Executive Summary

1.0 Project Description

1.1 Introduction

M/s Gularia Chini Mills, Unit Distillery (A unit of Balrampur Chini Mills Limited) has proposed establishment of a new 160 KLD distillery (RS/ENA/Ethanol) based on molasses along with 8.0 MW of Co- Generation Power Plant at Village- Rudrapur Gularia, PO- Nausar Gularia, Block -Bijua, Tehsil-Golagokarannath, District-Lakhimpur Kheri, U.P. 262901

1.2 Project Proponent

India is the second largest sugar producer and the largest sugar consuming country in the world; Balrampur Chini Mills Limited is one of India's largest integrated sugar manufacturing companies.

What makes Balrampur Chini Mills Limited (BCML) special is that it is more than a sugar company; it is also engaged in the ancillary businesses of ethanol manufacture and co-generation.

The Company's 10 factories in Uttar Pradesh possess:

- An aggregate cane crushing capacity of 76,500 tonnes per day.
- Distilleries possessing an aggregate capacity of 360 kilo litres per day.
- Saleable co-generation capacity of 163.20 Megawatts.

BCML is more than just another industrial entity; it is a rural prosperity driver.

1.2.1 Objective of the Study

As per the EIA Notification dated 14th September 2006 as amended from time to time; it is mandatory to have the Environmental Clearance for any new industry or the expansion of the industry from Ministry of Environment, Forest & Climate Change, Government of India, New Delhi for which Environment Impact Assessment (EIA) is required to be conducted as per guidelines given by MoEF &CC, New Delhi.

The purpose of EIA report is to provide a coherent statement of the potential impacts of the proposed installation which involves establishment of a new 160 KLD (RS/ENA/AA), molasses based distillery along with 8.0 MW of Co- Generation Power Plant.

1.3 Project Cost

Total estimated cost for the project shall be Rs 20874.20 Lacs.

The cost towards environmental protection measures is Rs. 1100.00 Lakhs.

The recurring cost towards environmental measure is Rs. 110.00 Lakhs.

The project would be formulated a fashion and manner such that utmost care is taken for Safety Norms & Environment Protection.

1.4 Environmental Setting

The proposed Distillery plant falls at Latitude 28°13'41.32"N and Longitude 80°38'15.47"E and at an elevation of about 89.0 m above mean sea level (MSL). The entire study area falls in survey of India topo-sheet nos. 62D/11 & 62D/12.

The Google map showing proposed project location, with proposed plant on map is shown in Figure no. 1, and topo-sheet of 10 kms radius is given figure 2.

