PRE FEASIBILITY REPORT

New Molasses Based Distillery of 30 KLPD

M/s. Sharad Sahakari Sakhar Karkhana Ltd,

Address: A/P Narande , Tq. Hatkanagale, Dist: Kolhapur

Maharashtra- 416110

Prepared By

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October 2018

1.0 Introduction

1.1 Identification of project and project proponent

This project is proposed by **Sharad Sahakari Sakhar karkhana Ltd, (SSSKL).** The sugar factory is located at village Narande, Tq. Hatkanagal, Dist: Kolhapur , Maharashtra. The SSSKL is a cooperative sugar mill and it is registered vide registration no KPR/HLE/PRG(A)/S-65/96 dt: 01/8/1996. The mill is started its actual crushing season from 2002-3 with crushing capacity 2500 TCD. The management of SSSKL has huge efforts for increasing in sugar cane in commanding area. As a result of increase in sugar cane availability is increased mill decided to increase the crushing capacity after minor modification sugar industry crushed the cane is about 3500 to 4000 TCD since last five year. As increase in crushing capacity the byproduct like molasses and bagasse get increased. It is financially not feasible to run the sugar industry on sugar only hence, management of SSSKL has decided to set up new 30 KLPD molasses base distillery along with incineration boiler.

1.2 Project Setting

The factory is holding adequate land for the proposed units. The site meets the guidelines prescribed by Ministry of Environment, Forest and Climate Change for sitting of an industry. It is located approximately on Narande Sawarde road state highway no 192 is about 6km far from site National Highway 48 is 11 km away from proposed site. The geographical coordinates of the site are $16^0$82’70’’N, $74^0$37’74”E.

1.3 Highlights of the Project

Table 1.1: Project Highlights

<table>
<tr><td>1</td><td>Name of the Proponent</td><td>Sharad Sahakari Sakhar Karkhana Ltd, (SSSKL)</td></tr>
<tr><td>2</td><td>Location of the project</td><td>At post : Narande,
Tq. Hatkanagale Dist: Kolhapur, Maharashtra 416110
Ph. No :0230-2583401, Fax no 0230-2583405
Email: sharad_sakhar@rediffmail.com</td></tr>
<tr><td>3</td><td>Land</td><td>• About 5 acres of land allotted for new distillery, evaporation unit (MEE), storage lagoon, ETP/CPU, Incineration boiler, bagasse
• Green belt development=1.5acres
TOTAL LAND ALLOCATED = 6.5 acres
Open plot near the sugar mill will be developed into a distillery; Available land is under the possession of the project proponent (industrial land use). No need of acquisition of new land.</td></tr>
<tr><td>4</td><td>Project</td><td>30 KLPD molasses base distillery</td></tr>
<tr><td>5</td><td>Product</td><td>
<table>
<tr><td>Product</td><td>Production</td></tr>
<tr><td>Rectified spirit</td><td>28.50 KLPD</td></tr>
<tr><td>Impure spirit (5%)</td><td>1.50 KLPD</td></tr>
<tr><td colspan="2">OR</td></tr>
<tr><td>Anhydrous Alcohol (Fuel Ethanol)</td><td>27.14 KLPD</td></tr>
<tr><td>Impure spirit (5%)</td><td>1.50 KLPD</td></tr>
</table>
</td></tr>
<tr><td>6</td><td>Operation days per annum</td><td>300 days per annum</td></tr>
<tr><td>7</td><td>Main Raw Material</td><td>
<table>
<tr><td>Raw material</td><td>Quantity</td></tr>
<tr><td>Molasses</td><td>111 TPD</td></tr>
<tr><td>Nutrient N,P</td><td>100 Kg/d</td></tr>
<tr><td>Turkey Red Oil (TRO)</td><td>150 Kg/d</td></tr>
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8	**Water Requirement**	333cu.m/day (considering recycle and reuse)
9	**Steam**	**Total: Maximum 240TPD** **Source:** Proposed incineration boiler**:** 12 TPH **Steam utilization:** Distillery (Max)- 226 TPD
10	**Power**	870 KWH. Source: Proposed 1.2 MW TG set (Captive)
11	**Effluent treatment system**	Multi-effect evaporation (MEE) followed by incineration for spent wash and condensate polishing unit (CPU) for spent lees and condensate
12	**Man power**	95
13	**Project Cost**	Rs. 6222.74 lakhs (Rounded to Rs. 6300.00 lakhs)
14	**EMP cost**	RS. 2445.00 lakhs

1.4 Need of project and its importance to the country and region

In India, sugar industry is dependent on monsoon. Its financial viability drastically affected due to weather conditions as well as market. Therefore, it is need to explore the alternative products from the available resources so as improve its financial stability. Molasses based distillery is one of such alternative because raw material availability i.e. molasses and power is fulfilled in-house by the sugar mill.

In India, mainly three types of alcohols are popularly produced i.e. rectified spirit (RS) and anhydrous alcohol (AA) (Fuel Ethanol). Of these, RS used for large number of industrial, scientific, laboratory, medical and many other applications. Thus, demand for the same is immense and it is ever increasing. ENA used for making liquors and other alcoholic beverages. AA is a fuel alcohol; it used for blending with petrol in the ratio of maximum 26:7.

Table 1.2: Expected cane availability for next five years

Sr. No.	Particular	Estimates for season (MT)				
		2018-19	2019-20	2020-21	2021-22	2021-23
1	Cane availability	9,60,000	8,80,000	8,00,000	8,80,000	9,60,000
2	Expected Crushing	7,00,000	7,50,000	7,00,000	7,25,000	7,75,000
3	Sugar production	8,75,000	9,22,500	8,82,000	9,06,200	9,61,000
4	Recovery (% cane)	12.50	12.30	12.60	12.50	12.40
5	Molasses production @ 4.22	29,540	31,650	29,540	30,595	32,705

The above table infers that there will be ample sugarcane available in the command area of the SSSKL. However, the crushing capacity could become a limiting factor to fulfill the cane crushing demand of local farmers. Therefore, the management of SSSKL intends to develop its infrastructure so as to meet growing cane crushing demand. If crushing is increases the molasses and bagasse production will be increase hence, the sugar factory is installing a new molasses based distillery of 30 KLPD along with incineration boiler.

The distillery unit will be producing, RS/AA which are very significant for other industries, medical services, etc. Fuel ethanol is used to blend petrol, thus able to save valuable foreign exchange on import of fossil fuel.

1.5 Power

Need of power for sugar and cogeneration unit will be fulfilled by captive power generation, during crushing season as well as off season. For distillery, an independent incineration boiler of 12 TPH and TG of capacity 1.2 MW will be installed for steam and power requirement of distillery unit.

1.6 Import vs. Indigenous production

The process of manufacturing for distillery is simple and straight line, available indigenously. The technologies even for the pollution control/disposal are also available indigenously.

