# **EXECUTIVE SUMMARY**

**OF** 

# DRAFT EIA & EMP REPORT

PREPARED FOR

EXISTING GRAIN BASED DISTILLERY
(ENA/RS 60 KLPD) AND EXPANSION (ENA/RS 60
KLPD TO 120 KLPD) AND ABSOLUTE
ALCOHOL (30 KLPD) ALONG WITH
COGENERATION POWER PLANT (3.5 MW)

AT

PLOT NO. 321/362,323/363,323,324,325, 339,340/381,392/449,449/451 & 449/455, VILLAGE MANPUR, TEHSIL NAMCHI, DISTRICT SOUTH SIKKIM, SIKKIM

**OF** 

# M/S. ESVEEGEE BREWERIES (P) LIMITED

ANTARAA TOWER, DANISH ROAD,
PANBAZAR,
GUWAHATI- 781001
ASSAM



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### 1 INTRODUCTION

M/s. Esveegee Breweries (P) Limited, is a Private Limited Company having its corporate office at Antaraa Tower, Danish Road, Panbazar, Guwahati, Assam-781001. M/s. Esveegee Breweries (P) Limited has already set up Grain based Distillery to manufacture Extra Neutral Alcohol (ENA)/Rectified Spirit (RS) 60 KLPD at Plot no. 321/362,323/363,323,324,325, 339,340/381,392/449,449/451 & 449/455, Village Manpur, Tehsil Namchi, District South Sikkim, Sikkim and now proposes expansion to manufacture ENA/RS 60 KLPD to 120 KLPD and Absolute Alcohol 30 KLPD with Cogeneration Power Plant (3.5 MW). The project is categorized as A under 5(g), (ii) (All Cane juice/non-molasses based distilleries >30 KLD) as per EIA Notification, dated 14<sup>th</sup>, September, 2006 & its amendment in 2009. The EIA Study has been carried out by M/s. En-vision Enviro Engineers Pvt. Ltd., Surat, Gujarat which is based on the three months field data collected at site during 9<sup>th</sup> January to 8<sup>th</sup> April 2013 and the same data has been used in assessment of impacts.

# 2 PROJECT DESCRIPTION

### 2.1 PROJECT DETAILS

Name of the company	M/s. Esveegee Breweries (P). Ltd.		
Capacity of the project	Existing & Proposed expansion of Grain Based Distillery (120 KLPD ENA/RS) with Co-generation Power Plant (3.5 MW)		
Total project cost	Existing: Rs. 44.90 Crores, Proposed expansion: Rs. 79.50 Crores		
Cost for EPCM	Existing: Rs. 5.5 Crores, Proposed expansion: Rs. 9.0 Crores		
Cost for CSR activity	Rs. 4 crore shall be utilized over a period of 5 years as 5% of project cost. After words Rs. 5.0 Lacs shall be utilized per annum as Recurring expenditure.		

# 2.2 PROJECT REQUIREMENT

Land requirement	Existing land area is 12 acres (4.80 ha). No new land will be acquired.		
Water requirement & its source	Total 1134 KLPD water will be required after proposed expansion of existing project and will be sourced from surface water of Rangit River and/or ground water through.		
Electricity requirement & its source	3.5 MW and shall be sourced from Proposed 3.5 MW Cogeneration Power Plant.		
Manpower requirements	In existing 60 personnel are working additionally 30 no. of personnel will be employed. First preference will be given to local people as far as possible.		
Fuel requirement & its source	Coal: 110 TPD for CPP and will be Source from Meghalaya. HSD: 120 lit/hr for D. G. Set, from nearest sources.		
D.G. set for emergency use	Two D. G. Sets of 860 KVA Capacity for emergency purposes		

