

**SUMMARY ON
ENVIRONMENTAL IMPACT ASSESSMENT
REPORT**

OF

OM SUGARS LIMITED

(30 KLPD Molasses based Distillery & 1MW Captive Power Plant)

at

Survey No. 37,

Of

Jainapur Village, Chikodi Taluk, Belagavi District, Karnataka

Submission

To

KARNATAKA STATE POLLUTION CONTROL BOARD

1.0 PROJECT DESCRIPTION

Om Sugars Limited proposed to establish a 30 KLPD Molasses based Distillery plant and 1 MW Captive Power Plant in Survey No. 37, of Jainapur Village, Chikodi Taluk, Belagavi District, Karnataka. 19.35 acres of land is in possession of management. The total project cost estimated for the proposed project is Rs. 52.37 Crores.

Pioneer Enviro Laboratories & Consultants Private Limited, Hyderabad, which is accredited by NABET, Quality Council of India for conducting EIA studies for Distillery projects, have prepared Draft Environmental Impact Assessment (DEIA) report for the proposed distillery project by incorporating the TOR approved by Ministry of Environment, Forests & Climate Change, New Delhi. The report contains detailed description of the following:

- Characterization of status of environment with in an area of 10 km radius from the project site for major environmental components including air, water, noise, soil, flora, fauna and socio-economic environment.
- Assessment of air emissions, liquid waste and solid waste from the proposed project along with the noise level assessment.
- Environmental Management Plan comprising of emission control measures proposed to be adopted in the proposed project, solid waste management, Greenbelt development etc.
- Post Project Environmental Monitoring.

1.1. SITE DETAILS

The following are the environmental setting of the project site

- The project area does not fall under the industrial areas / cluster, which are listed in MoEF office memorandum dated 13th January 2010 and its subsequent amendments for Critically Polluted area.
- Nearest Habitation Jainapur is at a distance of 0.64 Kms. from the project site.
- There are no National Parks/ Wild life sanctuaries / Bird sanctuaries/Tiger Reserves/Elephant corridors within 10 Km. radius of the project site.
- There are no Reserve Forests within 10 Km. radius of the project site.
- No historical places and places of tourist importance within 10 Km radius of the project site.

- Hire Halla & Raybag Branch canal, are flowing at a distance of 1.9 Kms. & 1.8 Kms. from the project site respectively.
- There is no interstate boundary with 5 Km. radius of the plant site. Nearest interstate boundary is Maharashtra is at distance of 18 Kms. from the project site.
- SH# 12 is at distance of 1.1 Kms from the project site.
- There are no major industries within 10 Km. Radius.
- There are three Protect Forests (No names) are present within 10 Km. Radius project site.

1.2 RAW MATERIALS

The following will be the raw material requirement for proposed project:

S.No	Raw Material	Source	Quantity (TPD)	Method of Transport
1.	Molasses	M/s. Om Sugars Ltd (Own source) & External purchase	120	Through pipeline & M.S Storage tanks
2.	Fuel Consumption : 10 TPH Boiler			
a	Biomass (Bagasse)	M/s. Om Sugars Ltd (Own source)	120	By Road (Covered trucks)
b	Biogas	from Bio-methanisation of Spent wash	430 cum/hr	Through pipeline (within the plant premises)

1.3 PRODUCTS

The following are proposed products and production capacities.

S. NO.	PLANT/UNIT	PRODUCT/ BY PRODUCT	PRODUCTION CAPACITY
1.	Distillery (with Molasses)	Rectified Spirit/ENA/Ethanol	30 KLPD
2.	Distillery (with Molasses)	Impure spirit	1.5 KLD
3.	Power	Electricity	1.0 MW
4.	CO ₂ recovery plant	CO ₂ (By product)	22.8 TPD
5.	Bio-composting	Bio-manure(By product)	5400 TPA

6.	Bio-digester(ETP)	Bio-gas (By product)	430 m ³ /Hr.
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1.4 MANUFACTURING PROCESS

Initially Yeast will be mixed with Molasses for multiplication of yeast cells. Through continuous fermentation, sugars in Molasses will be broken to alcohol & Carbon dioxide. Then through distillation rectified spirit will be produced. Ethanol will be produced by Molecular sieve technology from rectified spirit. 10 TPH boiler will be installed to meet the steam requirement for distillery plant and 1 MW power also will be generated from this boiler for captive consumption.

