

EXECUTIVE SUMMARY

For

**EXPANSION CUM MODERNIZATION OF EXISTING SUGAR
INDUSTRY WITH NEW CO-GENERATION PLANT
(Cane Sugar 3500TCD to 6500 TCD, Co-generation 18 MW)**

Project Proponent



**Shri Chhatrapati S.S.K. Ltd.,
Bhavaninagar, Tal- Indapur, Dist- Pune Maharashtra**

Prepared by



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Executive Summary of Shree Chhatrapati Sahakari Sakhar Karkhana Ltd.

EXECUTIVE SUMMARY

1. INTRODUCTION:

Shri Chhatrapati Sahakari Sakhar Karkhana Limited(SCSSKL) is a co-operative sugar factory has been registered under the Bombay co-operative societies Act 1925 under vide registration no. G/269 August 1955 dated 06.08.1955. It has more than 27,000 Nos. of share holders. SCSSKL established in the year of 1957 with installed capacity of 800 TCD. This installed capacity was got augmented over the years to 3500 TCD due to performance of this mill and excellent cane potential in the command area.

Considering the good water potential, due to networking of canals of various dams , farm ponds in area of operation as well as competitive cane price paid to cane growers, cane availability is increasing every year. In view of sufficient cane availability to the extent of about 10.15 lac ton is available in the area of operation. Hence, SCSSKL has proposed to carry out modernization cum expansion of the sugar plant from 3500 TCD to 6500 TCD along with 18 MW Cogeneration plant.

The basic criteria for the selection of site is that there shall be optimum location for the critical equipments viz. boiler and turbo-generator, so that HT cables, HP piping and bagasse conveyer routes are optimized. Logistically, boiler and T.G. have to be located close to the sugar plant as the steam for the processing of sugar has to be supplied from the turbine extraction and power for the sugar plant operations, has to be supplied from the HT panels of the TG plant and bagasse from the sugar plant has to be supplied to the boiler plant.

All new projects of pertaining to about 40 listed activities, Environment Impact Assessment study is to be conducted and impact due to proposed project during construction as well as in normal operation, are to be assessed to ensure environmental friendliness and adequacy of mitigation measures suggested so that adverse impacts, if any, are reduced to insignificance. Assessment is also a statutory requirement and as per the **EIA notification SO 1533 issued on 14th September 2006**, proposal falls under project activity 5(j) which requires prior environmental clearance if production exceeds over 5000 TCD. In addition facilities for cogeneration of power using bagasse falls under project activity 1(d) requires prior environmental clearance if power generation exceeds over 15 MW. The generation being less than 15 MW is exempted from provisions of EIA notification.

Purpose of this report is to assess environmental impact of proposed expansion activity in association with existing sugar industry.



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2.0 PROJECT PROPONENT:

Shri Chhatrapati Sahakari Sakhar Karkhana Limited is a co-operative sugar factory has been registered under the Bombay co-operative societies Act 1925 under vide registration no. G/269 August 1955 dated 06.08.1955. It has more than 27,000 Nos. of share holders.

The key persons of Board of Directors are as follows-

- Mr. Balasaheb Ranjendrakumar Gholap, Chairman
- Mr. Balasaheb Dattaray Patil, Vice Chairman
- Mr. Shri. Ramakant Suryakant Naik. Managing Director

3.0 PROPOSAL:

SCSSKL now proposes to set up a project for additional 3000 TCD sugar plant with total capacity of sugar unit as 6500 TCD with proposed 18 MW cogeneration plant in the vacant plot in the same premises adjacent to existing sugar unit to utilize bagasse produced from the sugar manufacturing activity of its own.

