SIA / MH / IND2 / 59875 / 2021, Category 'B1'

# Executive Summary of Environmental Impact Assessment Report For

## New 30 KLPD Molasses Based Distillery Unit

## M/s. Kunturkar Sugar & Agro Pvt.Ltd.

Mohannagar - Kuntur, Tal. Naigaon (Kh.), Dist. Nanded,
Maharashtra- 431709

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**Laboratory Involved: Aavanira Biotech Pvt. Ltd. (NABL & MoEF&CC approved)**

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# EXECUTIVE SUMMARY

## 1.0 Introduction

M/s. Kunturkar Sugar & Agro Pvt. Ltd, located at Mohan Nagar in Naigaon taluka of Nanded district in Maharashtra, is planning to setup a new molasses-based distillery unit of 30 KLPD. KSAPL is a private sugar mill registered with the Government of Maharashtra, having reg. no. U01400MH 2010PTC204548 -2010-2011.

Earlier, this sugar factory was known as "Jai Ambika Sugar Factory'. It was established in the year 1998 and operated till 2008. Later, this was considered as sick factory. In the interest of local sugarcane growers, the present management decided to start it with a new name i.e. Kunturkar Sugar & Agro Private Limited (KSAPL). In the year 2014-15, it was restarted with 2500 TCD crushing capacity. Existing cane crushing capacity of M/s. KSAPL mill is 2500 TCD. Considering the demand for ethanol and to attain financial stability, the management of KSAPL has decided to install a new 30 KLPD distillery plant.

The purpose of this environmental impact assessment (EIA) study is to obtain Environmental Clearance for the proposed project. The notification no. S.O. 1533 promulgated on September 14, 2006 has covered distillery industry under activity 5(g). According to a notification no. S.O. 1960(E), dated June 13, 2019, molasses-based distilleries less than 100 KLPD capacity are placed under category 'B1'.

## 1.1 The Site and its selection

KSAPL is located at survey number 331 and gut number 742 of village Kuntur taluka Naigaon, of Nanded district. It has planned to setup the proposed distillery within its existing sugar unit premises. The project proponent is owning the land. The land is open hence no re-habilitation and resettlement issues involved in the project. The present site fulfills the industrial site selection criteria of MoEF&CC/CPCB/MPCB. There is no any protected area such as sanctuary, national park, biosphere reserve within 10 km radius of the proposed site. There are no defense installations, recreation site, etc. within 25 km radius of the site. Proposed site is well connected by state/national highways. It is located approximately 4.7 km away from National highway no. 161 Nanded- Degloor. Reasonably good infrastructure, support facilities and labor etc. are available in the vicinity. Most importantly, nearness to raw material (molasses/juice) considered for site selection. Therefore, no alternative sites were searched for the project.

**Table 1: Highlights of the Project**

| | | |
|---|---|---|
| Working days | year around (330 days) | |
| Land (Owned by the project proponent) | Total land provided for the distillery unit: 3.7 Ha (37,000 Sq. m) | |
| Main Raw Material | **Molasses** | |
| | C –type | 111 TPD |
| | OR B heavy type | 94 TPD |
| Technology for Product Manufacturing | fermentation: Continuous /Fed-batch<br>distillation: Multi-pressure<br>Molecular Sieve Dehydration (MSDH) system will be adopted to produce fuel ethanol | |
| Steam | Total 236 TPD | |
| Fuel | Bagasse: 96TPD (without biogas) and 18.72 TPD spent wash powder<br>**OR** Bagasse of 82.39 TPD + biogas of 6480 $m^3$ **OR**<br>Only Bagasse: 107.27 TPD | |
| Boiler | New boiler of 12 TPH with a pressure of 45 $kg/cm^2$ | |
| Power | 0.900 MW/hr. source: captive from 1 MW steam turbine turbine | |
| Water Req. and source | 250 cu.m/day (considering recycle and reuse)<br>Source: Devarjan dam | |
| Manpower | Total Employees= 98 (57 skilled and 41 unskilled) | |
| Project Cost | Rs. 6273.06 lakhs | |
| CER provision | Rs. 63 Lakh (1 % of the capital budget) | |
| **Total Project cost including CER** | Rs. 6336.06 lakhs | |

## 2.0 Resources Requirement/Availability

**2.1 Molasses:** Molasses, a byproduct of the sugar industry, will be a main raw material for the proposed unit. Sugar cane juice or sugar syrup will also be used as a feed stock to produce alcohol. While using molasses as a feed stock the unit will have an option to use either final molasses which is called C-molasses or B-heavy molasses.

It is estimated that, approx. 111 TPD of C – type molasses will get available in-house OR 94 TPD of B-heavy molasses. If c-type molasses planned to be used, its production of about 15,000 to 20,000 tons per annum is estimated. However, requirement of this type of molasses is about 33,300 tons per annum. Therefore, in this case about 13,000 to 15,000 MT of C molasses need to be procured from nearby sugar mills/market. If the management plans to use B-heavy type molasses, its estimated production will be 21,000-28,000 tons per annum.

