

**BEFORE THE HON'BLE NATIONAL GREEN TRIBUNAL
PRINCIPAL BENCH NEW DELHI
ORIGINAL APPLICATION NO. 646/2023**

IN THE MATTER OF:-

MANOJ KUMAR KAUSHAL

..APPLICANT

VERSUS

STATE OF HIMACHAL
PRADESH AND ORS

...RESPONDENTS

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FILED


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DATE: 04.12.2024**PLACE:** KOLKATA

BEFORE THE HON'BLE NATIONAL GREEN TRIBUNAL

PRINCIPAL BENCH NEW DELHI

ORIGINAL APPLICATION NO. 646/2023

IN THE MATTER OF:-

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PRADESH AND ORS

...RESPONDENTS

**SHORT REPLY ON BEHALF OF M/S. IAN MACLEOD
DISTILLERIES INDIA PRIVATE LIMITED, PLOT NO. A2,
A3, A4, PANDOGA INDUSTRIAL AREA, UPARLA,
DISTRICT UNA, HIMANCHAL PRADESH
(RESPONDENT NO.7)**

1. That the present response is being filed by Sh. R.V. Subramanian the duly Authorized Representative of M/s Ian Macleod Distilleries India Pvt. Ltd, having address at Plot No. A2, A3, A4 in the Pandoga Industrial Area, Uparia District, Una, State of Himachal Pradesh (impleaded as '**Respondent No. 7**' in the above captioned OA). It is pertinent to mention that the Answering Respondents received summons of the above captioned Original Application on 21.11.2024.

A true copy of the Board Resolution dated 14.11.2024 authorizing Sh. R.V. Subramanian to file the present reply is being Annexed herewith and marked as **Annexure R7/1**.

A true copy of the envelope by way of which the summons were received has been annexed herewith and marked as **Annexure R7/2**

2. That the Answering Respondent herein upon receiving the Order of this Hon'ble Tribunal dated 24.10.2024 on 21.11.2024 has duly appointed an Advocate to represent the answering respondent on 12.12.2024. The said Advocate's Office are in the process of collecting the pleadings in the matter and as such the answering respondent crave leave of this Hon'ble Tribunal to file a detailed Reply and Response to the pleadings in the case, if it is necessary at a later date.
3. The present Reply is being confined to the Orders of this Hon'ble Tribunal as available on the website and the notice issued by this Hon'ble Tribunal vide Order dated 24.10.2024 in O.A. No. 646 of 2024.
4. That at the outset it is respectfully submitted that the Answering Respondent has obtained all requisite environmental clearances from the Ministry of Environment, Forest and Climate Change (MoEFCC), which is the competent authority under the EIA Notification, 2006, to grant such clearances. The MoEFCC plays a pivotal role in regulating and monitoring environmental compliance, and as such, is a proper and necessary party in the present matter. The non-impleadment of the MoEFCC in these proceedings leaves out a critical stakeholder whose inputs and records are vital for a comprehensive adjudication of the issues raised. The Answering Respondent submits that the absence of the

MoEFCC may result in an incomplete consideration of the facts, and thus, it is submitted that the MoEFCC be impleaded as a Respondent in the present Original Application.

5. That it transpires from the order dated 08.01.2024 that this Hon'ble Tribunal had exercised *suo motu* jurisdiction on a letter petition dated 10.07.2023 filed by one Manoj Kumar Kaushal, resident of Kotla Kalan Lower Takka Road, Una, Himachal Pradesh contemplating violation of the following environmental norms in setting up of Industrial Area in village Pandoga, Tehsil Haroli, Upper District Una, Himachal Pradesh namely:
 - i) Cutting and uprooting of 9930 trees in the area.
 - ii) A proposal for building a Common Effluent Treatment Plant (CETP) of 5 MLD in the area which had not been carried out till date.
6. That in consideration of the contents of the aforementioned letter petition, this Hon'ble Tribunal, by order dated 08.01.2024, was pleased to take *suo motu* cognizance of the said letter dated 10.07.2023, and the same was duly registered under Section 14 of the National Green Tribunal Act, 2010 ('NGT Act') as Original Application No. 646 of 2023.

The Hon'ble Tribunal, *prima facie*, observed that the letter raised a substantial question relating to the environment, arising out of the implementation of the enactments specified in Schedule I to the NGT Act.

7. On the basis of the aforementioned the Hon'ble Tribunal was pleased to implead (1) State of Himachal Pradesh through Chief Secretary, Government of Himachal Pradesh; (2) Principal Secretary, Industries, Government of Himachal Pradesh; (3) District Magistrate, Una; (4) Divisional Forest Officer, Una; (5) Himachal Pradesh Pollution Control Board (hereinafter referred to as "HPPCB") through its member Secretary, respectively as Respondents No. 1 to 5.
8. A perusal of the order sheet makes it evident that during the course of proceedings, certain replies were filed by Respondent No. 5– HPPCB on 28.02.2024, on 23.10.2024, and by the Deputy Conservator of Forest, Una on 05.04.2024. The answering respondent has submitted hereinabove, is in the process of collecting the pleadings before this Hon'ble Tribunal.
9. Based on the reply submitted by the Respondents, this Hon'ble Tribunal *vide* order dated 24.10.2024 was pleased to implead (1) M/s Hindustan Pectin Farm direct Powder Ingredients Pvt. Citric Acid, Ltd., (2) the Answering Respondent i.e., M/s Ian Macleod Distillers India Pvt. Ltd. and (3) M/s Ambaji Enterprises as Respondent No. 6, 7 and 8 to the aforementioned OA. The relevant extract of the order dated 24.10.2024 is quoted as under:

“14. However, subsequently, it is not in dispute that three industries which are in category ‘A’ and ‘B’ have been allowed and therefore, apparently there is a breach of provisions of environmental laws in as much as on the one hand, prior EC was not obtained

in development of Industrial Area in question on a representation or a decision that 'A' and 'B' category industries shall not be installed but subsequently with development of industrial area, such categories of industries have been allowed to be established. Details of these industries are given as under:-

- 1. M/s Hindustan Pectin Farm direct Powder, Ingredients Pvt. Citric Acid, Ltd. Plot no:A-5 lime, Pandoga Industrial Area, Uparla district Una.*
- 2. M/s Ian Macleod Distillers India Pvt. Ltd. Plot no: A2, A3, A4, Pandoga Industrial Area, Uparla district Una.*
- 3. M/s Ambaji Enterprises, Plot No:D10, DII Pandoga Industrial Area, Uparla district Una.*

.....

- 17. We also implead above three industries as respondents number 6, 7 and 8.”*

10. At the outset, in the absence of the pleadings the Answering Respondent is neither in a position to admit them nor deny them. As and when Respondent is dealing with the pleadings the Answering Respondent will advert to the same. That the Answering Respondent craves leave of this Hon'ble Tribunal to briefly indicate the steps taken by the Answering Respondent in establishing the Unit of Malt and Spirit at Plot No. A2, A3, A4, Pandoga Industrial Area, Uparla District, Una, State of Himachal Pradesh.

BRIEF FACTS

11. The Answering Respondents was invited by the Government of India to establish a state-of-the-art Malt Spirit Plant in Jammu & Kashmir, Himachal Pradesh, or Uttarakhand, pursuant to the Global Investor Meet Program organized by the Confederation of Indian Industry (CII), New Delhi. The primary objective of this initiative was to promote the production of "*Made in India*" products for the export market, as well as to further the "*Make in India*" initiative for the domestic market, thereby reducing the country's dependence on imported matured malt spirit and generate adequate employment in the region. It may be pertinent to mention that the Answering Respondent presently employs a total number of 80 persons out of which 72 are from the local region, which makes it a total work force of more than 80% from Himachal Pradesh itself.

A true copy of the invitation dated 01.10.2019 is being filed herewith marked as **Annexure R7/3**.

12. The Government of India, along with the respective State Governments, sought to encourage companies such as M/s Ian Macleod to establish Malt Spirit Plants, Maturation Warehouses, and related infrastructure, with a view to enhancing transparency in the liquor industry. The facilities were also intended to be open for public visitation, thereby fostering greater accountability and openness in the business.
13. In pursuance of the aforementioned initiative taken by the Govt., the Answering Respondent filed a Common Application Form No. 21657 dated 03.12.2020 expressing

its intention to set up an enterprise in Industrial Area Pandoga, District Una, Himachal Pradesh for manufacturing of Malt Spirit. In lieu of the same an in-principal approval for setting up Malt Spirit Manufacturing unit was granted vide Letter bearing No. CAF/12/03/21657/112 dated 21.01.2021 by Government of Himachal Pradesh subject to certain conditions.

A true copy of the in-principal letter dated 21.01.2021 granting approval to the Answering Respondent is being filed herewith marked as **Annexure R7/4**.

14. In terms of the in-principal approval the Answering Respondent appointed MITCON Consultancy & Engineering Services Ltd. a NABET accredited agency to carry out Environment Impact Assessment study for obtaining an Environmental Clearance as required under the EIA Notification 2006. Accordingly, on 06.05.2021 MITCON Consultancy & Engineering Services Ltd. submitted an online application on behalf of the Answering Respondent for obtaining Environment Clearance before the MoEF & CC bearing Proposal No. IA/HP/IND2/212301/2021 for setting up of 5 KLPD Malt Spirit Distillery under *Sr. 5(g) – Distilleries of the EIA Notification, 2006*. The details of products and capacity are as under:-

| Sr. No. | Particulars | Capacity |
|-----------------|-------------|------------|
| Products | | |
| 1. | Malt Spirit | 5 KLPD |
| 2. | IMFL | 1000 Cases |
| 3. | DWGS | 13 TPD |

15. Vide Communication dated 18.05.2021 the General Manager, District Industries Centre, Una informed the Commissioner of Industries that Plot No. A2, A3, & A4 in the Industrial area Pandoga, District (H.P.) has been earmarked in favour of Answering Respondent for setting up of the Malt Spirit Unit.

A true copy of the communication dated 18.05.2021 is being filed herewith marked as **Annexure R7/5**.

16. In response to the online Application filed by the Ministry of Environment, Forest and Climate Change ('MoEFCC') the Ministry vide Communication dated 20.05.2021 issued the "Terms of Reference" (TOR). The relevant extract of EIA notification dated 14.09.2006 dealing with the Distilleries reads as under:-

| Project/ Activity | Category with threshold limit | | Conditions, if any |
|-----------------------|---|--|---------------------------------|
| | A | B | |
| 5 | Manufacturing/Fabrication | | |
| "5(g) Distilleries | Molasses based distilleries > 100 KLD Non-molasses based distilleries >200 KLD | Molasses based distilleries ≤ 100 KLD Non-molasses based distilleries ≤ 200 KLD | General Condition shall apply"; |

A true copy of the communication dated 20.05.2021 is being filed herewith marked as **Annexure R7/6**.

17. That in furtherance to the Terms of Reference issued by the MoEFCC Expert Appraisal Committee (EAC), MoEFCC studies were conducted in terms of the EIA Notification with an objective to carry out the Environmental Impact Assessment (EIA) of the area to meet the environmental

compliances laid down by the MoEFCC. On the basis of studies conducted by MITCON Consultancy & Engineering Services Ltd. an EIA Report was prepared and submitted to the MoEFCC.

A true copy of the EIA report submitted by MITCON Consultancy & Engineering Services Ltd. is being filed herewith marked as **Annexure R7/7**.

18. Vide communication dated 03.08.2021 the Answering Respondent forwarded to the Member Secretary, H.P. State Pollution Control Board the requisite number of copies/sets forwarding the hard and soft copies of the draft EIA/EMP reports along with Executive Summary (Hindi & English) of the proposal of above Distillery along with the copy of the TOR issued by the MoEFCC on 20.05.2021 to be placed in the office of the Sub Divisional Officer (C) Haroli, Naib Tehsildar, Ispur, Executive Officer Municipal Council, Una, Chairman Zila Parishad Una, Pradhan Gram Panchayat Pandoga and also deposit the requisite amount for holding a Public Hearing.

A true copy of the Application dated 03.08.2021 is being filed herewith marked as **Annexure R7/8**.

19. Pursuant thereto, a Public notice was published in the local newspapers, i.e., in English and Hindi by the Answering Respondent and HPPCB (Respondent No 5) in compliance with the EIA Notification, 2006, wherein the locally affected persons having a stake in the environmental impacts or the project could inspect the documents submitted before the state board as well as the HPPCB and raise their views/objections on or before 28.10.2021 and

participate in the Public hearing that was to be held on 28.10.2021.

A true copy of the public notice published in the local newspapers is being filed herewith marked as **Annexure R7/9 (Colly)**.

