PRE FEASIBILITY REPORT

New 40 KLPD Molasses Based Distillery

Proposed By

M/s. Bhoramdeo Sahakari Shakkar Utpadak Karkhana Maryadit

Village: Ramhepur, Tal: Kawardha, Dist.: Kabirdham, Chhattisgarh

Prepared By

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October 2018

PRE FEASIBILITY REPORT

1.0 Introduction

1.1 Identification of project and project proponent

M/s. Bhoramdeo Sahakari Shakkar Utpadak Karkhana Maryadit, (BSSUKM) has proposed to install a new 40 kilo-liters per day (KLPD) molasses based distillery. The sugar factory is located at village Ramhepur, Tal. Kawardha, Dist. Kabirdham, Chhattisgarh. The mill registered under the Government of Chhattisgarh Co-operative Societies Act as Registration No. A.R/KWD/01 dated 03/04/2001. This sugar mill was set up in the year 2002-03. Its initial cane crushing capacity was of 2500 TCD. It functions under the control of State Government of Chhattisgarh. Kabirdham District Collector is the Chairman of the factory. In the first decade, the area under sugar cane increased gradually. Therefore, the management of the factory implemented expansion of crushing capacity from 2500 TCD to 3500 TCD and installation of 6 MW power plant in collaboration with Chhattisgarh Electricity Board. This was done in the year 2011-12 and 2012-13 respectively.

2.1 Brief Project description

The management of BSSUKM has planned to install new 40 KLPD molasses based distillery unit because, availability of raw material, water, power as well as adequate land in the existing premises. The site meets the guidelines prescribed by Ministry of Environment, Forest and Climate Change for sitting of an industry. The geographical coordinates of the site are 22° 5' 56" N, 81°14' 55" E, 22° 5' 52"N, 81°15' 09" E, 22° 5'45"N, 81°14'51"E, 22° 5' 42"N, 81°15' 7" E. The factory site is accessible through National Highway NH-30A (connecting Bemetara to Pandaria), and nearest airport is Raipur about 130 km from site.

Table 1.1: Project Highlights

1.	**Project Proponent**	**M/s. Bhoramdeo Sahakari Shakkar Utpadak Karkhana Maryadit** (BSSUKM)
2.	**Site Location**	Ramhepur, Tal. Kawardha, Dist. Kabirdham, Chhattisgarh Email : bssukm@gmail.com Telephone: 07740-252253 Fax: 07740-252273
3.	**Land availability**	Total land available with the factory = 33 acres out of which 5.5 acre land is allocated for distillery, evaporation unit, incinerator boiler, storage area, parking, spentwash storage lagoon and greenbelt

		Greenbelt proposed: 1.5acres • No need of acquisition of additional land as the proposed project will be set up in existing factory premises only
4.	**Project**	**New 40 KLPD Molasses based distillery unit**
5.	**Product**	Rectified spirit (RS) / Extra Neutral Alcohol (ENA) /Anhydrous Alcohol i.e. ethanol (AA)
6	**Operation days /annum**	**300 Days** (Evaporation followed by incineration boiler technology for treatment and disposal of distillery spent wash)
7.	**Main Raw Material**	**Raw material** — **Quantity** Molasses — 148 TPD Nutrient N,P — 60 Kg/d Turkey Red Oil (TRO) — 200Kg/d
8.	**Fuel**	Concentrated Spent wash: 80 m^3/day or 99.2 TPD Source: Process effluent after MEE Bagasse (Max): 55 TPD Source: Own Sugar mill
9.	**Water Requirement**	300m^3/day (After recycle of spent wash evaporation condensate) Source: Bore well/tube well from the site
10.	**Steam**	**Total: Maximum 288 TPD (12 TPH)** **Source:** Proposed incineration boiler**: installed capacity** 14 TPH **Steam utilization: STG -** Distillery + MEE + Boiler de-aerator & SCAPH + losses
11.	**Power**	1.0 MW source: captive
12.	**Effluent Treatment System**	Multi-effect evaporation (MEE) followed by incineration for spent wash Condensate polishing unit (CPU) for spent lees and condensate
13.	**Manpower**	67 (Skilled 38 and Unskilled 29)
14.	**Total Project Cost**	Rs. 7,109.63 lakhs (Rounded to Rs. 7110.00 lakhs)
15.	**Capital expenses for Environment management**	RS. 1,895.00 lakhs

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

Most of the sugar industries are located in rural areas providing employment to rural masses. Cooperative sugar factories from Chhattisgarh are newly emerging. During last two decades, it is becoming a backbone of rural economy. These factories have contributed for the development of economy as well as infrastructure in rural areas, generated ample of employment opportunity to the local people.

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

In India, mainly three types of alcohols are popularly produced i.e. rectified spirit (RS), extra neutral alcohol (ENA) 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 1:10.

Table 1.2: Expected performance of the Mill, for next five years (160 days season)

S. No.	Particulars	Season				
		2018-19	2019-20	2020-21	2021-22	2022-23
1.	Cane to be crushed (MT)	5,00,000	525,000	550,000	560,000	560,000
2.	Molasses to be produced (MT)	27,500	28,875	30,250	30,800	30,800
3.	Press-mud to be produces (MT)	13,500	13,500	13,500	13,500	13,500

The above table shows that, due to achieving 3500 TCD capacity, the Mill could crush ~5.60 Lakhs ton of cane. Thereby, it will have about 31,000 tons of own molasses. Presently, there are four sugar mills in Chhattisgarh, but none of them having distillery. This unit will procure the required molasses from other units. As all the units are controlled by State Government, it will be easier to manage the source of molasses. Therefore, the management of BSSUKM has proposed distillery unit. This will

help the mill to give the good value to sugarcane of farmers and strengthen the cooperative movement in the State.

