EXECUTIVE SUMMARY

1. INTRODUCTION

This EIA report has been prepared for Phase-II project by Shri Vithal Sahakari Sakhar Karkhana Ltd. (SVSSKL). SVSSKL proposed sugar modernization from 5000 TCD to 7500 TCD by crushing capacity addition of 2500 TCD & bagasse based cogeneration power expansion from 10 MW to 29.8 MW by capacity addition 19.8 MW at Shri Vithal Sahakari Sakhar Karkhana Ltd. Gut No. 299, 300,301,302, 150 (A) Venunagar, Post – Gursale – 413 304 Tal. Pandharpur, Dist. Solapur Maharashtra.

Shri Vithal Sahakari Sakhar Karkhana Ltd. (SVSSKL) has been registered under registration no. SUR/PRG/(A)-4 dated April 6, 1974. It is an agro based co-operative sugar factory focused on manufacture of sugar, co-gen power generation and ethanol production. The capacity of this sugar factory has grown over the years, from 1250 TCD in 1974 to 5000 TCD today. They have already established and running a fully integrated sugar industry consisting of 5000 TCD sugar plant, 30 KLD distillery and 10 MW co-gen power plant. The performance of the sugar factory is excellent. Now the company has decided to expand its sugar manufacturing activities along with cogeneration power plant within the same premises.

Sugar has been historically classified as an essential commodity and has been regulated across the value chain. The heavy regulations in the sector artificially impact the demand-supply forces resulting in market imbalance. The increase in sugar consumption is mainly a function of four demand determining variables: - Population, income, consumption habit and the growth of the industrial & service sector, mainly hotels & restaurants as well as the food and beverage industries.

The State of Maharashtra is poised for rapid industrial development and large-scale use of electricity for industrial purposes, for which the demand for electrical power is continuously increasing. The present demand for electrical power is greatly in excess of the generating capacity. The power generation scenario in the state reveals that the demand for power would continue to out-strip the available and planned generation capacity

The Seventeenth Electric Power Survey of India (draft) published by the Central Electricity Authority (CEA) projects an increase in the peak demand in Maharashtra from 19,388 MW in 2009-2010 to 21954 MW in 2011-2012. The energy demand is expected to increase from 124,961 MU in 2009-2010 to about 125,661 MU in 2011-2012. Thus there is a deficit of 3632 MW. The peak power demand will be of 28348 MW and availability of energy 25124 MW in the year 2016-2017. Demand is expected to reach 219.9 BW by 2018. Deficit in peak demand is expected to increase substantially and there would be deficit in energy availability due to industrial growth in the subsequent years. In order to reduce power deficiency in Maharashtra Shri Vithal Sahakari Sakhar Karkhana Ltd. (SVSSKL) trying to contribute by proposing 19.8 MW Bagasse Based Cogen Power plant The area under sugarcane command area is about 21726 Ha. The expected net cane availability since 2012-13 crushing season will be over 16.00 lakh MT. The excess sugarcane is being remain uncrushed & hence SVSSKL management has decided to increase the crushing rate to take care of the additional sugarcane cultivated in the area of operation. SVSSKL management has acknowledged the inefficient operation due old machineries & wear –tear hence there is need to be modernized.

The present operating capacity is about 5000 TCD. The proposed installed capacity of the plant will be increased to 7500 TCD. Thus, the incremental installed capacity will be 2500 TCD.

The sugar mill complex also has in-house 10 MW capacity cogen power plant, Phase- I, which was commissioned during the beginning of 2010-11 crushing season. Now factory has been decided to expansion of cogeneration power to 29.8 MW by installing new 19.8 MW cogen power plant due to incremental capacity of sugar factory & excess bagasse generation.

1.1 Fuel Alternatives

Fossil energy resources consist primarily of natural gas and furnace oil. Domestic oil supply is considered negligible and natural gas resources are becoming scarce in India.. Moreover, domestic coal is very high in sulphur and ash content, which will lead to severe environmental hazards. The project's proposal for using high quality imported coal, after

bagasse, is the best option for environmental and economic reasons. In the absence of any cheaper fuel, bagasse utilization is of prime importance.

