



HARYANA STATE POLLUTION CONTROL BOARD  
C-11, SECTOR-6, PANCHKULA  
Ph-0172-577870-73, Fax No. 2581201  
E-mail: hspcbhazardouswaste@gmail.com

Dated: 26-02-2024

To

The Director General,  
Information, Public Relations & Cultural Affairs Department,  
Haryana, Chandigarh.

**Subject: Regarding conducting public hearing with respect to Environment Clearance of Proposed project by M/s The Kaithal Co-operative Sugar Mills Limited, Kaithal for proposed new Distillery of 120 KLPD capacity consisting of B-Heavy Molasses with provision to use Grain for production of Ethanol along with 3.0 MW cogeneration power plant at Village Narar, Tehsil Kaithal, District-Kaithal, Haryana.**

I have been directed to enclose herewith advertisement regarding Public hearing to be held on **04.04.2024 at 11.00 AM** at the site i.e. Village Narar, Tehsil Kaithal, District-Kaithal, Haryana with respect to Environment Clearance of Proposed project by M/s The Kaithal Co-operative Sugar Mills Limited, Kaithal for new Distillery of 120 KLPD capacity consisting of B-Heavy Molasses with provision to use Grain for production of Ethanol along with 3.0 MW cogeneration power plant at Village Narar, Tehsil Kaithal, District-Kaithal, Haryana in compliance with EIA notification dated 14th September, 2006 for publication in the following leading newspapers on DAVP rates:-

1. One major national daily newspaper.
2. One Regional vernacular daily Newspapers in Hindi.

This advertisement should appear on or before **28.02.2024** in the above said two newspapers only and bills of above two newspapers on DAVP rates may be sent to this office at the earliest, the bill payment of above said notice will be made for two newspapers only.

**Endst. No. HSPCB/HWM/2024/ Dated: 26-02-2024**

A copy of the above is forwarded to the following for information and necessary action:-

1. The Deputy Commissioner, Kaithal
2. The Chairman Zila Parishad, Kaithal
3. The Joint Director, District Industries Centre, Kaithal
4. The Secretary, Municipal Council, Kaithal

**Endst. No. HSPCB/HWM/2024 / Dated: 26-02-2024**

A copy of the above is forwarded to the following for information and necessary action:-

1. Regional Officer, Haryana State Pollution Control Board, Kaithal. You are asked to send the copy of EIA report and Executive Summary and Pen Drive to the concerned authorities mentioned above to place the same in their offices for consultation of the general public during office hours.
2. M/s The Kaithal Cooperative Sugar Mills Ltd. at Village Narar, Tehsil Kaithal, District-Kaithal.
3. Sr. EE (IT), to ensure that the notice is uploaded on the website of the Board.

**Endst. No. HSPCB/HWM/2024/ Dated: 26-02-2024**

A copy of the above is forwarded to the following for information please:-

1. The Additional Chief Secretary to Govt. of Haryana, Environment, Forest and Wild Life Department, Haryana, Chandigarh.
2. The Director, Environment and Climate Change Department, Haryana.

**Endst. No. HSPCB/HWM/2024/ Dated: 26-02-2024**

A copy of the above is forwarded to the following for information please:-

1. Administrative Secretary-cum-P.S to Chairman.
2. PA to Member Secretary.

**DA/Advertisement**

Signed by

Naveen Gulia

Date: 26-02-2024 14:56:30

**Sr. Environmental Engineer (HQ)  
For Member Secretary**

**HARYANA STATE POLLUTION CONTROL BOARD****C-11, SECTOR-6, PANCHKULA***Ph- 0172 -2577870-73, Fax No. 2581201*

E-mail: hspcbhazardouswaste@gmail.com

**Notice for Public Hearing**

It is for the information of all concerned that M/s The Kaithal Cooperative Sugar Mills Ltd. has proposed a project of new Distillery of 120 KLPD capacity consisting of B-Heavy Molasses with provision to use Grain for production of Ethanol along with 3.0 MW cogeneration power plant at Village Narar, Tehsil Kaithal, District-Kaithal, Haryana. The project proponent mentioned above has applied to the Haryana State Pollution Control Board for conducting the Public Hearing for obtaining Environmental Clearance as per EIA notification dated 14th September,2006 for the proposed project. Accordingly, the Public Hearing for the above said project has been fixed on **04.04.2024 at 11.00 AM** at the site.

Copies of executive summary of the project report and EIA study report, submitted by the project proponent, are available in the Head Office of the Board as well as in the following offices, which can be perused during office hours, on any working day:-

1. Deputy Commissioner, Kaithal
2. Regional Officer, Kaithal, Haryana State Pollution Control Board, 2nd floor of SCO 161-P,162, 163, Sector 20, HUDA, Kaithal
3. Chairman Zila Parishad, Kaithal
4. Executive Engineer, Municipal Council, Kaithal
5. Joint Director, District Industries Centre, Kaithal

Notice is hereby given to all concerned to file suggestions, views, comments and objections, if any, on the above said proposed project, to the Chairman, Haryana State Pollution Control Board, C-11, Sector-6, Panchkula as well as Regional Officer, Kaithal, Haryana State Pollution Control Board 2nd floor of SCO 161- P,162,163, Sector 20, HUDA, Kaithal within 30 days of the publication of this notice. Besides, a Public Hearing will also be held on the Date, Time & Venue mentioned above at the proposed site of the project, which can be attended by any person including Environmental Groups, bonafide residents and others, located at the project site/sites of displacement/sites likely to be affected. Oral/Written suggestions, if any can also be made during the Public Hearing.

