

## EXECUTIVE SUMMARY

### ES.1 Project Brief

M/s. Someshwar Sugars Limited earlier obtained CFE from KSPCB for Establishment of 2500TCD Sugar Cane Crushing & 15MW Co-gen power plant vide letter No. PCB/253/HPI/2015/5682, Dtd.:20.02.2015. Further obtained Environmental Clearance from KSEIAA for increase of Sugar Cane Crushing capacity from 2500TCD to 15000TCD and Co-generation power plant capacity from 15MW to 70MW vide Letter No. SEIAA 5 IND, 2015 Dtd 29.07.2016 and obtained CFE vide letter No: CTE 304499 Dtd 07.12.2017 from KSPCB. The Sugar unit and the Co-gen power plant for which the EC & CFE is obtained is not implemented at site, it is yet to be implemented.

Now M/s. SSL has proposed for “Establishment of 180KLPD Distillery unit and 8 MW Co-generation power plant” in the same premises of Sugar unit at Sy.No. 349/3, 350/3, 370, 385/2 & others of Kambagi Village, Bableshwar Taluk, Vijayapura, with an total area of 36 Acres.

The application was filed in PARIVESH vide proposal No. IA/KA/IND2/195873/2021 Dtd:01.02.2021. Accordingly, the ToR was issued on 17.02.2021 vide File No. No.IA-J-11011/42/2021-IA-II(I). The EIA is based on the ToR issued and the structure is as per EIA notification, 2006. The salient features of the project are as follows:

Sl. No	Items	Particulars
1.	Name of the Project	Proposed Establishment of 180 KLPD Distillery Unit and 8 MW Co-Gen Power Unit.
2.	Objective of the Project	Proposed distillery unit for Production of Ethanol/Extra Neutral Ethanol from molasses of capacity 180 KLPD and 8 MW Co-Gen Power Unit.
3.	Promoters	M/s. Someshwar Sugars Ltd.
4.	Total Investment, Rs	281.73 Crores
5.	Project Location	Survey No. 349/3, 350/3,370,385/2 & others of Kambagi Village, Bableshwar Taluk, Vijayapura Dist. Karnataka State.
6.	Category of the Project	5(g) Distillery, Cat “A” (>100 KLD)
7.	Extend of Land	Total area for Proposed Establishment of Distillery Unit & Co-Gen Power unit – 36 Acres
8.	Man Power	During Construction : 300 No’s During Operation : 190 No’s
9.	Water Demand and Source	Water Source: Krishna River : 4000 KLD Water Permission is obtained for 4000 KLD from KBJNL, Dam Division, Almatti, GoK. for Sugar Unit and same shall be utilized for Distillery application also.  Fresh Water Requirement for 180 KLD ENA Production; Cane Juice/Syrup as Feed: 1012 KLD @ 5.62 KL/KL B-Heavy Molasses as Feed: 1294 KLD @ 7.19 KL/KL C-Molasses as Feed: 1440 KLD @ 8.00 KL/KL  Fresh Water Requirement for 180 KLD Ethanol Production; Cane Juice/Syrup as Feed: 922 KLD @ 5.12 KL/KL B-Heavy Molasses as Feed: 1210 KLD @ 6.72 KL/KL

		C-Molasses as Feed: 1374 KLD @ 7.63 KL/KL
10.	Power Supply	Total Power required: During Construction Phase – 500 kWh Power required for the same will be met using power from 1250 kVA D.G. Set. During Operation Phase – 4030 kWh Power required will be met from new 8 MW Co-generation Power Plant.
12.	No. of working days	330 days

## ES.2 Raw Material Requirement and Product Details

Sl. No	Raw Material	Quantity	Transportation	Source	Storage
1	Cane Juice / Syrup	2700 TPD or 675 TPD @ 60 Brix	Pipeline for Internal/Tankers for shifting from ICPL	Own Production / Shifting from ICPL unit	Mild Steel Tanks
2	B-Heavy Molasses	591 TPD	Pipeline for Internal/Tankers for shifting from ICPL	Own Production / Shifting from ICPL Unit	Mild Steel Tanks
3	C- Molasses	756TPD	Pipeline /Tankers	Own production plus other sugar factories.	Mild Steel tanks
<b>Chemicals / Nutrients</b>					
3	Sulphuric Acid	360 lit	Lorry tanker	Mumbai	M S Tank with Fume absorbing facility
4	DAP	180 Kg	Lorry	Local	50 Kg Bags
5	Urea	660 Kg	Lorry	Local	50 Kg Bags
6	Antifoam HCL Caustic lye	360 kg 660 kg 660 kg	Lorry Tanker Lorry	Local	50 Kg Bags Acid proof MS tank SS Storage tank
7	Yeast culture /Enzyme	330 kg	Lorry	From Manufacturers	10 kg drum
<b>Fuel for Boiler</b>					
8	Bagasse as fuel for Boiler	501 TPD	By Belt Conveyor	In-house	Storage yard
9	Bio Gas	48 TPD	Through pipeline from Gas Holder	In-house	Gas Holder
10	Indian / Imported Coal	64.80 TPD	By Belt Conveyor	From Market	Storage yard

