

EXECUTIVE SUMMARY
DRAFT ENVIRONMENT IMPACT ASSESSMENT
REPORT

***Proposed Expansion of Cogeneration Power
Plant (19 MW to 29 MW)
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 is 6000 TCD and 19 MW bagasse based cogeneration unit. The sugar unit generates by-products such as 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 proposes expansion of Co-Generation unit from 19 MW to 29 MW within the existing premises of factory.

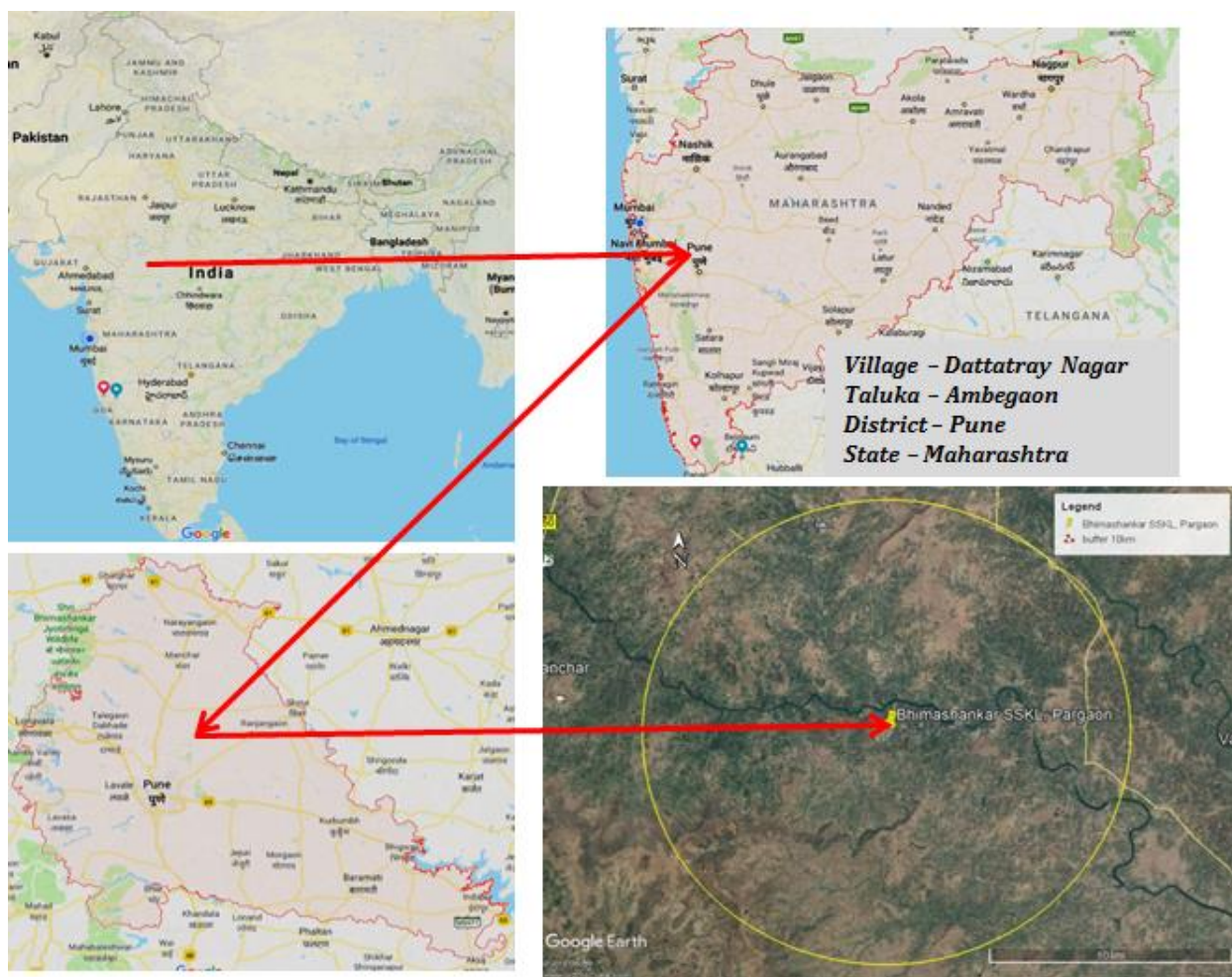
BSSKL has secured environmental clearance for the 19 MW cogeneration from SEIAA, Maharashtra vide letter no. SEAC-2011/CR-755/TC2 dated 30/06/2012 & Sugar expansion (2500 TCD to 6000 TCD from SEIAA Maharashtra (SEIAA-EC-0000000537) on 27th November 2018.