B) Carbon dioxide recovery system (By product)

Carbon dioxide produced during fermentation will be recovered by means of scrubbing arrangement, and the recovered CO₂ will be supplied to soft drink manufactures / medical / industrial purposes in cylinders. The scrubber blowdown will be recycled into the fermentation.

1.5 WATER REQUIREMENT

The total Water requirement for the proposed project will be 610 KLD. **Net water requirement after recycling of condensate from Evaporation unit and spent lees will be 350 KLD.** This includes Process Water, Cooling Tower make up Soft water, DM Water for Boiler Feed & the ENA Distillation plant and Domestic requirement, etc. Water requirement for the proposed project will be sourced from Doodganga river which is at a distance of 20.0 Kms. from the site. Company has entered in to agreement with Irrigation department, Govt. Of Karnataka for drawl for water 59.08 MCft per year.

In existing sugar plant we have already developed rainwater harvesting pond with storage capacity of 30,000 KL. This water is being used for meet the sugar & Co-gen plant water requirements. Similarly for the proposed distillery also we are developing rainwater harvesting pond of capacity 60,000 KL and the conserved water will be utilized to the distillery plant water requirement. The following is breakup of water requirement.

SECTION	WATER CONSUMPTION (in KLD)
Process Water	172
DM Water For Boiler	120
Cooling Tower Requirement	240
DM plant, softener rejects & clarifier blowdown	68
Domestic	10

Total	610
Net water requirement after recycling of condensate from Evaporation unit and spent lees will be 350 KLD.	

1.6 WASTE WATER GENERATION

Waste water generation from the proposed project will be 366 KLD. The wastewater generation will be Spentwash, Boiler blowdown, Cooling tower blowdown, D.M.Plant & Softener regeneration, Blowdown from CO₂ recovery plant & Sanitary waste water. The following is the break-up of waste water generation from the Project.

SECTION	WASTE WATER GENERATION (in KLD)
Spent Wash	240
Boiler blow down	20
Cooling tower blow down	30
DM plant, softener rejects & clarifier blowdown	68
Sanitary waste water	8
Total	366

1.7 WASTEWATER CHARACTERISTICS

The following are the characteristic of the waste water generated from the proposed project.

CHARACTERISTICS OF SPENT WASH	
PARAMETER	CONCENTRATION
pH	3.8 – 7.5
Total Dissolved Solids	60,000-65,000 mg/l
COD	110,000- 120,000 mg/l
BOD	60,000-65,000 mg/l

CHARACTERISTICS OF SANITARY WASTE, COOLING TOWER BLOWDOWN & BOILER BLOWDOWN & DM PLANT & SOFTENER REGENERATION					
S.N.	CHARACTERISTICS	SANITARY WASTE WATER (untreated)	COOLING TOWER BLOW DOWN	BOILER BLOW DOWN	DM PLANT & SOFTENER REGENERATION
1.	pH	7.0 – 8.5	7.0 – 8.5	9.5 – 10.5	4.0 to 10.0
2.	T.D.S. (mg/l)	800 – 900	800 -1 000	1000	8000 – 15000

3.	B.O.D. (mg/l)	200 – 250	-----	-----	
4.	C.O.D. (mg/l)	300 – 400	-----	-----	

2.0 DESCRIPTION OF ENVIRONMENT

Baseline data has been collected on ambient air quality, water quality, noise levels, flora and fauna and socio economic details of people within 10 km radius of the project site.