1.2 Growth of Bagasse Cogen Power

India is blessed with an abundance of non-depleting and environment friendly renewable energy resources such as solar, wind, biomass and hydropower. Recognizing this potential, the Indian government has accorded a high priority to exploring and harnessing the potential. Over the years, the Ministry of New and Renewable Energy (MNRE) has been facilitating the implementation of broad spectrum programs. The progress since the turn of the century has been particularly marked with the total grid interactive renewable power generation capacity reaching more than 14,000 MW by March 2009 vis-à-vis a paltry 1,628 MW in 2001-02. Presently, renewable energy accounts for over 9 percent of the total installed capacity as compared to 1.5 percent in 2001-02.

1.3 Scope of The Study

MITCON Consultancy & Engineering Services Ltd., Pune has been entrusted the task of carrying out EIA/EMP studies in order to obtain regulatory clearances from the Maharashtra Pollution Control Board and the Expert Appraisal Committee (EAC) for the proposed sugar modernization & cogen expansion. The EIA studies were carried out for various environmental components so as to assess the anticipated adverse impacts due to the proposed facilities and to suggest suitable mitigation measures.

Expert Appraisal Committee (EAC-T), MoEF for the Environmental Appraisal of its 56^{h} meeting held during September 3-4, 2012, has issued ToR for the preparation of the EIA report, based on the documents submitted and presentation made by the project proponent. ToR issued by MoEF as per vide letter no. J-13012/34/2012- I A. II (T)

As per the EIA notification dated 14th September 2006 of the Ministry of Environment & Forests (MoEF), New Delhi EIA report is prepared (Appendix – III).

1.4 Project Location

The proposed project located at Gut No. 299, 300,301,302, 150 (A) Venunagar, Post – Gursale – 413 304 Tal. Pandharpur, Dist. Solapur Maharashtra. Site comes under Gursule Grampanchyat Jurisdiction. It is just 8km far away from famous religious place Pandharpur.

The site is approachable by State highway SH-141 (500 meters away).The distance from the District Head Quarters Solapur is 63Km. The command area of the factory is spread over the 21726 Ha villages coming in the radius 20kms from the factory site. It covers 97 villages from Pandharpur &Mahol Tehsil

1.5 The Salient Features of Project Site

The salient features of the project site are presented in detail below

Salient Features of Project Site

Particulars	Details
1. Location	Gut No. 299, 300,301,302, 150 (A), Venunagar, Post – Gursale – 413 304,Tal. Pandharpur, Dist. Solapur. Maharashtra
2. Latitude	$17^0$44'14.27"N
3. Longitude	$75^0$19'12.11"E
4. Total Plant Area	Total plot area : 350 Acre Built up area :47 Acres (Existing as well as proposed)
5. Proposed Plant Capacity	Sugar plant expansion in addition of 2500 TCD in existing 5000 TCD & Cogen Power expansion in addition 19.8 MW in existing 10MW
6. Nearest town	Pandharpur- 8.0 Km
7. Tahsil	Pandharpur – 8.0
8. District	Solapur – 63 Km
9. Water Body	Bhima River – 1.0 Km
10. Nearest Road	SH -141 – 500 meter
11. Nearest Railway Station	Pandharpur – 8.0 Km
12. Nearest Airport	Solapur – 63 Km
13. Religious / Historical Place	Religious Pandharpur – 8.0 Km

14. Power Evacuation Line	MSETCL Line – 1.5 Km Bavada Substation – 16 Km
15. Archeological monuments	None
16. Reserved Forest	None