As per EIA Notification 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 expansion of 29 MW Co-Gen unit shall be treated as Category-B; Schedule 1 (d). Accordingly, the project proponent has submitted prescribed application along with pre-feasibility report to the SEAC –I, Mumbai, Project presented before SEAC-I in 167th (A) Meeting on dated July 30, 2019. Draft EIA report is prepared based on TOR given by SEAC-I and submitting to MPCB to conduct Public hearing.

1.1 DETAILS OF THE PROJECT

1.1.1 Project Location

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.



Google Image with Project Location

1.1.2 Details of Existing & Proposed Expansion of Project

Sr. No.	Details	Sugar	Co-generation	
			Existing	Expansion
1	Status	Existing	Existing	Expansion
2	Location	Gut no. 135,148,150,151,152,153,154,155&157, Dattatrayanagar, A/P – Pargaon Via Awasari Bk, Tal. – Ambegaon, District – Pune, Maharashtra		
3	Capacity	6,000 TCD	19 MW	10 MW
4	Working days	180	180	180
5	Raw material	Sugarcane	Bagasse	Bagasse
6	Quantity of raw material	1080000 MT	204000 MT	115000 MT

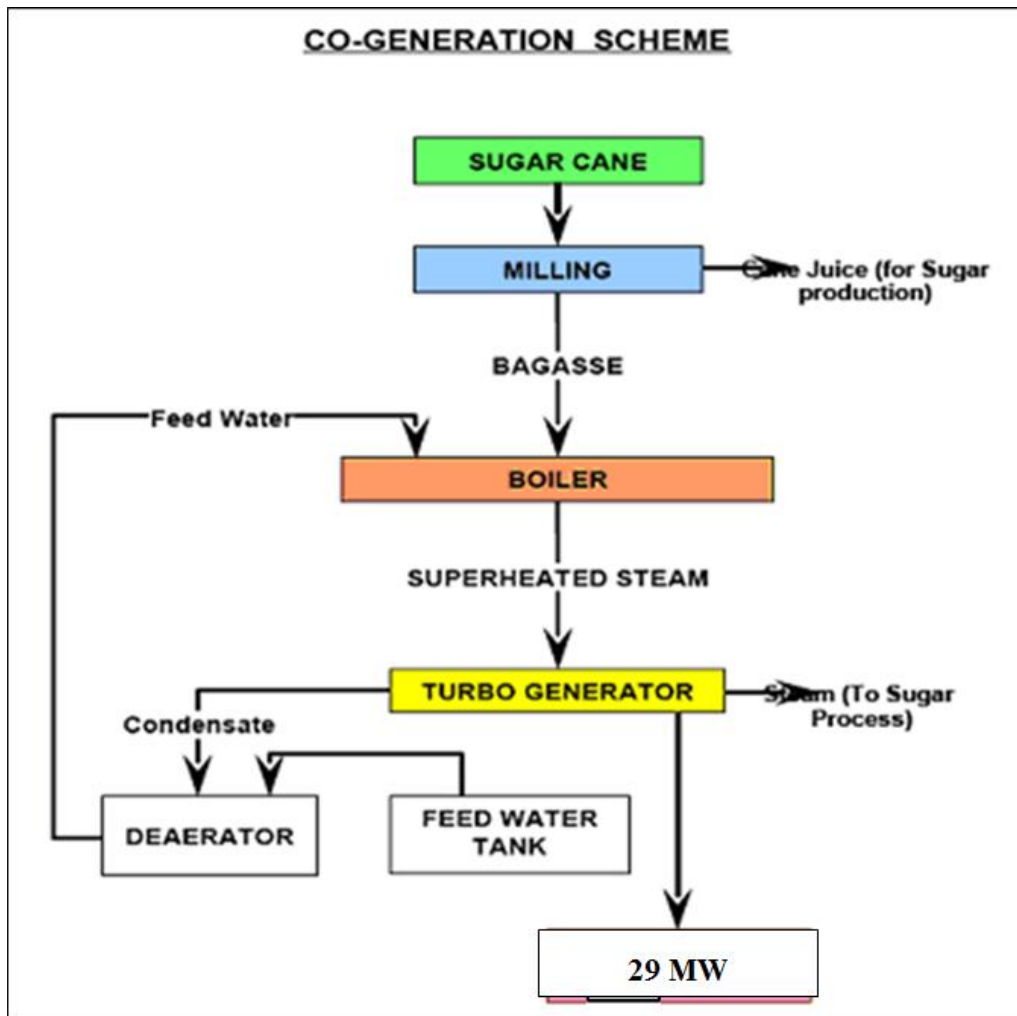
7	Products with Quantity	124200 MT Sugar	19 MW	10 MW
8	Bioler Capacity	37 TPH x 2 & 80 TPH	80 TPH	Up gradation of 2 x 37 TPH boiler to 2 x 45 TPH
9	Bioler Fuel	-	Bagasse	Bagasse
10	Water source	Ghod River	Ghod River	Ghod River
11	Water Requirement	384 m ³ /day	271.20 m ³ /day	127.20 m ³ /day
