EXECUTIVE SUMMARY

Of Environmental Impact Assessment Report

Expansion of sugar unit from 4,000 TCD to 7,200 TCD

M/s. Padmashri Dr. Vitthalrao Vikhe Patil Sahkari Sakhar Karkhana Limited

A/p Pravaranagar, Taluka Rahata, District Ahmednagar, Maharashtra

Prepared by

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1.0 Introduction

M/s. Padmashri Dr. Vitthalrao Vikhe Patil Sahakari Sakhar Karkhana Ltd., (PDVVPSSKL) is a co-operative sugar mill located at Pravaranagar, Taluka Rahata in Ahmednagar district of Maharashtra state. It is the first successful cooperative sugar mill in Asia and as such the pioneer of the cooperative movement in the sugar sector. It was set up in the year 1948 and is registered under the Government of Maharashtra Co-operative Societies Act with registration numberG-254 dated 11/12/1948.Late Padmashri Dr. Vitthalrao Vikhe Patil was the founder of said factory. The mill is currently working under the guidance and dynamic leadership of Dr. Radhakrishna Vikhe Patil. The present installed crushing capacity of the sugar factory is 4,000 TCD. The management of the mill has undertaken extensive cane development activities and sugarcane plantation in area of operation has also increased. It was thus decided to modernize the existing plant to reduce the steam consumption and expand its crushing capacity from 4,000 TCD to 7200 TCD.

Awards/Recognitions: **National level awards**

1. 'Best Technical Efficiency Award'- Second prize in High sugar recovery sector in 1991-92 and 1992 – 93 by National Federation of Co-operative Sugar Factories Ltd., New Delhi
2. Best work in the field of agriculture, education and social in rural areas: Gold Medal in 1980 – 81
3. Self Defence Industries and National Character Institution (ISNC)

State level award

1. 'Best Technical Efficiency Award' – Third Prize in the year 2010-11 by Vasantdada Sugar Institute, Pune

1.1 Selection of Site:

The present site fulfills the industrial site selection criteria of MoEFCC/CPCB/MPCB. The basic raw material for the proposed project is sugarcane and estimated cane availability in the area is ~12 to 13 lakh tons per annum. Apart from this water and electricity is also available in the area. Reasonably good infrastructure, support facilities and labour etc. are available in the vicinity.

Table 1: Highlights of the project

1	Project Proponent	M/s. Padmashri Dr. Vitthalrao Vikhe Patil SahakariSakhar Karkhana Ltd.
2	Project location	Existing mill premises at village Pravaranagar, Taluka, Rahata, district Ahmednagar, Maharashtra

3	Land	Total land available with the mill is 272 acre; Total land for Sugar unit (Existing + expansion)= 7 acres Greenbelt Total (Existing 32+ proposed 3)= 35 acres
4	Project	Expansion of sugar unit from 4,000 to 7,200 TCD
5.	Main Raw Material	**Sugar Unit**(based on operational capacity) • Sugar Cane: 7,200TPD • Lime: 13.68TPD (0.19% Cane) • Sulfur: 3.45TPD (0.048% Cane)
6	Product	**Sugar Unit**(Production figures are based on operational capacity of 7,200 TCD) i) White Sugar: ~884.88 TPD (12.29% on cane) ii) Bagasse (generation 28.49 % on cane): ~2051.28 TPD iii) Molasses (3.79 % on cane): 272.88 TPD iv) Press mud (3.70% on cane): 266.4 TPD
7.	Operational Days	Average crushing season of 160 days and maximum up to 180 days
8.	Water Requirement and source	339 m^3/day Pravara Left bank canal with permission for 20.67 lakh cubic meter per annum
10	Fuel	BagasseRequirement = 54 TPH for 7200 TCD capacity
12	Power	Power requirement: 23 KWhr Source: 30 MW power plant of Pravara Renewable Energy Ltd. (PREL)
13.	Boiler	Existing boiler of 160 TPH with steam pressure of 110 Kg/cm^2will be used
15.	Air pollution control device	ESP in place as air pollution control device for existing boiler of 160 TPH which is sufficient; hence, no APC device is proposed for the project
15.	Stack height and inner diameter	existing stack of 92 m height and 4 m inner diameter
16.	Manpower	expansion unit: 40 persons
17.	Project Cost (Expansion)	Rs. 1,575 lakh
18.	EMP Cost	Rs. 285 lakh

2.0 RAW MATERIALS

2.1 Cane and bagasse

Table 2: Expected cane availability for next four years

S. No.	Season	Sugarcane Area (Ha)	Yield (Tons per Ha)	Sugarcane Available MT
1.	2017-18	15,714	70	11,00,000
2.	2018-19	16,800	75	12,60,000
3.	2019-20	16,500	78	12,87,000
4.	2020-21	16,500	80	13,20,000

Table 3: Bagasse balance for the proposed project(@7200TCDand 180operation days)

Description	Quantity, (MT)
Cane crushing rate @ 300 TCH	12,96,000.00
Bagasse production (180 days) @ 28.49% = 2051.28 TPD	3,69,230.4
Bagasse utilization during seasonal operation 118.75/2.2 = 54x24	1296 TPD
for 118.75 TPH steam generation @ fuel / Steam ratio 1: 2.2	2,33,280 TPA
Less Bagacilo	2585.00 TPA
Bagasse saving during season	**1,33,365.4**

2.2 Steam and power

The mill obtains its steam and power from PREL which has one boilerof160 TPH capacity with 110Ata pressure. After proposed expansion, the mill will require maximum 125 TPH steam, thus the existing boiler will be sufficient for proposed expansion. Similarly, power of ~7500 KWh will also be sourced from PREL.