1.6 The Salient Features of proposed Phase II project by SVSSKL

<table>
<tr><th>Sr. No</th><th>Features</th><th>Particulars</th></tr>
<tr><td>1</td><td>Name of the Company</td><td>M/s. Shri Vithal Sahakari Sakhar Karkhan Ltd. (SVSSKL) Venunagar, Post – Gursale – 413 304, Tal. Pandharpur, Dist. Solapur Maharashtra</td></tr>
<tr><td>2</td><td>Project</td><td>Modernization of Sugar unit to 7500 TCD by capacity addition 2500 TCD in existing 5000 TCD sugar mill
Expansion of cogeneration power to 29.8 MW by adding 19.8 MW in existing 10MW cogen power plant</td></tr>
<tr><td>3</td><td>Capacity utilization</td><td>85% in 1st year, 90% in 2nd year and 95% from 3rd year onwards</td></tr>
<tr><td>4</td><td>Constitution</td><td>Co-operative</td></tr>
<tr><td>5</td><td>Operation Days</td><td>
<table>
<tr><th>Sr. No</th><th>Particulars</th><th></th><th>Seasonal operation</th><th>Off-Season</th></tr>
<tr><td>1</td><td colspan="2">Sugar Plant</td><td>160 days</td><td>-</td></tr>
<tr><td rowspan="2">2</td><td rowspan="2">Cogen Power Plant</td><td>Existing- 10 MW</td><td rowspan="2">160 days</td><td rowspan="2">122 days</td></tr>
<tr><td>Proposed – 19.8 MW</td></tr>
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</td></tr>
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<table>
<tr><td></td><td></td><td></td></tr>
<tr><td>6</td><td>Production Capacity</td><td>
<table>
<tr><td colspan="2">Product</td><td>Existing</td><td>Proposed</td><td>Total</td></tr>
<tr><td colspan="2">Sugar</td><td>18150 MT/Month</td><td>8590 MT/Month</td><td>26740 MT/Month</td></tr>
<tr><td rowspan="2">Co-gen Power</td><td>season</td><td>10 MW</td><td>19.8MW</td><td>29.8MW</td></tr>
<tr><td>Off-season</td><td>10MW</td><td>-</td><td>10MW</td></tr>
</table>
</td></tr>
<tr><td>7</td><td>Raw Materials & Source</td><td>
<table>
<tr><td rowspan="2">Operating Units</td><td rowspan="2">Raw Material</td><td colspan="2">Raw Material Requirement</td><td rowspan="2">Raw material source</td></tr>
<tr><td>Season</td><td>Off-season</td></tr>
<tr><td>Sugar Unit</td><td>Sugarcane</td><td>7500 TCD</td><td>-</td><td>About 97 villages from 21726 Ha sugar command area</td></tr>
<tr><td>Cogen Power</td><td>Bagasse</td><td>259633 MT</td><td>62773 MT</td><td>SVSSKL Sugar Factory</td></tr>
</table>
</td></tr>
</table>

<table>
<tr><td>8</td><td>Steam Requirement</td><td>
<table>
<tr><th>Process</th><th>Season</th><th>Off-Season</th></tr>
<tr><td>HP used by 19.8 MW Turbine</td><td>10 TPH</td><td>-</td></tr>
<tr><td>HP used by 10 MW Turbine</td><td>7TPH</td><td>7TPH</td></tr>
<tr><td>Sugar Process</td><td>153.41 TPH</td><td>-</td></tr>
<tr><td>Distillery</td><td>6TPH</td><td>6TPH</td></tr>
</table>
</td></tr>
<tr><td>9</td><td>Power Requirement</td><td>
<table>
<tr><th>Unit</th><th>Season</th><th>Off-Season</th></tr>
<tr><td>Sugar Process</td><td>8MW</td><td>0.1 MW</td></tr>
<tr><td>Distillery</td><td>0.5MW</td><td>0.5MW</td></tr>
<tr><td>Colony</td><td>0.10MW</td><td>0.15MW</td></tr>
<tr><td>Cogen auxiliaries</td><td>1.78 MW</td><td>1.0 MW</td></tr>
</table>
</td></tr>
<tr><td>10</td><td>Power Export</td><td>Season : 19.42 MW
Off-season : 8.25 MW</td></tr>
<tr><td>11</td><td>Boiler Capacity</td><td>Existing Boilers - 25, 25, 35, 40, 55 TPH
Proposed boiler -125 TPH
After commissioning of proposed 125 TPH boiler all old boilers i.e. 25,25,35,40 TPH shall be dismantled and only existing 55TPH, Proposed -125 TPH boilers will remain in operation</td></tr>
<tr><td>12</td><td>Water Requirement & Source</td><td>Season : 2042m^3/day
Off-Season: 401 m^3/day</td></tr>
<tr><td>13</td><td>Capital cost of the project</td><td>Sugar Modernization: 6000 Lakhs
Cogen Expansion: 9057.50 Lakhs</td></tr>
</table>

2.0 PROJECT DESCRIPTION

2.1 Land Requirement

The factory is having total area around 350 acres it includes agricultural (Bene Plot) as well as non agricultural land .47Acres of land marked by SVSSKL for manufacturing of sugar , steam, power generating unit , ETP system , Green Belt and 10 Acres for Biocomposting.

As per CEA norms XVII the land requirements has been worked out for different facilities in the proposed cogen power plant will 6Acres. The available land is adequate to install the Power Plant and its entire infrastructure.