• **Products and By-products**

Sl.No.	Particulars	Capacity		
<b>A. Products</b>				
1	Rectified Spirit	189 KLPD		
2	ENA	180KLPD		
3	Ethanol	18 KLPD		
4	Power (Co-generation)	8 MW		
<b>B. By-products</b>				
5	Spent wash powder or Potash derived from spent wash drying as By-product	Cane Syrup	BH - Molasses	C- Molasses
		14.4 TPD	69.6 TPD	117 TPD
6	CO <sub>2</sub>	141 TPD		
7	Yeast Sludge	5.4 TPD		
8	Fly ash	18 MT/Day		
9	Bottom ash	8 MT/Day		

**ES.3 Criteria for Site Selection and Resource Requirement**

The proposed site location is ideal because of suitable raw material availability and transportation of raw material is easier since the project site is nearest to SH 55 Road is passing adjacent to the proposed project site, Hence good accessibility. There are no National Parks/Tiger Reserves/Elephant corridors within 10 km radius of the project site.

Sl.No.	Particulars	Details
1.	Land (Acre)	Total area for Proposed Establishment of Distillery Unit & Co-Gen Power unit is 36 Acres
2.	Power	<u>Total Power required:</u> During Construction Phase – 500 kWh Power required for the same will be met using 1250 kVA D.G. Set. During Operation Phase – 4030 kWh Power required will be met from new 8 MW Co-generation Power Plant  Backup power – 1250 KVA DG set will be installed as backup for power failure
3.	Boiler	1 No Boiler of capacity 60 TPH
4.	Electrostatic Precipitator	Electro Static Precipitator 1 No of 75 mtrs height chimney
5.	DG Set as backup power	1 x 1250 KVA capacity DG set with stack as per KSPCB norms.

**ES.4 Process Description**

The process envisages use of own Cane Juice, B-Heavy Molasses and C- Molasses for manufacture of ethanol The brief manufacturing process for project component are given below;

- Cane Crushing and Molasses Availability
- Feed preparations
- Yeast Propagation and Fermentation.
- Multi-pressure Distillation with integrated spent wash evaporator

- Stillage processing
- Molecular sieve dehydration for Fuel Alcohol.
- Potash derived from spent wash drying.
- Bio-Methanation

The detailed manufacturing process is explained in process flow chart for RS/Ethanol/ENA Production and Power Generation is given below;

