



**P-160-SDIPL-DISTILLERY-122019  
(REVISION -01)**

**SUMMARY ENVIRONMENTAL IMPACT ASSESSMENT  
(EIA) REPORT  
(IN ENGLISH AND MARATHI)**

**FOR**

**ESTABLISHMENT OF 105 KLPD MOLASSES/ CANE JUICE  
BASED DISTILLERY**

**BY**

**SHRI DUTT INDIA PVT. LTD.**

**SAKHARWADI, TAL.: PHALTAN,  
DIST.: SATARA, MAHARASHTRA**

**PREPARED BY**



**EQUINOX ENVIRONMENTS (I) PVT. LTD.**

Environmental; Civil & Chemical Engineers, Consultants and Analysts, Kolhapur (MS)

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**An ISO 9001 : 2015 & QCI - NABET Accredited Organization**



**JUNE - 2020**



# Shri Dutt India Private Limited

1st Floor, Arcadia, 195 Nariman Point, Mumbai 400 021. Phone: (022) 2287 4110 / 6615 4450 Fax: (022) 4002 3002

**REF NO.: 45**

**DATE: 24.06.2020**

**To,  
The Member Secretary  
Maharashtra Pollution Control Board (MPCB);  
3<sup>rd</sup> & 4<sup>th</sup> Floor, Kalpataru Point,  
Sion Circle, Sion (E),  
Mumbai - 400 022**

**Sub.:** Application for '**Public Hearing**' to be conducted for establishment of 105 KLPD Molasses/Cane juice based distillery unit by – **Shri Dutt India Pvt. Ltd. (SDIPL)**, located at Gat No. 65/2, 69 & 74, Sakharwadi, Tal.: Phaltan, Dist.: Satara- 415522, Maharashtra.

**Dear Sir,**

We – "**Shri Dutt India Pvt. Ltd.**" have planned to establish 105 KLPD Molasses/Cane juice based distillery unit at Gat No. 65/2, 69 & 74, Sakharwadi, Tal.: Phaltan, Dist.: Satara- 415522, Maharashtra.

Accordingly, an application in Form – 1 format was submitted to the 'Ministry of Environment and Forests (MoEF); New Delhi' for grant of ToR's on 10.05.2020. Refer **Enclosure – I** for Standard ToRs. In the ToR letter, directions were given to conduct Public Hearing w.r.t. our proposed project. Now, in order to conduct Public Hearing, we hereby are submitting all the relevant documents and information to your office.

Along with the Public Hearing application, a draft EIA Report as per the generic structure stipulated in MoEF Notification No. S.O.1533 (E) dated 14.09.2006 and amendments thereto; and Executive Summary Report in two languages (English and Marathi) are enclosed separately. The same provide details of Pollution Control Facilities, Production Processes and Raw Materials as well as Finished Products and Environmental Management Plan (EMP) etc. regarding the unit.

'Twenty Sets' of various documents, as mentioned above and equivalent number of soft copies of same have been submitted for your information and necessary further action.



# Shri Dutt India Private Limited

1st Floor, Arcadia, 195 Nariman Point, Mumbai 400 021. Phone: (022) 2287 4110 / 6615 4450 Fax: (022) 4002 3002

Also, a Demand Draft of Rs. 50,000/- (Rs. One Lakh only) bearing no. \_\_\_\_\_ drawn on dated \_\_\_\_\_ towards the Public Hearing charges, as decided by the govt., has been presented herewith.

Please do the needful and oblige.

Thanking you.

Yours faithfully,

Shri Jeetendra L. Dhary Gujar  
(Managing Director)

**Encl.:** 1. Executive Summary of project  
2. A Draft EIA Report  
3. A D.D. bearing No. \_\_\_\_\_ dated \_\_\_\_\_ drawn on \_\_\_\_\_

## CERTIFICATE

Declaration by Expert contributing to the Draft EIA in respect of proposed establishment of 105 KLPD Molasses/Cane juice based distillery unit. Distillery will be implemented in the existing 1250 TCD sugar factory premises by **Shri Dutt India Pvt. Ltd. (SDIPL)**, located at Sakharwadi, Tal.: Phaltan, Dist.: Satara- 41522, Maharashtra State.

We, hereby, certify that we were a part of the Draft EIA team in the following capacities that developed the above EIA.

**Project No.** P-160-SDIPL-DISTILLERY-122019

**EIA Coordinators**



Name : Dr. Sangram Ghugare





Period of Involvement : September 2019 – February 2020

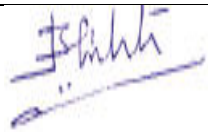




Contact Information : eia@equinoxenvi.com


### Functional Area Expert:

| Sr. No. | Functional Area | Name of the expert/s | Involvement (Period & Task)  | Signature   |
|---------|-----------------|----------------------|--|---|
| 1       | WP              | Mr. Jaydeep Patil    | <b>October 2019 to December 2019</b> <ul style="list-style-type: none"><li>• Study of process and operations</li><li>• Site visit and finalization of water sampling locations</li><li>• Preparation of water balance and identification of wastewater generation.</li><li>• Evaluation of water pollution &amp; control management</li><li>• Identification of impacts, suggestion and finalization of mitigation measures</li><li>• Study on Treatment of effluents through existing ETP and to be upgraded under proposed expansion was contemplated and designs were done accordingly.</li></ul> |   |
| 2       | EB              | Sulakshna Ayarekar   | <b>October 2019 to December 2019</b> <ul style="list-style-type: none"><li>• Selection of Site for conducting ecological &amp; biodiversity status of the study region.</li><li>• Interaction with Govt. offices and agencies for certain secondary data and information pertaining to region specific issues</li><li>• Study of terrestrial fauna by sighting, noting pug-marks, calls, sounds, droppings, nests and burrows etc.</li><li>• Interaction with local residents for obtaining information about various</li></ul>  |  |



| Sr. No. | Functional Area | Name of the expert/s | Involvement (Period & Task)  | Signature   |
|---------|-----------------|----------------------|--|---|
|         |                 |                      | <p>species of animals and birds usually observed their existence and importance in the study region.</p> <ul style="list-style-type: none"> <li>• Review of rules, legislation and criteria towards knowing and understanding inclusion in the study region of any eco-sensitive zones, wild life sanctuary.</li> <li>• Collection, compilation and presentation of the data as well as incorporation of same in to the EIA report.</li> </ul>   |   |
| 3       | SE              | Mr. Rahul Deshmukh   | <p><b>October 2019 to December 2019</b></p> <ul style="list-style-type: none"> <li>• Collection of data on socio-economic aspects in study area through surveys.</li> <li>• Public opinions and recording of events for future industrialization in the study area.</li> <li>• Study of sociological aspects like human settlement, demographic and infrastructural facilities available in study area.</li> <li>• Compilation of primary and secondary data and its inclusion in EIA report.</li> </ul>   |    |
| 4       | AP              | Mr. Yuvraj Damugade  | <p><b>October 2019 to December 2019</b></p> <ul style="list-style-type: none"> <li>• Involved in detailed study of mass balance w.r.t. raw materials &amp; products especially from view point of process emissions.</li> <li>• Site visit and finalization sampling locations.</li> <li>• Planning &amp; identifying the most appropriate air pollution control equipment from view points of efficiencies, capital as well as O &amp; M cost &amp; suitability.</li> <li>• Identification of impact and suggesting the mitigation measures.</li> </ul> |  |
| 5       | AQ              |                      | <p><b>October 2019 to December 2019</b></p> <ul style="list-style-type: none"> <li>• Designing of Ambient AQM network for use in prediction modeling and micro metrological data development.</li> <li>• Development and application of air quality models in prediction of pollutant dispersion.</li> <li>• Plotting of isopleths of GLCs, Worst case scenarios prediction w.r.t. source and receptors.</li> </ul>  |   |

| Sr. No. | Functional Area | Name of the expert/s     | Involvement (Period & Task)  | Signature   |    |     |            |   |   |   |    |                          |  |   |    |
|---------|-----------------|--------------------------|--|---|----|-----|------------|---|---|---|----|--------------------------|--|---|----|
| 6       | HG              | Dr. J.B. Pishte          | <p><b>October 2019 to December 2019</b></p> <ul style="list-style-type: none"> <li>Hydro geological studies, data processing; analysis and evaluation, Ground water table measurement and monitoring network methodology preparation.</li> <li>Planning and scheduling of groundwater sampling stations in the region.</li> <li>Study of geology &amp; general geological configuration of the region as well as sub-surface geology.</li> <li>Determination of impact and suggesting mitigation measures.</li> </ul>  |    |    |     |            |   |   |   |    |                          |  |   |    |
| 7       | GEO             |                          |  |   | 8  | RH  | Mr. Thorat | <p><b>October 2019 to December 2019</b></p> <ul style="list-style-type: none"> <li>All the necessary literature for processes storage of hazardous chemicals was studied before visit.</li> <li>Site visit and Verification of adequacy of on-site emergency preparedness plan for proposed unit was done.</li> <li>Identification of probable emergencies and procedures for preparedness for handling the same was verified.</li> <li>Worst case analysis by using ALOHA, Ware house safety measures, suggestion of mitigation measures.</li> </ul> |  | 9 | NV | Mr. Vinay Kumar Kurakula | <p><b>October 2019 to December 2019</b></p> <ul style="list-style-type: none"> <li>Verification of noise levels Monitoring (both work zone and ambient) in the industrial premises and study region</li> <li>Finalization and verification of sampling locations, ambient noise monitoring stations and the data collected.</li> <li>Land use land cover mapping using NRSC Satellite image.</li> <li>Satellite image processing, Image classification, Technical analysis and study for setting up of facility, planning of storage facility.</li> <li>Detailed study of manufacturing process and mass balance.</li> <li>Solid wastes generation in different steps of manufacturing was identified and their quantification done was checked.</li> <li>Identification of various hazardous wastes generated through manufacturing process.</li> </ul> |  | 10 |
| 8       | RH              | Mr. Thorat               | <p><b>October 2019 to December 2019</b></p> <ul style="list-style-type: none"> <li>All the necessary literature for processes storage of hazardous chemicals was studied before visit.</li> <li>Site visit and Verification of adequacy of on-site emergency preparedness plan for proposed unit was done.</li> <li>Identification of probable emergencies and procedures for preparedness for handling the same was verified.</li> <li>Worst case analysis by using ALOHA, Ware house safety measures, suggestion of mitigation measures.</li> </ul>  |    |    |     |            |   |   |   |    |                          |  |   |    |
| 9       | NV              | Mr. Vinay Kumar Kurakula | <p><b>October 2019 to December 2019</b></p> <ul style="list-style-type: none"> <li>Verification of noise levels Monitoring (both work zone and ambient) in the industrial premises and study region</li> <li>Finalization and verification of sampling locations, ambient noise monitoring stations and the data collected.</li> <li>Land use land cover mapping using NRSC Satellite image.</li> <li>Satellite image processing, Image classification, Technical analysis and study for setting up of facility, planning of storage facility.</li> <li>Detailed study of manufacturing process and mass balance.</li> <li>Solid wastes generation in different steps of manufacturing was identified and their quantification done was checked.</li> <li>Identification of various hazardous wastes generated through manufacturing process.</li> </ul> |  |    |     |            |   |   |   |    |                          |  |   |    |
| 10      | LU              |                          |  |   | 11 | SHW |            |   |   |   |    |                          |  |   |    |
| 11      | SHW             |                          |  |   |    |     |            |   |   |   |    |                          |  |   |    |

| Sr. No. | Functional Area | Name of the expert/s   | Involvement (Period & Task)  | Signature   |
|---------|-----------------|------------------------|--|---|
|         |                 |                        | <ul style="list-style-type: none"> <li>Practices of storage and disposal of HW its impact and mitigation measures.</li> </ul>  |   |
| 12      | SC              | Mr. Ratnakumar Mudliar | <p><b>October 2019 to December 2019</b></p> <ul style="list-style-type: none"> <li>Involvement physical analysis &amp; characterization of the soils.</li> <li>Identification of Impact and its mitigation measures.</li> <li>Interpretation of soil analysis, results and data including comparison of same with standard soil classification.</li> <li>Collection, study and evaluation of soil information from data obtained from secondary sources &amp; its interpretation.</li> </ul> |  |