Estimated quantity of B-heavy molasses for 330 days of operation (per annum) is 31020. Remaining quantity i.e. approx. 3,000 to 10,000 tons of B-heavy molasses will be procured from the market. Considering the estimates given in table 2.7, it is feasible to operate the unit for 223 up to 298 days on own molasses. Hence, more than 70% self-sufficiency is feasible using B-heavy molasses.

**2.2 Water Requirement:** Estimated daily requirement of fresh water for the proposed project is 250 $m^3$. It will be sourced from Balegaon dam. Summary of water balance is as follows.

| | |
|---|---|
| Fresh water requirement ($m^3$/day) | Water input (819) – water recycle (585) = 250 $m^3$/day |
| Net fresh requirement<br>Water requirement per lit of alcohol | = 250 $m^3$/day<br>= 8.33 lit |
| Net fresh water required over the year | = 250X 330 = 82,500 $m^3$ per annum |

In addition, the Management is also exploring the possibility of use of excess condensate of the sugar unit for distillery operations.

**2.3 Fuel:** Bagasse will be used as a main fuel. Bagasse of 96 TPD and 18.72 TPD Spent wash will be used (Bagasse of 82.39 TPD + biogas of 6480 $m^3$ **OR** Only Bagasse: 107.27 TPD). The source for the fuel (bagasse, spent wash powder and biogas) will be own sugar unit.

**2.4 Steam:** Estimated maximum steam requirement is 236 TPD. It will be sourced from proposed 12 TPH boiler.

**2.5 Power:** Estimated power requirement of 0.999 MW/hr. will be fulfilled from captive steam turbine of 1 MW.

**2.6 Boiler:** An independent conventional boiler of 12 TPH steam generation capacity at 45 kg/cm2(g) pressure and 390°C steam temperature will be installed. It will be multi-fuel type.

**2.7 Manpower:** The project will be generating 98 direct employment opportunities, out of which 57 will be skilled and 41 will be unskilled

## 3.0 Process Description

For the proposed project, the Management has planned to adopt the latest technology for process as well as for effluent disposal. Overall objective of this is to achieve high efficiency of operations, save energy and water and achieve Zero Liquid Discharge (ZLD). The characteristic of manufacturing process is given below and a schematic is shown in Fig. 1

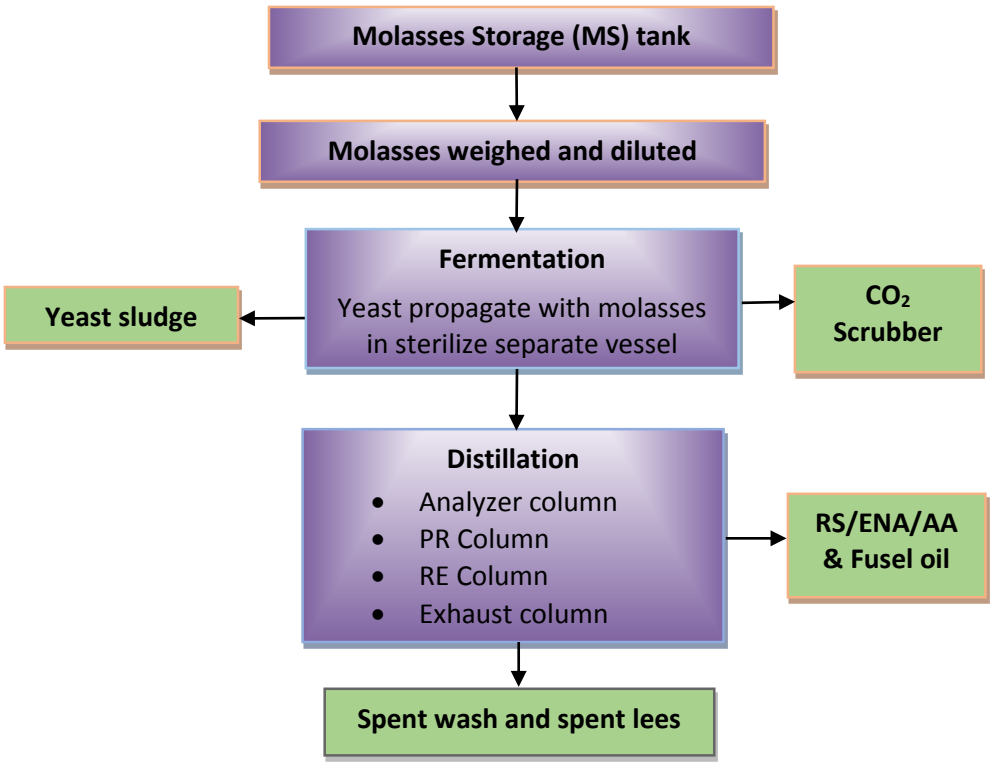


**Figure 1: Schematic of Manufacturing Process**

### 3.1 Manufacturing Process

The production process mainly involves fermentation and distillation process.

#### 3.1.1 Fermentation

Continuous fermentation process will be adopted in the proposed unit. The yield of alcohol is ~270 liters/ ton of C type molasses and 310 to 330 liters for B-heavy type. One ton of sugar cane (juice) produces approx. 70 L of alcohol.