### 2.3 RAW MATERIAL REQUIREMENT

SR.	NAME OF THE	CONSUMPTIO	ON (MT/DAY)	SOURCE & THEIR DISTANCE	
NO.	RAW MATERIAL	EXISTING	AFTER EXPANSION	(KM)	
1.	Grains (Corn / Bajra / Wheat)	150 MT	300 MT	Assam, Bihar, West Bengal, Uttar Pradesh.	
2.	Alpha Amylase	30 Kg	60 Kg	Directly from the Chemical Companies	

SR.	NAME OF THE RAW MATERIAL	CONSUMPTIO	ON (MT/DAY)	SOURCE & THEIR DISTANCE	
NO.		EXISTING	AFTER EXPANSION	(KM)	
3.	Amyloglu Cosidase	30 Kg	60 Kg	Directly from the Chemical Companies	
4.	Sulphuric Acid	150 Kg	300 Kg	West Bengal	
5.	Nutrients Ammonia	150 Kg	300 Kg	West Bengal	
6.	Antifoam	0.6 kg per KL 36 kg	0.6 kg per KL 36 kg	West Bengal	
7.	Yeast	As per requirement	As per requirement	Authorized Dealers (West Bengal)	
8.	Biocides	30 kg	60 kg	West Bengal	

#### 2.4 WASTE WATER GENERATION

There is no discharge of wastewater from the project. The effluent generated from the ENA production process is segregated as process effluent (spent wash and spent lees) and effluent from utilities like Boiler, Vacuum pump, washings. The company proposes to follow & set up a "Zero Effluent Discharge" scheme. The condensates from evaporation shall be recycled and reused in Process & Make up water streams. Spent wash shall be decanted for separation of Suspended Solids and Multi-Effect Evaporation arrangement. Condensate shall be reused and spent lees shall be recycled back to Distillation.

Wastewater from Boiler (Blow down) as well as miscellaneous Water shall be used in internal Green Belt development and ash quenching purposed. Domestic wastewater generated shall be discharged into septic tanks and disposed off using soak pits.

# 2.5 AIR EMISSION & AIR POLLUTION CONTROL MEASURES

NO. OF STACK	STACK ATTACHED TO	NAME & QUANTITY OF FUEL	POLLUTION CONTROL EQUIPMENT	HEIGHT & DIAMETER (MTR)	POLLUTANT AS PER SPCB LIMIT
1.	Boiler – 40 TPH	Coal 110 TPD	Bag Filter/ESP	Ht. 82.5 m & dia 1.0 m	$PM-150 \text{ mg/Nm}^3$ $SO_2-100 \text{ ppm}$ $NOx-50 \text{ ppm}$
2.	D. G. Set of 860 KVA (Standby facility)	Diesel 120 Lit./Hr	Industrial Grade Resistive Mufflers and RCC room with proper ventilation	Ht 9 m & dia 0.4 m	$\begin{aligned} PM - 150 \text{ mg/Nm}^3\\ SO_2 - 100 \text{ ppm}\\ NOx - 50 \text{ ppm} \end{aligned}$

## 2.6 DETAILS OF SOLID WASTE GENERATION & ITS DISPOSAL METHOD

SR. NO.	PARTICULAR	QUANTIT	ΓΥ (PER DAY)	METHOD OF STORAGE	
		EXISTING	TOTAL(EXISITNG & PROPOSED)	METHOD OF STORAGE & DISPOSAL	
1.	Grain residue (DDGS/DWGS)	30 MT / 60 MT	60 MT / 130 MT	Use as cattle feed	
2.	Fly ash	8.5 MT (Depending upon the type of fuel used)	17 MT (Depending upon the type of fuel used)	Shall be trapped, stored in open underground shed and utilized for brick manufacturing or sold to nearby Cement plant.	
3.	Used/Spent Oil	-	0.96 lit	Reused in the plan for libration or sell to MoEF authorized reprocessors.	

#### 3 DESCRIPTION OF THE ENVIRONMENT

#### 3.1 INTRODUCTION

The baseline environmental quality of Air, Water, Soil, Noise, Socioeconomic Status and Ecology has been assessed in the months of 9<sup>th</sup> January to 8<sup>th</sup> April, 2013 in a study area of 10 km radial distance from the project site.