Declaration by the Head of the Accredited Consultant Organization/authorized person:

I, **M/s. Equinox Environments (I) Pvt. Ltd. (EEIPL); Kolhapur, Environmental & Civil Engineers, Consultants and Analysts.**, hereby confirm that the above mentioned experts were involved in preparation of Draft EIA and Executive Summary in respect of proposed establishment of 105 KLPD Molasses/Cane juice based distillery unit. Distillery will be implemented in the existing 1250 TCD sugar factory premises by **Shri Dutt India Pvt. Ltd. (SDIPL)**, located at Sakharwadi, Tal.: Phaltan, Dist.: Satara- 415522, Maharashtra State.

I also confirm that the consultant organization shall be fully accountable for any mis-leading information mentioned in this statement.

Signature:



**Name:** Dr. Sangram Ghugare

**Designation:** Chairman & MD

**Name of the EIA Consultant Organization:** M/s. Equinox Environments (I) Pvt. Ltd. (EEIPL); Kolhapur.

**NABET Certificate No. & Issue Date:** NABET/EIA/1821/ RA 0135 dated 02.06.2019

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**Summary of Draft EIA Report  
for  
Establishment of 105 KLPD Molasses/Cane Juice Based Distillery  
in the Existing 1250 TCD Sugar Factory premises of  
Shri Dutt India Pvt. Ltd., (SDIPL)**

Gat No. 65/2, 69 & 74, Sakharwadi, Tal.: Phaltan, Dist.: Satara- 415522, Maharashtra

**1) THE PROJECT**

**Shri Dutt India Pvt. Ltd., (SDIPL)** is located at Gat No. 65/2, 69 & 74, Sakharwadi, Tal.: Phaltan, Dist.: Satara- 415522, Maharashtra state. Industry is having existing 1250 TCD Sugar factory. Now, the management of SDIPL have planned to establish 105 KLPD molasses/cane juice based Distillery unit in the existing Sugar factory premises.

This report is made in the overall context of Environmental Impact Assessment (EIA) Notification No. S. O. 1533 (E) dated 14.09.2006 and amendments thereto issued by the Ministry of Environment, Forest and Climate Change (MoEFCC); New Delhi Project type 5(g)(i) & (g)(ii), **Category A**. Accordingly, Form 1 application is submitted to MoEFCC; New Delhi on 10.05.2020.

Details of capital investment are given in table 1.

**Table 1 Project Investment Details**

| No. | Industrial unit | Capital Investment (Rs. Cr.) |          |
|-----|-----------------|------------------------------|----------|
|     |                 | Existing                     | Proposed |
| 1   | Sugar           | 73.96                        | --       |
| 2   | Distillery      | --                           | 80.0     |
|     | Total           | Rs. 153.96 Cr.               |          |

**2) THE PLACE**

Proposed project would be implemented in the existing sugar factory premises of SDIPL. Total land acquired by the industry is 3,28,885.0 Sq. M. (32.8 Ha).

Initially, sugar factory '**The Phaltan Sugar Works Ltd.**' (TPSWL) was registered as private limited company in the year 1933 (Amalgamation unit). The land before establishment of the Sugar Factory procured by TPSWL was fallow. First crushing season of sugar factory was undertaken in Feb. 1934 with crushing capacity 400TCD. In 1950 crushing capacity was expanded up to 800 TCD along with addition of mill & boiler. Due to availability of excess cane in command area, crushing capacity was increased up to 1250 TCD in the year 1969. Then, in the year 1985, the industry was registered as '**New Phaltan Sugar Works Ltd.**' (NPSWL) under single management & was operated with the same capacity up to March 2018. Afterward, the industry was non-operative for a year due to financial problems. Then, the industry was taken over by the management of '**Shri Dutt India Pvt. Ltd. (SDIPL)**', in the year 2019. Now, the management of **Shri Dutt India Pvt. Ltd.** has decided to establish an 105 KLPD Molasses/Cane juice based distillery unit at Gat No. 65/2, 69 & 74, Sakharwadi, Tal.: Phaltan, Dist.: Satara, Maharashtra State.

Detailed area break-up is presented at Table 2.

**Table 2 Area Break up**

| No. | List of area  | Existing          | Proposed | Total             |
|-----|---|-------------------|----------|-------------------|
|     |   | (Sq.M)            | (Sq.M)   | (Sq.M)            |
| 1   | Total Plot Area   | 3,28,885.0        | --       | <b>3,28,885.0</b> |
| 2   | Built-up Area   |                   |          |                   |
|     | i. Sugar factory  | 22,368.0          | --       | 22,368.0          |
|     | ii.Total area of other utilities & amenities like water tank, spray pond etc. | 7,210.0           | --       | 7,210.0           |
|     | iii. Proposed Distillery  | --                | 13850    | 13,850            |
|     | <b>Total Built-up</b>   |                   | --       | <b>43,428.0</b>   |
| 3   | Green Belt Area   | 52,625.0          | 55,907.0 | <b>1,08,532.0</b> |
| 4   | Area under roads, residential quarters & open spaces                          | <b>1,76,925.0</b> | --       | <b>1,76,925.0</b> |

Refer **Appendix - A** of Draft EIA report for plot layout plan of SDIPL.

### 3) THE PROMOTERS

SDIPL promoters are well experienced in the field of sugar factory & distillery & have made thorough study of entire project planning as well as implementation schedule. Name and designation of the promoters are as under-

**Table 3 List of Promoters**

| No. | Name                       | Designation       |
|-----|----------------------------|-------------------|
| 1   | Shri Jeetendra Dharu Gujar | Managing Director |
| 2   | Priti Ruparel              | Director          |
| 3   | Shri Premji Ruparel        | Director          |
| 4   | Shri Parikshit Ruparel     | Director          |

### 4) THE PRODUCTS

Details of products and by-products are presented in Table 4.

**Table 4 Product & By-product for Integrated Complex**

| Industrial Unit                                      | Product & By-product                                      | Unit | Quantity |
|--|---|------|----------|
| <b><sup>s</sup>Existing Sugar Factory (1250 TCD)</b> | Sugar(12%)*   | MT/D | 150      |
|  | <b>By-Product</b>   |      |          |
|  | Bagasse (32%)*  | MT/D | 400      |
|  | Press Mud (3.5%)*   | MT/D | 45       |
|  | Molasses (4%)*  | MT/D | 52       |
| <b>Proposed Distillery Unit (105 KLPD)</b>           | <b>Products</b>   |      |          |
|  | Rectified Spirit (RS)/Extra Neutral Alcohol (ENA)/Ethanol | KLPD | 105      |
|  | <b>By-Product</b>   |      |          |
|  | Fusel Oil   | MT/D | 0.2      |
|  | CO <sub>2</sub>   | MT/D | 87       |
|  | Spentwash Dry Powder                                      | MT/D | 127      |

NOTE- \$ : Values as per valid CFO, \*: Percent of Cane Crushed.

Details of manufacturing process and flow chart for sugar factory and distillery are given in Chapter 2 of the EIA Report.