20. On the basis of the application submitted by the Answering Respondent to the HPPCB (Respondent No 5) a public hearing was conducted on 28.10.2021 in pursuance of the letter dated 27.08.2021 issued by the Respondent No. 5.

A true copy of the letter dated 27.08.2021 issued by the Respondent No. 5 is being filed herewith marked as **Annexure R7/10**.

21. Accordingly, the Public hearing was conducted on 28.10.2021 by the HPPCB which was attended by several people. However, 50 persons (approx.) participated in the proceedings and all objections *qua* Environmental impacts and employment generation that were raised during the public hearing were dealt with and were duly replied by the Answering Respondent. It is pertinent to mention that the Applicant in the present O.A. had sufficient opportunity to raise any concerns regarding the project and its overall impact on the environment. It is pertinent to mention that the concerns of the Applicant have been raised at a belated stage in the month of July 2023 which cannot be attributed to the Answering respondent as due procedure had been followed and all necessary compliances had been done *qua* the execution of the project.

A true copy of the Minutes/ proceedings dated 28.10.2021 is being filed herewith marked as **Annexure R7/11**.

A true copy of the list of attendees that participated along with photographs of the public hearing the dated 28.10.2021 is being filed herewith marked as **Annexure R7/12(Colly)**.

A true copy of statement of issues raised in the public hearing dated 28.10.2021 is being filed herewith marked as **Annexure R7/13**.

22. Meanwhile by way of letter dated 16.11.2021, the Special Secretary, State of Himachal Pradesh conveyed the approval of the government for allotment of land measuring 43699 Sq. Meters in Industrial Area, Pandoga in favor of the answering respondent on lease hold basis for a period of 95 years for setting up all the state-of-the-art Malt Distillery Plant. The ownership of the land continues to be with Govt of Himachal Pradesh

A true copy of the letter dated 16.11.2021 is being filed herewith marked as **Annexure R7/14**.

23. By way of letter dated 19.01.2022 the General Manager, District Industries Centre accorded provisional allotment of land admeasuring 43699 Sq. mtrs district Una comprising Plot No A-2, A-3 & A-4, Industrial Area Pandoga in favour of the Answering Respondent for setting up of the State of the Art Malt Spirit Plant.

A true copy of letter dated 19.01.2022 is being filed herewith marked as **Annexure R7/15**.

24. Finally, the matter was considered by the EAC (“**Expert Appraisal Committee**”) in its 49th meeting held on 27th-

28th January 2022 in its Agenda No 49.4 wherein the project proponent (Answering Respondent) and MITCON Consultancy and Engineering Services Ltd. Made a detailed presentation, and the Committee recommended the entire project for grant of environmental clearance.

A true copy of the minutes of the meeting dated 27.01.2022 is being filed herewith marked as **Annexure R7/16**.

25. That on 21.02.2022 the Answering Respondent was duly handed over physical possession of the Plot No A-2, A-3 & A-4, Industrial Area Pandoga Una admeasuring 43699 Sq Mtrs for setting up of the Malt spirit distillery.

A true copy of the possession letter dated 21.02.2022 is being filed herewith marked as **Annexure R7/17**.

26. That based on the EIA Report and proposal submitted by the Answering Respondent, the MoEFCC had granted Environmental Clearance vide EC Identification No. EC22A022HP156935 dated 02.03.2022 to the Answering Respondent for the proposal submitted thereto and the same was also published in the public newspaper on 07.03.2022.

A true copy of the EC dated 02.03.2022 is being filed herewith marked as **Annexure R7/18**.

A true copy of the newspaper ads dated 07.03.2022 is being filed herewith marked as **Annexure R7/19 (Colly)**.

27. That Respondent No 5 – HPPCB vide approval dated 08.04.2022 had duly granted their consent for the establishment of the industry under the provision of the Air

Act and the Water Act bearing consent No CTE/BOTH/NEW/RO/2022/5286468.

A true copy of the Consent to Establish bearing consent No CTE/BOTH/NEW/RO/2022/5286468 dated 08.04.2022 is being filed herewith marked as **Annexure R7/20**.

28. That subsequently Respondent No 5 – HPPCB vide approval dated 15.06.2024 had duly granted their consent for the Operate Industry under the provision of the Air Act and the Water Act bearing consent No CTO/BOTH/RENEW/RO/2024/12037526.

A true copy of the Consent to Operate bearing consent No CTO/BOTH/RENEW/RO/2024/12037526 dated 15.06.2024 is being filed herewith marked as **Annexure R7/21**.

29. The Answering Respondents have duly set up captive their own Effluent Treatment Plants for the treatment of waste water with ZLD (*Zero Liquid Discharge*) facility and the State Board regularly carries out inspection and sampling of the same on a timely basis in order to monitor compliance of effluent with respect to the prescribed standards. It is pertinent to mention that the Malt Spirit Industry has installed an Effluent Treatment Plant having ZLD (Zero Liquid Discharge) and a capacity of 75 KLPD out of which actual discharge is only 67 KLPD.
30. More importantly, all treated water is being duly reused by the Answering Respondents, as is evident from the joint physical inspection report dated 08.10.2024, prepared by the Inspection Committee, which clearly states that there is no effluent or zero liquid discharge emanating from the

Unit of the Answering Respondents. Needles to mention that the Answering Respondent maintains total transparency with all agencies with respect to its ETP and allows visitor access to the same with necessary approval from the Excise Department. A bare perusal of the in principal approval dated 21.01.2021 as well as the Environment Clearance dated 02.03.2022 granted by the MoEFCC show that the Answering Respondents were required to set up a plant i.e., ETP having Zero Liquid Discharge facility, prior to any construction activity being carried out in the Industrial Area.

A true copy of Joint Inspection report dated 08.10.2024, prepared by the Inspection Committee is being filed herewith marked as **Annexure R7/22**.

A copy of the Photograph showing the notice to allow visitation is being filed herewith marked as **Annexure R7/23(Colly)**.

31. A careful examination of the foregoing facts establishes that the Answering Respondents have obtained all requisite environmental permissions and Environmental Clearance from the Centre (MOEFC) and have fully complied with applicable environmental regulations as per the EIA Notifications which is not under challenge before this Hon'ble Court. Further, it is respectfully submitted that the Answering Respondents have not committed any violation in connection with the present matter which has been taken up suo moto primarily for cutting of trees on the Letter of the Applicant. It is further submitted that since the Answering Respondents have obtained all permissions no further action is called for against them.

32. It is submitted that the Answering Respondent has already planted 1200 trees in and around the Distillery Complex in order to maintain the lush green and ecological balance in the forest area and plans to plant another 2400 trees in the next two years.

A true copy of the photographs of the tree plantations is being filed herewith marked as **Annexure R7/24 (Colly)**.

33. The answering respondent submits that the industry not only employs more than 80 percent of its workforce from the local region of Himachal Pradesh but has also set up a highly Skill Development Center for employment of women workers in the industry and has already invested around 65 crores of foreign investments in the Distillery.
34. It is submitted that the aforementioned permissions and environmental clearances were not placed before this Hon'ble Tribunal, and as such, all allegations and assertions made against the Answering Respondents are hereby unequivocally denied.
35. In light of the above, it is respectfully submitted that the Answering Respondent has adhered to all applicable environmental laws, obtained the requisite permissions, and complied with the conditions stipulated therein. The allegations of violations are unfounded and devoid of merit, as demonstrated by the approvals, clearances, and compliance reports annexed herein.
36. The Answering Respondent submits that it had no role in cutting of the 9930 trees in the area for establishment of the industrial area nor has it any role in non-construction

of the Common Effluent Treatment Plant (CETP) of 5 MLD as was proposed in the initial stages. The Answering Respondents herein further submits that it being a Zero Liquid Discharge (ZLD) Unit it does not need any Common Effluent Treatment Plant.

37. It is further humbly submitted that the Answering Respondent has been operating in full compliance with the principles of sustainable development and environmental responsibility. All necessary measures have been taken to ensure that the unit operates without causing any adverse environmental impact.
38. The Answering Respondent crave leave of this Hon'ble Tribunal to file additional documents, Affidavit for submissions, if necessary, based on further developments or directions from this Hon'ble Tribunal.
39. For the reasons stated hereinabove it is most respectfully prayed that this Hon'ble Tribunal be pleased to dismiss the present O.A. qua the answering respondent as they have complied with all the requisite and necessary formalities and obtained all the necessary permissions apart from the fact that it is a Zero Liquid Discharge.

DATE: 04.12.2024
PLACE: NEW DELHI

FILED



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**BEFORE THE HON'BLE NATIONAL GREEN TRIBUNAL,
PRINCIPAL BENCH, NEW DELHI
IN O.A. 646/2023**

IN THE MATTER OF:

MANOJ KUMAR KAUSHAL

...APPLICANT

VERSUS

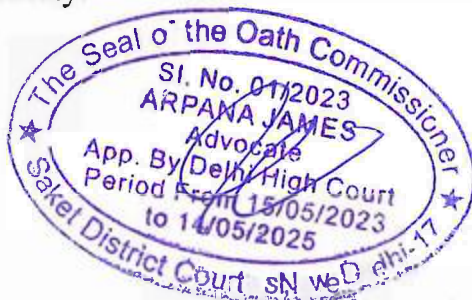
STATE OF HIMACHAL PRADESH & ORS

...RESPONDENTS

AFFIDAVIT

IR. V. Subramanian, S/o Late S. S. I Ramachandra Iyer aged about 59 years, R/o E-13/21, DLF City-I, DLF City Phase 1, C hakkarpur, Gurgaon, Haryana, 122002, do hereby solemnly affirm and state on oath as under:

1. That I am the Authorized Representative, of the Answering Respondent, i.e. Ian Macleod Distillers India Pvt Ltd, Respondent No. 7 in the captioned matter and as such am fully conversant with the facts and circumstances of the case and duly authorized and competent to swear this Affidavit.
2. That the accompanying Reply has been drafted by my Counsel under my instructions, the contents of the Accompanying Reply are true and correct to the best of my personal knowledge and the record maintained by the respondent.
3. The contents of the accompanying Reply may be read as part and parcel of this affidavit as the same are repeated herein for the sake of brevity.



4. I say that annexures filed along with the petition are true copies of their respective originals.

DEPONENT

VERIFICATION

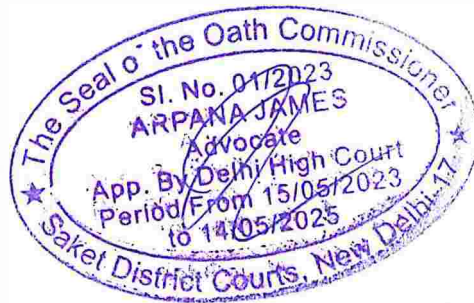
05 DEC 2024

Verified at New Delhi on this day _____ of _____, 2024 that the contents of the present Affidavit are true and correct to the best of my knowledge and belief as derived from the record maintained by the Applicant and no part of it is false and nothing material has been concealed therefrom.

DEPONENT

Identify the document/executed who has signed in my presence

05 DEC 2024



I S to L D b / W / c
Verified by Ms. R.V. Subramaniam
do hereby solemnly affirm before
on 5/12/24 Sl. No. 1252
true and correct of my knowledge.

Oath Commissioner, New Delhi

1253

Annexure R7/1



www.ianmacleod.com
www.glengoyne.com
www.smokehead.com

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india@ianmacleod.com
CIN No:- U15139HR2009PTC039601

CERTIFIED TRUE COPY OF THE RESOLUTION PASSED IN THE MEETING OF THE BOARD OF DIRECTORS OF IAN MECLEOD DISTILLERS INDIA PVT LTD, DULY CONVENED & AT WHICH A PROPER QUORUM WAS PRESENT. HELD ON 14th NOVEMBER 2024 AT PETER RUSSELL HOUSE, BROXBURN, U.K.

RESOLVED THAT Shri R.V. Subramanian S/o (Late) S. Ramachandra Iyer, R/o E-13/21, DLF City-I, DLF City Phase I, Gurgaon, Haryana, 122002, be the Authorized Representative of the Company and is hereby authorized and empowered to execute, sign, verify and institute, conduct, defend, compound, compromise, withdraw or abandon any legal proceedings by or against the Company or its officers or otherwise in National Green Tribunal and Supreme Court of India, and to sign and verify all pleadings, complaints, written statements, replications, writs, petitions, rejoinders as well as affidavits, counter affidavits and all other papers, applications as may be required to be filed in the National Green Tribunal and Supreme Court of India including filling of appeals, reviews, revisions, rectifications Special Leave Petitions, making statements, explanations, evidence etc, or before National Green Tribunal and Supreme Court, and/or local authorities in connection with any legal proceedings by or against the company, to refer any dispute to Arbitration, to apply for making an award a Rule of the Court Ind to engage and appoint Advocates, legal counsels, pleaders, professionals, Arbitrators, umpires, etc. to sign Vakalatnama, to appoint, empower, authorize, nominate and constitutes any person as Attorney for and on behalf of the Company and to represent the company in all other matters incidental thereto as may be considered necessary expedient.