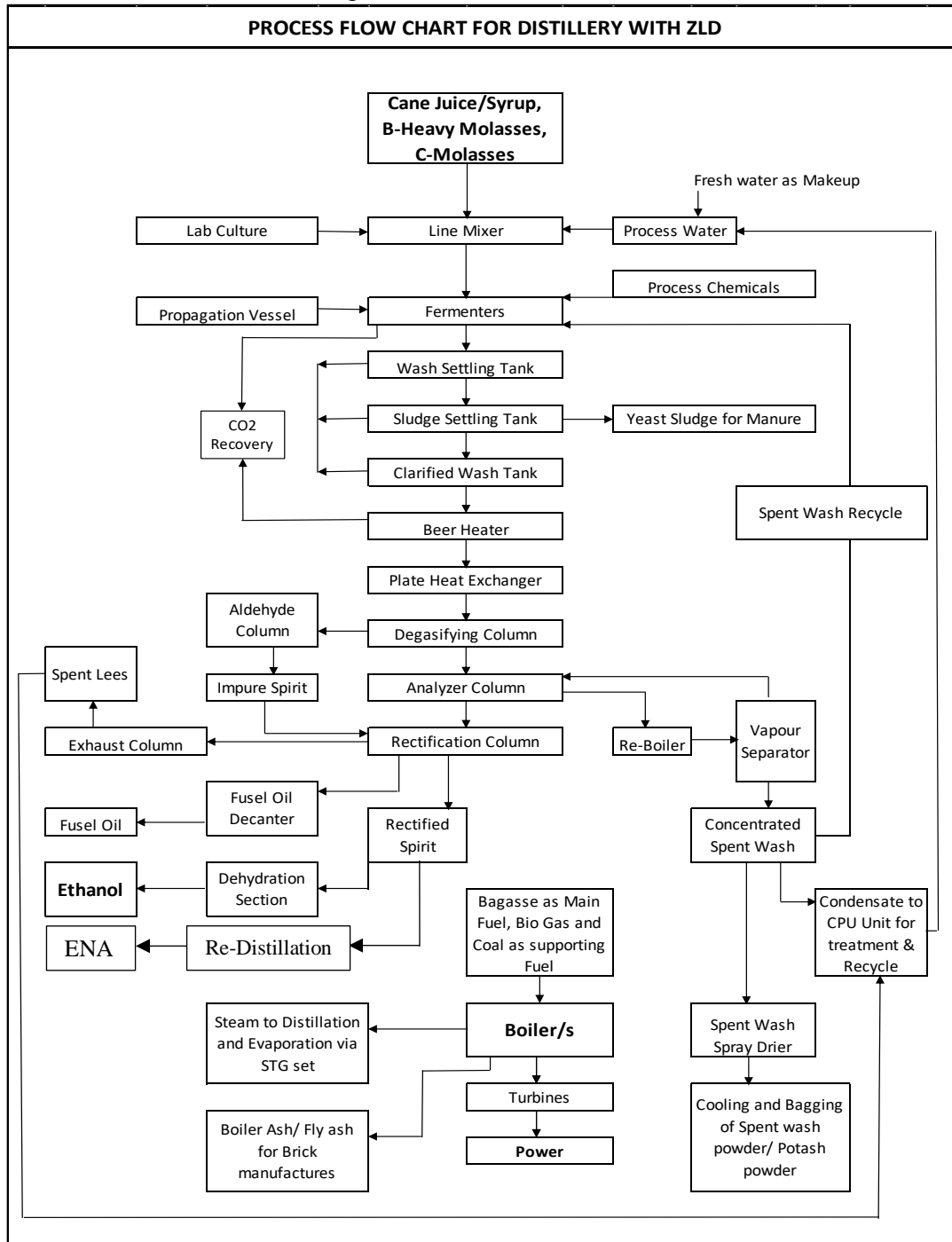


Fig 2.9 Process Flow diagram of Distillery

## ES.5 Present Status of Environment

In order to access the baseline environment of the project site, monitoring of various environmental attributes were conducted by EHSCPL during March 2021 to May 2021. In addition to the baseline monitoring, field inspection of study area within 10 K radius, collection of secondary data and discussion with neighbourhood public, officials were done by the study team.

**Land Use:** In the study area of 10 Km radius majority of the project buffer area is cropland occupying an area of 15542 ha (49.45%) followed by Fallow land of an area of 12664 ha (40.30%), Scrub land spread over 1326 ha (4.22%), Built up area of 529 ha (1.678%). Plantation is another category which occupies 756 ha (2.41%) of the buffer area followed by Water body with an area of 611ha (1.94%).

**Meteorology:** Meteorological monitoring was carried out at project site during March 2021 to May 2021. The mean temperature during the year ranges from 17<sup>0</sup>C to 36<sup>0</sup>C. The total rainfall in 2020 was 521.9 mm.

**Air Environment:** Ambient air quality monitoring was carried out at 8 locations including two downwind and one upwind direction. The AAQM results for PM<sub>10</sub> (61.73 to 69.90 µg/m<sup>3</sup>), PM<sub>2.5</sub> (16.65 to 25.28 µg/m<sup>3</sup>), SO<sub>2</sub> (6.08 to 9.50 µg/m<sup>3</sup>), NO<sub>2</sub> (13.90 µg/m<sup>3</sup> to 19.41 µg/m<sup>3</sup>) and CO (0.60 mg/m<sup>3</sup> to 0.96 mg/m<sup>3</sup>) were well within the standards stipulated by NAAQ standards, 2009. Lead & Nickel are found in trace quantities in the study area. The rest of the parameter as per NAAQ, 2009 and Hg were found to be below detectable limit. AQI of the study area was calculated and found to be good for all the parameters.

**Noise Levels:** The ambient noise level monitoring was conducted at 8 locations in and around the project site. The noise levels were in the range of 46.04 to 53.7 dB(A) during day time and 36.40 to 48.91 dB(A) during night time. The results of noise levels during day and night were found to be within CPCB standards.

**Surface Water Quality:** Surface Water sampling & analysis is carried out at 4 locations in the study area. Analysis reports reveals that, the surface water quality in the study area are of Good (SW-2), very Poor quality (SW-1) and Unable for Drinking (SW-3 & SW-4).

**Ground Water Quality:** Ground water (Bore well) samples were collected at 8 locations and analysed to know the baseline water environment. The pH ranges from 7.07 (GW-4) to 7.46 (GW-2), TDS & Total Hardness range from 370 mg/L (GW-1) to 1256 mg/L (GW-3), EC 652 µs/cm (GW-1) to 1844 µs/cm (GW-3) The Potassium ranges from 4.2 mg/L (GW-1) to 9.6 mg/L (GW-3), Calcium 28.8 mg/L (GW-1) to 131.2 mg/L (GW-3), Magnesium 13.6 mg/L (GW-1) to 61.23 mg/L (GW-3). Fluoride concentrations were found in the range of 0.21 mg/L (GW-8) to 0.61 mg/L (GW-3, Arsenic, Cadmium, Hexavalent chromium & Mercury were not detected. Trace amount of lead were detected. All the values were found to be within the standards (IS 10500:12 second Revision).

**Geology:** The Study area and its environs comprise Basaltic flows of Deccan Traps, Upper cretaceous to lower Eocene period.

**Hydrogeology:** Drainage pattern is observed to be concordant mainly sub-dendritic to sub parallel. Drainage is dense. All the stream courses flow from higher reaches to lower levels following topography. Hire Halla and dry tanks have been observed in buffer zone The depth to water level varied between 24.0 to 56.0 m over the core and buffer zone The annual water level fluctuation is reported to be varying between 2.0 to 4.0 m in the study area.

**Biological Environment:** The project area is predominantly surrounded by agricultural lands in all direction throughout the 10 km radius. Therefore, to understand the ecological status of the study area, the entire study area is divided into four quartiles i.e., NW, NE, SE and SW.

The project site consists of 4 species (n=8) and all the trees will be retained and hence there will be no removal of trees. *Prosopis juliflora* (Sw.) DC and *Vachellia nilotica* (Brenan) Kyal. & Boatwr are some of the common species recorded in the project site and study area. There is no protected area and wildlife corridor near the project site. A wide variety of birds and butterfly species are recorded in the project site and study area and butterflies are absent in the project site. Indian peafowl was recorded in the project site and Black Kite & Black-shouldered kite recorded in study area falls under schedule I as per the Wildlife (Protection) Act, 1972. River tern recorded in project site belongs to Vulnerable and in study area the recorded species such as yellow throated Bulbul belongs to Vulnerable and Black-headed Ibis, Painted Stork and White-necked stork belongs to Near Threatened as per the IUCN conservation status, 2021.