2.3 Import vs. Indigenous production

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

2.4 Export Possibility

The finished goods viz. Rectified Spirit (RS) or Extra Neutral Alcohol (ENA) or Anhydrous Alcohol (AA or fuel ethanol) are having excellent export potential. Ethanol is very important. It is used for blending with petrol and thereby, reduces the import of crude oil.

2.5 Domestic / export markets

Domestic market for RS and ENA –Raipur, Bilaspur, and Nagpur etc, are the domestic markets. For fuel ethanol, petro-chemical industries are the major buyers.

2.6 Employment Generation

Proposed distillery project will provide direct employment to 67 persons from which 38 are skilled and 29 are unskilled employees. However, it has a great potential to generate large number of indirect employment.

3 PROJECT DESCRIPTION

3.1 Type of project

Proposed project is a new 40 KLPD molasses based distillery. Molasses is a by-product of the sugar mill. It will be used as a raw material in the proposed distillery. The project 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 (EAC) of Ministry of Environment Forests & Climate Change, New Delhi.

3.2 Location with coordinates

Project site lies between following coordinates:

1)22° 5'56"N, 81°14'55"E, 2) 22° 5'52"N, 81°15' 09"E, 3) 22° 5'45"N, 81°14'51"E, 4) 22° 5' 42"N, 81°15' 7"E

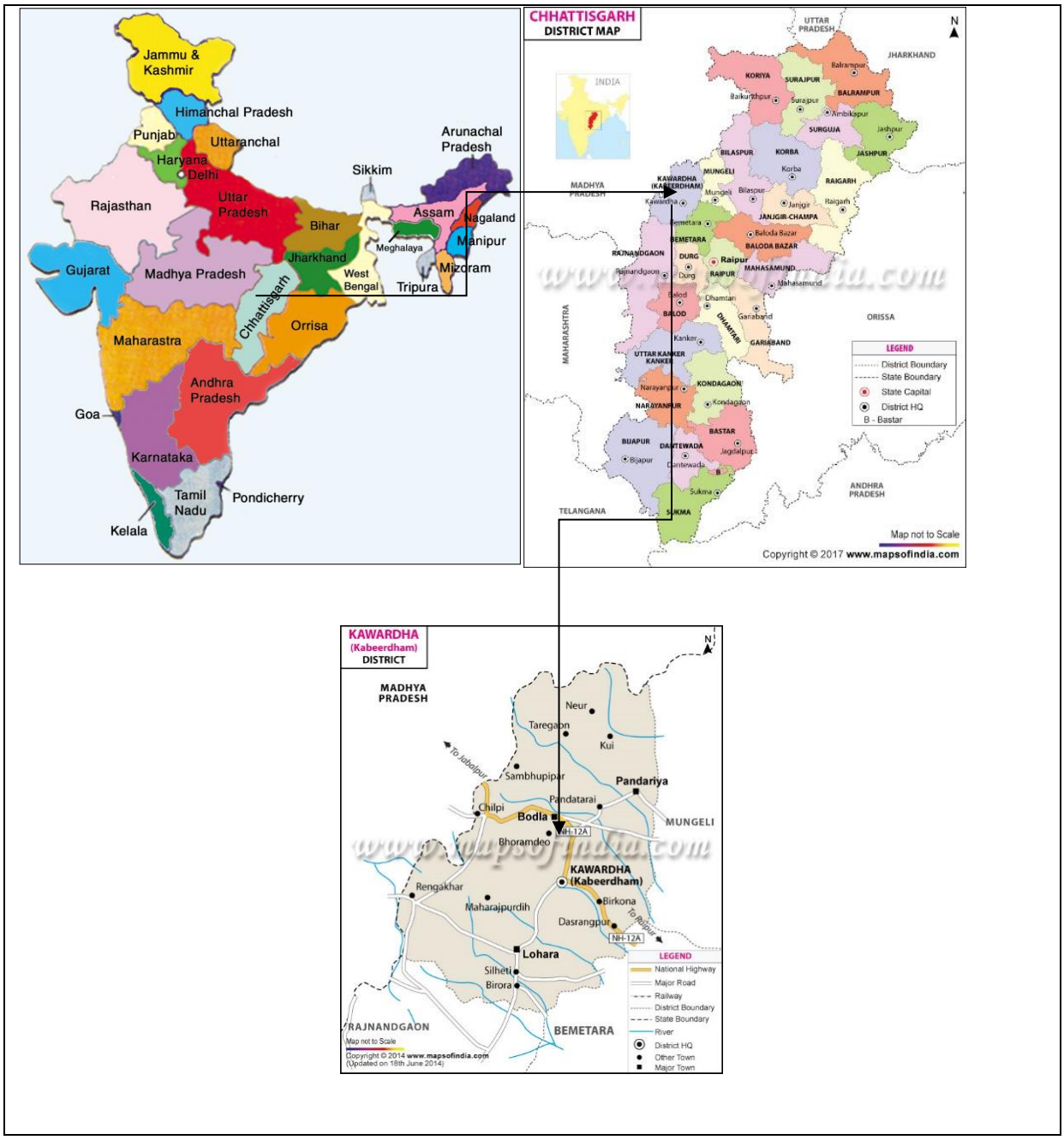
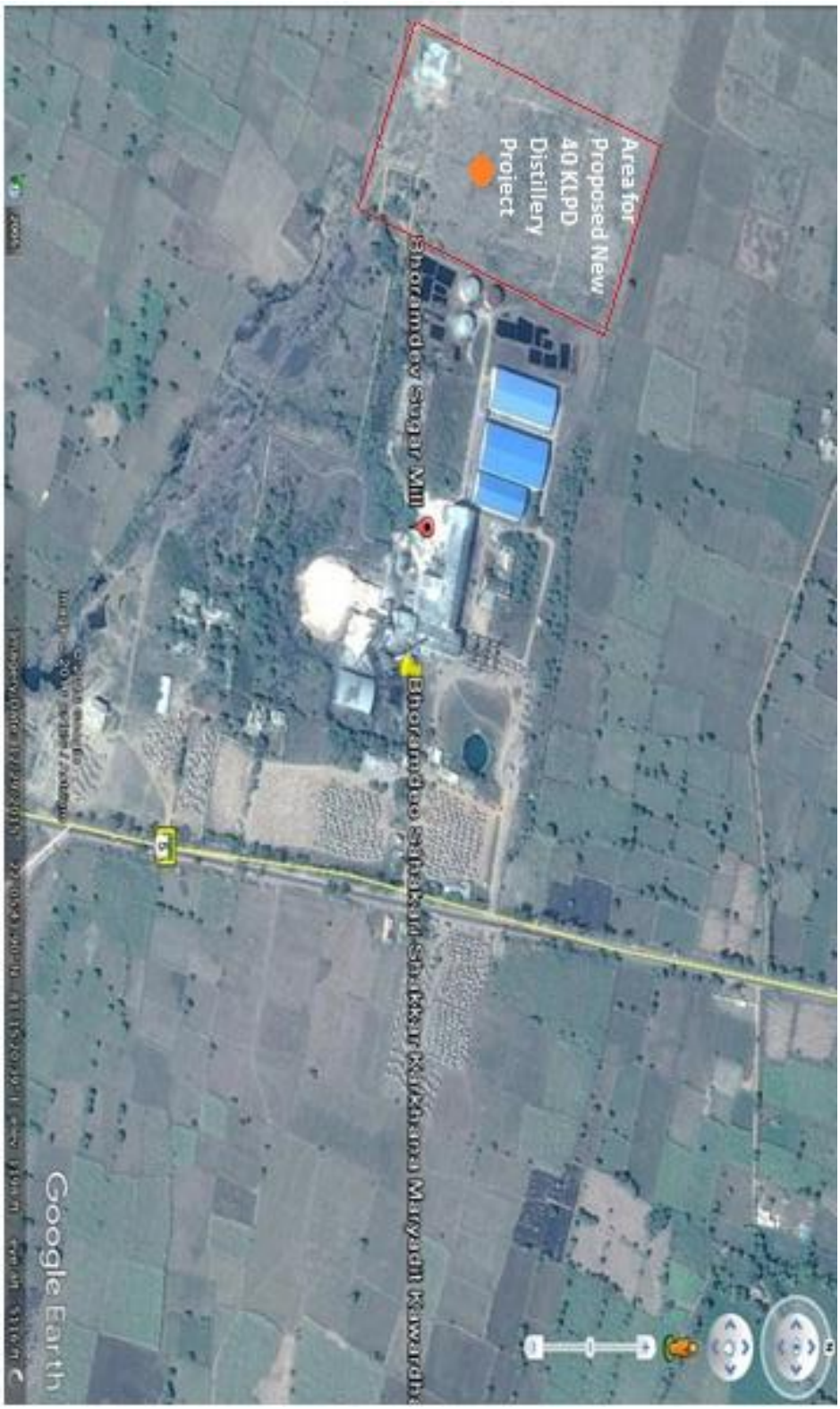