RESOLVED FURTHER THAT Shri R.V. Subramanian, Authorized Representative of the Company is authorized to do all such acts, deeds and things as may be required to be done in this connection, for and on behalf of the Company. All such acts, deeds and things lawfully done by the said representative shall be binding on the Company."

For IAN MECLEOD DISTILLERS INDIA PVT LTD

A handwritten signature in black ink that reads 'Leonard S Russell'.

**LEONARD S RUSSELL
DIRECTOR**

1254

Annexure R7/2 ²⁰

NATIONAL GREEN TRIBUNAL
PRINCIPAL BENCH
FARIDKOT HOUSE, COPERNICUS MARG
NEW DELHI-110001



D-2/198

04.10.2024/2023



177202

~~pin-110001~~

M/s Ian Macleod Distillers India Pvt Ltd.
Plot no.: A2, A3, A4,
Pandoga Industrial Area, Uparla district
New Delhi-110001

177202

National Green Tribunal
Principal Bench, New Delhi-110001
14 NOV 2024
Weight
BNPL CODE - 900-084

1255

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Fwd: Invitation: Rising Himachal Global Investors' Meet : 7- 8 November 2019 : Dharamshala

From R.V. Subramanian <rv.subramanian@ianmacleod.com>
Date Tue 2019-10-01 2:10 PM
To Pooja Kakkar <pooja.kakkar@ianmacleod.com>

FYI

Begin forwarded message:

From: Rising Himachal Global Investors Meet 133095 <hpim@cii.in>
Subject: Invitation: Rising Himachal Global Investors' Meet : 7- 8 November 2019 : Dharamshala
Date: 1 October 2019 1:01:37 pm IST
To: <rv.subramanian@ianmacleod.com>
Reply-To: HP <reply-ff311c737765-20_HTML-4367443-110005023-42@ciimail.cii.in>

RISING HIMACHAL GLOBAL INVESTORS' MEET

7- 8 November 2019: Dharamshala

We are pleased to inform you that Government of Himachal Pradesh with Confederation of Indian Industry (CII) as the National Partner is organizing its first ever **Rising Himachal Global Investors' Meet** on **7 – 8 November 2019** at **Dharamshala, Himachal Pradesh**.

Shri Narendra Modi, Hon'ble Prime Minister of India has consented to Inaugurate the event on 7th November 2019 and **Shri Amit Shah, Hon'ble Home Minister, Government of India** has confirmed to join us as our Chief Guest during the Valedictory Session on 8th November.

The two day mega event will be a showcase of available investment opportunities across sectors in the State as well as that of the enabling framework created by the State Government to facilitate investors and investments. Thematic Sessions based on the competitive advantages of the State and Business to Government (B2G) meetings will also be organized as a part of the main event.

The summit aims to provide a platform for investors, policy makers, diplomats & trade commissioners and the vibrant local business community to explore possibilities of bringing investments to Himachal Pradesh through sectoral conferences, panel discussions, partner country sessions and B2G & G2G meetings.

In this context, we are writing to request you to kindly **Block Your Diary** and **join us** at the **Rising Himachal Global Investors Meet** scheduled on **7 – 8 November 2019** at Police Grounds, **Dharamshala, Himachal Pradesh**.

For event details and to **REGISTER** for the Investors' Meet, Please visit <https://risinghimachal.in/>

It would be our pleasure to have you with us on 7th & 8th November at Dharamshala.

Look forward to receiving your kind confirmation.

Kind regards,

Team Rising Himachal

**IN-PRINCIPLE APPROVAL**

No.: CAF/12/03/21657/112

Date of Issue: 21 Jan 2021

M/s **Ian Macleod Distillers India Private Ltd.** has filled Common Application Form No. **21657** received Dt. 03 Dec 2020 expressing its intention to setup the manufacturing enterprise as per following details:-

| Nature of Organisation | Type of Enterprise | Project Status | Industry Type | |
|---------------------------------------|---|-----------------------------|--------------------|---------|
| Private Limited | Large | New | | |
| Proposed Location | Industrial Area Pandoga, Distt. Una, H.P. | | | |
| Proposed Product & Capacity Per Annum | | | | |
| Items | | | | |
| Product Name | Excise Code | Quantity | Unit | |
| Malt Spirit | 220830 | 1500000 | Liters | |
| Cattle Feed (Bye Products) | 2302 | 1250000 | Kilogram | |
| Detail of Investment (Rs. in lacs) | | | | |
| Land | Building | Plant & Machinery | Other Fixed Assets | Total |
| 480.00 | 800.00 | 2000.00 | 1800.00 | 5080.00 |
| Detail of Employment | | | | |
| Skilled | | 30 | | |
| Un-skilled | | 45 | | |
| IT/ITeS Professional | | 2 | | |
| Total Employment | | 77 | | |
| Requirement of Basic Infrastructure | | | | |
| Land | Power Connection Load(kW) | Power Contract Demand (kVA) | Water (Ltrs/day) | |
| 40500 Sq. Mtr. | 650 | 722.22 | 100000 | |

The proposal is approved in Principle in State Single Window Clearance & Monitoring Authority in its 15th Meeting held on 15.01.2021 subject to the following conditions:

1. The unit will employ at all level at least 80% (or as prescribed from time to time) of total manpower, whether on regular/Contractual/Sub-contractual/daily basis/ or any other mode from amongst bonafide Himachali.
2. The HPPCB has no objection subject to conditions that: 1. The unit shall obtain prior Consent to Establish with Zero Liquid Discharge (ZLD) before start any construction activity and Consent to Operate before starting any operation under both Water (Prevention and Control of Pollution) Act, 1974 and Air (Prevention and Control of Pollution) Act, 1981 besides installation of requisite Air and Water Pollution Control Devices. 2. The unit shall obtain Prior Environmental Clearance of the competent authority. 3. The details of PCDs required to be installed in



the unit shall be finalized only after the unit applied for Consent to Establish of the State Board along with detailed manufacturing process and project report.

3. The area falls under Over Exploited (OE) category as per DGWRE 2017. The permission to extract the ground water cannot be given. The firm should obtain the no objection certificate in r/o Supply from overhead water tank from the concerned department.
4. The power for a load of 650 kW with a contract demand of 722.22 kVA contract demand can be made available at 11 kV supply voltage from 33/11 kV, Pandoga Sub-Station. The industrial unit has to apply within 30 days of approval of proposal for PAC online through Single Window portal in case Contract demand is more than 100 kVA failing which the commitment shall stand cancelled . The consumer/unit has to deposit the requisite charges for issuance of PAC within two months of online demand generation failing which the commitment of supply of power shall be forfeited. In case the power is required in future, the unit has to apply afresh with HPSEBL and shall be dealt as per general procedure being followed after examining the feasibility of feeding the load at that point of time. The recovery of expenditure for supply of electricity shall be as per HPERC(Recovery of Expenditure for supply of Electricity) Regulations,2012.
5. The Unit shall obtain Letter of Intent from Department of Excise and Taxation, H.P. prior to taking any steps for establishment of unit.
6. The Site /location for setting up of the project should conform to the sitting criteria and other environmental considerations as prescribed by the concerned State/ Centre Govt. Departments/ Organizations. You are therefore advised to keep in mind all these requirements for setting up of the project.
7. In order to reduce requirement of fresh water you are also advised to recycle used/ waste water.
8. 1% Cess on the actual cost of construction shall be deposited by the industrial unit under the Building and Other Construction Workers Welfare Cess Act 1996.
9. The unit may login to himpragati.nic.in to manage project or to raise his/ her concern with concerned department in case of undue delay in getting approval from that particular department"
10. The unit will update monthly progress Report regarding implementation of project or any problems/hurdles being faced online on Single Window Portal.

This approval is valid for two years from today. If no effective steps are taken to establish the project within this time period, it will be presumed that you are not interested in establishing the project and the approval will lapse automatically without any further notice. We assure you of our full co-operation and wish you and your enterprise all the success.

[Digitally Signed by H.R. Sharma, IAS, Shaurya Chakra on 21-01-2021 16:24:24]

1259

No. Ind/U/Dev/IAP/IMD/
Office of the General Manager,
District Industries Centre, Una, H.P.
Dated Una the

25

Annexure R7/5

To

The Commissioner Industries,
Govt. of Himachal Pradesh,
Udyog Bhavan, Shimla-I.

**Subject: Regarding permission to set up medium scale unit
within a period of 3 years.**

Sir,

Kindly refer to your office letter no.
Ind.Dev.F(34)Regn.(L&M)-645/2021/9475 dated 24 March, 2021 on the
subject cited above.

In this regard it is submitted that, as per your directions,
area measuring 43,699 Square Meters out of plot no. A2, A3 & A4 in Industrial
Area Pandoga, District Una,(H.P.) has been earmarked in favour of M/s Ian
McLeod India Pvt. Ltd. for setting up Malt Spirit Plant.

Yours Faithfully

General Manager,
District Industries Centre,
Una, District Una(H.P.)
Phone : 01975-223002

Enst No. :- ~~As above~~ No. 9ndlu1deu13 n p12 m01299 Dated: 18/05/2021

✓ Copy to M/s Ian Mcleods India Private Ltd., 705, B-Wing, Rohit House 3,
Tolstoy Marg, New Delhi-110001 for information


General Manager,
District Industries Centre,
Una, District Una(H.P.)
Phone : 01975-223002

1260

No.IA-J-11011/201/2021-IA-II(I)

26

Government of India

Minister of Environment, Forest and Climate Change

Impact Assessment Division

Annexure R7/6

Indira Paryavaran Bhavan,
Vayu Wing, 3rd Floor, Aliganj,
Jor Bagh Road, New Delhi-110003
20 May 2021

To,

M/s IAN MACLEOD DISTILLERS INDIA PRIVATE LIMITED
Pandoga Industrial area, Village Pandoga, Tal. Haroli, Dist. Una, Himachal Pradesh,
Una-110001
Himachal Pradesh

Tel.No.011-23323156; Email:rv.subramanian@ianmacleod.com

Sir/Madam,

This has reference to the proposal submitted in the Ministry of Environment, Forest and Climate Change to prescribe the Terms of Reference (TOR) for undertaking detailed EIA study for the purpose of obtaining Environmental Clearance in accordance with the provisions of the EIA Notification, 2006. For this purpose, the proponent had submitted online information in the prescribed format (Form-1) along with a Pre-feasibility Report. The details of the proposal are given below:

- | | |
|---|--|
| 1. Proposal No.: | IA/HP/IND2/212301/2021 |
| 2. Name of the Proposal: | Proposed 5 KLPD Malt Spirit Distillery |
| 3. Category of the Proposal: | Industrial Projects - 2 |
| 4. Project/Activity applied for: | 5(g) Distilleries |
| 5. Date of submission for TOR: | 18 May 2021 |

In this regard, under the provisions of the EIA Notification 2006 as amended, the Standard TOR for the purpose of preparing environment impact assessment report and environment management plan for obtaining prior environment clearance is prescribed with public consultation as follows:

**STANDARD TERMS OF REFERENCE (TOR) FOR EIA/EMP REPORT FOR
PROJECTS/ACTIVITIES REQUIRING ENVIRONMENT CLEARANCE**

**5(g): STANDARD TERMS OF REFERENCE FOR CONDUCTING
ENVIRONMENT IMPACT ASSESSMENT STUDY FOR
DISTILLERIES AND INFORMATION TO BE INCLUDED IN EIA/EMP
REPORT**

A. STANDARD TERMS OF REFERENCE

1) Executive Summary

2) Introduction

- i. Details of the EIA Consultant including NABET accreditation
- ii. Information about the project proponent
- iii. Importance and benefits of the project

3) Project Description

- i. Cost of project and time of completion.
- ii. Products with capacities for the proposed project.
- iii. If expansion project, details of existing products with capacities and whether adequate land is available for expansion, reference of earlier EC if any.
- iv. List of raw materials required and their source along with mode of transportation.
- v. Other chemicals and materials required with quantities and storage capacities
- vi. Details of Emission, effluents, hazardous waste generation and their management.
- vii. Requirement of water, power, with source of supply, status of approval, water balance diagram, man-power requirement (regular and contract)
- viii. Process description along with major equipments and machineries, process flow sheet (quantative) from raw material to products to be provided
- ix. Hazard identification and details of proposed safety systems.
- x. Expansion/modernization proposals:
 - a. Copy of all the Environmental Clearance(s) including Amendments thereto obtained for the project from MOEF/SEIAA shall be attached as an Annexure. A certified copy of the latest Monitoring Report of the Regional Office of the Ministry of Environment and Forests as per circular dated 30th May, 2012 on the status of compliance of conditions stipulated in all the existing environmental clearances including Amendments shall be provided. In addition, status of compliance of Consent to Operate for the ongoing Iexisting operation of the project from SPCB shall be attached with the EIA-EMP report.
 - b. In case the existing project has not obtained environmental clearance, reasons for not taking EC under the provisions of the EIA Notification 1994 and/or EIA Notification

STANDARD TERMS OF REFERENCE (TOR) FOR EIA/EMP REPORT FOR PROJECTS/ ACTIVITIES REQUIRING ENVIRONMENT CLEARANCE

2006 shall be provided. Copies of Consent to Establish/No Objection Certificate and Consent to Operate (in case of units operating prior to EIA Notification 2006, CTE and CTO of FY 2005-2006) obtained from the SPCB shall be submitted. Further, compliance report to the conditions of consents from the SPCB shall be submitted.