The environmental setting of the proposed project is given in **Table-1.**

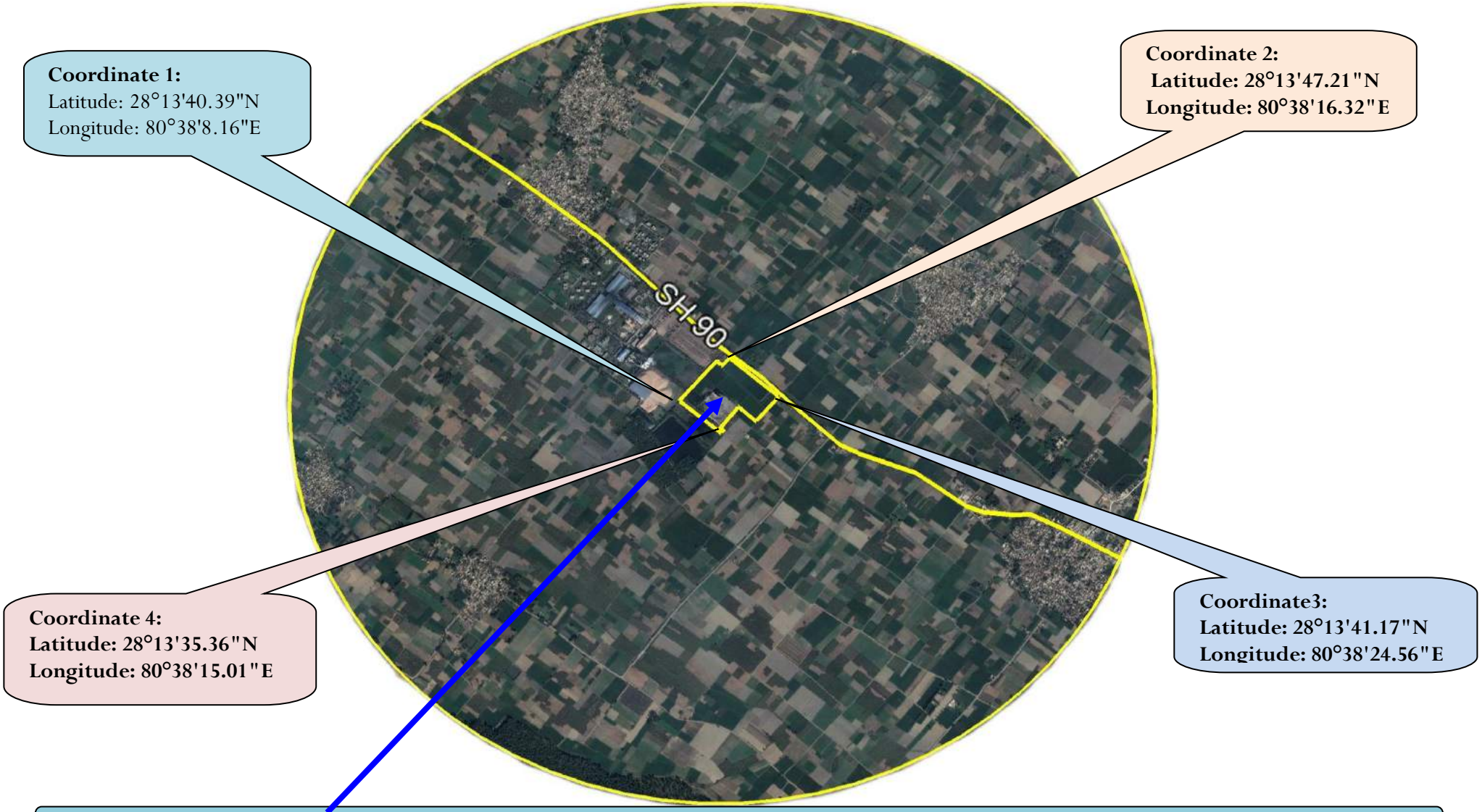

Figure 1:Proposed project site of M/s Gularia Chini Mills Unit Distillery

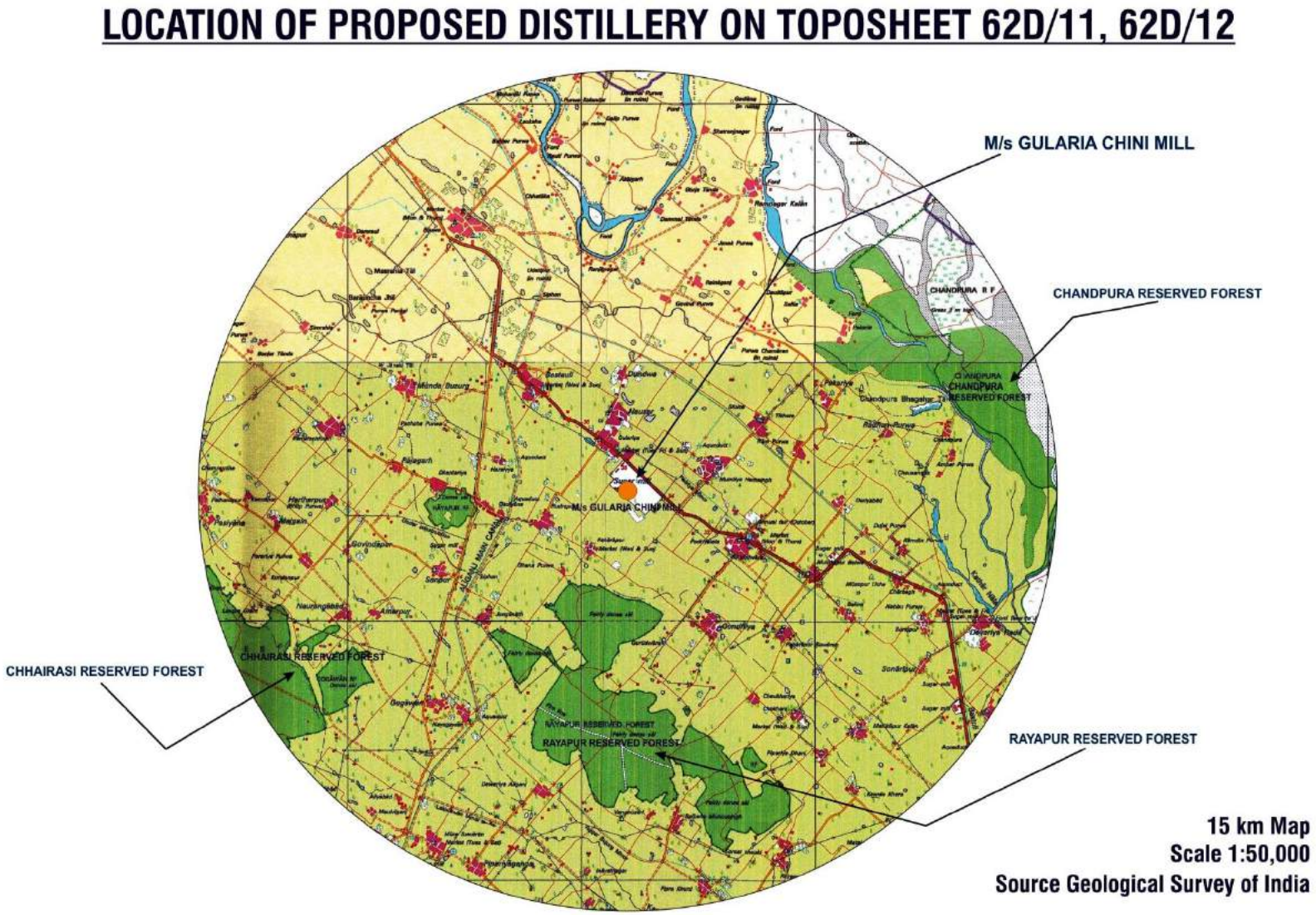

Figure 2 Topo-sheet of project site

Table-1 Details of Environmental Setting

<table>
<tr><th>Sr. No.</th><th>Attributes</th><th>Details</th></tr>
<tr><td rowspan="8">1</td><td>Protected Area</td><td>No Any</td></tr>
<tr><td colspan="2">Ecological sensitive area</td></tr>
<tr><td>Protected area under sensitive species of Flora/Fauna</td><td>No</td></tr>
<tr><td>State/National boundaries</td><td>No</td></tr>
<tr><td>Any tourism/pilgrim area</td><td>No</td></tr>
<tr><td>Defense area</td><td>No Any</td></tr>
<tr><td>National Park, Wild Life Sanctuary, Biosphere Reserve, Tiger / Elephant Reserve, Wildlife Corridors, Reserved Forests (RF) / Protected Forests (PF) etc. falls within 15 km radius of the plant site.</td><td>There is no National Park, no Wild Life Sanctuary, no Biosphere Reserve, no Tiger/Elephant Reserve, no Wildlife Corridors, /Protected Forests (PF) with in the 15 km radius of the project site.
Reserved Forests (RF):
Following reserve forest are found in the 15 km radius of the project site:
<table>
<tr><td>1.Chhairasi Reserved Forest</td><td>13.2 km (South West Direction)</td></tr>
<tr><td>2. Rayapur Reserved Forest</td><td>1.93 kms (South Direction)</td></tr>
<tr><td>3.Chandpur Reserved Forest</td><td>11.1 kms (East Direction)</td></tr>
</table></td></tr>
<tr><td></td><td></td><td></td></tr>
<tr><td>2.</td><td colspan="2">Environmentally Sensitive Places</td></tr>