Figure 3.1: Location Map

Figure 3.2: Satellite Image of the project site



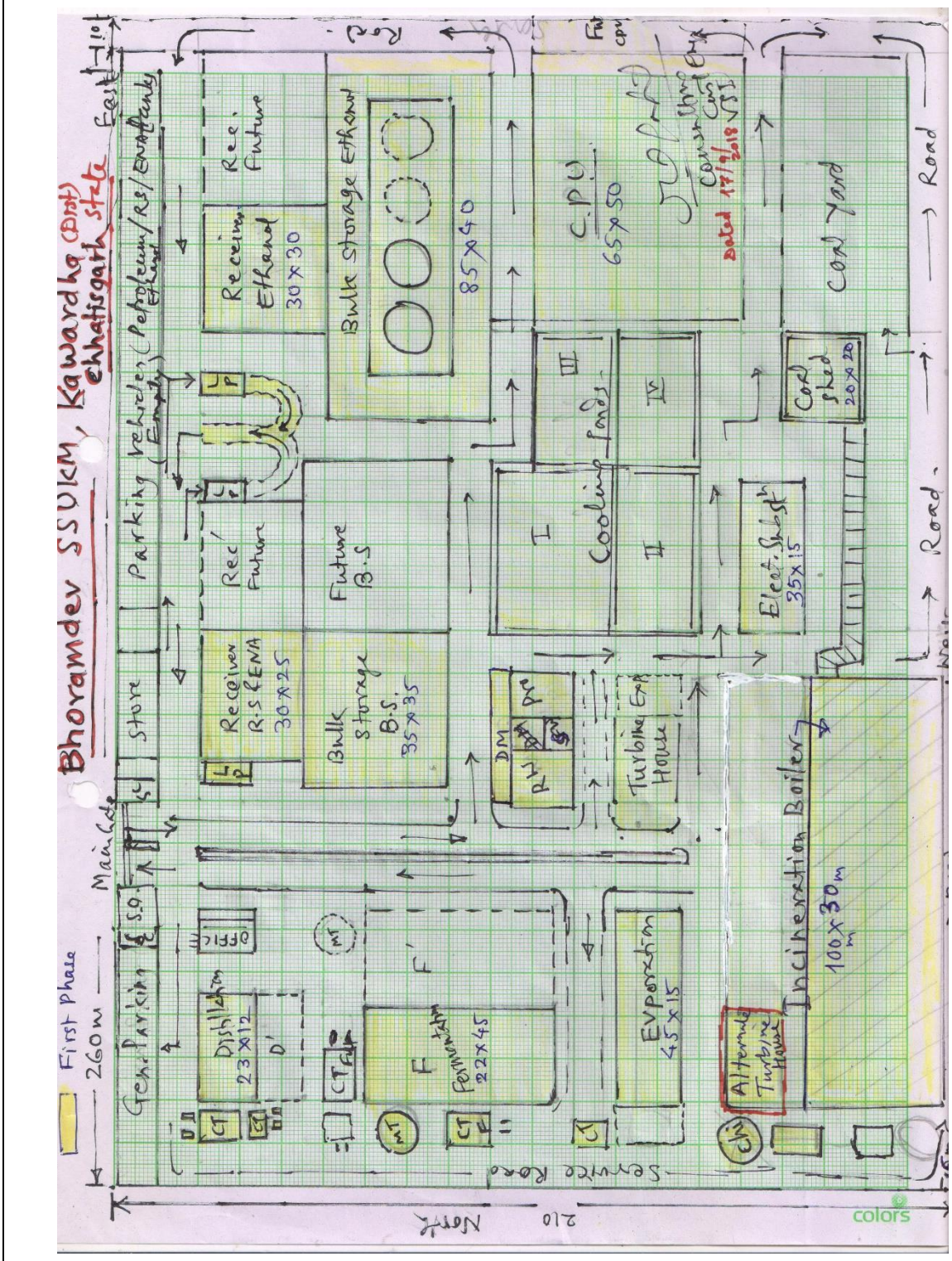


Figure 3.3: Project Layout

3.3 Details of alternative site considered and basis of selecting the proposed site

Alternative sites for the proposed project are not considered, due to following reasons.

i) The present site meets the guidelines for sitting of an industry prescribed by MoEF&CC
ii) The proposed distillery unit is an ancillary unit of existing sugar mill
iii) Nearness to raw material i.e. availability of molasses, fuel – bagasse, water and electricity will be supplied by the sugar mill
iv) Existing sugar mill is having adequate land for the proposed units as well as ancillary units thereof such as storage, treatment, disposal units, etc.
v) Avoiding likely odour nuisance to the residential areas and the public in general
vi) Availability of technical assistance in case of necessity
vii) Ease of control over both sugar factory as well as distillery by one management

3.4 Size or magnitude of operation

New molasses based distillery of 40 kilo-liter per day (KLPD) along with incineration boiler.

3.5 Project description with process details

A) Manufacturing Process

The distillery will be based on continuous/fed batch fermentation technology and post wash clarification system to achieve maximum fermentation efficiency and yield. Distillation will be based on multi pressure system, consisting of wash to RS (minimum 4 columns) and wash to ethanol (additional molecular seive dehydration facilities). The mill has decided to adopt the latest technology to achieve Zero Liquid Discharge (ZLD). This comprises of miltieffect evaporation followed by incenaration for spent wash and provision of CPU to treat condensate and spent lees.

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 is to separate alcohol from fermented wash and to concentrate it to 95% which 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.
- **Re-distillation to manufacture Extra Neutral Alcohol (ENA)**

  ENA is derived from rectified spirit (RS) by re-distillation, after the removal of impurities like higher alcohols, aldehydes and methyl alcohol. This is done by, remixing rectified spirit with soft water and distilling it in the ENA column.
- **Anhydrous Alcohol (AA)**