2.3 Water

The mill is having permission to lift water from Pravara left bank canal, upto 20.67 lakh cubic meter per annum. Water will be required for domestic, process and utility purpose. Daily fresh water requirement for the proposed expanded capacities of sugar unit will be 339 cu.m.per day during season.

2.4 Manpower

The proposed expansion will make use of existing staff with few additions i.e. new staff. Necessary manpower must meet the specific requirements of modern technology. The sugar mill will employ

qualified and trained plant operation and maintenance personnel. The operating team and major equipment vendors shall provide training of personnel.

3.0 THE PROCESS

In India, double sulphitation process is used to manufacture plantation white sugar. The manufacturing process consists of following steps.

- **Extraction of Juice**

The sugarcane is passed through preparatory devices like knives for cutting the stalks into fine chips before being subjected to crushing in a milling tandem comprising 4 to 6 roller mills. In the best milling practice, more than 95% of the sugar of cane gets extracted into the juice.

- **Clarification**

The treated juice on boiling fed to continuous clarifier from which the clear juice is decanted while the settled impurities known as mud is sent to rotary drum vacuum filter for removal of unwanted stuff called filter cake. It is returned to the field as fertilizer.

- **Evaporation**

The syrup is again treated with sulphur dioxide before being sent to the pan station for crystallization of sugar. Crystallization takes place in single-effect vacuum pans, where the syrup is evaporated until saturated with sugar. At this point “seed grain” is added to serve as a nucleus for the sugar crystals, and more syrup is added as water evaporates.

- **Centrifugation**

The massecuite from crystallizer is drawn into revolving machines called centrifuges. The perforated lining retains the sugar crystals, which may be washed with water, if desired. The mother liquor “molasses” passes through the lining because of the centrifugal force exerted and after the sugar is “purged” it is cut down leaving the centrifuge ready for another charge of massecuite.

- **Gradation & Packing**

The final product in the form of sugar crystal is dropped through pan section and this sugar is graded and picked in 50 kg bags. The grade of the sugar depends on the size of the crystal viz. Small (S) and Medium (M)