2.2 Process Details

Sugar cane is the raw material for manufacture of sugar. Juice is extracted from sugar cane, which is then processed to recover sugar. Bagasse, which is the left out fiber material after extraction of juice from sugar cane, is used as fuel in boiler to produce steam. Steam is used evaporation of sugar juice and for generation of electric power. Conventionally, the sugar mills use low pressure boilers for generating power and process steam. The steam passes through turbine and generates required power for the sugar plant. The exhaust steam from the turbine is used in the processing of sugar. This process of utilization of steam for generating power and for processing of sugar is called cogeneration. The proposed project will install High Pressure Boiler (125TPH) and steam Turbine. Using the same quantity of bagasse, the proposed power plant will be able to generate additional power for export besides meeting the power and steam requirement of the sugar mill. The additional power will be fed to the National Grid system.

2.3 Raw Material Requirement (Fuel + Water)

The main raw material for sugar unit is sugarcane; during crushing season of the factory 7500 TCD of sugarcane will be crushed. Average sugar production during season (160 days) will 26740 MT/month.

Bagsse is the main source of fuel for power generation. Proposed as well as existing cogen power boilers will consumed 269633 MT of bagasse during season (160 days) operation for production of 29.8 MW power. During off season (122 days) operation 62773 MT of bagasse will consume for production of 10 MW power.

2.4 Water Requirement

The plant raw water requirement for the proposed activity will be sourced from Bhima River It is nearest of all as compared to other water sources. Water will be pumped through jackwell on Bhima river. It is 1km far away from project site. The water requirement during season and off-season is 2042 m^3/day and 401 m^3/day respectively

3.0 . DESCRIPTION OF THE ENVIRONMENT

The baseline status of environmental quality in the vicinity of project expansion site serves as a basis for identification and prediction of impact. The data were collected from both primary and secondary sources. Primary source data were collected through environmental monitoring in the study area. Primary survey involved climate, hydro geological aspects, atmospheric conditions, water quality, soil quality, vegetation pattern, ecology, socio-economic profile and land use of the study area.

The environmental influence due to the project is likely to be restricted to 10 km region around the factory site. Therefore, the study area for monitoring of environmental quality includes 10 km region around the project site. Proposed site area covers the 10 KM radial study area in Survey of India (SOI) toposheet nos 47 O/1, O/2, O/5, O/6. The study area is located in Venunagar village, Pandharpur taluka, Solapur district of Maharashtra State. The studies were conducted during the post-monsoon period of the 1st October 2012- 31st December 2012

3.1 Baseline Environment

The climate of the region is characterized by hot summer and is generally dry except during the southwest monsoon season. Between the months of June to September the climate is mostly wet. The region experiences tropical climate with hot summer and cold winters. Solapur district receives average rainfall 522mm. over the year. Most of the precipitation occurs during the monsoon (July to Mid September). Maximum temperature during the summers (mid-April to June end) can touch a high of around 42.0^{O}C while in the winters the night temperature drops down to 16.9^{O}C. Monthly mean relative humidity is in the range of 37 % to 91 %.

For assessing the baseline environmental status of the study area six (6) nos of air ambient air quality locations, eight (8) nos of water sampling locations, eight (8) nos of soil sampling locations & six (6) nos noise level monitoring locations were selected

3.2 Air Environment

The regional climatological data obtained from the IMD Solapur was used as a guideline to decide the predominant wind direction during study period. The meteorological data was

collected at the site by installing an automatic weather monitoring station (AWS) during study period (1st October 2012 – 31st December 2012). It shows that predominant wind direction is E-W. During study period maximum wind blow 5-11 Kmph from North East direction. In study period 31.34% clam wind found .

Description of Ambient Air Quality Monitoring Stations

Station Code	Station Name	Distance from Proposed site (km)	Direction	Upwind/ Downwind
AAQ-1	Project Site (Venunagar)	-	-	-
AAQ-2	Kothali	2.5	NWW	Downwind
AAQ-3	Chillivadi	3.75	N	Upstream
AAQ-4	Gursule	0.5	SWW	Downwind
AAQ-5	Babulgaon	5.5	NEE	Upstream
AAQ-6	Visawa	3.5	SSE	Downwind

The ambient air quality was studied at six locations of 10 Km Study area considering project site as centre . At project site Particulate Matter PM_{10} & $PM_{2.5}$ for twenty four hour average basis was found to be 9.5 $\mu g/m^3$ and 21.1 $\mu g/m^3$ respectively which is within NAAQ. The monitored values of ambient gases SO_2, NO_X for 24 hours average on the proposed project site remain at 14.3$\mu g/m^3$, 21.9 $\mu g/m^3$ respectively. Hydrocarbon concentration found below detection limit at project site wile average concentration of ozone found to be 2.2 $\mu g/m^3$

3.3 Noise Environment

On the basis of twenty four hours average, noise levels (43.8 to58.6 dB(A)) within the plant site are in compliance with the prescribed limit of 85 dB(A) by the National Environment Quality Standards.

