

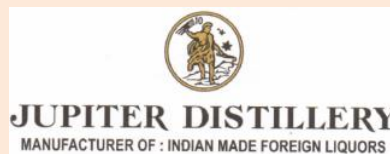
ENVIRONMENTAL IMPACT ASSESSMENT

FOR

PROPOSED MANUFACTURE 15 KLPD ENA/ETHANOL/ALCOHOL
(GRAIN BASED DISTILLERY), ALONG WITH 1.2 MW CO-
GENERATION POWER PLANT (FUEL BRIQUETTE) AGRI WASTE/
BAGASSE AND BOTTLING PLANT CAPACITY 13.0 LAKHS
CASES PER ANNUM IMFL/CL

Terms of Reference No. IA-J-11011/292/2020-IA-II(I), dated 27 November 2020
Category A, Distillery (Sector 22, 5(g))

PROJECT PROPONENT



M/s. JUPITER DISTILLERY

At

Devka road, Katheria Nani Daman, Tehsil and Dist.: Daman,
Daman – 396210 UT

Environmental Consultant



M/s Anacon Laboratories Pvt. Ltd., Nagpur

QCI-NABET Accredited EIA Consultant for Distillery (Sector 22 5(g))

MoEF&CC (GOI) Recognized Laboratory

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Report No. ANqr /PD/20A/2020/151

MARCH 2021

1.0 INTRODUCTION

M/s. Jupiter Distillery (JD) has proposed to install Grain based Distillery (15 KLPD) along with 1.2 MW Co-generation power plant (Fuel Briquette) Agro waste based and 13 Lakh cases per annum IMFL/CL (Bottling plant). Proposed location is Katheria Nani Daman, Devka Road, Daman, (Daman and Diu) - 396210. Discarded starch containing grains such as broken rice, maize, wheat, sorghum will be used as raw materials which is easily available from the nearby markets for proposed unit.

The committee approved the Standard Terms of Reference No. No.IA-J-11011/292/2020-IA-II(I), dated 27 November 2020 and Proposal no. IA/DD/IND3/184396/2020 dated 22 November 2020, Ministry of Environment, Forest and Climate Change, EAC, New Delhi (**Annexure - I**).

1.1 IDENTIFICATION OF PROJECT

M/s. Jupiter Distillery is Proposing to install Grain based Distillery (15 KLPD) along with 1.2 MW Co-generation power plant (Fuel Briquette) Agro waste based and 13 Lakh cases per annum IMFL/CL (bottling plant). Location Katheria Nani Daman, Devka Road, Daman, (Daman and Diu) - 396210. Grains such as discarded starch containing grains such as broken rice, maize, wheat, sorghum will be used as raw material which is easily available from the nearby markets.

1.1.1 Nature of the Project

The existing manufacturing facilities are located at Devka road, Katheria Nani Daman, Tehsil and Dist.: Daman, Daman – 396210 UT JD has now planned to undertake proposed grain based distillery project modernization as mentioned above.

1.1.2 Size of the Project

Proposed Manufacture 15 KLPD ENA/Ethanol/Alcohol (Grain based distillery), along with 1.2 MW Co-generation power plant (Fuel Briquette) Agri waste/ bagasse and Bottling plant capacity 13.0 Lakhs Cases Per Annum IMFL/CL.

**TABLE 1
EXISTING AND PROPOSED PRODUCTION DETAILS**

| Product Name | Existing | Proposed | Total |
|---|-----------------------------------|------------------------------------|-----------------------------------|
| ENA Ethanol/Alcohol (Grain based distillery) | - | 15 KLPD | 15 KLPD |
| IMFL/CL (bottling plant) | 3.0 lakhs cases per annum IMFL/CL | 10.0 lakhs cases per annum IMFL/CL | 13.0 lakhs cases per annum IMFL/C |
| Co-generation power plant (Fuel Briquette) Agri waste bagasse | - | 1.2 MW | 1.2 MW |

1.1.3 Location of the Project

The proposed project area located within the existing plant at Survey No. 7/1 (1), 7/1 (2), 7/2, 7/3, and 78/9, 78/10, 78/11, 78/12, Devka road, Katheria Nani Daman, Tehsil and Dist.: Daman, Daman – 396210 Union Territory. The project site lies at Plot 1: 8760 Sq. meters (Plant area) the **Latitude** : 20°25'28.68"N to 20°25'32.21"N, **Longitude**: 72°49'52.87"E to 72°49'54.39"E and adjoining land area Plot 2: 1843.2 Sq. meters and the **Latitude** : 20°25'27.63"N to 20°25'28.77"N and **Longitude**: 72°49'55.23"E To 72°49'57.53"E. Total area is 10,603.2 Sq. meters Latitude : 20°25'27.72"N to 20°25'32.70"N and Longitude: 72°49'52.63"E To 72°49'57.48"E on the Topo sheet No. 46 D/14 , 64 D/14 are shown in the **Figures 2.1 to 2.3**.

1.2 JUSTIFICATION AND NEED OF PROJECT

From last 15 years Gujarat government has banned the sale of Molasses in Daman. After the ban of Gujarat government the company used to purchase Molasses from Maharashtra state at double the

rate. Considering overall issues molasses based distillery operation has become financially unviable. Hence during the last four years the company is not operating the molasses based distillery. The company has dismantling the MS structures with plant and available machinery in 2017. Before dismantling the company informed all concern departments as prior action.

For the last 10 years, the company purchased Grain spirit from other states for ongoing bottling plant. The company totally used Grain based Spirit in existing production of IMFL and CL brands, presently only bottling plant is in operation after complying all statutory requirements.

Considering the above background the existing Molasses based distillery unit are proposing to replace with most modern eco-friendly Grain based distillery unit with a production capacity of 15 KLPD. Prior environment clearances will be obtained from MoEF&CC, GOI.

1.2.1 Regulatory Framework

According to the EIA Notification, 2006 and its subsequent amendments, the proposed project comes under the project activity of 5 (g), Distilleries under Category "A" and is located at Devka road, Katheria Nani Daman, Tehsil and Dist.: Daman, Daman – 396210 UT and requires environmental clearance from MoEF&CC (EAC Industry - 3). Accordingly, Jupiter Distillery has therefore initiated the process of Environmental Clearance. Project status is as follows:

| Description of Process | Date |
|--|------------------|
| ToR Application submitted at MoEF&CC | 22 November 2020 |
| Standard TOR issued by EAC,MOEF & CC New Delhi | 27 November 2020 |

As per the TOR issued by MoEF&CC, EIA report is prepared for proposed project within existing land area based on the approved ToR by EAC, MOEF & CC, New Delhi. As a part of TOR compliance EIA report is submitted for public hearing.

1.2.2 Cost of the Project

Total investment of the industry in the proposed project is estimated to by approx. Rs. 3021.96903 lakhs cost.