#### 3.1.2 Distillation

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

##### 3.1.2.1 Multi-pressure Distillation: Advantages

- Maximum heat integration is possible.
- Low steam consumption with reboiler (2.2 Kg/lit. of Rectified Spirit)
- Spent wash generation is less.

##### 3.1.2.2 Re-Distillation to Manufacture Extra Neutral Alcohol (ENA)

ENA is prepared by re-distillation of the rectified spirit (RS) for 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.

### 3.1.2.3 Anhydrous Alcohol (AA)

Rectified spirit, 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, a special process of molecular sieve de-hydration will be used for removal of water for manufacture of fuel ethanol i.e. anhydrous alcohol. Details of molasses and product storage tanks are given in Table 2.

**Table 2: Details of Storage Tanks**

| **Specifications for Receivers & Storage Tanks**<br>**THICKNESS AS PER IS-803-1976** | | | |
|---|---|---|---|
| **#** | **Particulars** | **Quantity** | **Capacity (in $m^3$)** |
| 1. | Rectified spirit receivers | 03 | 40 |
| 2. | Impure spirit receivers | 02 | 10 |
| 3. | * Rectified spirit storage tanks | 02 | 600 |
| 4. | * Impure spirit storage tank | 01 | 200 |
| 5. | Fusel oil storage tank | 01 | 10 |
| 6. | Molasses storage at distillery (Tons) – | | |
| | 1. Existing | 02 | 4000 MT |
| | 2. Proposed | 01 | 4500 MT |

## 4.0 Baseline Environmental Status

Primary data for the study was collected by sampling/monitoring air, water, soil and noise. Environmental monitoring work was carried out mainly during Jan to Mar 2021. Site is more or less flat having average elevation of 378 m above mean sea level. River Godavari and Balegaon is approx. 4.5 km away from proposed site towards east. Due to availability of water from dam and river, land in the surrounding areas of the site mainly N, SE and E is utilized for agriculture. There are no hills within 3 km radius of the project site. The site and surrounding area is covered in Survey of India (SOI) Toposheet no. E43L9 and latitudes and longitudes of corners of the site are as follows:

1. 18°56'13.11"N & 77°32'53.16"E
2. 18°56'11.05"N & 77°32'59.81"E
3. 18°56'06.26"N & 77°32'58.09"E
4. 18°56'07.38"N & 77°32'52.26"E

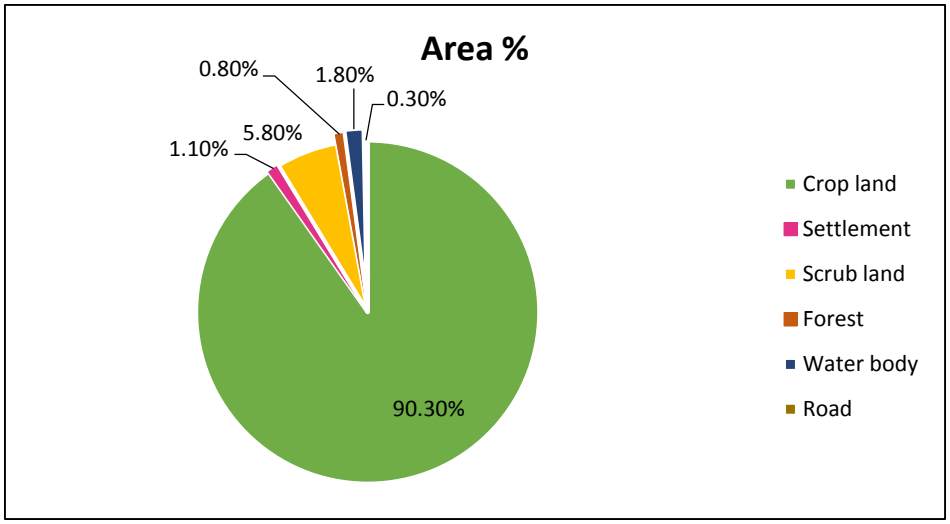


**Figure 2: Landuse/ Landcover break-up for the 10 square km area**

**Table 3: Summary of Environmental features of study area**

| # | Facet | In brief |
|---|---|---|
| 1 | General characteristics | Hot and dry |
| 2 | Rainfall | An average annual rainfall is 1150 mm<br>Rains are received mainly during June-October months |
| 3 | Temperature | The maximum temperature in summer is around 42°C and minimum temperature in winter is around 18°C |
| 4 | Humidity | The maximum humidity in the study area ranges between 60 to 80 percent in the month of August and minimum humidity ranges from 30-40 percent in the month of March and April. |
| 5 | Wind | Predominant wind direction was NW and the wind speed was between 0.50 to 2.10 km/ hr. (>48 %) during the study period |
| 6 | Land use | Crop land area 90.3 %, scrub land 5.80 %, forest 0.8%, settlement area 1.10%, waterbody 1.80% |
| 7 | Air Quality | Complies NAAQ standards of Nov. 2009 at all monitored locations |
| 8 | Noise | Complies the standard |
| 9 | Groundwater | Sample collected from said locations is fulfilling the criteria of specified limits of IS 10500:2012. Presence of fluoride observed, However within the limits as per said notification |
| 10 | Soil | The soils are within the acceptable limit and not of much consequence for growing a range of crops. |

| | | |
|---|---|---|
| | | The pH of the soils ranged from 7.40 – 8.12 (slightly alkaline – moderately alkaline) |
| 11 | Nearest sanctuary | Kinwat Wildlife Sanctuary (Approx. 83 kms. ) |