3.4 Water Environment

The run-off during monsoon period contributes to the surface water. Bhima is perennial river flows in the study area. These villages get water for domestic purpose from Ujjani dam which is constructed on Bhima river. The Bhima river is a major source of surface

water in study area. Ponds and Nallah, are found in buffer zone of the proposed plant site. The water samples were analyzed as per Standard Methods IS *10500:1991*.

The water sampling was carried out in eight villages namely Venunagar (Project Site), Pandharpur, Kalashi, Gursule, Chilliwadi, Babulgaon, Visawa , Wakhari out of which two (2)samples are analysed as a surface water & remaining six (6) as a ground water

It was observed that surface water has PH,TDS, COD, BOD, DO , Sulphate, Chloride of the study area are ranges between 6.97-7.96, 556-686mg/l, 12-24mg/l, 4-9.0 mg/l, 3.7-4.8 mg/l,27-87.5mg/l, 22-33mg/l respectively.
Ground water has PH,TDS, DO , Sulphates, Chlorides of the study area are ranges between 6.70- 8.44, 456-1085mg/l, 3.5-4.1 mg/l, 77.5- 165 mg/l respectively

Raw water requirement for proposed activity will be met from Bhima river, so that advesre affect on ground water quality does not envisaged. Surrounding elaborate irrigation canal system exist , with the result that ground water aquifer is being regularly replenished..

3.5 Land Environment

Land use pattern in the study area have been studied based on the secondary data to analyze the impacts on land is due to the proposed plant site in the study area and to give recommendations for optimizing the future land use pattern and associated Impacts. Records provides information on natural resource like water, soil, forest, etc. which forms the baseline information; prerequisite for systematic assessment of various environmental impacts.

Pandharpur is the biggest tahsil of Solapur district in terms of area and population. The total geographical area of the study area is 38276.33 Ha out of which the net cropped area is 14654.56 Ha, and 23621.77 Ha is unirrigated (Source: *Census 2001*). The existing farming systems being adopted by majority of farmers in rainfed area of district are characterizes by existence of food grain crops including mostly Bajra, Jowar as cereals and Mung, Udid, and Tur as pulse crops in combination with dairy and animal husbandry .The analysis of the farming systems in command areas indicates the dominance of sugarcane as a cash crop

with dairy as an inseparable combination and it is being supplemented by either vegetables and food grain crops or horticultural crops.

3.6 Socio-Economic Environment

The Study area covers total 35 nos of Villages. Total population of the study area is found to be 100424 out of which 52597 nos of male & 47824 nos of female . The sex ratio of the study area is found to be 909. Total main workers, marginal workers & non workers are found to be 39828, 8409, 5287nos respectively. The average annual income of the people is Rs. 85000/

3.7 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 Kadu Neem,Teak and Acacia species. The agricultural land in the study area are mainly cultivation are sugarcane, bajara, jowar, makka etc.

The faunal species found in the study area are of domestic type such as cow, baffalow, cattle's.

4.0 ANTICIPATED ENVIRONMENTAL IMPACTS & MITIGATION MEASURE

Prediction of impacts depends on the nature and size of activity being undertaken and also on the type of pollution control measures that are envisaged as part of the project proposal. However, the good management practices would be followed to ensure that the environmental pollutants concentrations remain within the limits. The proposed plant may cause impact on the surrounding environment in two phases.

- ❖ During construction phase
- ❖ During Operation phase

5.0 SOCIAL ASPECTS

- ❖ During construction, the project will provide employment to local personal.
- ❖ During the operational phase also, the project will generate employment opportunity.

- Increase in employment opportunities and reduction in migrants to outside for employment, increase in literacy rate, growth in service sectors.
- Improvement in socio cultural environment of the project area
- Improvement in transport and communication services,
- Increase in employment due to increased business, trade commerce and service sector.
- This project does not involve any displacement of local people.
- Some people have concerns about the environmental aspects of the project.
- Public invasion by the outdiders to take place due to the project has also very minor concern for the people.