4) Site Details

- i. Location of the project site covering village, Taluka/Tehsil, District and State, Justification for selecting the site, whether other sites were considered.
- ii. A toposheet of the study area of radius of 10km and site location on 1:50,000/1:25,000 scale on an A3/A2 sheet. (including all eco-sensitive areas and environmentally sensitive places)
- iii. Details w.r.t. option analysis for selection of site
- iv. Co-ordinates (lat-long) of all four corners of the site.
- v. Google map-Earth downloaded of the project site.
- vi. Layout maps indicating existing unit as well as proposed unit indicating storage area, plant area, greenbelt area, utilities etc. If located within an Industrial area/Estate/Complex, layout of Industrial Area indicating location of unit within the Industrial area/Estate.
- vii. Photographs of the proposed and existing (if applicable) plant site. If existing, show photographs of plantation/greenbelt, in particular.
- viii. Landuse break-up of total land of the project site (identified and acquired), government/private - agricultural, forest, wasteland, water bodies, settlements, etc shall be included. (not required for industrial area)
- ix. A list of major industries with name and type within study area (10km radius) shall be incorporated. Land use details of the study area
- x. Geological features and Geo-hydrological status of the study area shall be included.
- xi. Details of Drainage of the project upto 5km radius of study area. If the site is within 1 km radius of any major river, peak and lean season river discharge as well as flood occurrence frequency based on peak rainfall data of the past 30 years. Details of Flood Level of the project site and maximum Flood Level of the river shall also be provided. (mega green field projects)
- xii. Status of acquisition of land. If acquisition is not complete, stage of the acquisition process and expected time of complete possession of the land.
- xiii. R&R details in respect of land in line with state Government policy

5) Forest and wildlife related issues (if applicable):

- i. Permission and approval for the use of forest land (forestry clearance), if any, and recommendations of the State Forest Department. (if applicable)

STANDARD TERMS OF REFERENCE (TOR) FOR EIA/EMP REPORT FOR PROJECTS/ACTIVITIES REQUIRING ENVIRONMENT CLEARANCE

- ii. Landuse map based on High resolution satellite imagery (GPS) of the proposed site delineating the forestland (*in case of projects involving forest land more than 40 ha*)
- iii. Status of Application submitted for obtaining the stage I forestry clearance along with latest status shall be submitted.
- iv. The projects to be located within 10 km of the National Parks, Sanctuaries, Biosphere Reserves, Migratory Corridors of Wild Animals, the project proponent shall submit the map duly authenticated by Chief Wildlife Warden showing these features vis-à-vis the project location and the recommendations or comments of the Chief Wildlife Warden-thereon
- v. Wildlife Conservation Plan duly authenticated by the Chief Wildlife Warden of the State Government for conservation of Schedule I fauna, if any exists in the study area
- vi. Copy of application submitted for clearance under the Wildlife (Protection) Act, 1972, to the Standing Committee of the National Board for Wildlife

6) Environmental Status

- i. Determination of atmospheric inversion level at the project site and site-specific micro-meteorological data using temperature, relative humidity, hourly wind speed and direction and rainfall.
- ii. AAQ data (except monsoon) at 8 locations for PM10, PM2.5, SO2, NOX, CO and other parameters relevant to the project shall be collected. The monitoring stations shall be based CPCB guidelines and take into account the pre-dominant wind direction, population zone and sensitive receptors including reserved forests.
- iii. Raw data of all AAQ measurement for 12 weeks of all stations as per frequency given in the NAQQM Notification of Nov. 2009 along with - min., max., average and 98% values for each of the AAQ parameters from data of all AAQ stations should be provided as an annexure to the EIA Report.
- iv. Surface water quality of nearby River (100m upstream and downstream of discharge point) and other surface drains at eight locations as per CPCB/MoEF&CC guidelines.
- v. Whether the site falls near to polluted stretch of river identified by the CPCB/MoEF&CC, if yes give details.
- vi. Ground water monitoring at minimum at 8 locations shall be included.
- vii. Noise levels monitoring at 8 locations within the study area.
- viii. Soil Characteristic as per CPCB guidelines.
- ix. Traffic study of the area, type of vehicles, frequency of vehicles for transportation of materials, additional traffic due to proposed project, parking arrangement etc.
- x. Detailed description of flora and fauna (terrestrial and aquatic) existing in the study area shall be given with special reference to rare, endemic and endangered species. If Schedule-I fauna are found within the study area, a Wildlife Conservation Plan shall be prepared and furnished.
- xi. Socio-economic status of the study area.

**STANDARD TERMS OF REFERENCE (TOR) FOR EIA/EMP REPORT FOR PROJECTS/
ACTIVITIES REQUIRING ENVIRONMENT CLEARANCE**

7) Impact and Environment Management Plan

- i. Assessment of ground level concentration of pollutants from the stack emission based on site-specific meteorological features. In case the project is located on a hilly terrain, the AQIP Modelling shall be done using inputs of the specific terrain characteristics for determining the potential impacts of the project on the AAQ. Cumulative impact of all sources of emissions (including transportation) on the AAQ of the area shall be assessed. Details of the model used and the input data used for modelling shall also be provided. The air quality contours shall be plotted on a location map showing the location of project site, habitation nearby, sensitive receptors, if any.
- ii. Water Quality modelling - in case of discharge in water body
- iii. Impact of the transport of the raw materials and end products on the surrounding environment shall be assessed and provided. In this regard, options for transport of raw materials and finished products and wastes (large quantities) by rail or rail-cum road transport or conveyor-cum-rail transport shall be examined.
- iv. A note on treatment of wastewater from different plant operations, extent recycled and reused for different purposes shall be included. Complete scheme of effluent treatment. Characteristics of untreated and treated effluent to meet the prescribed standards of discharge under E(P) Rules.
- v. Details of stack emission and action plan for control of emissions to meet standards.
- vi. Measures for fugitive emission control
- vii. Details of hazardous waste generation and their storage, utilization and management. Copies of MOU regarding utilization of solid and hazardous waste in cement plant shall also be included. EMP shall include the concept of waste-minimization, recycle/reuse/recover techniques, Energy conservation, and natural resource conservation.
- viii. Proper utilization of fly ash shall be ensured as per Fly Ash Notification, 2009. A detailed plan of action shall be provided.
- ix. Action plan for the green belt development plan in 33 % area i.e. land with not less than 1,500 trees per ha. Giving details of species, width of plantation, planning schedule etc. shall be included. The green belt shall be around the project boundary and a scheme for greening of the roads used for the project shall also be incorporated.
- x. Action plan for rainwater harvesting measures at plant site shall be submitted to harvest rainwater from the roof tops and storm water drains to recharge the ground water and also to use for the various activities at the project site to conserve fresh water and reduce the water requirement from other sources.
- xi. Total capital cost and recurring cost/annum for environmental pollution control measures shall be included.
- xii. Action plan for post-project environmental monitoring shall be submitted.

**STANDARD TERMS OF REFERENCE (TOR) FOR EIA/EMP REPORT FOR
PROJECTS/ACTIVITIES REQUIRING ENVIRONMENT CLEARANCE**

- xiii. Onsite and Offsite Disaster (natural and Man-made) Preparedness and Emergency Management Plan including Risk Assessment and damage control. Disaster management plan should be linked with District Disaster Management Plan.

8) Occupational health

- i. Plan and fund allocation to ensure the occupational health & safety of all contract and casual workers
- ii. Details of exposure specific health status evaluation of worker. If the workers' health is being evaluated by pre designed format, chest x rays, Audiometry, Spirometry, Vision testing (Far & Near vision, colour vision and any other ocular defect) ECG, during pre placement and periodical examinations give the details of the same. Details regarding last month analyzed data of above mentioned parameters as per age, sex, duration of exposure and department wise.
- iii. Details of existing Occupational & Safety Hazards. What are the exposure levels of hazards and whether they are within Permissible Exposure level (PEL). If these are not within PEL, what measures the company has adopted to keep them within PEL so that health of the workers can be preserved,
- iv. Annual report of health status of workers with special reference to Occupational Health and Safety.

9) Corporate Environment Policy

- i. Does the company have a well laid down Environment Policy approved by its Board of Directors? If so, it may be detailed in the EIA report.
- ii. Does the Environment Policy prescribe for standard operating process / procedures to bring into focus any infringement / deviation / violation of the environmental or forest norms / conditions? If so, it may be detailed in the EIA.
- iii. What is the hierarchical system or Administrative order of the company to deal with the environmental issues and for ensuring compliance with the environmental clearance conditions? Details of this system may be given.
- iv. Does the company have system of reporting of non compliances / violations of environmental norms to the Board of Directors of the company and / or shareholders or stakeholders at large? This reporting mechanism shall be detailed in the EIA report

- 10)** Details regarding infrastructure facilities such as sanitation, fuel, restroom etc. to be provided to the labour force during construction as well as to the casual workers including truck drivers during operation phase.

11) Enterprise Social Commitment (ESC)

- i. Adequate funds (at least 2.5 % of the project cost) shall be earmarked towards the Enterprise Social Commitment based on Public Hearing issues and item-wise details along with time

STANDARD TERMS OF REFERENCE (TOR) FOR EIA/EMP REPORT FOR PROJECTS/ACTIVITIES REQUIRING ENVIRONMENT CLEARANCE

bound action plan shall be included. Socio-economic development activities need to be elaborated upon.

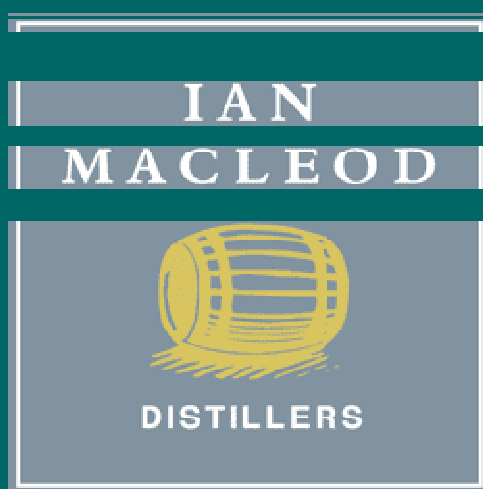
- 12) Any litigation pending against the project and/or any direction/order passed by any Court of Law against the project, if so, details thereof shall also be included. Has the unit received any notice under the Section 5 of Environment (Protection) Act, 1986 or relevant Sections of Air and Water Acts? If so, details thereof and compliance/ATR to the notice(s) and present status of the case.
- 13) 'A tabular chart with index for point wise compliance of above TOR.

B. SPECIFIC TERMS OF REFERENCE FOR EIA STUDIES FOR DISTILLERIES

1. List of existing distillery units in the study area along with their capacity and sourcing of raw material.
2. Number of working days of the distillery unit.
3. Details of raw materials such as molasses/grains, their source with availability.
4. Details of the use of steam from the boiler.
5. Surface and Ground water quality around proposed spent wash storage lagoon, and compost yard.
6. Plan to reduce spent wash generation within 6-8 KL/KL of alcohol produced.
7. Proposed effluent treatment system for molasses/grain based distillery (spent wash, spent lees, condensate and utilities) as well as domestic sewage and scheme for achieving zero effluent discharge (ZLD).
8. Proposed action to restrict fresh water consumption within 10 KL/KL of alcohol production.
9. Details about capacity of spent wash holding tank, material used, design consideration. No. of peizometers to be proposed around spent wash holding tank.
10. Action plan to control ground water pollution.
11. Details of solid waste management including management of boiler ash, yeast, etc. Details of incinerated spent wash ash generation and its disposal.
12. Details of bio-composting yard (if applicable).
13. Action plan to control odour pollution.
14. Arrangements for installation of continuous online monitoring system (24x7 monitoring device)

ENVIRONMENT IMPACT ASSESSMENT REPORT**5 KLPD MALT SPIRIT DISTILLERY****PROPOSED BY****IAN MACLEOD DISTILLERS INDIA PVT. LTD.**

At Plot No. A2, A3 & A4, Industrial Area Pandoga, District- Una, H.P.