1.7 Export Possibility

The finished goods viz. Sugar, Rectified Spirit (RS) and Anhydrous Alcohol (AA or fuel ethanol) are having excellent potential of export.

1.8 Domestic / export markets

Market places such as Kolahpur, Sangali, Belgaon as well as chemical industries are the potential domestic market for rectified spirit, ENA as well as AA (Fuel Ethanol). ENA could be an exportable product.

1.9 Employment Generation

Proposed distillery project will provide direct employment to 95 persons. However, it has a great potential to generate large number of indirect employment.

2.0 PROJECT DESCRIPTION

2.1 Type of project

Proposed project is a new 30 KLPD molasses based distillery. Molasses is by-product from the sugar industry which will be used as raw material in the proposed new distillery. The project is placed under 5 (g) - for distillery unit as 'A' category as per EIA Notification, 2006 (as amended in 2009) and will be appraised at central level.

2.2 Location with coordinate

Project coordinates: $16^0$82’70’’N, $74^0$37’74”E

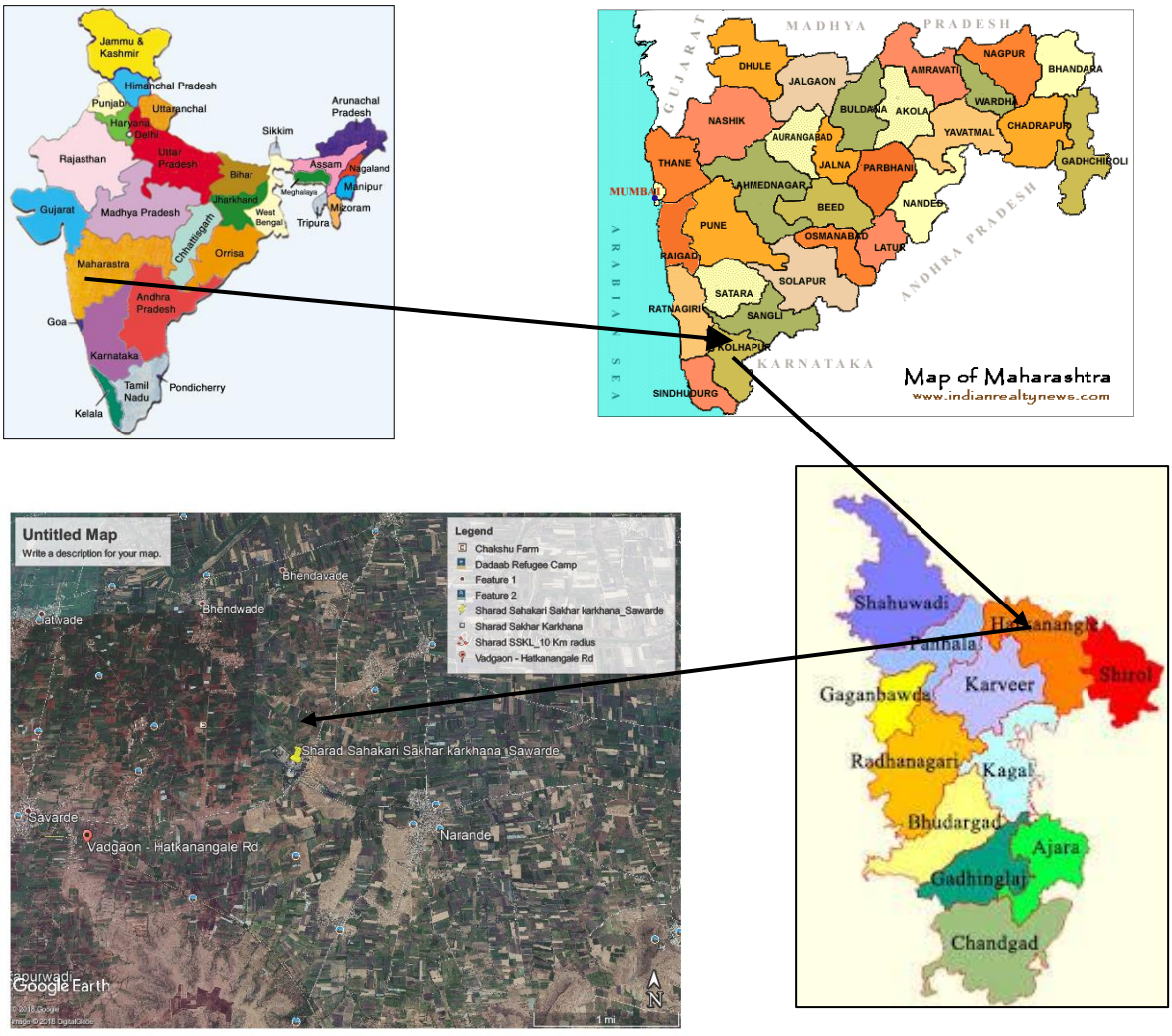


Figure 2.1: Location Map

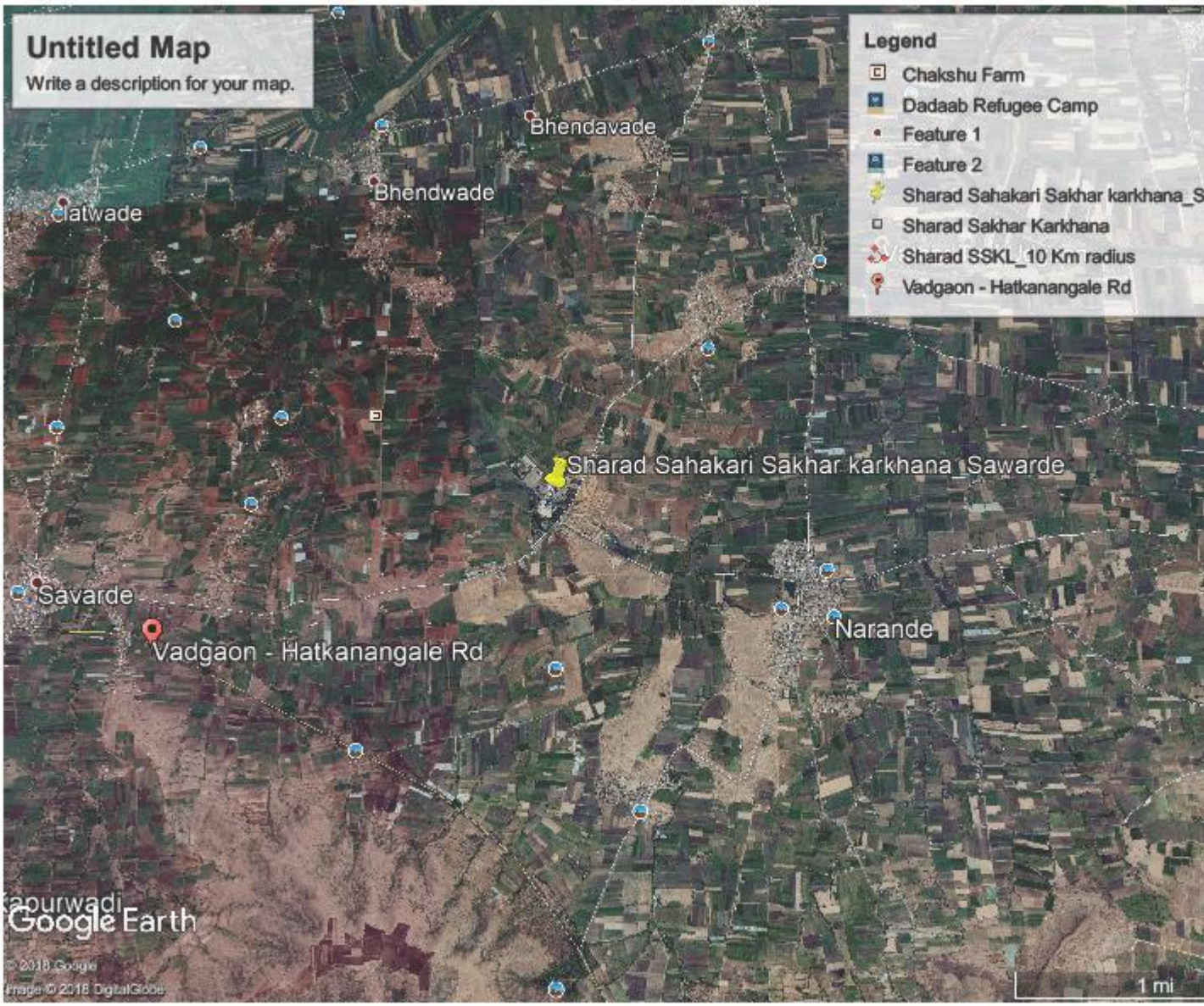


Figure 2.2: Satellite Image of the project site

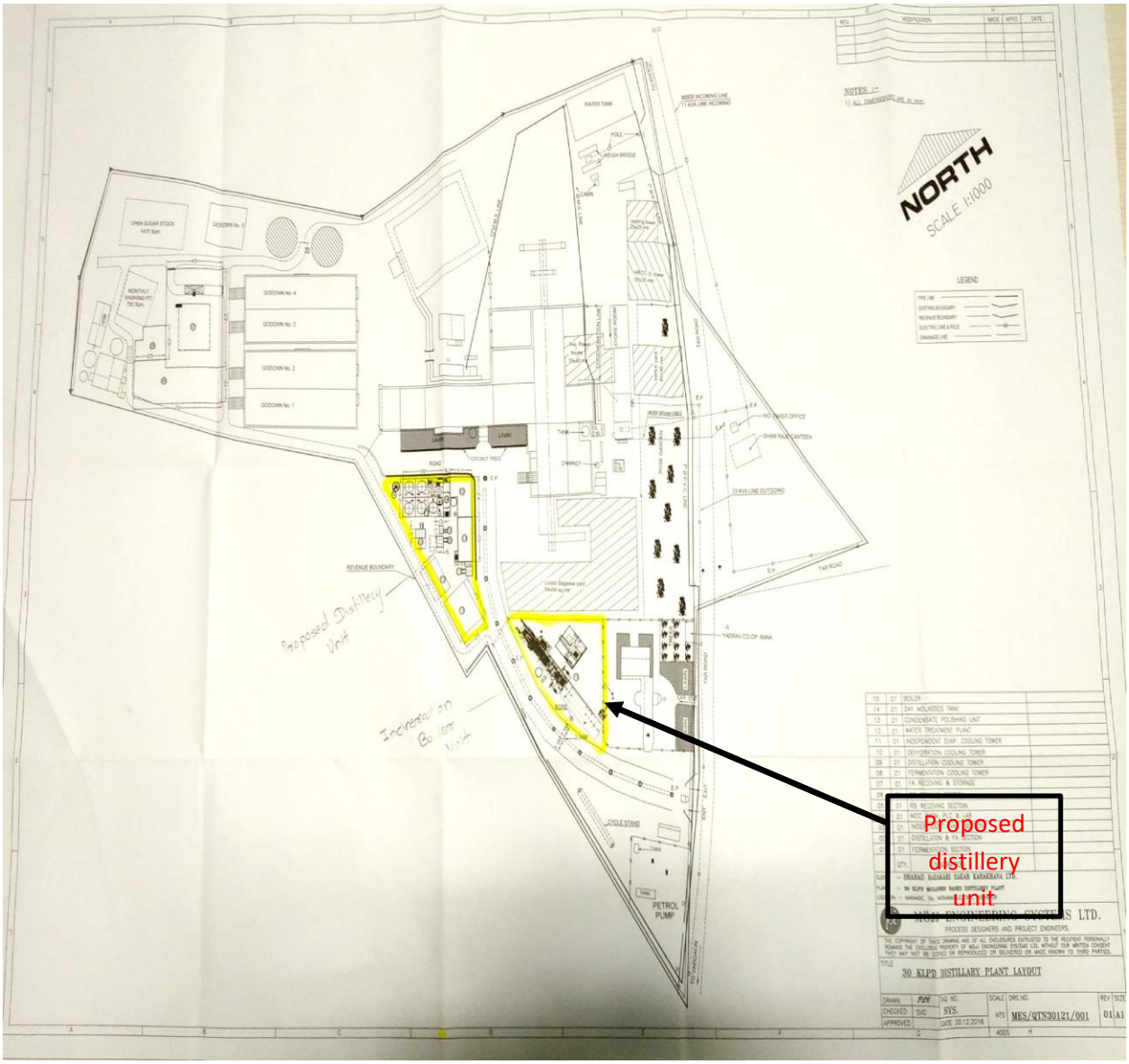


Figure 2.3: Project Layout with proposed activity allotted area

2.3 Details of alternative site consider and basis of selecting the proposed site

- Alternative sites for the proposed project not considered, because of following reasons-
- The project proponent having land, which is adequate for the proposed units as well as ancillary units thereof such as storage, treatment, disposal of spent wash etc.