12	Land	Total Plot Area : 580000 Sq.m (58 ha), Proposed Distillery : 32000 Sq.m (3.2 ha) , Green Belt : 195300 Sq.m (19.53 ha)		
13	Effluent Treatment facility	<ul style="list-style-type: none"> •Cogeneration Unit: Existing effluent generation 210 m3/day and after expansion effluent will be 348 m3/day. •Sugar Unit: 817 m3/day •Existing Conventional Effluent Treatment Plant: 1350m3/day (primary, secondary and tertiary treatment) & no need to increase the capacity of ETP 		
14	APC measures for boiler	Stack Height 60 m for 2 x 37 TPH upgraded to 2x 45 TPH with Wet scrubber & 72 m for 80 TPH with ESP		

1.1.3 BASIC REQUIREMENT OF THE PROPOSED PROJECT

- Land:** The Company owns total 58 ha land, no additional land will be required for expansion.
- Raw Material:** Cogeneration plant unit needs the raw material as Bagasse & this can be fulfilled by sugar factory of our own. Total requirement of Bagasse will be 306720 MT. Total requirement will be fulfilled by own sugar factory
- Water:** Total Fresh water Requirement: 398.40 M3/day, Existing 271.20 M3/day and Proposed Expansion: 127.20 m3/day. Sugar unit: 384 m³/day . Total Permission of Irrigation Department is obtained. Water source is Ghod River.
- Power and steam:** The steam and power requirement for the sugar unit will be provided through the cogeneration and remaining power will be export to state grid.
- Fuel:** Bagasse. 306720 MT bagasse will be available from own sugar unit
- Man Power:** During construction: 50 peak, short duration, during operation: 30 Nos.