**Socio Economic Studies:** Socio-economic survey was conducted through field survey which was carried out in 6 sample villages containing a total of about 62 households. The potential respondents in the sample households were contacted personally by the field investigators who explain the purpose of the visit and seek their participation by sharing relevant information impartially within 10 km radius and the perceptions of the respondents in surrounding areas are summarized as follows:

- Industrial growth in the region has significantly supported the sustainable livelihoods in the area especially for skilled and semi-skilled persons.
- Development of the secondary sector in the area has positively contributed to induced development leading to creation of multiplier self and wage employment opportunities.
- It would help further strengthen infrastructure development in the area.
- It may aggravate air pollution through release of obnoxious gases and odors

## **ES.6 Anticipated Environmental Impacts and Mitigation Measures**

### **ES.6.1 Land Environment**

#### **• During Construction Phase**

Deposition of dust on trees/vegetation/crops around the industry is anticipated due to the emission of particulate matter during construction phase. This may affect the photosynthetic activity and the rate of transpiration of the species located up to 4 Km radius from the project site. Reduction in tree species having capacity to absorb air pollution and reduces carbon sequestration capacity

Water sprinkling 2 to 3 times per day in the construction area and providing temporary barricades to reduce the dust deposition on crops and trees. The loss vegetation during construction phase is temporary and 33% of industrial area will be brought under greenbelt development.

#### **• During Operation Phase**

Discharge of untreated condensate from the industry on the land will lead to formation of organic acids during decomposition and thereby causing immobilization of plant nutrients, death of many soil organisms in the soil can lead to change in soil structure. Deposition of fly ash from the exhaust stacks on the surrounding agricultural lands will lead to reduction of transpiration and guttation in the plants, decreases in crop yield and deposition of toxic substances present in fly ash on plants. Improper handling of hazardous and non-hazardous wastes generated will create soil contamination and accidental spillage of chemicals during storage, handling, leakage of pumps and in pipelines within the industrial site will contaminate soil and ground water regime.

Condensate Polishing Unit of 1400 KLD has been proposed to treat the condensate generated from the project activities. Fly ash is generated as a result of combustion will be captured by an electrostatic precipitator (ESP) before the flue gases reach the stack. These ESPs generally have multiple pyramidal hoppers at the bottom, in which the ash is collected by gravity and then is transferred to a storage silo. The yeast sludge and ETP sludge will be reused as manure and Boiler ash will be sold to brick manufacturers the industrial premises will be made impervious.

### **ES.6.2 Solid and Hazardous Waste Generation**

- **During Construction Phase**

The major solid waste generated during construction phase will be construction/concrete debris. Some metal waste, oil and grease from construction machines. Improper disposal of the hazardous waste such as solvents, paints, used oil from DG sets will lead to create soil and ground water pollution. The generated soil waste during construction phase will be stored separately and it will be reused for green belt development purpose. The generated domestic solid waste will be segregated into organic and inorganic wastes and handed over to nearby municipality.

- **During Operation Phase**

The solid wastes such as Fly ash, Sludge from ETP, Press mud are the solid wastes generated from the Sugar and co-generation operations. Improper handling of used oil will also affect the soil and ground water.

The generated domestic solid waste is segregated as organic and inorganic wastes, then it is handed over to local municipal. Used Oil and used cotton waste will be handed over to KSPCB authorized recyclers.

### **ES.6.3 Air Environment**

- **During Construction Phase**

The sources of air pollution will be fugitive emissions from transportation activity. Particulate matter would be the predominant pollutant affecting their quality during the construction phase. Dust will be generated mainly during excavation, back filling and hauling operations along with transportation activities and impacts is short term.

The vehicles used for transportation of construction material will be certified valid PUC. Temporary sheds will be developed in order to store the construction material inside the project premises. The machinery used for construction purpose will be properly maintained and serviced.

- **During Operational Phase**

The sources of air pollution are from 60 TPH Boiler and 1 x 1250 KVA DG Set. The fugitive emissions will exhaust from loading / unloading of bagasse and coal, transportation of raw materials and from fly ash storage area. Regular water sprinkling on all exposed surfaces to suppress dust, erecting the high walls to act as wind shield during storage of raw materials. Cleaning the return belts in the conveyor belt systems to remove loose dust. The speed limit of 30 km/hr will be maintained for Vehicles within the premise. Implementation of correct loading and unloading practices. Materials shall be transported in securely covered trucks to reduce dust emission. The height stack of 75 m from AGL will be provided for 1 x 60 TPH Boiler and 32 mtrs height stack is provided for DG set as per KSPCB Norms. The Boiler will be connected to ESP to mitigate the pollution with the efficiency of 99.8%.

## **ES.6.4 Noise Environment**

- **During Construction Phase**

The source of noise during construction period will be due to movement of construction vehicles, noise from construction equipment like dozer, scrapers, concrete mixers, cranes, Pumps, compressors, and use of DG sets. Operation of these machineries will generate the noise level in the range of 78 -85 dB (A) near the source. Chronic exposure to high noise will lead to varying degree of damage to human hearing system, Sleep deprivation, annoyance, stress, poor concentration, mental fatigue and headache. The noise control measures during construction phase includes selection of low noise generating equipment's, provisions of caps for the equipment and regular maintenance of the equipment's.