  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

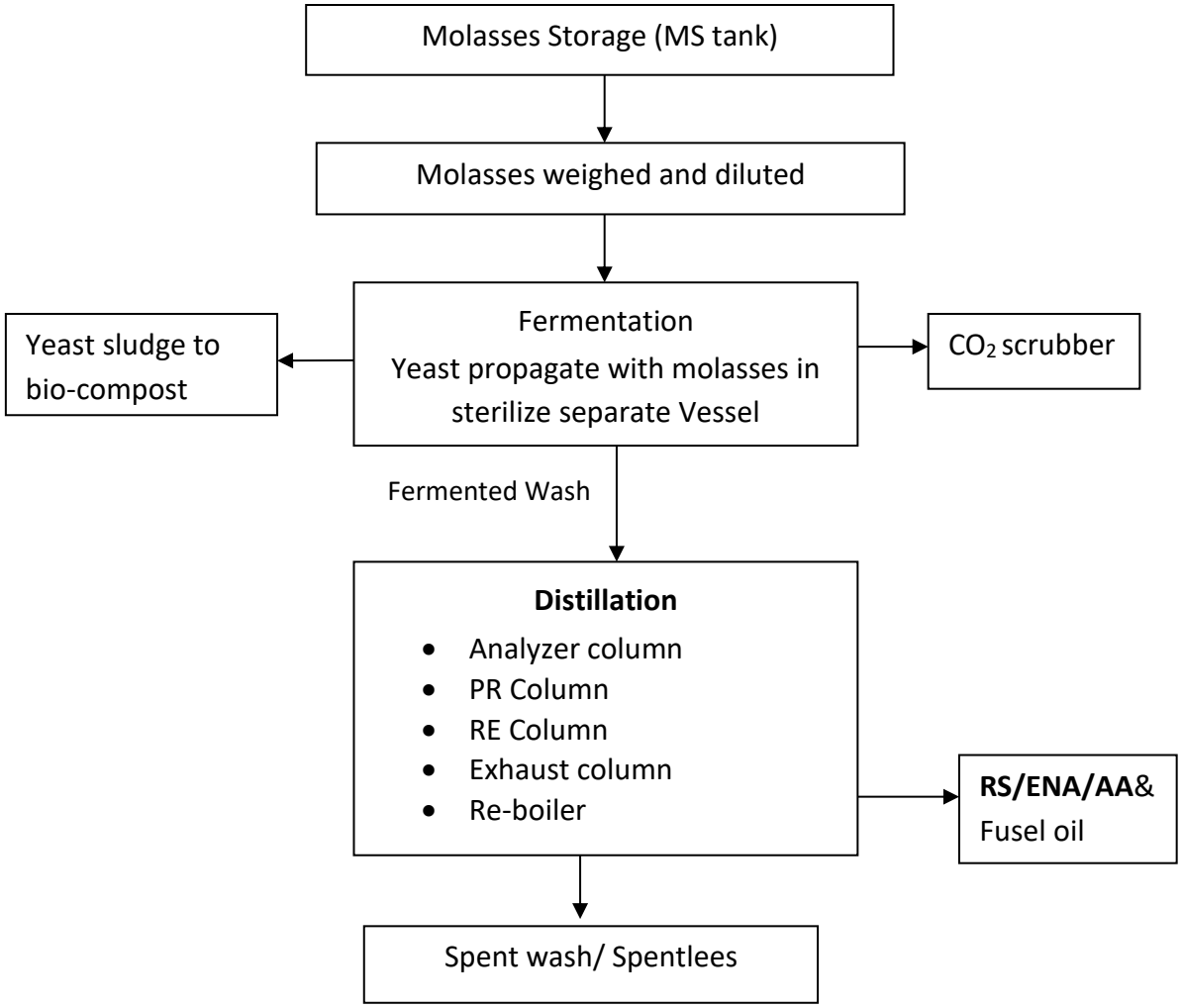


Figure 2.4: Schematic of RS/ENA/AA manufacturing process

3.6 Raw Materials for Finished Products

Main raw material molasses will be mainly available from own sugar unit (up to ~27,500 TPA) and remaining molasses will be procure from another sugar mill 'Lahu Purush Sardar Vallabhbhai Patel Sahakari Shakkar Karkhana, which is located at approx 20 km from the site. This mill is having 2500 TCD capacity and crush average 4.00 Lakh tons of cane. Other raw materials for the proposed project will be available from the local market. Concentrated spentwash and bagasse will be use as a fuel and

molasses as raw material will be available from in-house as well as nearby sugar mills. Product wise raw material consumption given below.

Table 3.1: Availability raw materials & finish good product and transport mode

Raw materials	**Estimated quantity /day**	**Source market**	**Final product**	**Estimated quantity KL/day**	**Source market**	**Transport mode**
Molasses	148 MT/ Day (44,400 MT/Annum)	Own sugar factory + Remaining molasses will be purchased from nearby sugar factories.	Rectified spirit OR ENA OR Anhydrous Ethanol	40 KLPD	Own sugar unit and nearby sugar mills	By road in closed tanker
Water	300 m3/day	Bore wells and tube wells at project site	-	-	-	Closed pipeline
Bagasse	55.00 TPD	Own sugar factory	-	-	-	Closed conveyers

3.7 Steam and Power

Steam required for the proposed unit will be the max. 288 TPD, it will be fulfilled from proposed independent incineration boiler of 14 TPH along with 1.2 MW TG set. The required power i.e. 1.0 MW for distillery and ETP will fulfilled from proposed 1.2MW TG set. Likewise proposed distillery unit will produce required steam and power itself.

3.8 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 a renewable energy source of bagasse as a fuel. In addition, concentrated effluent i.e. spentwash from process - after evaporation treatment will be used as fuel. Molasses and Bagasse is a by-product of sugar factory, bagasse will be used as a supplimentary fuel for boilers with spentwash, that produces process steam and molasses as row material to produce RS/ENA/ethanol.

3.9 Water Requirement and Its source

Necessary water requirement for the proposed project will be met from Bore wells and tube wells at project site. 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./day

Table 3.2: Water budget

WATER INPUT	m^3/day
Boiler feed water @12 TPH (capacity 14 MT/hr)	288
Process Water for Fermentation section and CO_2 scrubber	320
For Cooling Towers make up water	400
Daily utilise washing and other	60
Other Domestic Usage	10
Total Water Input - Initial	**1078**
WATER OUTPUTAND RECYCLED BACK IN PROCESS AFTER CPU TREATMENT	
Spent Lees (PR & Rect.)	160
Steam condensate	258
Evaporation condensate	320

Daily utilise washing and other	40
Total output water recycle back to process for molasses dilution and cooling tower make up water	778
Total Daily Water requirement/Input = (1078 - 778 **= 300)**	**300**
UNITE WISE FRESH WATER REQUIREMENT	
Domestics purpose	10
Boiler fresh water requirement after recycle of steam condensate	30
R.S. Dilution	260
Total fresh water requirement	**300**
The fresh water requirements per lit of Alcohol including domestic water	**7.5 lit/lit of RS**

3.10 Power & Fuel requirement and Its source

BSSUKM proposed to install an independent incineration boiler of 14 TPH with steam pressure of 45 Kg/cm^2. It will fulfill the steam requirement of distillery unit. The power required for the proposed distillery unit will be 1.0 MW.

Table 3.3: Power and Fuel requirement

Sr. No.	**Particulars**	**Quantity**	**Source**
Power			
1.	Power Requirement	1.0 MW	In-house
	Fuel		
2.	Bagasse	55.00 TPD	Own sugar factory
3.	Conc. Spentwash	99.2 TPD	Process Effluent

3.11 Waste generation & disposal scheme

Quantity of waste likely to get generated & scheme for its disposal is given in table 3.4.

A. Liquid waste

Estimated daily water requirement of distillery (40 KLPD) will be 400m^3 after condensate and spent lees recirculation (as mentioned in Table 3.2). Spent wash generation will be 400cu.m./day (12% solids). Generated spent wash will be sent to standalone multiple effect evaporationplant (SMEE) system where its volume will reduced to 80m^3/day@60% of solids. Concentrated spent wash will then sent for incineration. spent lees 160 cu.m and process condensate from evaporators of 320cu.m will be treated in condensate polishing unit and recycled in the process and partially used for cooling tower make up water. Sewage of 10 cu.m/day will be disposed through septic tanks and soak pit system.