1.1.4 Manufacturing Process:

This is a simple three step cyclic process namely steam condensate water generation, Steam Generation and Power Generation



1.1.5 Pollution control Technology & Equipment

i. Air Pollution Control:

- Existing 80 TPH Boiler: 72 m stack and ESP
- Existing 2 x 37 TPH Boiler upgraded 2 x 45 TPH; 60 m stack and wet scrubber

ii. Water and Waste Water:

- Cogeneration Unit: Existing effluent generation 210 m³/day and after expansion effluent will be 348 m³/day.
- Sugar Unit: 817 m³/day
- Existing ETP Capacity of 1350 m³/day & no need to increase the capacity of ETP

iii. Solid Waste: 52.32 MT/day ash will be sold to brick manufacturing.

1.1.6 Project Cost

Capital Cost of Project will be Rs 4142 Lakhs. Project will be implemented within 24 months from the date of issue of prior EC and consent to establish by MPCB. Funds allocated for pollution control equipment will be Rs. 30 lakh and for O & M will be Rs. 21.5 lakh per year. Funds earmarked for CER activity will be Rs 41 lakh.

2.0 Description of Environment

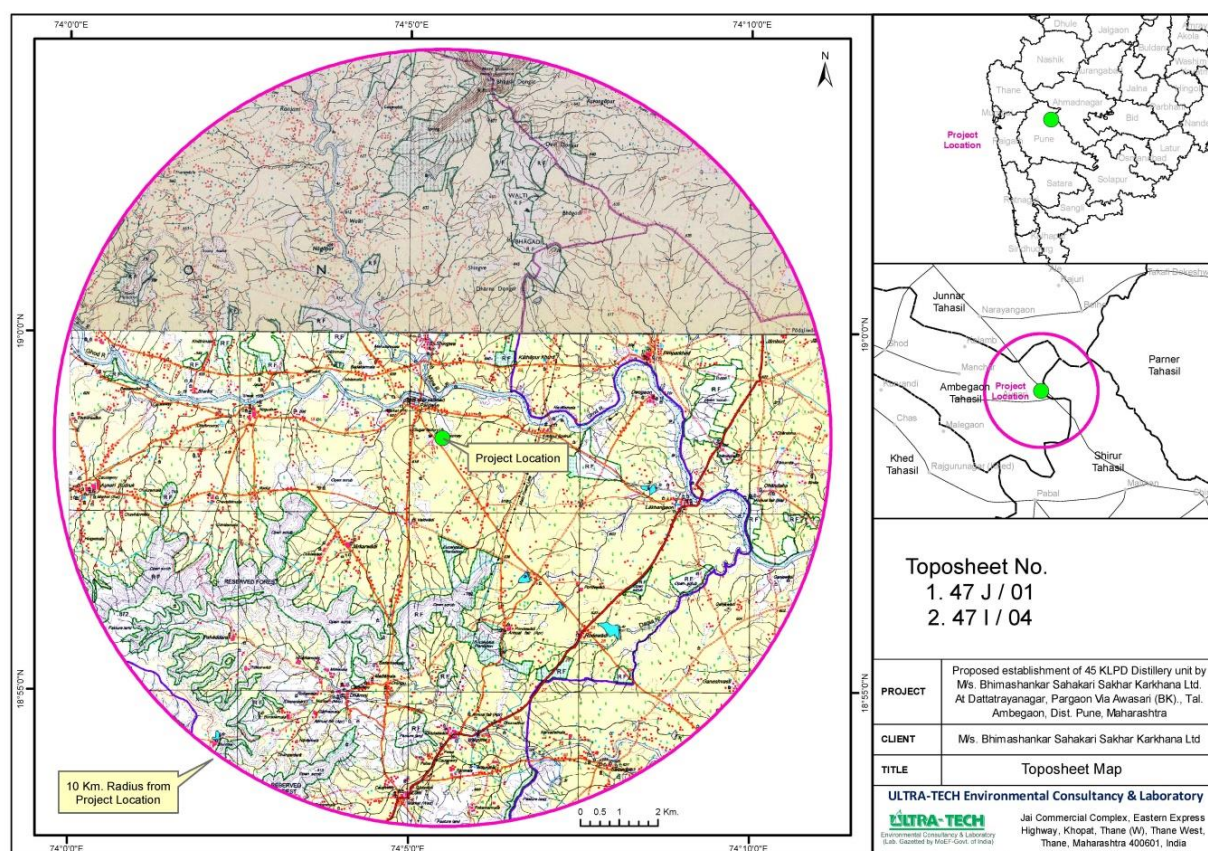
The area around the proposed expansion of cogeneration project is being surveyed for physical features and existing environmental scenario. The field survey and baseline monitoring has been done from the period of October 2018 to December 2018.