<tr><td>2.1</td><td>Nearest River</td><td>River Sharda : 6.6 kms in East Direction</td></tr>
<tr><td>2.2</td><td>Nearest railway station</td><td>Gola Gokarannath Railway Station : 24.10 south west direction</td></tr>
<tr><td>2.3</td><td>Nearest Airport</td><td>Lucknow Airport: 164 kms in south direction</td></tr>
<tr><td>2.4</td><td>District Headquarter</td><td>Lakhimpur Kheri: 33.80 kms</td></tr>
<tr><td>2.5</td><td>Rehabilitation & resettlement (R & R)</td><td>No Any</td></tr>
<tr><td>2.6</td><td>Highway</td><td>State Highway:90 is adjacent to existing sugar unit in North direction</td></tr>
</table>

1.5 Process Description

Alcohol is produced from carbohydrates by fermentation with yeast. Ethanol production by fermentation comprises four steps.

1. Yeast propagation from yeast slant from the laboratory
2. Fermentation to produce fermented wash containing alcohol
3. Recovery, enrichment and purification of alcohol from fermented wash to produce 95.5 V/V alcohols
4. Production of absolute alcohol by dehydration of 95.5 % alcohol to produce absolute alcohol.

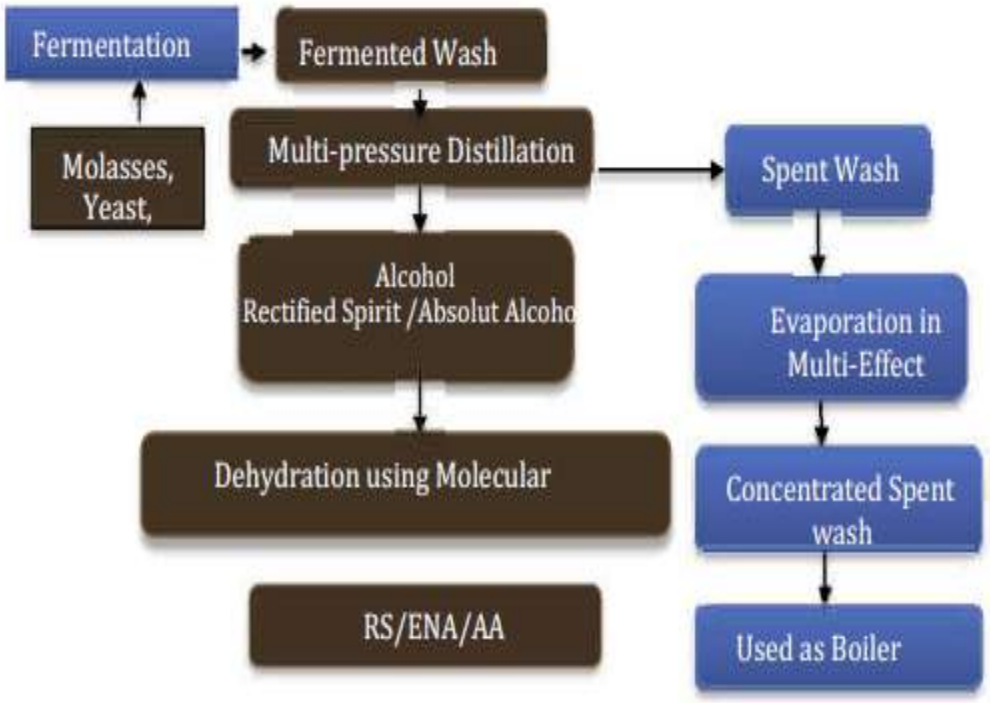

Figure 3: Flow chart for molasses based operation

1.6 Project Essential Requirement:

1.6.1 Land Requirement

The land requirement for the proposed project shall be met from land area of 8.747 hectare (as unit has already purchased the land). The item-wise breakup of the land required for the plant and machinery of proposed distillery is tabulated in **table 2** and pie chart showing land use breakup of the project is shown in **fig 4**.