**5.0 Anticipated Impact, Preventive, Control and Mitigation Measures and Impact Assessment**

**5.1 Construction phase:** During construction phase of the project, major activities involved are are as follows.

- Excavation work (as required) for the erection of various buildings and structures
- Transportation of the material and workers to & from the proposed project location
- Loading/unloading of construction material
- Processing of construction material e.g. making RCC
- Installations and commissioning of various machineries/units
- Disposal of the liquid and solid waste generated by the temporary work force employed for construction

**Preventive, Control and Mitigation Measures**

In case of construction on open area/s, upper fertile layer of soil will be kept separate. It will be reused for greenbelt.

- Fugitive dust emission due to transportation activities as well as loading/unloading of material such as soil, sand, etc. will be controlled by sprinkling water on dust generating surfaces/materials
- The upper soil layer is productive part of the landscape; hence, it needs to be carefully removed and preserved for future use. If these soil piles are dry, they will be covered with tarpaulin or similar material. This soil will be reused for the development of greenbelt within the premises.
- The excess of excavated soil will be used for development of greenbelt by adding adequate amount of manure, organic fertilizers to it. The material like stones, etc. is to be used within the project site, mainly for minor leveling activities/develop internal roads, etc.
- The runoff from the construction site will be controlled by ditches and not allowing it to percolate in the land or enter into any water body outside the premises
- The activities generating noise will be restricted to daytime only and prohibit all such activities for night time
- Run-off of loose soil will be prevented by means of compacting the soil
- The contractor will be instructed to employ local labour to maximum extent so that the local people get employment opportunity. This will also help in reducing the problems associated with housing of labour and help in reducing linked issues such as demand for

water, sanitation and hygiene at the labour colony, etc. Basic sanitation facility (temporary toilets/bathrooms) at the work site, will be made available to all labour, transporters and visitors.

- Transport contractors will be instructed to use vehicles which are maintained properly and in good physical conditions. It will help in reducing noise and prevent oil leakages from vehicles. PUC will be mandatory for all vehicles, so as to minimize the exhaust emissions.
- Solid waste material will be segregated properly and its further treatment/disposal to be carried out according to the nature of waste, under the supervision and guidance of factory personnel available in the proposed unit
- Safe cabins or room/s to be provided to security guards/watchman
- Greenbelt developmental activities to commence in the surrounding zone of the construction site.

## 5.2 Operation Phase

### 5.2.1 Air Environment

Impact on ambient air quality during the operation phase of the project are likely due to vehicular and process emissions. Process related emissions can further be divided into two categories i) from burning of fuel to generate steam and ii) from fermentation process.

**5.2.1.1 Transportation:** Transportation of molasses anticipated to increase approx. 10 tankers per day and more or less same number of tankers will be required for transportation of ethanol. In additional approx. 16 two wheelers and 5 passenger cars expected to get added in the existing vehicle load.

**Preventive, control and mitigation measures**

- Mechanized system for fuel (bagasse) and ash handling
- Wind breaks for ash storage area
- Development of greenbelt for air pollution and odour control

**5.2.1.2 Manufacturing process: fermentation**

The fermenter will be covered and $CO_2$ scrubber will be installed. Separated CO2 will be either bottled or used for manufacturing chemicals (Carbonates/bicarbonates, etc). This unit will be installed thro' BOOT basis.

**Mitigation Measures**

In the proposed project use of a CO2 scrubber is planned for removal of the gas from alcohol stream. The greenbelt developed by the industry will help to absorb some of the generated CO2 and the project proponent is exploring ways to mitigate this in an environmentally and economically feasible way. The proponent is planning to run the bottling or

Carbonates/bicarbonates manufacturing unit on BOOT basis.

**Air Dispersion Modeling**

Prediction of impacts on air environment has been carried out employing - 'AIRMOD' view dispersion model 9.5' software developed by 'Lakes Environment Software', Canada.