No TA/DA will be admissible for attending the Public Hearing.

**Pardeep Kumar, IAS**  
**Member Secretary**

**EXECUTIVE SUMMARY  
OF  
DRAFT ENVIRONMENTAL IMPACTASSESSMENT  
AND  
ENVIRONMENTAL MANAGEMENT PLAN  
FOR**

**Proposed New Distillery of 120 KLD capacity consisting of B-Heavy Molasses with provision to use Grain for production of Ethanol along with 3.0 MW cogeneration power plant at Village Narar, Tehsil Kaithal District Kaithal, Haryana.**

**Project Proponent:**



**The Kaithal Cooperative Sugar Mills Ltd., Kaithal  
Dist. Kaithal, Haryana**

**NABET Sector: 22 MOEFCC Sector: 5(g) Category: A**

**Environmental Consultant:**



**ENVIRO INFRA SOLUTIONS PVT.LTD.**

**Accredited by NABET (Quality Council of India)**

**For EIA studies as 'A' Category Consultant**

**(S. No. 62<sup>th</sup>, List of Accredited Consultant Organizations as on February, 2024)**

**Address: - 301, 302 & 305, SRBC, Sec.-9, Vasundhara, GZB-201012**

**Ph.: 0120-4151183 Email: [eis@enviroinfrasolutions.com](mailto:eis@enviroinfrasolutions.com)**

**Website: [www.enviroinfrasolutions.com](http://www.enviroinfrasolutions.com)**

**NABL/MOEF&CC ACCREDITED LABORATORY**

**Noida Testing Laboratories (NABL Certificate No.TC-6814 valid till 02/12/2025)**

**(Study Period: (01<sup>st</sup> October, 2023 to 31<sup>st</sup> December, 2023).**

**February 2024**

**Proposed New Distillery of 120 KLD capacity consisting of B-Heavy Molasses with provision to use Grain for production of Ethanol along with 3.0 MW cogeneration power plant at Village Narar, Tehsil Kaithal District Kaithal, Haryana**

**Executive Summary**

## EXECUTIVE SUMMARY

### E.1 INTRODUCTION

India, the fourth largest economy in the world, has been maintaining a GDP growth rate of around 7 %. Analysts have projected that India has the potential to increase the present rate of growth with labour and capital productivity improvements. Industrial development plays an essential supportive role in improving labour and capital productivity. Investment in industrial sector is also an indicator of economic growth in all market economies. Reform process in industrial sector has garnered unprecedented momentum. With vast untapped opportunities, India could well be the desired location for the industrial sector in the non-too-distant future. A parallel can be drawn from China, which receives almost three times of the FDI inflows in India.

The Rectified Spirit / Alcohol is the basic raw material for the utilization in liquor industry, chemical industries and for blending in gasoline as fuel. Keeping in view of the future requirements of ethanol for industrial use and for gasoline blending, The Kaithal Cooperative Sugar Mills Ltd. is proposing New Distillery of 120 KLD capacity consisting of B-Heavy Molasses with provision to use Grain for production of Ethanol along with 3.0 MW cogeneration power plant Narar village of Kaithal District, Haryana. The company already has the ownership of 150 Acres Industrial land. Out of which 20.34 Acres to be used for proposed Distillery

Keeping in line with the requirements of Ministry of Environment, Forest & Climate change (MoEF&CC), Government of India notification dated 14th September, 2006, The Kaithal Cooperative Sugar Mills Ltd., Kaithal. has retained M/s Enviro Infra Solutions Pvt. Ltd., Vasundhara, Ghaziabad (NABET Accredited Consultants having Accreditation No. NABET/EIA/2225/RA 0300 dated 9.08.2023 Validity: 27th November 2025.) for the environmental clearance of their proposed distillery plant including conduction of Environmental Impact Assessment (EIA) study as per the Terms of Reference approved by the MoEF&CC.

#### E.1.1 METHODOLOGY FOR EIA STUDY

The methodology adopted for carrying out the rapid environmental impact assessment study is based on the guidelines issued by the Ministry of Environment & Forests (MoEF), Government of India. An effective EIA requires sufficient background data on various environmental components through reconnaissance survey, sampling, data available with the government departments, etc.

#### E.1.2 COMPLIANCE OF TOR

In consonance with the EIA notification dated 14<sup>th</sup> September 2006, vide section 1 (a) related to Public Hearing, the draft EIA/EMP report will be submitted to the Haryana Pollution Control Board (HPCB) for public hearing.

### E.2 NEED/JUSTIFICATION FOR THE PROJECT

Alcohol has assumed a very important place in the economy of the country. It is used as a raw

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material for number of chemicals, as a potential fuel in the form of Ethanol blended with petrol and as an ingredient in Alcoholic Beverages. Use of alcohol as a main ingredient in beverages is well known. Further, it is a major source of revenue by way of excise duty to the State Governments. The importance and utility of alcohol as an industrial raw material for manufacture of variety of chemicals is now being increasingly appreciated all over the world. This is partly due to the escalating costs of these chemicals produced through petrochemical route and abnormal increase in crude oil prices. The price is predicted to increase further depending upon international situation and with depletion/exhaustion of petroleum resources of the world. The location of the distillery slated is at rural & agro-based region. The proposed project program will fetch better realization to the molasses and in turn to sugar cane grown in the region.