Project at a glance

1	Name and address of project proponent	Shri Chhatrapati Sahakari Karkhana Ltd., Bhavaninagar Village, Indapur Taluka District Pune, Maharashtra State.
2	Constitution	Co-Operative Society
3	Proposed project	Modernization cum expansion of sugar plant from 3500 TCD to 6500 TCD along with 18 MW cogeneration project
4	Category of project according to EIA notification dated 14 th September 2006 and as Amended?	5(j) & 1(d)
5	Extent of land area	Total plot area: 34.57 Hectors (85.57 Acre)
6	Project cost	Rs 19200 /-lacs. (Existing unit Rs. 4215 Lakh + proposed 14985 Lakh)
7	Actual cane crushing capacity taken for designing the project	6500 TCD on 22 hrs basis (295.45 TCH) Existing plant- 3500 TCD (159.09 TCH) New plant- 3000 TCD (136.36 TCH)
8	Average Bagasse production	28 % on cane
9	Captive steam consumption	Existing sugar plant- 45 % on cane New sugar plant- 42 % on cane



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10	No. of days of Operation	Sugar plant- 160 days Cogeneration plant- Crushing season- 160 days Off season- 149 days
11	Fuel used for boiler	Bagasse from sugar plant
13	Sugar recovery, expected	11.56 % in first year 11.60 % in second year 11.70 % in third year 11.80 % in forth year & onwards
14	Captive power consumption	Season= 7.30 MW Off Season= 0.65 MW
15	Net exportable power	Season= 10.87 MW Off Season= 5.35MW
16	Manpower	Existing = 508 Proposed = 79 Total = 587
17	Boiler capacity Sugar & Co-gen sugar unit	Existing 2 no's - 22 TPH & 35 TPH Proposed 2 no's - 70 TPH & 35 TPH for Co- generation Unit
18	Fresh water source & requirement	Source = Nira river/Pune Irrigation department Requirement= 1341.8 CMD
19	Effluent Treatment facility	ETP of capacity = 400M ³ (Existing ETP)

4.0 LOCATION:

The industry is located at Gat no. 48, 50 Bhavaninagar Village, Indapur Taluka & Pune District in Maharashtra State.

The site is located adjacent to Pune Solapur National Highway (NH 9), 15 km from Project site.

Nearest city is Baramati about 12 km away. Nearest railway station & air port at Baramati at distance of 13 km.

The project falls at North Latitude 18⁰ 06' 57.03'' and East Longitude 74⁰ 41' 4.86'' Land exists as sugar mill is already operational. The site elevation is 1822 feet above Mean Sea Level. There is no reserve forest or ecological sensitive area within 10 km radius of the site. The total land available for the project is 34.57 Hectares.



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Environment Settings of the project site

Sr. No.	Particulars	Details
1	Latitude	18 ⁰ 06' 57.03'' N
2	Longitude	74 ⁰ 41' 4.86'' E
3	Elevation above MSL	555 Mt. above Mean Sea Level
4	Climatic Conditions	Maximum Temperature : 37-38°C Minimum Temperature : 11-12°C Annual Rainfall: 450 to 500mm
5	Present land use at the proposed site	Existing sugar plant of 3500 TCD capacity
6	Transport Connectivity	Road
A	Nearest Road	<ul style="list-style-type: none">• State Highway – SH 221- Baramati Indapur - 10 m towards North• National highway- NH 9- Pune Solapur- 15 km towards North
B	Nearest Railway Station	Baramati Railway Station-13 Km- West
C	Nearest Airport	Baramati Airport, 13 km- West Pune Airport, 110 Km- West
7	Social Aspect	
A	Nearest School	Govindrao Pawar Vidyalaya-1.2 Km-NE
B	Nearest Hospital	<ul style="list-style-type: none">• Shri Chhatrapati Primary Health Centre, Bhavaninagar. located in factory area• Bhandare Multi speciality hospital, Baramati-12 km-NW
8	Nearest Water Body	Nira River- 5.5 Km towards South
9	Hills/Valleys	Not Applicable
10	Ecologically sensitive zones within 15 -km distance	Not Applicable
11	Historical/ Archaeological places	Not Applicable
12	Nearest Defense and other Establishments	Not Applicable
13	Industries/Industrial area	Not Applicable

5.0 INVESTMENT:

The Total estimated investment is Rs. 19200 Lakh

Existing sugar unit installation had costed an amount of Rs 4215 Lakh. Additional Rs. 14985 Lakh are estimated for proposed expansion & installation of cogeneration unit. Hence total investment will now be Rs 19200 Lakh.





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6.0 TOR ALLOTTED BY SEAC-1:

Project proponent approached State Expert Appraisal Committee (SEAC-I) with application form-1 and prefeasibility report of the project and presented the credentials. The project was considered in 95th meeting held on 31st January 2015 and “TOR” for project was prescribed.