2.0 PROJECT DESCRIPTION

2.1 TYPE OF PROJECT

M/s. Jupiter Distillery has proposed to install Grain based Distillery (15 KLPD) along with 1.2 MW Co-generation power plant (Fuel Briquette) Agro waste based and 13 Lakh cases per annum IMFL/CL (Bottling plant). Proposed location is Katheria Nani Daman, Devka Road, Daman, (Daman and Diu) - 396210. Grains such as discarded starch containing grains such as broken rice, maize, wheat, sorghum will be used as raw material which is easily available from the nearby markets.

The details of environmental setting are given in **Table 2** and the study area of 10 km radius given in **Figure 1**.

**TABLE 2
ENVIRONMENTAL SETTING OF THE SITE**

| Sr. No. | Particular | Details |
|---------|------------------------|--|
| 1. | Plant Location | M/s. Jupiter Distillery |
| | Village | Katheria Nani Daman |
| | Tehsil | Daman |
| | District | Daman |
| | State /Union territory | Daman & Diu and Dadra Nagar Haveli |
| 2. | Coordinates | Plot 1: 8760 Sq. meters (Plant area) Latitude : 20°25'28.68"N to 20°25'32.21"N, Longitude: 72°49'52.87"E to 72°49'54.39"E and Adjoining land area Plot 2: 1843.2 Sq. meters |

| Sr. No. | Particular | Details |
|---------|---|---|
| | | Latitude : 20°25'27.63"N to 20°25'28.77"N and Longitude: 72°49'55.23"E To 72°49'57.53"E Total area is 10,603.2 Sq. meters Latitude : 20°25'27.72"N to 20°25'32.70"N and Longitude: 72°49'52.63"E To 72°49'57.48"E |
| 3. | Elevation | 9 m-12 m. |
| 4. | Climatic Conditions | Mean annual rainfall is 1500.3 mm Temperature : Pre monsoon 15.1 ^o C (Min.) 38.5 ^o C (Max.) : Winter 10.8 ^o C (Min.) 34.3 ^o C (Max) : Post monsoon 15.1 ^o C (Min.) 35.5 ^o C (Max.) Source: IMD, Valsad (Balsar) |
| 5. | Nearest representative IMD station | Valsad (Balsar) |
| 6. | Nearest highway | NH-8 -11.5 Km SE |
| 7. | Nearest railway station | <ul style="list-style-type: none"> • Vapi Railway Station _ 9.8 Km SE • Bagwada Railway Station _8.8 Km ENE • Udvada Railway station_9.9 km NE • Karmabele Railway Station_14 Km SSE |
| 8. | Nearest airport | Daman Airport, 0.6 Km E |
| 9. | District Headquarters | Daman 3 km SW from the Factory |
| 10. | Nearest State/National boundaries | <ul style="list-style-type: none"> • Maharashtra -24 km S • Gujarat Boundary-3.5 km E |
| 11. | Nearest major city with 2,00,000 population | Katheria –0.4 km SW |
| 12. | Nearest village | Katheria –0.4 km SW |
| 13. | Villages within 1 km radius | Katheria –0.4 km SW |
| 14. | Hills/valleys | - |
| 15. | Nearest tourist place | <ol style="list-style-type: none"> 1. Bom Jesus Church - 2.0 km , S 2. Jetty garden – 1.7 km, SSE 3. Old Light House - 1.7 km, S 4. Nani Daman Fort - 1.4 km, SSE 5. Jampore Beach – 3.3 km, S 6. Devka Amusement Park - 2.0 km, N 7. St. Jerome Fort - 1.3 km, SSE |
| 16. | Archaeologically important places | <ul style="list-style-type: none"> • The Chapel of Our Lady of Rosario (Church), 2.3 km /S • Fort walls including Gates, Structure, Moat, Open Land outside & Inline, 1.6km/S • Fort along Sea Shore Outside Western Corner of Moti Fort, 2km SSW |
| 17. | Protected areas as per Wildlife Protection Act,1972 (Tiger reserve, Elephant reserve, Biospheres, National parks, Wildlife sanctuaries, community reserves and conservation reserves) | None within 10 km radius area |
| 18. | Areas already subjected to pollution or environmental damage | Vapi at 9.48 km (SE) comes under critically polluted area. (Vapi comes under critically polluted area) |
| 19. | Forests | <ol style="list-style-type: none"> 1. Two RF nr. Dhuiyan, 9.3&9.5 km/SE 2. RF nr. Pali, 6.6km/SE 3. RF nr. Balitha, 7.7km/ESE 4. RF nr. Moral, 8.1 km/E 5. RF nr. Dhandhariya Talav, 7.6 km/NE 6. RF nr. vill. Sangadi, 12.5km/SE 7. RF nr. Vill. Punat, 12.6km/SE 8. RF nr. Angaon, 13.9km/SSE 9. RF, 14.9km/ SSE 10.RF, 13.1km/S 11.RF, 14.8km/SSW |

| Sr. No. | Particular | Details |
|---------|--|--|
| | | 12. Two RF nr. Vill. Kalgam, 14.0km/SW |
| 20. | Defence Installations | None |
| 21. | Seismic zone | The proposed expansion project site falls in zone-III as per IS 1893 (Part-I): 2002. Hence, seismically it is a Moderate Risk zone. |
| 22. | Toposheet no. | 46 D/14 , 64 D/14 |
| 23. | Water Bodies | <ol style="list-style-type: none"> 1. Damanganga River, 1.4km /S 2. Kalol River, 6.3 km/NE 3. Dhandhariya Talav, 7.2km/NE 4. Velda Talav, 5.9 km/ NE 5. Nawu Talav, 8.6 km/NE 6. Khamrav Talav, 6.1km/E 7. Kalu Nadi, 5.7km/S 8. Arabian Sea, 1.1km/W 9. Par River, 13.1km/NNE 10. Gangaji Nadi, 10.0km/NE 11. Motu Talav, 9.9km/NE 12. Harnia Talav, 13.5km/ENE 13. Vervaniya Talav, 11.1km/E 14. Bil River, 8.3km/ESE 15. Rati Nadi, 13.8km/ESE 16. Khaparia Lake, 8.8km/NE 17. Salvav Lake, 10.4km/ESE |
| 24. | Nearest Industries | <ol style="list-style-type: none"> 1. Sallwin Industries – 1.1 km/SSE 2. Pack Print Industries (I) Pvt. Ltd. – 4.7 km/SE 3. Allied Industries – 4.7 km/SSE 4. Zydus Pharmaceutical Industries – 5.1 km/ESE 5. V.K. Industries New Unit (202) – 5.3 km/SE 6. Powerband Industries Pvt. Ltd. – 7.0 km/SE 7. Mukund Industries – 7.4 km/SE 8. Venus Industtries – 7.4 km/SSE 9. Flair Writing Instruments III – 7.3 km/SSE 10. PN-NJ Industries Pvt. Ltd. – 7.4 km/SE 11. Jasons Industries Ltd. – 7.5 km/SE 12. Propack Industries – 7.3 km/SE 13. Zenith Wires Industries – 7.4 km/ESE 14. Packwell Industries – 9.0 km/SE 15. Bhim Polyfab Industries Unit II – 5.7 km/SE |
| 25. | Road Connectivity | SH-185-0.4 Km S NH-8 -11.5 Km SE |
| 26. | Inland, coastal, marine or underground water | Arabian Sea-1.1 Km W |