Environmentally, the use of ethanol blends has assisted in reducing carbon monoxide emissions. In the United States, one out of every eight gallons of gasoline sold contains ethanol. Most of this ethanol is purchased as blends of 10% ethanol and 90% gasoline, known as E10, and is used as an octane enhancer to improve air quality. Domestic ethanol production in CY 2017 will decline by eight percent to 1.9 billion liters due to the decline in sugarcane area planted for a second consecutive year (marketing year (MY) 2016/17). Fuel ethanol will achieve a two-percent national average blending rate, as ethanol will replace 700 million liters of gasoline. The current average for ethanol blending is estimated at 1.9 percent. As per Press Information Bureau dated 17 December, 2021 during the ethanol supply year 2020-21 a total of 302.30 Crore litres of ethanol was blended in Petrol which was about 8.1% blending in Petrol. It resulted in huge foreign exchange saving substituting Import of Petrol to that extent and there was considerable reduction in carbon emission to the extent of about 35.00 lakh tonnes.

Sugar industry will also benefit, as its profitability will increase by producing a value-added product, having an assured market. This diversification will also strengthen the sugar industry's ability to balance the Sugar and Ethanol production according to the prevailing International prices of sugar and crude oil. This is the kind of model successfully employed by the Brazilian sugar industry. In the wake of increased ethanol prices worldwide, many potential producers of ethanol have been prompted to re-evaluate opportunities in the sector. There is also increased enthusiasm for national fuel ethanol programme designed to reduce vehicle carbon emissions.

### **E.2.1 SELECTION OF THE SITE**

The basic criteria for the selection of site for the molasses-based distillery plant and cogeneration power plant are as below:

- a) Raw material and biomass availability
- b) Raw material cost
- c) Transportation cost
- d) Accessibility to markets within and nearby states
- e) Availability of water
- f) Availability of land in abundance.

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- g) Connectivity of road/rail network.
- h) Market for final Product.

## **E.2.2 UTILIZATION OF LAND**

The distillery plant can be divided into four sections w.r.t land utilization i.e. (1) boiler area (2) process and distillation area (3) utilities and (4) green area. The Kaithal Cooperative Sugar Mills Ltd. is located in a cane rich area. This society established its Sugar Mill having capacity 2500 TCD at Narar village of Kaithal district in Haryana in 1991. The Kaithal Cooperative Sugar Mills Ltd., Kaithal, Haryana can divert B-heavy molasses and procure B-heavy molasses from nearby Mills for Ethanol production and run the distillery for a period of 127 days a year. The detailed breakup of the land for various uses is given in **Table E.1**

**Table E.1: Detailed breakup of the land**

<b>S.No.</b>	<b>Particulars</b>	<b>Land Area (Square meter)</b>
1.	Open Area	7227
2.	Administration and Parking	20265
3.	Plant and Machinery	8128
4.	Road and others	4321
5.	Green area	42409
	<b>Total land area</b>	<b>82350.00 (20.34 acre)</b>

## **E.2.3 RAW MATERIALS**

### **E.2.3.1 Raw Materials requirements for Distillery Plant**

The Distillery, as mentioned earlier, is proposed to be operated on B-Heavy Molasses for and FCI rice. At estimated average crushing rate of 400000 MT / year, at Kaithal Cooperative Sugar Mill it is estimated to produce 27920 MT B-heavy molasses and nearby Cooperative Jind Sugar mill is estimated to produce 19749 MT of B-heavy molasses at average crushing rate of 290000 MT / year. Thus, the total availability of B heavy molasses from both the Sugar Mill shall be 47669 MT / year. At estimated recovery rate of 320.08 Ltrs/ MT the proposed distillery shall run for 127 days in a year on available B-heavy molasses from both the Sugar Mills. Assuming 300 days total operation of distillery as per traditional practice, for balance 173 days distillery is proposed to operate on rice purchased from FCI

### **E.2.3.2 Fuel Requirements for Boiler**

Fuel is basically required in the boiler for steam generation for process and for captive power generation. It is proposed that during crushing season fuel will be supplied by the sugar mill for 127 days. The required steam 9.50 MT/Hr is proposed to be taken from a boiler having capacity of 30.0 TPH at working pressure of 45 kg / cm<sup>2</sup> and steam temperature of 400°C. which is proposed to be taken from incineration boiler having capacity of 30.0 TPH at working

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pressure of 45 kg / cm<sup>2</sup> and steam temperature of 400 °C.

### **E.2.3.3 Raw Material Availability**

The Kaithal Cooperative Sugar Mills Ltd are having their own sugar mills adjoining to the proposed project having estimated cane of 400000 MT 9.5 % is 38000.0 MT/ annum. it is estimated to produce 27920 MT B-heavy molasses and nearby Cooperative Jind Sugar mill is estimated to produce 19749 MT of B-heavy molasses at average crushing rate of 290000 MT / year. Thus, the total availability of B-heavy molasses from both the Sugar Mill shall be 47669 MT / year. At estimated recovery rate of 320.08 Ltrs/ MT the proposed distillery shall run for 127 days in a year on available B-heavy molasses from both the Sugar Mills. Assuming 300 days total operation of distillery as per traditional practice, for balance 173 days distillery is proposed to operate on rice purchased from FCI.

### **E.2.3.4 Transportation**

Project site is located at Village Narar, Tehsil Kaithal & District Kaithal, Haryana. The road connectivity to the site is through an existing metaled road. The required raw materials would be transported through the metaled road connected to the site only.

The molasses for the ethanol plant would be available from within the complex only as the promoters of the project have sugar mill of 2500 TCD capacity. The external molasses required would be transported through the molasses tankers and the molasses would be stored in the molasses storage tanks at site. Similarly, around 70 % of the fuel requirements would be met in-house from the concentrated spent wash. The remaining fuel requirements would be met through biomass/coal which would be transported at site through covered trucks. The alcohol would be transported to various destinations through alcohol tankers only. The company would make adequate arrangements for the parking of trucks at site, separately. In all, the parking arrangements for 50 commercial vehicles would be made at site.