7.0 MAGNITUDE OF OPERATION:

List of products & by products

Product/ Byproduct	Quantity		Total (TPD)
	Existing (TPD)	Proposed (TPD)	
Sugar Factory			
Sugar	402.5 (11.5% Sugar Recovery)	356.50 (11.8% Sugar Recovery)	759
Molasses	141.66	124.00	265.66
Press Mud	141.66	124.00	265.66
Bagasse Generation	980.00	840.00	1820
Co-gen, Power generation			
Electricity	--	Season- 18 MW	18 MW
		Off-season- 6 MW	6 MW

Raw material requirement

Raw material	‘Quantity		Total TCD	Source of Materials	Mode of transportatio n
	Existing 3500 TCD	Expansion 3000 TCD			
Sugar Factory					
Sugar cane TPD	3500	3000	6500	From Member farmers	Through trucks & bullock carts
Lubricant(oil & grease) kg/d	105.1	90	195.1	Supplied by outside parties	In barrel/polyth ene bags through vehicle
Lime (TPD)	5.6	4.8	10.4		
Sulphur (TPD)	1.75	1.5	3.25		
Co-gen					
Bagasse (TPD)	Season-1028 (ave.)		1028	Sugar unit	
	Off-season- 228		228		



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8.0 MANPOWER REQUIREMENT:

A total of 587 employees including office staff, skilled & unskilled workers and contract laborers are required to run the industry consisting of sugar, power plant. Out of 587 people, 508 employees are existing and 79 employees for proposed unit. The details of employees strength required in different departments is tabulated below:

Manpower

	Staff	Workers	Total
Existing	42	466	508
Proposed	12	67	79
		Total	587

9.0 POWER REQUIREMENT

Total power requirement to the unit will be 7.5 MW during season and 0.65 MW during off season. Two no. of DG set of capacity 750 KVA will be provided. DG sets will be used only in case of power failure.

10.0 STEAM REQUIREMENT

A high pressure boiler of 22 TPH & 35 TPH existing & proposed 70 TPH & 35 TPH will be provided to meet the steam requirement of co-gen power plant and sugar plant.

The steam requirement for sugar unit is 77 TPH exhaust steam. Steam requirement for cogeneration unit is 91.84 TPH during season & 23.42 TPH during off season.

11.0 LAND REQUIREMENT

For the expansion of the sugar plant, a new parallel sugar plant is to be installed within the sugar plant complex wherein an adequate land is available. Since no new land acquisition is needed.

Total Area details

Area details	Existing (Sq. Mt.)	Expansion (Sq. Mt.)	Total (Sq. Mt.)
Total plot area	3,46,289.5	--	3,46,289.5
Built up area	81,055.65	29,422.96	1,10,478.61
Green belt area	57,182.08	--	57182.08

12.0 WATER REQUIREMENT

Fresh water requirement to the industry will be met from the Nira left canal located at about 5.5 km from the site. The industry has obtained permission from Nira left canal & Pune irrigation Department



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Water balance for Total Project:

Sr. No.	Description	Input CMD	Reuse CMD	Effluent CMD
1	Domestic	30	6	24
2	Industrial			
	a. Process	750	290	460
	b. Cooling make up	200	200	0
	c. Boiler make up	205	156	49
	d. Floor Washing	20	20	0
3	Cooling tower Make up water for Co-gen	136.80	136.80	0
	TOTAL(1+2+3)	1341.8	808.8	533

13.0 DESCRIPTION OF THE ENVIRONMENT

The description of existing environmental conditions of the study area with respect to the prominent environmental attributes. The data was collected from both primary and secondary sources. Primary data was collected through environmental monitoring & survey in the study area. The environmental influence due to the project is likely to be restricted to 10 km region around the factory site which covers 38 villages. The studies were conducted during the pre-monsoon period of the 1st Feb 2014- 30th April 2015.

Summary of Sampling

Sr. No.	Particulars	No. of stations	Parameters	Frequency
1	Surface Water	4	27	Once in study period
2	Ground Water	6	26	Once in study period
3	Ambient Air	8	5	Twice in a week, 12 weeks
4	Ambient Noise	6	1	Once in study period
5	Soil	6	16	Once in study period

13.1 Meteorology

The meteorological data was collected at the site during study. It shows that predominant wind direction is west. During study period maximum wind blow 6-8 Kmph from E, NE, SE to W directions. In study period, 44.3 % calm wind found.