#### 3.2 ENVIRONMENTAL SETTING OF THE AREA

Site coordinates	Latitude : 27° 5'47.07"N Longitude : 88°21'32.42"E
Nearest Village	Manpur at around 2.7 Km in NE
Nearest Town	Jorethang at around 8.66 km WNW
Nearest City	Namchi at around 7.6 Km in N
Nearest Dist Headquarter	Namchi at around 7.6 Km in N
Nearest National Highway	NH – 31a Around 7.5 Km in SE NH – 44 Around 10.8 Km in SW
Nearest Railway Station	Darjeeling at around 12 km in SW
Nearest Airport	Darjeeling at around 11.5 km in SW
Nearest River	Rangit River adjacent the project site in S & W
Seismicity	Seismic Zone-IV

#### 3.3 BASE LINE DATA

The baseline environmental data is collected during 9<sup>th</sup> January to 8<sup>th</sup> April, 2013 from the study area of 10 km radial distance from the project site.

#### 3.3.1 MICRO-METEOROLOGY

The maximum and minimum temperatures observed in this area are 28.2°C in July and 8.4°C in January with average relative humidity of 08.30 hrs and 17.30 hrs. Relative Humidity was generally high during the period from June to September. The predominant wind direction is South-EastWest and North-East with 17.30 hrs of calm condition.

#### 3.3.2 AMBIENT AIR QUALITY

The ambient air samples were collected from eight locations and analyzed for  $PM_{10}$ ,  $PM_{2.5}$ ,  $SO_2$ , NOx & HC (Methane & Non-methane). As per the monitoring  $PM_{10}$ ,  $PM_{2.5}$ ,  $SO_2$ , NOx & HC as Methane & HC as Non-methane levels were in the range of 12-91  $\mu g/m^3$ , 5-32  $\mu g/m^3$ , <4-6  $\mu g/m^3$ , 9-25  $\mu g/m^3$  respectively. While for HC as Methane was found between range of <0.1-3 ppm & HC as Non-methane below <0.1 ppm. The results of the monitored data indicate that the ambient air quality of the region in general is in conformity with respect to rural / residential norms of National Ambient Air Quality standards of Central Pollution Control Board (CPCB), with present level of activities.

# 3.3.3 SURFACE WATER QUALITY MONITORING

Total 5 nos. of surface water samples have been collected from the study area. All the surface water samples were collected and analyzed for physical, chemical and microbiological characteristics as per CPCB guidelines and approved methods.

# 3.3.5 GROUND WATER QUALITY MONITORING

Three nos. of ground water samples in the study area have been collected from ground water sources. The water samples were collected and analyzed for physical, chemical and microbiological characteristics as per CPCB guidelines and approved methods.

#### 3.3.6 BACKGROUND NOISE LEVEL

Background noise levels were measured at 8 locations. The day time noise levels at all the locations ranged between 37.7-54.1 dBA. The night time noise levels at all the locations ranged between 36.2-42.5 dBA in residential areas.

#### 3.3.7 TRANSPORTATION NOISE LEVEL

Transportation noise levels were measured at 3 locations. The noise levels at all the locations in day time from edge of the road ranged between 60.6-63.7 dBA. The noise levels at all the locations night time m from edge of the road ranged between 44.7-55.5 dBA.

## 3.3.8 SOIL QUALITY

Total of 6 nos. of samples have been collected from the study area and tested in the laboratory. Mostly texture of the soil is clay followed by loamy sand, clay loam and sandy clay loam soil. Regular cultivation practices increase the bulk density of soil, thus inducing compaction. This results in reduction in water percolation rate and penetration of root through soils. The bulk density of soils in the region is in the range of 1.43-1.54 g/cm³, which is considered as moderate. The porosity and water holding capacity of soils are in the range of 38.3-42.8% and 37.4-48.9%. Total Organic carbon in soil samples vary in the range of 0.87-1.49 which is low to medium and phosphate as P<sub>2</sub>O<sub>5</sub> varies from 0.46-1.17%. However, Magnesium showed in range 3.11-7.28 mg/kg.