- The present site meets the guidelines for setting an industry prescribed by MoEF&CC
- No rehabilitation or restoration issues involved with the proposed site
- The plot is open and barren, thus minimal disturbance to ecosystem and surroundings
- Infrastructure and resources such as road, water, electricity, manpower, etc is already available

2.4 Size or magnitude of operation

- Existing Sugar unit of 3500 to 4000 TCD
- New molasses based distillery of 30 KLPD
- New incineration boiler
- New 1.2 MW TG

2.5 Project description with process details

Process: Distillery

The Management of SSSKL decided to adopt the latest technology to achieve Zero Liquid Discharge (ZLD) for the proposed 30 KLPD unit; the peculiarities of manufacturing process are as follows

Manufacturing Process

The production process involves the following stages : 1) Fermentation 2) Distillation

Fermentation: Molasses is the chief raw material used for production of alcohol. Molasses contains about 50% total sugars, of which 30 to 33% are cane sugar and the rest are reducing sugar. During the fermentation, yeast strains of the species *Saccharomyces cerevisieae*, a living microorganism belonging to class fungi converts sugar present in the molasses such as sucrose or glucose in to alcohol. The continuous fermentation process involves addition of fresh nutrients medium either continuously or intermittent withdrawal of portion of nutrient for recovery of fermentation products. In continuous process, fermenter is in constant usage with little shut down and after initial inoculation of yeast culture, further inoculation is not necessary.