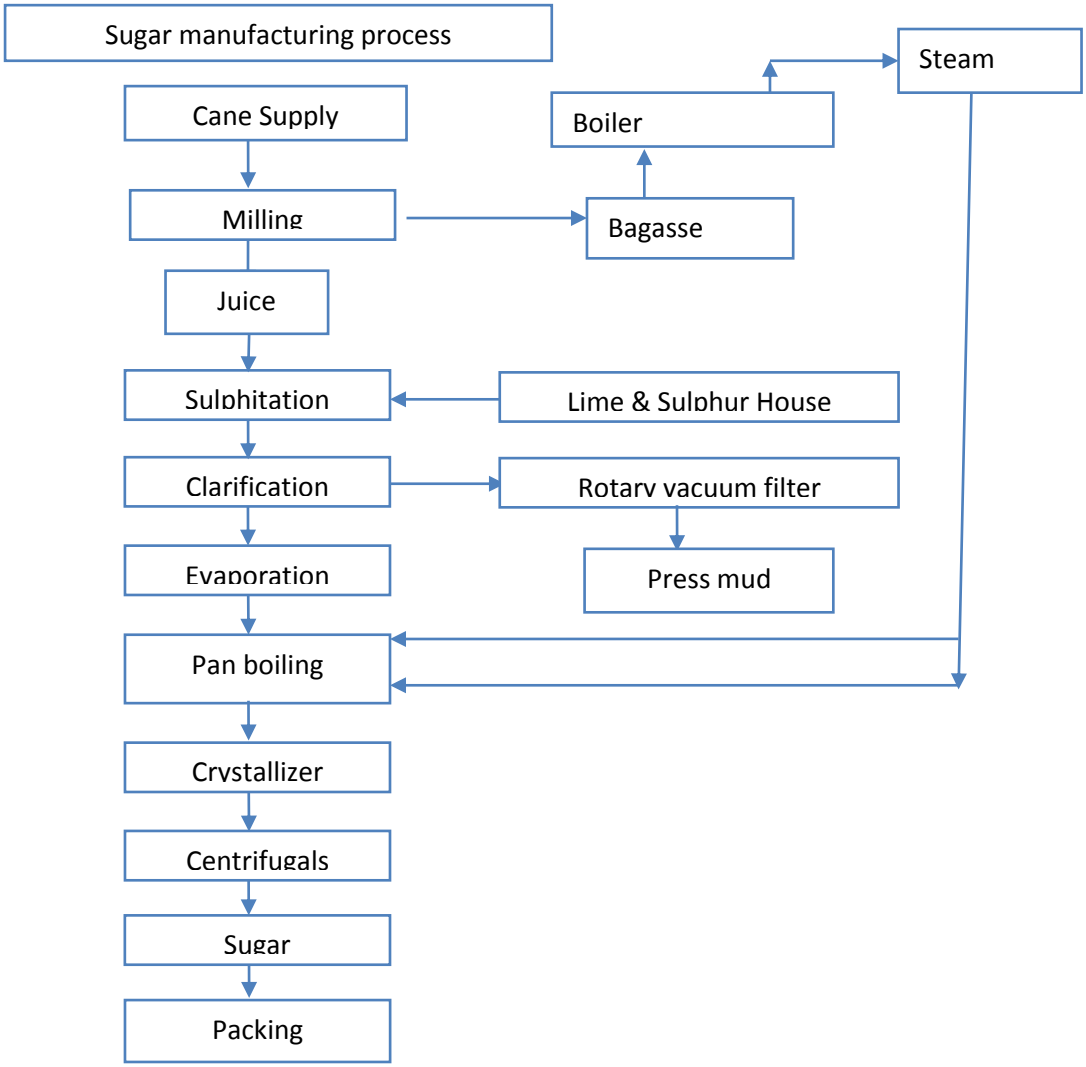

Figure 1: Flowchart of sugar manufacturing process

3.1 Technical Features proposed expansion activity

The equipment in milling house, boiling house and centrifugal house and sugar house will be modified to make it suitable to increase crushing rate to around7200 TCD installed capacity. All modification will be done by considering the maximum efficiency.

4.0 Environmental Aspects: Air Pollution

The sugar industry uses its byproduct bagasse as a fuel. Bagasse is a source of renewable energy and helps to reduce SOx emissions when used for generation of steam and power instead of coal. Bagasse is easily and readily available in adequate quantity.

Estimated quantity of ash likely to be generated from the project (At 7200 TCD) is as follows.

Bagasse used to meet steam requirement	= 1296 TPD (during season -max. quantity)

Ash content	= 2.00 %
Total Ash generated	= 25.92 TPD (1080 kg/hr)
Out of this about 30 % will be bottom ash while 70 % will be fly ash, which will be released, through stack. However, by installing electro static precipitator, the fly ash will be entrapped and collected.	
Bottom Ash	= 324 Kg/hrs
Fly Ash	= 756 Kg/hrs
Fly ash collected	= 740.88 Kg/hrs (Max. efficiency)
Percentage efficiency of air pollution control device (Electrostatic Precipitators is 98%)	
Fly Ash emission	= 15.12 Kg/hr= 4.2 g/sec
Stack height requirement based theoretical calculation for PM emission	= 60meter (Existing92 meter)

4.1 Water Pollution

Table 4: Estimation of wastewater sources, quantity and characteristics

#	Source of waste water	Quantity of waste water	Characteristics of waste water
1	Effluent from milling house	~470 m^3/day	• BOD- 900 to 1,000 mg/L, • Oil and grease- 150 to 200 mg/L • COD - 2,500 mg/L
2	Boiling house	~57m^3/day	• BOD - 800 to 1,000 mg/L • COD - 2000 to 2500 mg/L.
3	Excess Condensate	1232 m^3/day	-----
4	Spray Pond overflow	720 m^3/day	• BOD – 15-30 mg/L • COD – 30 -60 mg/L • TDS – 2200 -2300 mg/L
5	Floor washing	0.5 m^3/day	-----
6	Sanitary wastewater	50 m^3/day	• BOD - 400 mg/l.