B. Solid waste

The proposed industrial activity at BSSUKM will produce solid waste in the form of yeast sludge, sludge from CPU, 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 3.4: Solid waste generation and disposal

#	Waste	Quantity T/day	Treatment	Disposal	Remark
1	Yeast sludge	0.3-0.5	drying	Used as a soil enriching material	Organic
2	Boiler Ash (from bagasse @2%: 1.1TPD and17 TPD from Spentwash)	18.10	-	Sold to brick manufacturing units/will be used as mixed with soil	Inorganic
3	Distillery Condensate Polishing unit Sludge	0.3-0.5	drying	mixed with soil - through member farmer/ for own plot	Organic

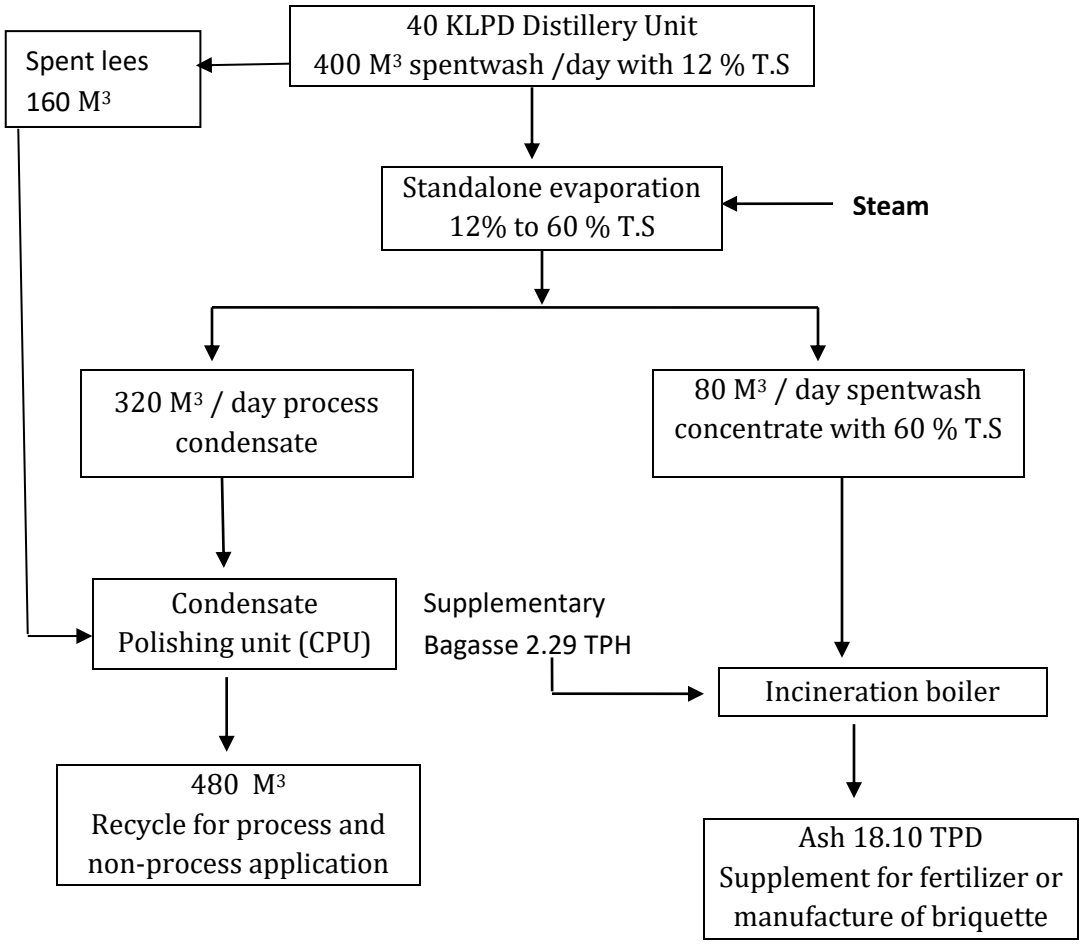


Figure 3.4: Flowchart for effluent generation and disposalin proposed distillery

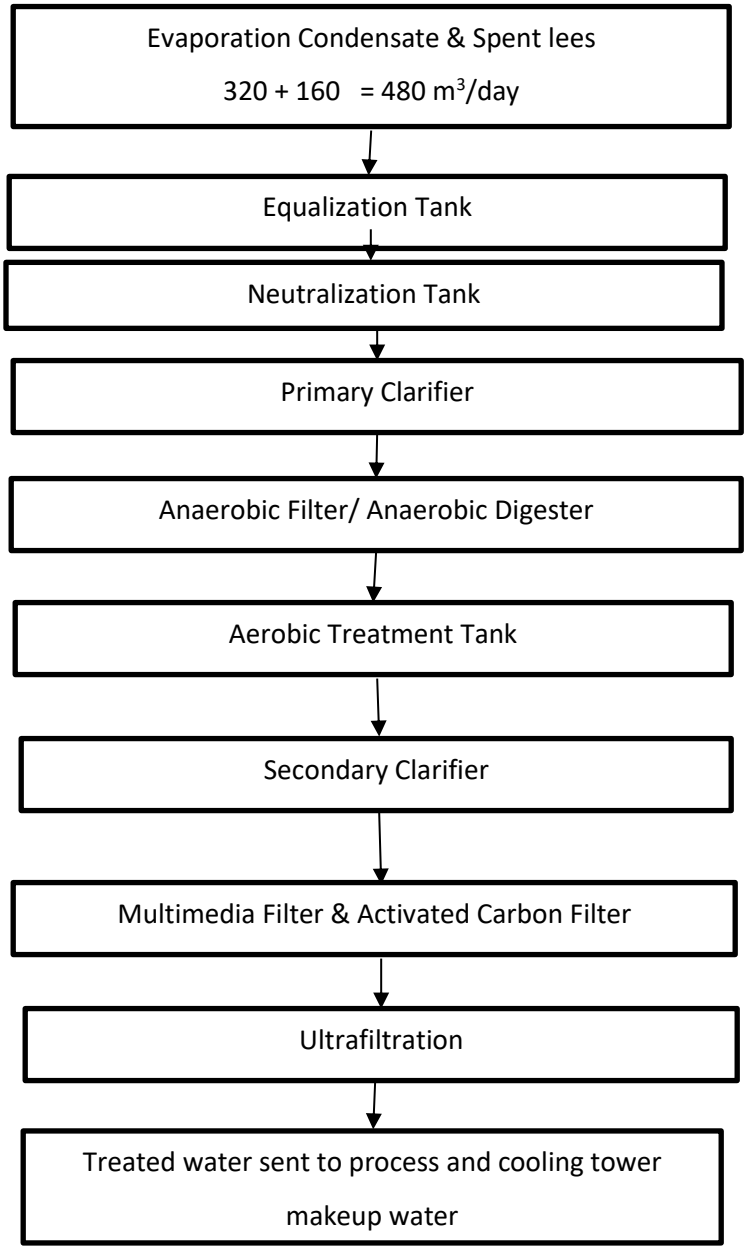


Figure 3.5: Process flow diagram of CPU

c. Air Emission & Control

Spentwash and bagasse will be use as a fuel for proposed incineration boiler. ESP will be installed as an air pollution control device.

d. 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 the specified and designed with a view to minimize noise pollution. The major noise producing equipment will provided with soundproof devices and silencers. Walls and metal sheets will act as a noise barrier. Greenbelt in the surrounding area will also help in attenuating the noise. DG set will be provided with acoustic enclosures. Ear Plugs and ear muffs will be provided to the workers in utility section.

e. Health and Safety Measures

BSSUKM 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. Health checkup of workers is carried out every year (in existing sugar unit). The same practice will be continued for distillery unit. Fire protection system as per the standard guidelines, will be developed for distillery unit.

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

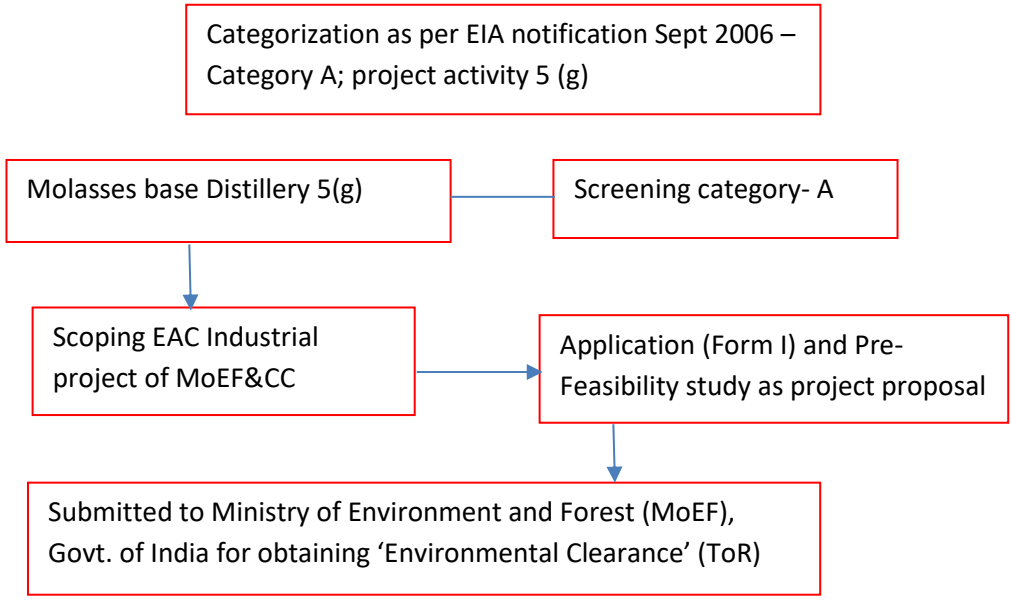