Table 2: Land-Use Breakup

Land Use Details	Grand Total (sq meter)
Green Belt Area	**28800.00**
Open Land	19243.40
Road/ Paved Area	15744.60
Rooftop area of building/ sheds	23682.00
Total	87470.00

2.88 Hectare 33% of the total plant area has already been developed as greenbelt /plantation.

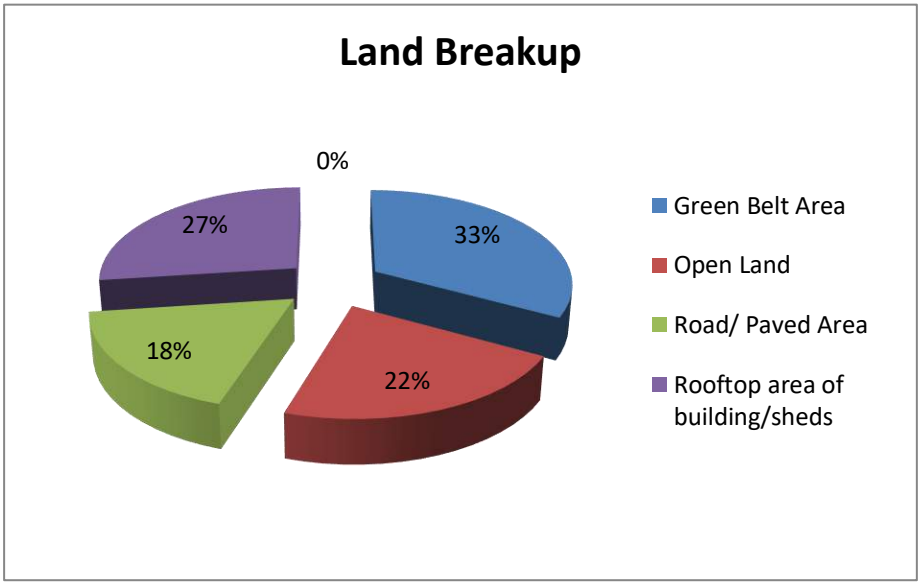

Figure 4: Pie chart showing percentage of land breakup

1.6.2 Raw material requirement for the Project

Details regarding quantity of raw material required their source along with mode of transportation for new project are given in table 3.

Molasses based operations:

Molasses: 720.0 TPD

The main raw material required is molasses which shall be procured from own sugar units.

Table 3: Raw material and transportation mode

Sl. No	Particular	Requirement	Storage	Source and mode of transportation
1.	Molasses	Molasses:720.0 TPD	Molasses storage tanks	Shall be procured from own sugar units.

Table 4: Chemical requirement

S. no	Particulars	Requirement	Storage with capacities	Source and mode of transportation
1.	Sodium hydroxide (caustic) (kg/day)	464	Solid form packed in 50 kg bags stored in godown	**Nearby markets/ by roads**
2.	Nutrients (kg/day)	518	Solid form packed in 50 kg bags stored in godown	
3.	Enzymes (kg/day)	324	Liquid form packed in cans and stored in godown	
4.	Anti foam agents (kg/day)	38.2	Liquid form packed in drums and stored in godown	
5.	Yeast (active dry yeast)	86.4	Solid form packed in bags & stored in godown	

1.6.3 Water Requirement & Waste Water Generation and Treatment

The summary of water requirement and waste water treatment strategy for molasses based operation is tabulated in table 5:

Table 5: The summary of water requirement and waste water treatment strategy for molasses based operation

1.	**Fresh Water Requirement**	960.0 KLD (@ 6.0 KL/KL of product) (Net fresh water requirement after recycling)
		Domestic Water Requirement:20.0 KLD Total fresh water requirement =980 KLD (Fresh water shall be sourced from ground water via bore-well after getting permission from CGWA)
2.	**Source of water**	Tube well
3.	**Waste Water Generation**	Spent Wash 800 KLPD @ 5.0 KL/KL of Product Other Effluents: 1100.0 KLD
4.	**Waste water treatment scheme**	**Zero Liquid Discharge**, 100% recycling and reuse shall be done.
5.	**Waste water treatment strategy**	**<u>For Spent wash : 800.0 KLD</u>** MEE followed by Incineration (**Slop fired Boiler**) shall be installed. **<u>For Other effluent : 1100.0 KLD</u>** **Process Condensate Polishing Plant** shall be installed for treatment of various other effluents (Condensate, Lees, Floor washing, Blow downs).
		For Domestic waste septic tank and soak pit shall be installed.

1.6.4 Man Power

The total manpower required for the proposed project shall be 160 persons which include unskilled, semiskilled: Local Area; skilled personnel - outside and contract labors from nearby areas.

Employment generation	Direct employment:50 persons Indirect employment: 110 persons

1.7 Baseline Environmental Status

Primary baseline environmental monitoring studies were conducted during post Monsoon; winter seasons of (15th September 2018 to 15th December 2018) and details are as follows:

Meteorological Data Generated at Site

The meteorological parameters were recorded on hourly basis during the study period near plant site and comprise of parameters like wind speed, wind direction (from 0 to 360 degrees), temperature, relative humidity and rainfall. The predominant wind directions during study period were from Northwest, west followed by East, South East.

Air Quality

Eight Ambient air quality monitoring stations were selected in and around project site and studies were carried out as per BIS standards. Ambient air quality analysis reveals that these results are well within limits in all locations as per National Ambient Air Quality standards 2009.

The results of ambient air monitoring are as follows:

Particulate Matter (PM_{10})

The maximum 98th percentile concentrations for PM_{10} were recorded at nearby the factory premises having a concentration of 88.2 µg/m^3. The minimum 98th percentile concentration was recorded at village Gondhiyina having a concentration of 67.5µg/m^3. All sites concentration ranges from 67.5-88.2µg/m^3.