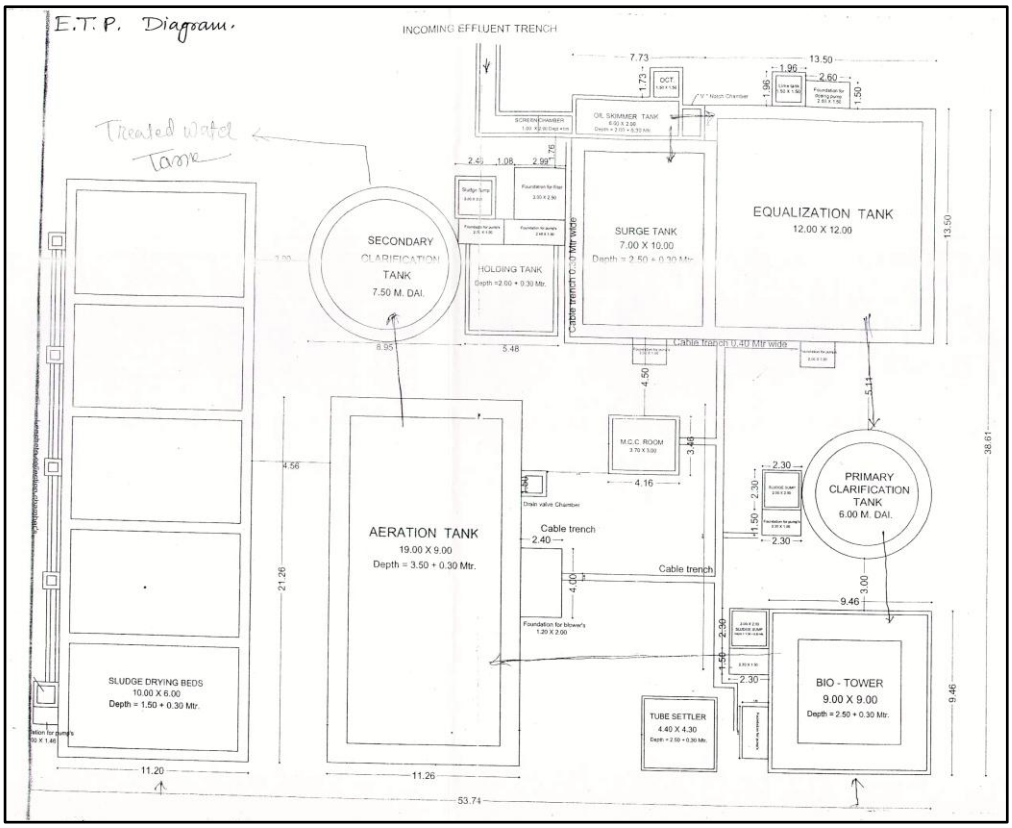

Figure 2: Existing ETP at sugar mill

In the proposed project it is planned to install, a sewage treatment plant of 50 m^3/dayto treat the domestic wastewater.

4.2 Byproducts and solid Waste

Bagasse, press mud and molasses are byproducts of the process and used as raw material at some other places. Thus, the ash generated in the boiler (fly as well as bottom) and the sludge from ETP, STP are the main solid waste. After proposed expansion, about 2051 TPD of bagasse will be generated. It will be mainly used as a fuel for own sugar, cogeneration and distillery unit. Production of press mud will be around 266 MT/day. Press mud will be sent to distillery unit for making compost by mixing it with spent wash (distillery effluent). Expected quantity of molasses production will 273 TPD, it will be used as a raw material in the distillery unit of own sugar mill. Total ash generation during crushing season will be maximum 4666 MT per season. Bagasse ash is rich in potash; hence, it will be distributed to member farmers to apply in agriculture field. ETP and STP sludge is organic in nature. Estimated generation of dry sludge will be about 70-80 TPA. This sludge will be mixed into soil as a manure.

Greenbelt: The sugar mill has developed greenbelt over 32 acres of land, which will be extended by three acres to make it adequate (33% of the plot under industrial activity).

5.0 BASELINE ENVIRONMENTAL CONDITIONS

The baseline study and primary data collection was carried out during summer of 2017 i.e. March to May 2017.

Table 5: Summary of Environmental features of study area

#	Facet	In brief
1	General characteristics	Hot and dry
2	Rainfall	An average annual rainfall is 520 mm Rains are received mainly during June-September months
3	Temperature	Avg. maximum temperature in summer is around 38°C and minimum temperature in winter is around 10°C
4	Humidity	maximum humidity ranges between 60 to 80 percent in the month of August and minimum humidity ranges from 20 to 30 percent in the months of March and April
5	Wind	Predominant wind direction is North West followed by West and the average wind speed was 2.11 m/s during the study period
6	Land use	Agricultural land area is 90.40 %, scrub land 1.97 %, built up area 3.63%, hamlets 1.60 % and water bodies 1.11%
7	Air Quality	Complies with NAAQ standards of Nov. 2009 at all monitored locations
8	Noise	Complies with the standard
9	Groundwater	Slightly alkaline, good for irrigation purposes throughout the district. However potability is affected at some places due to high nitrate and total hardness
10	Soil	Coarse shallow soil, medium soil and deep black soil in some areas
11	Nearest sanctuary	Bhimashankar Wildlife Sanctuary and Rehkuri Sanctuary are at ~117 km from the site

5.1 Land use

Table 6: Land use/ Land cover statistics for the study area of ten km radius

Sr No.	Class Name	Area (Ha)	Area (%)
1	Crop land	28398.61	90.40
2	Scrub land dense	606.71	1.93

3	Scrub land open	12.86	0.04
4	Mining/Industrial area	184.91	0.59
5	Pond	126.27	0.40
6	Canal	74.45	0.24
7	River/Stream/Drain	348.44	1.11
8	Road	19.84	0.06
9	Hamlets	503.44	1.60
10	Settlement	1139.97	3.63