The workers exposed to the high noise area will be provided with PPEs like ear muff/ plugs to the workers. The high noise zones at site will be demarcated and provided with enclosures & barriers also, those activities will be restricted only for day. Where ever possible, equipment will be provided with silencers and mufflers. Overall, the impact of increase in noise on the environment would be insignificant, as it will be localized and mainly confined to the day hours.

- **During Operational Phase**

Primarily noise will be generated from equipment's such as Boiler Steam turbine, DG sets and process operations. Exposure to high noise causes varying degree of damage to human hearing system which is initially reversible. Sleep deprivation, annoyance, stress, poor concentration, mental fatigue and headache are few of the other effects which are caused due to prolonged exposure to high level noise.

The levels of outdoor Noise, whether they are intrusive or the normal background environment, vary extensively at distances greater than about a hundred meters from the source. This variation is caused by changes in weather conditions and by topographical features such as ground cover, hills and other obstacles between the source and the receiver.

## **ES.6.5 Hydrology & Geology**

The formation of pits, excavation of top soil and weathered portion for formation of pits for foundation. Collapse of top soil and weathered portion and fly rock due to blasting anticipated. To harness the storm water, harvesting structures are suggested within the Project area to augment the declining water levels. The water source for the project is Krishna River hence no ground water drawl.

The collapse can be avoided by formation of benches of 1.5 m to 3.0 m height for working conveniently and making access to sub surface level for excavation. Percolation pits at 20 places shall be constructed with dimensions 6 m X 5 m X 2 m depth all along the periphery of the proposed site to recharge the aquifer as part of social responsibility. Provision of earplugs and goggles to workmen is suggested.

## **ES. 6.6 Water environment**

- **During Construction Phase**



Impact on water quality during construction phase will be mainly due to sewage generated from the labour camps for construction workers. Oil spillages from vehicle and machines like DG sets used during construction phase contaminate the surface water. Stagnated water in construction premises attracts mosquitoes/fly and its anticipated impacts on workers health.

Labour camps and the surrounding area will be maintained clean & by providing proper drainage system, the generated sewage will be treated in mobile STP from labour camps. Used oil from DG sets & oil soaked cotton waste will be stored in a leak proof barrel & handed over to KSPCB authorized vendors. Solid waste which is nothing but domestic garbage, it will be segregated into organic & in-organic solid waste and handed over to local municipality.

- **During Operational Phase**

Improper Storage of spent wash will contaminate ground water, as the molasses spent wash has the very high levels organic contents which will create high pollution. Effluent from the distillery if not treated and disposed properly, will contaminate both the surface and ground water. The unscientific treatment and disposal of generated sewage from industry workers (190 no's) will lead to sub-surface soil pollution and contaminate ground water due to infiltration.

Distillery effluent such as condensate, spent lees and other waste water from processing will be treated in Condensate polishing unit (CPU capacity 1400 KLD) & reused for process. Effluent generated from Sugar Plant will be treated in Sugar industry Effluent Treatment Plant (ETP of capacity 1800 KLD) and reused for greenbelt development. Generated Sewage will be treated in sewage treatment plant of capacity 10 KLD (SBR Technology).

## **ES. 6.7 Biological Environment**

- **During Construction Phase**

A total Number of 4 trees species (n=8) belonging to 2 families were found in Project site. The proposed project site is barren land hence no changes in the ecosystem. Due to construction activities may have changes in micro climate conditions of the area birds, small sized mammals and reptiles will be disturbed in their natural activity and moment due to production of noise, air pollution and water pollution from the proposed construction activities The trucks carrying construction and raw material will be covered in order to prevent the fugitive emissions/dust emissions due to material handling.

- **During Operational Phase**

Improper disposal of the Solid waste and Hazardous waste which affects the plants growth due to unavailability of nutrients in the top layer (soil erosion) and also leads to death of soil micro organisms. Chances of Forest Fire and loss of habitat due to risks and hazards of the industry since the RF are adjacent to the project site.

The acoustic enclosures will be provided to DG set and smooth vehicular movement will be adopted to reduce noise levels. Proper management of solid and hazardous waste, waste water will be treated by installing Zero liquid discharge, hence there is no industrial waste disposal on land or to nearby water bodies.

## **ES. 6.8 Socio Economic Environment**

- **During Construction Phase**

There is no impact on natural resources sustainability, land, human settlement, livelihoods, and economic development. During the construction phase, around 300 construction laborers will get direct employment (non-technical) opportunities. Local villagers will get an employment for all recruitments of non-technical (Temporary /Permanent).

- **During Operational Phase**

During the operational phase a total of 190 personal will get job opportunities in skilled, semi-skilled and unskilled works. Sufficient stack height will be provided and regular monitoring will be carried out to know about air emissions. Installing appropriate equipment to check air pollution Conducting Entrepreneurship Development Camps to nurture entrepreneurial talents among the local youth.