2.1 AMBIENT AIR QUALITY

Ambient air quality was monitored for PM_{2.5}, PM₁₀, SO₂, NO_x, CO & HC (Methane & Non methane) at 8 stations including project site for one season as per TOR issued by MOEF&CC. The following are the concentrations of various parameters at the monitoring stations:

PARAMETER		CONCENTRATION
PM _{2.5}	:	10.2 to 31.3 µg/m ³
PM ₁₀	:	15.7 to 52.3 µg/m ³
SO ₂	:	6.0 to 12.5 µg/m ³
NO _x	:	6.1 to 15.7 µg/m ³
CO	:	220 to 536 µg/m ³
Concentration levels of HC (Methane & Non methane) are BDL.		

2.2 WATER QUALITY

Ground water samples have been collected at 8 stations along with surface water samples and analyzed for various Physico-Chemical & bacteriological parameters. The water samples are within the permissible limits of IS: 10500 & IS: 2296 for ground & surface water samples respectively.

2.3 NOISE LEVELS

Noise levels were measured at 8 locations during day time & Night time. The noise levels at the monitoring stations are ranging 37.25 dBA to 50.62 dBA.

3.0 ANTICIPATED ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

3.1 PREDICTION OF IMPACTS ON AIR QUALITY

The likely emissions from boiler in the proposed project are PM & NO_x. The predictions for incremental Ground level concentrations have been carried out using Industrial Source Complex model. Meteorological data such as wind direction, wind speed, max. and min. temperatures collected at the site have been used as input data to run the model.

It is observed from the air quality modeling results that the maximum predicted incremental rise in 24 hourly ground level concentrations of PM & NO_x during operation of the proposed project in the area will be 0.43 µg/m³ & 4.3 µg/m³ respectively at a distance 450 m in the down wind direction.

Net Resultant maximum concentrations due to the Proposed Project

Item	PM ₁₀ (µg/m ³)	SO ₂ (µg/m ³)	NO _x (µg/m ³)	CO (µg/m ³)
Maximum baseline conc. in the study area	52.3	12.5	15.7	536
Maximum predicted incremental rise in Concentrations due to the proposed project	0.43	--	4.3	--
Maximum predicted incremental rise in Concentrations due to the vehicular emissions	0.06	--	0.5	0.3
Net resultant concentrations during operation phase	52.79	12.5	20.5	536.3
National Ambient Air Quality Standards (As per MOEF Notification dated 16-11-2009)	100	80	80	2000

The above table shows that the net resultant concentration (max. baseline conc. + max. incremental rise in conc.) of PM₁₀ and NO_x will be well within the National Ambient Air Quality Standards after commissioning of proposed project. Hence there will not be any adverse impact on air environment due to the proposed project.

3.2 PREDICTION OF IMPACTS ON NOISE QUALITY

The major sources of noise generation in the proposed project will be STG, Boiler, Compressor & DG set. Acoustic enclosures will be provided to STG, DG set. The ambient noise levels will be within the standards prescribed by MoEF under the Noise Pollution (Regulation & Control), Rules 2000 i.e. the noise levels will be less than 75 dBA during day time and less than 70 dBA during night time. Greenbelt will be developed in the proposed project to further attenuate the noise levels. Hence there will not be any adverse impact on environment due to noise on population in surrounding areas due to the proposed project.

3.3 PREDICTION OF IMPACTS ON WATER ENVIRONMENT

The effluent will be treated as per CPCB norms to achieve zero discharge. No effluent will be discharged outside the premises. There will be no contamination of ground water or surface water bodies due to the proposed project. Sanitary waste water will be treated in septic tank followed by soak pit. Rain water harvesting will be taken up in consultation with the State Ground water Board to conserve the precious water. Hence there will not be any adverse impact on water environment due to the proposed project.

3.4 PREDICTION OF IMPACTS ON LAND ENVIRONMENT

All the required air pollution control systems will be provided to comply with CPCB / SPCB norms. Zero liquid effluent discharge system will be implemented in the project. All solid wastes generated will be disposed / utilized as per norms. Greenbelt will be developed as per CPCB guidelines. Hence there will not be any adverse impact on land environment due to the proposed project.

