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Executive Summary

1.0 INTRODUCTION

The Shreenath Mhaskoba Sakhar Karkhana Ltd. is established in year 1999 with its registration no. 25-13976. It was established under the chairmanship of Shri. Pandurang Abaji Raut. He is known for his progressive thinking and has now planned to diversify his business activities and has decided to establish a Distillery Plant.

M/S. SMSKL is setting up a new Distillery plant at Patethan, Tal: Daund, Dist. Pune. The existing sugar plant is having capacity of 2500 TCD and proposed to expand to 3500TCD this year. The capacity of the Ethanol (30 KLPD) plant has been decided considering various factors like quantity of molasses available from their own plant / and nearby plants. Further developments to meet to market demand shall be taken up at appropriate time. They have already commissioned 10 MW power plant.

1.2 THE NEED FOR ENVIRONMENTAL ASSESSMENT

Distillery project is proposed to be set up in the State of Maharashtra Government require environmental clearance from Ministry of Environment and Forest, New Delhi based on Sept 2006 notification on Environment Impact Assessment by Union Ministry of Environment and Forest vide No. SO 1533. Hence SMSKL submitted an application for environmental clearance to Ministry of Environment and Forest for terms of approval Distillery project. The TOR was approved during the expert committee meeting held on Dec. 2012 held at Ministry of Environment and Forest New Delhi vide letter no. J-11011/19/2012 –IA- II –I .

2.0 PROJECT DESCRIPTION
SITE INFORMATION

Company Name for this Project	:	Shreenath Mhaskoba Sakhar karkhana ltd.
Executive Chairman	:	Mr. P.A. Raut
Corporate office address	:	MPB Chambers, 2nd. Floor, Above Hari Om Super Market Pune- Solapur road, Hadpsar Pune 411 028
Site Location	:	Shreenath nagar Patethan, Post Rahu Tal. Daund Dist. Pune 412 207
Latitude and Longitude	:	18^0 36' 48. 55" N 74^0 12'27.58"E
Toposheet no.	:	47 J / 2 and 47 J / 6
Project Proposed	:	Setting up of 30 KLPD Distillery.
Nearest Railway station	:	Yawat and Urli Kanchan (16.5 Km)
Nearest Airport	:	Pune (48 Km)
Nearest Sea Port	:	Navha Sheva (195 KM)
Rain fall	:	Avg. 722 mm
Ambient temperature	:	Max 40^oC & Min 8^oC

		Average 28 ^{o}C
Relative humidity	:	68 % Average
Plant Elevation above Sea level	:	546 AMSL
Wind Direction	:	East to West
Soil Bearing Capacity	:	Soft Rock Top (Below 2 Mtrs. BC Soil).

2.1 PROJECT AT A GLANCE

Proposed Distillery Capacity	:	30 KLPD
Distillery Operation days	:	270 Days
No. of boilers to be installed	:	One (1)
Capacity of the Boiler (MCR)	:	10 TPH
Boiler Outlet Steam Parameters	:	32 Kg/Sq. Cm (g) 400 ± 15 Deg.C
Fuels used for the Boiler	:	Bio-gas from Distillery and other Bio-mass fuel.
No. of turbo-generator to be installed	:	One (1)
Turbo-generator type and Capacity:		BP & 1 x 1 MW
Captive Consumption in Distillery	:	580 KWH
Power consumed /Lit of Alcohol	:	0.46 KWH
Transmit to the Sugar Complex	:	420 KWH
Cost of power to Sugar Complex	:	Rs. 2.85/- per kWh
ETH yield	:	225 / MT of Molasses
ETH yield	:	235 / MT of Molasses
Steam Consumption for ENA	:	3.5 kg/lit
Steam Consumption for ETH	:	3.3 kg/lit
Spent wash / Lit of Alcohol	:	10 Litres
Commissioning by	:	Oct. 20012-13

2.2 RAW MATERIALS AND UTILITIES

2.2.1 GENERAL

The opportunity of the project is the multiple characters of the raw material and the final products.

2.2.2 RAW MATERIAL SELECTION

Initially around 80% of the molasses will be met by own molasses from their sugar factory located adjacent to Distillery. Remaining raw material (20%) will be purchased safely through tankers from other nearby sugar mills.

2.2.2.1 MOLASSES

The Molasses is the main raw material. This is the by-product from the sugar plant. This is mother liquor from removed the past grade massecuite.

Even though there are various other feed materials such as rice, oatmeal, grapes wheat, corn.etc, we consider sugarcane molasses as main raw material. We can also use secondary, juice, sweet sorghum as Raw materials.

Total requirement of Molasses for the Distillery is around 32, 400 Tons. Around 26000 Tons of Molasses from the Sugar Plant itself. The balance 6400Tons of molasses will be procured from nearby sugar industries.

However, there are other options open such as purchasing molasses from near by plants and also diverting 'B' molasses and secondary juice. The final products can be made as RS, ENA & Ethanol. This gives the very high level of flexibility to operate the plant profitably under any changing market demand.

2.3 OTHER RAW MATERIALS

All the other raw materials and chemicals except molasses are freely available in the open market and therefore no specific arrangements are necessary for the purchases.

RAW MATERIALS, PRODUCTS, WASTE PRODUCTS

a.	Raw materials	:	Molasses	120 MT/D
		:	Press mud	32 MT
b.	Consumables (chemicals)	:	Urea	60 Kg/D
		:	DAP	60 Kg/d
		:	Antifoam	30 Kg/d
c.	Products	:	Rectified Sprit/Neutral Sprit	30 KL/D
		:	Composted Bio-Manure	13 MT/D
d.	By-product	:	Fusel Oil	25 Kg/D

2.4 POWER

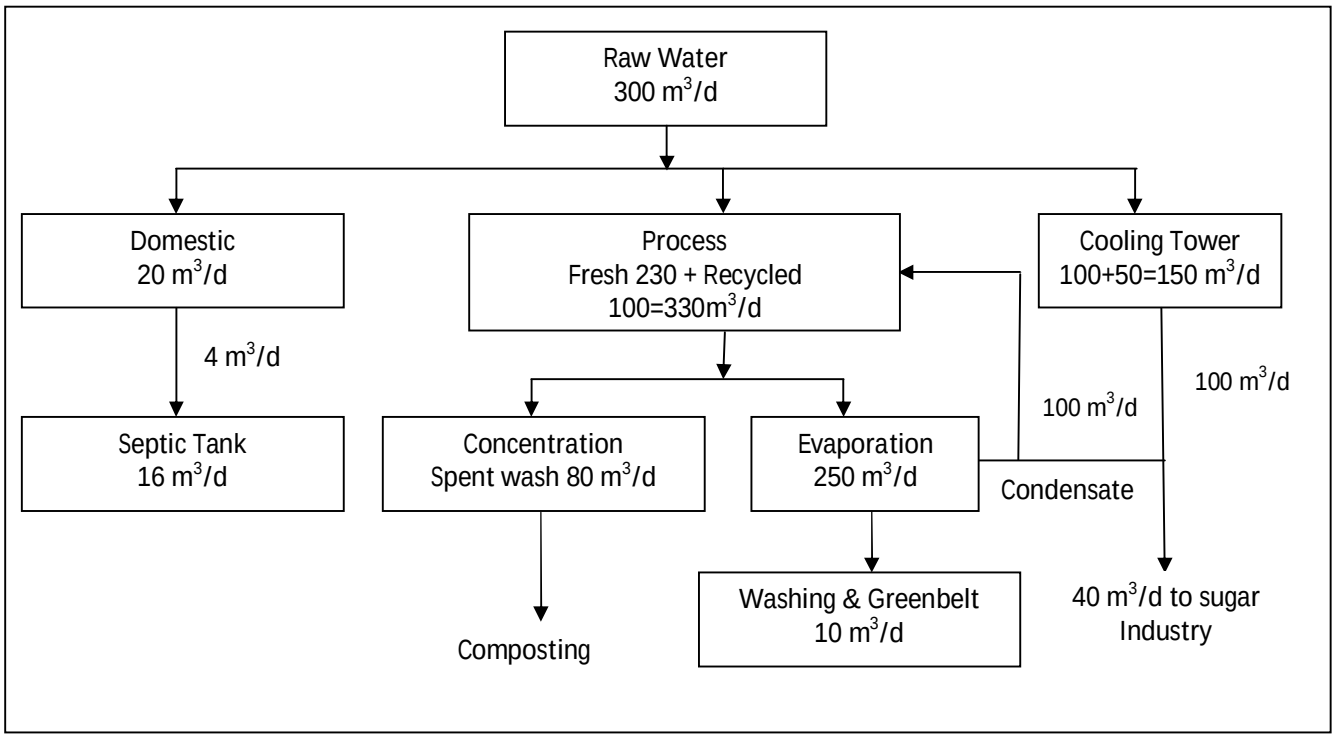
The entire power requirement for distillery can be met by the cogen plant. The distillery Plant configuration and the drive selection will ensure the minimum power consumption to be extent of 0.23 KWH per litre of alcohol. One number 10 TPH boiler with 33 Ata and one number 1 MW Back Pressure Turbo Generator set with its auxiliaries will be newly installed.