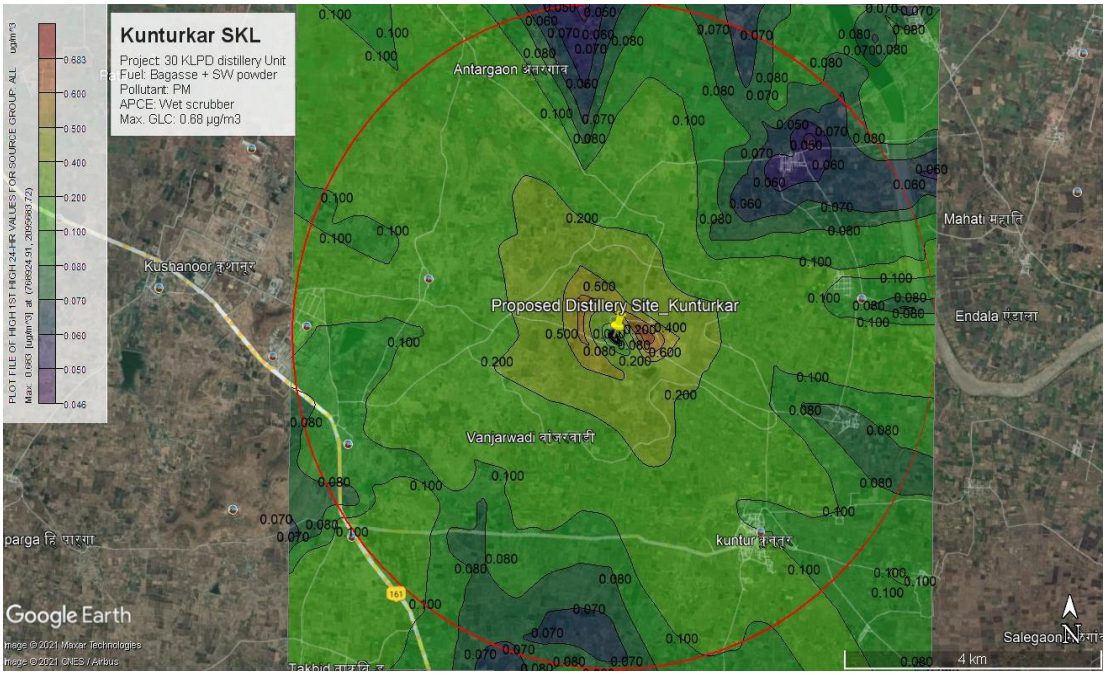


**Fig 3: Isopleth showing GLC location and distance for PM (Short term 24 hourly)**

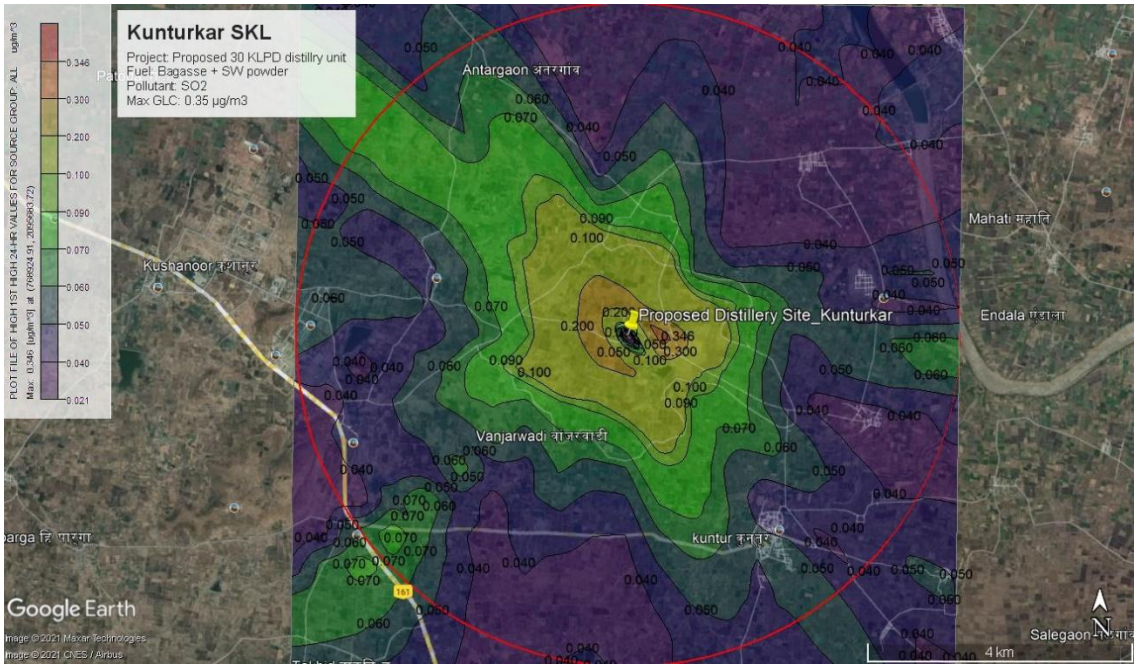


**Fig 4: Isopleth showing GLC location and distance for $SO_2$ (Short term 24 hourly)**

**Table 4: Maximum incremental Concentration of SO2 and PM (Post project scenario) given in following table**

| **Locations** | **Project Site** | **Rui Bk.** | **Rui Kh.** | **Sategaon** | **Ikalimal** | **Sawarkheda** | **Vanjarwadi** | **Kuntur** |
|---|---|---|---|---|---|---|---|---|
| **Direction** | - | (NW) | (NE) | (E) | (SE) | (W) | (SW) | (SE) |
| **PM- Avg. Baseline value (µg/m³)** | 68.6 | 61.7 | 65.3 | 60 | 57.7 | 61.3 | 60.8 | 71.4 |
| Maximum GLC (0.683 µg/m³) at 18°56'9.35"N & 77°33'12.46"E | | | | | | | | |
| Incremental Conc. (µg/m³) | 0.07 | 0.2 | 0.1 | 0.1 | 0.08 | 0.1 | 0.2 | 0.1 |
| Post Project Scenario (µg/m³) | 68.67 | 61.5 | 65.2 | 59.9 | 57.62 | 61.29 | 60.6 | 71.3 |
| **SO2- Avg. Baseline value (µg/m³)** | 17.7 | 16.4 | 16.7 | 17.4 | 18.3 | 13.9 | 14.4 | 17.8 |
| Maximum GLC (0.346 µg/m³) at 18°56'9.35"N & 77°33'12.46"E | | | | | | | | |
| Incremental Conc. (µg/m³) | 0.02 | 0.09 | 0.06 | 0.05 | 0.04 | 0.06 | 0.09 | 0.06 |
| Post Project Scenario (µg/m³) | 17.68 | 16.49 | 16.76 | 17.45 | 18.34 | 13.36 | 14.49 | 17.86 |

*The distance is measured from stack to the receptor of maximum GLC

**Preventive, control and mitigation measures**

- Wet scrubber to control ash emission, flue gasses will be released through stack with height 58 m of existing sugar unit
- Use of bagasse/Spent wash powder as a fuel having comparatively low sulfur
- Provision of $CO_2$ scrubber and unit to process $CO_2$ under consideration on BOOT basis
- Air pollution control (APC) system wet scrubber to control particulate matter from flue gasses
- Greenbelt development around the plant boundary
- Greenbelt will be helpful in controlling odour to some extent
- Installation of online continuous emission monitoring system as per CPCB guidelines

**5.2.1.3 Non-Point and Fugitive Sources**

Fuel bagasse/Spent wash powder as well as ash handling is anticipated as a major source of non-point dust source.

**Impact assessment:** PM anticipated to be one of the major issue for work place air environment. Negative impact of bagasse/Spent wash powder and ash handling on outside (premises) environment anticipated to be minor – maximum up to 0.5 to 1 km extent.

**Preventive, control and mitigation measures**

- Mechanized handling of bagasse/Spent wash powder and ash – use of closed conveyor system
- System for suppression of dust from handling of ash
- Green belt development on 12,210 sq.m. for the proposed unit
- Wind breaks will be developed to control PM generation from ash storage yard
- PPE will be provided to workers, working in dust prone areas
- Job rotation for workers, working in dust prone areas
- Use of economical techniques for suppression of dust from handling and storage area