## **ES.7 Environment Monitoring Programme**

The environmental monitoring programme will be strictly implemented during construction and operational phases which will cost Rs19060/month during construction phase (Rs. 2,28,720/12 Months) and Rs. 28940/ month during operational phase (Rs.3,47,280/12 Months). Six monthly compliance reports for the EC conditions will be submitted to RO, MoEF & CC, Bengaluru. Further, the monthly Environmental Monitoring reports will be submitted to Regional office, KSPCB, Vijayapura and the Environment Statement will be submitted every year to Regional office, KSPCB, Bagalkot.

## **ES.8 Project Benefits**

- M/s. Someshwar Sugars Limited creates job opportunities for skilled, semi-skilled & unskilled workers from the nearby villages for the proposed Distillery project which improves socio-economic status of the people of the surroundings
- The management will support to the local administration and provide other form of assistance for the development of public amenities viz., water distribution, building of school rooms, health centers, Education programme, Health camps, Agricultural programmes & sponsorships to meritorious students
- Green belt will be developed within the proposed distillery plant premises, on either side of roads, on the plant boundary covering a total area of about 12 acres (33.33 % of total area of 36 acres).
- The socio-economic status of the local people will further improve, there by infrastructure facilities like roads, communication systems etc., will improve.
- The land rates in the area will improve in the nearby areas due to the implementation of the project. This will help in overall improvement of healthcare facilities, educational facilities, infrastructure facilities & socio-economic status of the people in the surrounding area.

## ES.9 Environment Management Plan

The EMP consists summary of impacts, mitigation measures, allocation of recourse, responsibility and timeframe for implementation. The EMP for the project is given below, the responsibility of implementation of EMP lies with M/s. SSL

Sl. No	Environmental Attributes	Impacts	Mitigation Measures	Time Frame
<b>A. Construction Phase (Capital Cost)</b>				
1.	Air Pollution	Increase in Particulate matter due to movement of vehicles and use of DG sets for construction activities.	<ul style="list-style-type: none"> <li>Regular water sprinkling will be carried out to suppress the dust.</li> <li>It will be ensured that diesel powered vehicles and construction machinery are properly maintained to minimize the exhaust emissions.</li> <li>The machinery used for construction purpose will be properly maintained and serviced.</li> </ul>	During construction phase
2.	Noise Levels	Increased noise level affects the health of the workforce & tranquillity of surrounding.	<ul style="list-style-type: none"> <li>The noise control measures include selection of low noise generating equipment's, provisions of caps for the equipment and regular maintenance of the equipment's</li> <li>The workers exposed to the high noise area will be provided with PPEs like ear muff/ plugs to the workers.</li> <li>The high noise zones at site will be demarcated and provided with enclosures &amp; barriers also, those activities will be restricted only for day.</li> <li>Where ever possible, equipment will be provided with silencers and mufflers</li> </ul>	During construction phase
3.	Water quality	Oil spillage and sewage if left logging will percolate & contaminate ground water. Also it will contaminate surface water through run-off and cause a breeding place for vector borne diseases and cause health	<ul style="list-style-type: none"> <li>Labour camp and the surrounding area will be maintained clean &amp; tidy by proper drainage system, raw sewage collection tank etc. The DG Sets used as backup power will generate small quantity of used oil &amp; oil soaked cotton waste which will be stored at an identified place, in a leak proof barrel &amp; disposed to KSPCB Authorized vendors as per HWM Rule 2016.</li> <li>Oil interceptors will be used; also vehicles will be</li> </ul>	During Construction phase

Sl. No	Environmental Attributes	Impacts	Mitigation Measures	Time Frame
		impacts.	<p>washed at the designated place to control spillage at the site and accidental spillages to be cleaned up promptly.</p> <ul style="list-style-type: none"> <li>• By segregating the construction area and construction of concrete drains for storm water, contamination will be prevented.</li> <li>• The generated sewage from labour camps will be treated in mobile STP.</li> </ul>	
4.	Soil	Temporary displacement of soil may be envisaged.	<ul style="list-style-type: none"> <li>• Excavated earth shall be stored separately and fully utilized for green belt development. Garland drains shall be constructed to arrest the surface run off and soil erosion. The drains shall be frequently desilted for free flow of water.</li> <li>• Water sprinkling through sprinklers/tankers (Suggested time period: 2 - 3 times/day)</li> <li>• All road drainage structures (ditches, out sloping, culverts, water bars, dips, etc.) will be in place as soon as possible during the construction of the road. Surface water drainage will be provided for sites associated with road construction such as waste areas, borrow areas and rock pits. All drainage water will be filtered through natural vegetation before it enters streams.</li> <li>• Soil binding and fast growing vegetation grass would be grown around the construction site before commencement of construction activity to reduce soil erosion;</li> </ul>	During construction phase
5.	Ecology and Biodiversity	Slight impact on EB due to construction activity, displacement of habitat, tree cutting or transplantation etc.,	<ul style="list-style-type: none"> <li>• Green belt development is scientifically planned to compensate the impact on EB.</li> <li>• Native species of trees will be proposed to be planted all along the periphery.</li> </ul>	During construction phase

