Cocus nucifera etc. certain shrubs viz,. Calatropis sp., Hibiscus sp, Lantana camara & Ricinus communis and herbs like Alternanthera sessilis, Argemone Mexicana, Ageratum conyzoides & Celosia argentea were most common within study area.

None of the faunal species were recorded as threatened or endangered as per IUCN red list.

2.6 Socio Economic Survey

The study area is witnessing a rapid growth in its population beginning from last decade due to Agriculture development, urbanization and industrialization.

While dealing study area (10 Km radius from project site) as per secondary data (Population Census 2011) the total population is 84311 in 17737 households. Male population is 42665 and female population is 41646. Highest population in study area is in Pargaon Tarf Awasari Bk. village (6487).

There are 17737 households in the study area and the average size of household is 5 members per household in the study area. The dependent population below 6 years is 8746 (10.4% of the total population) in the study area. The sex ratio of the study area is 976 females per 1000 males. The sex ratio of the study area is good, as compare to district sex ration of Pune (915). To the total population SC contribute 4.7% and ST 5 % population respectively. The literacy rate of study area is 71.8 % which is lower than literacy rate for Pune district ie. 80.45%.

3.0 Impact Mitigation Analysis

The environmental impacts can be categorized as either primary or secondary. Primary impacts are the ones that are caused directly due to the project activity on environmental attributes, whereas secondary impacts are indirectly induced

Impacts on Air Environment: -

- Existing 37 TPH & 80 TPH capacity boilers are in operation and 16 TPH incineration boiler is proposed.
- To arresting air emission from existing 37 TPH and 80 TPH boiler wet scrubbers and ESP with adequate 60 m and 72 m stack height is provided to attenuation of air pollution and for distillery unit 16 TPH boiler ESP with 99.9 % efficient and 60 m Stack height will be provided.
- On line Continuous Monitoring system is installed and connect to Pollution control board as per CPCB guidelines

Impacts on Noise Quality: Noise quality is concern in the factory premises as well as around the periphery of factory area. Operation of Boiler house, cooling tower and other machineries engaged in various unit processes. Noise generated from DG sets, transportation vehicles are also envisaged.

Impacts on Soil Environment: Impacts are predicted if waste water is directly discharged in agricultural field. Improper storage of waste residues and other wet waste may hamper soil quality

Impacts on water environment: Impacts are envisaged due to runoff of water from waste storage area. Groundwater leachate is envisaged if waste is dumped on open land.

Ecological Environment: No impacts are envisaged during operational phase.

Socio Economic Environment: During operational phase both positive as well as negative impacts are foreseen. Positive impacts will comply employment generation, improvement of other social and physical infrastructure amenities such as schools, hospitals, banking offices etc. Negative impacts include prolonged exposure to noisy environment may lead to hearing loss

Mitigation measures

Air: Emissions from boiler house shall be passed through pollution Control equipment before emitting directly to atmosphere. Adequate green belt is development to minimize particulate emissions. If required water sprinkling methodology shall be adopted on dust prone roads.

No additional boiler is proposed for the expansion.

Air pollution sources and mitigation measures

Sr No.	Source	Fuel	Emissions	Control Measures
1	Existing 37 TPH Boiler	Bagasse	Particulate Matter, So2 and Nox	60 m stack height and wet scrubber provided

2	Existing 80 TPH Boiler	Bagasse	Particulate Matter, So2 and Nox	72 m stack height and ESP
3	Proposed 16 TPH Boiler	Slop & Coal	Particulate Matter, So2 and Nox	60 m stack height and ESP provided

Noise: Workers shall be provided with ear muffs and other personal protective equipment's those working in noise prone environment. Development of greenbelt cover will minimize the noise levels ion industrial premises. Noise generating machineries should be operated in day time.

Soil: Soil quality will be improved by supplying treated water with nutrient addition. Soil samples shall be tested regularly and appropriate mitigation measures shall be adopted based on nutrient result.

Water & Waste water:

- Effluent from sugar and cogeneration is treated in ETP having capacity of 1350 m3/day. (primary, secondary and tertiary treatment)
- Regular water quality monitoring will be carried out as per CPCB and norms ensured by MoEF&CC.
- In distillery unit, condensate of MEE will be treated in Condensate polishing unit (CPU) and will be reused in process and cooling tower. Concentrated spent wash will be used in boiler as fuel.

4.0 Environment Monitoring and Management Plan

Environment monitoring is prescribed during pre-construction, construction and operation phase. During operation phase of project it is important to understand the baseline environment status which is caused due to proposed project activity. Environmental monitoring will comply Air, Water, Soil, Ecology, and Noise parameters as per monitoring compliance norms and schedule. All parameters will be tested as per standard tools and methods and obtained results should be compared with CPCB norms.

Cost of Environmental Protection Measures

S. No.	Environmental Aspect	Capital Expenditure Rs in Cr.	Recurring Expenditure Rs in Cr.(per annum)
1	Air Emission control Engineering (Incineration Boiler, Stack and ESP)	1200.00	15.00
2	Water & Wastewater management (MEE and CPU)	120.00	10.00
3	Solid Waste Management	10.00	10
4	Greening Belt Development	20.00	5.0
5	Environment Monitoring	10.00	5.0
7	Other aspects like Rain Water Harvesting, Safety, Security etc.	10.00	2.5
	Total	1370	47.5