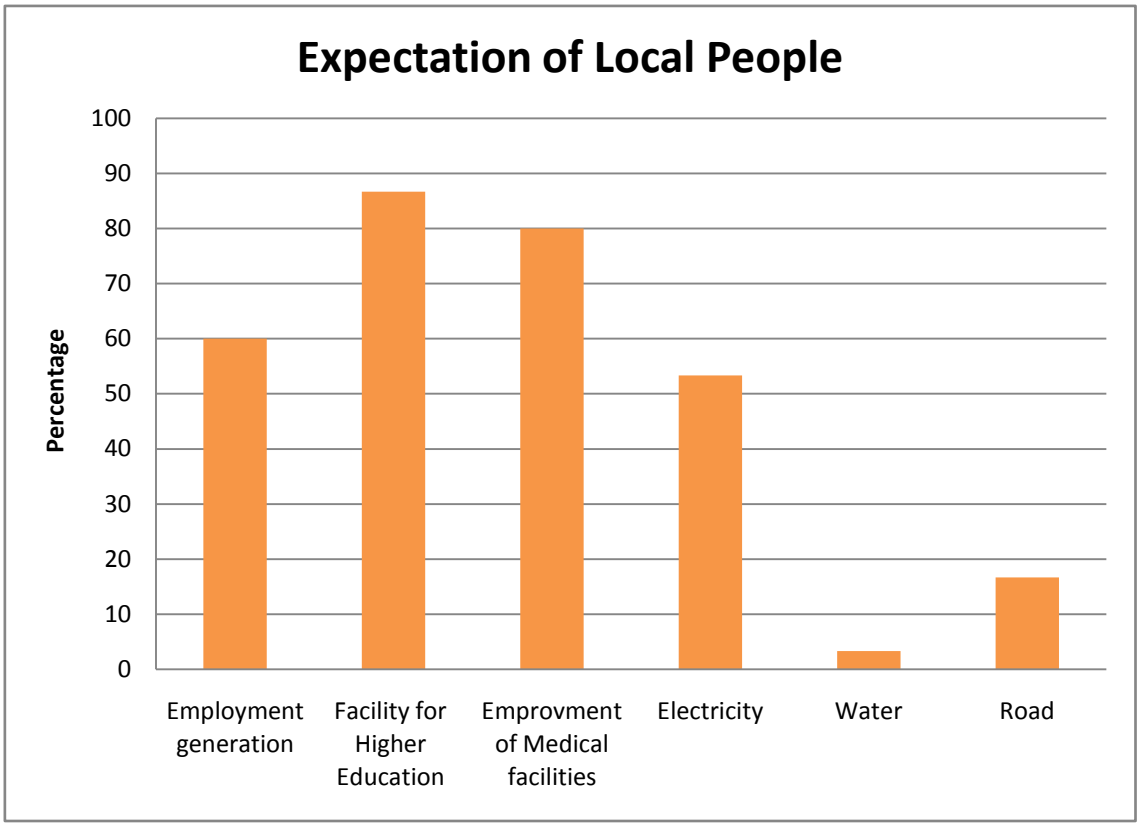

Figure 3: Expectations of local people from proposed project

6.0 IMPACT ASSESSMENT

The proposed expansion is within the existing sugar mill premises. The machinery required for the proposed expansion will be accommodated within existing industrial shed. Therefore, the construction activities will be minor and in the form of godown/s, ETP upgradation etc. Thus, construction activity will cause minor negative impact on the overall environment.

6.1 Air Dispersion Modeling

Table 7: Summary of Maximum 24-hour GLC due to proposed project

Description	Concentration µg/m^3

	PM	SO_2
Maximum rise in GLC	0.893	1.484
Direction of Occurrence and distance	East (0.90 Km)*	East (0.90 Km)*
Coordinates of maximum GLC	$19^0$34’10’’N	$19^0$34’10’’N
	$74^0$30’43’’ E	$74^0$30’43’’ E
Baseline Concentration reported nearby GLC (at 2.80 km E)	68.85 (Tisgaon)	16.70 (Tisgaon)
Total Concentration (Post project scenario)	69.74	17.20
NAAQS	**PM_{10}100**	**80**