### **E.2.3.5 Storage of Raw Materials**

The molasses would be stored in molasses tanks for 30 days capacity. Adequate number of molasses tanks would be constructed near the process area. Chemicals would be stored in HDPE bags/cans and would be kept in storage shed having a surface area of more than 1000 sq. meters. The chemicals storage shed would be completely impervious in construction. Fuel for boiler furnace i.e. biomass would be stored in open area and partially in covered area with a storage capacity of 15 days.

## **E.2.4 PRODUCTION**

The process will have following steps/operations:

- a) Production from molasses/grain-based distillery
- b) Production from cogeneration power plant



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### **E.2.5 MOLASSES BASED DISTILLERY PLANT OPERATION**

The process will have following steps/operations;

- a) Molasses storage and handling
- b) Fermentation
- c) Multi-pressure distillation
- d) Multi-effect evaporation
- e) Spirit storage

### **E.2.6 Grain based Distillery Process/Operations**

The grain-based distillery process will have following steps/operations;

- a) Grains receiving and storage
- b) Grains handling and milling
- c) Slurry preparation/liquefaction
- d) Scarification and instantaneous fermentation
- e) Fermentation
- f) Multi-pressure distillation
- g) Decantation
- h) Multi-effect evaporation
- i) Spirit storage

### **E.2.7 POWER COGENERATION**

The power plant will be using the combustion technology. The basic steps involve fuel handling, boiler, turbo generator and power evacuation system.

Proposed co-generation plant would consist of a high-pressure water tube steam boiler and a steam turbine. Fuel in the steam boiler will be burnt with the help of air in the boiler furnace. Water will be circulated in the boiler drum and tubes thus getting heated by the flame burning in the boiler furnace. Water would come out of the boiler drum located at the top of the boiler as steam. Flue gases from the boiler furnace would come in contact with the steam coming out of boiler drum. Steam after coming in contact with the flue gases would get heated up further thus getting superheated. Super-heated steam leaves the boiler in a pipe. Flue gases after super heating the steam pass through economizer where they pre-heat the boiler feed water before it enters the boiler drum.

High pressure superheated steam from boiler would be passed through steam turbine. While passing through the turbine, the high pressure and temperature steam rotates the turbine rotor and an electric alternator. This electric power generated is consumed in house, i.e., for running the ethanol plant and utilities like power plant auxiliaries, etc., and surplus power will be exported to the state grid. A part of the MP/LP steam is extracted for use in ethanol plant operations. The condensed steam returns to the steam boiler as condensate and is again boiled as steam.

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To the possible extent, feed water requirements of the boiler would be met essentially by the condensate. The steam condensate will be available at 45-50°C and will be directly used in the feed water circuit, although with certain monitoring for certain circuits. The make up for the plant operation would be condensate water and a DM water treatment plant of adequate capacity would be provided. The power generation cycle would be provided with a de-aerator serving the dual purpose of de-aerating the feed water as well as heating the feed water with the extraction steam.

## **E.2.8 SUNDRY UTILITIES**

### **E.2.8.1 Steam Generator**

The industry would install an incinerator boiler of 30 T/hour of steam generation capacity. The design of the boiler will be of single drum, vertical, natural circulation, radiant furnace with water cooled membrane walls, three-stage super heater with inter-stage de-super heater, balanced draft, water tube type and continuous ash discharge.

#### **E.2.8.2 Condensate system**

The condensate recovered from the surface condenser and that from the process plant will be used to meet the dilution water requirements. De-mineralized (DM) water would be used for the make-up water requirements of the boilers.

#### **E.2.8.3 Water Treatment (DM) plant – 1000 m<sup>3</sup>/day**

It is proposed that the water to be used will be received from the ground water. The water quality will require pre-treatment to satisfy the quality required for boiler feed water and some other process operations. Treatment will involve sand filtration, activated carbon filtration, softener and reverse osmoses treatment suitable for ultimate quality of water required (RO).

#### **E.2.8.4 Electrical system**

The industrial plant power requirement (including that for power plant auxiliaries) will be about 4026 KWH but the actual power consumption 2.4 to 2.5 MW during running of the plant. The industry would get the required power from their in-house incineration boiler based power cogeneration plant. Industry plans to propose power cogeneration plant of 3 MW.

#### **E.2.8.5 Cooling Water**

Cooling water shall be a closed system with a certain portion of purging in order to maintain a TDS of not more than 1000 ppm. Filtered and soft water, free from algae and suspended solids with commercial zero hardness and TDS less than 250 ppm and chlorides less than 25 ppm, shall be used as make up water. Cooling water at 30-32°C shall be made available at the various consuming points at a pressure of 3.0 kg/cm<sup>2</sup>g pressure. Return cooling water at 35 to 40°C from the various consuming points in the plant shall be returned to

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respective cooling towers for cooling the same back to the supply temperature of 32°C.