Sl. No	Environmental Attributes	Impacts	Mitigation Measures	Time Frame
6.	Hydrology & geology	No Impacts	<ul style="list-style-type: none"> <li>Rain water harvesting plan will be implemented scientifically.</li> </ul>	During construction phase
7.	Traffic Management	Increase in dust due to fast movement of vehicles, also due to rise in dust chances of low visibility may result in accidents	<ul style="list-style-type: none"> <li>Speed restriction on vehicles &lt;15 KMPH same will be ensured by trained securities,</li> <li>Vehicular movement will be in a staggered manner.</li> <li>Periodic sprinkling will be carried out to suppress the dust.</li> <li>Asphalting of internal roads within the project site will further minimize the dust emission.</li> </ul>	During construction phase
8.	Solid & Hazardous Waste Management	The solid waste generated during construction will be debris, metal scrap, empty paint cans, etc. The municipal solid waste generated from labours colony creates unhygienic conditions in the vicinity and improper storage will generate leachate and in turn this would affect surface water quality.	<ul style="list-style-type: none"> <li>The solid waste generated during construction will be debris, metal scrap, empty paint cans, etc., this will be segregated – debris will be utilized for levelling of land formation of roads etc., metal scrap will be stored separately &amp; used as raw material, empty cans will be handed over to authorized recyclers.</li> <li>The municipal solid waste will be segregated in to organic &amp; inorganic, organic will be composted in a small earth pit &amp; in-organic will be handed over to KSPCB approved authorized recyclers.</li> </ul>	During construction phase
<b>B. Operation Phase (Capital Cost)</b>				
1.	Air Pollution	Gaseous and fugitive emissions from Boilers, Process, storage, transportation of raw materials and finished products, DG sets	<ul style="list-style-type: none"> <li>The efficiency of ESP is 99.8 %. Clean air will be let out from the chimneys are connected to 1 X 60 TPH Boiler (RCC Chimney Height 75 m AGL).</li> <li>Green belt of 12 Acres (33% of 36 Acres) will be developed all along the periphery of the industry to mitigate air/Noise pollution.</li> <li>All the internal roads will be asphalted to control</li> </ul>	During Operation Phase

Sl. No	Environmental Attributes	Impacts	Mitigation Measures	Time Frame
			<p>particulate emissions.</p> <ul style="list-style-type: none"> <li>Regular maintenance of air pollution control equipment will be carried out to ensure proper &amp; effective performance.</li> </ul>	
2.	Noise Levels	Prolonged exposure to high level noise will lead sleep deprivation, fatigue, stress and productivity losses in the workplace	<ul style="list-style-type: none"> <li>Noise level can be reduced by stopping leakages from various steam lines, compressed air lines and other high pressure equipment.</li> <li>Noise generating equipment will be provided with proper sound proof enclosures</li> <li>The workers in the plant premises will be provided with proper PPEs which include ear muff and ear plugs</li> <li>Green belt will be developed all along the periphery to reduce noise level.</li> </ul>	During Operation Phase
3.	Water quality	Ground water pollution, flooding due to the generation of spent wash, Sewage, Storm water run off	<ul style="list-style-type: none"> <li>The condensate generated will be treated in CPU of capacity 1400 KLD. The treated water will be reused in the process.</li> <li>Spent wash generated during the process of distillation will be passed through Bio-digester followed by concentration in MEE, and dried through spray driers to remove about 92 – 95 % moisture content &amp; then packed and sold out in local market as a spent wash powder.</li> <li>Storm water drains will be provided to avoid flooding in the proposed site. Storm water gutters/drains will be constructed in the premises on either side of the haul roads.</li> <li>The generated domestic sewage is treated in STP of capacity 10 KLD.</li> <li>Garland channels will be provided around the storage yards.</li> <li>Harvested rainwater will be reused for greenery development/sprinkling applications and non-</li> </ul>	During Operation Phase

Sl. No	Environmental Attributes	Impacts	Mitigation Measures	Time Frame
			<p>potable uses thereby conservation fresh water requirement.</p> <ul style="list-style-type: none"> <li>• Rainwater harvesting sump will be proposed for implementation</li> </ul>	
4.	Ecology and Biodiversity	Positive Impact	<ul style="list-style-type: none"> <li>• With the development of 33 % of green belt (12 Acres) in the proposed project, will increase the movement of birds, butterflies, etc.</li> <li>• Arrangements of proper watering during summers for greenery.</li> <li>• Since only the drawl of water from the River Krishna has been planned towards functioning of the said project, No impacts on the ecology of the river is being anticipated and no discharge of the treated effluents into the river. Hence, there are no fears of any change in the quality of the river water or its inhabitants.</li> </ul>	During Operation Phase
5.	Solid waste	<ul style="list-style-type: none"> <li>• Municipal Solid waste</li> <li>• Yeast Sludge</li> <li>• Sludge from CPU</li> <li>• Boiler Ash/Flyash/Bottom ash</li> <li>• Used Oil &amp; Oil soaked cotton waste</li> <li>• Empty Barrels / Containers</li> </ul>	<ul style="list-style-type: none"> <li>• The collected domestic solid waste of 0.0475 will be segregated into organic and inorganic solid waste, then it will be handed over to local municipality for further process.</li> <li>• Yeast sludge of 5.4 TPD and Sludge from CPU of 0.045 TPD will be mixed in required proportion and reused as manure</li> <li>• Boiler ash/Fly ash (08 MT/Day), Bottom ash (18 MT/Day) will be Sold to brick manufacturers, Excess will be used in landfilling.</li> <li>• Used oil &amp; Oil soaked cotton waste, spent turbine oil, waste oil residue from CPU will be stored at an identified place in a leak proof containers &amp; will be disposed to KSPCB authorized dealers.</li> </ul>	During Operation Phase
6.	Risk & hazards and Occupational Health & Safety	Health impacts on employees workers and surrounding villagers	<ul style="list-style-type: none"> <li>• Medical examinations periodically as per the Factories act 1948 and Karnataka Factory rules 1969</li> </ul>	During Operation Phase