*The distance is measured from stack to the receptor of maximum GLC

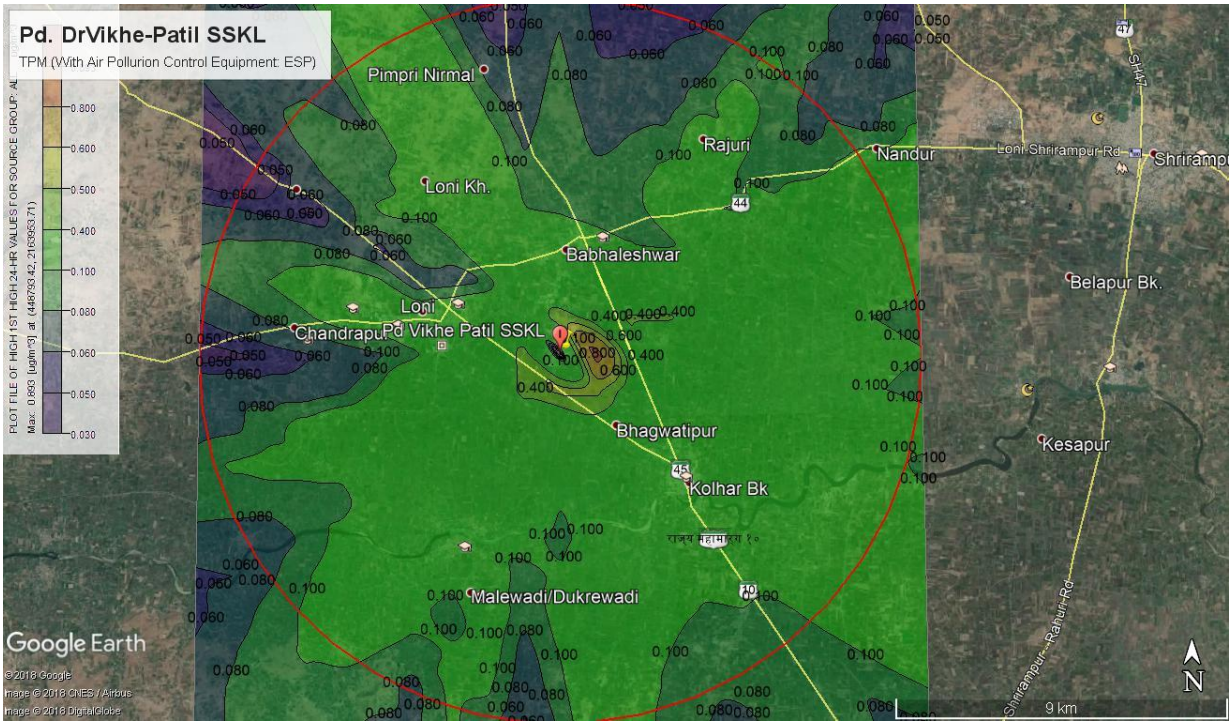

Figure 4: Short term 24 hourly GLCs of PM

Table 8: Summary of Impact Assessment and environment management plan proposed for the respective aspect

Activity	Aspect	N/AB/E	Impact	Receptor	Legislative concern (Y/N)	Concern of interested parties (Y/N)	Business opportunity (Y/N)	Significance assessment				
								X	Y	Z	F	Total
Burning of fuel – bagasse – for process steam	Air pollution: Contamination of ambient air due to emission of Particulate matter (PM), SOx and NOx through flue/stack gas emissions	Normal (in a situation when APC system works properly)	Levels of PM, SOx and NOx anticipated to increase marginally but be within NAAQS – minor impact on human health due continuous exposure to PM	Workers, villagers, agricultural and wild vegetation, domestic and wild animals	Yes	No	No	2	2	4	5	80
		Abnormal	Level of PM anticipated to be high – moderate impact on human health till the situation returns to	Workers, villagers, agricultural and wild vegetation, domestic and wild animals	Yes	No	No	3	3	1	3	27

Activity	Aspect	N/AB/E	Impact	Receptor	Legislative concern (Y/N)	Concern of interested parties (Y/N)	Business opportunity (Y/N)	Significance assessment				
								X	Y	Z	F	Total
			normal; significant impact on plants; minor impact on terrestrial fauna									
		Emergency	Level of PM anticipated to be high-Significant impact on human health as well as plant (esp. crops)	Workers, villagers, agricultural and wild vegetation, domestic and wild animals	Yes	No	No	5	5	2	2	100
Handling of bagasse and ash	Air pollution: increase in particulate matter due to fugitive	Normal	Levels of PM anticipated to increase, mainly at workplace	Workers within premises and to some extent,	Yes	Yes	No	3	1	4	5	60

Activity	Aspect	N/AB/E	Impact	Receptor	Legislative concern (Y/N)	Concern of interested parties (Y/N)	Business opportunity (Y/N)	Significance assessment				
								X	Y	Z	F	Total
	emissions			residents in the surrounding								
Vehicular movement	Air pollution: Due to vehicular emissions mainly of Particulate matter (PM), NOx, HC	Normal	Increase in air pollution due to increase in the vehicle number plying on the roads	Residents along the roads, workers within the mill premises, and vegetation along the road	Yes	Yes	Yes	3	5	3	5	225
Operation of machineries and equipments for process	**Noise and vibration:** Noise and vibration generation due the operation of the	Normal	Impact on health of workers due to continuous exposure to different levels of noise as well as vibrations	Mainly workers and the residents in the immediate vicinity of the mill	Yes	No	No	2	2	4	5	**80**

Activity	Aspect	N/AB/E	Impact	Receptor	Legislative concern (Y/N)	Concern of interested parties (Y/N)	Business opportunity (Y/N)	Significance assessment				
								X	Y	Z	F	Total
	machinery											
Transportation	**Noise and vibration**	Normal	Impact on health of workers and residents along the road due to exposure to different levels of noise as well as vibrations	Mainly workers and the residents along the roads	Yes	no	no	2	5	3	5	150
Fresh water utilized for process	Fresh water availability for other users from the existing water source	Normal	No impact envisaged as the water drawl will be within the limits specified in the sanction letter of irrigation department	Villagers in the vicinity, domestic animals	No	No	No	2	5	2	2	40

Activity	Aspect	N/AB/E	Impact	Receptor	Legislative concern (Y/N)	Concern of interested parties (Y/N)	Business opportunity (Y/N)	Significance assessment				
								X	Y	Z	F	Total
		Abnormal	Other users may get affected in water scarcity situation	Villagers in the vicinity and domestic animals	Yes	No	No	5	5	4	2	200
Wastewater generation from various project activities, its handling, treatment and disposal	Water and soil pollution: Contamination of surface or ground water, Contamination of soil	Normal	In normal situation, no negative impact is envisaged on surrounding ecology; because measures proposed are adequate	Waterbodies in the nearby areas, residents, domestic and wild animals	Yes	No	No	2	3	2	2	24
		Emergency	Probability of such contamination will be high (in	Villagers in the vicinity, domestic animals,	Yes	Yes	No	4	5	3	2	120