### **E.2.8.6 Fuel requirements and Fuel handling**

Fuel is basically required in the boiler for steam generation for process and for captive power generation. It is proposed that during crushing season fuel shall be supplied by the sugar mill for 127 days. The required steam 9.50MT/Hr is proposed to be taken from a boiler having capacity of 30.0 TPH at working pressure of 45 kg / cm<sup>2</sup> and steam temperature of 400°C. which is proposed to be taken from incineration boiler having capacity of 30.0 TPH at working pressure of 45 kg / cm<sup>2</sup> and steam temperature of 400 °C

## **E.2.9 SOURCES AND NATURE OF POLLUTION**

### **E.2.9.1 Water pollution**

The impending water uses and consequent water pollution may be because of the following;

- a) Process and dilution water
- b) Boiler feed water make-up
- c) Cooling water make-up
- d) Washing
- e) Water treatment plant maintenance

### **E.2.9.2 Air pollution**

The air pollution will be due to combustion emissions released by the boiler furnace attached to the 30.0 TPH incineration boiler. The boiler furnace will use chiefly concentrated spent wash. The critical SPM concentration in the flue gas will be less than 50.0 g/Nm<sup>3</sup>. Majority of the particulates (about 60-70%) will have sizes in the range of 2-10 µm. The emissions are expected to have temperature in the range of 140-150°C. As per the statutory norms (as applicable to the industry), the flue gas emission shall not have SPM levels (in the stack) exceeding 50 mg/Nm<sup>3</sup>. Additionally, the stack height requirements for discharge of emissions will need to be complied with

### **E.2.9.3 Solid wastes**

Solid waste generated would be yeast sludge and ash from the boiler. Yeast sludge will generate @ 7.5 MT/Day. The boiler furnace will result in maximum ash generation @ 60 MT/Day. The following are the management.

Yeast sludge & ash will be used in bio-composting plant.

- Surplus ash from the boiler would be supplied / utilized as per CPCB/MoEF&CC guidelines.

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Yeast sludge from wash settling arrangement is used as filler material for production of potash granules or as landfill material.

#### **E.2.9.4 Hazardous waste**

The plant facility will result in generation of about 3.5 KL/year of spent oils (lubricants and transformer oil), which will be stored on site and sold to authorized recyclers.

### **E.3 DESCRIPTION OF THE ENVIRONMENT**

Initially, a reconnaissance survey of the study area was carried out and then field monitoring for measuring meteorological parameters, ambient air quality, water quality, soil quality and noise levels was carried out. In addition, certain aspects like land area, socio-economic status, past meteorological conditions, etc., have been analysed based on secondary information available from sources like district census reports, district gazetteers, Indian meteorological department, etc.

#### **E.3.1 STUDY AREA & STUDY PERIOD**

An area of 10 km radius (aerial distance) from the plant site is marked as study area.

The Project site is located at Narar Village & Tehsil Kaithal, District Kaithal, Haryana. The coordinates of site are 29°47'5.20"N and 76°27'7.29"E. The relevant information and data (both primary & secondary) were collected in core as well as buffer zone (10 km distance from the plant boundary) during Post Monsoon Season (October, 2023 to December, 2023) in accordance with the MoEF&CC technical guidance manual for conducting EIA studies.

#### **E.3.2 LAND USE/LAND COVER OF THE STUDY AREA**

The 10 km radius study area mainly comprises of crop land @ 65.54 %, built up land @ 30.85 %, water body @ 1.50 % and forest land @ 1.9 %.

A hybrid technique has been used i.e. visual interpretation and digital image processing to generate output Land use / Land cover map of 10 km study area on 1:50000 scale. Statistical data observed and results obtained from satellite image are given in Table E.2 below.

**Table E.2: Statistical data observed and results obtained from satellite image**

S. No.	Class	Area in Ha.	Percentage
1	Built up Area	9691.53	30.85
2	Agriculture Land	20482.58	65.543
3	Water bodies	471.22	1.50
4	Forest Land	657.72	1.9
5	Project Area	8.09	0.028

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<b>Total</b>	<b>31415</b>	<b>100</b>
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### **E.3.3 AMBIENT AIR ENVIRONMENT**

Ambient air quality monitoring is done as per NAAQS, 2009 to determine the general background concentration levels. Samples were collected at eight locations in the 10 km study area to observe pollution trends throughout the study area during study period. The monitoring results of ambient air quality were compared with the National Ambient Air Quality Standards (NAAQS) prescribed by MoEF&CC, Notification dated 16.11.2009. It was found that concentration of pollutants was within the limits of standards prescribed by CPCB.

### **E.3.4 NOISE ENVIRONMENT**

Noise often defined as unwanted sound, interferes with speech communication, causes annoyance, distraction from work; disturb sleep, thus deteriorating quality of human environment. Noise Pollution survey has therefore been carried out.

In order to know the baseline noise levels, in and around the proposed plant site, the monitoring of the ambient noise quality for the eight locations in the study area was carried out with the help of Noise Level Meters having Data logger facility. During study period, the recorded noise levels are well within prescribed standards due to absence of any major noise generating activities in the neighboring area.

### **E.3.5 WATER ENVIRONMENT**

Eight representative ground water samples and three surface water samples were collected based on their importance as source of water supply, size and future impacts. The samples were collected once in the month of November 2023. The ground water from all sources still remains suitable for drinking purposes as all the constituents are within the limits prescribed by drinking water standards promulgated by Indian Standards IS: 10500-2012.

### **E.3.6 SOIL ENVIRONMENT**

Eight Samples of soil have been collected and are tested for the physical and chemical properties. Organic matter of the soil samples was fairly high 0.27 to 0.34 % and having good fertility in terms of organic matter.

### **E.3.7 BIOLOGICAL ENVIRONMENT**

During primary and secondary study carried out under present project, 43 tree species, 18 shrub species and 36 herbs/grasses/climbers were recorded in the study area. All the above plant species belong to 23 families of trees, 14 families of shrubs and 19 families of herbs/grasses/climbers. Tree flora was dominated with Mimosaceae (8 species each), shrubs with Verbenaceae and Caesalpiniaceae (2 species each) while Poaceae (11 species) was the leading family in herb/ground layer.