*Baseline Period: 1st March 2021 to 31st May 2021*

EME/CS/IMIDIPL/2021-2022/114 Dated 30.07.2021 R01 03.08.2021 R02 23.12.2021

PREPARED BY**MITCON Consultancy & Engineering Services Ltd.**Behind DIC Office, Agriculture College Campus, Shivajinagar, Pune – 411 005,
Maharashtra (India)*NABET Accreditation No. NABET/EIA/1821/SA 0115*

DECLARATION

Declaration by Experts contributing to the preparation of Environmental Impact Assessment Report for Proposed 5 KLPD Malt Spirit Distillery at Industrial Area Pandoga, District- Una, H.P. by Ian Macleod Distillers India Pvt. Ltd.

I, hereby, certify that I was a part of the EIA team in the following capacity that developed the above EIA.

EIA Coordinator:

Name : Dr. Hemangi Nalavade





Signature & Date : 03/08.2021



Period of involvement : January 2021 to till date

Contact information : MITCON Consultancy and Engineering Services Ltd.
Environment Management & Engineering Division
Agriculture College Campus, Next to DIC office,
Shivaji Nagar, Pune- 411 005, Maharashtra (India)
Tel: +91-20-66289400, Fax No. +91-20-25521607
Email: eme@mitconindia.com

Functional Area Experts:

| Sr. No. | Name of the Expert/s | Functional Area | Involvement (Period & Task**) | Task | Signature |
|---------|----------------------|-----------------|-------------------------------|---|-----------|
| 1. | Dr. Sandeep Jadhav | SC, EB, LU | January 2021 to till date | <p>SC: Monitoring soil sampling & Interpretation analysis results. Assessment of soil quality. Identification of pollution sources, its impact and suggesting mitigation measures.</p> <p>LU: GIS based land use data generation and interpretation. Creating land use maps.</p> <p>EB: Conducting site visit for identification of sensitive receptors. Conducting ecological survey and study of ecology and biodiversity of the area, identification of rare, endanger, threaten, scheduled flora and fauna in the study area. Identification of pollution sources, its impact and suggesting mitigation</p> | |

| | | | | measures | |
|----|----------------------|--------|---------------------------|--|---|
| 2. | Mr. Shrikant Kakade | EB | January 2021 to till date | EB: Conducting site visit for identification of sensitive receptors. Conducting ecological survey and study of ecology and biodiversity of the area, identification of rare, endanger, threaten, scheduled flora and fauna in the study area. Identification of pollution sources, its impact and suggesting mitigation measures |  |
| 3. | Mr. Ganesh Khamgal | SE | January 2021 to till date | Conducting baseline socio-economic surveys through interviews/questionnaire. Studying social needs of the area and project awareness. Compilation and evaluation of secondary data. Identification of social concerns assigned with proposed project & suggesting remedies for the same. |  |
| 4. | Dr. Hemangi Nalavade | AQ | January 2021 to till date | Study of meteorology of study area, selection of air quality monitoring stations. Primary data interpretation. Identification of process and utility inventories, Identification of probable impacts. Identification of air pollution control devices. Applicability of rules and regulation for the discharge standards, treatment methodologies. Conducting air modelling. |  |
| 5. | Mr. Nikhil Chavan | AQ, NV | January 2021 to till date | AQ: Study of meteorology of study area, selection of air quality monitoring stations. Primary data interpretation. Identification of process and utility inventories, Identification of probable impacts. Identification of air pollution control devices. Applicability of rules and regulation for the discharge standards, treatment methodologies. Conducting air modelling. NV: Identification of sources by studying process and other noise generating activities. Noise monitoring. Probable impacts of noise on sensitive receptors. Suggesting mitigation measures. |  |

| | | | | | |
|----|-------------------|-----------------|---------------------------|--|---|
| 6. | Aditya Athavale | GEO, HG | January 2021 to till date | <p>HG: Study of specific area, water sources, analysis of surface hydrological data. Identification of Water pollution sources and studying its impacts, estimation of groundwater potential and recharge phenomenon, determination of impact for groundwater withdrawal.</p> <p>GEO: Study of Geology and Geo morphological description of the study area and project area. Identification of impacts & suggestion of mitigation measures.</p> |  |
| 7. | Mr. Santosh Gupta | RH, WP, AP, SHW | January 2021 to till date | <p>WP: Primary data collection through baseline monitoring. Study of manufacturing process, identification of pollution sources, its quantification. Identification of sensitive receptors. Applicability of rules and regulation for the discharge standards, treatment methodologies. Impact assessment and mitigation measures.</p> <p>AP: Identification of probable pollution sources, baseline data collection through air monitoring, Identification of sensitive receptors. Interpretation of baseline data Applicability of rules and regulation for the discharge standards, treatment methodologies. Impact assessment and mitigation measures.</p> <p>SHW: Study of manufacturing process and other allied activities conducted in project area. Identification of sources and its impact on immediate surroundings and on nearby sensitive receptors. Identification of hazardous and non-hazardous solid waste, its categorization, Handling and disposal methods. Applicability of rules and regulation for the disposal methods.</p> <p>RH: Study of process, location, etc. Identification of hazards, hazardous substances and Vulnerability assessment. Risks and consequences analysis. Preparation of DMP and Emergency plan.</p> |  |

Declaration by the Head of the Accredited Consultant Organization

I, Dr. Sandeep Jadhav (Sr. Vice President & Head, EME Division) hereby, confirm that the above mentioned experts prepared the EIA Study for Proposed 5 KLPD Malt Spirit Distillery at Industrial Area Pandoga, District- Una, H.P. by Ian Macleod Distillers India Pvt. Ltd.

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

Signature:**Name:**

Dr. Sandeep Jadhav

Designation:

Sr. Vice President & Head, EME Division

EIA Consultant Organization:

MITCON Consultancy and Engineering Services Ltd.

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TOR Compliance

| Sr. No. | Condition | Compliance |
|---|--|---|
| Standard Terms of Reference for Conducting Environment Impact Assessment Study for Distilleries and Information to be included in EIA/EMP Report | | |
| A. STANDARD TERMS OF REFERENCE | | |
| 1) | Executive Summary | Attached as separate chapter to the EIA- EMP report. |
| 2) | Introduction | |
| i) | Details of the EIA Consultant including NABET accreditation | MITCON Consultancy & Engineering Services Ltd., is a NABET accredited consultant organization Cat. 'A' (NABET/EIA/1821/SA 0115). Certificate attached as Annexure 1. |
| ii) | Information about the project proponent | Mentioned in chapter 1, Section 1.1 & 1.2. |
| iii) | Importance and benefits of the project | Benefits to Barley Malt farmers, employment to local people of Himachal Pradesh, Revenue to State Government and forex earnings from exports. Detailed benefits are given in Chapter 8. |
| 3) | Project Description | |
| i) | Cost of project and time of completion. | The total estimated investment in the project is over Rs. 50.8 Crores of which the plant and machinery including utilities would be approx. Rs. 20.0 Crores, Building Rs. 8.0 Crores and Oak casks Rs. 17.55 Crores. Land cost is approximate Rs. 5.25 Crores. Expected time of completion of project is within 1 year. |
| ii) | Products with capacities for the proposed project. | Malt Spirit: 5 KLPD IMFL: 1000 Cases DWGS (Spent Grain) Cattle feed: 5400 Kg/d Detailed description is given in Chapter 2, Section 2.4. |
| iii) | If expansion project, details of existing products with capacities and whether adequate land is available for expansion, reference of earlier EC if any. | NA as the proposed project is greenfield. |
| iv) | List of raw materials required and their source along with mode of transportation. | Barley (Malt): 10-11 TPD Chemicals: CIP Chemicals: 1 kg/day Caustic soda: 1 kg/day Enzyme: 2 L/day Yeast: 10 kg/day Basic raw materials and chemicals will be procured from nearby market. Mode of transport will be by road. Detailed description is given in Chapter 2, Section 2.5.1. |
| v) | Other chemicals and materials required with quantities and storage capacities | Details furnished in Chapter 2, Section 2.5. |
| vi) | Details of Emission, effluents, hazardous waste generation and their management. | Particulate Matter (PM), SO ₂ & NO _x are main pollutants to be emitted from stacks. Air pollution equipment's like Multi-cyclone is proposed for distillery. |

| Sr. No. | Condition | Compliance |
|---------|--|--|
| | | <p>Waste water will be generated from process mainly Spent wash, Spent lees, Fermenter Washings, other washings, boiler and cooling tower blow down and water treatment plant washings which will be treated in ETP. Spent wash generated during the process of distillation along with other waste water will be treated in ETP consisting of Primary and secondary treatment followed by Filters and RO plant to Achieve ZERO discharge.</p> <p>Fly ash generated from Boiler will be collected and shall be given to brick manufacturers or used for land filling.</p> <p>Hazardous waste shall be handed over to authorized vendors for further treatment & disposal.</p> <p>Detailed description is given in Chapter 2, Section 2.5.4 & 10.</p> |
| vii) | Requirement of water, power, with source of supply, status of approval, water balance diagram, man-power requirement (regular and contract) | <p>The total fresh required for the 5 KLPD distillery is 102 m³/day</p> <p>Source: Supply from Overhead Water Tank-DIC, Una</p> <p>Total Man power required: 77 Nos.</p> <p>All information is summarized in Chapter 2.</p> |
| viii) | Process description along with major equipment's and machineries, process flow sheet (quantitative) from raw material to products to be provided | Process description with process flow chart and quantities of raw water and products are given in Chapter 2. Major equipment's and machineries list is given in chapter 2. |
| ix) | Hazard identification and details of proposed safety systems. | Hazardous identification and the proposed safety system are thoroughly described in Chapter 7 Additional studies. |
| x) | Expansion/modernization proposals: | |
| | a) Copy of all the Environmental Clearance(s) including Amendments thereto obtained for the project from MOEF/SEIAA shall be attached as an Annexure. A certified copy of the latest Monitoring Report of the Regional Office of the Ministry of Environment and Forests as per circular dated 30 th May, 2012 on the status of compliance of conditions stipulated in all the existing environmental clearances including Amendments shall be provided. In addition, status of compliance of Consent to Operate for the ongoing / existing operation of the project from SPCB shall be attached with the EIA-EMP report. | NA |
| | b) In case the existing project has not obtained environmental clearance, reasons for not taking EC under the provisions of the EIA Notification 1994 and/or EIA | Not Applicable |