The requirement of Power for different sections is given below:

S. No.	Section	Installed Power in KW
1	Distillery & Fermentation Plant	200
2	Molasses handling Section	55
3	Cooling tower	180
4	Water Pumping station	55
5	Effluent treatment Section	60
6	Other including lighting	30
	Total Power	580

2.5 WATER REQUIREMENT

Water Balance



The steam requirement will be 8.5T/hr. The entire steam can be taken from cogen /sugar plant throughout the year. Around 60 % of required steam will be generate through Bio-gas from the Bio-gas reactor. Remaining 40 % of steam from purchased bio-mass fuel. The Boiler shall be designed such a way to fire the combination of fuel.

2.6 STEAM

The plant configuration will ensure the minimum steam percent to the extent of 3.5 kg/lit for ENA and 3.3 kg/lit for ETH.

The steam requirement will be 8.5T/hr. The entire steam can be taken from cogen /sugar plant throughout the year. Around 60 % of required steam will be generate through Bio-gas from the Bio-gas reactor. Remaining 40 % of steam from purchased bio-mass fuel. The Boiler shall be designed such a way to fire the combination of fuel

2.7 FUEL

The fuel will be purchased Bio-mass and Biogas from the Bio-gas reactor. They will be fired in the distillery boiler. Around 450Cu.M/Hr of Bio-gas will be produced in the Bio-gas reactor and it will be entirely utilized in the boiler.

2.8 TRANSPORT

The raw materials and finished goods will be transported by trucks. Arrangements will be made with private Trucks.

2.9 DESCRIPTION OF MANUFACTURING PROCESS

2.9.1 PROCESS DESCRIPTION

The process of converting molasses to RS / ENA can be divided into following sub sections:

1. Feed Preparation and weighing
2. Yeast Propagation and Continuous Fermentation
3. Multi-Pressure Distillation with integrated spent wash evaporator
4. Independent Evaporator

2.9.2 FEED PREPARATION AND WEIGHING

Molasses stored in a storage tank is first weighed in a tank with load cells so that accurate quantity can be fed to the fermentation section. The weighed molasses is then transferred from tank to the dilutor in fermentation section where it is diluted with water and fed to the fermenter.

2.9.3 YEAST PROPAGATION AND FERMENTATION

The yeast from Slant is transferred to Shaker Flasks and grown to the required volume.
This “genetically marked” yeast strain is then further propagated, under aseptic conditions, in yeast culture vessel. These vessels are equipped with eductors which are designed to achieve enhanced efficiencies through better sugar / yeast contact by shearing and mixing, efficient oxygen transfer etc,.

The ready yeast “seed” is then transferred from culture vessel to fermenter. The molasses is diluted by recycled weak beer (partially exhausted spent wash or vinasse) before fermentation. This recycle conserves corresponding amount of Dilution Water. The glucose in the Feed media gets converted to ethanol, in each of the 3 fermenters operating in Continuous Cascade mode. A plate heat exchanger and a circulation pump is provided to each fermenter, which will continuously recirculate the Fermenting Wash through PHE for maintaining the Fermenters at 30^{0}C the nutrients, biocide, acid and anti-foam agents are fed to the fermenters

as per process requirement. The CO_2 liberated during fermentation is sent to CO_2 Scrubber for recovery of ethanol otherwise being lost in vent.
In cascade mode of operation the yeast is recycled by using centrifugal yeast separators and then acidified in yeast acidification tank and then reactivated in activation vessel. The yeast slurry is then again sent to 3rd culture vessel.
The Fermented Wash is then sent to the Clarification Tank equipped with Lamella Separator. The settled sludge is sent to Sludge Washing Tank for recovery of alcohol and the washed sludge is sent to a Decanter for further recovery of Wash and simultaneous reduction of moisture in the sludge.

2.9.4 MULTI PRESSURE DISTILLATION

The fermentation mash containing Alcohol, non-fermentable solids and water is supplied to Distillation to separate the alcohol and other impurities, as a continuous flow.
The Distillation system is designed for premium quality extra neutral alcohol. The system details are as below.
The system consists of 8 main columns, namely CO_2 Stripper, Stripper Column, Pre-rectifier Column, Extraction Column, Rectification Column, Refining Column, Fusel Oil Column and Heads Concentration Column.
Wash is fed to CO_2 stripper column to remove CO_2 gas present in wash. Alcohol is stripped off water in stripper column. The top vapours from stripper column are fed to pre-rectifier column as feed and as heat source too. Pre-rectifier remove most of the fuel oils. And the distillate from pre-rectifier column is fed to extraction column after dilution where process water is used as dilution water. In extraction column most of the high boiling impurities separate from ethanol in presence of water. The bottom ethanol water mixture is pre-heated by steam condensate and spent leese before being fed to rectifier column. In rectifier column product rectified spirit is taken out from top tray and fed to refining column where mainly methanol impurities are separated. Pure ENA is obtained at bottom, which is cooled and stored. The impure spirit from top of extraction column, rectifier column and refining column are fed to heads column. The final impure spirit cut is taken out from heads column top and balance alcohol is recycled to pre-rectifier column. The alcohol containing fusel oil from pre-rectifier and rectifier column is fed to fusel oil column.
The top vapours from stripper column, Extraction column and Fusel Oil column are condensed in evaporator for spend wash concentration. The rectifier column, fusel oil column and pre-rectifier column get heat from steam at 3.5 bar (g).
Rectification column and pre-rectifier column works under positive pressure. The top vapours from rectifier column are condensed in stripper column for giving heat to stripper re-boiler. Most of the other columns work under vacuum.
The Distillation process is operated through PLC.

2.9.5 PROCESS DESCRIPTION ANHYDROUS ALCOHOL

Rectified Spirit at Azeotropic concentration is pumped by Feed Pump. This pump takes care of the entire back pressure of the system. The pump is in Stainless Steel material of construction for wetted parts complete with flameproof motor and mechanical seal.

The rectified spirit will first pass through feed economizer, which will pass through vaporizer cum super heater which will convert the Rectified Spirit feed to superheated Alcohol vapour stream ready to feed to the Molecular Sieve bottles. The degree of superheat is controlled via a temperature control loop and the flow rate to the plant is controlled via flow control loop. The superheated vapour will pass through a Sieve bottle, which is already regenerated, and pressurize to working pressure via. a bleed flow from an operating sieve bottle. After the drying cycle the flow will be shifted to the next Sieve bottle which is ready after duly regenerated and pressurize. This sequence minimizes the rate of rise and fall of pressure through the molecular sieve. Thus minimizing the attrition of the sieve beeds. The sieve column after completion of drying cycle is evacuated to remove the adsorbed water through an evacuation system via a condenser.

The condensed mixture of Alcohol and water is pass through a recovery column which enriches the stream back to azeotropic composition using return heat of the Anhydrous alcohol vapour. The Anhydrous Alcohol vapours duly condensed in the reboiler at the recovery column and is further passed through feed economizer and final product cooler. A flow indicator indicates the rate of Anhydrous Alcohol going to the Anhydrous Alcohol receivers.

3.0 BASELINE STATUS OF ENVIRONMENT

3.1 GEOGRAPHY OF PUNE

Pune District is located between 17 ^{0} 54' and 10 ^{0} 24' North latitude and 73 ^{0}19' and 75 ^{0}10' East longitude. The District has geographical area of 15.642 km^2. Pune District is bound by Ahmadnagar District on north-east, Solapur District on the south-east, Satara District on south, Raigad District on the west and Thane District on the northe-west. It is the second largest District in the state and covers 5.10 % of the total geographical area of the state. The landscape of Pune District is distributed triangularly in Western Maharashtra at the foothills of the Sahyadri Mountains and is divided into three parts: "Ghatmatha", "Maval" and "Desh". Pune District forms a part of the tropical monsoon land and therefore shows a significant seasonal variation in temperature as well as rainfall conditions. Climate of the western region of Pune is cool whereas the eastern part is hot and dry.

3.2 TOPOGRAPHY

Majority of the site is plane with gentle slope. Hence small cut and fill may be required.