- Ash will be transported in closed/covered vehicles to the brick manufacturing unit

**5.2.1.4 Odour pollution:** spent wash and molasses are considered as a source of odour in the project.

**5.2.2 Water Environment**

In case of water environment, the management plan is two-fold 1) Treatment and safe disposal of effluent/polluted water and 2) conservation of fresh water**.**

**5.2.2.1 Anticipated impact:** Daily fresh water requirement for the project is 250 $m^3$ i.e. 8.33 lit/lit of alcohol produced. The water requirement has been minimized by planning maximum recycling and reuse. However, negative impact is anticipated for availability of water to other users particularly in drought situation or water scarcity at local level.

From the general characteristics of spent wash, its high potential of water and soil pollution is evident. If it is released untreated/partially treated in any water body, its acidic nature, dark brown colour, high organic content and COD/BOD severely pollutes the receiving water body. Land application may lead to soil pollution and the run-off from land where spent wash is disposed indiscriminately, causes pollution of neighboring ground and surface water bodies. Spent lees, MEE condensate and other wastewater if released untreated it likely to cause pollution of nearby dug wells, lake/ponds or river. Whereas if the water is treated properly, it gives an opportunity to recycle the treated water and save fresh water resource.

**5.2.2.2 Preventive, control and mitigation measures:** The spent wash of distillery

poses a very serious threat to the environment. Therefore, in the proposed project two stage treatment of spent wash and its disposal is planned through following method. Initially, the raw spent wash of ~15 % solids will be sent to biomethanation unit (bio-digester). Biomethanated spent wash (BMSW) having usually ~6 % solids will be sent to standalone multi effect spent wash evaporation unit. Here, it will be concentrated upto 45% solids. Finally, the concentrated spent wash will be dried further to convert it into powder form. Spent wash powder will be disposed through mixing it with fuel (bagasse) and burning it in the furnace. 'Zero Spent Wash Discharge' norms will get complied by the proposed treatment technology.

Apart from spent wash, distillery produces another form of waste water called spent lees. This is sober in polluting nature, compared to spent wash. Spent lees of 60 m3/day along with evaporation condensate (from MEE ~205 m3/day) will be treated in Condensate Polishing Unit (CPU). Other mild wastewater streams such as blow down water, washing water, etc. will also be treated in the CPU. Treated water will be reused for distillery cooling tower or for fermentation process (molasses dilution or cooling tower makeup water) and remaining for greenbelt. In this way, Zero Liquid Discharge (ZLD) will be achieved as per CREP norms prescribed by CPCB.