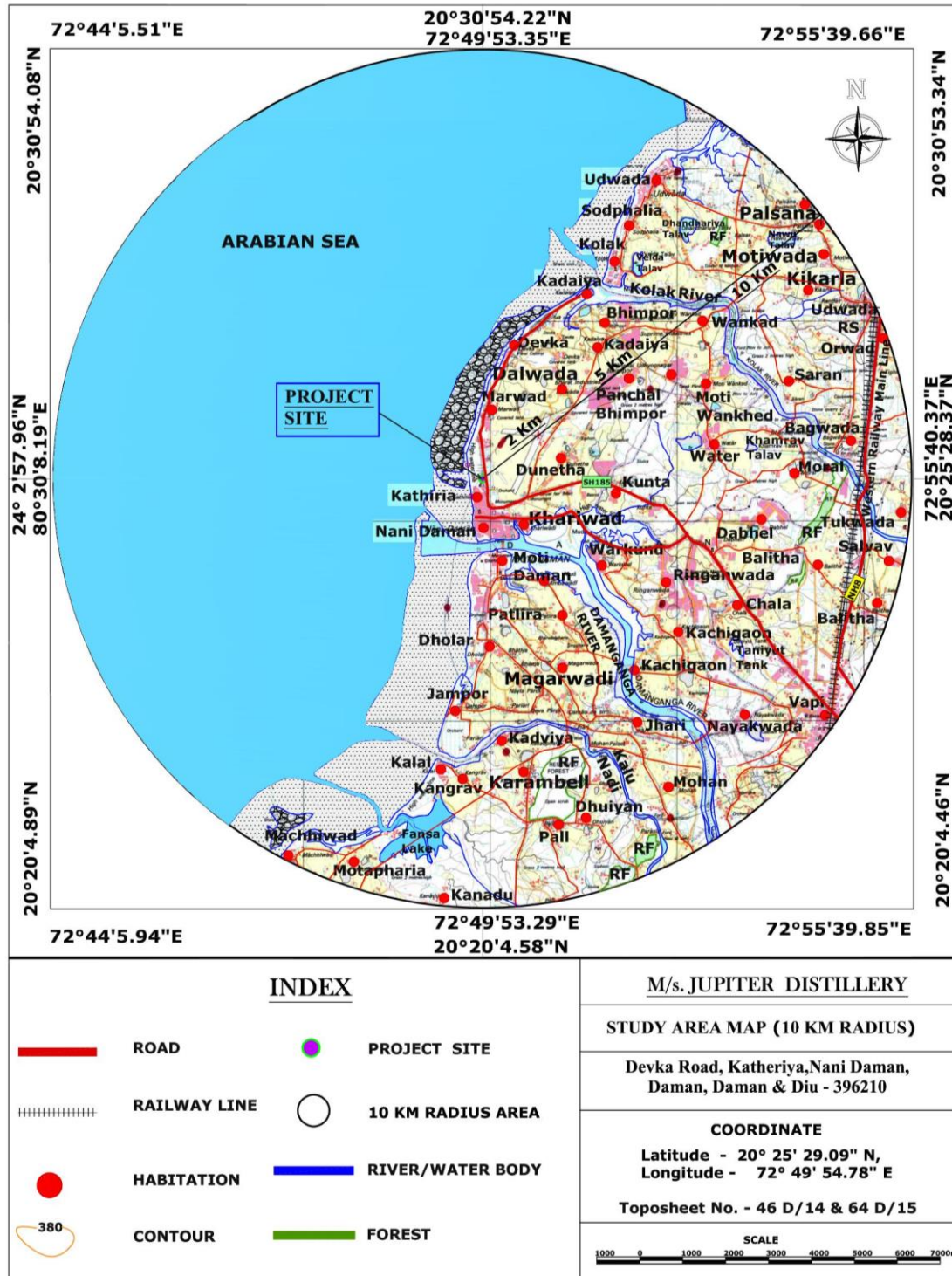


FIGURE 1: STUDY AREA MAP (10 KM RADIUS)

2.2 PROCESS DESCRIPTION OF PROPOSED PRODUCT

The process for manufacturing as and know how about manufacturing are available with the company as given in EIA report Chapter 2.

2.3 DETAILS ABOUT RESOURCES

2.3.1 Raw Materials

The total consumption of raw materials is given in **Tables 3**.

TABLE 3
RAW MATERIAL- QUANTITY, SOURCE AND MODE OF TRANSPORTATION

| Sr. No. | Name of Raw Material | Existing | Proposed | Total | Source | Distance & Mode of Transportation |
|---------------------------------------|----------------------------------|----------|-------------|---|---|-----------------------------------|
| Raw Material (TPD) | | | | | | |
| 1. | Broken Rice/ Maize/ Jawar | - | 37.5 | 37.5 (Consumption is based on Starch % in Grains) | <i>Open Market From Chattisgarh, Maharashtra, Gujarat, Mp, Punjab</i> | 50 KM to 700 KM, road, rail |
| 2. Chemicals (Kg/day) | | | | | | |
| i. | Urea | - | 11.02 | 11.02 | Local market from Daman and Vapi | 7-15 KM by road |
| ii. | Sodium Hydroxide (Caustic) | - | 32.3 | 32.3 | Local market from Daman and Vapi | 7-15 KM by road |
| iii. | Sulphuric acid | - | 30 | 30 | Local market from Daman and Vapi | 7-15 KM by road |
| iv. | Phosphoric acid | - | 2 | 2 | Local market from Daman and Vapi | 7-15 KM by road |
| v. | Antifoam oil | - | 20 | 20 | Local market from Daman and Vapi | 7-15 KM by road |
| 3. Enzyme Consumption (Kg/day) | | | | | | |
| i. | Alfa amylase | - | 25 | 25 | Local market from Daman and Vapi | 7-15 KM by road |
| ii. | Amyloglucosidase | - | 50 | 50 | Local market from Daman and Vapi | 7-15 KM by road |

Fuel Requirement:

Rice husk/agro based briquettes will be used for the proposed boiler of 12.0 TPH. Details regarding fuel requirements are given below.

TABLE 4
FUEL REQUIREMENT

| S.N. | Fuel Required | Daily Consumption (Tpd) | | | Source | Distance & Mode Of Transportation |
|------|-------------------------------|-------------------------|--------------|---------------------------------------|-------------------|-----------------------------------|
| | | Existing | Proposed | Total | | |
| 1. | Rice Husk / Bagasse/Briquette | - | 131 TPD | 131 TPD | From local market | 20-200 KM by road |
| 2. | Any other Fuel (HSD) | 30 liter/hr | 120 liter/hr | 250 lit/hr (used in DG Set, stand by) | From local market | 20-100 KM by road |

2.3.2 Land Requirement

Total land area : 10603.2 Sq.M., Plot 1: 8760 Sq. meters (Plant area) + adjoining land area Plot 2: 1843.2 Sq. meters (exclusive green belt), acquired land is used for industrial purpose.