Distillation: After fermentation, the next stage in the manufacturing process is to separate alcohol from fermented wash and to concentrate it to 95%. This is called Rectified Spirit(RS). For this purpose, method of distillation is employed. After separation of alcohol, the remaining part is the effluent of the process i.e. spentwash and spent lees.

- **Anhydrous Alcohol (AA) (Fuel Ethanol)**

  Anhydrous alcohol is an important product required by industry. As per IS specification it is nearly 100% pure or water free alcohol. Alcohol as manufactured by Indian distilleries is rectified spirit, which is 94.68% alcohol. It is not possible to remove remaining water from rectified spirit by straight distillation as ethyl alcohol forms a constant boiling mixture with water at this concentration and is known as azeotrope. Therefore, special process for removal of water is required for manufacture of anhydrous alcohol.

  The various processes used for dehydration of alcohol are as follows.

  I) Azeotropic Distillation

  II) Molecular Sieves

  III) Pervaporation / Vapour permeation system.

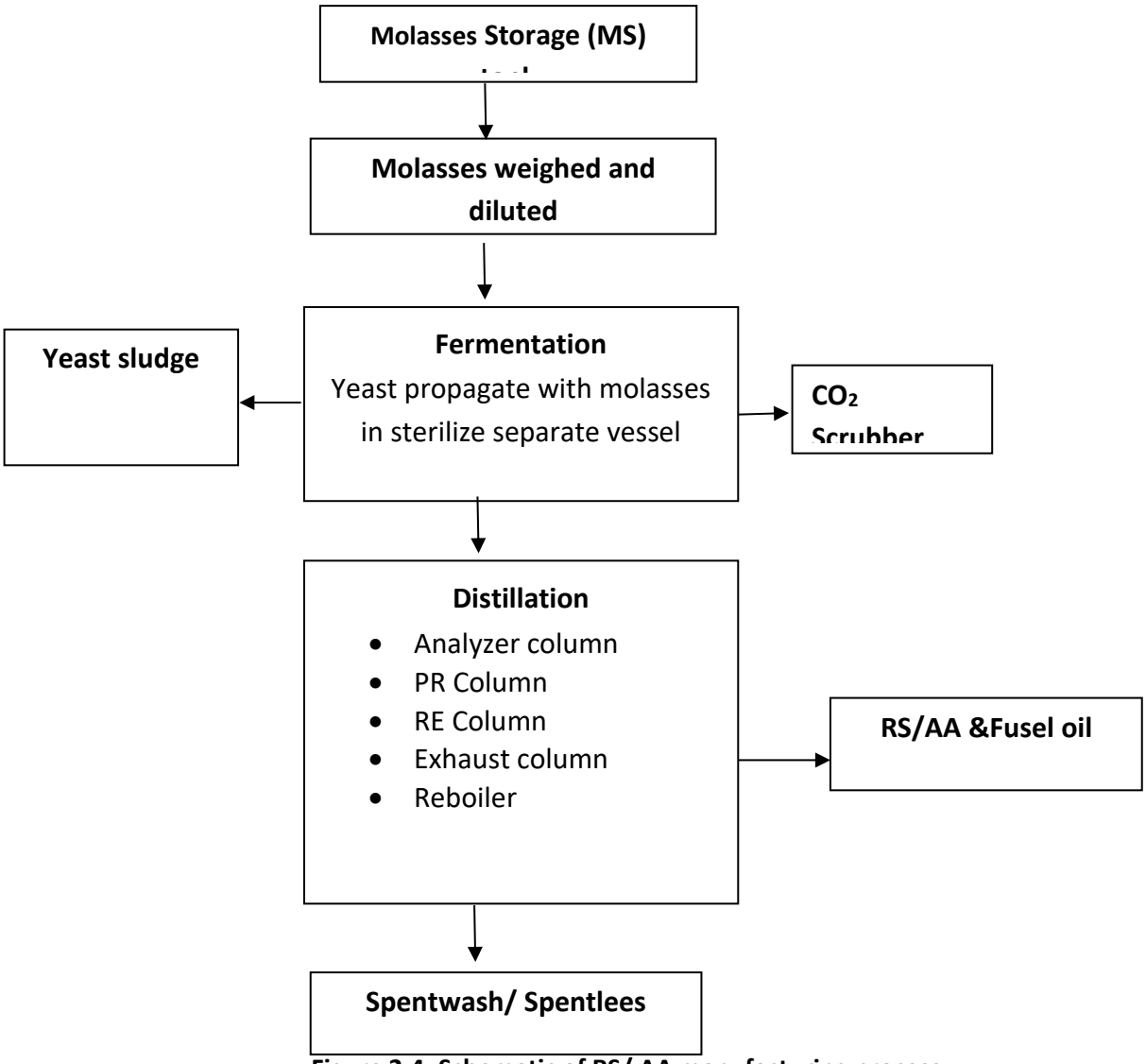


Figure 2.4: Schematic of RS/ AA manufacturing process

2.6 Raw Materials for Finished Products

Raw materials for the proposed project will be available from the local market. Bagasse used as a fuel and molasses as raw material will be available from in-house only. Product wise raw material consumption is given below.

Table 2.1: Availability raw materials & finish good product and transport mode

Raw materials	Estimated quantity	Source market	Final product	Estimated quantity	Transport mode
Molasses	111 TPD	Own factory and Nearby other sugar factories	Rectified spirit + Impure spirit (5%) OR ENA + Impure spirit (6 %) OR Fuel Alcohol (Anhydrous alcohol) + Impure spirit (5%)	28.50 KLPD + 1.50 KLPD 28.2 KLPD + 1.80 KLPD 27.14 KLPD + 1.50 KLPD	Finished product transport - By Road- through Tankers
Nutrients N, P	100 Kg/d	Hatkanagale	-	-	By Road- Truck Tempo
Turkey Red Oil (TRO)	150 Kg/d	Kolhapur Sangli	-	-	By Road- Truck Tempo
Bagasse	56.35 TPD	Own sugar unit	-	-	-------

2.7 Resource optimization / recycle and reuse envisaged in the project

In the proposed project, optimum utilization of the available resource is strived by the management, by using concentrated soentwash and bagasse as energy source for inciniration boilers that produces process steam and power. Generated power will be fulfill the captive need. Water will be recycled and reused through installation of CPU.