Particulate Matter ($PM_{2.5}$)

The maximum 98th percentile concentrations for $PM_{2.5}$ were recorded nearby Factory site having a concentration of 58.2µg/m^3. The minimum 98th percentile concentration was recorded at village Gondhyina having a concentration of 40.8 µg/m^3. All sites concentration ranges from 40.8-58.2 µg/m^3.

Sulphur Dioxide

The maximum 98th percentile concentrations for SO_2 were recorded near Factory Site having a concentration of 15.7 µg/m^3. The minimum 98th percentile concentration was recorded at near Radha Purwa village having a concentration 13.6 µg/m^3. All sites concentration ranges from 13.6-15.7 µg/m^3.

Nitrogen Oxide

The maximum 98th percentile concentrations for NO_2 were recorded nearby Factory Site having a concentration of 26.4 µg/m^3. The minimum 98th percentile concentration was

recorded at village Rudrapur having a concentration of 21.5 µg/m^3. All sites concentration ranges from 21.5-26.4 µg/m^3.

The data regarding Minimum, Maximum and 98th Percentile Values of PM_{10}, $PM_{2.5}$, SO_2 & NOx are tabulated in table 6 A and 6 B.

Table 6A: Min, Max and 98th Percentile Values of PM_{10} & $PM_{2.5}$

Location	Min	Max	Average	98%ile	95%ile	Min	Max	Average	98%ile	95%ile
	PM_{10}					$PM_{2.5}$				
Rudrapur	56.8	75.8	67.7	75.1	74.3	40.8	52.8	47.0	52.0	52.6
Gondhyina	46.6	68.2	57.1	67.5	66.6	29.4	41.4	36.0	40.8	40.1
Rajagarh	52.6	69.4	61.3	69.3	69.1	32.8	46.8	39.5	45.5	44.0
Mundiyana	47.6	87.8	67.1	87.3	86.8	39.6	56.2	46.0	50.0	53.2
Padriyatula	53.2	82.6	63.5	82.4	81.5	34.2	54.8	41.3	53.0	54.5
Radha Purwa	60.2	79.4	67.8	79.0	78.3	42.8	56.8	49.0	56.1	55.1
Dundwa	50.6	78.5	63.2	76.9	75.2	32.8	55.8	43.0	54.6	55.3
Factory Premises	58.2	88.8	71.1	88.2	87.4	32.6	58.2	47.4	58.1	58.2
	(Standard-100µg/m^3)					(Standard-60µg/m^3)				

Table 6B: Min, Max and 98th Percentile Values of SO_2 & NOx

Location	Min	Max	Average	98%ile	95%ile	Min	Max	Average	98%ile	95%ile
	SO_2					NOx				
Rudrapur	9.8	14.2	12.2	14.2	14.1	15.2	21.7	18.7	21.5	21.3
Gondhyina	10.4	15.6	12.0	15.2	14.6	18.2	23.8	20.7	20.7	23.4
Rajagarh	9.8	14.7	11.9	14.4	14.65	18.2	24.8	21.8	24.6	24.4
Mundiyana	10.2	16.2	12.1	15.1	13.9	16.2	25.2	21.2	25.0	24.8
Padriyatula	10.2	15.8	11.4	13.3	14.6	14.8	23.8	18.7	22.6	23.2
Radha Purwa	10.0	14.4	11.7	13.6	12.8	18.2	22.2	19.9	21.9	21.6
Dundwa	10.2	15.6	12.0	14.75	15.5	18.2	24.8	21.9	24.4	24.6
Factory Premises	10.4	16.2	12.0	14.6	15.2	15.8	26.4	22.1	26.15	26.4
	(Standard-80µg/m^3)					(Standard-80µg/m^3)				

Noise Level Survey

The noise monitoring has been conducted for determination of noise levels at 8 locations in the study area. Noise monitoring results reveals that ambient noise levels in all locations are well within the limits as per Ambient Noise standards.

Water Quality

Water samples were collected from 8 sampling locations. These samples were taken as grab samples and were analyzed for various parameters to compare with the standards. A summary of findings is given below:

A). Ground water quality

Analysis results of ground water reveal the following:

- pH varies from 7.3 to 7.7.
- Total hardness varies from 220.0 to 344.0 mg/l.
- Total dissolved solids vary from 437.4 to 753.4 mg/l

The physicochemical quality of the ground water sources at and around the project site has been analyzed, which indicates that almost all the parameters analyzed are within "Maximum Acceptable Limits as per **IS: 10500-2012**".

The analysis of samples collected from different sampling points for various parameters also reveals that the quality of water is good to meet the quality requirement for human use.

B). Surface water Quality

The pH of the Sharda River and Nausar pond water sample ranges are 7.5 &7.7.The DO recorded 4.9 mg/L in Sharda River. The total hardness of Sharda River water sample is 316 and of Nausar pond water sample is 324 mg/liter. Nitrates range are22.5 & 28.4 mg/l, Sulphate range are 38.62 & 26.2 mg/l. Iron range are 0.21 to 0.23 mg/l and Zinc range are 1.72 & 1.53 mg/l. Mercury, Lead, Cadmium, Aluminum, and Copper are below detection limit. BOD of the samples of Sharda River & Nausar Pond sample is 16.2 & 26.6 mg/l.

Soil Environment:

It has been observed from Soil analysis result,

- All the samples having pH in range of 7.4 to 7.8.