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Seasonal variation in temperature quite large from March onwards is a period of continuous increase in day temperature, the night remaining cool. Relative Humidity is Moderate to dry. The climate of Indapur is characterized with hot summers and dry winters. The cold season which last to February, the air is dry and invigorating. It is too hot in summer. The Mean Maximum and Minimum temperature of is 40.6⁰C & 7.8 ⁰C respectively. Annual Rainfall for the year 2014 is 267mm

13.2 Air Environment

The study area represents mostly rural environment. The various sources of air pollution in the study area are existing sugar factory, vehicular traffic and domestic firewood burning. The impact of these emissions is reflected in the results of ambient air quality. The major air pollutants released into atmosphere from the different sources are PM₁₀, PM_{2.5}, SO₂, NO_x and to small extent CO.

The monitored values are within the limits specified by MoEF (as per the notification dated 16th November 2009 for industrial, residential & rural areas).

The existing ambient air quality status (AAQ) has been monitored for SPM, SO₂ and NO_x at each station as per the approved methods of Central Pollution Control Board (CPCB). At project site, the average values of Particulate Matter PM₁₀ & PM_{2.5} ranged from 56.6 µg/m³ to 65.6 µg/m³ and 22.3 µg/m³ to 34.2 µg/m³ respectively which are within NAAQS. The monitored average values of ambient gases SO₂, NO_x and CO ranging from 12.2 µg/m³ to 15.8 µg/m³, 8.10 µg/m³ to 9.60 µg/m³ and 0.140 µg/m³ to 0.281 µg/m³ respectively.

13.3 Noise Environment

A sound level meter was used for measuring the noise level at one hour interval continuously for 24 hrs at 1.5 m above ground level for project site & 5 stations. The noise levels in the study area vary between 35.1 – 44.0 dB (A) during night time & 45.9 – 51.0 dB (A) during day time. It has been observed that the maximum noise levels at all the locations are within the limits specified for residential areas.

13.4 Water Environment

Water parameters analyzed as per the procedure specified in standard methods for examination of water and wastewater published by American Public Health Association and Bureau of Indian Standards (APHA/BIS).

The physico -chemical quality of the surface and ground water sources at 4 & 6 locations respectively around the plant site have been analyzed, which indicates that almost all the parameters analyzed are within “Maximum Acceptable Limits As per IS: 10500-2012.



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13.5 Land Environment

The project is proposed within existing sugar factory premises; the land is already used for industrial purpose. The project surrounding land is either fallow land or used for agricultural purpose. Followed by agriculture, the land is used for residential purpose. There are 38 villages in the study area of 10 km radius. The river Nira is flowing in west to East direction at a radial distance of 6.0 Km from the plant site. The nearest residential area to the factory is at a distance of 1.91 km towards east. Towards east west and north the settlement areas are beyond 3km distance. There is an agricultural and fallow land in the surrounding area of the site.

13.6 Socio – Economic Environment

The information collected from the secondary sources is from the district census statistical hand books and the records of the National Informatics Center, New Delhi based on census of 2011. The Study area covers total 38 nos. of Villages. Total Population of the study area is found 88341, out of which 45641 no. of male (51.66%) and 42700 no. of female(48.34%) . The sex ratio of the study area on an average has 935 females per 1000 males. Population Density area works out to about 280 persons per km². The literacy rate found 62.87% of total population in the study area. SC and ST Population observed as 16.33 % and 0.59% respectively of total population in the study area. Workers (Main & Marginal) observed 43.65% of the total population in the study area and Non Workers (include students, house wives, and children above 6 years also) 54.71% indicating that the problem of unemployment in the region.

13.7 Ecology

There is no endangered species of flora and fauna noticed in this area. The area does not shelter any specific wildlife. The study area mostly comprises of un-urbanized area. The area includes few villages comprising of agricultural and barren land where most of the vegetation is aggregated on agricultural bunds and open area. Apparently it is covered by vegetation of Mango Neem, Apta, Ashoka species. The agricultural land in the study area, mainly cultivation are sugar cane, grapes, fruits, vegetables and other cash crops.

The faunal species found in the study area are of domestic type such as cow, buffalo, and cattle.