### 3.3.9 LAND USE PATTERN

Land use within 10 km radius of the study area has been determined with the help of satellite imagery, and broadly consists of settlements, Industrial land, Tank/River, land with scrub, land without scrub, mining area and predominant land use is Dense Mixed Jungle.

### 3.3.10 BIOLOGICAL ENVIRONMENT

The study area is characterized by mostly hilly terrains and steep valleys covered with good forest in the entire study area. The Rangit and Teesta rivers makes national boundary in south with Darjeeling district of West Bengal state. The elevation in the study area varies from 250 feet to 2500 feet. The Kitam Bird Sanctuary is present in the study area.

#### FLORAL DIVERSITY OF THE STUDY AREA

The most dominating family in Sikkim Sate is Lauraceae followed by Euphorbiaceae while the most dominating genus is Ficus with 30 species followed by Sorbus and Rhododendron with 15 species each. The tropical and sub-tropical forests observed in the study area mainly along the Teesta and Rangit rivers and their tributaries. The composition of the tree species in the study area are characterized by mixed nature. These tree species show profuse growth, reaching up to a height of 30 m.

# CULTIVATED PLANTS IN THE STUDY AREA

The agriculture lands are very limited in this region due to the rugged mountainous terrains with wide variations in slopes and altitude. Agriculture is mainly maize. Annual crops are grown in three seasons

- A- Pre-kharif Maize.
- B- Kharif Rice, urd, soybean, finger millet, rice bean, beans, ginger and few solanaceous vegetables.
- C- Rabi Wheat, mustard, sarson, rai sag, potato, pea, cabbage, cauliflower, radish and carrot.

Tea gardens were observed at many places in Darjeeling districts especially at Peshok region

# FAUNAL BIODIVERSITY OF THE STUDY AREA

For the documentation of the faunal biodiversity of the study area with respect to birds, reptiles, amphibians, and butterfly species, a detailed survey had been conducted. Faunal species recorded in the study area includes 13 types of mammals, 56 types of birds, 9 types of Reptiles and 23 types of butterflies belonging to 4 families.

## 3.3.11 SOCIO-ECONOMIC STUDY

The study area consists of two States viz. Sikkim and West Bengal while three districts viz. South Sikkim, West Sikkim and Darjeeling and 6 tehsils. The total population of the study area was 2,65,065 out of which 1,35,931 were male and 1,29,134 were female. There were 49,362 no. of households in the study area. The total literates of the study area are 1,91,626. The total illiterates of the study area are 73,439. It is also observed that the rural population predominates over the urban population.

#### 4 ANTICIPATED ENVIRONMENTAL IMPACTS & MITIGATION MEASURES

#### 4.1 IMPACT ASSESSMENT

An effort has been made to identify various environmental, social and ecological impacts due to proposed existing and expansion project during construction and operation phases considering present environmental scenario as baseline. The corresponding mitigation measures to take care of the adverse impacts are also discussed in following sections.

# 4.2 IMPACTS DURING CONSTRUCTION PHASE & ITS MITIGATION MEASURES

During Construction Phase, the Fugitive Dust Emission due to civil work and vehicular movement is not expected to spread too far as water spraying will be carried out to suppress the dust emission at the site and as well as on road. The increase in noise levels due to the movement of vehicles will be taken care of by regulating the movement of vehicles and the impact on the human beings will be taken care of by providing the working people with ear plugs / ear muffs. During monsoon, there is a chance of runoff of the debris / mud that will be generated during construction only. This is very much temporary in nature. To reduce the suspended solids, the storm water run offs will be diverted to storm water drains through catch pits. During Construction, drainage pattern and water supply system of overland water flow will be somewhat changed due to the site preparation activities. Potential impacts may be on surface water quality during this phase could arise from dust emissions (from vehicles and disturbance of soil). Suspended solids can be controlled by sprinkling water and by employing enclosures to construction area to allow the particles to settle down, prior to discharge. During construction period, the project is likely to generate substantial employment and income.