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.



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.

- **PM₁₀** Maximum 80 µg/m³ value of PM₁₀ recorded at project site (AAQ 1) and minimum 49 µg/m³ value of PM₁₀ 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 $100\mu g/m^3$, hence all the values recorded at nine locations are well below the CPCB standard.

- **PM_{2.5}:** Maximum $46\mu g/m^3$ value of $PM_{2.5}$ is observed at AAQ1 and as minimum $22.0\mu g/m^3$ value observed at Dhamani AAQ7. The standard limit of $PM_{2.5}$ for the 24 hr hourly average is $60\mu g/m^3$, hence at all locations $PM_{2.5}$ concentration was well below permissible standards.
- **SO₂:** Maximum $36\mu g/m^3$ value of SO_2 is observed at AAQ1 and minimum $11\mu g/m^3$ value observed at AAQ2 & AAQ9 as during the study period.
- **NO_x:** Maximum value $43\mu g/m^3$ observed at AAQ4 and Minimum value $16\mu g/m^3$ observed at AAQ9.
- **CO:** Maximum value 2.7 mg/m^3 of Carbon Monoxide is observed at AAQ1 and minimum value 0.5 mg/m^3 observed at AAQ4. All the observed values of CO well within the limit;

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 x 2 TPH & 80 TPH capacity boilers are in operation. In the expansion 37 x 2 TPH boiler will be upgraded to 45 x 2 TPH.
- To arresting air emission from existing 80 TPH boiler, ESP with 72 m stack height is provided to attenuation of air pollution and 37 x 2 TPH boiler, wet scrubber with 60 m stack height is 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.

Air pollution sources and mitigation measures

Sr. no.	Source	Fuel	Emissions	Control Measures
1	Existing 80 TPH Boiler	Bagasse	Particulate Matter, SO ₂ and NO _x	72 m stack and ESP
2	Existing 2 x 37 TPH Boiler upgraded 2 x 45 TPH	Bagasse	Particulate Matter, SO ₂ and NO _x	60 m stack and wet scrubber

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:

- Existing effluent generation 210 m³/day and after expansion effluent will be 348 m³/day.
- Effluent from sugar and cogeneration is treated in ETP having capacity of 1350 m³/day. (primary, secondary and tertiary treatment)
- No need to increase the capacity of ETP
- Regular water quality monitoring will be carried out as per CPCB and norms ensured by MoEF&CC.

Solid waste:

Sr. no.	Particulars	Generation T			Disposal
		Existing	Expansion	Total	
1	Ash T/Day	31.2	21 .12	52.32	Sell to brick manufacturer
2	ETP Sludge (T/day)	0.5	0.3	0.8	Mixed with press mud used as a manure for landscaping

4.0 Cost for Environment Management Plan

Cost of Environmental Protection Measures

Sr. No	Description	Capital cost (Rs. in Lakhs)	Recurring cost (Rs. in Lakhs/yr)
1	Air Emission control Engineering (Existing Stack and ESP)	0	5.0
2	Water & Wastewater management (Existing ETP)	0	5.0
3	Solid Waste Management Plan	10.0	5.0

4	Rain Water Harvesting Plan	20.0	2.5
5	Environment Monitoring (Ambient air. Stack, Water and waste water and Soil)	-	4.05
	Total	30.0	21.55