Activity	Aspect	N/AB/E	Impact	Receptor	Legislative concern (Y/N)	Concern of interested parties (Y/N)	Business opportunity (Y/N)	Significance assessment				
								X	Y	Z	F	Total
			emergency situation) and thus impact on aquatic as well as terrestrial ecosystem could be observed depending upon the degree of contamination	water bodies in the vicinity								
Construction of various units	Change in land use	Normal	No change in land use as mill expansion is through modernization.	Vegetation existing on the site, birds and animals,	No	no	no	1	1	2	1	02
	Change in vegetation	Normal	No negative impact envisaged as no new construction is required	Vegetation existing on the site, birds and animals, villagers in the vicinity	No	No	No	2	2	4	2	32

Activity	Aspect	N/AB/E	Impact	Receptor	Legislative concern (Y/N)	Concern of interested parties (Y/N)	Business opportunity (Y/N)	Significance assessment				
								X	Y	Z	F	Total
Solid waste generation from process	Water and soil pollution: Contamination of surface water, Contamination of soil	Normal	In normal situation, no negative impact is envisaged on surrounding ecosystems; because measures proposed are adequate	Water bodies and soil in the nearby areas, residents, domestic and wild animals	Yes	No	Yes	2	2	1	2	06
Process and allied activities such as transportation, storage, transmission, treatment and disposal	Risk and Hazard	Emergency	Negative impact envisaged	Workers, villagers, vegetation at site and surroundings, wild fauna	Yes	Yes	No	5	3	2	2	60
	Socio-economy	Normal	Positive impact is envisaged due to employment generation, recycling of nutrients from waste, development due to power (electricity)		No	Yes	Yes	5	5	4	5	500

X= severity (very low (1), low (2), moderate (3), high (4), very high (5);

Y = area – coverage within premises (1), close vicinity outside premises (2), up to 3 from project boundary (3), 3-5km from project boundary (4), and >5km from project boundary (5)

Z = Duration (very short (1), short (2), medium(3), medium to long (4), prolong periods (5);

F = Frequency -remote(1), rare (2), intermittently (3), frequently (4), daily (5)

Highest score = 625; considerable impact score: >310 (considering 50% of highest score)

7.0 FIRE PROTECTION SYSTEM

The mill is having its own firefighting vehicle as well as hydrant network, one electric driven pump, one diesel engine driven pump, one jockey pump, piping etc. Portable fire extinguishers are provided at strategic locations viz power house, control rooms, switch yard. The types and details are mentioned in table 9.

Table 9: Details of existing firefightingequipment

Sr. no.	Particular	Specification details	Number
1	Fire Fighter(Foam Tender) Water and chemical Foam	2700 lit (Water)	01
2	Fire Engine (Kirloskar)	7.5 Hp	01
3	Fire Engine (Jawahar)	10 Hp	01
4	Fire Engine (Portable)	5 Hp	01
5	Fire Electric Pump	5 Hp	02
6	Hydrant valve @ Bagasse Yard	-	07
7	Hydrant valve @ Sugar Godown	-	07
8	Hydrant valve @ Bagasse Depot	-	17
9	Fire Buckets (Water)	7 lit	20
10	Fire Extinguishers: Soda Acid Type	9 lit	23
11	Fire Extinguishers: Foam Type	9 lit	05
12	Fire Extinguishers: Dry Chemical Powder	4.5 Kg	09
13	Fire Extinguishers: CO_2 Type	9 Kg	15

8.0 ENVIRONMENT MANAGEMENT PLAN

Table 10: Environment management plan: operation phase

Source	Pollutant	Control/Mitigation
	AIR ENVIRONMENT	
Stack emissions due to burning of bagasse	Main pollutant PM	• Existing Stack92 m height is adequate • ESP is in place for existing boiler to control fly ash particles • Existing Greenbelt of 32 acres, proposed of

		03 acres to cover 33%of the industrial plot area
	SOx , NOx	Bagasse contains traces of N and S In bagasse fired boilers, the temperature encountered is <1000^{0}C due to 50% moisture in the bagasse; hence NO_x emissions from combustion in the form of NO_2 will be in traces
Fugitive dust from Handling and transport of bagasse and ash; dust generated from roads, etc.	PM	Mechanized system for handling of bagasse as well as ash; Existing internal roads are asphalted – the same will be used after expansion; Adequate parking places for goods and private vehicles
DG sets	NOx, HC	DG set less utilized due to captive power; Regular maintenance; compliance of statute and guidelines
ETP unit	HC emission	Proper operation process
WATER ENVIRONMENT		
Manufacturing Process	Major source – effluent from milling section, boiling house, centrifugal house, boiler blow down etc.	• Existing sugar ETP will be upgraded so as to treat effluent of720m^3/day from proposed units (after expansion) • In existing unit, spray pond over flow is collected separately, primary treatment is given and utilized for irrigation. Same will be followed after expansion (quantity 720 m^3/day) • ETP treated water will be reused for greenbelt/irrigation (own agricultural plots) • Process condensate from sugar unit will be recycled (partially); due to which the fresh water drawl will get reduced considerably