**Reuse of water (after proper treatment):** Treated water of from CPU will be used for dilution of molasses, cooling tower make up, irrigation (on own plots), watering greenbelt, or cleaning activities, etc.

**Recycle of water:** Exhaust steam will be condensed and recycled. Blow down water from boiler and cooling tower will be cooled in ponds and recycled.

**Conservation of water:** Rain water harvesting to collect the fresh water and partly fulfill the requirement during startup.

**Monitoring mechanism:** Installation of online effluent quality monitoring system at the outlet of the identified units for the measurement of the parameters. Installation of piezometer in the downstream of spent wash storage tanks.

### 5.2.2.3 Impact assessment

**Water/aquatic environment**: Considering the option/s planned for ZLD in the proposed project, no negative impact envisaged on water environment as well as aquatic ecosystems of the surrounding area. Negative impact envisaged in case of accidental leakages and/or spillage of spent wash (raw/concentrated). Foul smell of the waterbody may increase the severity of the impact.

**Soil Environment:** Due to impervious tanks for storage of spent wash, as well as provision of HDPE pipes for its transportation, probability of soil pollution/contamination due to percolation of spent wash assumed low. Hence, no change in the qualitative characteristics of soil (from the project area and surrounding) anticipated and thereby no negative impact.

Sludge from spent wash storage tanks will be sent to sludge drying beds.

**Ecology and biodiversity:** In normal operational conditions, no change in the aquatic or terrestrial flora/fauna anticipated due to the wastewater (includes spent wash, spent lees and other waste water) from the proposed project. Hence, no negative impact envisaged on ecology and biodiversity of the surrounding area (in normal situation). As described above, negative impact on ecosystem and biodiversity anticipated in case of discharge of wastewater outside the premises.

Odour of spent wash likely to attract insects and fungus, particularly in sludge drying beds. It usually attracts avi fauna due to availability of food. Thus, food chain likely to be stronger in the surrounding area (particular for birds).

### 5.2.3 Soil Environment

**Table 6: Solid Waste and Management**

| # | Waste | Quantity (TPA) | Disposal | Remark |
|---|---|---|---|---|
| 1 | Yeast sludge | 25 | Used as a soil enriching material | Organic |
| 2 | Ash | 1498.2 | Used as a soil enriching material/Sold to brick manufacturing units | Bagasse ash – rich in potash |
| 3 | CPU and spent wash tank sludge | 40 | Used as a soil enriching material | Organic/inorganic |

#### 5.2.3.1 Preventive, control and mitigation measures

**Boiler Ash:** It will be transported in covered vehicles (trucks or tractors) to the disposal site. Bagasse as well as spent wash both are degradable and doesn't content any hazardous element. Bagasse ash is rich in potash. Similarly, spent wash powder also contain good amount of potash. Therefore, it is planned dispose it by mixing into the soils.

**Sludge from CPU, spent wash storage tanks and Yeast sludge:** This sludge is usually bio-degradable, organic and nearly neutral in nature. It doesn't contain any toxic or hazardous elements. Therefore, it will be dried in sludge drying beds and safely disposed by mixing into soil. About 1 to 1.5 Tons of sludge will be applied in 1 ha of soil.

**Hazardous Waste:** The only hazardous waste likely from the project is the scrap oil mainly from DG set and machines. However, the DG set will be used only in case of total power failure i.e. captive as well as failure of power supply from electricity board. Thus, the quantity of used or scrap oil is assumed very minor. This waste oil can be disposed-off safely by giving it to authorized hazardous waste oil dealer.

### 5.2.4 Impact on Ecology and Biodiversity

**Anticipated Impacts:** Generally, for any industrial project, negative impact on ecology and

biodiversity is observed due to habitat degradation and/or disturbance and/or habitat loss Pollution from the project (including noise) and allied activities Disturbance to wildlife/fauna due to project and allied activities

Probability of negative impact anticipated low, due to following.

a. No major tree cutting involved for the construction of the project
b. There is no any sanctuary or national park or biosphere reserve in 10 km radius of the site
c. Threatened and/or protected species are not observed in the study area and there is no any direct impact causing factors observed from the project on the surrounding wildlife
d. In normal operating conditions, no major impact anticipated on ecology and biodiversity
e. Transportation activity, increase in cane cultivation area and odour are the probable impact causing factors

Minor impact anticipated on Ecology and biodiversity due to these factors. Greenbelt development anticipated to provide food and shelter to many faunal elements. It will also help in improving the aesthetics. This is another positive impact anticipated due to the project.