Figure 3.6: Categorization of Proposed Project as per EIA Notification

4 SITE ANALYSIS

4.1 Connectivity

The site is well connected by road, railway as well as air network. It is accessible through National Highway no. NH-30 A. Nearest railway station and airport is Raipur which is about 130 km away from the project site.

4.2 Land form, land use and ownership

The sugar factory is holding 33 acres of land. The land is flat, open and already under the industrial use (i.e. sugar factory). So out of available land a provision of approx.4 acre is for the proposed units and ancillary units thereof such as Evaporation unit, CPU and incineration boiler, storage area, etc. As per the guidelines, 33% of land is allocated for green belt development i.e. 1.5 acres. Thus, total land of 5.5 acres is allocated for the new project.

4.3 Topography

The terrain is almost flat, no hills in the surroundings. The geographical coordinates of the area are 22° 5'43.94"N, 81°15'13.96"E. The proposed site is 372 meter above the mean sea level.

4.4 Existing Infrastructure

a) Salient Features

The land required for proposed project is already in possession of project proponent. 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 10km radius area. The project surrounding land is either fallow land or used for agricultural purpose.

Table 4.1: Salient features of the project location

Roads	National Highway connecting Bemetara to Pandaria is approx. 0.2 km to the site.
Nearest City/ Town	Kawardha is approx. 12 km from the project site.
Railway Station	Raipur approx. 130 km and Bilaspur 108 Km from the site.
Air Port	Raipur approx. 130 km from the site
River	Sakri River is approx. 11.50 km from the project site.
Schools	Shri Ramkrishna Public School at ~5.5 km, Shemford Futuristic School at 7.0 km and Holy Cross Higher Sec. School at ~9.0 km.