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### **Rare and Endangered Flora**

Expansion of Agriculture land and no prominent natural forest area have led to decline of many valuable plant species and degradation of their habitats. Recorded floral species from the study area were assessed for their conservation status by cross-checking with red data book of Indian plants (Nayar & Sastri, 1987-90) and none of the plant tax were found under RET category.

### **Existence of National Park, Sanctuary, Biosphere Reserve**

There are no Sensitive/Prominent biodiversity (National Park, Wildlife Sanctuary, Biosphere Reserve and Animal Corridor) areas present within the study area of this project.

### **E.3.8 SOCIO-ECONOMIC ENVIRONMENT**

The present socio-economic assessment involves primary field survey of socio-economic status of the people of the study area in general. Review of secondary data, such as District Census Statistical Handbooks-2011 and the records of National Informatics Center data, for the parameters of demography, occupational structure of people within the study area which mainly comprises of the villages, where the project area is located as per revenue records. The information in this context was gathered on the following socio-economic parameters viz.

- Demographic profile
- Educational levels
- Occupational Profile
- Cropping pattern
- Other socio-economic parameters

## **E.4 ENVIRONMENTAL IMPACT IDENTIFICATION AND ASSESSMENT**

Prediction of impacts is the most important component of an EIA study. The prediction of impacts helps to identify the gaps and implementation of environmental management plan during and after the execution of the developmental activity to minimize the deterioration of environmental quality.

The selection of the factors requires due consideration to;

- a) The extent to which the action will cause environmental effects in excess of those created by existing uses in the area affected by it
- b) The absolute quantitative environmental effects of the action itself, including the cumulative harm that results from its contribution to existing adverse conditions or uses in the affected area
- c) The extent to which the proposed action is consistent with local development plans

### **E.4.1 ENVIRONMENTAL PARAMETERS**

The project activities, as a result of interaction with various components of the environment, are

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going to affect them – in a beneficial or adverse way. The components, requiring consideration, are;

- a) Atmosphere
- b) Water (surface water and ground water) resources
- c) Geology and topography
- d) Biological conditions
- e) Ecology
- f) Sound and noise
- g) Human resources
  - i) Social and cultural status
  - ii) Economic conditions
  - iii) Human interests and aesthetics

#### **E.4.2 IMPACT IDENTIFICATION**

The impacts, favorable or adverse, have been assessed in terms of their nature without actually quantifying these (at this stage). As a reference point, existing background environmental setting and “no action” scenario have been used for comparative assessment.

#### **E.4.3 QUANTIFICATION OF SIGNIFICANT IMPACTS**

The significant impact in context of the proposed project, that need to be modeled and quantified, is release of flue gas emissions into the atmosphere and their effect on ground level concentrations of different parameters  $PM_{10}$  and  $PM_{2.5}$ ,  $SO_2$ , and  $NO_x$  in the study area. Thus, modeling for GLC analysis of  $PM_{10}$ ,  $PM_{2.5}$  and  $SO_2$  &  $NO_2$  has been done.

#### **E.4.4 OVERALL IMPACT ASSESSMENT**

An effort has been made to objectively assess the overall environmental impact of the proposed project. Further, in the context of project under study, each parameter has differing importance in their relative contribution to overall impact. The concept of impact weight has been introduced to rate the same. All the parameters have been assigned some numerical value, aggregate of which (for all the parameters) is 100.

The impact value for each parameter is product of corresponding impact weight and impact rating assigned. The summation of all impact values (for all the parameters/determinants) gives summary impact value for the project, ratifying the impending environmental impact of the project.

A positive summary impact value favors the project, whereas, a negative value asks for rejection of project from environmental perspective. The numerical value denotes intensity of overall rating. A good positive aggregate environmental impact value suggests that the project has fair benefits and advantages. The harmful effects are mitigable and manageable. Thus, the assessment favours realization of the proposed project at the suggested site.

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## **E.5 ANALYSIS OF ALTERNATIVES**

As per the standard ToR points issued by MoEF&CC, vide letter No. TO23A2505HR5727238N dated 20th November 2023 (Proposal No. : /HR/IND2/450266/2023 dated 27/10/2023, File No.: IA-J-11011/397/2023-IA-II (I) for the proposed project; the Analysis of Alternatives (Technology & Site) is not required.

The Kaithal Cooperative Sugar Mills Ltd., Kaithal. is proposing new distillery plant adjoining to their existing sugar mill. The proposed distillery project does not required any additional land as the company has already ownership of 135.48 Acres (54.827 ha) industrial land out of which 20 Acres is proposed for new distillery. No alternative site has been analyzed for the proposed project as the proposed site is found suitable for installation of proposed Distillery & Cogeneration Power Plant.

## **E.6 ENVIRONMENTAL MONITORING PLAN**

The environmental monitoring is meant to establish the state and quality of environment, the adequacy of environmental mitigation measures, and the performance of environmental management system in place. It helps in establishing trends in the quality of the environment (its various components), and changes in the same with respect to the baseline reference quality. It may further help in setting overall performance benchmarks. The monitoring can be done by the industry itself or through approved monitoring agency.

The industry would install piezometers at suitable locations in consultations with the State Pollution Control Board for the monthly monitoring of ground water quality at various locations within the industrial premises.

The industry would install a basic laboratory within the premises of the factory for the monitoring of the basic environmental parameters required on daily basis for the ETP and CPU. For this, the industry would acquire the basic equipment required for the laboratory. Besides this, as per the latest requirements of Central Pollution Control Board, the industry would also install online monitoring equipment at the stack and ETP for measurements of various environmental parameters.