14.0 ANTICIPATED ENVIRONMENTAL IMPACTS & MITIGATION MEASURE

Prediction of impacts is the most important component in the Environmental Impact Assessment studies. Several qualitative and quantitative techniques and methodologies are used to conduct analysis of the potential impacts likely to occur as a result of the proposed expansion activities on physical, ecological and socio-economic environments. The prediction of impacts helps to minimize the adverse impacts and maximize the beneficial impacts on environmental quality during pre and post project execution.



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Characteristics of Environmental Impacts from construction activities

Activity	Cause	Environmental Attributes	Impact Characteristics			
			Nature	Duration	Reversibility	Significance & Mitigation measures
Site Clearing	Earth Excavation	Air quality (Particulate matter)	Direct Negative	Short-Term	Reversible	Low, if regular water sprinkling done
		Noise levels	Direct Negative	Short-Term	Reversible	Low if PPE are used by workers
		Land use	Direct Negative	Long-Term	Irreversible	Low, as no need of land leveling for proposed expansion
		Ecology	Direct Negative	Long-Term	Reversible	Low as no cutting of trees
Transportation of construction material	Transportation of material in trucks and exhaust emission, noise generation, risk of accidents from vehicles	Air quality (PM, SO ₂ , NO _x , and CO)	Direct Negative	Short-Term	Reversible	Medium if regular emission checks are performed
		Noise levels	Direct Negative	Short-Term	Reversible	Low if regular vehicle maintenance is done
		Risk	Direct Negative	Long-Term	Irreversible	Low if safety measures are taken to prevent accidents
Construction activities	Operation of construction, welding activity for expansion unit	Air quality (PM, SO ₂ , NO _x , and CO)	Direct Negative	Short-Term	Reversible	Medium if regular emission checks are performed & water sprinkling done
		Noise levels	Direct Negative	Short-Term	Reversible	Low if PPE are used by workers



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Characteristics of Environmental Impacts from Operation phase

Activity	Cause	Environmental attributes	Impact Characteristics			
			Nature	Duration	Reversibility	Significance & Mitigation measures
Afforestation/ Green belt development	Planting of trees	Ecology	Direct Positive	Long-Term	Reversible	High positive impact, regular maintenance
Emissions from various unit processes and vehicular traffic	Unit operations vehicle operations & fuel combustion	Air quality (PM, SO ₂ , NO _x , and CO)	Direct Negative	Long-Term	Reversible	Low as ambient monitoring will be performed
		Noise levels	Direct Negative	Long-Term	Reversible	Low with periodical maintenance of vehicles
Employment generation	Direct & indirect manpower requirement	Socio-Economic	Direct Positive	Long-Term	Irreversible	High, Steady income for many families
Solid waste disposal	Generation of solid wastes	Land & soil	Direct Negative	Long-Term	Reversible	Low, Proper collection & disposal
Wastewater discharge	Generation of waste water/effluent	Water quality	Direct Negative	Long-Term	Reversible	Low as ETP of adequate capacity provided for existing effluent treatment & expansion with modernization will be done for additional effluent
Operation of boiler of the sugar & co-generation power plant	Emission of PM, SO ₂ , NO _x	Air quality	Direct Negative	Long-Term	Reversible	Low as Multicyclone & 60 m tall stack provided for existing boiler also ESP & 60m tall stack provided to proposed boiler



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14.1 Effluent Treatment Scheme:

Presently the crushing capacity is 3500 TCD & the sugar plant generates effluent about 295 M³/day. The existing effluent treatment plant having capacity 400 M³ is suitable for treatment of waste water of 295 M³/day.

The ETP system is provided such that maximum treated water is recycled for process and used for green belt/garden etc. thus achieves zero discharge

For proposed capacity of 6500 TCD SCSSKL it is envisaged that waste water generation will be about 533 M³/day. Therefore it has been planned to effect necessary additions/ alterations in the existing ETP like disinfection, sand filter and activated carbon filter to suit the increased waste water quantity of 238 M³/day and achieves zero discharge.