Colleges	Government Polytechnic College is at approx. 10km from project site.
Medical and health care centers	Sai Sanjivani Multispecialty Hospital is approx. 9.90 km from the project site
Banks	ICICI Bank, UnionBank of India is approx. 10 km from the project site
Market places	Kawardha is a nearest market place at approx. 12 km from the project site
Protected Area/ Sanctuaries/NP	Bhoramdeo sanctuary is approx. at 55 km from the project site Kanha National Park is approx. at 125 km from the project site
CRZ applicability	Not applicable
Seismicity	Seismic Zone-III
Note: All the above mentioned distances are the aerial distance from the project site.	

4.5 Soil Classification

The soils in the district can generally be classified into three groups, viz. sandy clay loom, clay loom, and silty clay.

4.6 Climate

It is Hot in summer. Kabirdham District summer highest day temperature is in between 29°C to 45°C. minimum temperature observe in month of December is around 8^0C and maximum in April around 45^0C. Maximum rainfall receives during the monsoon i.e. from June to Sept. Maximum average Wind speed observed between 8 to 15 km/h.

4.7 Social Infrastructure available

	Total	Urban	Rural
Population	8,22,526	87,395	7,35,131
Children (0 - 6 years)	36980	7270	29710
Schedule Caste	37026	7287	29739
Schedule Tribe	16716	3697	13019
Literacy	64.7	80.14	60.02
Sex Ratio	993	970	1000

There are more than 40 types of scheduled caste and tribes have been reported from state of Chhattisgarh.

Chhapri: It is in Kawardha tahsil, 18 km away from district head-quarter, where there is a Bhoramdeo temple known as Khajuraho of Chhattisgarh which is the centre of cultural activity and is a famous tourist place.

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 approved. 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
- It provides drinking water through tankers to nearby villagers as per demand

5.0 PLANNING BRIEF

5.1 Planning concept

A project is proposed by one of a leading cooperative sugar mill from Kabirdham district. It is anticipated that amount of molasses produced will fulfill almost 60-70% of molasses requirement from own sugar unit. There are another three sugar mills in the nearby area which will provide their molasses to operate this unit at fullest capacity. Incineration route will be adopted to achieve total disposal of spentwash whish is the most polluting element.

5.2 Facilities for Transport

National Highway NH – 30A is very close to the site. Most of the villages from the command area of BSSUKM are accessible by asphalted (*pucca*) road, operational year around. Hence, public transportation is available. State transport (ST) buses ply regularly and connect to places such as Raipur, Rajnandgaon, Nagpur, Gondia, etc.

5.3 Town and country planning / Development authority classification

The project is located at taluka Kawardha of Kabirdham district,village Ramhepuris the local authority where the actual site is established.

5.4 Population projection

No population flux is projected because the distillery. The mill will employ candidates from local areas. Only for exceptional posts it may employ candidates from other areas. In that case, Kawardha the nearest town will accommodate the additional man power for the new activity.

5.5 Land use Planning

No major change is expected due to the project, because the land is already with the PP. Total land requirement will be of 5.5 acres. Required land is available within the existing premises.

5.6 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, developed up to a limited extent. The proposed project is not going to exert any unbearable load on any of these resources.

5.7 Amenities/ Facilities

Following amenities/facilities are available at existing 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

i. PROPOSED INFRASTRUCTURE

6.1 Industrial Area

The proposed project will be carried out in the existing factory premises only. The total allocated land for the proposed project is 5.5 acres.

6.2 Residential Area

Existing colony is capable to accommodate additional personnel burden

6.3 Greenbelt Area

The total greenbelt area provided is ~1.5 Acre.

6.4 Social infrastructure

All type of basic infrastructure is already available in the vicinity that will be improved.

6.5 Connectivity

No new roads are proposed.

6.6 Drinking water management

BSSUKM draws water from Bore wells and tube wells exist on project site. It operates a special water treatment plant to supply the drinking water to factory as well as the staff colony.

6.7 Industrial waste management

Distillery spent wash is the major source of liquid waste which will disposed through evaporation followed by incineration. The Process condensate from evaporators and spent lees from the process can be treat in Condensate Polishing Unit (CPU) and used for process and cooling tower make up water. The sanitary wastewater shall be disposed by using septic tank and soak pit system. Thus, due to proper treatment of effluent, disposal of treated water within the factory premises and recycling of it, the issue of wastewater is envisaged to be insignificant. The infrastructure for the said treatment i.e. CPU unit, MEE, incineration boiler etc. will be provided in proposed project.

6.8 Power Requirement and Source

Proposed industrial activity will generate1.0 MW TG set the power by burning of bagasse and concentrated spentwash in boilers. This power will used for the running of distillery unit and their auxiliary.

7 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.

8 Project Scheduled & Cost Estimates

Table 5.2: Project scheduled & cost estimate

1.	Date of start of construction (Anticipatory)	May 2019
2.	Date of completion (Anticipatory)	Dec. 2019
3.	Proposed Project cost	Rs. 7,110 lakhs
4.	Approx. EMP cost	Rs. 1,895 lakhs

9 Analysis of proposal (Final Recommendations)

I) Benefits

- This industry will produce RS, ENA or Anhydrous Alcohol (fuel ethanol) which are useful products for the country, which will earn & save foreign exchange
- 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 recycled 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 boiler are also a soil enriching materials
- Compatible architecture will be adopted. Land is already under industrial use. Green belt will be maintained properly. No Rehabilitation is involved.
- Waste treatment scheme will be designed to 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 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 and bagasse

b) The local people including shareholder sugarcane growers are strongly willing for the project

c) The proposed site is suitable from general MoEF&CC guidelines

d) Water, power, raw 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