2.7.1 Water Requirement and Its source

Necessary water requirement for the proposed project will be met from Warna River water will be required for domestic, process and utility purpose. Daily fresh water requirement for the proposed distillery unit will be of 300 cu. m. per day

Table 2.2: Water Balance: Distillery of 30 KLPD (Quantities in cum/day)

Particulars	Cu.m./day
A. WATER INPUT IN PROCESS	
For molasses dilution	300
For cooling tower makeup (fermentation, Distillation F.A & Evaporation etc) total circulation rate 15600 m^3 /hr X 24 X @ 1.5 evaporation, blow down drift loss)	234
Fermenter washing (for CO_2 Scrubber)	10
For vacuum pump cooling	15
For fusel oil decanter & Alcohol scrubber	15
Boiler feed water (@12TPH)	288
DM water for ENA production for dilution of RS	60
Others (Domestic & laboratory)	10
Total Water Input at start-up	**932**
B. WATER OUTPUT	
Spent Lees (PR & Rect.)	60
Process condensate	240
For vacuum pump cooling	15
Boiler steam condensate	284
Total Water Output	**599**
C. WATER LOSS	
Cooling tower drift loss total circulation rate 15600m^3 /hr X 24 X @ 1.5 evaporation	234

Steam exhaust loss @ 1.5% on steam generation i.e.	4
Domestic loss	10
DM water for ENA production for dilution of RS	60
Others (Domestic & laboratory)	10
For fusel oil decanter & Alcohol scrubber	15
Total	**333**
D. **WATER AVAILABLE FOR RECIRCULATION IN PROCESS**	
Spent Lees (PR &Rect)	60
Process condensate recycle to process after CPU treatment	240
For vacuum pump cooling recycle back for same purpose	15
Boiler steam condensate recycle back to boiler as a feed water	284
Total water available for recirculation	**599**

Summary of water balance

Fresh water requirement = Water input – water recycle
= 932 – 599
Net fresh requirement = 333 m^3/day
Net fresh water required over the year = 333X 300 = 99,900 m^3 per annum
The Mill has water drawl permission Executive Engineer Irrigation department Kolhapur office for water drawl from Warna river.

2.7.2 Power & Fuel requirement and Its source

- **Steam and power:** Total steam requirement for the proposed project is max 10 TPH. Therefore, a new incineration boiler of capacity 12 TPH with 45 Kg/cm^2(g) pressure will be installed and this will supply steam to proposed 1.2 MW TG set. It will fulfil the steam as well as power requirement of distillery
- **Fuel :** Bagasse and spentwash will be used as a fuel for the steam generation activity of the proposed industry. The requirement of bagasse will be 75 TPD with 60 m^3/day spent wash (60% solids).

Table 2.3: Power and Fuel requirement

Sr. No.	Particulars	Requirement		Source
		Existing	After Proposed	
Power and Fuel (Distillery)				
1.	Power Requirement	--	1.2MW	In-house, independent incineration boiler
2.	Bagasse	--	75 TPD	Own sugar unit

2.8 Waste generation & disposal scheme

Quantity of waste to be generates & scheme for their disposal are given in following chart:

A. Liquid waste

The proposed distillery will generate effluent in the form of spent wash of 300m^3/day. It will be evaporate in standalone multiple effect spentwash evaporation plant (SMEE) at primary stage to reduce its volume up to 60m^3/day (~60% solids). Further, it will be disposed through incineration process in the boiler The remaining moderately polluted effluent due to spent lees and evaporating condensate will be treated in CPU/ETP and recycled in the same unit to achieve “Zero Liquid Discharge” as per CPCB norms.. Estimated domestic wastewater will be 10m^3/d, which will be disposed-off through septic tank and soak pit. Quantity of waste to be generated& scheme for their disposal is given in the following chart.