- Electrical Conductivity of the samples is in between 248 to 308 µS/ cm.
- Nitrate of the samples is in between 23.24 to 28.76 mg/Kg.
- The Moisture content of a soil is a very important characteristic which is ranging from 5.9 to 7.10 %.
- Available Iron in the soil is 128.60 to 144.28 mg/Kg.

Overall it is observed that the soils of the region are good for agriculture

Flora and Fauna Studies

A preliminary survey was made for determination of baseline details of flora and fauna. During field survey various plant and animal species were recorded from the study area.

The study area did not record the presence of any critically threatened plant and animal species. The records of Botanical Survey and Zoological Survey of India did not indicate presence of any endangered or rare and vulnerable plant and animal species in this area.

Land Environment:

The 10 km area form the proposed project site shows a general slope towards North West to South East in the 10 km radius. Elevation in the Project area varies between 35.0 m and 143.0 m above mean sea level. The minimum elevation in the area is 35.0 mt AMSL and the maximum elevation is 143.0 m AMSL. The proposed project site is located in a gently sloping area at an elevation of approximately 89 m AMSL.

1.8 Impact Assessment study

1.8.1 Impact during Construction Phase

Impact on Land Use

The land use of proposed distillery land is under non agricultural category. The green belt shall be developed over 33% of total area & shall be maintained with installation of new Distillery unit.

Impact on Soil

Vegetation on topsoil is to be removed prior to commencement of bulk earthwork. The construction activities shall result in minimum loss of vegetation and topsoil in the plant area. Apart from localized constructional impacts at the plant site, no significant adverse impact on the soil in the surrounding area is anticipated.

Impact on Air Quality

During construction phase, dust generation shall be the main pollutant, which would generate from the site development activities and vehicular movement on the road. To mitigate these impacts, regular sprinkling of water shall be done at the construction site. The approach roads shall be black carpeted and vehicles shall be kept in good order to minimize automobile exhaust. However, the impact of such activities would be temporary and restricted to the construction phase and shall be confined to the project boundary and is expected to be negligible outside the plant boundaries. Proper keep up and maintenance of vehicles, sprinkling of water on roads, providing sufficient vegetation etc are some of the measures that would greatly reduce the negative impacts during the construction phase.

Impact on Noise Levels

The major sources of noise during the construction phase are vehicular traffic, construction equipment like dozers, scrapers, concrete mixers, cranes, generators pumps, compressors, rock drills, pneumatic tools, saws, vibrators etc. The operation of this equipment shall generate noise ranging between 70-85 dB (A). The noise produced during the construction shall have significant impact on the existing ambient noise levels. The major work shall be carried out during the daytime. The construction equipment may have high noise levels, which can affect the personnel operating the machines. Use of proper personal protective equipment shall mitigate any significant impact of the noise, generated by such equipment.

Demography and Socio-Economics

During construction phase the local labor would get opportunities for direct employment. In addition to that they shall get indirect employment opportunities in related service activities like petty commercial establishments, small contracts/sub-contracts and supply of construction materials for buildings and ancillary infrastructures etc. Consequently, this shall lead to economic upliftment of the area.

1.8.2 Impacts during Operational Phase

Impact on Soil

All the solid wastes generated shall be used as manure in crops, or in ancillary activities, hence, no impact of solid waste is envisaged on soil quality of the area.

1.	**Solid Waste Generation and its management**	**Particular**	**Quantity**	**Management**
		Ash	60.03	Ash generated shall be

		generation	MT/Day	utilized as manure due to high organic and potash content.
		Fermenter Sludge	16.0 MT/DAY	Shall be used as manure along with ash.
IN ORDER TO MANAGE SOLID WASTE UNIT SHALL INSTALL GRANULATION PLANT				

Impact on Air Quality

The major sources of pollution are Particulate Matter (PM_{10}) from proposed distillery plant based on Molasses. The PM_{10} emission from stack shall be restricted below 150 mg/Nm^3. Proposed stack shall be of adequate height of 72.0 meters which shall be attached to boiler through proposed ESP. ESP shall be used as pollution control equipment to reduce the emission of Particulate Matter.

The operational phase of the project comprises of various activities each of which shall have an impact on air quality. The impact on air quality can be due to:

Stack Emissions

In a plant, the major emission from stack is Particulate Matter (PM_{10}) emissions from stack.

The cumulative concentrations (**maximum baseline concentration + predicted incremental rise in concentration**) of PM_{10} and SO_2 are shown in table 7 below:

Table 7: The cumulative concentrations (maximum baseline concentration + predicted incremental rise in concentration) of PM_{10} and SO_2

Pollutant	Maximum Baseline concentration in the study area (µg/m^3)	Maximum predicted Incremental rise in the concentration due to proposed project (µg/m^3)	Direction	Concentration(µg/m^3)	
				Net Resultant concentration	NAAQs Limit
PM_{10}	88.8	1.53	**East**	90.33	100*
SO_2	16.8	4.62	**South East**	21.42	80*

The net resultant concentration of SO_2 and PM_{10} during operation of the proposed project are well within the **Revised National Ambient Air Quality Standards** (NAAQS) stipulated by MOEF&CC vide notification dated 16.11.2009. Hence, there shall not be any adverse impact on the air environment due to the proposed project.

Impact on Water Resources:

The water shall be sourced from the ground water through Bore well.

The details of fresh water requirement are tabulated below:

Table 8: The details of fresh water requirement

Fresh Water Requirement	**During Molasses Based Operation**
	960(@ 6.0 KL/KL of product) (Net fresh water requirement after recycling)
	Domestic Water Requirement: 20.0 KLD
Total fresh water requirement =980KLD (Fresh water shall be sourced from ground water via bore-well after getting permission from CGWA)	

The main source of water supply for the industrial operations is bore-well and site is under safe area as per CGWA Area categorization.