| Sr. No. | Condition | Compliance | | | | | | | | | | | | | | | | | | |
|-------------|--|---|-------------|---------------|-----------|--------|---------------|--------------|----------|---------------|--------------|----------|---------------|--------------|----------|---------------|--------------|----------|---------------|--------------|
| | Notification 2006 shall be provided. Copies of Consent to Establish/No Objection Certificate and Consent to Operate (in case of units operating prior to EIA Notification 2006, CTE and CTO of FY 2005-2006) obtained from the SPCB shall be submitted. Further, compliance report to the conditions of consents from the SPCB shall be submitted. | | | | | | | | | | | | | | | | | | | |
| 4) | Site Details | | | | | | | | | | | | | | | | | | | |
| i) | Location of the project site covering village, Taluka/Tehsil, District and State, Justification for selecting the site, whether other sites were considered. | <p>The project is located at Plot No. A2, A3 & A4, Industrial Area Pandoga, District Una, Himachal Pradesh. The location of the project and site selection criteria is described in Chapter 5. No alternative site has been considered as proposed project site is appropriate which is in industrial area for establishment of distillery unit.</p> <table border="1"> <thead> <tr> <th>Corners</th> <th>Latitude</th> <th>Longitude</th> </tr> </thead> <tbody> <tr> <td>Centre</td> <td>31°30'39.44"N</td> <td>76°8'16.62"E</td> </tr> <tr> <td>Corner 1</td> <td>31°30'42.00"N</td> <td>76°8'12.96"E</td> </tr> <tr> <td>Corner 2</td> <td>31°30'42.99"N</td> <td>76°8'18.09"E</td> </tr> <tr> <td>Corner 3</td> <td>31°30'36.77"N</td> <td>76°8'20.42"E</td> </tr> <tr> <td>Corner 4</td> <td>31°30'33.23"N</td> <td>76°8'16.71"E</td> </tr> </tbody> </table> | Corners | Latitude | Longitude | Centre | 31°30'39.44"N | 76°8'16.62"E | Corner 1 | 31°30'42.00"N | 76°8'12.96"E | Corner 2 | 31°30'42.99"N | 76°8'18.09"E | Corner 3 | 31°30'36.77"N | 76°8'20.42"E | Corner 4 | 31°30'33.23"N | 76°8'16.71"E |
| Corners | Latitude | Longitude | | | | | | | | | | | | | | | | | | |
| Centre | 31°30'39.44"N | 76°8'16.62"E | | | | | | | | | | | | | | | | | | |
| Corner 1 | 31°30'42.00"N | 76°8'12.96"E | | | | | | | | | | | | | | | | | | |
| Corner 2 | 31°30'42.99"N | 76°8'18.09"E | | | | | | | | | | | | | | | | | | |
| Corner 3 | 31°30'36.77"N | 76°8'20.42"E | | | | | | | | | | | | | | | | | | |
| Corner 4 | 31°30'33.23"N | 76°8'16.71"E | | | | | | | | | | | | | | | | | | |
| ii) | A toposheet of the study area of radius of 10km and site location on 1:50,000/1:25,000 scale on an A3/A2 sheet. (including all eco-sensitive areas and environmentally sensitive places) | Map of study area for 10 km radius marked on Toposheet is given in chapter 3, Figure 3.1. | | | | | | | | | | | | | | | | | | |
| iii) | Details w.r.t. option analysis for selection of site | Analysis for selection of site information is given in Chapter 5. | | | | | | | | | | | | | | | | | | |
| iv) | Co-ordinates (lat-long) of all four corners of the site. | Co-ordinates (lat-long) of all corners of the site are given in Chapter 2, Table 2.1. | | | | | | | | | | | | | | | | | | |
| v) | Google map-Earth downloaded of the project site. | Google earth map is given in Chapter 2, Fig. 2.1. | | | | | | | | | | | | | | | | | | |
| vi) | Layout maps indicating existing unit as well as proposed unit indicating storage area, plant area, greenbelt area, utilities etc. If located within an Industrial area/Estate/Complex, layout of Industrial Area indicating location of unit within the Industrial area/Estate. | Project layout showing plant area, greenbelt, utilities, etc. is given in Chapter 2, Fig. 2.2. | | | | | | | | | | | | | | | | | | |
| vii) | Photographs of the proposed and existing (if applicable) plant site. If existing, show photographs of plantation/greenbelt, in particular. | Photographs of proposed project site is given in Chapter 2, Fig. 2.3. | | | | | | | | | | | | | | | | | | |
| viii) | Landuse break-up of total land of the project site (identified and acquired), government/ private - agricultural, forest, wasteland, water bodies, settlements, etc. shall be included (not required for | <p>Proposed project is in industrial area Pandoga. Break up of land is given in Section 2.3. Total plot area available with the factory 10.8 Acres</p> <table border="1"> <thead> <tr> <th>Particulars</th> <th>Area (Sq. m.)</th> </tr> </thead> <tbody> </tbody> </table> | Particulars | Area (Sq. m.) | | | | | | | | | | | | | | | | |
| Particulars | Area (Sq. m.) | | | | | | | | | | | | | | | | | | | |

| Sr. No. | Condition | Compliance | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|--------------------------------------|---|--|-----------------------------------|------|-----------------------|------|----------|------|--------------------------------------|------|------------------|------|------------------------------|-----|------------|-------|--------------|--------------|---------|---------|-----------------|-----------|---|-------------|--------|-------|---|---------------|-------|------|---|-------------|-------|-------|---|------------|-------|------|--------------|--|---------------|---------------|
| | industrial area) | <table border="1"> <tr> <td>Main Plant & Machinery, Utilities</td> <td>7214</td> </tr> <tr> <td>Maturation warehouses</td> <td>9000</td> </tr> <tr> <td>Bottling</td> <td>2020</td> </tr> <tr> <td>Storage W/H – dry and finished goods</td> <td>1352</td> </tr> <tr> <td>Roads and Drains</td> <td>7988</td> </tr> <tr> <td>Admin, Security, Excise Off.</td> <td>984</td> </tr> <tr> <td>Green Belt</td> <td>15141</td> </tr> <tr> <td>Total</td> <td>43699</td> </tr> </table> <table border="1"> <thead> <tr> <th>Sr. No.</th> <th>Classes</th> <th>Area in Sq. km.</th> <th>Area in %</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Agriculture</td> <td>116.56</td> <td>37.13</td> </tr> <tr> <td>2</td> <td>Built Up Land</td> <td>16.48</td> <td>5.25</td> </tr> <tr> <td>3</td> <td>Forest Land</td> <td>169.6</td> <td>54.02</td> </tr> <tr> <td>4</td> <td>Water body</td> <td>11.31</td> <td>3.60</td> </tr> <tr> <td>Total</td> <td></td> <td>314.26</td> <td>100.00</td> </tr> </tbody> </table> | Main Plant & Machinery, Utilities | 7214 | Maturation warehouses | 9000 | Bottling | 2020 | Storage W/H – dry and finished goods | 1352 | Roads and Drains | 7988 | Admin, Security, Excise Off. | 984 | Green Belt | 15141 | Total | 43699 | Sr. No. | Classes | Area in Sq. km. | Area in % | 1 | Agriculture | 116.56 | 37.13 | 2 | Built Up Land | 16.48 | 5.25 | 3 | Forest Land | 169.6 | 54.02 | 4 | Water body | 11.31 | 3.60 | Total | | 314.26 | 100.00 |
| Main Plant & Machinery, Utilities | 7214 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Maturation warehouses | 9000 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Bottling | 2020 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Storage W/H – dry and finished goods | 1352 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Roads and Drains | 7988 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Admin, Security, Excise Off. | 984 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Green Belt | 15141 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Total | 43699 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Sr. No. | Classes | Area in Sq. km. | Area in % | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | Agriculture | 116.56 | 37.13 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | Built Up Land | 16.48 | 5.25 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | Forest Land | 169.6 | 54.02 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | Water body | 11.31 | 3.60 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Total | | 314.26 | 100.00 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ix) | A list of major industries with name and type within study area (10km radius) shall be incorporated. Land use details of the study area | No any major industry is not located in 10 km radius area. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| x) | Geological features and Geo-hydrological status of the study area shall be included. | Details have been given in Chapter 3, Section 3.9. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| xi) | Details of Drainage of the project upto 5 km radius of study area. If the site is within 1 km radius of any major river, peak and lean season river discharge as well as flood occurrence frequency based on peak rainfall data of the past 30 years. Details of Flood Level of the project site and maximum Flood Level of the river shall also be provided. (mega green field projects) | <p>Drainage pattern of the 10 km study area is given in Chapter 3, Section 3.9.</p> <p>Swan river is present at 5.76 km distance from the project site.</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| xii) | Status of acquisition of land. If acquisition is not complete, stage of the acquisition process and expected time of complete possession of the land. | The total land is in possession with management of industry. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| xiii) | R&R details in respect of land in line with state Government policy | The site is situated in industrial area without any human settlements. Hence, no R&R study is required. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5) | Forest and wildlife related issues (if applicable): | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| i) | Permission and approval for the use of forest land (forestry clearance), if any, and recommendations of the State Forest Department (if applicable) | Not Applicable as no forest land is involved. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ii) | Landuse map based on High resolution satellite imagery (GPS) of the proposed site delineating the forest land (in case of projects involving forest land more than 40 ha) | No forest land is involved. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| iii) | Status of Application submitted for obtaining the stage I forestry clearance along with latest status shall be submitted. | Not Applicable | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

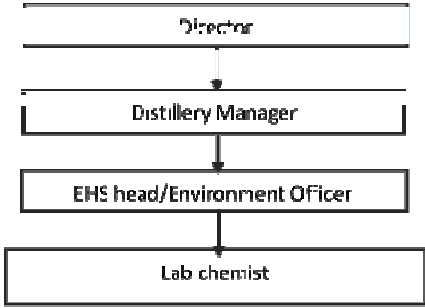
| Sr. No. | Condition | Compliance |
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| iv) | The projects to be located within 10 km of the National Parks, Sanctuaries, Biosphere Reserves, Migratory Corridors of Wild Animals, the project proponent shall submit the map duly authenticated by Chief Wildlife Warden showing these features vis-à-vis the project location and the recommendations or comments of the Chief Wildlife Warden-thereon | Not Applicable. No National Parks, Sanctuaries, Biosphere Reserves, Migratory Corridors of Wild Animals located within 10 km radius of the project site. |
| v) | Wildlife Conservation Plan duly authenticated by the Chief Wildlife Warden of the State Government for conservation of Schedule I fauna, if any exists in the study area | No National Parks, Sanctuaries, Biosphere Reserves, Migratory Corridors of Wild Animals located within 10 km radius of the project site however Wildlife Conservation Plan has been prepared for schedule I species reported within 10 km radius. Wildlife conservation plan has been attached as Annexure 5. |
| vi) | Copy of application submitted for clearance under the Wildlife (Protection) Act, 1972, to the Standing Committee of the National Board for Wildlife | Not Applicable |
| 6) Environmental Status | | |
| i) | Determination of atmospheric inversion level at the project site and site-specific micrometeorological data using temperature, relative humidity, hourly wind speed and direction and rainfall. | Details furnished in Chapter 3. |
| ii) | AAQ data (except monsoon) at 8 locations for PM ₁₀ , PM _{2.5} , SO ₂ , NO _x , CO and other parameters relevant to the project shall be collected. The monitoring stations shall be based CPCB guidelines and take into account the pre-dominant wind direction, population zone and sensitive receptors including reserved forests. | Air monitoring was carried out during the period of 1 st March 2021 to 31 st May 2021, 24-hourly samples were collected twice a week from each location. Total 9 locations were monitored for Air Quality assessment. min., max., average and 98% values for each of the AAQ parameters from data of all AAQ stations is given in Chapter 3, Section 3.7. |
| iii) | Raw data of all AAQ measurement for 12 weeks of all stations as per frequency given in the NAQQM Notification of Nov. 2009 along with - min., max., average and 98% values for each of the AAQ parameters from data of all AAQ stations should be provided as an annexure to the EIA Report | Air monitoring was carried out during the period of 1 st March 2021 to 31 st May 2021, 24-hourly samples were collected twice a week from each location. Total 9 locations were monitored for Air Quality assessment. min., max., average and 98% values for each of the AAQ parameters from data of all AAQ stations is given in Chapter 3, Section 3.7. Monitoring reports attached as Annexure 4. |
| iv) | Surface water quality of nearby River (100 m upstream and downstream of discharge point) and other surface drains at eight locations as per CPCB/MoEF&CC guidelines. | 3 surface water samples were collected from nearest canal, River and Lake. Details furnished in Chapter 3, Section 3.10. Looking at the results it can be stated that surface water of Swan River falls under classification A (Drinking Water Source without conventional treatment but after disinfection). |
| v) | Whether the site falls near to polluted stretch of river identified by the | No. The site does not falls near to polluted stretch of river identified by the |

| Sr. No. | Condition | Compliance |
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| | CPCB/MoEF&CC, if yes give details. | CPCB/MoEF&CC |
| vi) | Ground water monitoring at minimum at 8 locations shall be included. | <p>8 ground water samples were collected within 10 km study area from Well water and Borewell.</p> <p>Ground water samples from 8 representative areas were taken from sources and described in above Table.</p> <ul style="list-style-type: none"> The pH values ranged from 7.0 to 8.04. Electrical Conductivity was maximum at GW8 (1121.6 μS/cm) and minimum at GW7 (683.9 μS/cm). Turbidity count ranges from <1 NTU at all sampling stations. Total Dissolved Solids was observed Minimum (394 mg/l) at GW7 and maximum (692 mg/l) at GW8. Total Alkalinity ranges from 145 mg/l to 300 mg/l. Maximum Calcium 88.17 mg/l was found at GW7. Minimum Calcium 52.10 mg/l was found at GW8. <p>Results for the same are given in Chapter 3, Section 3.10.</p> |
| vii) | Noise levels monitoring at 8 locations within the study area. | <p>9 noise monitoring locations were selected within 10 km study area. The locations were selected in Industrial, Commercial and Residential Area. The maximum noise level in day time is 59.7 dB (A) which is observed at west side of the project and is minimum of 47.6 dB(A) which was observed at Lohar Nichli. Maximum noise levels in Night time is of 50.6 dB(A) which was observed at west side of the project and in night time it is observed as 37.6 dB(A) at Lohar Nichli. Results for the same are given in Chapter 3, Section 3.8.</p> |
| viii) | Soil Characteristic as per CPCB guidelines. | <p>Eight soil sampling locations were selected within 10 km study area.</p> <p>pH: The pH of the samples varied from 7.77 to 8.27. It is found that pH of all the locations is moderately on alkaline scale.</p> <ul style="list-style-type: none"> All the samples have pH in the range of 7.30 to 7.58 Conductivity of the samples ranges between 114 to 487 μs/cm. N, P, K concentration in all soil samples are in the range of 110.3 to 160.2 kg/ha, 12.34 to 38.10 kg/ha and 104.8 to 188.9 kg/ha respectively. Heavy metals like Copper, Cadmium, Lead, Chromium and Manganese are all less than 0.4 mg/kg in all the samples. <p>Soil characteristics has been given in chapter 3 under Section 3.9.</p> |
| ix) | Traffic study of the area, type of vehicles, frequency of vehicles for transportation of | The average PCU/hr at study area (i.e. Una-Hoshiarpur Road) during morning and evening |