The plantation and green belt covered land 3499 sq.m. which is 33% of total project area of 10603.2 Sq. meters.

The details regarding the breakup of the land for the various activities of the proposed project is given in **Tables 2.8, Annexure II, II A, II B** land documents.

2.3.3 Power Requirement and Supply

The total power requirement for the proposed modernization will be **1.2 MW** captive power generation, 1 existing D.G Set 250 KVA and one proposed DG set of 1000 KVA. Total DG sets= 250+1000 =1250 KVA (stand by both the DG sets).

The industry has been obtained contract demand for 335 KVA by Electricity Department Daman & Diu (Electricity Bill-**Annexure –IV**).

Existing power requirement: 250 KVA

Proposed additional power requirement: 1.2 MW Per Hour=1200KVA

Total power requirement after modernization: 1250 KVA

Steam Requirement

Steam consumption for the process and boiler de-aeration is 288 TPD, which will be sourced from Boiler (12 TPH).

**TABLE 5
STEAM REQUIREMENT**

| Particulars | Existing | Additional for Proposed | Final steam After modernization |
|---------------------|----------|-------------------------|---------------------------------|
| For Distillery Unit | - | 288 TPD | 288 TPD |

2.3.4 Water Availability and Wastewater Generation

Source of Water Supply and Requirement

Water Management for proposed 15 KLPD Distillery :

The water requirement for the project will be 482 KLPD (474+8)

Fresh water will be 143 KLPD

Treated effluent 91 KLD and water recycled 309 KLD will be 400 KLPD.

Raw water source will be bore well.

Water Balance for Bottling Plant (Values in KLD)

- Initial water requirement = 30
- Total water consume in blending process (product) = 21 KLD
- Wastewater generation = 9 KLD

Waste water generation & management plan

Treated effluent 91 KLD and water recycled 309 KLD will be 400 KLPD. The entire new ETP will be installed with capacity 460 KLD to suit discharge norms. Recycling options will be explored to conserve water.

Water balance is given in **Chapter 2 and 4, Subhead 2.7.1, 4.2.4** resp.

2.3.5 Manpower Requirement

The JD is presently employing 70 persons and in proposed modernization 30 direct manpower will be employed. Total manpower requirement after modernization will be 100.

3.0 DESCRIPTION OF ENVIRONMENT

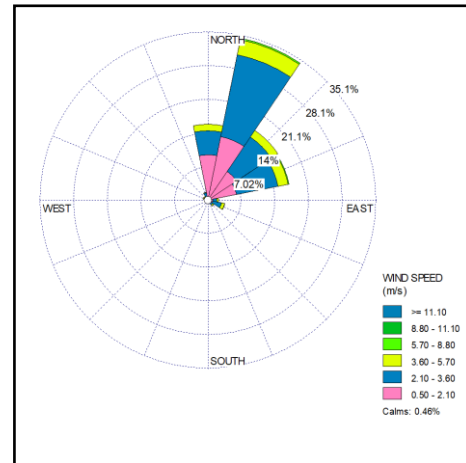
This chapter of the report provides an overview of the environmental baseline conditions within the study area of 10 km radius. An environmental baseline monitoring was carried out as a part of EIA studies for Proposed Manufacture 15 KLPD ENA/Ethanol/Alcohol (Grain based distillery), along with 1.2 MW Co-generation power plant (Fuel Briquette) Agri waste/ bagasse and Bottling plant capacity 13.0 Lakhs Cases Per Annum IMFL/CL Location - Devka road, Katheria Nani Daman, Tehsil and Dist.: Daman, Daman – 396210 UT during **winter season (1st December 2019 – 29th February 2020)**.

3.1 AIR ENVIRONMENT

3.1.1 Meteorology

The weather monitoring station was installed at the project site to record temperature, wind speed, wind direction, relative humidity, and rain fall. The generated data was then compared with the meteorological data obtained from IMD. During December 2019 to February 2020 values monitored for temperature and humidity ranged from 13 to 36°C and 19 to 98% respectively and total rainfall observed 0.0mm.

The site specific wind roses were drawn. It was observed from the wind roses that the first predominant wind direction 34.39% from NNE and second predominant 17.54 % from NE direction with the 0.46% calm conditions.



WIND-ROSES (DEC 2019 TO FEB 2020)

3.1.2 Baseline Data

Ambient air monitoring was carried out at eight (08) locations. It has been observed that minimum and maximum concentration of PM₁₀ is ranged between **34.9 to 79.6** µg/m³. The concentrations of PM_{2.5} vary from **13.1 to 32** µg/m³. SO₂ concentration level ranged from 4.5 to 13.9 µg/m³ and NO₂ concentration ranged from **8.6 to 26.9** µg/m³ in the study area. CO concentration was found to be 0.139-0.386 mg/m³. Ozone in the range between **2.4 to 9.9** µg/m³ and NH₃ concentration was found to be **4.3 to 14.5** µg/m³.

Hg concentration range between **BDL-0.11** µg/m³, Pb, As and Ni in PM₁₀ were found below detectable limits.

Volatile Organic Compounds (VOCs) are organic chemical compounds that have high enough vapor pressures under normal conditions to significantly vaporize and enter the atmosphere. However concentration of Benzene and BaP was found to be below detectable limits. Volatile organic compounds (VOCs) are emitted from various sources, both anthropogenic and biogenic.

The levels of PM₁₀, PM_{2.5}, Sulphur Dioxide (SO₂), Oxides of Nitrogen (NO_x), Carbon monoxide (CO), Ozone (O₃) and Ammonia (NH₃), were monitored for establishing the baseline status. The minimum and maximum values of monitoring results are summarized in **Table 3.2.5 of Chapter 3**.

It has been observed that the Exceedence Factor for PM_{2.5}, SO₂ and NO₂ for all location is less than 0.5 (low). PM₁₀ for all locations falling in the third category are meeting the standards as of now but likely to exceed the standards in future if pollution continues to increase and is not controlled. The state highway (SH-185) is passing through this region and having major traffic activities which contribute significant effects on air quality.

3.2 NOISE ENVIRONMENT

Eight (08) locations were identified based on the activities in the village area, traffic and sensitive areas like hospitals and schools. The day time noise levels in residential and industrial area were observed to

be well within the prescribed limit of CPCB standards. The night time noise levels were well within the prescribed limit of CPCB standard, in the study area.

State Highway (SH-185) is passing through this region and is having major traffic activities. The Leq at above traffic junction was observed 66.5 dB (A).

3.3 WATER ENVIRONMENT

16 water (surface and groundwater) samples were collected from various sampling locations, **eight (08)** from groundwater sources and **eight (08)** from surface water sources. These samples were collected as grab samples, preserved, brought to the laboratory and analyzed for various parameters. The samples were analyzed as per the procedures specified in standard methods for the examination of water and wastewater published by American Public Health Association (APHA/IS 10500).