14.2 Air Pollution Management

Mathematical Modeling

Prediction of impacts on air environment has been carried out by employing a mathematical model. In the present case, **Industrial Source Complex Short-Term (ISCST3)** dispersion model based on steady state Gaussian plume dispersion, designed for multiple point sources for short term has been used for predicting the ground level concentrations. The computations deal with major pollutants like Sulphur dioxide and Suspended Particulate Matter and Oxides of Nitrogen.

Stack Details

Sr. No.	Stack Details	Unit	Existing Boiler Stack (22 & 35 TPH)	Existing DG Stack (500 & 500 kVA)	Proposed Boiler Stack (70 & 35 TPH)	Proposed DG Stack (750 & 750kVA)
1	Height	m	60	15	60	15
2	Diameter	m	3.0	1.5	2.5	1.8
3	Temperature	⁰ C	150	120	150	120
4	Velocity	m/sec	15	5.0	20	10
5	Volumetric Flow Rate	Nm ³ /sec	53.30	4.23	69.19	12.18
Emission						
1	PM	g/sec	2.67	0.21	3.46	0.60
2	SO ₂	g/sec	14.44	2.04	20.71	2.64
3	NO _x	g/sec	8.0	0.63	10.38	1.83



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The maximum incremental GLCs due to the proposed expansion project for PM, SO₂ and NO_x are superimposed on the maximum baseline PM, SO₂ and NO_x concentrations recorded during the study period in the downwind direction to arrive at the likely resultant concentrations during the same period after implementation of the proposed project.

The incremental concentrations of SO₂ and NO_x are considerable, they are well within the NAAQ limits and hence the AAQ levels after expansion of existing plant will remain within permissible limits.

Resultant Concentrations Due To Incremental GLC's

Parameters	Baseline Concentration (µg/m³)	Incremental Concentration (µg/m³)	Resultant Concentration (µg/m³)	Direction	Distance
PM	65.6	0.64	66.24	E	1.5-Km
SO ₂	18.6	10.02	28.62	E	1.5-Km
NO _x	10.2	0.70	10.9	E	1.5-Km

Air Pollution Emission Control Equipments (ECE):

For the purpose of arresting and capturing the pollutants, measures are proposed and designed. The following is discussed

Air Pollution generation & its mitigation measures at existing unit

#	Area of Operation	Air Pollution Mitigation Measures
1.	Boiler - 22 & 35 TPH	Stack height with 60 m, Multi cyclone system
2.	D.G. Set (500 KV Ax2)	3 m stack height
3.	Sugar House	Sugar dust catcher provided

Air Pollution generation & its mitigation measures at expansion unit

#	Area of Operation	Air Pollution Mitigation Measures
1.	Boiler - 70 & 35 TPH	Stack height will be provided as 60 m, ESP with adequate design
2.	D.G. Set (750 KV Ax2)	Adequate stack height will be provided
3.	Sugar House	Sugar dust catcher to be provided



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14.3 Solid Waste Management

Non hazardous Solid wastes such as bagasse, press mud are generated as process co- products (byproducts) from the industry. Press mud is supplied to member farmers for their used as bio-manure and Bagasse produced from the sugar factory is used as a fuel in the boilers for production of process steam. ETP sludge produced used as manure. Bagaasse ash as generated from boiler disposed to farmers for their use as soil conditioner in agricultural field.

Hazardous waste such as waste/residue containing oil would be mixed with bagasse & burnt in boiler.

14.4 Noise Mitigations

The potentially noise generation stations with mitigation measures are as follows

Noise mitigation efforts

	Source of noise	Attenuation by
1	Cane yard	Avoided by adopting smooth roads and yard
2	Milling plant	Avoided by adopting good foundation, good alignment, well lubricated machinery
3	Generators & DG sets	Fitted silencers and separate room provided
4	Steam in juice heater/evaporator/Pans & distillation process	Mild humming sound, but is not make-and-break type. This is inside the respective sugar unit & distillery column. The respective sugar unit/column is closed and jacketted by fiberwool all around (though basically foe thermal loss, also serves as barrier for noise, incidentally). The Sugar units/ distillery column itself is in closed building/sugar unit shed.
5	Release of steam	Only occasional and for a small duration of time. Line is not too long.
7	Aeration in ETP/CPU	Most efficient Diffused aeration system has been provided
8	ETP sludge composting	This machine is in open. However, smooth oiling, periodical overhauling, imported gears and level internal service roads are provided
9	Vibrations	Proper sturdy foundation provided for all the machines and equipments



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14.5 Greenbelt Development

The green belt will be developed to the tune of 14.13 acre. There under, about 700 no of trees existing in the factory premises & 3500 no. of trees will be planted in future.