### 5.2.5 Impact on Socio-economic environment

The project is agro-based, that utilizes molasses which is a by-product of sugar mill. Therefore, positive impact of the project anticipated wrt following

- Local sugar cane cultivators, labours, harvesters and transporters are expected to get directly benefitted from to the project.
- The project involves transportation of molasses, bagasse as well as finished products. Thus, it is going to generate additional indirect employment for drivers and transportation related service providers
- The project will provide permanent employment to approx. 98 persons and in addition approx 25-30 seasonal employment anticipated
- Long term employment provided by the project will help to improve livelihood of the locals.
- The proposed project will employ local labour for various works during construction as well as operational phase. It is expected that about 30-35 labour will be get employment during construction phase

**Measures**

- Prefer local candidates for employment as well as contractual work
- Skill development for local youths to be undertaken based on the requirement and situation
- Implementation of CER plan based on the needs and requirements of locals (SE survey based data)

**Table 7: Proposed Environmental Monitoring plan**

| # | Particulars | Parameter | Frequency# |
|---|---|---|---|
| 1 | Stack Emissions | Particulate matter, $SO_2$, $NO_x$ | Continuous monitoring |
| 2 | Ambient Air Quality | $PM_{10}$, $PM_{2.5}$, $SO_2$, $NO_x$ | Monthly |
| 3 | Inlet and outlet of CPU | pH, BOD, COD, SS, TDS, Oil & Grease etc. | Continuous monitoring |
| 4 | Bore well /ground water sample from Piezometer nearer to spent wash storage tanks | pH, COD, BOD, Total solids, Chlorides, Sulphate, Phosphates, and Calcium | Quarterly/Monthly |
| 5 | Noise monitoring | At high noise generating places as well as sensitive receptors in the vicinity | Monthly |
| 7 | Occupational health | Health and fitness checkup of employees get exposed to various hazards<br>All other staff (except above) including contract and casual labour | six monthly<br>Once a year |

## 6.0 Fire and Safety

**6.1 Fire protection system:** Fire protection system shall be provided in accordance to PESO, OISD-117 and LPA regulations.

**6.2 Safety Aspects:** All design will be as per ISI standard specification and drawings are to be approved by factory/electrical inspectorate /safety inspectorate weights & measurement inspectorate etc.

**6.2.1 Plant Lighting:** Plant building lighting will be as per norms & as per Electrical inspectorate / factory inspectorate norms. Flameproof light fittings conforming to IS 2148 shall be provided for hazardous areas, particularly in distillation & storage section, while non-flame proof fittings in other areas.

**6.3 Energy and Water Saving Measures:** High alcohol % in fermented wash can result in substantial reduction in steam consumption (integrated evaporation system). It is possible to recycle of low strength waste generated i.e. process condensate, spent lees and other streams in distillery after treating through condensate polishing unit. It will help to reduce the consumption of fresh water for process and non-process applications.

## 7.0 Environment Management Plan

Environment management plan related to Air, water, Soil, Ecology biodiversity and Socio-economic environment is covered in earlier points explained above. Other than that, remaining point are covered below.

### 7.1 Noise

**Impact causing factors:** Increase in noise level due to operation of machines, motors, vehicular movement, DG set etc.

**Environment management plan:**

- Regular maintenance of machines and factory vehicles
- provisions of separate parking for goods and other vehicles
- Internal roads will be either asphalted or RCC, leveled, illuminated and will be maintained
- Safety sign boards will be placed at strategic locations within premise
- Provision of adequate personal protective equipment for workers
- Job rotation for high noise level work places, if required
- Regular health checkup for workers
- Acoustic enclosure will be provided to DG set

### 7.2 Risk and disaster management

**Impact causing factors:** Fire, accidents, earthquake, etc.

**Environment management plan:**

- The entire premises will be declared as 'no smoking zone'
- Lightening arresting system will be installed
- Earthquake resistant construction
- Training to the staff for using fire extinguishers
- Ethanol vapor condensing system will be installed at ethanol storage area
- Ethanol storage will be as per PESO guidelines
- Firefighting system as per OISD and local authority guidelines

## 8.0 Conclusion and Justification for Project Implementation

Kunturkar Sugar & Agro Pvt. Ltd., located at Mohan nagar, Dist. Nanded, Maharashtra has proposed a new molasses based distillery unit of 30 KLPD.

The project is proposed in economically and industrially backward region of the Maharashtra. It is an agro based project. Hence, it will be beneficial to local cane growers.

This project will help in increasing rural economy of this region, ultimately this will improve the social and economic conditions of this region. The mill is having its own open land where the project will be developed. Hence, issues of rehabilitation and restoration of people is not involved in this case.

The potential environmental, social and economic impacts of the above project have been assessed during the environmental impact assessment study and described in this EIA report. The proposed distillery unit will have certain levels of negative impacts on the local environment. It has been endeavored to minimize the negative impacts by addressing them through environmental management plan. Necessary control measures have been suggested to meet with the norms and safeguard the environment. The implementation of this project will definitely improve the physical and social infrastructure of the surrounding area. Adequate financial provision is made by the project proponent for EMP and CSR activities (i.e. for upliftment of the local people). The proposed project will contribute to economic growth and help in generating Government revenue.

The implementation of this project will definitely improve the physical and social infrastructure of the surrounding area. Adequate financial provision is made by management of KSAPL for EMP and CSR activities (i.e. for upliftment of the local people). The proposed project will contribute to economic growth and help in generating Government revenue.