Physico-chemical Characteristics

Surface water quality

The physico-chemical characteristics of the surface water samples collected and analysed are presented in **Annexure VI (b)** and are compared with the IS-10500 standards. The analysis results indicate that the pH ranged between 7.71-8.19 which is well within the specified standard of 6.5 to 8.5. The TDS was observed to be 154-312 mg/l which is within the permissible limit of 2000 mg/l. The total hardness recorded was in the range of 77.66-145.21 mg/l as CaCO₃ which is also within the permissible limit of 600 mg/l. The levels of chloride and sulphate were found to be in the range of 17.83-34.28 mg/l and 4.32-18.64 mg/l respectively. DO is one of the most important water quality parameters. The reported value of range of 6.1-6.5 mg/l. PO₄ ranges from 0.03-1.2 mg/l. Color of the sample of Daman Ganga River observed redish brown which is not agreeable. COD at Daman Ganga River reported is 48.32 mg/l and BOD is 17.93 mg/l. At the time of site survey it was found that CETP Vapi having capacity of 50 MLD is discharging the effluent, upstream (Approx. 4 km) site of sampling location, which may significantly, contributes the pollutants.

Groundwater quality

The physico-chemical characteristics of groundwater are presented in **Annexure VI (b)** and compared with the IS-10500 standards. The analysis results indicate that the pH ranged between 7.45-8.61.

The TDS was ranging from 300-418 mg/l. Total hardness was found to be in the range of 142.77-198.70 mg/l. The fluoride concentration was found in the range of 0.14-0.32 mg/l. The nitrate and sulphate were found in the range of 2-29.06 mg/l and 18.79-36.34 mg/l respectively.

TSS was found to be <10 mg/l. Chloride was ranging from **32.81 to 46.34** mg/l. Heavy metal Arsenic found to be <0.01 mg/l.

Remark

Coliform group of organisms are indicators of faecal contamination in water. All surface water samples were found to be bacteriologically contaminated. Presence of total coliforms in surface water indicates that a contamination pathway exists between any source of bacteria (septic system, animal waste, etc.) and the surface water stream. A defective well can often be the cause when coliform bacteria are found in well water. For surface water, treatment followed by chlorination or disinfection treatment is needed before use for domestic purpose. Groundwater samples were not found to be bacteriologically contaminated. Presence of Sodium into ground water is mainly influenced by Sodium Chloride or table salt due to vicinity of seashore, intrusion of saline water in ground water table.

3.4 LAND ENVIRONMENT

3.4.1 Soil Characteristics

Total 8 representative samples were collected from different locations within the study area and analyzed. The monitoring was carried out once in the study period during winter season Dec 2019 to Feb 2020.

Soil characteristics in the study area

The bulk density of the soil in the study area ranged between **1.51-1.83** g/cc which indicates favourable physical condition for plant growth. pH is found to be neutral **6.20-9.48** in reaction. The nutrient status in terms of NPK value is found to be in the range of 106.12-429.26 kg/ha, 3.88-33.72 kg/ha and 263.3-934.7 kg/ha respectively. Electrical conductivity is found to be 24.13-365 µS/cm.

3.4.2 Land Use of the Study Area

The land-use & land cover map of the 10 km radial study area from the periphery of project site has been prepared using Resource SAT-1 (IRS-P6), sensor-LISS-3 having 23.5m spatial resolution and date of pass March 2020 satellite image with reference to Google Earth data. In order to strengthen the baseline information on existing land use pattern, the following data covering approx. N 20°19'50.47" to N 20°30'32.13" latitude and E 72°44'15.31" to E 72°55'35.69" longitude and elevation - 5 to 34 meter are used as per the project site confined within that area.

Land use pattern of the study area as well as the catchment area was carried out by standard methods of analysis of remotely sensed data and followed by ground truth collection and interpretation of satellite data. The outcome of land use study is presented in EIA report.

3.5 BIOLOGICAL ENVIRONMENT

Information about biological sensitive area

There is No National Park, Wildlife Sanctuary, Biosphere Reserve, Tiger Reserve, within the 10 km radius study area. However, as per toposheet & site survey various reserve forest, open mixed jungle (some are planted forest) are reported within 10 km radius moreover all these sites are having scanty vegetation may be due past anthropogenic activities and other environment factor triggers the degradation of forest areas. The nearest wildlife sanctuary is Purna Wildlife Sanctuary is about ~109 km in North East direction from project site

Floral Biodiversity of the Study Area

| Habit | Study Area |
|--------------|------------|
| Tree (T) | 53 |
| Shrub (S) | 25 |
| Herb (H) | 50 |
| Grasses (G) | 7 |
| Climber (C) | 29 |
| Parasite (P) | 1 |
| | 165 |

Mangroves in study area

The natural mangrove area observed along the Damanganga river stretch, intertidal mudflats and along coastline. *Avicennia marina* is predominant mangrove species observed in the area. It is stunted and sparsely distributed along the coast near river Damanganga.

Fauna in the study area

There is no major wildlife sign was observed in the study area. Some reptiles like snakes and skinks are common in the area. Birds were observed throughout the study area mostly near the Damanganga river and forest area and other water bodies. Dominant birds observed in the area are Pond Heron, Cattle egret, Common Babbler, House crow, common myna, Indian Robin, Red vented bulbul, etc.

3.6 SOCIO-ECONOMIC ENVIRONMENT

During the primary survey it was observed that almost pakka road facility is available in all villages 10 km Radius project Site. The sanitation coverage has increased from 59 % in 2011 to 85 % in 2019. Literacy rate of the study region is from 77.52%. On the basis of survey for literacy rate data it is interpreted that there is need to promote educate more and more people. Almost all the villages have more than 44.57 % people as non-workers. It indicates that the problem of unemployment can be solved by providing proper training and education. There is also need to establish more industries so that maximum number of employment can be generated. Basic amenities like Education facilities Health care facilities, water supply, electric power supply, mode of transportation etc. are available in all villages.

Information on socio-demographic status and the trends of the communities in the 10 km radius was collected through primary social survey and secondary data collection from census 2011 & District Census hand book 2011. Summary of the socio-economic status of the study area is given in Table 6. Details regarding education and infrastructure facilities 2011 are presented in Table 7 respectively

TABLE 6
SUMMARY OF SOCIO-ECONOMIC ENVIRONMENT OF VILLAGES WITHIN 10 KM RADIUS AREA

| | |
|------------------------|--------|
| No. of villages | 36 |
| Total households | 58685 |
| Total population | 226323 |
| Male Population | 144105 |
| Female population | 82218 |
| SC Population | 5811 |
| ST Population | 47742 |
| Total literates | 175441 |
| Total Illiterates | 50882 |
| Total workers | 125459 |
| Total main workers | 118647 |
| Total marginal workers | 6812 |
| Total non-workers | 100864 |

Source: Primary census abstract 2011, State Gujarat Daman union Territory.