## **E.7 ADDITIONAL STUDIES**

### **E.7.1 OCCUPATIONAL HEALTH & SAFETY**

In order to ensure good health of workers, regular health check-up of the plant workers would be carried out. Occupational health surveillance programme will be taken as a regular exercise for all the employees and their record will be maintained.

Production of ethanol involves storage handling and use of several chemicals. Some of these chemicals are toxic and hazardous in nature. Information about these chemicals is therefore important for the safety of the employees and the plant. Besides, the health status of the employees is also important which may be affected due to exposure to these chemicals. The



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exposures may be sudden and accidental or for a long period. In both the cases there will be different health effects. Therefore, safety measures dealing with these chemicals are of vital importance.

## **E.7.2 DISASTER AND EMERGENCY RESPONSE MANAGEMENT**

Disaster, in this context, means a sudden, accidental event that causes many deaths and injuries. Most disasters also result in significant property damage.

Major hazards can be generally associated with the potential of fire, flood, or earthquake. Hazard control system is meant to ensure the avoidance of the hazards, or in case of any mis-happening minimum possible impact on residents and surrounding environment. The project is fire sensitive and accordingly all the suitable arrangements would be made to contain the incident without any damage, if it happens at any time. Adequate, firefighting arrangement at micro level will be provided by the management.

On site emergency management will meet the exigency created due to all Level 1 emergencies. Level 3 emergencies need off-site management plan.

The construction specifications adopted by the promoters significantly incorporate fire-retarding properties. Adequate, firefighting arrangement at micro level will be provided by the promoter. In case of mishap, suitable provisions for emergency evacuation will be incorporated.

Regarding earthquakes, the structures of the project will be got designed to include earthquake resistant features. These will be appropriately incorporated while erection of the structures.

## **E.7.3 OFF-SITE EMERGENCY MANAGEMENT**

The Off-Site disaster management plan is as per the requirement of Schedule 12 of MSIHCRules, 2000. Organizations involved are given below:

- a) City fire services
- b) Police
- c) Hospital
- d) District administration
- e) Regional transport office
- f) Controller of Explosives and Factory Inspectorate
- g) Voluntary organizations
- h) Other industrial installation in the vicinity

## **E.8 PROJECT BENEFITS**

The project would be having many benefits to the state. Some of them are as discussed below:

1. Presently, there is no existing molasses based distillery plant in the surrounding 10 km. radius area. In contrast to this, there are many sugar mills within the 50 km.

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radius area. All the molasses is sold outside the area for its utilization as raw material. By producing the ethanol within the local area, the molasses would be consumed within the local area.

2. The alcohol production would help in achieving the Govt. of India target of making India a 10 % ethanol blended fuel consuming country.
3. The project would give direct employment to more than 40 technical persons, and around 80 full time skilled labor. Besides this there would be contractual labor also.
4. The operation of industry would generate opportunities for the transportation of raw materials, products etc. The local people with transportation facilities would be benefitted with the project.
5. The management of the company would invest funds towards Corporate Social Responsibility as per the Company's Act, 2013. The investment in CSR would benefit the local area as the total funds would be utilized for the public welfare only. The company has constituted a Corporate Social Responsibility Committee as per the section 135 (1) of Companies Act, 2013. The composition of the Corporate Social Responsibility Committee is as follows:
  - a. Shri K. K Tiwari, Chief Chemist
  - b. Shri A. A. Siddhiqui, Member
  - c. Shri Amir Juberi D. Chief Eng., Member
  - d. Pankaj Rathi, D. Chief Chemist

## **E.9 ENVIRONMENTAL MANAGEMENT PLAN**

The environmental management plan (EMP) is meant to ensure that the adverse residual environmental impacts, if any, due to the regular operations of the project, are completely checked or, otherwise, minimized. Further, the EMP also warrant compliance with all the statutory requirements applicable to the project, from time-to-time right from the conception.

While evolving an effective and feasible EMP, due consideration has been accorded to the technological as well as the economic aspects. The EMP addresses the following facts;

- The appropriate mitigation measures
- The monitoring of the state of physical environment internal as well as external to the industry
- Steps to augment environmental capacity building
- The house-keeping practices
- The emergency/disaster management
- The state of socio-economic issues

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### **E.9.1 MITIGATION MEASURES**

As a result of the project related actions, some activities have significant environmental concern. Appropriate mitigation measures have been recommended to take care of these concerns and minimize resulting damage to the environment.

Suitable management and control systems have been planned and measures have been proposed to eliminate or mitigate the adverse impacts and are given below:

- a) Flue gas cleaning
- b) Wastewater treatment and disposal
- c) Multiple Effect Evaporation
- d) Treatment of Condensates
- e) Disposal of treated wastewater
- f) Spent wash storage lagoon
- g) Solid waste management (including fugitive emissions control from ash)
- h) Hazardous Waste Management

### **E.9.2 GREEN BELT DEVELOPMENT**

The industry has the social obligation to recreate the environmental status by providing thick green cover to suppress fugitive emission and provide aesthetic beauty. Trees form the important part of the biosphere in our eco-system. A green belt or tree plantation around the proposed plant shall help to arrest the effects of particulate matter and gaseous pollutants in the area besides playing a major role in environmental conservation efforts. For effective control of air pollutants in and around the proposed industry, a suitable green belt is proposed having an aesthetic appeal. A separate financial budget of Rs. 13,80,000/- would be kept for the green belt development.