6.0 . ENVIRONMENTAL MONITORING PROGRAMME

The environment, safety and health-monitoring programme in the factory shall be 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 proposed activity.

7.0. ENVIRONMENTAL MANAGEMENT PLAN / ENVIRONMENT MANAGEMENT COSTS

Environmental Management Plan includes the protection, mitigation and environmental enhancement measures to be implemented to nullify the adverse impact on the environment. The management of the SVSSKL will take all the necessary steps to control and mitigate the environmental pollution in the designing stage of the project. While implementing the project SVSSKL will follow guidelines specified by CPCB under the Corporate Responsibility for Environmental Protection (CREP) for cogen power plant & sugar

industry. The EMP operation/implementation will be the responsibility of the "EHS Officer", who will be coordinating, arranging the collection and reporting of the results of all emissions, ambient air quality, noise and water quality monitoring.

7.1. EMP for Construction phase

Increase in PM_{10}, SO_2, NO_X, & CO levels in environment due to construction activities and movement of vehicles. Frequent water sprinkling in the vicinity of the construction sites will be undertaken. During construction phase SVSSKL will be taken care to provide all necessary facilities to construction workers such as water supply, sanitary facilities, temporary housing, sewage treatment facilities, drainage facilities and domestic fuels; to nullify adverse impact on environment. The impacts will be localized in nature and the areas outside the project boundary are not likely to have any major adverse impact with respect to ambient air quality.

7.2. EMP for Operation phase

7.2.1 Air Environment

The major pollutants from boilers during operation phase are PM_{10} & $PM_{2.5}$, SO_2 (Sulphur dioxide) and NOx (Oxides of Nitrogen).These pollutant will be nullify by adopting following measure.

- The height of the stack will be 74 & 60 m respectively for proposed 125 TPH & existing 55 TPH and is of single chimney as per CPCB Norms .
- Suitably designed ESP with efficiency of 99.9 % will be placed downstream of the stack which will separate out the incoming dust in flue gas so as to maintain the emissions PM_{10} & $PM_{2.5}$ (50 mg/Nm3) at the outlet of the stack.
- Wet scrubber is provided to 55 TPH bolier for arresting particulate air pollutants
- Stack emissions will be regularly monitored by SVSSKL/external agencies on periodic basis to check the efficiency of air polluting control devices and necessary action.
- To control of the airborne fugitive emissions from the ash handling area will be achieved through regular water sprinkling in this area.

- Avenue plantation and green belt development will be undertaken in the operation phase.

7.2.2. Noise Environment

- All rotating items will be well lubricated and provided with enclosures as far as possible to reduce noise transmission. Vibration isolators will be provided to reduce vibration and noise wherever possible
- Manufacturers and suppliers of machine/equipment like compressors, STG turbines and generators will be manufactured as per OHSAS/MoEF guidelines.
- The personnel safety such as ear muffs, ear plugs and industrial helmets shall be provide to workers which act as noise reducers

7.2.3 Water Environment

The total fresh water requirement for the proposed activity will be 2042 m^3/day during season and 401 m^3/day during off-season and waste water generation will be 822 m^3/day during season and 65 m^3/day during off-season. The continuous efforts will be made to reduce the water consumption and thereby reduce wastewater generation. Flow meters will be installed on all major water inlets and the flow rates will be continuously monitored. Periodic water audits will be conducted to explore the possibilities of minimizing water consumption.

The wastewater generated from the different units such as cooling tower blow down, boiler blow down, DM plant , sugar process unit waste and sanitary waste of proposed activity shall be treated in existing ETP having capacity 1000 m^3/day. SVSSKL has proposed to modernized/retrofit existing ETP with efficient working technology in Phase-II of project. Proposed project will be run on zero discharge concept.

7.2.4.Storm Water Management

Based on the rainfall intensity of the proposed area, storm water drainage system will be designed. Storm water drainage system will consist of well-designed network of open surface drains with rainwater harvesting pits. RWH structures will be provided to harvest the

rain water from roof TOP and plant area. The collected rain water will be utilized for plant uses to optimize the raw water requirement.