3.3 MICRO- METEOROLOGY

Temperature

April and May are the hottest months in the District. Maximum temperature during these months often rises above **36°C**. The western region of Pune District i.e. Talukas Junnar, Ambegaon, Khed, Maval, Mulshi and Velha are cool whereas the eastern part i.e. Shirur, Purandhar, Daund, Baramati and Indapur Talukas are hot and dry. December and January are the coolest months, when average temperature falls as low as **11°C.**

Rainfall

Owing to the geographical conditions within the District, the rainfall is unevenly distributed. The western part of the District adjacent to the West coast is hilly area having forest cover, due to which the rainfall intensity is more in this area as compared to the eastern parts. Most of this rain is brought by the southwest monsoon winds during the summer and about 87 % of rainfalls during the monsoon months.

Meteorological Data of Site

The metrological data collected in the month of October to December 2012. The wind speed, wind direction, humidity temperature recorded during study period.

3.4 AMBIENT AIR QUALITY MONITORING

In general air quality is expressed in amount of pollutants present in air at respective time like Particulate Matter, Sulphur Dioxide and Oxides of Nitrogen. Many sources add to concentrations of these agents in ambient air like vehicular movement, venting of gases from industrial processes, construction and erection activity, units in the vicinity, dust storms, high speed winds etc.

Thus it is most essential to check the ambient air quality monitoring for above components to know baseline status of the same and further to assess post project status also.
At SMSKL ambient air monitoring is performed each year and always observed well in limits prescribed by SPCB. Besides this at surrounding villages like Patethan, Takli, and Devkarwadi, air quality was monitored and reported

3.5 NOISE ENVIRONMENT

The cranes, lifts, equipment, boilers, mixers, grinders, agitators of tanks, etc. which are source to initiate insignificant rise in noise levels. As unit processes and operations are performed inside the plant, their noise intensity will be less to outside people noise levels in the SMSKL premises are monitored and found well within the limits of MPCB. At the nearby villages of Patethan, Takli, and Devkarwadi, noise levels was checked and submitted.

3.6 WATER ENVIRONMENT

The source of raw water for the plant, will be bore wells as well as from the nearby river. In the operational area of the plant, the water availability is plenty as major river Bhima flows in this region. For the further requirement, water can be taken from the river.

3.6.1 Ground water quality

One ground water sample each was collected from each village of Patethan, Takali, and Devkarwadi and analysed for parameters stated in using standard methods of I.S / American Public Health Association and Water Pollution Control Federation, EIA reports are displayed in **Annexure H**.

3.6.2 Surface water

The source of raw water for the plant, will be bore wells as well as from the nearby Bhima river. SMSKL will set up to check water quality as per MPCB norms and I.S 10500 standards. The samples from Bhima river were collected & analyzed. The result are given in **Annexure G.**

3.7 Land Environment

Soil

Soil map is prepared based on the data obtained from the National Bureau of Soil Survey and Land use Planning, Nagpur. The five major types of soil are found in the District:

1. Deep, Moderately well drained, strongly calcareous, fine soils on gently sloping plains and valleys with moderate erosion.
2. Slightly deep, well drained, fine, calcareous soils on very gently sloping lands with mesas and buttes with moderate erosion
3. Very deep, well drained, loamy soils on gently sloping narrow valleys with moderate erosion
4. Shallow well drained, clayey soils on gently sloping lands with mesas and buttes with moderate erosion and slight stoniness
5. Shallow, well drained, clayey soils on gently sloping land with moderate erosion.

3.8 Cropping Pattern

The eastern part of Pune District has more area under cultivation than the western part. Large patches under Kharif crops have been delineated in Baramati, Shirur and Junner tahsils. Availability of good irrigation facilities in the area has enabled widespread practice of double cropping along the Nira river forming the southern boundary of the District, as well as along the Bhima, Mula and Indrayani rivers.

3.9 Biological Environment

The important features of environment are flora and fauna. They have countless life cycle modes, forms and activities that are important to be considered in EIA.

Flora :

Following is the list of flora and fauna in the study area of 10 km radius of SMSKL.

List of Flora

No.	Local Name	Botanical Name	Family
01.	Arjun	T.arjuna Bedd.	Combretaceae
02.	Aamba	Mangifera indica linn	Anacardiaceae
03.	Aonla	Emblica Officinalis, gaertn	Fuphorbiaceae
04.	Anjani	Memecylon edule	Combretaceae
05.	Aen	Terminalia tomentosa	Combretaceae
06.	Anjan	Hardwickia binata	Caesalpinaceae
07.	Asana	Bridelia retusa	Euphoribiaceae
08.	Babhul	Acacia Arabica	Minosoideae
09.	Bel	Aegle marmelos, Correa	Rutaceae
10.	Bahao	Cassia fistula	Caesalpinaceae
11.	Bar (Bargad)	Ficus bengalensis	Moraceae
12.	Bore	Ziziphus mauritiana	Rhamnaceae
13.	Chandan	Santalum album	Santalaceae
14.	Kathjamun	Syzygium heyneanum, wall	Mytraceae
15.	Berr	Zizophus mauratiana	Rhamnaceae
16.	Amrud (Jam)	Psidium guava	Myrtaceae
17.	Adulasa	Adhatoda vasica	Acanthaceae
18.	Aghada	Achyyranthus aspera	Acanthaceae
19.	Karwand	Cariasa caranda	Apocynaceae
20	Tarwad	Cassua auriculata	Caesakoubaceae

Fauna : The common wild life in the area is given in Table below.

No.	Local Name	English Name	Scientific Name
MAMMALS			
1.	Chinkara	Indian gazelle	Gazella gazelle bennetti
2.	Landga	Wolf	Canis pallipes
3.	Kolha	Jackal	Canis aureus
4.	Khokad	Fox	Vulpes bengalensis
5.	Sayal	Spiny Anteaters, Echidnas	Tachyglossus

6.	Sasa	Common Hare	Lepus refieeandatus
7.	Mungoos	Indian mongose	Herpastes edwardsi
BIRDS			
1.	Titar	Grey Francolin	Francolinus pondicerianus
2.	Mor	Pea fowl	Pavo cristatus
3.	Myna, Salunki	Common Myna	Acridotheres trists
4.	Kokil	Koyal	Endynamys scolopacea
5.	Chimani	Sparrow	Passeridae
6.	Kawala	Crow	Corvus
7.	Holla	Red turtle dove	Strptonelia fransquebarica
8.	Sugaran	Baya Weaver	Ploceus philippinus
9.	Tambat	Coppersmith Barbet	Megalaima haemacephala
10.	Robin	Indian Robin	Saxicoloides fulicatus
REPTILES			
1	Nag	Cobra	Naia tripudians
2	Rasdhia	Viper	Vipera rusellii

3.10 SOCIO – ECONOMIC ENVIRONMENT

Assessment of Socio-economic environment forms an integral part of an EIA study. As regards to baseline environmental data in respect of Demography, Occupational Structure, Community Services such as Post Offices, Post & Telegraph Offices, Telephone, Educational and Health Care Facilities, Banks and Co – Operative institutes, social and Cultural Institutions present Buffer zone were collected from Department of Census operations, Government of India, Department of Statistics and Economics of the Government of Maharashtra, Village for preparation of existing environmental scenario in respect of these parameters. The amenities available in the villages under the study area denote the economic well being of the region. The study area as a whole possesses poor to moderate level of infrastructural facilities. The above data is obtained from Census 2001

4.0 ENVIRONMENTAL IMPACT PREDICTION

Environmental impact in the study area reflects in any changes of environmental conditions, adverse or beneficial effects caused or induced by the impact of project if implemented. Superimposition of predicted impact over pre-project base line data shows final picture of environmental conditions. Step of quantitative impact prediction leads to decline suitable environment management plan needed to implement before initiation of project, commissioning stage to mitigate adverse effects on environmental quality. Impact prediction in various areas of air, water, soil, noise, socio-economic for alcohol distillery are given in following sections.

Plant involves activities to set up a plant, machinery, create infrastructure to transport raw material, finished products. It causes various impacts on air & water quality, noise levels, socio-economic environment etc. Next steps describe a brief description of the environmental

impacts of proposed distillery project both in construction and operational phases and methodology and results of mathematical and simulation models used in their prediction.

4.1 IMPACT DURING CONSTRUCTION PHASE

Project construction phase will be of one and half year whose activities will surely show effects on land environment, water, air, noise level, soil quality, socio-economic trend etc.

4.1.1 Land Environment

Some excavation, land filling and development aspects may be needed for leveling of the ground.

4.1.2 Water Environment

During construction hardly 50m^3 water will be required for slab working. The construction activity will not have any effect on ground as well as surface water. Even the domestic waste water generated in the labour camp is also very low.

Mitigation

Waste water generated during construction is insignificant. Proper sanitation facility will be provided with septic tank so that there will be no negative impact on water.

4.1.3 Air Environment

During construction activity there is a probability of increase in SPM due to transportation of trucks, trolleys construction debris, cement etc.

Mitigation: all the vehicles permitted at the project site will be possessing Pollution under control certificate. There will be provision of water sprinkling on the project site to control dust emission.