TABLE 7
INFRASTRUCTURE FACILITIES AVAILABLE IN THE STUDY AREA

| Yr. 2011 | In percentage (%) | | | | | | | | | |
|---------------|-------------------|-----------------|------|-------|----------------|-----------------|----------------|------|----------|------------|
| | Educ ation | Drink ing water | Road | Power | Comm unication | Transpo rtation | Govt. PHC & SC | Bank | Drainage | Recreation |
| Availab ility | 100 | 100 | 100 | 100 | 100 | 100 | 65 | 19 | 54 | 92 |

Source: District census handbook, 2011, State Gujarat Daman union Territory.

4.0 ANTICIPATED ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

4.1 IMPACTS DURING CONSTRUCTION PHASE

4.1.1 Impact on Local Infrastructure

During the construction stage, demand will arise for basic amenities such as water, power, etc. for the construction workers along with the other requirement of various other construction activities. Considering the nature, the magnitude and phasing of the project, impact shall be short term and low in magnitude and is limited to construction phase only that too confined to area for proposed new building/shades. As far as possible additional infrastructure will be augmented to reduce the environmental impact.

4.1.2 Land Environment

Unit is already set up for existing products, but for proposed products in the existing plant area construction work will be carried out for the installation of additional machineries for grain based distillery and captive power plant. During construction activity, the impact on soil will be limited to the construction site only; no impact is envisaged on the topography. Impact on soil during construction will be mainly due to the left out of construction materials used. Hence, proper care will be taken so that minimum amount of waste will be produced and most of it gets recycled. The topsoil removed during the leveling will be stacked separately and will be used for the greenbelt development.

Solid /Hazardous waste

During construction phase, solid waste such as excavated soil, debris, some metal waste and small amount of oil and grease from construction machines will be generated. Contractors will be told to avoid spillages and this waste will be collected and disposed off complying statutory requirement. This waste may contaminate soil at plant site temporarily will be restricted to a small area. Excavated top soil will be used for plantation or green belt development. The solid waste generated by labor as municipal waste will be collected and segregated and disposed at appropriate site. Metal waste, oil and grease will be disposed as per the norms.

4.1.3 Air Environment

The main sources for impact on air quality during construction phase will be due to movement of vehicles and construction equipment at site

The emissions are negligible which will be only due to transportation activities. The construction activities will also involve negligible emissions, as most of the work will be of fabrication and erection of structures only and proper mitigation measures would be taken to reduce it further.

4.1.4 Noise Environment

The major sources of noise pollution during construction phase would be operation of equipment and vehicles engaged in various activities at construction site. Most of these activities would be confined to the boundary of construction site and would produce noise for limited period only. The construction phase noise, which will be produced for a short duration only, will not have significant impact to ambient noise levels. However, noise impacts may be experienced by construction workers at construction site. The construction workers shall, primarily, be provided with ear plugs/muffs to reduce exposure, apart from other measures.

4.1.5 Water Environment

At the time of construction activities water will be required mainly for construction and domestic use. It is estimated that maximum quantity of 10 KLD of water will be required for these activities. All identified impacts during construction phase will be negligible, temporary and restricted to the plant boundary. Proper and effective mitigation measures will be implemented to minimize the impact and ensure minimum effect on water resources.

4.1.6 Biological Environment

Proposed grain based distillery unit will be carried out within the existing plant premises. The construction activities involved in project will not cause vegetation clearance. However, no tree cutting involved in the project activities, the vegetation at proposed site in the form of local herbs, shrubs and grasses only.

4.1.7 Socioeconomic Environment

Positive impact

- Direct and indirect employment opportunities for skilled semiskilled and unskilled workforce,
- Changes in employment and income levels due to increased employment opportunities,

- Due to use of local workforce, there will not be additional strain for shelter/housing,
- Local population would also get opportunities in related services activities like small contractors, sub-contractors, supply of construction materials etc.,
- Quality of life will improved due to increased income and employment opportunities.

4.2 IMPACTS DURING OPERATION PHASE

• Land Environment

There may be some pollution, which may affect the soil adjacent to the plant area, if proper care is not taken. The anticipated pollution to soil environment due to plant activities is as follows:

- ❖ Changes in soil texture due to settling of air borne dust or due to wash off solid particulates by surface or groundwater. This will lead to change in porosity, permeability and other such physical characteristics of soil of the area.
- ❖ Changes in soil chemistry due to addition of foreign materials from polluted air and water due to plant activities in the area.

Proper mitigative measures like use of efficient pollution control systems, proper stack height and use of top soil in plantation results in no significant impact on soil of the project site. There will be no impact on soil of the study area located beyond the working area of the project.

Solid / Hazardous Waste

The solid/hazardous waste generation, and quantity is given bellow in **Table 8**.

TABLE 8
SOLID /HAZARDOUS WASTE GENERATION AND ITS QUANTIFICATION – PROPOSED

| Sr. No. | Solid waste | Existing quantity | Proposed quantity | Disposal |
|---------|--------------|-------------------|-------------------|---|
| 1. | Yeast Sludge | - | 100 kg/ day | Dried in sludge bed and use as a manure |
| 2. | ETP sludge | - | 125 kg/day | Used as manure |
| 3. | Boiler ash | - | 2.5 TPD | Ash generated will be sold to brick manufacturers 2.5 TPD |
| 4. | DDGS | - | 11 TPD | Will be sold as cattle feed / Fish feed |
| 5. | STP sludge | 6 | 3 kg/day | (Total 9 kg/day) As manure within the plant |
| 6. | Grain grit | - | 600 kg/day | Sold as Cattle feed |

Note – Hazardous waste generated will be Used Oil, category 5.1 Annual generation quantity – 2.5 KL/Annum.

- Air Environment
- Details of air dispersion model

Assessment of air pollution was carried out for stack attached to boiler, D.G. sets etc. The ISCST-3 (Industrial Source Complex – short term-3) from Lakes Environment is an hour-by-hour steady state Gaussian Plume Model. This model is widely recognized as predictive tool in impact assessment for air environment. The ISCST-3 model was applied with the consideration of elevated + flat terrain, gradual plume rise and buoyancy induced dispersion options in the present study.

- Stack details

The stack details viz, height, diameter, temperature, velocity, volumetric flow and emission rates are presented in **Table 4.2**. Total 4 stacks were considered which is attached to the respective equipment through which the emissions are likely come out.

• Resultant Concentrations

The maximum incremental ground level concentrations (GLCs) for particulate matter, SO₂ and NO₂ due to proposed modernization were carried out. The predicted 24 hourly maximum concentrations for existing facilities (1 DG set) for particulate matter, SO₂ and NO₂ are found to be 0.28 µg/m³, 0.011 µg/m³ and 5.6 µg/m³ respectively. For total scenario (Boiler and DG sets) for particulate matter, SO₂ and NO₂ are found to be 0.85 µg/m³, 3.6 µg/m³, 8.5 µg/m³ respectively. The short term modeling results are presented in **Table 4.3**. The isopleths of particulate matter, SO₂ and NO₂ representing the GLCs for existing and after modernization scenario are shown in **Figures 4.2 to 4.7** respectively.