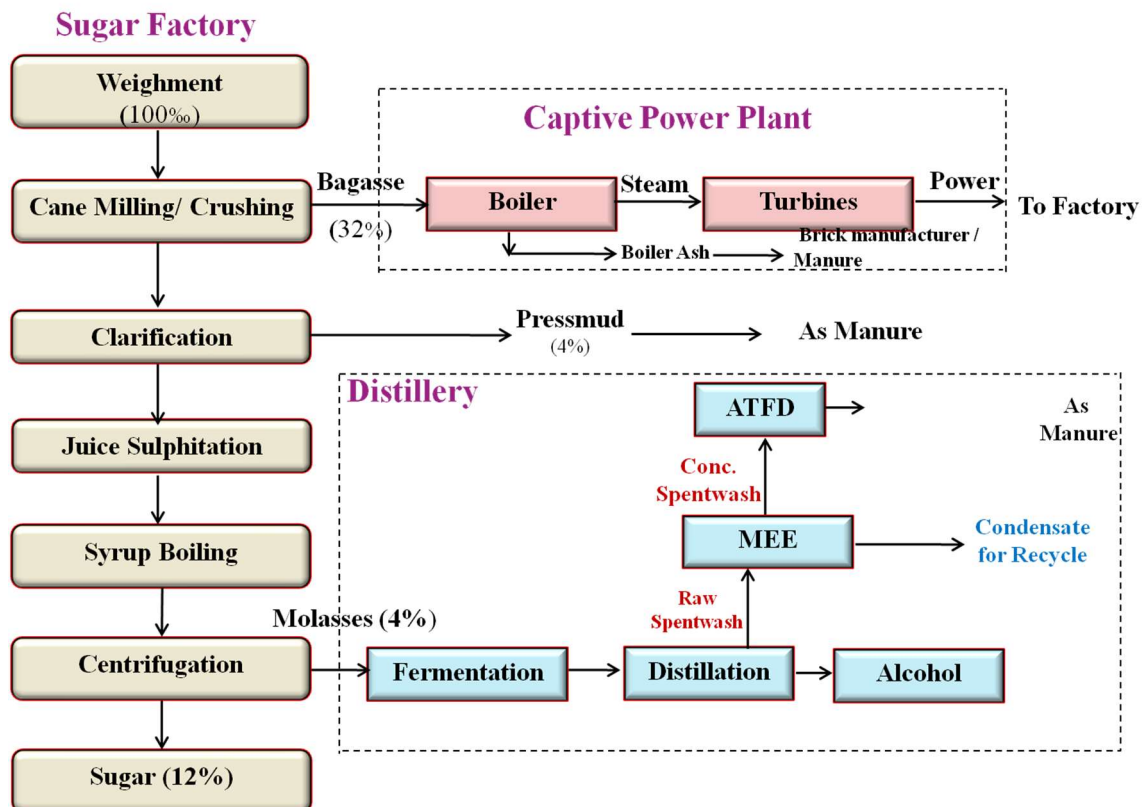
### 5) THE PURPOSE

Sugarcane potential, agro-climatic conditions, cost of conversion & overheads etc are the major deciding factors for fixing the crushing capacity of sugar factory. Today, sugar factories cannot survive in healthy condition on a single product i.e. sugar. Thus, it is essential to develop sugar factory into an affiliated complex so as to utilize the valuable by-products more profitably. Bagasse based cogeneration of steam and electricity has been practiced since long time in sugar mills. Molasses is also another important by-product of the sugar industry. Alcohol has assumed very important place in the Country's economy. It is a vital raw material for a number of chemicals and also a renewable source of energy. It has been a source of a large amount of revenue by way of excise duty levied by the Govt. on alcoholic liquors. It has a potential as fuel in the form of power alcohol for blending with petrol. Also, the fermentation alcohol has great demand in countries like Japan, U.S.A., Canada, Sri Lanka etc., as the synthetic alcohol produced by these countries, from naphtha of petroleum crude, is not useful for beverages. Considering the above facts as well as availability of raw material, management of SDIPL decided for establishment of distillery.

### 6) MANUFACTURING PROCESS

Detailed manufacturing process and flow diagram for sugar factory & distillery unit are given in Chapter 2 of EIA report. Manufacturing process of integrated project complex is presented at Figure 1.

**Figure 1 Integrated Manufacturing Process Operations**



## 7) ENVIRONMENTAL ASPECTS

SDIPL have an effective 'Environmental Management Plan' and various aspects of the same are as follows:-

### A. Water Use, Effluent Generation and its Treatment

#### a. Water Use

Details of water usage for the Sugar factory & Distillery operations are as follows –

**Table 5 Details of Water Consumption in Existing Sugar Factory**

| No.      | Description   | Water Consumption (M <sup>3</sup> /Day)                          |
|----------|---|--|
| <b>1</b> | <b>Domestic</b>   | 20 <sup>#</sup>  |
| <b>2</b> | <b>Industrial</b>   |  |
| a)       | Process   | 330*   |
| b)       | Cooling Make up   | 50*  |
| c)       | Boiler  | 73*  |
| d)       | DM Plant  | 15 <sup>#</sup>  |
| e)       | Lab & Washing   | 3*   |
| f)       | Ash quenching   | 2 <sup>Ω</sup>   |
|          | <b>Industrial Total</b>                                       | <b>473 (456*+15<sup>#</sup>+2<sup>Ω</sup>)</b><br>(100% Recycle) |
| 3        | Gardening   | 50 <sup>Ω</sup>  |
|          | <b>Grand Total</b>  | <b>543 (456*+35<sup>#</sup>+52<sup>Ω</sup>)</b>                  |
|          | Fresh Water Consumption<br>(Norm: 100 Lit/MT of Cane Crushed) | 12 lit.  |

**Note :** # Fresh water from River Nira \* Sugarcane condensate  
Ω Treated water from ETP

**Table 6 Details of Water Consumption in Proposed Molasses Distillery Unit  
(During Sugarcane Crushing & Non- Crushing Season Days)**

| No.      | Description  | Water Consumption (M <sup>3</sup> /Day)                            |   |
|----------|--|--|---|
|          |  | Crushing Season (150 Days)   | Non-Crushing Season (180 Days)                        |
| <b>1</b> | <b>Domestic</b>  | 5 <sup>#</sup>   | 5 <sup>#</sup>  |
| <b>2</b> | <b>Industrial</b>                                      |  |   |
| a)       | Process (Fermentation Dilution)                        | 900*   | 900*  |
| b)       | Cooling Make up  | 525<br>(116*+ 169* + 240 <sup>#</sup> )                            | 525 (116*+ 409 <sup>#</sup> )                         |
| d)       | DM Plant   | 15 <sup>#</sup>  | 15 <sup>#</sup>                                       |
| e)       | Lab & Washing  | 5 <sup>#</sup>   | 5 <sup>#</sup>  |
|          | <b>Industrial Total</b>                                | <b>1445 (1016*+169*+260<sup>#</sup>)</b><br>(82% Recycle)          | <b>1445 (1016*+ 429<sup>#</sup>)</b><br>(70% Recycle) |
| 3        | Gardening  | 23 (19*+4 <sup>\$</sup> )  | 23 (19*+4 <sup>\$</sup> )                             |
|          | <b>Grand Total</b>                                     | <b>1473</b><br><b>(1035*+169*+ 265<sup>#</sup>+4<sup>\$</sup>)</b> | <b>1473 (1035*+ 434<sup>#</sup>+4<sup>\$</sup>)</b>   |
|          | Fresh Water Consumption<br>(Norm: 10 KL/KL of Alcohol) | 2 KL   | 4 KL  |

**Note :** # Fresh water from Nira River \* Sugarcane condensate  
\$ Treated water from STP ♣ Treated Water from Distillery CPU

**Table 7 Details of Water Consumption in Proposed Cane Juice Distillery Unit  
(During Sugarcane Crushing Season – 150 Days)**

| No. | Description  | Water Consumption (M <sup>3</sup> /Day)                   |
|-----|--|---|
| 1   | <b>Domestic</b>  | 5 <sup>#</sup>  |
| 2   | <b>Industrial</b>                                      |   |
| a)  | Process  | --  |
| b)  | Cooling Make up  | 525 <sup>*</sup>  |
| c)  | DM Plant   | 15 <sup>*</sup>   |
| d)  | Lab & Washing  | 5 <sup>*</sup>  |
|     | <b>Industrial Total</b>                                | <b>545<sup>*</sup></b><br>(100 % Recycle)                 |
| 3   | Gardening  | 23 (19 <sup>*</sup> +4 <sup>\$</sup> )                    |
|     | <b>Grand Total</b>                                     | <b>573 (564<sup>*</sup>+5<sup>#</sup>+4<sup>\$</sup>)</b> |
|     | Fresh Water Consumption<br>(Norm: 10 KL/KL of Alcohol) | 0 KL  |

**Note :** # Fresh water from Nira River    \* Treated Water from Distillery CPU  
\$ Treated water from STP

For more details about water budget refer Chapter 2 Section 2.7.1 of EIA report.

**Sugarcane Condensate Balance:**

**Table 8 Cane Condensate Balance**

| No. | Description                                     | Quantity (CMD)                           |
|-----|---|--|
| 1.  | Cane crushing capacity                          | 1250 TCD                                 |
| 2.  | Cane condensate- 50%<br>(by considering losses) | 625 CMD                                  |
| 3.  | Condensate for sugar factory                    | 456 CMD<br>(Imbibition 300+ Process 156) |
| 4.  | Excess Condensate                               | 169 CMD                                  |

**i. Effluent Treatment-**

Effluent generated from existing Sugar & proposed Distillery unit is given in following table-

**Table 9 Effluent Generation from Existing Sugar Factory**

| Description                         | Effluent (M <sup>3</sup> /Day) | Disposal  |
|-------------------------------------|--------------------------------|---|
| <b>1. Domestic</b>                  | 18                             | Presently treated in septic tanks.<br>After distillery establishment, will be treated in proposed STP               |
| <b>2. Industrial</b>                |                                |   |
| a)Process                           | 40                             | Treated in existing ETP having primary & secondary treatment units; used for green belt & gardening in own premises |
| b)Cooling Blowdown                  | 5                              |   |
| c)Boiler Blowdown                   | 15                             |   |
| d)DM Backwash                       | 15                             |   |
| e)Lab & Wash Effluent               | 3                              |   |
| <b>Industrial Total (a+b+c+d+e)</b> | <b>78</b>                      |   |



**Table 10 Effluent Generation from Distillery Unit**

| No. | Description            | Effluent (CMD)                             |  | Disposal   |
|-----|------------------------|--|--|--|
|     |                        | Molasses based                             | Cane Juice/ Syrup based                  |  |
| 1   | Domestic               | 4  | 4  | To be treated in proposed STP  |
| 2   | Industrial             |  |  |  |
|     | a. Process             | Raw Sp. Wash- 840                          | Raw Sp. Wash- 420                        | Raw spentwash shall concentrated in Multi Effect Evaporator (MEE). Conc. Spentwash (1.7 KL/KL) shall be dried for powder formation (ATFD).<br>Other Effluents viz. condensate, spent lees, cooling b/d, boiler b/d, lab & washing effluent shall be forwarded to Distillery CPU. Treated effluent shall be fully recycled to achieve Zero Liquid Discharge (ZLD) |
|     |                        | Conc. – 183                                | Conc. – 84                               |  |
|     |                        | Sp. Lees – 231                             | Sp. Lees – 97                            |  |
|     |                        | Condensate-750<br>(657 MEE+93 ATFD)        | Condensate-368<br>(336 MEE+ 32 ATFD)     |  |
|     |                        |  |  |  |
|     | b. Cooling blowdown    | 55   | 55                                       |  |
|     | c. DM Backwash         | 15   | 15                                       |  |
|     | d. Lab & Wash effluent | 5  | 5  |  |
|     |                        | <b>Sp. Wash- 183<br/>Other Effl.- 1056</b> | <b>Sp. Wash- 84<br/>Other Effl.- 540</b> |  |