		• Rain water harvesting
	Thermal pollution	
	Sources: boiler blow down excess condensate and cooling tower blow down.	• Excess condensate will be cooled and used for irrigation • Hot water (used for cooling) will be collected and cooled in separate ponds/tanks and recycled after cooling
Sewage	Domestic wastewater	Treated in sewage treatment plant and treated water will be used for gardening
	SOLID WASTE	
Boiler	Ash	Bagasse ash is rich in potash, thus used to enrich the soil; Provision of greenbelt for natural control of particulate matter
ETP (Sugar unit)	Sludge	Organic and degradable hence, mixed with soil
	NOISE	
Process machineries	Mainly Boiler, STG, pumps and motors	Noise sources/ noise generating activities will be under roof/in covered area; Regular maintenance of machinery; Provisions of personal protective equipments; Job rotation at high noise work places; Regular health check up; Walls and trees will help to attenuate noise and Greenbelt expansion
	Transportation	Regular maintenance of vehicles Well maintained internal roads and adequate parking will reduce traffic congestion and noise due to it

9.0 SAFETY, OCCUPATIONAL HEALTH MANAGEMENT

The goal of all occupational health and safety programs is to foster a safe work environment. In this project, aspects of Safety and Occupational Health are given with the due consideration, over and above applicable legislations such as Factories Act 1948. Extra attention will be paid to provide measures for ensuring safety and health of workers and as well integrity of plant. This will be done by applying following national or international standards.

- Use of flameproof electrics

- Suitable operating procedures shall be adhered for overall safety and health
- DG sets of appropriate ratings and as per the CPCB guidelines will be provided to ensure the uninterrupted supply of power and thus for safety of plants and workers
- Smoking and igniting activities are strictly prohibited in the entire unit
- Existing Firefighting system should be modified suitably so as to make it suitable for proposed project (as per the statutory guidelines)
- Regular medical checkup of workers, contractual workers and employees
- Group insurance and medical insurance facilities provided in the existing setup should be extended after proposed expansion.

Facilities at existing sugar unit such as drinking water facility, canteen, toilet and bathrooms, Firefighting vehicle, ambulance, first aid facility, safety gears and PPE will be made available to workers, as well as to the visitors and transporters.

Schedule of medical check-up during operational phase

- Comprehensive pre-employment medical checkup for all employees
- General checkup of all employees (including contractual employees and casual labour) once every year (the industry is doing it for existing unit)

Table 11: Financial provision for ESC (CSR) activities planned for next five years

CSR activity head	Year					TOTAL
	1st	2nd	3rd	4th	5th	
	Budgetary provision (Rs. in lakhs)					
A. Drinking Water						
Regular supply of drinking water to nearby villages through tanker	10	10	12	15	15	**62**
Construction of water storage tanks/repair or maintenance	5	7	7	10	15	**44**
Sub-Total for A	**15**	**17**	**19**	**25**	**30**	**106**
B. Health facilities						
Health check-up of workers and their family members	3	4	4	5	5	**21**

CSR activity head	Year					TOTAL
	1st	2nd	3rd	4th	5th	
	Budgetary provision (Rs. in lakhs)					
Organizing medical camps	1	2	2	3	3	**11**
Medical aid to needy people, etc.	4	5	5	7	7	**28**
Sub-Total for B	08	11	11	15	15	**60**
C. Education						
Training to staff	2	2	4	4	6	**18**
Training to local farmers	2	2	2	4	4	**14**
Educational aid to local schools, colleges, etc	5	5	7	7	9	**33**
Sub-Total for C	**9**	**9**	**13**	**15**	**19**	**65**
D. Livestock care						
Providing water, fodder and veterinary facilities for local domestic animals	02	02	02	02	03	**11**
E. Environment monitoring and Greenbelt development	03	03	04	04	05	**19**
Other activities for maintaining social and cultural harmony	02	02	03	03	04	**14**
TOTAL BUDGETARY ALLOCATION FOR NEXT FIVE YEARS						**275**

Table 12: Estimated capital cost of proposed expansion

Sr. No.	Particulars	Amount (Rs. in Cr.)
1.	Civil work and building	2.35
2.	Plant and machinery (including taxes and duties)	8.75
3.	Preliminary, pre-operative and other expenses	2.60
4.	Miscellaneous fixed assets	0.75
5.	Contingencies	0.75
6.	Margin Money	0.55
	Total	**15.75**

Environment Management Cost

Table 13: Budgetary allocations for environment management

Sr. No.	Particular	Capital Cost (Rs. in lakhs)	Recurring cost (Rs. In Lakhs)
1	Air pollution control equipments (ESP)	--	25.00
2.	Ash & bagasse handling/Solid waste management	75.00	25.00
3.	Cooling tower	40.00	05.00
4.	Fire protection	10.00	10.00
5.	Greenbelt	15.00	05.00
6.	Water pollution control and ETP modification with new STP	125.00	32.00
7.	Occupational Health	-	05.00
8	Rain water harvesting	20	2.0
9.	Environment monitoring and management	-	10.00
	Total	**285.00**	**110.0**

10. CONCLUSION

The mill is in operation for about 69 years. During this period, it has made progressive development of the unit as well as of the local villagers. There are >13,000 families which are involved in cane cultivation, harvesting and transportation, will be benefitted due to the project. The expansion of sugar unit will fulfill the demand of local cane growers.

The mill is following all norms and guidelines for prevention and control of pollution (air, water, land and noise). As a result, it will be able to maintain environmental conditions. Considering voluminous development on socio-economy front and sincere commitment of the mill for maintaining environmental attributes, the proposed project will be sustainable.