3.5 PREDICTION OF IMPACTS ON RESERVE FORESTS & BIOLOGICAL ENVIRONMENT

There are no rare & endangered species in the area. All the required pollution control systems as specified in Environmental management plan will be installed and operated to comply with the norms. Once all the norms are complied with, then there will not be any adverse impact on flora, fauna due to the proposed project.

4.0. ENVIRONMENTAL MONITORING PROGRAMME

Ambient Air Quality, Sack monitoring, Effluent analysis, Ground water quality, Noise levels will be monitored regularly as per CPCB norms and the analysis reports will be submitted to Ministry of Environment, Forest & Climate Change, Bangalore & State Pollution Control Board regularly. Online monitoring system will be installed to the stack.

5.0 ADDITIONAL STUDIES

No Rehabilitation and Resettlement is involved in the proposed project. Hence no R & R study has been carried out.

6.0 PROJECT BENEFITS

With the establishment of the proposed project, employment potential will increase. Land prices in the area will increase. The economic status of the people in the area will improve due to the proposed project. Periodic medical checkups will be carried out. Top priority will be given to locals in employment. CSR activities will be taken up in the area as per norms.

7.0 ENVIRONMENT MANAGEMENT PLAN

7.1 AIR ENVIRONMENT

The steam requirement for the proposed Distillery project will be sourced from the 10 TPH boiler with Biomass (Bagasse) and Biogas as fuels. High efficiency Electro Static Precipitator will be provided to 10 TPH boiler to bring down the particulate matter in the exhaust gas to less than 50 mg/Nm³. A stack height of 30 m will be provided for effective dispersion of emissions into the atmosphere. Conveyers will be covered. Dust suppression system will be installed at fuel unloading areas.

7.2 WATERWATER MANAGEMENT

Spent wash generation will be 240 KLD, which will be treated in Effluent Treatment Plant.

From Distillery Plant

Spent wash generated from the proposed project will be treated in Bio-methanation unit and concentrated in MEE. The concentrated Biomethanated spent wash will be sent to Bio-composting along with pressmud.

This is totally a “Zero Effluent Discharge” based proven technology, as also approved by the Central Pollution Control Board (CPCB) and The Ministry Of Environment & Forests.

From Captive Power Plant

Back wash from DM plant and Softener, Boiler blowdown will be neutralized in a neutralization tank and will be mixed with Cooling tower blow down in the CMB and will be utilized for greenbelt development, dust suppression and ash conditioning after ensuring compliance with treated effluent quality as per MoEF / SPCB Standards.

7.3 SOLID WASTE GENERATION AND ITS DISPOSAL

The following will be the solid waste generation during the operation of the proposed project & their proposed method of disposal.

S.No.	Solid waste	Total Quantity (TPD)	Disposal
1.	Yeast sludge	1	Will be bio-composted along with bio-methanated evaporated spent wash
2.	Ash		
	when 100% biomass (Bagasse)	4.8	Ash generated will be used as manure
3	Sludge from ETP	3.9	Used as manure

7.4 NOISE ENVIRONMENT

The major sources of noise generation in the proposed project will be STG, Boiler, Compressor & DG set. Acoustic enclosures will be provided to STG and DG set. All the machinery will be manufactured in accordance with MoEF&CC norms on Noise levels. The employees working near the noise generating sources will be provided with earplugs. The extensive greenbelt development proposed within the plant premises will help in attenuating the noise levels further. Noise barriers in the form of trees are recommended to be grown around administrative block and other utility units. Hence there will not be any adverse impact due to noise on population in surrounding areas due to the proposed project.

7.5 LAND ENVIRONMENT

The effluent generated from the proposed project will be treated to comply with the MOEF&CC/SPCB standards. All the solid waste will be disposed as per norms. Hence there will not be any adverse impact on land environment due to the proposed project.

7.6 GREENBELT DEVELOPMENT

Green belt development will further enhance the environment quality through limitation of air emissions, attenuation of noise levels, balancing Eco environment, prevention of soil erosion and creation of aesthetic environment. 7 Acres of greenbelt will be developed in the plant premises as per CPCB norms.