**i) Domestic Effluent**

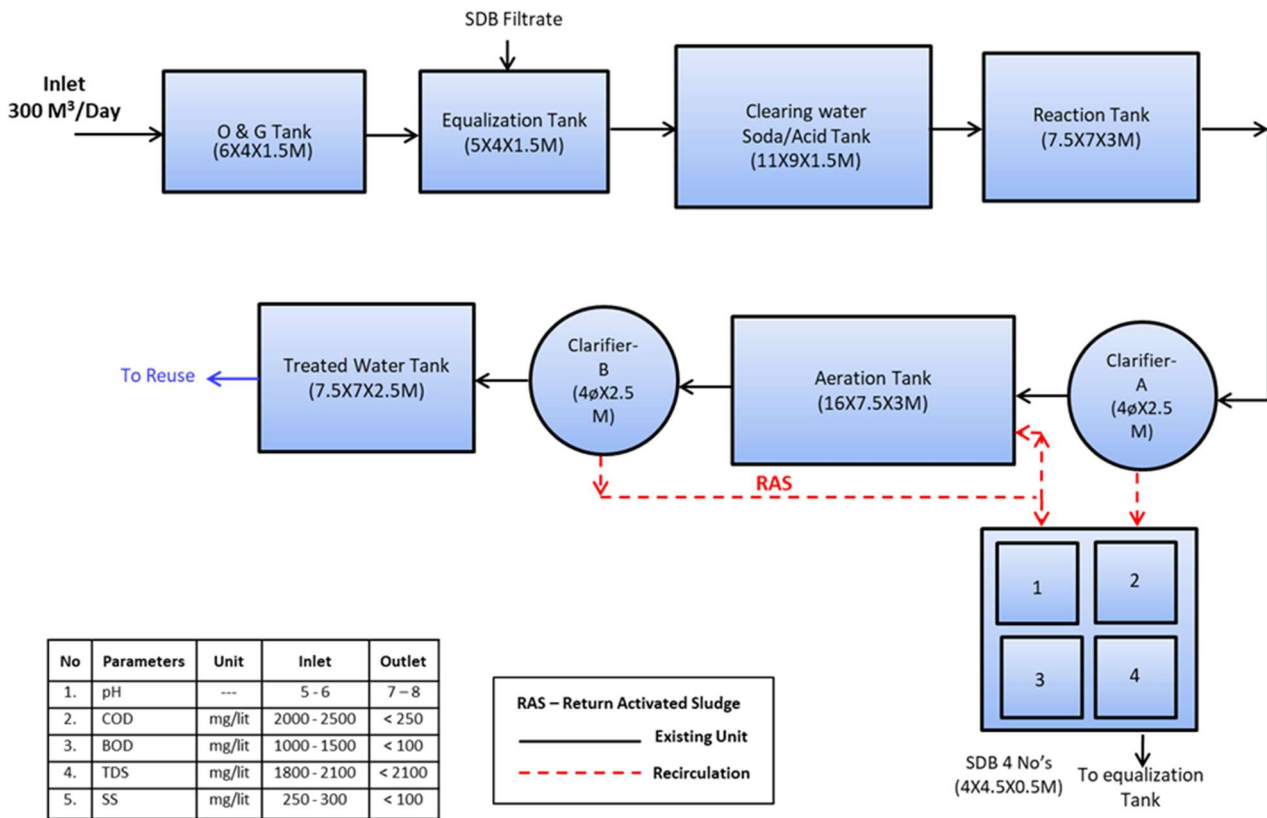
Domestic effluent from existing sugar factory is 18 M<sup>3</sup>/D, same is being treated separately in septic tank followed by soak pits. After implementation of distillery unit, total domestic effluent from SDIPL campus will be 22 M<sup>3</sup>/D (Domestic effluent from sugar factory – 18 M<sup>3</sup>/D & molasses base distillery 4 M<sup>3</sup>/D). Same will be treated in proposed Sewage Treatment Plant (STP) of 20 CMD capacity and treated effluent will be reused for flushing and also used for gardening.

**ii) Industrial Effluent**

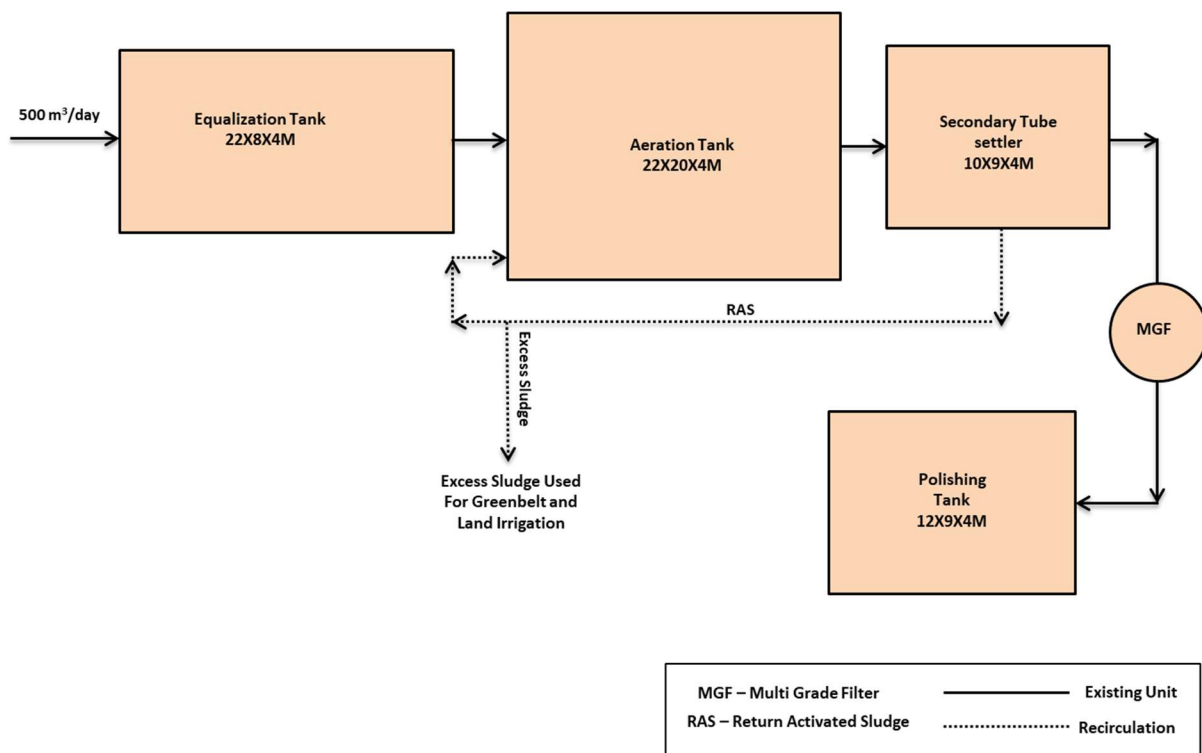
Total trade effluent generated from existing sugar activities is 78 M<sup>3</sup>/D. Same is treated in existing Effluent Treatment Plant (ETP) provided in own factory premises having capacity 300 M<sup>3</sup>/D comprising of primary & secondary unit operations.

From proposed molasses distillery unit, raw spentwash about 840 M<sup>3</sup>/D will be generated. Here, raw spentwash will be concentrated in Multi Effect Evaporator (MEE). Concentrated spentwash @ 183 M<sup>3</sup>/D will be dried for powder formation (ATFD). Other effluents viz. spent lees @ 231 M<sup>3</sup>/D, MEE condensate @ 750 M<sup>3</sup>/D(657 MEE+93 ATFD), cooling & cooling blow down @ 55 M<sup>3</sup>/D and lab-wash & DM backwash @ 20 M<sup>3</sup>/D will be treated in proposed CPU. Treated water from CPU will be reused for industrial operations, thereby achieving Zero Liquid Discharge (ZLD) for process effluent.

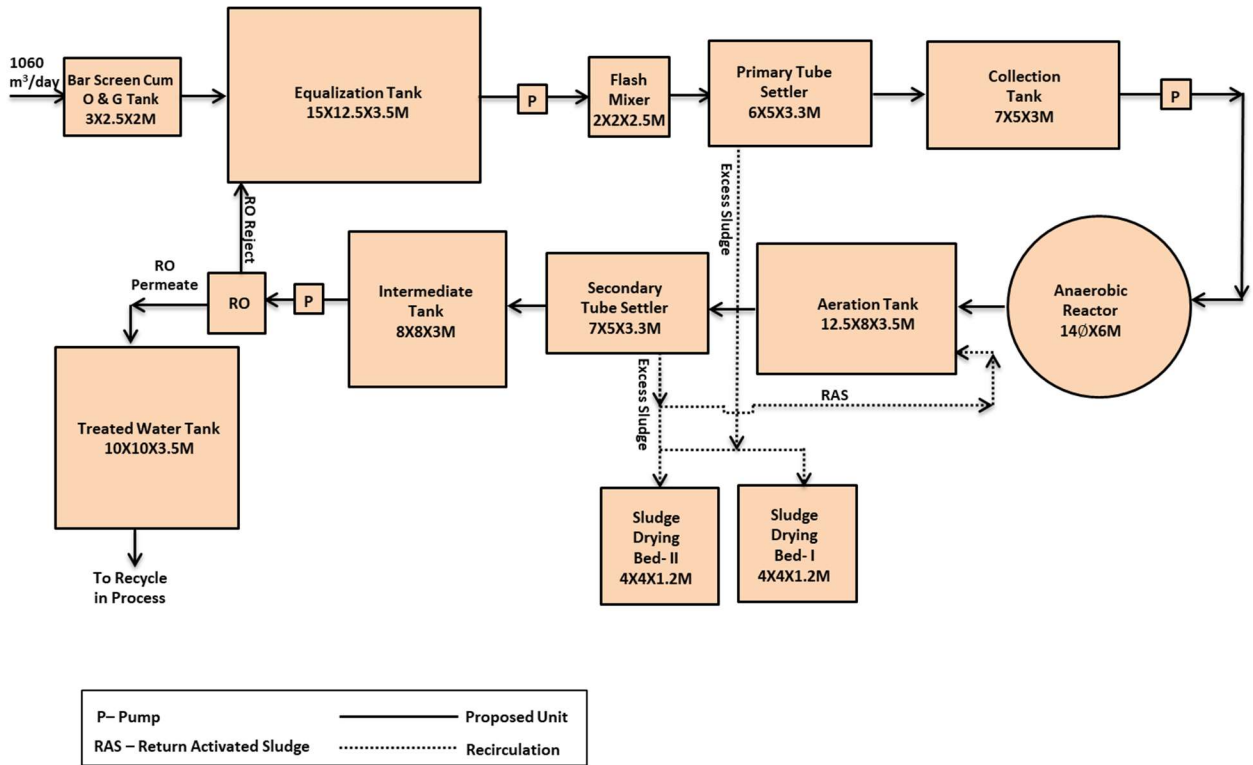
**Figure 2 Flow Chart of Proposed Sugar Factory ETP**