| Sr. No. | Condition | Compliance |
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| | materials, additional traffic due to proposed project, parking arrangement etc. | was found to be 109 and 139.5 respectively. Non-peak hours are considered from 2:00 pm – 3:00 pm and 8:00 pm – 9:00 pm. Hence, after proposed project total 77.5 PCU/hr might be observed during peak hour in a day. LOS for the said project is 0.03 which represent LOS of 'A' category which represents excellent performance. Details of traffic study are considered in Chapter 4 and 11. |
| x) | Detailed description of flora and fauna (terrestrial and aquatic) existing in the study area shall be given with special reference to rare, endemic and endangered species. If Schedule-I fauna are found within the study area, a Wildlife Conservation Plan shall be prepared and furnished. | Details of Flora and Fauna are given in Chapter 3, Section 3.11. |
| xi) | Socio-economic status of the study area. | There are 28 number of villages falling within the 10 km radius of project site. Out of 28 villages, 8 villages from Punjab & 21 villages from Himachal Pradesh. In these 28 villages, total 7243 households are presents. Total population residing in the study area is 35862. Out of total population, 51.51% are male and 48.49% are female. Total schedule caste population is 7355, which is 20.50% of the total population within 10 km project boundary. Total schedule tribe's population is 147 which is only from State Himachal Pradesh is 0.4% of total population. Details of Socio-economic study is given in Chapter 3, Section 3.12. |
| 7) | Impact and Environment Management Plan | |
| i) | Assessment of ground level concentration of pollutants from the stack emission based on site-specific meteorological features. In case the project is located on a hilly terrain, the AQIP Modelling shall be done using inputs of the specific terrain characteristics for determining the potential impacts of the project on the AAQ. Cumulative impact of all sources of emissions (including transportation) on the AAQ of the area shall be assessed. Details of the model used and the input data used for modelling shall also be provided. The air quality contours shall be plotted on a location map showing the location of project site, habitation nearby, sensitive receptors, if any. | During operation phase, one Steam Boiler of capacity 6 TPH will be proposed with separate stack of height 30 m. The main air pollutants are Particulate Matter (SPM), SO ₂ and NO _x . Based on the model simulation result under observed meteorological condition, 24 hours average maximum GLC of SPM, NO _x & SO ₂ due to proposed boiler are predicted to be approximately 3.22, 2.42 & 0.355 µg/m ³ respectively and occurs at a distance at about 464 m, 394 m & 403 m from the common stack. Model simulated result envisages that incremental ground level concentrations of critical pollutants due to proposed plant operation may be expected minimal and the resultant concentration level of all pollutants may also be expected well within the NAAQS. Impact assessment of all sources of emissions (including transportation) on the AAQ of the area have been assessed and described in Chapter 4. |

| Sr. No. | Condition | Compliance |
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| ii) | Water Quality modelling - in case of discharge in water body | Not Applicable as the proposed plant is zero discharge |
| iii) | Impact of the transport of the raw materials and end products on the surrounding environment shall be assessed and provided. In this regard, options for transport of raw materials and finished products and wastes (large quantities) by rail or rail-cum road transport or conveyor cum- rail transport shall be examined. | There will be no negative impact of transport of raw materials and end products on the surrounding environment. All product and raw material transportation will be done by state highway and pacca road. Transportation of Products and Raw material will be done by covered Trucks and pipeline. |
| iv) | A note on treatment of wastewater from different plant operations, extent recycled and reused for different purposes shall be included. Complete scheme of effluent treatment. Characteristics of untreated and treated effluent to meet the prescribed standards of discharge under E(P) Rules. | Spent Wash Slops (approx. 7 to 8 % w/w solids) is initially settled in settling tank and mixed with other non-process effluent. Other effluent like DM plant washing & boiler blow down, Fermenter washings, Spent- lees will be neutralized in neutralization tanks and mixed with spent wash and then treated in Primary & Secondary Effluent treatment plant. The treated effluent is then passed through RO to get clean water for reuse in the cooling towers and gardening. Complete scheme of effluent generation and its disposal is given in Chapter 2, Section 2.5.4 and 10. |
| v) | Details of stack emission and action plan for control of emissions to meet standards. | Multi Cyclone Stack height shall be as per SPCB/CPCB Norms (30 m). Details of stack emissions and control measures are given in Chapter 4. |
| vi) | Measures for fugitive emission control | Fugitive emissions from raw material storage yards, loading and unloading operations will be controlled by water sprinkling system, whenever necessary. Also, all internal roads shall be constructed as tar roads to prevent fugitive dust emissions. Details furnished in Chapter 4 and Chapter 11. |
| vii) | Details of hazardous waste generation and their storage, utilization and management. Copies of MOU regarding utilization of solid and hazardous waste in cement plant shall also be included. EMP shall include the concept of waste-minimization, recycle/reuse/recover techniques, Energy conservation and natural resource conservation. | Negligible quantity of Spent oil will be sent to authorized recycler. Coal ash will be sold to brick manufacturers. Details given in Chapter 2, 4 and 11. |
| viii) | Proper utilization of fly ash shall be ensured as per Fly Ash Notification, 2009. A detailed plan of action shall be provided. | Multi Cyclone will be installed for Fly ash collection. Fly ash will be collected and sent to brick manufacturer or used for land filling. |
| ix) | Action plan for the green belt development plan in 33 % area i.e. land with not less than 1,500 trees per ha. Giving details of species, width of plantation, planning schedule etc. shall be included. The green belt shall be around the project boundary and a scheme for greening of the roads | Greenbelt will be developed along the periphery of the project area, along roads, around each separate unit. Factory shall develop greenbelt on 15141 Sq. m. Which is >33% of the total plot area. Detailed plan for green belt development is given in Chapter 4 & 10, Section 10.5. |

| Sr. No. | Condition | Compliance |
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| | used for the project shall also be incorporated. | |
| x) | Action plan for rainwater harvesting measures at plant site shall be submitted to harvest rainwater from the roof tops and storm water drains to recharge the ground water and also to use for the various activities at the project site to conserve fresh water and reduce the water requirement from other sources. | Maximum daily harvesting potential is estimated to be 697.32 m ³ /Hr. Total storm water load on the site with per hour retention is estimated to be 2970.18 m ³ /Hr. Details furnished in Chapter 4 and 10, Section 10.4. |
| xi) | Total capital cost and recurring cost / annum for environmental pollution control measures shall be included. | Capital Cost: 220 Lakhs O&M Cost: 34.50 Lakhs |
| xii) | Action plan for post-project environmental monitoring shall be submitted. | Action plan for post-project environmental monitoring is given in Chapter 10, Section 10.12. |
| xiii) | Onsite and Offsite Disaster (natural and Man-made) Preparedness and Emergency Management Plan including Risk Assessment and damage control. Disaster management plan should be linked with District Disaster Management Plan. | Details of onsite and offsite Disaster (natural and Man-made) preparedness and Emergency Management Plan including Risk Assessment and damage control is given in Chapter 7. |
| 8) | Occupational Health | |
| i) | Plan and fund allocation to ensure the occupational health & safety of all contract and casual workers | Total Rs. 35 Lakhs has been allotted as Initial fund allocation to ensure the occupational health & safety of all contract and casual workers. |
| ii) | Details of exposure specific health status evaluation of worker. If the workers' health is being evaluated by pre designed format, chest x-rays, Audiometry, Spirometry, Vision testing (Far & Near vision, colour vision and any other ocular defect) ECG, during pre-placement and periodical examinations give the details of the same. Details regarding last month analysed data of above mentioned parameters as per age, sex, duration of exposure and department wise. | Details regarding Occupational & Safety Hazards are described in Chapter 7 and Chapter 10. |
| iii) | Details of existing Occupational & Safety Hazards. What are the exposure levels of hazards and whether they are within Permissible Exposure level (PEL). If these are not within PEL, what measures the company has adopted to keep them within PEL so that health of the workers can be preserved, | NA as the proposed project is greenfield. |
| iv) | Annual report of health status of workers with special reference to Occupational Health and Safety. | Annual report of health status of workers will be submitted in six monthly compliance reports after the accord of EC as it is a new project. Occupational health & safety of all workers & employees shall be taken care of and adequate funds for the same is allotted. |

| Sr. No. | Condition | Compliance |
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| 9) | Corporate Environment Policy | |
| i) | Does the company have a well laid down Environment Policy approved by its Board of Directors? If so, it may be detailed in the EIA report. | No, at the movement factory does not have approved Environment Policy; however company shall be planning the same. |
| ii) | Does the Environment Policy prescribe for standard operating process / procedures to bring into focus any infringement / deviation / violation of the environmental or forest norms / conditions? If so, it may be detailed in the EIA. | Company shall be planning to develop environmental policy and ensures, environment policy prescribe for standard operating process/ procedures to bring into focus any infringement / deviation / violation of the environmental or forest norms / conditions. |
| iii) | What is the hierarchical system or Administrative order of the company to deal with the environmental issues and for ensuring compliance with the environmental clearance conditions? Details of this system may be given. |  <pre> graph TD Director[Director] --> DM[Distillery Manager] DM --> EHS[EHS head/Environment Officer] EHS --> Lab[Lab chemist] </pre> <p>Hierarchical system of the company deal with the environmental issues & is given in Chapter 6 and 10.</p> |
| iv) | Does the company have system of reporting of non-compliances / violations of environmental norms to the Board of Directors of the company and / or shareholders or stakeholders at large? This reporting mechanism shall be detailed in the EIA report | The EMC will monitor non-compliances / violations of environmental norms. The cell will also be responsible for maintaining the records of data, documents, and information in line with the legislative requirement and will regularly furnish the same to the concern statutory authorities. |
| 10) | Details regarding infrastructure facilities such as sanitation, fuel, restroom etc. to be provided to the labour force during construction as well as to the casual workers including truck drivers during operation phase. | Facilities during construction and operation such as clean water for washing the hands, sanitation facility and cleanup after work, Clean area for eating and rest rooms shall be provided. |
| 11) | Enterprise Social Commitment (ESC) | |
| i) | Adequate funds (at least 2.5 % of the project cost) shall be earmarked towards the Enterprise Social Commitment based on Public Hearing issues and item-wise details along with time bound action plan shall be included. Socio-economic development activities need to be elaborated upon. | The company has planned to invest 1.0 Cr. (2%) on the CER activities. Details of CER activities are given in Chapter X. |
| 12) | Any litigation pending against the project and/or any direction/order passed by any Court of Law against the project, if so, details thereof shall also be included. Has the unit received any notice under the | No |