7.3 Solid waste management

Details of solid waste generation and management presented below

Sr. No.	Particulars	Quantity	Disposal
1	Bagasse	342003 MT During Season (160 Days)	Used in Cogen Boilers (19.8MW& 10MW respectively)
2	Bagasse Ash	7088 MT generated during operation (Season as well as off-season)	Used as a manure in agro-field due to high % of potash content
3	Pressmud	48000 MT during season	Distributed to share holders which used as fertilizer in land
4	Molasses	48000MTduring season	Used in own distillery unit
5	E.T.P. Sludge	11.2 MT during season 3 MT during off-season	Used for land filling & fertilizer for gardening in own factory premises

Solid by-products such as bagasse, press mud and molasses are generated as process waste products (byproducts) from the industry. Press mud is supplied to member formers for their used as bio–manure and molasses is used in own distillery for its use as raw material in manufacture of ethanol. Bagasse produced from the sugar factory is used as a fuel in the boilers for production of process steam. Solid wastes such as boiler ash & ETP sludge are also produced from the proposed unit. These are disposed to farmers for their use as soil conditioner in agricultural field.

7.3.1 Other solid waste

During operation some scrape will be generated it will be recycled by selling to authorized vendor. Dust bins will be placed at requisite locations. Solid waste generated from offices, canteens will be disposed in ecofrendly manner.

Sewage : Sewage from various buildings in the project area will be conveyed through separate drains to the septic tank. The effluent from the septic tank will be disposed in soil, by providing disposing trenches. Oily water, if any, will be treated separately to remove oil / grease, before discharge into the effluent pond. The oily water collection in the plant is basically due to floor cleaning, leaky oil filters, etc. Provision for oil/grease separators will be made to skim oil / grease, if present in the waste water.

7.4 Occupational Health & Safety

During operation stage, dust is the main health hazard. Other health hazards are due to gas cutting, welding, noise and high temperature and micro ambient conditions especially near the boiler and platforms which may lead to adverse effects (Heat cramps, heat exhaustion and heat stress reaction) leading to local and systemic disorders.

- Adequate arrangements for preventing generation of dust by providing the chutes at transfer points to reduce the falling height of material, preventing spillage of material by maintaining the handling equipment, isolating the high dust generating areas by enclosing them in appropriate housing and appropriately de-dusting through high efficiency bag filters
- All workers engaged in material handling system will be regularly examined through PFT (Pulmonary Function Test) tests for lung diseases;

7.5 Ecology

Flora and fauna inventories within the project area will be monitored on a twice yearly basis, as well as before and during the construction and early operating activities. This may involve the use of specific indicators, such as the occurrence of nests or nesting bird species of importance. It is intended that the implementation of the monitoring program will be conducted on a co-operative basis by the various stakeholders in the area

7.6 Green Belt Development

The main objective of the green belt is to provide a buffer zone between the sources of pollution and the surrounding areas. The green belt helps to capture the fugitive emissions and attenuate the noise apart from improving the aesthetics quality of the region. An area of

about 20 acres for greenbelt already developed in existing SVSSKL plant premises. Further SVSSKL proposed 7 acres of green belt to strengthen the existing greenbelt. Approximately 2500 trees per ha will be planted in consultation with the local Forest Department.

7.7 Budgetary Provision for Environmental management plan

- Cost of EMP is Rs 380.Lakhs .
- A Total capital & recurring cost EMP are presented below:

Budgetary Provision for Environmental Management Plan

Sr. No.	Name of Activity	Capital Cost (Rs.Lakhs)	Recurring Cost (Rs. Lakhs)
1	Pollution Control System	200.00	15.00
2	Water pollution control systems (E.T.P)	100.00	12.00
3	Noise pollution control	20.00	2.00
4	Belt Development/ Maintenances	25.00	2.50
5	Environmental monitoring / Environmental Management	25.00	5.0
6	Occupational health & safety	10	2.50
TOTAL		**380.00**	**39.0**

8.0 CONCLUSION

This industry will provide sugar, power as useful material for India, which will save foreign exchange in these days. This will not disturb the present landuse because our area occupied will be only small % of Influence zone 10 km. Compatible Architecture will be adopted 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 molasses, press mud and bagasse will be utilized within the existing project.

People will get some jobs here and the sugar, power and organic compost generated here will be useful for farming, and some incidental small employment like eatery, canteen, tyre repairs, garage too will become available to genuine people. 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, molasses into useful steam, power and foreign exchange saver product.
- The local people desire that this industry will be welcome in their area.
- 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.