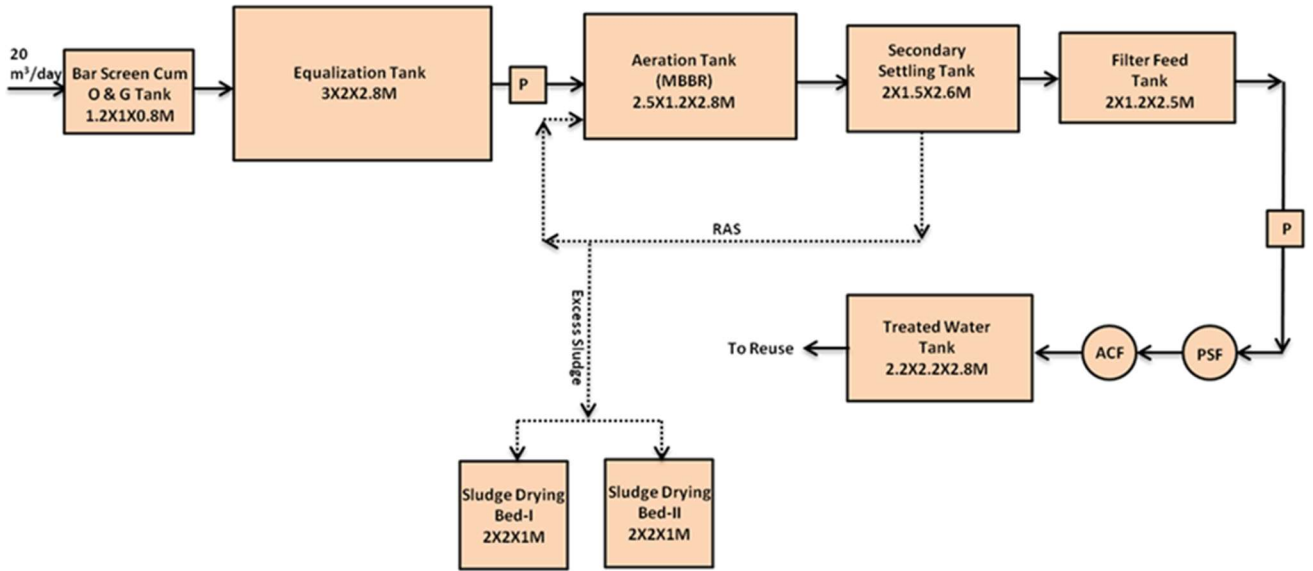
**Figure 3 Flow Chart of Sugar Factory CPU (Proposed)**



**Figure 4 Process Flow Diagram of Proposed CPU for Distillery**



**Figure 5 Flow Chart of Proposed STP**



| No | Parameters | Unit   | Inlet     | Outlet    |
|----|------------|--------|-----------|-----------|
| 1. | pH         | ---    | 6.5 - 7.5 | 7.2 - 7.5 |
| 2. | COD        | mg/lit | 500 - 600 | < 30      |
| 3. | BOD        | mg/lit | 250 - 300 | < 10      |
| 4. | TSS        | mg/lit | 250 - 400 | < 5       |
| 5. | O & G      | mg/lit | 25 - 50   | < 10      |

PSF – Pressure Sand Filter  
 ACF – Activated Carbon Filter  
 RAS – Return Activated Sludge  
 P – Pump  
 ——— Proposed Unit  
 ..... Recirculation Line

## B. Air Emissions

Under existing activity, 2 boilers of 28 TPH & 55 TPH capacity & 2 DG sets of 500 KVA & 380 KVA are installed on site. Boiler is provided with Wet scrubber as Air Pollution Control (APC) equipment followed by stack height of 22M & 45M AGL. Moreover, under establishment of distillery, steam required for proposed activities of distillery unit will be taken from existing boilers of sugar factory.

There will be process emissions in the form CO<sub>2</sub> from Fermenters in distillery unit to the tune of 87 MT/D. Same will be collected, purified, compressed and filled in cylinders and sold for production of beverages. Following table gives details of boilers and D.G. Set.

**Table 11 Details of Boiler and Stack in SDIPL**

| No. | Description   | Details of Boiler |              | DG Set      |             |
|-----|---------------|-------------------|--------------|-------------|-------------|
|     |               | Boiler 1          | Boiler 2     | Existing    |             |
| 1   | Capacity      | 28 TPH            | 55 TPH       | 500 KVA     | 380 KVA     |
| 2   | Fuel type     | Bagasse           | Bagasse      | Diesel      | Diesel      |
| 3   | Fuel Qty.     | 264 MT/D          | 528 MT/D     | 90 Lit./Hr. | 65 Lit./Hr. |
| 4   | MOC           | R.C.C             | R.C.C        | MS          | MS          |
| 5   | Shape         | Round             | Round        | Round       | Round       |
| 6   | Height        | 22 M              | 45 M         | 5 M (ARL)   | 3 M (ARL)   |
| 7   | Diameter      | 1.8 M             | 2 M          | 150 mm      | 150mm       |
| 8   | APC Equipment | Wet Scrubber      | Wet Scrubber | --          | --          |

Details of air pollution aspect and the control measures are given in Chapter 2, Section 2.7.2.

## C. Noise Pollution Aspect

### 1. Sources of Noise

- i. In the distillery, very high noise generating sources would not exist. Expected noise levels in the section would be about 70 dB (A) or so. Adequate noise abatement measures like silencer & maintenance of pumps, motors, and compressors would be carried out and enclosures would be provided to abate noise levels at source. Moreover, enclosures to the machinery would be provided wherever possible.
- ii. Fermentation section & distillation section would be the other minor noise generating sources. The expected noise levels in these sections would be in range of 70 to 80 dB(A).
- iii. Existing sugar factory and co-gen; noise-generating sources are the boiler house, turbine rooms, cane crushing section and mill house, etc.
- iv. Adequate green would be developed in phase wise manner in and around the industry. So that it would further attenuate the noise levels.

### 2. Control Measures

Control through isolation, separation and insulation techniques. PPEs like earmuffs, earplugs etc. will be provided to workers. D.G. Sets are enclosed in a separate canopy to reduce the noise levels.

## D. Hazardous Wastes

Different types of hazardous wastes being generated from existing & proposed unit alongwith disposal methods are presented in Table 12.

**Table 12 - Details of Hazardous Waste**

| No. | Industrial Unit                 | Category                             | Quantity      | Disposal                             |
|-----|---------------------------------|--------------------------------------|---------------|--------------------------------------|
| 1   | Sugar Factory & Distillery Unit | Spent Oil – Cat.5.1                  | 0.8 MT/Yr.    | Forwarded to authorized re-processor |
|     |                                 | Contaminated Cotton Waste- Cat. 33.3 | 0.3 MT/Yr.    |                                      |
|     |                                 | Empty Containers- Cat. 33.1          | 30 Nos. / Yr. | Forwarded to authorized re-seller    |

**E. Solid Wastes****Table 13- Details of Solid Waste**

| No. | Unit                       | Type                 | Quantity (MT/M) | Disposal                                   |
|-----|----------------------------|----------------------|-----------------|--|
| 1   | Sugar Factory (Existing)   | ETP Sludge           | 4               | Used as Manure                             |
|     |                            | Boiler Ash (Bagasse) | 600             | Supplied to Brick manufacturer / as manure |
| 2   | Distillery Unit (Proposed) | Yeast Sludge         | 720             | Used as manure                             |
|     |                            | CPU Sludge           | 25              |  |

Agreement with brick manufacturers will be done after commissioning of distillery unit.

**F. Odour Pollution**

There are number of odour sources such as molasses handling and storage, fermentation and distillation, secondary effluent treatment, and storage of effluents, stale cane, bad mill sanitation, bacterial growth in interconnecting pipes & unattended drains. Measures adopted under existing unit for controlling same are proper housekeeping, sludge management in biological ETP units, steaming of major pipe lines, regular use of bleaching powder in the drains, efficient handling, prompt & proper disposal of press mud. Under proposed project of distillery, spentwash shall be carried through closed pipeline for spentwash storage and handling activity shall be entirely eliminated.

**G. Compliance with the Norms**

All the relevant acts, rules and guidelines with respect to effluent treatment and disposal, solid& hazardous wastes handling and disposal as well as in respect of emission handling and disposal, wherever applicable, as specified by the CPCB/ MPCB or any other concerned authority are strictly followed in the existing set up. Same practice shall be continued after implementation of proposed project activities.

**H. Environmental Management Cell (EMC)**

Industry is already having an EMC functioning under its sugar factory. Members of the EMC are well qualified and experienced in their concerned fields. This cell shall be further augmented suitably after establishment of distillery unit. The existing and proposed EMC members are as under.

**Table 14 Environmental Management Cell of SDIPL**

| No. | Designation                           | Number (s) |
|-----|---------------------------------------|------------|
| 1   | Chairman                              | 1          |
| 2   | Managing Director                     | 1          |
| 3   | General Manager                       | 1          |
| 4   | Environmental Officer                 | 1          |
| 5   | Safety Officer                        | 1          |
| 6   | Chief Chemist                         | 1          |
| 7   | Representative of Consultant          | 1          |
| 8   | Lab Chemist                           | 3          |
| 9   | ETP, CPU Operators & Supporting Staff | 4          |



Details of capital as well as O & M costs towards environmental aspects under the existing sugar, co-generation setup & proposed distillery are as follows –

**Table 15 Capital as well as O & M Cost under Existing & Proposed unit**

| No.      | Description   | Cost Component (Rs. Lakhs) |              |
|----------|---|----------------------------|--------------|
|          |   | Capital                    | O & M / Year |
| <b>A</b> | <b>Existing</b>   |                            |              |
| 1        | APC Equipments – Wet Scrubber (2 nos.), Stack (2nos.- 22 & 45 M), Ash collection system | 200.0                      | 50.0         |
| 2        | Water Pollution Control - ETP & CPU (Prop.)   | 250.0                      | 30.0         |
| 3        | Noise Pollution Control   | 10.0                       | 2.0          |
| 4        | Solid Waste Management  | 10.0                       | 2.0          |
| 5        | Occupational Health and Safety  | 20.0                       | 2.0          |
| 6        | Green Belt Development  | 30.0                       | 5.0          |
| 7        | Environmental Monitoring & Management   | 15.0                       | 2.0          |
|          | <b>Total</b>  | <b>535.0</b>               | <b>93.0</b>  |
| <b>B</b> | <b>Proposed</b>   |                            |              |
| 1        | Water Pollution Control – CPU, MEE & ATFD   | 300.0                      | 50.0         |
| 2        | Noise Pollution Control   | 10.0                       | 2.0          |
| 3        | Occupational Health & Safety  | 30.0                       | 5.0          |
| 4        | Green Belt Augmentation Plan & Rain Water Harvesting implementation                     | 60.0                       | 10.0         |
| 5        | Environmental Monitoring & Management   | 20.0                       | 5.0          |
| 6        | CER provision in 5 Years after grant of EC  | 160.0                      | --           |
|          | <b>Total</b>  | <b>580.0</b>               | <b>72.0</b>  |