The resultant concentration levels (Ambient + proposed total incremental) revealed that the concentration levels for particulate matter, SO₂ and NO₂ likely to be encountered in the operation of the project are respectively occurring at a distance of about 5.3 km, 1 & 5.3km each in the SSW and S directions with a concentration levels (resultant) of 80.45 µg/m³, 16.4 µg/m³ and 34.4 µg/m³ respectively and details are given in **Table 4.4**, which is well within the NAAQS levels prescribed by CPCB. Hence it is inferred that considering cumulative concentration levels, the pollution load exerted due to proposed modernization project will be insignificant.

• Noise Environment

Day and night sound pressure levels are often used to describe the community exposure. The nearest human settlement (Katheria) is 0.4 km from project site and resultant noise level at this village are 58.0 dB (A) & 52.6 dB (A) at day night respectively. The back ground noise level at this place is slightly high due to commercial activities.

DG sets are likely to be used during power failure. Predictions have been made taking into account even DG set in operation and thus reflecting the worst case scenario. The maximum predicted noise level within the plant boundary (0.2 km radius) is 53.4 dB (A).

• Water Environment

Water Requirement

Water as a resource will be recycled at each possible step of the process and latest technology and methodology will be adopted to conserve and reuse the resources. CGWB NOC application is in process. Raw water source will be bore well.

The process condensate will be cooled into a neutralization tank with sufficient residence time. After neutralization and filtration (UF + RO) this process condensate will be recycled into process use.

• Water consumption Details:

Water Management for proposed 15 KLPD Distillery:

The water requirement for the project will be 482 KLPD (474+8)

Fresh water will be 143 KLPD

Treated effluent 91 KLD and water recycled 309 KLD will be 400 KLPD.

Water Balance for Bottling Plant (Values in KLD)

- ❖ Initial water requirement = 30
- ❖ Total water consume in blending process (product) = 21 KLD
- ❖ Wastewater generation = 9 KLD

Waste water generation & management plan

A) Domestic Waste

The domestic wastewater generation will be expected to be 8 KLD. The generated domestic wastewater will be treated in STP (capacity 10 KLD) and treated water used for plantation/gardening.

B) Industrial Wastewater

Process+ softner backwash +bottling plant: 53+29+9=91 wastewater to ETP.

Treated effluent 91 KLD and water recycled 309 KLD total will be 400 KLPD

• Biological Environment

The impact on the surrounding ecology during the operation of the project will be mainly occur from the deposition of air pollutants. Air pollution affects the biotic and abiotic components of the ecosystem individually and synergistically with other pollutants. Chronic and acute effects on plants and animals may be induced when the concentration of air pollutants exceeds threshold limits. The incremental emissions of air pollutants during proposed project will not likely to induce any significant changes in the ecology because the national ambient air quality standards will remain within the limits. However deposition of small amount of pollutants may also affect the surrounding ecosystem. The project is therefore planned to implement most efficient air pollution control systems for achieving emission levels in effective manner.

There is No National Park, Wildlife Sanctuary, Biosphere Reserve, Tiger Reserve, within the 10 km radius study area. However, as per toposheet & site survey various reserve forest, open mixed jungle (some are planted forest) are reported within 10 km radius moreover all these sites are having scanty vegetation may be due past anthropogenic activities and other environment factor triggers the degradation of forest areas. The nearest wildlife sanctuary is Purna Wildlife Sanctuary is about ~109 km in North East direction from project site

• Socio-Economic Environment

The project would create certain impacts which could be beneficial as well as adverse. It is necessary to identify the extent of these impacts for further planning of control measures leading to mitigation of the adverse impact. The impacts due to project on parameters of human interest are assessed and given below.

Positive impacts

- ❖ Employment generation for local people as well as from surrounding area would increase during construction work of the Project. Local skilled and unskilled laborers will have an opportunity for employment directly or indirectly.
- ❖ Improvement of general welfare for the local population as a result of increased income; Payment of taxes to the local People
- ❖ Due to the proposed project, facilities are likely to grow in line with the development. Which would improve the social economy of the region, thus may improve the quality of life.
- ❖ There will be additional employment for the poor strata of society by way of helpers, drivers, cleaners etc.
- ❖ Increase in business opportunities for the local people, due to which economic status of the people would improve.

Negative impacts

From the above discussion it can be concluded that proposed project activity at Devka road, Katheria Nani Daman has not create any significant negative impact on physical features, Socio Economic environment.

5.0 ANALYSIS OF ALTERNATIVES (SITE AND TECHNOLOGY)

Study of Analysis of Alternatives Related to Site

- ❖ No alternative site has been taken into consideration, as the existing unit has adequate available land within existing premises, required for proposed expansion and modernization.
- ❖ Unit is already set up for existing products, but for proposed products in the existing plant area construction work will be carried out for the installation of additional machineries for grain based distillery and captive power plant.
- ❖ This being existing ongoing grain based alcohol manufacturing unit, located at Village: Devka road, Katheria Nani Daman, Tehsil and Dist.: Daman, Daman – 396210 in Union Territory (Daman & Diu) in the name of M/s. Jupiter Distillery. Hence there is no question of consideration of alternative site.

Analysis of Alternatives Related to Technology

The management has decided to adopt the best operating practices to suit world class requirements. The products will be manufactured in such a way that there is minimum emissions and minimum wastewater generation during manufacturing process.

Hence best technological environment friendly approach will be selected.

6.0 ENVIRONMENTAL MONITORING PROGRAMME

Environmental monitoring will be carried out for monitoring of important and crucial environmental parameters to assess regularly the status of environment during operations. The monitoring program for implementation is given Chapter 6 **Table 6.1**.

6.1 BUDGET FOR IMPLEMENTATION OF ENVIRONMENTAL MONITORING PLAN

An effective environmental monitoring plan is proposed during the construction and operational phases of the project to conserve the environment at site. A provision of Rs. 13.00 lakhs will be made available towards recurring cost for environmental monitoring programme.

7.0 ADDITIONAL STUDIES

7.1 PUBLIC CONSULTATION

The Draft EIA-EMP report for proposed Manufacture 15 KLPD ENA/Ethanol/Alcohol (Grain based distillery), along with 1.2 MW Co-generation power plant (Fuel Briquette) Agri waste / Bagasse and Bottling plant capacity 13.0 Lakhs Cases Per Annum IMFL/CL at Survey No. 7/1 (1), 7/1 (2), 7/2,7/3, and 78/9, 78/10, 78/11, 78/12, Devka road, Katheria Nani Daman, Tehsil and Dist.: Daman, Daman – 396210 is prepared as per the TOR issued by EAC (Industry –III), MoEFCC, New Delhi and the draft report is submitted for public consultation process as per the provisions of EIA Notification 2006 and amendments thereof.

After completing the public consultation process, the points raised and commitment of project proponent during the public hearing will be incorporated in the final EIA/EMP report for final submission to Environmental Clearance.