### 4.3 IMPACT DURING OPERATION PHASE & MITIGATION MEASURES

### 4.3.1 AIR ENVIRONMENT

Major air emissions are anticipated by the gaseous emissions from a single or small group of stacks is a local phenomenon. Fugitive dust emission will be due to raw materials handling, loading and unloading of raw materials, conveying and feeding point at furnace, vehicular movements, etc. The ISCST3 scientific model has been used to predict the proposed air quality on the environment.

The maximum 24 hourly average GLC's for PM,  $SO_2$  and NOx, are observed to be 4.8  $\mu$ g/m³, 8.4  $\mu$ g/m³, 3.0  $\mu$ g/m³ respectively at a distance of 1000 m towards east direction, which when added to the baseline data comes within the CPCB norms. The GLC predicted at all receptor locations are well within the limit prescribed in NAAQS.

### Mitigation measures:

- Effective stack height with proper air pollution control equipment shall be provided to stack.
- Regular maintenance of APCE shall be done and recorded.
- Green belt shall be developed on 33% are of the total plant area.
- Lime stone as absorbent will be blended with coal to take care SO<sub>2</sub> emission due to high Sulphur content in coal.

#### 4.3.2 NOISE ENVIRONMENT

The noise pollution management will be taken up in the following manner;

- By selecting low noise generating equipment, which would have below 85 dBA noise level at 1 m distance. This is taken care at the equipment design stage.
- By isolating the noise unit from the working personnel's continuous exposure by providing acoustic aids for plant personnel.
- By administrative & safety measures, providing noise level monitoring, remedial measures, providing noise safety appliances to the working personnel.

By these measures, it is anticipated that noise levels in the plant will be maintained below 85 dBA.

### 4.3.3 WATER ENVIRONMENT

Total water requirement will be fulfilled from ground water and/or surface water sources. This area is falls in safe category of water availability in CGWA. The company envisages zero discharge system for the proposed expansion of existing project. Wastewater will be reused in the process as well as internal greenbelt development activity which will reduce the water requirement so there will be no significant impact on water.

## 4.3.4 SOLID WASTE MANAGEMENT

Main solid waste generation during operation phase will be Grain residue (DDGS/DWGS 60/130 MT/day) and fly ash (17 MT/day). These materials will be properly stored and will be disposed as per Guidelines. Grain Residue will be sent for cattle feeding and fly ash shall be trapped and utilized for brick manufacturing or sold to nearby Cement plant.

#### 4.3.5 GREEN BELT DEVELOPMENT

About 15,870 sq. m. area shall be developed as green belt at plant boundary, road side, around offices & buildings and Stretch of open land. In Green belt area about 1,000 trees per acre of land shall be planted

# 5 ENVIRONMENTAL MONITORING PROGRAMME

### 5.1 ENVIRONMENTAL MONITORING

A regular monitoring of environmental parameters like air, water, noise and soil as well as performance of pollution control facilities and safety measures in the plant are important for proper environmental management of any project. Therefore, the environment and safety cell will handle monitoring of air and water pollutants as well as the solid wastes generation as per the requirements of State Pollution Control Board and Central Pollution Control Board.