4.1.4 Noise Environment

The construction activity will generate noise due to vehicles like trucks and machinery like bulldozers, concrete mixers, cranes etc. the noise levels are between 70 to 80 dB.

Mitigation:

All the workers involved in the construction works are provided with ear plugs to avoid continuous exposure of noise. Noise exposure can also be minimized by shock absorbing techniques such as noise barriers, silencers etc. in the equipment.

4.1.5 Occupational Safety

During the construction there are chances of minor or major accidents at the site.

Mitigation:

All the workers will be provided with helmets, goggles and safety instructions in the form of manuals and also first-aid will be made available.

4.2 IMPACT DURING OPERATION PHASE

The operations and their respective impacts in a ethanol manufacturing units are as follows:

4.2.1 Impact on Land or soil

The solid waste generated from the ethanol plant is mainly in the form of press mud. This solid waste in case dump on land will create soil degradation or underground water pollution.

Impact due to solid residue

Ash formation will occur due to use of Bagasse as fuels in boiler used in distillery unit. Formed ash (small quantity) will be collected, mixed in press mud & distributed free to farmers during season & during off season will be given to nearby brick manufacturers it can also be used as a material for land filling.

Mitigation:

Press mud can be used as bio-compost along with spent wash. Fly ash generated during combustion in boiler will be used as a material in land filling as well as in brick manufacturing.

Spent wash from alcohol distillery will be reduced substantially by implementing single stage evaporation technology. Bio-compost equipment use to treat generated spent wash from ethanol plant with culture Micro 110 will give compost to be sold to farmers in vicinity area.

4.2.2 Impact on water environment

Water needed for distillery operation will be available from Bhima river. Around 250 to 270 m^3 / day will be recycled from the effluent treatment plant of spent wash. This water can be used for molasses dilution. The spent wash from the distillery for a 30 KLPD plant will be around 300 m^3 / day. In case untreated spent wash is disposed on the land, there are maximum chances of water pollution. In the effluent treatment section after Bio-gas reactor the Demethanised effluent will be passed through an Evaporation system before Bio-Composting.

Mitigation : The zero effluent discharge scheme will be adopted so as to prevent water pollution.

4.2.3 Impact on Air Environment

The common process involved in the units is the use of boiler and turbine. The air environment gets polluted due to emission of suspended particulate matter having particle size less than 50 microns. It also affects the crops grown in the nearby areas. So it has negative impact on the health of people.

Due to existing state highways & less distances for carts, trucks to reach site the suspended particulate matter generation will be in specified limits.

SPM collected from Bag filter, air heater hoppers, ash from boiler bottom hoppers, total quantity being less than 2 % can be subjected to suitable land fill.

As per the study under taken the GLC levels of pollutant is very negligible, as boiler capacity and amount of fuel used are in very small in size and quantity respectively.

4.2.4 Impact due to transportation

Vehicle traffic due to transportation of molasses, finished materials alcohol etc. will be increased. Transport of the items will be done with trucks. Traffic with jeeps, buses, cars, ambulance etc. will also be there. Traffic on road will create rise in particulate matter. Metalled

roads already exist in the site area which will keep minimum SPM level. Thus fugitive emissions will be at minimum levels.

Mitigation

SMSKL puts a strategy to check regularly the PUC of all auto vehicles, servicing & maintenance, in order to have minimum environmental impact due to the vehicle exhaust emission. Garden & tree plantation plans will ensure the target of minimum fugitive emissions. SMSKL proposes better level of housekeeping in all departments of sugar mill, power generation, and colony area to get clean area.

4.2.5 Impact on Noise environment

Noise, an unwanted sound, affects human being. Excessive exposure to noise produces varying degree of damage to hearing system. It leads to headache, fatigue etc. the main sources of noise are steam turbine, boiler, DG sets, etc. most of them generate noise level up to 70-90 dB A. Road traffic will also result in rise in noise levels. Continuous exposure of increased level of noise will have an adverse impact on the health of workers as well as the people residing in surrounding area. Prolonged exposure can lead to temporary or even permanent deafness.

Noise making Equipments such as cutters, crushers, mixers, pumps, boilers etc. All connecting roads to plant will be metalled one. Vehicle maintenance, proper lubrication to machinery will be arranged. Tree plantation on the campus and on the connecting roads is initiated and will be done each year.

Mitigation

All the workers will be provided with ear plugs, proper maintenance of pumps. All the transporters will be advice to carry out regular maintenance of their vehicles.

4.2.6 Impact on Socio-economic environment

SMSKL is located in an isolated area. SMSKL management thought that it would be advantageous to improve the living conditions of people in and around the plant site. It also proposes to employ local skilled and unskilled workers. It will therefore generate employment in the local area. In turn local people can avoid uncertainty of job, raise their living standard, do supplementary jobs of cane & other farming, cattle, poultry, brick making unit etc. thus to stabilize & prosper in life. This will surely be a positive impact.

Socio economic pattern

SMSKL has already initiated process to select & employ key persons for project. In nearby period full employment, colony creation will give them space to reside thus to get settled in the area.

5.0 ENVIONMENTAL IMPACT ANALYSIS

Environmental impact assessment are the logical first step in this process because it represent the opportunity for man to consider, in his decision making, the effects of actions that are not accounted for in the normal market exchange of goods and services. Adherence to pure economic exchange theory and practice for decision making has possible adverse consequences for the proposed site at which the project is going to be implemented.

6.0 ENVIRONMENTAL MANAGEMENT PLAN

The environmental management plan consists of the set of mitigation,management, monitoring and institutional measures to be taken during implementation and operation to eliminate adverse environmental impacts or reduce them to acceptable levels.

6.1 AIR ENVIRONMENT

The steam required for the proposed distillery will be taken from their Captive power generation plant and located adjacent to proposed site. The stack gas and ash disposed shall be made to suit the pollution control norms. The minimum quantity of CO_2 emitted from the fermentor will be washed in CO_2 scrubber and the clean air alone will be vented to atmosphere. Hence in this project, there will not be any chance of air Pollution. For better atmosphere the proper ventilation will be provided in the structure. For wet scrubber, 10-meter height from ground level and 0.15m diameter of stack will be provided

6.2 NOISE ENVIRONMENT

Noise generated from the industry would be minimized by the following preventive measures.

- Providing sound attenuators for ventilation ductwork.
- Installing mufflers on any duct openings for the passage of cooling air.
- Developing a thick greenbelt.
- Providing shock-absorbing technique to reduce impact providing noise barriers, silencers etc. in the equipment.

6.3 MONITORING OF EFFLUENTS

The characteristics of the effluents from the proposed plant will be maintained so as to meet the requirements of the State Pollution Control Board and the minimum national standards for effluent from plant. Air quality monitoring will also be undertaken to ensure that the dust pollution level is within limits.

The spent wash treatment include use of biodigestor, then triple effect evaporator to concentrate spent wash and then residue is taken for producing compost. Hence, as per CPCB norms zero effluent discharge is achieved.

6.3.1DOMESTIC SEWAGE

The domestic sewage will be disposed by means of septic tank of size 6.0 x 3.0 x 3.0 m followed by dispersion trench of size 5.0 x 4.0 x 2.5m. The quantity of sewage generated will be 4 KLD

6.4 SOLID WASTE MANAGEMENT

PRESSMUD STORAGE YARD

The pressmud storage yard of 75 m x 50 m will be made impervious by constructing it with 300 mm thick stone soling. 200 mm thick base garland canal to collect any leachate or rainy

days water. The same water will be collected in a collection tank of 10 m x 10 m x 5 m and the same will be recycled.

SMSKL will adopt the state of the art continuous fermentation process with Multipressure Vacumn Distillation such that the generation of solid waste such as, yeast sludge is very less as compared to conventional batch process. The volume of sludge is only 0.5 – 1% of the total quantity of fermented wash. For 30KLPD Rectified Spirit Plant the maximum quantity of sludge produced is 2,500 – 5,000Lt./day (wet basis). The sludge is dried and will be used for composting.

6.5 GREEN BELT DEVELOPMENT

Tree plantation is one of the effective remedial measures to control the Air pollution and noise pollution. It also causes aesthetics and climatologically improvement of area as well as sustains and supports the biosphere. It is an established fact that trees and vegetation acts as a vast natural sink for the gaseous as well as particulate air pollutants due to enormous surface area of leaves. It also helps to attenuate the ambient noise level. Plantation around the pollution sources control the air pollution by filtering the air particulate and interacting with gaseous pollutant before it reaches to the ground. Tree plantation also acts as buffer and absorber against accidental release of pollutants.The plantation work for green belt development will be carried out as per CPCB guidelines, local species would be preferred.