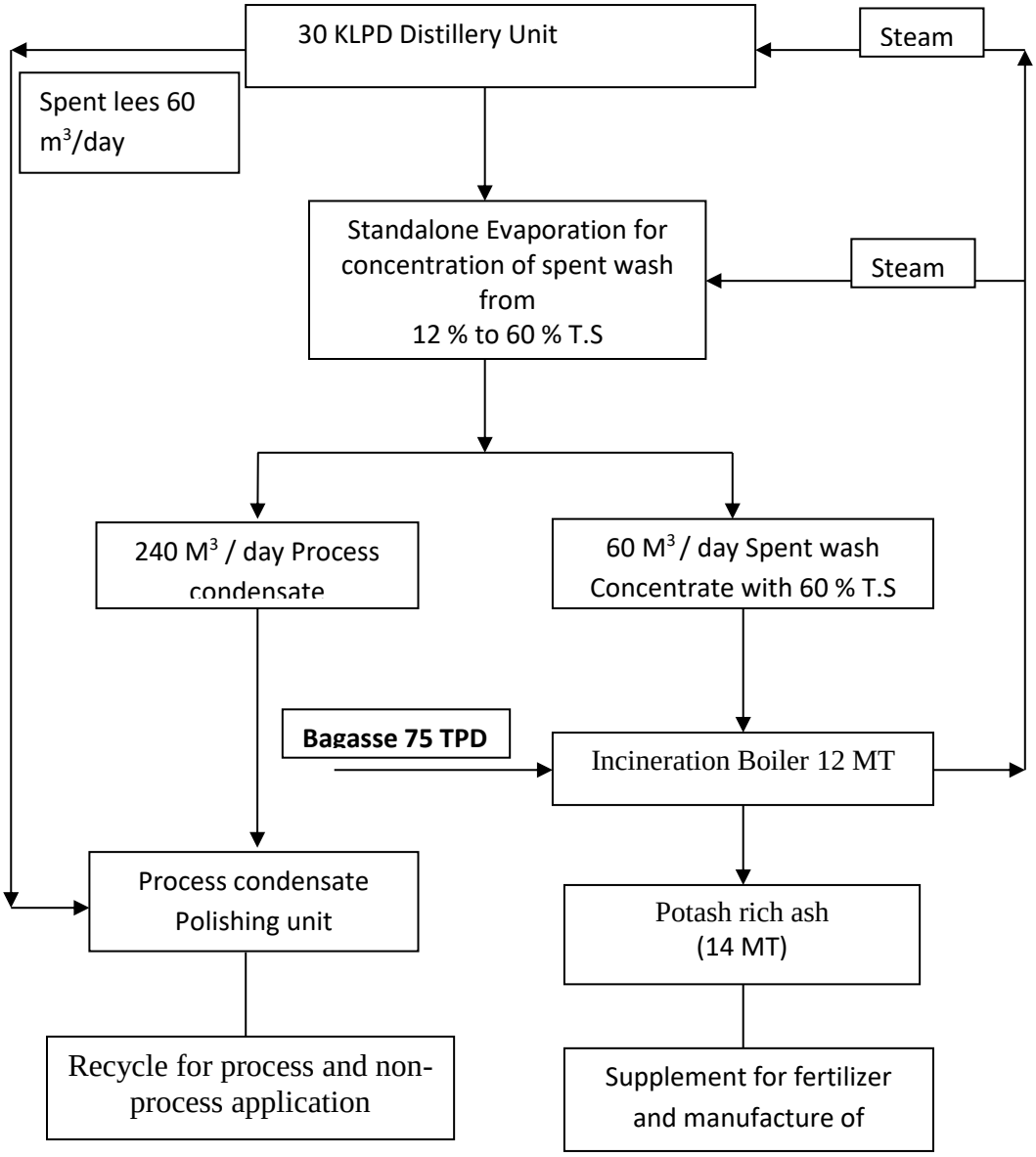


Figure 2.6: Flowchart for spent wash treatment and disposal

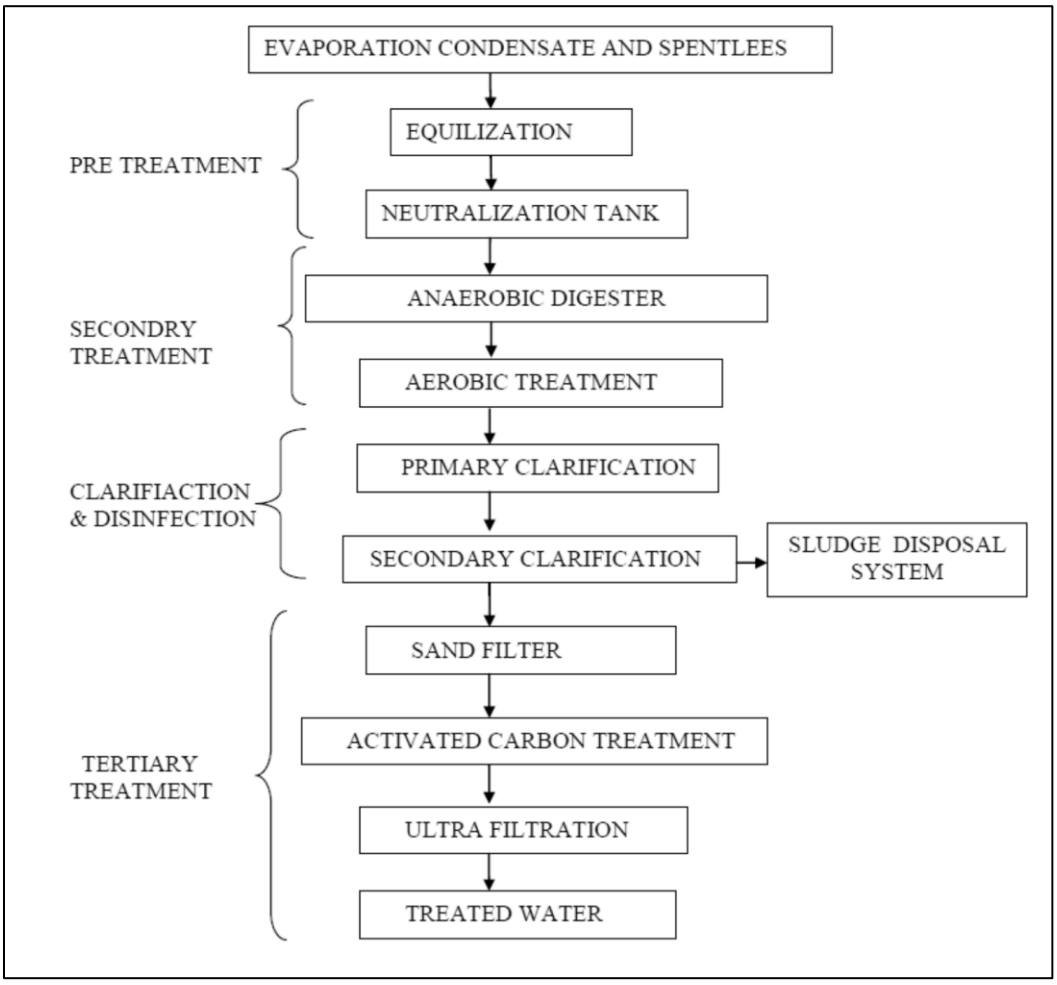


Figure 2.7: Flowchart for CPU generation from distillery (CPU)

B. Solid waste

The proposed industrial activity gives solid waste in the form of yeast sludge, boiler ash which is biodegradable. The solid waste will be used as a filler material in the composting process and for manufacturing of Briquette. The quantity and disposal technique is brief in following table

Table 2.5: Solid waste generation and disposal

#	Waste	Quantity	Disposal	Remark
1	Yeast sludge	1-1.5TPD	Used as manure and land filling	Organic
2	Ash	~1.5 to 2.0 TPD	Sold to the brick manufacturer	Inorganic
3	Distillery CPU Sludge	2.5 TPD	Used as manure and land filling	Organic

2.9 Air Emission & Control

Incineration boiler of capacity 12 TPH with 45 m stack will be used in proposed distillery unit

There are existing one numbers of DG set of capacity 500 KvA additional new 500 KvA DG set will be purchase for distillery only with adequate stack height and acoustic enclosures.

2.10 Noise Control

Steam turbine generator will be the major noise source of the proposed project. Apart from that, noise is anticipated from pumps, motor drives, utilities etc. The plant and equipment will be specified and designed with a view to minimize noise pollution. The major noise producing equipment's will be provided with sound proof devices and silencers. DG set will be provided with acoustic enclosures. Ear Plugs and ear muffs will be provided to the workers in utility section. Greenbelt will be developed.