### I. Rainwater Harvesting Aspect

- Total area of Plot – 3,28,885.0 M<sup>2</sup>
- Total Available Area – 1,75,425 M<sup>2</sup>
- Average annual rainfall in the area = 486 mm

#### A Roof Top Harvesting-

$$\begin{aligned} \text{RWH Quantity} &= 1000 \text{ M}^2 \times 0.48 \text{ M} \times 0.8 \\ &= \mathbf{384 \text{ M}^3} \end{aligned}$$

#### B Surface Water Harvesting –

$$\begin{aligned} \text{1. RWH Quantity from Green Belt} &= 1,08,532 \text{ M}^2 \times 0.48 \text{ M} \times 0.3 \\ &= 15628.60 \text{ M}^3 \end{aligned}$$

$$\begin{aligned} \text{2. RWH Quantity from Roads} &= 1500 \text{ M}^2 \times 0.48 \text{ M} \times 0.5 \\ &= 360 \text{ M}^3 \end{aligned}$$

$$\begin{aligned} \text{3. RWH Quantity from Open Space} &= 1,75,425 \text{ M}^2 \times 0.48 \text{ M} \times 0.3 \\ &= 25261.2 \text{ M}^3 \end{aligned}$$

$$\begin{aligned} \text{Total RWH from Surface Area} &= 15,628.60 \text{ M}^3 + 360 \text{ M}^3 + 25,261.2 \text{ M}^3 \\ &= \mathbf{41,249.8 \text{ M}^3} \end{aligned}$$

Hence, the total water becoming available after rooftop and land harvesting will be

$$\begin{array}{rcl}
 \text{Rooftop Harvesting} & + & \text{Surface Harvesting} & = & \text{Total RWH} \\
 384 \text{ M}^3 & + & 41,249.8 \text{ M}^3 & = & 41,633.8 \text{ M}^3 \\
 & & & = & 41.6 \text{ ML}
 \end{array}$$

Total water from harvesting when charged to open / bore wells would have positive impact on the ground water quantity.

#### a. The Green Belt

**Table 16 Area Details**

| No. | List of area  | Existing          | Proposed | Total             |
|-----|---|-------------------|----------|-------------------|
|     |   | (Sq.M)            | (Sq.M)   | (Sq.M)            |
| 1   | Total Plot Area   | 3,28,885.0        | --       | <b>3,28,885.0</b> |
| 2   | Built-up Area   |                   |          |                   |
|     | i.Sugar factory   | 22,368.0          | --       | 22,368.0          |
|     | ii.Total area of other utilities & amenities like water tank, spray pond etc. | 7,210.0           | --       |                   |
|     | ii. Proposed Distillery   | --                | 13850    | 13,850            |
|     | <b>Total Built-up</b>   |                   | --       | <b>43,428.0</b>   |
| 3   | Green Belt Area   | 52,625.0          | 55,907.0 | <b>1,08,532.0</b> |
| 4   | Area under roads, residential quarters & open spaces                          | <b>1,76,925.0</b> | --       | <b>1,76,925.0</b> |

#### The Criteria for Proposed Greenbelt Development Plan

Emission of SPM, SO<sub>2</sub> is the main criteria for consideration of green belt development. Plantation under green belt is provided to abate effects of the above emissions. Moreover, there would also be control on noise from the industry to surrounding localities as considerable attenuation would occur due to the barrier of trees provided in the green belt.

#### K. Socio-Economic Development

Socio economic study was carried out in 8 villages within 10 Km radius of the study area. Methodology adopted involved a structured close ended interview schedule (30 questions) in Marathi, which was drafted prior to and employed during the survey. Refer Socio – economic profile in Chapter 3 of Draft EIA report for detailed information of socio economic aspect. The suggestions after the socio-economic study are as follows-

- i. Industry should contribute towards providing health facility under CER for locals at least through a mobile health van.
- ii. Employment should be given to the people from nearby villages considering the JSMPL's environmental impacts on their traditional livelihood and agricultural land.
- iii. Good rate to farmers for sugarcane.
- iv. ZP / Gram panchayat should make provision for infrastructure like roads, toilets in public places with the help of the factory.
- v. To provide radium strips/ flags to sugarcane transportation vehicles by industry to reduce accidents on road.

Company has to make proper plan and budget and implement for community development.

## 8) ENVIRONMENTAL MONITORING PROGRAMME

Reconnaissance survey of the study area was undertaken in the month of December 2018. Field monitoring for measuring meteorological conditions, ambient air quality, water quality, soil quality and noise levels was initiated in October 2019. Report incorporates data monitored during the period from October-November-December 2019 and secondary data collected from various sources which include Government Departments related to ground water, soil, agriculture, forest etc.

### A. Land Use

Land use study requires data regarding topography, zoning, settlement, industry, forest, roads and traffic etc. The collection of this data was done from various secondary sources viz, Census books, Revenue records, State and Central Government Offices, Survey of India toposheets as well as high resolution satellite image and through primary field surveys.

### B. Land Use/ Land Cover Categories of Study Area

**Table 17 Land Use/ Land Cover**

| No. | Land Use Land Cover | Area (Ha)    | Percentage (%) |
|-----|---------------------|--------------|----------------|
| 1   | Built Up Area       | 1820         | 5.79           |
| 2   | Crop Land           | 14544        | 46.30          |
| 3   | Fallow Land         | 6412         | 20.41          |
| 4   | Water Bodies        | 45           | 0.14           |
| 5   | River               | 470          | 1.50           |
| 6   | Scrub Land          | 925          | 2.94           |
| 7   | Barren Land         | 6756         | 21.51          |
| 8   | Forest Area         | 443          | 1.41           |
|     | <b>Total</b>        | <b>31415</b> | <b>100</b>     |

### C. Meteorology

Methodology adopted for monitoring surface observations is as per the norms laid down by Bureau of Indian Standards (BIS) and the India Meteorology Department (IMD). On-site monitoring was undertaken for various meteorological variables in order to generate the data. Further, certain secondary meteorological data like temperatures, relative humidity, rainfall intensity etc. have been taken from IMD, Satara.

Meteorological parameters were monitored during the period October-November-December 2019. Details of parameters monitored, equipments used and the frequency of monitoring have been given in Chapter 3 of the Draft EIA report.

### D. Air Quality

This section describes selection of sampling locations, includes methodology of sampling and analytical techniques with frequency of sampling. Presentation of results for October-November-December 2019 survey is followed by observations. All the requisite monitoring assignments, sampling and analysis was conducted through the laboratory - M/s. Green EnviroSAFE Engineers & Consultant Private Limited, Pune. Lab has received NABL accreditation and has been approved by MoEFCC; New Delhi. Further it has also received ISO 9001:2008, ISO 14001:2004 OHSAS 18001-2007 certifications by DNV.

Ambient air monitoring was conducted in the study area to assess the quality of air for PM<sub>10</sub>, PM<sub>2.5</sub>, SO<sub>2</sub>, NO<sub>x</sub> and CO. The various monitoring stations selected are shown in following table.

**Table 18 Ambient Air Quality Monitoring (AAQM) Locations**

| No. | Location        | Distance (Km) | Direction |
|-----|-----------------|---------------|-----------|
| A1  | Industrial Site | -             | --        |
| A2  | Pimpalwadi      | 0.49          | NE        |
| A3  | Korhale Khurd   | 5.26          | NE        |
| A4  | Kharadewadi     | 3.53          | SW        |
| A5  | Tadawale        | 5.50          | WSW       |
| A6  | Murum           | 3.86          | NW        |
| A7  | Phadtarwadi     | 3.97          | ESE       |
| A8  | Sakharwadi      | 1.09          | WSW       |

**Table 19 Summary of the AAQM Levels for Monitoring Season**  
[October-November-December 2019]

|  |                | Location        |            |               |             |          |       |             |            |
|--|----------------|-----------------|------------|---------------|-------------|----------|-------|-------------|------------|
|  |                | A1              | A2         | A3            | A4          | A5       | A6    | A7          | A8         |
|  |                | Industrial Site | Pimpalwadi | Korhale Khurd | Kharadewadi | Tadawale | Murum | Phadtarwadi | Sakharwadi |
| PM <sub>10</sub><br>µg/M <sup>3</sup>  | Max            | 65.60           | 59.90      | 55.40         | 58.70       | 56.40    | 56.60 | 56.90       | 55.30      |
|  | Min            | 55.40           | 47.60      | 44.20         | 48.50       | 47.60    | 47.50 | 46.90       | 49.10      |
|  | Avg            | 59.15           | 52.08      | 52.01         | 52.98       | 52.98    | 52.24 | 53.15       | 53.19      |
|  | 98% Percentile | 65.55           | 59.16      | 55.31         | 57.69       | 56.17    | 56.55 | 56.73       | 55.30      |
| PM <sub>2.5</sub><br>µg/M <sup>3</sup> | Max            | 23.40           | 18.80      | 18.50         | 18.20       | 18.30    | 19.90 | 18.50       | 19.20      |
|  | Min            | 14.20           | 14.30      | 14.10         | 13.10       | 13.20    | 13.30 | 13.20       | 13.20      |
|  | Avg            | 17.80           | 16.24      | 16.10         | 15.85       | 15.42    | 16.57 | 15.22       | 16.42      |
|  | 98% Percentile | 22.57           | 18.66      | 18.41         | 18.20       | 18.21    | 19.35 | 18.12       | 18.97      |
| SO <sub>2</sub><br>µg/M <sup>3</sup>   | Max            | 27.60           | 18.30      | 21.50         | 18.60       | 17.80    | 18.60 | 17.70       | 18.40      |
|  | Min            | 19.90           | 13.10      | 13.10         | 14.60       | 14.20    | 13.30 | 13.20       | 13.10      |
|  | Avg            | 24.94           | 15.27      | 15.59         | 16.86       | 15.66    | 16.48 | 15.80       | 15.50      |
|  | 98% Percentile | 27.51           | 18.30      | 19.71         | 18.60       | 17.71    | 18.46 | 17.70       | 17.99      |
| NO <sub>x</sub><br>µg/M <sup>3</sup>   | Max            | 31.80           | 23.60      | 22.10         | 20.70       | 22.10    | 21.70 | 21.50       | 21.50      |
|  | Min            | 26.40           | 17.50      | 16.50         | 17.10       | 18.20    | 18.30 | 17.60       | 17.30      |
|  | Avg            | 28.90           | 20.50      | 19.18         | 19.01       | 19.80    | 19.86 | 19.78       | 19.30      |
|  | 98% Percentile | 31.52           | 23.55      | 21.87         | 20.61       | 21.82    | 21.42 | 21.12       | 21.41      |
| CO<br>mg/M <sup>3</sup>                | Max            | 0.80            | 0.09       | 0.08          | 0.08        | 0.09     | 0.08  | 0.08        | 0.08       |
|  | Min            | 0.30            | 0.02       | 0.03          | 0.02        | 0.02     | 0.02  | 0.02        | 0.02       |
|  | Avg            | 0.56            | 0.06       | 0.06          | 0.06        | 0.06     | 0.05  | 0.05        | 0.05       |
|  | 98% Percentile | 0.75            | 0.09       | 0.08          | 0.08        | 0.09     | 0.08  | 0.08        | 0.08       |

Notes: PM<sub>10</sub>, PM<sub>2.5</sub>, SO<sub>2</sub> and NO<sub>x</sub> are computed based on 24 hourly values, CO is computed based on 8 hourly values.