### **E.9.3 MANAGEMENT, STAFFING AND CAPACITY DEVELOPMENT**

The efficiency of a system depends not only on the infrastructure but also on the level of commitment from the facility management and the kind of manpower and resources provided for its optimal working.

#### **Staffing**

The industry shall have an environmental, health and safety committee (from amongst the regular staff of the industry), headed by a coordinator (a senior level functionary), who will be adequately trained.

A trained and experienced full-time Manager (Safety, Health and Environment) will be appointed to oversee and control executive authority over the concerning issues.

Trained manpower will be arranged for operation and management of pollution control systems. Capability for routine monitoring of the control systems, for their efficient operation, will be given due importance. It is planned to develop in-house capacity for automated/manual monitoring of

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routine stack emission parameters.

### Training

Suitable training programs will be arranged for the manpower, which are directly responsible for the pollution control systems and emergency response planning, in their respective field/area of responsibility. The training aspects will include plant start-up, shut-down, day-to-day trouble shooting, operational control and management, monitoring requirements and techniques, etc., and more importantly, on emergency response management including first aid. Information will also be imparted on regulatory requirements applicable.

### Budgetary allocation

The commitment has to be in terms of allocation of adequate financial resources, the constraints in which, may result in failure of the overall environmental performance as laid down in the environmental management plan. The facility management have committed to satisfy the budgetary requirements needed to achieve the desired performance levels, without any kind of compromise. An estimated of Rs. 96.00 crores, has been earmarked for implementation of environmental management plan.

## E.10 SUMMARY AND CONCLUSIONS

The proposed project is located in Village Narar, Tehsil Kaithal and District Kaithal. The company already has the ownership of 150 Acres (47.41 ha) industrial land out of which 20.34 Acres is proposed for new distillery. The detailed salient features of the proposed project are presented in

S. No.	Particulars	Details
1.	Nature & Size of the Project	Proposed New Distillery of 120 KLD capacity consisting of B-Heavy Molasses with provision to use Grain for production of Ethanol along with 3.0 MW cogeneration power plant at Village Narar, Tehsil Kaithal District Kaithal, Haryana.
2.	Category of the Project	Sr. No. 5(g); Category 'A'
3.	Location Details	
	Village	Narar (1.15 km)
	Block	Kaithal(05 km)
	Tehsil	Kaithal (05 km)
	District	Kaithal(05 km)
	State	Haryana
	Latitude	29°47'5.20"N
	Longitude	76°27'7.29"E
	Toposheet No.	
4.	Total Plant Area	The company already has the ownership of 150 Acres Industrial land. Out of which 20.34 Acres to be used for proposed Distillery
5.	Greenbelt / Plantation Area	6.8 Acres, i.e. ~33% of the project area will be

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		covered under greenbelt/ plantation
6.	<b>Environmental Setting Details</b>	
	Nearest Village	Narar (1.15 km)
	Nearest Town & City	Kaithal (05 km)
	Nearest National Highway / State Highway	National highway No. 65, Chandigarh-Hisar Road.
	Nearest Railway station	Kaithal Railway Station(3.40km)
	Nearest Airport	Chandigarh Airport, 200 km
	National Parks, Wildlife Sanctuaries, Conservation Reserves, Tiger/Elephant Reserves	No National Parks, Wildlife Sanctuaries, Conservation Reserves, Tiger/Elephant Reserves in 10km radius of Project Site.
	River / Water Body (within 10 km radius)	Sirsa Canal at 3.89 km
7.	Products to be manufactured	Ethanol/RS/ENA –120 KLPD Cogeneration of power – 3 MW
8.	By Products	Fusel oils-56.76KL/Year, Potash Rice Fly ash-3742.33 MT/Year and DDGS-9160 -MT/Year.
09.	Water Requirement & Source	The fresh water requirement for molasses is 759.7 KLPD and 746.33 KLPD for Grain. The water consumption per KL of ethanol is estimated 6 KL / KL B-heavy molasses and grain respectively. The required water shall be available from proposed Bore well.
10.	Quantity of Effluent generation	Spent wash generation is 1698.6 m <sup>3</sup> /Day. Incineration of slop (Spent Wash) is adopted as method of achieving ZERO LIQUID DISCHARGE which is a mandatory provision under the environmental protection act / rules.
11.	Disposal of treated effluent	Concentrated Spent Wash will be used as fuel in Boiler & condensates to be reused for dilution of molasses and cooling tower make-up after treating in CPU.
12.	Details of process emissions	Process emissions from boiler furnace of 30.0 TPH capacity
13.	Proposed air pollution control device along with stack height	Electro Static Precipitator
14.	Cost of the Project: Rs. (in Lakh)	19488.00/-
15.	Working Days	300 days / annum
16.	Man power	About 70 Persons during construction/commissioning and 78 during operation.

**CONSLUSION:** The Kaithal Cooperative sugar mill is proposing New Distillery of 120 KLD capacity consisting of B-Heavy Molasses with provision to use Grain for production of Ethanol along with 3.0 MW cogeneration power plant at Village Narar, Tehsil Kaithal District Kaithal, Haryana. The

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company already has the ownership of 150 Acres (47.41 ha) industrial land out of which 20.34 Acres is proposed for new distillery. The total project cost is estimated to be Rs.19488.00 lakhs. The share capital from the state Govt. is Rs.3897.60 lakh and balance Rs.15590.40 lakh is loan from Bank. There are no national parks, wildlife sanctuaries; biosphere reserves, heritage sites, rivers, tanks, reserve forests etc. are located within 10 Km from the proposed plant boundary. The project can definitely improve the regional, state and national economy. The implementation of this project will definitely improve the physical and social infrastructure of the surrounding area.