For effective control of air pollutants in and around the proposed industry, a suitable green belt is proposed by taking into consideration the following criteria. The green belt would;

- Mitigate gaseous emissions
- Have sufficient capability to arrest accidental release.
- Effective in wastewater reuse.
- Maintain the ecological balance.
- Control noise pollution to a considerable extent.
- Prevent soil erosion.
- Improve the Aesthetics.

EMP BUDGET

Capital and operating expenditures for environment protection measures i.e EMP

Sr.No	Particulars	Capital Cost Lakhs	Recurring Cost per Annum in lakhs
1	**Air pollution control** Dust Collectors for boiler	30.00	2.0
2	Water pollution control	500.00	2.5
3	Composting	100.00	1.0

3	Noise pollution control Enclosure for DG-Set Acoustic for shake out (2nos)	1.00	0.10
4	Occupational Health	-	1.0
5	Environment Monitoring and management	-	1.0
6	Green Belt Development	2.00	0.2
7	Others-Consultation and Training	-	0.5
8	Community Development	-	2.0
	Total	**633.0**	**10.3**

7.0 RISK ASSESSMENT AND DISASTER MANAGEMENT PLAN

RISK ASSESSMENT :

Industrial accidents results in great personal and financial loss. Managing these accidental risks in today's environment is the concern of every industry including distillery units, because either real or perceived incidents can quickly jeopardize the financial viability of a business. Many facilities involve various manufacturing processes that have the potential for accidents which may be catastrophic to the plant, work force, environment, or public.

The main objective of the risk assessment study is to propose a comprehensive but simple approach to carry out risk analysis and conducting feasibility studies for industries and planning and management of industrial prototype hazard analysis study in Indian context.

Risk analysis and risk assessment (Figure 4-4) should provide details on Quantitative Risk Assessment (QRA) techniques used world-over to determine risk posed to people who work inside or live near hazardous facilities, and to aid in preparing effective emergency response plans by delineating a Disaster Management Plan (DMP) to handle onsite and offsite emergencies.

QRA may be carried out to serve the following objectives.

1. Identification of safety areas
2. Identification of hazard sources
3. Generation of accidental release scenarios for escape of hazardous materials from the facility
4. Identification of vulnerable units with recourse to hazard indices
5. Estimation of damage distances for the accidental release scenarios with recourse to Maximum Credible Accident (MCA) analysis
6. Hazard and Operability studies (HAZOP) in order to identify potential failure cases of significant consequences

Mitigation Measures

The purpose of mitigation is to identify measures that safeguard the environment and the community affected by the proposal. Mitigation is both a creative and practical phase of the EIA process. It seeks to find the best ways and means of avoiding, minimizing and remedying impacts. Mitigation measures must be translated into action in the correct way and at the right time, if they are to be successful. This process is referred to as impact management and takes place during project implementation. A written plan should be prepared for this purpose, and includes a schedule of agreed actions. Opportunities for impact mitigation will occur throughout the project cycle.

7.1 Health and safety measures:

- Regular inspection and maintenance of pollution control systems.
- Statuary approvals, waste treatment and disposal including stack emissions etc.
- Full fledge fire protection system.
- Gloves and protective equipment to prevent health hazards.
- Use of splash proof safety goggles and shoes.
- To impart training at various levels including contractors and transport personnel's for observing safe work practices.
- Clearly define the procedures for inspection, operation, and emergency shutdown of the process operations.
- To device systematic accident prevention program to ensure safe and healthy working environment.
- The compliance of all statutory regulations.
- Environment monitoring and control of process parameters at various unit operations by providing control measures in the plant.
- Eliminate unreasonable, research and where appropriate, implement advance technology in the design, production services and to prevent pollution as well as conserve, recover and recycle raw materials.
- The workers exposed to noisy sources will be provided with ear muffs/plugs.
- Preventive maintenance activities so as to have smooth operations.
- Audit programs must be carried out to review the management system for identifying, evaluating and controlling environmental, health and safety hazards.
- The health of the workers will be regularly checked by a well qualified doctor and proper records will be kept for each worker.

7.2 DISASTER OR EMERGENCY CONTROL PLAN

SMSKL will be a new growth oriented center in the Patethan area district Pine. Such unit can pose threat of danger / hazard due to storage of hazardous materials. Distillery plant also poses electrocution, fire, and explosion hazards. When the full fledge activity of Ethanol Plant will gear up it will have to follow Factories Act 1948 & Maharashtra Factories Rules 1963 with all amendments till today and any directives from Director Safety, Health & Environment [SHE] will automatically be binding on SMSKL. In such condition to appoint a qualified Safety Officer is a must & will be an adequate, wise step in such direction. On site and off site disaster control plans and their perfect implementation will be part and parcel of the management & such safety officer. To lessen the probability of hazard to occur & avoid the consequent damage, a disaster management and control plan has to be worked out for whole complex in anticipation to the threat.

7.3 TYPE OF DISASTER AT SMSKL COMPLEX

- Disaster can occur as on site or off site variety i.e. disaster on campus or disaster in nearby area causing indirect damage to site area & the complex.
- Disaster may occur due to two categories, **natural** and **man made** calamities:
- **Natural calamities cover** Flood, Storm / typhoon, Earthquake, Tsunami, Heavy mist, fog, hail storm, Land slide
- **Man made calamities involve** Fire & Explosion, All types of leakages & spillage, Electrocution, excavation, construction, erection, Sabotage, rail & road accidents, mass agitation, Looting, Morcha, war

The identified hazardous areas in the complex are

1. Boiler area - Explosion
2. Oil tanks - Fire and spillage
3. Turbine section - Explosion
4. Electrical rooms - Fire and electrocution
5. Transformer area - Fire and electrocution
6. Cable - Fire and electrocution
7. Storage facilities – Fire / spillage for fuel and alcohol

7.4 SITE EMERGENCY CONTROL ROOM (SECR) & SITE MAIN CONTROLLER

To assist the disaster control more effectively a site emergency control room (SECR) will be established at the plant site. The SECR may be provided with following sections:

- All site plant layout
- List of important telephone numbers of Chairman & Directors SMSKL, Chief Engineer, Chief Chemist, Distillery Manager, Administration Manager.
- Telephone numbers of Patethan Gram Panchayat, Daund Tehesil, Tahasildar of Daund, Pune District collector, Pune, Joint Director, Safety Health & Environment , Pune State transport depot office, Pune District & local fire brigade station, home guard, civil defence, N.C.C. unit, State crisis group, Mumbai, crisis group, CGO complex, MoEF, New Delhi.
- All material handling & incoming vehicle traffic to be stopped temporarily.
- All out going lines to be used to contact above authorities.
- Captive power plant layout showed with inventories and locations of fuel
- Oil / furnace oil storage tanks, storage yard etc.
- Hazard identification chart, maximum number of people working at a time, assembly points etc

7.5 DISASTER PREVENTIVE MEASURES

The proposed power plant will have following preventive measures to avoid occurrence of disasters:

I. Specification & marking of safe area to gather in emergency.

II. Design, manufacture and construction of plant, machineries and buildings will be as per national and international codes as applicable in specific cases and laid down by statutory authorities.

III. Provision of adequate access ways for movement of equipment and personnel shall be kept.

IV. Minimum two numbers of gates to escape during disaster shall be provided.

V. Fuel oil storage shall be in protected and fenced. The tank will be housed in a dyke wall. As per regulations of CCOE its testing & certification will be performed each 5 years regularly.

VI. Proper colour coding for all process water, air & steam lines will be done.

VII. Proper insulation for all steam & condensate, hot water lines will be done.

VIII. Provision of circuit brakers, isolation switches, signals will be provided as per electricity act & rules.

Proper & rigid bonding and earthing to all equipment will be arranged

7.6 FIRE FIGHTING ARRANGEMENTS

BIS 2190 provides Indian standards for fire fighting equipment. All fire fighting equipment and extinguishers have to be planned according to this standard.

There are 4 classes of a fire to occur:

Class	**Materials**	**Extinguisher**
A	Cotton, Cloth, paper, wood	Water type
B	Oils, Hydrocarbons, Alcohol, Greases	CO_2 type
C	Gases, CNG, LPG, Acetylene,	Foam type
D	Electrical & metals	Foam

Recommendation

The fire tender, which will be part of project with following minimum fire fighting arrangements shall be procured:

- Water tank - 500 litres
- CO_2 - 2700 litres
- Foam tank - 45 litres
- CO_2 type fire extinguishers - 6 nos of 4.5 kg each

CONCLUSION

M/S. Shreenath Mhaskoba Sakhar Karkhana Ltd. is setting up a new Distillery plant at Patethan, Tal: Daund, Dist. Pune. The existing sugar plant is having capacity of 2500 TCD and proposed to expand to 3500TCD this year. The capacity of the Ethanol (30 KLPD) plant has been decided considering various factors like quantity of molasses available from their own plant / and nearby plants. Establishment of the Ethanol plant will add more revenue to farmers. After the establishment of the factory, the standard of living of the entire area will improve. The land & other infrastructure is also available. The design of the proposed project includes measures to control and prevent environment within acceptable limits by providing most recent techniques and necessary equipments. The impacts would be amenable to technological control and effective environmental management in both the phases (construction & Operation).