The Layout plan of the green belt and tree cover in plant area is shown in **project layout** For existing green belt development trees are selected based on the type of pollutants, their intensity, location, easy availability and suitability to the local climate. They have different morphological, physiological, bio-chemical mechanism/ characters like branching habits, leaf arrangement, size, shape, surface, presence or absence of trichomes, stomatal conductivity proline content, ascorbic acid content, catalase peroxidase and sulphite oxidase activities etc to trap or reduce the pollutants

Species to be selected will fulfill the following specific requirements of the area.

- Tolerance to specific conditions or alternatively wide adaptability to eco- physiological conditions;
- Rapid growth
- Capacity to endure water stress and climate extremes after initial establishment
- Pleasing appearances
- Providing shade

15.0 ENVIRONMENTAL MONITORING PROGRAMME

The environment, safety and health-monitoring programme in the factory is implemented as follows:

- Regular monitoring of stack emissions
- Daily monitoring of water and wastewater
- Quality monitoring of ambient air, noise and work place air
- Monitoring of occupational safety

The project management, being aware and conscious of its responsibilities to environment, is committed that the project operations will be made keeping in line with the internationally accepted sustainable measures/practices and methods thus leaving negligible adverse impacts on any segment of environment due to expansion activity.



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16.0 ENVIRONMENTAL MANAGEMENT PLAN

Corporate Environmental Policy (CEP)

Shri Chhatrapati Sahakari Sakhar Karkhana Limited, (SCSSKL) at Bhavaninagar commit to improve Environmental Management System and minimize the impact of our manufacturing activity on the environment, on continual basis, by:

- complying with applicable environmental laws and regulations,
- establishing systems and processes which minimize /prevent pollution and foster conservation of resources.
- improving efficiency of all the operations through our proactive efforts in environmental management and incorporating cleaner technologies in the projects.
- establishing objectives and targets and the review of policy.
- enhancing the skills and competence of our employees to ensure sound environmental management.

Objectives of EMP are-

- a) To define the components of environmental management
- b) To prepare an environmental hierarchy
- c) To prepare a checklist for statutory compliance
- d) To prepare environmental organization To prepare a schedule for monitoring and compliance

Budgetary Provision for Environmental management plan

- Cost of EMP is Rs. 1136.05 Lakh.
- A Total capital & recurring cost EMP are presented below:

Details of Capital Cost and Recurring cost

Sr. No.	Particulars	Capital Cost (Lacs)	Recurring Cost per annum (Lacs)
1	Air Pollution Control	600	30
2	Effluent Treatment Facility	450	35
3	Noise Pollution Control	1.05	0.10
4	Environment Monitoring & Management	25.00	1
5	Occupational Health	--	5





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6	Green Belt Development	35	5
7	Rain Water Harvesting	15	--
8	CSR activity	10	--
Total		1136.05	76.1

17.0 PROJECT BENEFITS

- Improvements in Energy Efficiency
- Improvements in Physical Infrastructure
- Improvements in Social Infrastructure
- Improvements in Employment Potential

18.0 CONCLUSION

This industry will provide sugar, power as useful material for the Nation. This will not disturb the present land use because proposed expansion will be carried out within premises of existing sugar unit and No Prime Agriculture Land will be put to this industrial use. Trees will be maintained and not razed down. No Rehabilitation is involved. The problematic waste materials of sugar mills like press mud and bagasse will be utilized within the project. Industry already provided Job opportunities to local People in way of existing sugar plant, some incidental small employment like eatery, canteen, tyre repairs, garage too increased. This will be beneficial to the society. Due to this project, farmer will get more prices for sugarcane.

- This project is very necessary in view of converting waste bagasse, into useful steam and power .
- Production of sugar & power generation especially renewable power which the nation/state requires as a useful resource for development.
- The candidate site is suitable from general MoEF expectations.
- Water, power, Raw material and Market is assured and found available with ease.
- Full precautions will be taken for Pollution Control, Resource Conservation and Environmental Protection.
- This is cost effective and Sustainable Development.