Sl. No	Environmental Attributes	Impacts	Mitigation Measures	Time Frame
			<ul style="list-style-type: none"> <li>• Personnel Protection equipment (safety shoes, goggles, respirators/ masks, Aprons etc.)</li> <li>• Maintenance of Occupational Health centre and First aid kits</li> <li>• Training to workers of 190 Nos. on firefighting, use of PPE's, emergency preparedness and first aid</li> <li>• Visual signage and posters display to create awareness on health and safety topics</li> <li>• Environment monitoring in the workplace (Indoor air monitoring, Particulate matter, VOC's etc.)</li> <li>• All precautionary methods will be adopted by the company to reduce the risk of exposure of employees to occupational safety and health hazards.</li> <li>• Pre &amp; post medical check-ups will be done of all the employees. Employees will be regularly examined and the medical records will be maintained for each employee. Pulmonary function test and periodical medical check-up shall be done once in every year. The following tests will be conducted for each worker as Occupational health surveillance programme: Lung Function Test, Radiology – X-ray, Pulmonary Function Test, and Audiometric Test.</li> <li>• For the safety of workers, personnel protective appliances like hand gloves, goggles, aprons, ear mufflers, nose mask etc. will be provided.</li> <li>• Proper ventilation system will be provided in the process area.</li> </ul>	
7.	Hydrology & geology	Depletion of water table	Since, there is no water extraction from the ground water for the project, the required fresh water demand will be met from Krishna River which is located at a distance of 12.95 Km in South West Direction from the	During Operation Phase



Sl. No	Environmental Attributes	Impacts	Mitigation Measures	Time Frame
			<p>project site.</p> <ul style="list-style-type: none"> <li>• Conjunctive use of surface and ground water ensures rise in ground water level and improves water quality</li> <li>• Rain water harvesting plan will be implemented scientifically. Roof run off &amp; surface runoff will be segregated &amp; collected in separate sumps. Roof runoff will be used for non-potable purposes &amp; surface runoff will be connected to ground water recharge pits.</li> <li>• Garland drainage arrangements will be made around Project site to avoid stagnation of water. The channelized water will be collected in catch pit &amp; will be used for dust suppression within the construction site</li> </ul>	
8.	Socio-economic Environment	<ul style="list-style-type: none"> <li>• Positive impact</li> </ul>	<ul style="list-style-type: none"> <li>• Due to proposed project local people will get permanent jobs,</li> <li>• Socio-economic statue of the surrounding people will improve.</li> <li>• The project has very strong positive impact, which is likely to result in the improvement of economic situation of Kambagi Village and other nearby villages.</li> <li>• Overall people’s perception on the project is a mix of advantages and disadvantages. On one hand, they expect job opportunities, market expansion etc. as advantages and on the other hand they are worried about the damage to agriculture.</li> <li>• As an impact of identification of the project, small-scale industrial economy is likely to flourish in the surrounding area. The small-scale industrial units are expected to get financial supports from the financial institutions and banks. In this way, an</li> </ul>	During Operation Phase

Sl. No	Environmental Attributes	Impacts	Mitigation Measures	Time Frame
			<p>overall development may take place in this area.</p> <ul style="list-style-type: none"> <li>The process of development will have maximum impact on the lifestyle of the local people. The project and the consequent peripheral industrial economy will generate income to the local and migrated people which will increase the aggregate demand. This demand will get realized in the market and finally, lead to the market in the locality of the project. Market expansion supported by</li> </ul>	
9.	Energy Conservation measures	Positive impact due to use of solar energy	<ul style="list-style-type: none"> <li>Provision of Solar lighting will be made at project site.</li> </ul>	During Operation Phase

## **ES.10 Conclusion**

M/s. SSL is proposed to establish dual feed Distillery unit of capacity 180 KLPD and 8 MW Cogeneration unit at Sy.No. 349/3, 350/3, 370, 385/2 & others, Kambagi village, Bableshtar Taluk, Vijayapura, Karnataka. The industry proposed to install necessary APCs such as ESP and acoustic enclosure to DG set to control air pollution with sufficient stack height. The generated waste water from the project will be reused with ZLD technology; hence there is no ground water pollution from the proposed project. The domestic solid waste will be handed over to local municipality for further process, and industrial process wastes such as fly ash, bottom ash will be sold out to brick manufactures and press mud will be used as manure. The industry is proposing to utilize best available technologies to minimize emissions.

The baseline environment in and around the industry is found to be good There are no protected areas, wildlife sanctuaries, Eco sensitive zones within 10 Km radius of the industry. It is proposed to develop 33% of the total plot area as green belt to improve biological environment. Risk and Hazards have been identified for the industry, implementation of emergency preparedness plan and establishment of Occupation Health Centre is mandatory to mitigate the health impacts. The industry is helpful for creating direct and indirect jobs in the surrounding area. The industry is also contributing to growing distillery sector of the nation and thus contributing revenue to the country. Overall, this project will have positive impact on the Environment, the recommended EMP and monitoring aspects; measures are fully implemented in high spirit by the project proponents.