7.2 RISK ASSESSMENT AND DISASTER MANAGEMENT PLAN

Introduction

Risk assessment (RA) provides a numerical measure of the risk that a particular facility poses to the public. It begins with the identification of probable potential hazardous events at an industry and categorization as per the predetermined criteria. The consequences of major credible events are

calculated for different combinations of weather conditions to simulate worst possible scenario. These consequence predictions are combined to provide numerical measures of the risk for the entire facility.

MCA analysis

The risk assessment report covers the following in terms of the extent of damage with resource to MCA (maximum credible accident) analysis and delineation of risk mitigations measures.

- ❖ Identification of potential hazardous sections and representative failure cases
- ❖ Visualization of release scenarios considering type and the quantity of the hazardous material
- ❖ Damage distance computations for the released cases at different wind velocities and atmospheric stability classes for heat radiations and pressure waves.
- ❖ Drawing of damage contours on plot plan to show the effect due to the accidental release of chemicals.

Hazard Identification

- ❖ Identification of hazards is an important step in risk assessment as it leads to the generation of accidental scenarios. The merits of including the hazard for further investigation are subsequently determined by its significance, normally using a cut-off or threshold quantity.

8.0 PROJECT BENEFITS

The project manufacturing unit has made improvement in infrastructure as well as overall socio-economic development in the area. The people residing in the nearby areas are being benefited directly and indirectly as well. The project is providing benefits for the locals during operational phase of the activity.

Economic Development

The products that will be manufactured by M/s. JD will have a high market potential. Due to increasing demand, the plant has own economic importance.

This will help to increase the economy of the region, state and thereby the country itself. There are other intangible benefits apart from the tangible benefits which will help to improve the economic status of the state and the country.

Corporate Environment Responsibility (CER) Schemes for the Study Area

The proposed cost of the project is Rs. 3021.97 lakhs. Thus, as per CER 1% i.e. Rs.30.22 lakhs will be spent for the Improvement of Environment.

9.0 ENVIRONMENTAL COST BENEFIT ANALYSIS

M/s. Jupiter Distillery is proposing to install Grain based Distillery (15 KLPD) along with 1.2 MW Co-generation power plant (Fuel Briquette) Agro waste based and 13 Lakh cases per annum IMFL/CL (bottling plant). Location Katheria Nani Daman, Devka Road, Daman, (Daman and Diu) – 396210.

The increase in production will be available to the user. It will definitely boost the economic growth of the country; develop region and quality of life of the people in a sustainable manner without creating any significant impacts.

9.1 ENVIRONMENTAL VALUE ENHANCEMENT (BIODIVERSITY, CROP PRODUCTIVITY, ECO-TOURISM)

The project site is well connected to railways and roadways. The proposed installation is planned at existing premises of M/s Jupiter Distillery at Katheria Nani Daman, Devka Road, Daman, (Daman and Diu) – 396210 in Union Territory. Therefore, it will not involve loss of vegetation and biodiversity. The

vegetation is similar in the whole area with no sensitive ecosystem or rare and endangered flora or fauna, hence no environmental loss will be there in terms of net productive value.

The total project cost is estimated to be **Rs. 3021.96903 Lakhs** and expenditure on implementation of the Environmental Management Plan (EMP) is presented in **Chapter 10** of this report. Besides tangible benefits, the project has got number of intangible benefits like minimum emission of the generated gases, no adverse impact on environment as far as air, noise and water environmental components are concerned. Individual industry will take care of environmental management.

10.0 ENVIRONMENTAL MANAGEMENT PLAN

The main objectives in formulating this environmental management plan are:

- ❖ To limit / reduce the degree, extent, magnitude or duration of adverse impacts.
- ❖ To treat all the pollutants i.e. liquid effluent, air emissions and hazardous waste with adoption of adequate and efficient technology.
- ❖ To comply with all the norms and standards stipulated by Daman, Diu & Dadra and Nagar Haveli Pollution Control Committee / Central Pollution Control Board.
- ❖ To reduce any risk hazards and design the disaster management plan.

Continuous development and search for innovative technologies for a cleaner and better environment.

BUDGETARY PROVISIONS FOR EMP

Adequate budgetary provision is made by the management of M/s. JD for executing the environmental management plan. Total cost of project is Rs. 3021.96903 lakhs. The capital cost required to implement the EMP for project estimated to be Rs. 570 Lakhs. The annual recurring expenses will be Rs.51 Lakhs allocated for implementation of the Environmental Management Plan.

11.0 SUMMARY AND CONCLUSIONS

The project is environmentally, technically and economically feasible with respect to followings:

All activities are confined to private industrial land and minimum possible emission is allowed to enter in to the environment due to proposed expansion cum modernization project. Thus environment will not be adversely affected in any way.

- ❖ Most of the wastewater generated will be recycled/reused in the process, and norms will be followed.
- ❖ Wastewater will be treated in effluent treatment plant followed by RO / Softner / MEE so as to achieve ZLD-Zero Liquid Discharge . The industrial treated wastewater will be used for process . Domestic wastewater will be sent to STP and utilized in gardening.
- ❖ The development of green belt and plantation will help to attenuate the noise levels and restrict air pollution and will increase the aesthetics.
- ❖ Apart from this, the environmental management plan delineated may help to reduce pollution by implementation.
- ❖ The enterprise social commitment policy (formerly CSR) will work further to bring out the development of the surrounding villages and thus area and quality of life of people will be improved.
- ❖ The cost of environmental control and monitoring measures are computed and provision for capital & recurring is made by the management.

- ❖ The JD is presently employing 70 persons and in proposed modernization 30 direct manpower will be employed. Total manpower requirement after modernization will be 100
- ❖ This project being export oriented the additional capital investments will add to national exchequer and will be value addition in terms of revenue generation and enhanced foreign exchange earnings.
- ❖ Employees, company and region will be directly / indirectly benefitted.

Concluding Remarks:

Thus it can be concluded on a positive note that after the implementation of the mitigation measures, Environmental Management and Monitoring Plans as enumerated above, the normal operation of **M/s. JD** will have no significant impact on environment and the project will be benefitted to local people to some extent with an economic growth in state/ country level. All statutory compliances will be obtained prior to proposed expansion cum modernization.

12.0 DISCLOSURE OF CONSULTANTS

The environmental studies for proposed project of **M/s. Jupiter Distillery** are carried out by **M/s Anacon Laboratories Pvt. Ltd., Nagpur (M/s ALPL)**. Anacon established in 1993 as an analytical testing laboratory and now a leading Environmental Consultancy firm backed by testing lab for environment and food in Central India region. M/s ALPL is a group of experienced former Scientists from the Government Institutions and excellent young scientist of brilliant career with subject expertise. It is recognized by Ministry of Environment & Forests, New Delhi for carrying out environmental studies & accredited by Quality Council of India (QCI) for conducting Environmental studies vide accreditation Certificate No: **NABET/EIA/1922/RA 0150 dtd. 03 Feb 2020 Valid till September 30, 2022** as category 'A' consultant for sector no. '22' 5(g).