Based on the above, it is concluded that the adverse environmental impacts due to construction and operation phase can be mitigated to an acceptable level by implementation of various mitigatory measures envisaged.

संक्षिप्त गोषवारा

श्रीनाथ म्हस्कोबा साखर कारखाना मर्यादित, पाटेठाण

प्रस्तावना

श्रीनाथ म्हस्कोबा साखर कारखाना मर्यादित, पाटेठाण, तालुका दौंड, जिल्हा पुणे याची १९९९ मध्ये २५-१३९७६ या क्रमांकाने कंपनीची नोंदणी झाली आहे. श्री पांडुरंग आबाजी राउत हे त्याचे अध्यक्ष आहेत. ते प्रगतीशील विचारांसाठी प्रसिद्ध असून बहु-उद्देशीय योजनेमध्ये त्यानी आसवनी प्रकल्पाची निवड केली आहे. त्यांच्याकडे प्रकल्प सुरु करणे व त्यानंतर प्रकल्पाची अंमलबजावणी करणारे सक्षम इंजिनिअर्स व इतर कार्यकारी दल उपलब्ध आहे.

सदर आसवनी प्रकल्प हा पाटेठाण गाव, तालुका दौंड, जिल्हा पुणे येथे कार्यान्वित होत आहे. सदर कारखान्याची सध्याची गाळप क्षमता २५०० टन प्रतिदिन असून ती ३५०० टन प्रतिदिन करण्याचे तसेच मळीपासून ३० कि लि प्रतिदिन आसवनी उत्पादन योजिले आहे. यासाठी कारखान्यातील मळी व इतर कारखान्यातून उपलब्ध होणारी मळी यांचा विचार केला आहे. या कारखान्याने पूर्वीच १० मे वट क्षमतेचा सहवीज निर्मिती प्रकल्प सुरु केला आहे.

सिंचनक्षम जमीन व सिंचन योजनामुळे महाराष्ट्र उस लागवड क्षेत्रात उत्कृष वाढ झाली त्यामुळे उसापासून साखर निर्मिती उद्योग मोठ्या प्रमाणावर वाढला या उद्योगात उसापासून साखर निर्मिती या एकाच उत्पादनावर बाजारात तग धरणे शक्य नाही. चिपाड व मळी यांच्या सहाय्याने मद्य व सहवीजनिर्मिती असा संयुक्त प्रकल्प करणे काळाची निकड ठरली. या उपक्रमाव्दारे साखर मद्यार्क व स्वत:करता वीजपुरवठा करून ग्रामीण भागासाठी उर्वरित वीज व्यापारी दारात पुरवणे शक्य होत आहे यापैकी एक प्रकल्प श्रीनाथ म्हस्कोबा साखर कारखाना मर्यादित, पाटेठाण, तालुका दौंड, जिल्हा पुणेच्या प्रवर्तकांनी योजिला आहे .

भारत व महाराष्ट्र शासनाने उर्जाची वाढती निकड लक्षात घेऊन उसापासून मिळणाऱ्या चिपाडाचा इंधन वापर करून सहवीजनिर्मिती योजनेला चालना दिली आहे. यामुळे उसाच्या उपपदार्थाच्या प्रक्रियेला मदत होऊन अल्कोहोल निर्मिती, इंधन बचत, वीज बचत व नजीकच्या खेड्यांना जवळच्या जवळ पुरेसा विजसाठा उपलब्ध होईल.

लोक सुनावणीची गरज

पर्यावरण व वन मंत्रालय सरकार यांच्या पर्यावरण परिणाम तपासणी कायदा २००६ प्रमाणे प्रस्तावित आसवनी प्रकल्पास 'अ' वर्ग दिला आहे त्यामुळे पर्यावरणाची परवानगी घेणे बंधन कारक आहे पर्यावरण आघात तपासणी अहवाल तयार करण्यासाठी त्यांचे पत्र क्र.□□□□□□ J - 11011/19/2012 – IA- II-I नुसार डिसेंबर २०१२ रोजी टी. ओ. आर मंजूर करण्यात आला व त्यावर आधारित पर्यावरण आघात अहवाल महाराष्ट्र प्रदूषण नियत्रण मंडळ यांच्याकडे लोक सुनावणीसाठी सदर केला.

उसापासून साखर निर्मिती मळीपासून इथेनाल, चिपाड याव्दारे सहवीजनिर्मिती या संकल्पात जमीन, हवा, पाणी, जैवविविधता यांच्यावरील व लोक जीवनावरील परिणाम तपासणे व अंमलबजावणी करणे हा लोकसुनावणी मागील उद्देश आहे.

अ.क्र	घटक	तपशील
1	प्रकल्प स्थळ	श्रीनाथ म्हस्कोबा साखर कारखाना, पाटेठाण,
2	अध्यक्ष	श्री.पांडुरंग आबाजी राउत
3	कार्यालय स्थान	एम पी जी चेम्बर्स , दुसरा मजला, हरी ओम सुपर मार्केटच्या वर , हडपसर, पुणे - सोलापूर रस्ता, पुणे ४११०२८.
4	अक्षांश	१८° ३६ ' ४८.५५" उ
5	रेखांश	७४° १२' २७.५८ पू
6	टोपोशिट क्र.	47 J / 2, 47 J / 6
7	जवळचे रेल्वे स्थानक	यवत व उरुळी कांचन १६.५ कि मी
8	जवळचे विमान स्थानक	पुणे ४८ किमी
9	जवळचे मोठे बंदर	न्हावा शेवा १९५ किमी
10	पर्जन्य मान	वार्षिक ७२२ मिमी
11	सापेक्ष आर्द्रता	सरासरी ६८ %
12	समुद्र सपाटीपासून उंची	५४६ मी.
प्रकल्पाची ठळक वैशिष्ट्ये		
12	आसवनी क्षमता	३० कि. लि प्रतिदिन

13	आसवनी चे कार्यान्वित दिवस	२७०
14	बाष्प संयंत्र संख्या	एक
15	बाष्प संयंत्र क्षमता	१० टन प्रती तास
16	बाष्प संयंत्र	दाब ३२ कि / सें. मी २, ४०० १५ ० सें.
17	इंधन	आसवनीतील सेंद्रिय खतातील उत्पादित वायू व चिपाड,
18	टर्बो जनरेटर संख्या	एक
19	उर्जा निकड / प्रति लि मद्यार्क	२.३ मे वेट
20	साखर संकुल उर्जा खर्च	रु. २.८५ प्रती कि वेट
21	एक्स्ट्रा न्युट्रल अल्कोहोल	२२५ / प्रती टन
22	आसवनी बाष्प निकड	३.५ कि / लि
23	स्पेंट वाश /मद्यार्क लि	१० लि
24	प्रकल्पला पूर्णत्व	२०१२ - १३.

कच्चा माल

साखर कारखान्यातील मळी या उपपदार्थांचा पुरेपूर उपयोग करून आसवानी मधील मद्यार्काची निर्मिती होणार आहे.

कच्चा माल नियोजन

सुरवातीला ८० % मळी ही या कारखान्यातून उस ते साखर प्रक्रियेतून उपलब्ध होईल. उरलेली २० % मळी ही नजीकच्या साखर कारखान्यातून खरेदी केली जाईल.

मद्यार्क निर्मितीसाठी ओट मील, तांदूळ, द्राक्षे, गहू, मका यांचा पर्याय म्हणून विचार केला होता. परंतु कारखान्यातील मळीची विल्हेवाट व इंधन खर्च बचत यांचा विचार करून मळी हा योग्य पर्याय निवडला आहे.

असवानीची मळीची वार्षिक गरज ३२,४०० टन असून २६,००० टन मळी ही याच कारखान्यातून उपलब्ध होईल तर ६४०० टन मळी ही इतर साखर कारखान्यातून खरेदी केली जाईल.

यामुळे रेक्टीफाइड स्पिरिट, एक्स्ट्रा न्युट्रल अल्कोहोल व जलविरहित अल्कोहोल यांची निर्मिती करून योग्य किमतीस बाजारात त्याची विक्री करणे शक्य होईल.

इतर कच्चा माल

खालील कच्चा माल आसवनीला लागेल.