2.11 Health and Safety Measures

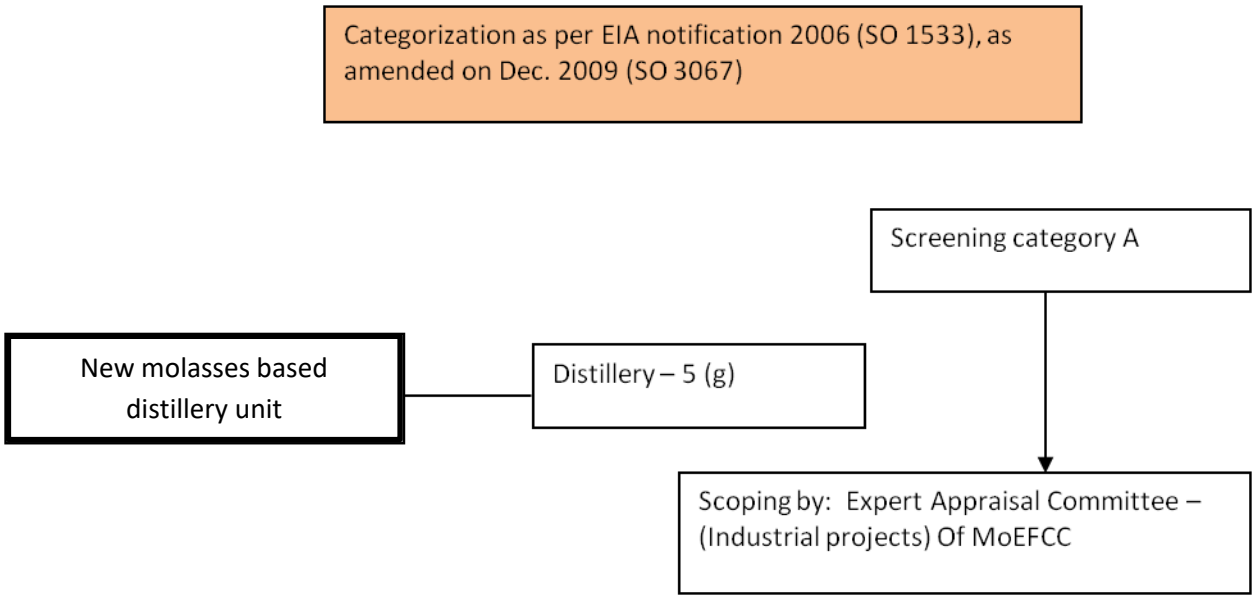
SSSKL is committed to the Health and Safety of all its employees. It strives to provide hygienic & safe work place and continually improve the effectiveness of Health & Safety system.

To meet these objectives the SSSKL will;

- Comply all relevant Laws, regulation, statutory provisions & codes of practice.
- Continually asses Risks & Hazards so as to evolve establish & upgrade hazard control measures, emergency preparedness, & risks mitigation and correct the deficiency identified in timely manner.
- Ensure safe handling, storage, use and disposal of all substance & materials which are classified as hazardous to Health & Environment.
- Create awareness in employees by providing appropriate training, motivation information's so as to create individual sense of duty, responsibility & participations and an institutionalize culture of continually improvement in Safety , Health & Environment matters.
- Make HOD responsible to communicate the safety policy to all concerned in his department.

- Make supervisors responsible or implementation of the safety precautions, use of safety devices, & the safety of the people.
- Empower employees at all levels to be responsible & accountable for their personal health & safety.
- Fire protection system shall be provided in accordance to the LPA regulations. The firefighting system shall consist of a hydrant network.
- Factory has already a fire protection system including electric driven pump, one diesel engine pump, and one jockey pump.
- Portable fire extinguishers shall be provided in strategic locations in new construction area.

2.12 Schematic representation of the feasibility drawing which give information of EIA purpose



3.0 SITE ANALYSIS

3.1 Connectivity

The site is well connected by road, railway as well as air network. It is located on Wadgaon Hatkanagale road and Pune Bagalore National Highway no. 48 is 12 km away from proposed site. Kolhapur railway station is approx. 30 km from the project site. The Airport of Kolhapur is approx. 30 km is the nearest air ports to the site.

3.2 Land form, land use and ownership

The sugar factory is holding more than 69 acres of land. The land is flat, open and already under the industrial use (i.e. sugar factory and allied units) out of available land a provision of approx. 6.5 acre is for the proposed units and ancillary units thereof such as boiler house, distillery plant, storage, lagoon etc. Including green belt

3.3 Topography

The terrain is almost flat, no hills in the surroundings. The geographical coordinates of the area are $16^0$82’70’’N, $74^0$37’74”E The proposed site is 575 meter above the mean sea level.

3.4 Salient Features

The proposed project requires no additional land. Therefore, no social issues are involved. There won’t be change in the land use pattern since the land is already used for industrial purpose. There is no sanctuary, bio-sphere reserve or national park in the 10 km radius area. Bahubali Jain pilgrim is about 10 km far from proposed site The project surrounding land is either fallow land or used for agricultural purpose. There are approx. 23-25 villages in the study area 10 km radius. Warna river is approx. 6 km away from the project site.

Table 3.1: Salient features of the project location

Roads	Pune Bangalore National Highway No. 48 is approx. 12 km from the site and State highway no 192 is approximately 6 km far from site
Nearest City/ Town	Wadgaon is approx. 10km from the project site.
Railway Station	Kolhapur railway station approx. 30 km from the site.
Air Port	Kolhapur airport is the nearest airport approx 32 km from the site.
River	Warna is s approx. 6 km
Schools	Pardi ZP School is approx 5 km far from site
Medical and health care centers	Sawarde, & Kumbhoj PHC is about 6 & 9 km far from site
Banks	SBI & BOI Wadgaon is approx 10 km from site
Market places	Wadgaon is of 10 km far from proposed site
Protected Area/ Sanctuaries/NP	Not applicable
CRZ applicability	Not applicable
Seismicity	Seismic Zone- IIII

Note: All the above mentioned distances are the aerial distance from the project site.

3.5 Existing Infrastructure

The nearest residential area Narande to the factory is at a distance of 2 km towards East waste. There is an agricultural and fallow land in the surrounding area of the site. Within 10 km Influence Zone, there is no Tropical Forest, Biosphere Reserve, National Park, Wild Life sanctuary and Coral Formation Reserve.

Table 3.2: Existing Infrastructure

Land	SSSKL has 69 acres of land out of which approx. 4.5 acres of land is built-up area for existing sugar factory and other sub unit. Approx. 6.5 acre is for the proposed units and ancillary units thereof such as boiler house, distillery plant, go-down etc. The existing greenbelt area is about 20 acre additional1.5 acres of land will be allotted for proposed green belt. Total plot area is 69 acre.

Water	Source: Warna river
Power	Captive power supply
Road	Site is located on Narande Sawarde road and Pune Bangalore National Highway No. 48 is approx. 12 km from the site and State highway no 192 is approximately 6 km far from site
Fuel	Fuel required for steam generation will be bagasse, it will be obtained from own sugar factory.
Steam generator (boilers)	New steam generator (boilers) of sugar factory

3.5.1 Raw Material:

As a mentioned in table 1.2 shows that the expected molasses availability is about 29,000 to 32000 MT whereas requirement for proposed distillery will be 33,300MT. About 2500 to 4500 MT molasses will be procure from nearby distillery unit.

3.5.2 Irrigation and transportation facilities

The SSSKL is located in the Hatkanagale taluka, sugar cane can be grown under Warana irrigation scheme. Water conservation will be achieved by recycling of water.

Another important factor is proximity of Pune Bangalore National Highway no 48 and also network of state and local roads in the operating area of the SSSKL.