**Table 20 National Ambient Air Quality Standards (NAAQS) by CPCB**  
(Notification No. S.O.B-29016/20/90/PCI-L by MOEFCC; New Delhi dated 18.11.2009)

| Zone Station                                    | PM <sub>10</sub> µg/M <sup>3</sup> |      | PM <sub>2.5</sub> µg/M <sup>3</sup> |      | SO <sub>2</sub> µg/M <sup>3</sup> |      | NO <sub>x</sub> µg/M <sup>3</sup> |      | CO mg/M <sup>3</sup> |      |
|---|------------------------------------|------|-------------------------------------|------|-----------------------------------|------|-----------------------------------|------|----------------------|------|
|   | 24 Hr                              | A.A. | 24 Hr                               | A.A. | 24 Hr                             | A.A. | 24 Hr                             | A.A. | 8 Hr                 | 1 Hr |
| <b>Industrial, Rural &amp; Residential Area</b> | 100                                | 60   | 60                                  | 40   | 80                                | 50   | 80                                | 40   | 4                    | 4    |
| <b>Eco-sensitive Area Notified by Govt.</b>     | 100                                | 60   | 60                                  | 40   | 80                                | 20   | 80                                | 30   | 4                    | 4    |

Note: A.A. represents Annual Average

The results observed after monitoring for above locations are well within the limits as per NAAQS. Refer Chapter 3 of EIA report for monitoring results.

## E. Water Quality

Sampling and analysis of ground water and surface water for physical, chemical and heavy metals were undertaken through the laboratory of M/s. Green Envirosafe Engineers & Consultant Private Limited, Pune.

As per standard ToRs 8 locations for surface water and 8 locations for ground water were selected. The locations are mentioned below-

**Table 21 Monitoring Locations for Ground Water**

| Station | Geographical Locations      | Distance from Site (Km) | Direction from Site |
|---------|-----------------------------|-------------------------|---------------------|
| GW1     | 8°2'45.23"N, 74°19'18.08"E  | 0.94                    | SW                  |
| GW2     | 18°2'45.26"N, 74°19'43.89"E | 1.31                    | SW                  |
| GW3     | 18°2'52.81"N, 74°20'7.73"E  | 0.69                    | SSW                 |
| GW4     | 18°3'9.95"N, 74°20'30.64"E  | 0.38                    | ESE                 |
| GW5     | 18°3'20.68"N, 74°20'20.67"E | 0.26                    | NNE                 |
| GW6     | 18°3'14.22"N, 74°20'21.91"E | 0.12                    | NE                  |
| GW7     | 18°3'22.59"N, 74°19'57.84"E | 0.67                    | NW                  |
| GW8     | 18°3'36.19"N, 74°19'49.72"E | 1.11                    | NW                  |

**Table 22 Monitoring Locations for Surface Water**

| Station | Station Location | Distance (Km) | Direction | Justification               |
|---------|------------------|---------------|-----------|-----------------------------|
| SW1     | Kharadewadi      | 2.44          | SW        | Canal near the project site |
| SW2     | Sakharwadi I     | 1.57          | WSW       | Upstream of Nala-1          |
| SW 3    | Sakharwadi II    | 4.96          | WSW       | Midstream of Nala-1         |
| SW 4    | Pimpalwadi       | 6.70          | NE        | Downstream of Nala-1        |
| SW5     | Phadtarwadi      | 4.82          | ESE       | Nala-2                      |
| SW6     | Jinti            | 4.45          | ENE       | Upstream Of River Nira      |
| SW7     | Khamgaon         | 9.72          | N         | Nala River Confluence       |
| SW8     | Murum            | 6.63          | NW        | Downstream Of River Nira    |

Results observed after monitoring ground water locations and surface water locations are mentioned in Chapter 3 of the EIA report.

## F. Noise Level Survey

Study area of 10 Km radius with reference to the proposed project site has been covered for noise environment. The four zones viz. Residential, Commercial, Industrial and Silence Zones have been considered for noise monitoring. Some of the major arterial roads were covered to assess the noise due to traffic. Noise monitoring was undertaken for 24 hours at each location. The details of noise monitoring stations are given in following table

**Table 23 Noise Sampling Locations**

| Station | Station Location | Distance (Km) | Direction |
|---------|------------------|---------------|-----------|
| N1      | Project Site     | -             | -         |
| N2      | Pimpalwadi       | 0.63          | NE        |
| N3      | Hol              | 4.4           | NE        |
| N4      | Khamgaon         | 2.6           | NW        |
| N5      | Murum            | 3.5           | NW        |
| N6      | Kharadewadi      | 3.45          | SW        |
| N7      | Suraudi          | 3.36          | SE        |
| N8      | Phadtarwadi      | 4             | SE        |



**Table 24 Ambient Noise Levels**

| No. | Location     | Average Noise Level in dB(A) |                 |                 |                      |                        |                 |
|-----|--------------|------------------------------|-----------------|-----------------|----------------------|------------------------|-----------------|
|     |              | L <sub>10</sub>              | L <sub>50</sub> | L <sub>90</sub> | L <sub>eq(day)</sub> | L <sub>eq(night)</sub> | L <sub>dn</sub> |
| 1   | Project Site | 51.3                         | 58.5            | 61.1            | 70.8                 | 50.4                   | 69.0            |
| 2   | Pimpalwadi   | 43.9                         | 47.9            | 49.0            | 53.6                 | 43.2                   | 53.4            |
| 3   | Hol          | 41.4                         | 46.1            | 48.2            | 52.3                 | 42.2                   | 52.2            |
| 4   | Khamgaon     | 43.0                         | 47.4            | 49.3            | 53.8                 | 42.7                   | 53.4            |
| 5   | Murum        | 43.5                         | 46.5            | 48.2            | 51.8                 | 42.2                   | 51.9            |
| 6   | Kharadewadi  | 41.8                         | 47.5            | 48.7            | 55.1                 | 42.4                   | 54.2            |
| 7   | Suraudi      | 41.1                         | 47.2            | 48.8            | 55.0                 | 42.5                   | 54.2            |
| 8   | Phadtarwadi  | 42.0                         | 47.0            | 48.6            | 53.5                 | 42.6                   | 53.2            |

**G. Socio-Economic Profile**

Socio-economic status of the population is an indicator for the development of the region. Any developmental project of any magnitude will have a bearing on the living conditions and on the economic base of population in particular and the region as a whole. Chapter 3 may be referred for details of this aspect.

**H. Ecology**

Field survey was carried out according to random sampling method for flora, and opportunistic sighting method and standard point count method for fauna were followed. In general visual observation and estimation method was used for qualitative study of the biota. Birds and fish were studied being good indicators of local environmental change. Flora, mainly major tree species, was focused on identification and species abundance.

**9) ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES****A. Impact on Topography**

No major topographical changes are envisaged in the acquired area as land was kept vacant for establishment of distillery unit in existing sugar factory premises.

**B. Impact on Climate**

Impact on the climate conditions due to the proposed project activities is not envisaged, as emissions to the atmosphere of flue gases with very high temperatures are not expected.

**C. Impact on Air Quality**

An area of 10 Km radius with project site at its center was considered to determine the impacts.

**i. Baseline Ambient Air Concentrations**

24 hourly average concentrations of PM<sub>10</sub>, PM<sub>2.5</sub>, SO<sub>2</sub> and NO<sub>x</sub> in Ambient Air, recorded during the field study conducted for the season October-November-December 2019 is considered as baseline values. They represent impact due to operations of existing nearby industries on this region. Average concentrations of above mentioned parameters, at this location, are considered to be the 'Baseline Concentrations' to determine the impact of industrial operations on ambient air quality. Existing baseline concentrations are summarized in following table-

**Table 25 Baseline Concentrations (98 Percentile)**

| Parameter     | PM <sub>10</sub>       | PM <sub>2.5</sub>      | SO <sub>2</sub>        | NO <sub>x</sub>        | CO                     |
|---------------|------------------------|------------------------|------------------------|------------------------|------------------------|
| 98 percentile | 65.55µg/m <sup>3</sup> | 22.57µg/m <sup>3</sup> | 27.51µg/m <sup>3</sup> | 31.52µg/m <sup>3</sup> | 0.754mg/m <sup>3</sup> |
| NAAQS         | 100 µg/m <sup>3</sup>  | 60 µg/m <sup>3</sup>   | 80 µg/m <sup>3</sup>   | 80 µg/m <sup>3</sup>   | 4 mg/m <sup>3</sup>    |

## **ii. Air Polluting Sources**

As discussed above, under existing activity, 2 boiler of 28 TPH & 55 TPH capacity and 2 DG sets are installed on site. Moreover, under establishment of distillery, steam required for proposed activities of distillery unit will be taken from existing boilers of sugar factory.

## **D. IMPACT ON WATER RESOURCES**

### **i. Impact on Surface Water Resources & Quality**

Total water requirement for proposed distillery will be 1473 M<sup>3</sup>/D. About 1035 M<sup>3</sup>/D (70%) will be the recycled water from CPU & 434 M<sup>3</sup>/D will be the fresh water taken from River Nira. More details about water budget are presented at Chapter 2 under Section 2.7.1

Raw Spentwash generated about 840 M<sup>3</sup>/D, will be forwarded to evaporation and concentration in MEE. Further, concentrated spentwash of 183 M<sup>3</sup>/D will be forwarded for drying in ATFD for powder formation. Other industrial effluent generated will be 1056 M<sup>3</sup>/D, will be treated in CPU & recycled back in process to achieve Zero Liquid Discharge (ZLD) for process effluent.

Domestic effluent generated will be 4 M<sup>3</sup>/D, treated in proposed STP.

No process effluent will be discharged in nearby river or nalla. Hence, there will not be any impact on surface water quality.

### **ii. Impact on Ground Water Resources & Quality**

Water required for the industry will be obtained from River Nira. Permission for water lifting has been obtained from competent authority. No ground water will be extracted for existing as well as proposed project. Moreover, there will not be any discharge of untreated effluent so there will not be any impact on ground water level and quality.