मळी -------- १२० टन /प्रतिदिन

प्रेस मड --------- ३२ टन / प्रतिदिन

युरिया --------- ६० कि / प्रतिदिन

डी ए पी --------- ६० कि / प्रतिदिन

अंटी फोम --------- ३० कि / प्रतिदिन

उत्पादन

रेक्टीफाइड स्पिरिट, एक्स्ट्रा न्युट्रल अल्कोहोल ३० टन/ प्रतिदिन

सेंद्रिय खत १३ टन / प्रतिदिन

उपपदार्थ फुजल ओइल २५ कि / प्रतिदिन

आसवनी उर्जा निकड

कारखान्याच्या सहवीज निर्मितीमधून आसवनीची उर्जा निकड भागू शकते. ही निकड ०.२३ कि वेट / अल्कोहोल लिटर असेल. प्रति तास १० टन आणि ३३ कि ग्रा उच्च दाब बाष्प संयंत्र व १ मे वेट टरबो जनरेटर सहित इतर यंत्र सामुग्री यांची त्यासाठी गरज आहे.

अ क्रं	विभाग	उर्जा निकड कि वेट
1	आसवनी, मळी आंबवणे संयंत्र	२००

2	मळी हालचाल	५५
3	पाणी शीतकरण	१८०
4	पाणी वापर	५५
5	सांड पाणी प्रक्रिया	६०
6	रस्ता, दिवा व इतर	30

बाष्प निकड

आसवनी ला एक्स्ट्रा न्युट्रल अल्कोहोल साठी ३.५ कि / ली व जलविरहित अल्कोहोल साठी ३.३ कि / ली एवढ्या बाष्प ची निकड आहे.

प्रती तास ८.५ कि बाष्प ची गरज आहे. हे सर्व बाष्प पूर्ण वर्षभर सहवीज निर्मिती मधून उपलब्ध होईल. सुमारे ६०% बाष्प हे सेंद्रिय खत प्रकल्पातील वायूसेंद्रिय खत प्रकल्पातील वायू वापराने प्राप्त होईल. तर ४०% बाष्प हे इतर इंधनापासून प्राप्त होईल बाष्प संयंत्र हे बहु इंधन वापरासाठी संरचित केले जाईल

इंधन

सेंद्रिय खत प्रकल्पातील वायू ४५० घन मीटर / तास या प्रमाणे बाष्प संयंत्रात वापरला जाईल. इतर इंधनात चिपाड, प्रेस मड यांचा वापर होईल. सर्व वाहतुकीसाठी ट्रकचा योग्य वापर केला जाईल .

पाण्याचे व्यवस्थापन

पर्यावरणाच्या व्यवस्थापनासाठी ५ कोटींची तरतूद करण्यात आली आहे. कारखान्यात निर्माण होण्याऱ्या दूषित पाण्याचे योग्य प्रकारे व्यवस्थापन करण्यात आला आहे .

आसवनी प्रकल्पातील दुषित पाण्यापासून खत निर्मिती केली जाते. यामध्ये स्पेंट वाश मिथेन रिअक्टर मध्ये मायक्रो ११० हे द्रावण मिसळवून मिथेन वायूची निर्मिती केली जाते त्यानंतर उध्व पतानाव्दरे त्यातील पाण्याचा अंश काढला जातो व संकेंद्रीत स्पेंट वाश मिळवला जातो. त्यानंतर यांत्रिक पद्धतीने स्पेंट वाश, प्रेसमड व कल्चर एकत्रित केल्यानंतर खतनिर्मिती होते. हे खताचा

वापर कारखाना स्वतः साठी तसेच विक्रीसाठी करतो.

पर्यावरण सद्यस्थिती

पुणे जिल्हा भौगोलिक माहिती :

पुणे जिल्ह्याचे अक्षांश १७° ५४' ते २०° २४' उ आणि ७३° १९' ते ७५ ° १०' पू असे आहेत. त्याचे क्षेत्रफळ १५,६४२ कि मी ^{२} आहे. पुणे जिल्ह्याच्या ईशान्येस अहमदनगर जिल्हा, आग्नेयेस सोलापूर जिल्हा, दक्षिणेस सातारा जिल्हा, पश्चिमेस रायगड जिल्हा व वायव्येस ठाणे जिल्हा आहे. पुणे जिल्हा आकारमानात राज्यात दुसरा असून त्याचे क्षेत्रफळ हे राज्याच्या ५.१ % इतके आहे. भौगोलिकदृष्ट्या पुणे जिल्ह्याचे ३ विभाग होतात. सह्याद्रीच्या डोंगर रांगांपासून पूर्वेच्या पर्जन्य छायेच्या भागापर्यंत घाटमाथा, मावळ व देश असे तीन भाग होतात. हा जिल्हा मोसमी भागात असल्याने ऋतुमानाप्रमाणे तापमान व पर्जन्यमान यात खूप बदल दाखवतो. त्यामुळे जिल्ह्याच्या पश्चिम भागात थंड हवा व पुष्कळ पर्जन्य तर पूर्व भागात उष्ण व कोरडी हवा आढळते.

प्रकल्प स्थळाची भौगोलिक रचना

प्रकल्प क्षेत्रात सपाट जमीन असून थोड्याश्या भरावाने बांधकाम पूर्ण करता येईल.

तापमान

एप्रिल ते जून तापमान जास्त असते दिवसाचे कमाल तापमान ३६ - ३९° से इतके असते. तुलनेत पश्चिमेकडील जुन्नर, आंबेगाव, खेड, मावळ, मुळशी, भोर व वेल्हा हे तालुके थंड असतात तर पूर्वेकडील शिरूर, पुरंदर, दौंड, बारामती, इंदापूर हे तालुके गरम असतात. डिसेंबर व जानेवारी मध्ये थंड हवामान असते. साधारणपणे तापमान १०° से पर्यंत खाली जाते.

पर्जन्यमान

विषम भौगोलिक रचनेमुळे जिल्ह्यात पर्जन्यमानात विविधता आढळते. पश्चिम किनारा सान्निध्य,

सह्याद्रीच्या उंच रांगा व विशाल वृक्ष समुदाय यामुळे पश्चिमेच्या प्रदेशात पर्जन्यमान जास्त आहे. तर सपाट प्रदेश, सखल भाग पर्जन्यछायेमुळे व पूर्णपणे उलट्या स्थितीमुळे पूर्व भागात पर्जन्यामान कमी आहे. प्रकल्प स्थळानजीक आक्टोबर - डिसेंबर २०१२ मध्ये हवामान विषयक नोंदी केल्या आहेत.

हवा : कारखान्यापासून १० किमी त्रिज्येतील पाटेठाण, टाकळी व देवकर वाडी येथील हवेचे नमुने घेऊन ते प्रयोगशाळेत तपासणी साठी पाठविले, त्याचे पृथ:करण खालील बाबीकारता करण्यात आले.

- कार्बन मोनाक्साईड
- सल्फर डायोक्साईड
- नायट्रोजन डायोक्साईड
- धुलीकण १० व २.५

ध्वनी

आक्टोबर ते डिसेंबर २०१२ या कालावधीत ध्वनी पातळी तपासली होती. १० किमी त्रिज्येतील ५ ठिकाणी ही तपासणी केली. कारखाना परिसर, पाटेठाण, टाकळी व देवकरवाडी येथे नमुना चाचणी करण्यात आली.

पाणी

भीमा नदीच्या पाण्याचे नमुने घेऊन त्याची तपासणी केली असता ते योग्य प्रमाणात असल्याचे आढळले.

भूजल पर्यावरण

अभ्यासक्षेत्रात कारखाना परिसर, पाटेठाण, टाकळी व देवकर वाडी येथील पाण्याचे कुपनलीकांचे

नमुने तपासणीसाठी पाठविले. ते योग्य प्रमाणात असल्याचे आढळते.

मृदा आणि पिके

पुणे जिल्ह्यात खालील मृदा सापडतात.

- सखल भागात काळी कसदार
- टेकडी उतार भागात मध्यम काळी
- छोट्या टेकड्या व डोंगर भागात रुपांतरीत

या भागात उस, ज्वारी, मका, भुईमुग, हरबरा, सोयाबीन, करडी, सुर्यफुल हि पिके घेतली जातात. तसेच केळी, बोरे, डाळिंब, सीताफळ, द्राक्षे, आंबा, पपई ह्या फळांचे उत्पादन घेतले जाते.

जमिनीचा उपयोग

कारखाना क्षेत्राच्या १० कि. मी त्रिज्येतील जमीन वापर खालीलप्रमाणे सापडतो. ७.१८% जंगल, २६.०९% सिंचन, ४८.७४% विनासिंचन, ३.४५% लागवडक्षम, १४.५२% पडीक व लागवड नसलेली,

जैवविविधता

कारखाना क्षेत्राच्या १० कि.मी त्रिज्येतील क्षेत्रात उंबर, जांभूळ, अंजनी, हिरडा, आवळा, साग, आंबा, आपटा, डाका, चंदन, करंज, चिंच, धावडा, नीम, बाभूळ, बेल, वड, पळस, ही झाडे सापडतात. तसेच हरळी, कुंदा, शिंपी, कुसाळी हे गवत आढळते.