Impact on Water Quality:

General water is essential for human, agriculture, industry and commercial use. The industrial activity shall have direct impact on the end users. The water environment broadly covers the following points for consideration of impact.

• Industrial operations, their effect on water quality and ground water potential of study area.

• Identifying potential sources of pollutants focusing specifically zero discharge of the wastewater.

There is no waste water discharge in this process. Proposed plant is based on Zero Discharge. Domestic Waste water shall be treated in separate soak pit and septic tank. Hence there is no disposal of waste water in this process so, no adverse impact on water quality of the area.

Impact on Noise Levels

The proposed Distillery Plant shall not result in any significant impact on noise environment. The minor increase in vehicular transportation due to increase material handling shall not generate any significant excessive noise. Hence, there shall not be any significant negative impact on noise environment of the study area. Hence there is no disposal of waste water in this process so, no adverse impact on water quality of the area.

Impact on Ecology

Since the unit shall be operating on zero discharge process, no adverse impact on aquatic ecology is envisaged. The plant drainage system shall be suitably designed in such a way that the storm water does not carry any pollutant.

The identified Avi- Fauna, which were observed in the project site and in the study area, are local migrants only. Therefore, the proposed project operations are not likely to have any adverse impact on the paths for avi-fauna.

The impact of air pollutants on vegetation due to the proposed project is identified and quantified by using air dispersion modeling. The simulations have been done to evaluate PM_{10} and SOx likely to be contributed by the proposed project activities, the resultant concentrations for study period are within the limits as per National Ambient Air Quality Standards. Hence, no impact on ecology of study area is identified.

Table 9: Anticipated Environmental Impact

Sr No.	Environment Facets	Anticipated Impacts
1.	**Air Environment**	Probable increase in concentration of air pollutants due to process, fugitive and utility emissions.
2.	**Water Environment**	Generation of industrial & domestic waste water.
3.	**Land environment**	Impacts on land due to improper disposal of hazardous solid waste.

4.	**Ecological Environment**	Positive as greenbelt of appropriate width shall be developed and maintained by the company in the area. No impacts are envagised on adequate flora & fauna as there shall be zero effluent discharge outside the plant premises.
5.	**Social Environment**	Overall development of the area in respect of the infrastructure development, educational growth, health facilities etc.
6.	**Economic Environment**	Positive impacts on economy of the region and the country as the alcohol shall be exported and revenue generations
7.	**Noise Environment**	Minor increase in noise level within the project area.
8.	**Occupational Health & Safety**	Major health hazards are identified in worst case scenario (accidents, natural calamities etc).

1.9 Environment Management Plan

19.1 During construction Phase

The measures required to be undertaken to minimize the impact on the ecology are:

- No felling of trees shall occur as area is open.
- Proper Canteen, Sanitation and shelter facility shall be provided to worker and truck driver during construction.
- To control air pollution proper sprinkling of water shall be done.
- The greenbelt shall be developed.

1.9.2 Environment Management

During Operation Phase

Air Pollution Management

To reduce the emission of particulate matters, ESP with maximum efficiency shall be installed. ESP shall be connected with boiler through Duct. The particulate matter emissions from stack shall be as per permissible standards.

Noise Pollution Management

The greenbelt shall be developed around the boundary of the plant which shall attenuate the noise emitted by the various sources in the plant. Earplugs shall be provided for the personnel working close to the noise generating units as a part of the safety policy. Apart from this, some of the design features provided to ensure low noise levels are as follows: Provision of silencers shall be made wherever possible;

a. The insulation provided for prevention of loss of heat and personnel safety shall also act as noise reducers;
b. Necessary enclosures shall also be provided on the working platforms/areas to provide local protection in high noise level areas;
c. The workers shall be provided with ear plugs; and
d. Plantation in the zone between plant would attenuate noise in the residential area.

Water Pollution Management

The proposed Molasses based distillery would be based on "Zero Liquid Discharge" (ZLD).
Spent wash shall be concentrated in MEE (Multiple Effect Evaporator), and then the semisolid waste (Slop) from MEE (Multiple Effect Evaporator) shall be sent in specially designed slop fired boiler for incineration.