## **E. IMPACT ON SOIL**

Impact on the soil characteristics is usually attributed to air emissions, wastewater discharges and solid waste disposal. Under proposed distillery as well as existing sugar factory, as mentioned above, there will not be discharge of any untreated effluent on land. For existing boilers Wet scrubber are installed. Boiler ash from boiler is given to brick manufacturers/used as manure whereas ETP sludge is used as manure. CPU sludge and yeast sludge from distillery will be used as manure. Domestic effluent will be treated in proposed STP. Hence, there will not be any major increase in chemical constituents of soil through deposition of air pollutants/ discharge of wastewater.

## **G. IMPACT ON NOISE LEVELS**

Probable sources of noise are mill, compressors, boiler, distillation assembly, turbine & D.G. Sets etc. Workers could get annoyance and can lose concentration during operation. Workers working near the source need risk criteria for hearing damage while people residing near industry lead annoyance and psychological damage. It is obvious that the acceptable noise level for the latter case is less than the former case. Noise can affect health of workers, can cause loss of hearing and can disturb during working which may lead to accidents.

## **H. IMPACT ON LAND USE**

Present use of the project land is for industrial wherein the sugar factory and cogeneration plant have already been established. Proposed distillery unit will be implemented in existing premises of sugar factory, an area was kept vacant for establishment of distillery. Hence, no change in the land use pattern is expected. Therefore, impact on land use is insignificant.

## **H. IMPACT ON FLORA AND FAUNA**

Discharge of the untreated wastewater from the industry in surrounding area can also cause significant environmental impact on the aquatic habitats and affect dependent biodiversity. In case of air pollution, the industry is going to contribute in SPM pollution load in the nearby area. This may have negative impact particularly on avifauna, surrounding crop yields and local population. The details in respect of impacts on ecology and biodiversity are described.

## **I. IMPACT ON HISTORICAL PLACES**

No historical place is within the study area and the impact is nil.

## **10) ADDITIONAL STUDIES & INFORMATION**

### **Risks Assessment –**

Risk to human health is inherent. It is safe only when the installation is dismantled at the end of its useful life. The following principles should be used as guidelines for the selection of risk criteria -

1. Increase in risk, caused by the presence of the plant to local community (i.e. neighboring public) should be negligible in comparison to the risk they already have in their daily life.
2. Work force on the plant should be expected to accept a potentially greater risk than the members of the local community since the work force have been trained to protect themselves from the possible hazards and thus reducing the actual risk to themselves.

The risk criteria considered by Green A.G. (1982) are given as below:

1. Risk to Plant: This risk is to be given priority only when it is proved beyond doubt that the risk to life is so low that reducing this risk may not be justified. Under this consideration, the risk to economic damage may be considered.
2. Risk to Public and Employees: Scale used for risk to employee and public is Fatal Accident Rate (F.A.R.) or more commonly Fatal Accident Frequency Rate. (F.A.F.R.). F.A.R. and F.A.F.R. is defined as number of deaths from industrial injury expected in a group of 1000 men during their working period.

For more details, w.r.t. this aspect, Chapter 7 may be referred.

## **11) SALIENT FEATURES OF EMP**

Following routine monitoring programme as detailed in Table 26 shall be implemented at site. Besides to this monitoring, the compliances to all Environmental Clearance (EC) conditions and regular permissions from CPCB /MoEFCC shall be monitored and reported periodically.

**Table 26 Plan For Monitoring of Environmental Attributes within Industrial Premises**

| No. | Description   | Location   | Parameters   | Frequency                    | Conducted by                                    |          |
|-----|---|--|--|------------------------------|---|----------|
| 1.  | Air Emissions   | Upwind – 1, Downwind - 2<br>(Near main gate,<br>Fermentation section,<br>Distillation section)   | PM <sub>10</sub> , PM <sub>2.5</sub> , SO <sub>2</sub> , NO <sub>x</sub> ,<br>CO           | Monthly                      | MoEFCC &<br>NABL<br>Approved<br>External<br>Lab |          |
|     |   | Study area – (Pimpalwadi,<br>Kharadewadi, Murum,<br>Tadawale, Sakharwadi,<br>Phadtarwadi)  |  | Quarterly                    |   |          |
| 2.  | Stack Emissions                                       | Boiler – 2 No., D.G Set – 2<br>Nos.  | SO <sub>2</sub> , SPM, NO <sub>x</sub>   | Monthly                      |   |          |
| 3.  | Noise   | Workzone 5 Locations -<br>(Near Main Gate, Near<br>Fermentation Section<br>Distillation section, Boiler,<br>DG set, Turbine)   | Spot Noise Level<br>recording; Leq(n),<br>Leq(d), Leq (dn)                                 | Monthly                      |   |          |
|     |   | Ambient Noise location - 8   |  | Quarterly                    |   |          |
| 4.  | Drinking water  | Canteen  | Parameters as per<br>drinking water Std<br>IS10500   | Monthly                      |   |          |
| 5.  | Soil  | 4 locations - (Pimpalwadi,<br>Murum, Tadawale,<br>Sakharwadi)  | pH, Salinity, Organic<br>Carbon, Nitrogen,<br>Phosphorous and Potash                       | Quarterly                    |   |          |
| 6.  | Water Quality<br>(Ground Water<br>& Surface<br>Water) | Locations in study area -<br>Ground Water and. Surface<br>Water  | Parameters as per CPCB<br>guideline for water<br>quality monitoring –<br>MINARS/27/2007-08 | Quarterly                    |   |          |
| 7.  | Effluent  | Treated, Untreated   | pH, SS, TDS, COD,<br>BOD, Cl, Sulphates, Oil<br>& Grease.                                  | Monthly                      |   |          |
| 8.  | Waste<br>management                                   | Implement waste<br>management plan that<br>Identifies and characterizes<br>every waste associated with<br>proposed and existing<br>activities and which<br>identifies the procedures for<br>collection, handling &<br>disposal of each waste<br>arising. | Records of Solid Waste<br>Generation, Treatment<br>and Disposal shall be<br>maintained     | Twice in a year              |   | By SDIPL |
| 9.  | Emergency<br>Preparedness<br>such as fire<br>fighting | Fire protection & safety<br>measures to take care of fire<br>& explosion hazards, to be<br>assessed & steps taken for<br>their prevention.   | On site Emergency Plan,<br>Evacuation Plan, fire<br>fighting mock drills                   | Twice a year                 |   | By SDIPL |
| 10. | Health Check<br>up                                    | Employees and migrant<br>Labour health check ups   | All relevant health check-<br>up parameters as per<br>factories act.                       | Twice a Year                 |   | By SDIPL |
| 11. | Green Belt  | Within Industry premises as<br>well as nearby villages   | Survival rate of planted<br>sapling  | In consultation<br>with DFO. | By SDIPL  |          |
| 12. | CER   | As per activities  | --   | Six Monthly                  | By SDIPL  |          |



# Quality Council of India

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## CERTIFICATE OF ACCREDITATION

### Equinox Environments (India) Pvt. Ltd.

F-11, Namdev Nest, 1160-B, 'E' Ward, Sykes Extension,  
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Accredited as **Category - A** organization under the QCI-NABET Scheme for Accreditation of EIA Consultant Organizations: Version 3 for preparing EIA-EMP reports in the following Sectors:

| Sl. No. | Sector Description   | Sector (as per) |           | Cat. |
|---------|--|-----------------|-----------|------|
|         |  | NABET           | MoEFCC    |      |
| 1       | Mining of minerals including opencast / underground mining   | 1               | 1 (a) (i) | A    |
| 2       | Offshore and onshore oil and gas exploration, development & production   | 2               | 1 (b)     | A    |
| 3       | Thermal power plants   | 4               | 1 (d)     | B    |
| 4       | Metallurgical industries (ferrous & non-ferrous) - secondary only  | 8               | 3 (a)     | B    |
| 5       | Asbestos milling and asbestos based products   | 12              | 4 (c)     | A    |
| 6       | Pesticides industry and pesticide specific intermediates (excluding formulations)  | 17              | 5 (b)     | A    |
| 7       | Petro-chemical complexes (industries based on processing of petroleum fractions & natural gas and/or reforming to aromatics)   | 18              | 5 (c)     | A    |
| 8       | Petrochemical based processing (processes other than cracking & reformation and not covered under the complexes)   | 20              | 5 (e)     | A    |
| 9       | Synthetic organic chemicals industry (dyes & dye intermediates; bulk drugs and intermediates <b>excluding</b> drug formulations; synthetic rubbers; basic organic chemicals, other synthetic organic chemicals and chemical intermediates) | 21              | 5 (f)     | A    |
| 10      | Distilleries   | 22              | 5 (g)     | A    |
| 11      | Sugar industry   | 25              | 5 (j)     | B    |
| 12      | Common hazardous waste treatment, storage and disposal facilities (TSDFs)  | 32              | 7 (d)     | A    |
| 13      | Bio-medical waste treatment facilities   | 32 A            | 7 (da)    | B    |
| 14      | Common municipal solid waste management facility (CMSWMF)  | 37              | 7 (i)     | B    |
| 15      | Townships and Area development projects  | 39              | 8 (b)     | B    |

**Note: Names of approved EIA Coordinators and Functional Area Experts are mentioned in RA AC minutes dated May 31, 2019 posted on QCI-NABET website.**

The Accreditation shall remain in force subject to continued compliance to the terms and conditions mentioned in QCI-NABET's letter of accreditation bearing no. QCI/NABET/ENV/ACO/19/1021 dated August 02, 2019. The accreditation needs to be renewed before the expiry date by Equinox Environments (India) Pvt. Ltd., Kolhapur, following due process of assessment.

Sr. Director, NABET  
Dated: August 02, 2019

Certificate No.  
NABET/ EIA/1821/ RA 0135

Valid till  
21.10.2021

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## DECLARATION

This is to state that the 'Executive Summary & Draft EIA Report' submitted herewith has been prepared in respect of establishment of 105 KLPD Molasses/Cane juice based distillery unit by **Shri Dutt India Pvt. Ltd. (SDIPL)**, located at Gat No. 65/2, 69 & 74, Sakharwadi, Tal.: Phaltan, Dist.: Satara- 415522, Maharashtra State.

Information, data and details presented in this report are true to the best of our knowledge. Primary and secondary data have been generated through actual exercise conducted from time to time as well as procured from the concerned Govt. offices/ departments has been incorporated here subsequent to necessary processing, formulation and compilation.

Yours faithfully,



**Shri Jeetendra S. Dhary Gujar**  
(Managing Director)

**Shri Dutt India Pvt. Ltd.,**  
(SDIPL)

Sakharwadi, Tal.: Phaltan, Dist.: Satara-  
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**Project Proponent**



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