सह्याद्रीच्या रांगात व इतर डोंगराळ भागात ससा, कोल्हा, मुंगुस, तरस, साळींदर, माकड, खोकड, लांडगा, चिंकारा, तितर असे प्राणी सापडतात. तसेच खंड्या, कोकिळा, भारद्वाज, सातभाई, वातावत्या, साळुंकी, बुलबुल, कोतवाल, सुतार, मैना, दयाळ, विणकर, गवळण, मोर, कावळा, चिमणी, रॉबीन यांसारखे पक्षि पहायाला मिळतात. नाग यासारखे सरपटणारे प्राणी पण सापडतात. अभ्यासक्षेत्रात नामशेष होणाऱ्या कोणत्याही प्राणी अथवा पक्ष्याच्या जातींचा समावेश नाही.

सामाजिक

उत्तम हवामान, मुबलक पाणी उपलब्धता, कसदार जमीन, राज्य महामार्ग क्र. यामुळे साखर कारखाना आणि इतर क्षेत्रात संचार व संपर्क यंत्रणा पूर्णपणे विकसित झाली आहे. आरोग्य सेवा, शैक्षणिक संकुले, पोस्ट, तार व दूरध्वनी केंद्र, यांचीपण वाढ झाली आहे. याचा परिणाम म्हणून येथिल कामगार व इतर लोकांचे राहणीमान उंचावले असून त्यांची सर्वांगीण प्रगती उत्तरोत्तर होत आहे. राष्ट्रीय, खासगी व बँकांची सुविधा सुरु झाल्यामुळे अनेक प्रकल्प येथील लोक सुरु करत आहेत. एकंदर येथील जनता स्थिरावली आहे.

पर्यावरण आघात भाकीत

स्थापत्यपुर्व काळ

विस्तारामध्ये स्थापत्य बांधकाम जास्त होणार नाही. तसेच ते लवकरात लवकर पूर्ण केले जाईल. या कामात कोणतेही विस्फोटक वापरले जाणार नाही. यंत्रे, सिमेंट, विटा, वाळू यासाठी वाहनव्यवस्था व संयंत्रांची उभारणी हि कामे स्थापत्यपुर्ती काळात असतील.

हवा प्रदूषण

सामान ने-आण करणाऱ्या वाहनांमुळे प्रदूषणाच्या पातळीत थोडीशी वाढ संभवते. कामगारांना योग्य ते मास्क व इतर साधने पुरविण्यात येतील. कच्या रस्त्यावर सूक्ष्मकण संवर्धनासाठी पाणी शिंपडले जाईल.

ध्वनी प्रदूषण

ध्वनी पातळीत थोडीशी वाढ संभवते. पण ध्वनी पातळी हि पर्यावरण मंत्रालयाच्या १४.०२.२००० प्रमाणे योग्य प्रमाणात राखली जाईल. योग्य वेळी वाहनांची देखभाल, सर्व रस्त्यवर स्थानिक वृक्ष लागवड व जोपासना केली जाईल.

पाणी प्रदूषण

स्थापत्य योजनेमुळे पाणी प्रदूषणावर कोणताही परिणाम होणार नाही.

जमीन

येथील जमिनीवर औद्योगिक संयंत्रे अगोदरच कार्यरत आहेत. कोणतीही झाडतोड होणार नाही. त्यामुळे जमीन वापरात कोणताही बदल संभवत नाही.

जैविक विविधता

सदरचा प्रकल्प हा कोणत्याही राखीव जंगलाच्या जवळ नसल्याने वनस्पती व प्राणी जीवनावर कोणत्याही प्रकारचा वाईट परिणाम होणार नाही.

धोकादायक टाकाऊ पदार्थ

स्थापत्य कामाचे वेळी कोणतेही धोकादायक टाकाऊ पदार्थ निर्माण होणार नाहीत.

पर्यावरण संवर्धन योजना

स्थापत्यपुर्तीमध्ये कामगारांना सर्व सुरक्षा साधने शिरस्त्राण, मोजे, बूट, सुरक्षा पट्टे, करणसन्रक्षक साधने देण्यात येतील. धुलीकण योग्य त्या मर्यादेत ठेवण्यासाठी पाणी फवारणी केली जाईल. तसेच योग्य त्या जागी झाडे लावली जातील. व त्यांची मशागत केली जाईल. या कालावधीत पाणी मलनिस्सारण योजनेद्वारे स्वच्छ ठेवले जाईल.

पर्यावरण विकास योजना .

पर्यावरणाची मुला कायम राखणे, कमी कचरा किवा शुन्य कचरा व त्यावर प्रक्रिया करणे , वस्तूचा पूर्णलाभ ,पुनर्वापर यांच्या पर्यावरण विकास योजनेत समावेश होतो. नियोजित संकुल उभारणी व नंतर उस गाळप, साखर निर्मिती, सहवीज उत्पादन या कार्यक्रमात पर्यावरणास कुठल्याही प्रकारची हानी होणार नाही याची जाणीव पूर्वक तजवीज केली.

प्रकल्पपुर्तीनंतर

सर्व प्रकारचे सांडपाणी टाक्यात साठवून त्यावर प्रक्रिया केली जाईल. यासाठी महाराष्ट्र प्रदूषण नियंत्रण मंडळ सूचना आधारभूत असतील. आवश्यकतेनुसार या पाण्यावर मद्यार्क संयंत्रांच्या अस्तित्वातील सांडपाणी प्रक्रिया केंद्रात प्रक्रिया केली जाईल. यामुळे सद्य स्थितीतील पर्यावरणावर कोणताही आघात होणार नाही.

पर्यावरण व्यवस्थापन

प्रदूषण नियंत्रक संयंत्राचा अंदाजित खर्च

अ. नं	विवरण	एकुण खर्च रु. लक्ष	प्रतिवर्ष पुनरावर्तन रु. लक्ष
1	हवा प्रदूषण नियंत्रण बाष्प संयंत्र	30.00	2.0
2	पाणी प्रदूषण नियंत्रण	500.00	2.5
3	सैंद्रिय खात प्रकल्प	100.00	1.0
4	ध्वनी प्रदूषण नियंत्रण, जनित्र संयंत्र ध्वनी	1.00	0.10
5	पेशानुरूप आरोग्य	-	1.0
6	पर्यावरण नमुना चाचणी व व्यवस्थापन	-	1.0
7	हरितपट्टा विकास	2.00	0.2
8	इतर [सल्लागार व कर्मचारी प्रशिक्षण]	-	0.5
9	समाज विकास	-	2.0
	एकुण खर्च	633.00	10.3

आपत्ती निवारण योजना

श्रीनाथ म्हस्कोबा साखर कारखाना मर्यादित, पाटेठाण, तालुका दौंड, जिल्हा पुणेचा प्रकल्प पूर्ण होईल .कारखाना व सहवीज निर्मितीमुळे शक्य होण्याच्या सर्व प्रकारच्या नैसर्गिक व मानव आपत्तीचा अभ्यास करून त्यांचे योग्यप्रकारे निवारण व आपत्ती घडू नये यासाठी नियोजन यांचा अहवाल तयार करण्यात आला आहे.

प्रकल्पाचा खर्च

अ.नं	तपशील	खर्च लाखामध्ये

१	जमीन	४० लाख रु.
२	जागा व जमीन उत्कर्ष	३४ लाख रु.
३	स्थापत्य बांधकाम	८७९ लाख रु.
४.	संबंधित संयंत्रे	१८४५ लाख रु.
५	इतर खर्च	९० लाख रु.
६	प्रकल्प पूर्व व पश्चात खर्च	२५६ लाख रु.
७	आकस्मिक खर्च	९३ लाख रु.
८	खेळते भांडवल	३४ लाख रु.
	एकूण प्रकल्पाचा खर्च	३२७१ लाख रु.

निष्कर्ष :

प्रस्तावित आसवनी व अल्कोहोल निर्मितीसाठी श्रीनाथ म्हस्कोबा साखर कारखाना मर्यादित, पाटेठाण, तालुका दौंड, जिल्हा पुणे येथे अल्कोहोल□साठी लागणारा कच्चा माल तयार होतो, यासाठी जागा व इतर सुविधा जागेवर उपलब्ध आहेत. आसवनी व अल्कोहोल निर्मिती करत असताना पाणी प्रदूषित होणार नाही यासाठी संपूर्ण व्यवस्था केली आहे व हवेत देखील कोठलेही वायू सोडले जात नाही. या रासायनिक उत्पादनामुळे कारखानाच्या वित्तीय स्थिती चांगली होऊन याचा फायदा शेतकऱ्यांना होईल.