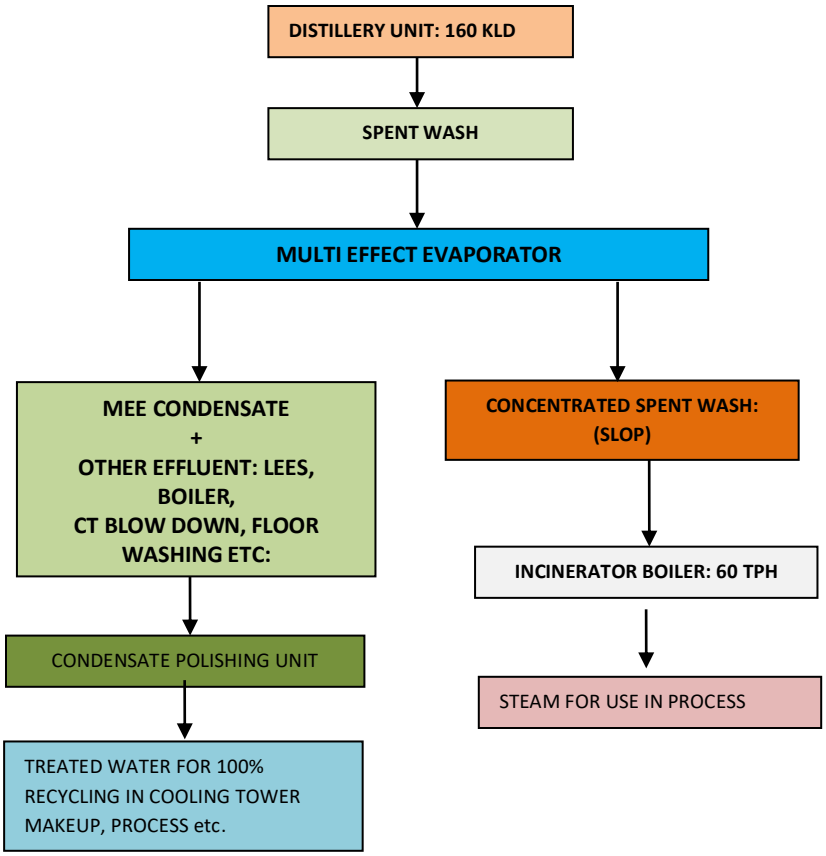

Figure: 5 Proposed Treatment Strategy for Spent Wash and Other Effluent Unit shall be based on zero liquid discharge

Solid Waste Management

Ash shall be generated in the process. Dust collected from air pollution control equipment shall be stored in ash yard. Ash shall be used as soil conditioner due to high content of potash as unit has proposed to install granulation plant..

Odor Management

Anticipated odor generation sources shall be molasses, fermentation unit, spent wash, septic tank , and yeast storage.

Following control measures shall be implemented to avoid the odor in the atmosphere:

- Better house-keeping
- Whole process is work under closed conditions, close pipeline.
- Spent wash from evaporation would be in a closed tank and directly send to the incineration in boiler.
- **No bio-methanation shall be adopted.**
- Fermentation unit shall be provided with proper cover to avoid the spread of odor and regular steaming of all fermentation equipment's; temperature shall be kept under control during fermentation to avoid inactivation/killing of yeast; staling of fermented wash would also be avoided.
- Regular use of bleaching powder in the drains to avoid generation of putrefying micro-organisms.
- Yeast sludge shall be dry in drying beds and used as manure.
- Steaming of major pipelines
- Proper operating condition shall be maintained.
- Proper cleaning of drains.
- Well planned Greenbelt shall be developed in and around the plant premises to suppress the odor.

Biological Environment Management

- There is no any discharge from the project activities. No any impact on the biological environment has been found any alteration or destruction to the biological environment.
- All efforts shall be put-up by the factory management to maintain the ecological balance and improve the environment in terms of ecology and green Belt development. Industry shall follow the zero discharge norms. Hence no adverse impacts on surrounding ecology.

Greenbelt Development

Due care shall be taken to ensure that a greenbelt is developed around the plant. All areas devoid of vegetation and having low density shall be systematically and scientifically planted. Distillery shall be developed greenbelt in 33% of total area of distillery plant. Unit shall follow Protocol provided by UPPCB regarding development of green belt via letter number H16405/220/2018/02 dated 16.02.2018.

Occupational Health

- All safety signs shall be placed at proper location.
- First aid kits shall be made available at every department
- Pre-employment Medical checkup and periodical medical checkup shall be undertaken to know the occupational health hazards at the early stage.
- Work permit system shall be introduced to avoid the entry or un-authorized working to avoid the incidences which can lead to the accident if proper care is not taken
- All arrangement required for Fire hydrant system shall made at every vulnerable location to have the firefighting facility.
- Apart from above, all required Fire Extinguishers shall be provided at appropriate locations.
- All staff and workers shall be trained in firefighting operations and emergency preparedness plan or to tackle the accident.
- Apart from all engineering control measures, if required necessary PPEs shall be provided as last protection measures to the employees.
- Good housekeeping also plays important role in avoiding the undesirable incidences / accidents, hence good housekeeping practices shall be employed.

Project Benefits

- The industry shall be established in the rural region of the state.
- The industry shall provide skilled, semi-skilled, unskilled people, direct and indirect employment to approx 160 persons.
- It can be stated that by this activity employment potential is certainly increasing in all walks of life – skilled, semi-skilled and unskilled.
- The importance and utility of alcohol is well known as an industrial raw material for manufacture of a variety of organic chemicals including pharmaceuticals, cosmetics, polymers etc.
- Alcohol is a potential fuel when blended with petrol. In the presence of ethanol, petrol burns with more efficiency and low toxic smoke.
- Alcohol is an **eco-friendly product** and is a substitute to the imported petroleum.

1.10 Conclusion

- Proposed project does not attract rehabilitation and resettlement of people, since the proposed site is adjacent to existing sugar mill.

- Proposed project does not anticipate any adverse impacts on environment.
- Production process is environmentally safe as ZLD is proposed with efficient mitigation measures implemented.
- Air emissions through 72.0 m stack shall be controlled by ESP.
- Workplace/ operation hazards, which shall be minimized by providing personal protective equipment's, safety precautions, emergency plan & disaster management plan. Consequently, impacts on air, water, land and ecological environments are insignificant and the socio-economic benefits are predominantly positive. Thus, overall project features, process, potential of pollution, pollution prevention measures and environmental management plan proposed by proponent illustrates that proposed project shall not have any considerable impacts on environment as well as on socio-economic & ecological conditions of the project area. Therefore, proposed project is environmentally safe.