#### 5.2 MONITORING SCHEDULE

Proposed schedule of environmental monitoring for the proposed expansion is given in following table:

SR. NO.	AREA OF MONITORING	SAMPLING LOCATIONS	PARAMETERS TO BE ANALYSED	FREQUENCY OF SAMPLING		
AIR POLLUTION MONITORING						
1.	Stack Emission	Each utility stack	PM, SO <sub>2</sub> , NOx & CO	Once in a month		
2.	Ambient Air Quality	Three samples	PM <sub>2.5</sub> , PM <sub>10</sub> , SO <sub>2</sub> , NOx and CO	Once in six month		
3.	Work Zone Environment	Production area & Storage area	HC, VOC	Once in six month		
		WATER POLLUTI	ON MONITORING			
4.	Liquid effluent	outlet at Effluent treatment plant	As per consent of PCB	Once in a month		
5.	Ground and surface water	Two sampling locations	As per IS Standards	Once in a year		
		SOIL POLLUTIO	N MONITORING			
6.	Soil	Two sampling locations of Impact Area	As per consent of PCB	Once in year		
		NOISE POLLUTION	ON MONITORING			
7.	Noise	Noise generating units	Sound Pressure Levels (Leq)	Once in a six month		
		Four sampling locations within Plant	Sound Pressure Levels (Leq)	Once in a month		
8.	Occupational Health Monitoring	Pre employment Check up	Vision, Audiometry, Spirometry, Chest Skiagram, Urine, RBCs, etc.	Once after appointment		
		Periodical Check up	Spirometry, Urine, RBCs, LFT, Anemia, etc.	<30 yrs. Once in five years 31-40 yrs. Once in four years 41-50 yrs. Once in two years Above >50 yrs. once every year		
		Post employment check up	Vision, Audiometry, Spirometry, Chest Skiagram, Urine, RBCs, etc.	Once before relief		

### **6 ADDITIONAL STUDIES**

### 6.1 RISK ASSESSMENT

The management is very much aware of their obligation to protect all persons at work and others in the neighbourhood who may be affected by an unfortunate and unforeseen incidence occurring at the works. Any hazard either to employees or others arising from activities at the plant site shall, as far as possible, be handled by the personnel of the company and prevented from spreading any further. In the case of eventuality the Disaster Management plan adopted by the proponents is sufficient and may be able to control the situation.

### 7 PROJECT BENEFITS

### 7.1 PHYSICAL INFRASTRUCTURE

As the proposed M/s. Esveegee Breweries (P) Limited project is an existing and expansion, all the major physical infrastructure development is already developed, which has improved the existing infrastructure scenario.

### 7.2 EMPLOYMENT POTENTIAL

For this project activities skilled and unskilled manpower will be needed. This will temporarily increase the employment opportunity. Secondary jobs are also bound to be generated to provide day-to-day needs and services to the work force. This will also temporarily increase the demand for essential daily utilities in the local market.

#### 7.3 CORPORATE SOCIAL RESPONSIBILITY (CSR)

Funds to the extent of Rs. 4.0 Crore shall be earmarked for CSR activities, this fund shall be utilized over a period of 5 years which is a 5% of the total project cost. After words Rs. 5.0 Lacs shall be utilized per annum as Recurring expenditure for CSR.

## FOLLOWING ACTIVITY SHALL BE UNDER TAKEN A PART OF CSR.

- Education development
- Health care
- Sustainable livelihood
- Agriculture Initiative
- Community activities or others

# 8 ENVIRONMENTAL MANAGEMENT PLAN

# 8.1 ENVIRONMENTAL MANAGEMENT PLAN (ADMINISTRATIVE ASPECTS)

Environmental monitoring of different parameters will be done regularly and the activity will be coordinated by the Environmental Management Cell (EMC). Mitigation of environmental impacts has to be implemented according to the suggestions and will be monitored regularly to prevent any lapse. The EMC will be under the overall supervision of the Manager (Environment). The cell will report on a regular basis to the Unit Head. The EMC will prepare a formal report on environmental management and mitigation at six month intervals. The company will undertake various training programme for improving the performance of the working personnel. Special training will be arranged in regular intervals to combat emergency scenarios that may occur during the plant operation.

# 9 CONCLUSION

Company has committed to implement all the pollution control measures to protect the surrounding environment. The project can definitely improve the regional, state and national economy. Industrial growth is an indication of socio economic development. The implementation of this project will definitely improve the physical and social infrastructure of the surrounding area.