3.5.3 Fuel

The availability of bagasse is mainly dependent upon the crushing of cane at sugar factory. The cane crushing data of the factory for last four seasons i.e. up to 6,00,000 MT plus and have adequate bagasse availability of fuel i.e. bagasse

3.5.4 Water

At present sugar factory draw water from Warna river, The water requirement for proposed project will be around 333 m^3/day for distillery. Water conservation will be achieved by recycling of water. Water from the reservoirs will be used for all plant and fire-fighting purposes diesel driven pump (capacity as per TAC recommendation) along with one electrical pump will be installed for supply to all fire hydrants and sprinklers.

3.5.5 Power

Power generation and consumption of the proposed project will be as follows.

Table 3.4: Power details: generation, captive power need and export

Particular		
1.2 MW TG (Distillery)		
Distillery	**0.870 MW**	

3.6 Social Infrastructure available

Infrastructure such as school, colleges, market, banks, hospitals, public transport, road, drinking water, electricity, post, telecommunication, cinema halls, radio, etc are easily available to the local people.

The sugar factory has already initiated several activities for the development of the region. Some of the prime activities are as follows.

- The factory is providing medical aid to the employees and their dependents at very low cost
- It helps member farmers by supplying fertilizers, press-mud and the developed cane seeds.
- The factory also arranges field demonstration to educate the farmers in sugarcane cultivation through application of scientific methods
- It provides drip irrigation facilities to the sugarcane growers on subsidized basis
- To facilitate better transport of sugarcane, the factory has undertaken major program to construct roads in its area of operation

4.0 PLANNING BRIEF

4.1 Planning concept

A project is proposed by one of a leading cooperative sugar mill from Kolhapur district. Due to availability of substantial amount of molasses from its own sugar industry, a new molasses based distillery of 30 KLPD is being proposed.

4.2 Facilities for Transport

Site is located on Narande Sawarde road and Pune Bangalore National Highway No. 48 is approx. 12 km from the site and State highway no 192 is approximately 6 km far from site . Hence, public transportation is available. State transport (ST) buses ply on schedule and connect almost all the villages of the command area.

4.3 Town and country planning / Development authority classification

The project is located at taluka Hatkanagale village Narande Grampanchyat is the local authority.

Population projection

No population flux is projected because the distillery will employ candidates from local areas. Only for exceptional posts it may employ candidates from other areas..

4.4 Land use Planning

Total area of the plot is 69 acre. Out of which built up area of existing sugar and cogeneration is 4.5 acre, land for greenbelt and internal road is 23acres . About 6.5 acres of land. is allocated for distillery and allied units along with additional green belt.

4.5 Assessment of infrastructure Demand (Physical & Social)

The basic infrastructure such as roads, electricity, transportation, drinking water supply, health centers and hospitals, school, colleges, sanitation facilities are available in the vicinity. The proposed project is not going to exert any unbearable load on any of these resources

4.6 Amenities/ Facilities

Following amenities/facilities are available at sugar factory

- Medical facility
- Separate dedicated parking facility for goods vehicle and personal vehicles at site

- Provision of street light within premises as well as on approach road
- Rest room
- Security check post and round the clock security persons on duty
- Fire extinguishing facilities
- Housing colony for employees
- Drinking water and power supply to housing colony
- Diesel generator as a backup facility
- Fresh water and wastewater treatment plants

5.0 PROPOSED INFRASTRUCTURE

5.1 Industrial Area

The proposed project will be carried out in the existing factory premises only. The total allocated land for the proposed project is 6.5 acres.

5.2 Residential Area

The residential colony area allocated is 1.0 acre.

5.3 Greenbelt Area

The total greenbelt provided is 1.5 Acre.

5.4 Social infrastructure

All type of infrastructure is already available in the vicinity.

5.5 Connectivity

Site is located on Narande Sawarde road and Pune Bangalore National Highway No. 48 is approx. 12 km from the site and State highway no 192 is approximately 6 km far from site .

5.6 Drinking water management

SSSKL draws water from Warna river. It operates a special water treatment plant to supply the drinking water to factory as well as the staff colony.

5.7 Industrial waste management

The wastewater generated from industrial activity will be treated in effluent treatment plant (ETP) and Condensate Polishing Unit (CPU) and be used for irrigation purpose.

Table 5.1: Solid/ Hazardous waste generation, treatment & Disposal

#	Waste	Quantity	Disposal	Remark
1	Yeast sludge	1-1.5TPD	Used as manure and land filling	Organic
2	Ash	~1.5 to 2.0 TPD	Sold to the brick manufacturer	Inorganic
3	Distillery CPU Sludge	2.5 TPD	Used as manure and land filling	Organic

5.8 Rehabilitation and Resettlement (R & R) Plan

There will be no any issue of rehabilitation and resettlement (R & R) for the proposed project, since the required land is available with the factory.

5.9 Project Scheduled & Cost Estimates

Table 5.2: Project scheduled & cost estimate

	Particular	Amount Rs. Lac
1.	Building and Civil work	415.00
2.	Plant and machinery including taxes and duties	5247.88
3.	Miscellaneous fixed assets	134.07
4.	Preliminary and per-operative expenses	258.30
5.	Machinery stores/spares	05.00
6.	Contingencies @2%	137.49
7.	Margin money	25.00
	TOTAL	**6222.74 say 6300.00**

1.	Date of start of construction (Anticipatory)	March 2019
2.	Date of completion (Anticipatory)	January 2020
3.	Proposed Project cost (Rs. In Lakh)	6300.00
4.	EMP cost	2445.00

5.10 Analysis of proposal (Final Recommendations)

I)

- This industry will produce RS, Anhydrous Alcohol (fuel ethanol) which are useful products for the country, which will earn & save foreign exchange in the potable alcohol cadre as well blending in petrol
- Shareholders are likely to get good rates for the cane
- No external electricity required due to in house power generation in the proposed activity
- The evaporation condensate, spent lees and other non-polluting water will be recycle in to the process and cooling tower makeup water which will minimize the fresh water requirement
- Solid waste like sludge from process and CPU, and ash from incinerator boiler are also a soil enriching materials
- Compatible architecture will be adopted and land is already under industrial use. Trees will be maintained and not razed down. No Rehabilitation is involved.
- The problematic liquid waste materials such as distillery spent wash will disposed in the incinerator boiler and achieve the ZLD in proposed activity
- The process is straight line and the technology even for the pollution control/disposal are available indigenously
- Indirect employment to many since, the project will be exporting electricity to local grid
- The aggregate effect of the project is likely to boost the local economy
- Direct employment opportunities preferably for local youths. The member farmers will get proper price to their sugar cane

II) Conclusion

a) New distillery is very necessary for effective utilization of byproducts of sugar factory i.e. molasses

b) The local people including shareholder sugarcane growers are strongly willing for the project and have already given the permission to the management to develop and execute the proposed project.

c) The site is suitable from general MoEFCC guidelines.

d) Water, power, raw material, filler material and market is assured and found available with ease.

e) Full precautions will be taken for pollution control, resource conservation and environmental protection.

f) All the units are agro-based and hence promote sustainable development