| Sr. No. | Condition | Compliance |
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| | Section 5 of Environment (Protection) Act, 1986 or relevant Sections of Air and Water Acts? If so, details thereof and compliance/ATR to the notice(s) and present status of the case. | |
| 13) | A tabular chart with index for point wise compliance of above TOR. | Point-wise compliance of the ToR has been given in the tabular form. |
| B. SPECIFIC TERMS OF REFERENCE FOR EIA STUDIES FOR DISTILLERIES | | |
| i. | List of existing distillery units in the study area along with their capacity and sourcing of raw material. | Not Applicable. No nearby distilleries are present in study area. |
| ii. | Number of working days of the distillery unit | Total working days: 300 days/year. |
| iii. | Details of raw materials such as molasses/grains, their source with availability | Details are given in Chapter 2, Section 2.5. |
| iv. | Details of the use of steam from the boiler | In the proposed project, steam requirement will be; For Mashing & Lautering: 15 TPD @ 3.5 Kg/cm ² (g) For Distillation and Miscellaneous: 60 TPD @ 3.5 Kg/cm ² (g) For Brew House: 15 MTD Total Steam Required: 75 MTD An independent boiler of 6 TPH capacity will be installed for supply of steam. This boiler will use Biomass (Pellets, Wood chips & Briquettes): 20-25 MT/Day, which will be readily available in the local market. Steam will be used in various process such as distillation, dryer etc. Details are given in Chapter 2. |
| v. | Surface and Ground water quality around proposed spent wash storage lagoon, and compost yard | Spent wash storage lagoon and compost yard are not proposed in the project. However, samples of surface and ground water within study area are analyzed results of which are given in Chapter 3. |
| vi. | Plan to reduce spent wash generation within 6-8 KL/KL of alcohol produced | The proposed plant is planned to reduce spent wash generation within 6-8 KL/KL of alcohol produced. Detailed process description is given in Chapter 2. |
| vii. | Proposed effluent treatment system for molasses/grain based distillery (spent wash, spent lees, condensate and utilities) as well as domestic sewage and scheme for achieving zero effluent discharge (ZLD) | ETP will follow the following units for treatment of effluent; <ul style="list-style-type: none"> • Equalization Tank (RCC Tank) • Anaerobic Digester (Mild Steel Tank with Epoxy Coating) • Primary Clarifier (Lamella) • Aeration Tank (RCC Tank) • Clarifier (RCC Tank) • Sludge Drying Beds • Treated effluent storage Tank (RCC Tank) • Multi Grade Filter and Carbon Filter • RO Membrane Filter |

| Sr. No. | Condition | Compliance | | | | | | | | | | | | | | | | | | | | | | | | | |
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| | | Detailed description of ETP is given in Chapter 2. | | | | | | | | | | | | | | | | | | | | | | | | | |
| viii. | Proposed action to restrict fresh water consumption within 10 KL/KL of alcohol production | The proposed plant is planned to reduce fresh water requirement within 10 KL/KL of alcohol produced. Detailed process description and water balance is given in Chapter 2. | | | | | | | | | | | | | | | | | | | | | | | | | |
| ix. | Details about capacity of spent wash holding tank, material used, design consideration. No. of peizometers to be proposed around spent wash holding tank | No spent wash holding tank is proposed. | | | | | | | | | | | | | | | | | | | | | | | | | |
| x. | Action plan to control ground water pollution | Action plan to control ground water pollution has been discussed in detail under Chapter 11. | | | | | | | | | | | | | | | | | | | | | | | | | |
| xi. | Details of solid waste management including management of boiler ash, yeast, etc. Details of incinerated spent wash ash generation and its disposal | <table border="1"> <thead> <tr> <th>SN</th> <th>Type of waste</th> <th>Quantity</th> <th>Quality</th> <th>Final Disposal</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Proposed Fly Ash</td> <td>1.5 TPD</td> <td>Loss of Ignition 0.9 %</td> <td>Supplied to brick / cement manufacturers</td> </tr> <tr> <td>2</td> <td>ETP Sludge</td> <td>0.5-0.6 TPD</td> <td>-</td> <td>Partly recirculate and remaining will be used in composting.</td> </tr> <tr> <td>3</td> <td>Domestic</td> <td>~50 kg/d Negligible</td> <td>-</td> <td>Local waste collection system</td> </tr> <tr> <td>4</td> <td>Spent oil (5.1)</td> <td>Negligible</td> <td>Mainly mineral oil waste containing 10%-90% water, oil, oxidized lubricants, waste metal particles (Source: <i>Recycling and Analysis of Spent Engine Oil, International Journal of Scientific & Engineering Research, Volume 6, Issue 11, Nov 2015, 711, ISSN 2229-5518</i>)</td> <td>Authorized recycler</td> </tr> </tbody> </table> | SN | Type of waste | Quantity | Quality | Final Disposal | 1 | Proposed Fly Ash | 1.5 TPD | Loss of Ignition 0.9 % | Supplied to brick / cement manufacturers | 2 | ETP Sludge | 0.5-0.6 TPD | - | Partly recirculate and remaining will be used in composting. | 3 | Domestic | ~50 kg/d Negligible | - | Local waste collection system | 4 | Spent oil (5.1) | Negligible | Mainly mineral oil waste containing 10%-90% water, oil, oxidized lubricants, waste metal particles (Source: <i>Recycling and Analysis of Spent Engine Oil, International Journal of Scientific & Engineering Research, Volume 6, Issue 11, Nov 2015, 711, ISSN 2229-5518</i>) | Authorized recycler |
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| 1 | Proposed Fly Ash | 1.5 TPD | Loss of Ignition 0.9 % | Supplied to brick / cement manufacturers | | | | | | | | | | | | | | | | | | | | | | | |
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| 3 | Domestic | ~50 kg/d Negligible | - | Local waste collection system | | | | | | | | | | | | | | | | | | | | | | | |
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| Details of solid waste management is discussed in Chapter 11. | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| xii. | Details of bio-composting yard (if applicable) | Not applicable | | | | | | | | | | | | | | | | | | | | | | | | | |
| xiii. | Action plan to control odour pollution | Whole process will be operated under closed conditions, close pipeline. Fermentation unit will be provided with proper cover to avoid the spread of odor and regular steaming of all fermentation equipment's; temperature will be kept under control during fermentation to avoid inactivation/killing of yeast; staling of fermented wash would also be avoided. Action plan to control odour pollution is discussed in Chapter 4. | | | | | | | | | | | | | | | | | | | | | | | | | |
| xiv. | Arrangements for installation of continuous online monitoring system (24x7 monitoring device) | Arrangements for installation of continuous online monitoring system (24x7 monitoring device) has been planned by industry. The same shall be implemented on project execution. | | | | | | | | | | | | | | | | | | | | | | | | | |

CHAPTER I INTRODUCTION

1.1 Introduction

Ian Macleod Distillers India Private Ltd. (IMDIPL), a company registered under Indian Companies Act 1956 in 2009, a wholly owned subsidiary of Ian Macleod Distillers Ltd, Scotland, UK. IMD India is engaged in import and re-distribution of parent company's products in India. Ian Macleod Distillers Ltd., Scotland, UK is a family owned and one of the most respected spirits company in world. The project will be implemented by Indian subsidiary Ian Macleod Distillers India Pvt. Ltd.

The production capacity of the Indian malt distillery would be 5000 bulk liters (63% v/v) per day (5 KL per day) and will be operating for 300 days in a year, approx. 1.50 million bulk liters alcohol per year. The raw material used in the production of malt spirit is 'Barley Malt' which is an agricultural produce and is available in Himachal Pradesh & nearby states of Punjab, Haryana and Rajasthan.

As per market demand the project proponent, the company has decided to set up a new Malt Spirit 5000 LPD Malt Spirit and bottling of 1000 Cases per day IMFL at Industrial Area Pandoga, District- Una, H.P.

As per EIA notification 2006 and its amendment thereof, project requires Environmental Clearance and it falls under Category 'A' General conditions applied; interstate boundary within 5 km) and shall be appraised by Expert Appraisal Committee.

1.2 Identification of Project & Project Proponent

Ian Macleod Distillers Ltd. (IMD UK), Scotland, United Kingdom, is a family owned and one of the most respected spirits company in world. The project will be executed by Indian subsidiary Ian Macleod Distillers India Pvt. Ltd. The Indian company was incorporated on 15th October 2009 under Indian Companies Act 1956. IMDIPL is one of the few companies who have never repatriated profits back to parent / Investor Company since inception and has planned to use the profits generated in the implementation of the proposed project. The plan is to allow visitors of aged 21 or 25 and above to the Distillery to study more about the Distillery origin Indian Single Malt whisky, subject to Excise Department permitting the

visitors. The intention is to bring transparency to the operations and business, which will be good for all stakeholders – Company, Government and Consumers.

The total estimated cost in the project is over Rs. 50.8 Crores of which the plant and machinery including utilities would be approx. Rs. 20.0 Crores, Building Rs. 8.0 Crores and Oak casks Rs. 17.55 Crores. Land cost is approximate 5.25 Crores. Industry is led by the Board of Directors & management which is as follows;

Table 1.1: Board of Directors

| Sr. No. | Name | Designation |
|---------|----------------------------|-------------|
| 1. | Mr. Leonard Stuart Russell | Director |
| 2. | Mr. Michael James Younger | Director |
| 3. | Mr. Gordon John Doctor | Director |
| 4. | Mr. Jonathon Francis Scott | Director |
| 5. | Mr. R V Subramanian | Director |

1.3 EIA Consultant

MITCON Consultancy & Engineering Services Ltd., (MITCON) is a rapidly growing, an ISO 9001-2015 certified Consultancy Company, promoted by ICICI, IDBI, IFCI, and State Corporations of Maharashtra and Public Commercial Banks. Founded in year 1982; situated at Pune as Head Office and with supporting offices spread over entire country including Mumbai, Delhi, Bangalore, Hyderabad, Chennai, Chandigarh, and Ahmadabad etc. With experience, expertise and track record developed over last almost three decades, MITCON provides diverse range of macro and micro consultancy services in the areas of Environment Management and Engineering (EME), Energy Efficiency, Biomass and Co-gen power, Agricultural Business and Bio-technology, Infrastructure, Market Research, Banking Finance and Securitization, Micro Enterprise Development, IT Training and Education. EME division of MITCON serves to various sectors like GIS & RS, solid waste, infrastructure, power, sugar, engineering, chemical, real estate etc.

MITCON Consultancy and Engineering Services Ltd. is accredited from National Accreditation Board for Education and Training (NABET), Quality Council of India for the EIA consultancy services in 16 sectors.

1.4 Brief Description of the Project

IMDIPL proposes to install a new 5 KLPD Distillery Plant to produce Malt Spirit, IMFL and DWGS (spent grain) Cattle feed which will operate for 300 days in a year.

1.4.1 Nature and Size of the Project

Raw materials shall be procured from nearby for production of Malt Spirit and IMFL. The boiler will employ low pressure & temperature configuration boiler (10.5 kg/cm² and 200°C) with 6 TPH capacity.

1.4.2 Location of the Project

The proposed distillery is located at Plot No. A2, A3 & A4, Industrial Area Pandoga, District Una, Himachal Pradesh. Proposed distillery is graphically located at Latitude 31°30'39.44"N & Longitude 76° 8'16.62"E which is at a maximum elevation of 490 m above MSL.

The land required for proposed industry unit is already under possession. Proposed project will be on vacant plot as allotted by HPSIDC. Project site is adjacent to Hoshiarpur – Una road which is at 0.28 km towards the South.

1.5 Importance to Country and region

There has been a growing acceptance among the Indian consumers for Indian Single Malt whiskies for the past 2-3 years that too at a phenomenal rate. The production and sales data are not available, as the business is currently confined to three companies, namely Amrut Distilleries Ltd., John Distilleries Ltd. and Radico Khaitan Ltd.

The present extent of the Indian Single Malt whisky market is estimated at 36000 cases of 9 lit each and is growing. The export market is estimated at 60000 cases, per annum. The demand for Indian Single Malts is growing in airport duty free shops across the world. In about 2-3 years, the Indian single malt whisky production and sales will cross 100,000 – 120,000 cases and good portion of it will be sold in domestic market and rest for exports including travel retail.

The Indian Single Malt whisky journey began sometime in 2004-2005 by introduction of an Indian Single Malt whisky by Amrut Distilleries, Bangalore. It has taken nearly 10 years for the company to reach commercial scale of operations.

The company's malt spirit production, maturation and bottling facility is in Bangalore, Karnataka State. The capacity of the malt's spirits plant is 2.5 KL per day and entire production is matured in once used bourbon oak and European oak casks. The Amrut Single Malt whiskies are sold in the domestic and export market.

The company has 12 expressions of malt whiskies of which 11 are single malt whiskies and one is blended malt whisky (Indian Single Malt, Japanese Malt whisky and Scottish Blended Malt whiskies). Their principal brands are Amrut- Indian Single Malt whisky; Amrut – Fusion; Amrut– Peated; and Amrut – Amalgam (blended).

John Distilleries Ltd., Goa are the second producer and marketer of Indian Single Malt whisky, having its production and maturation facility in Goa. The size of production is around 5 KL per day, and their two main brands are Paul John Single Malt whisky – Bold and Brilliance.

The third Indian company producing Single Malt whisky is Radico Khaitan Ltd. (Rampur Distillery). The company has been producing malt spirit since 1995 at Rampur, Uttar Pradesh and later set up maturation facility for using matured Indian malt spirit for use in blending with their own brands of Indian whiskies.

1.6 Applicable Environmental Acts & Rules

As per the notification, proposed project falls under Activity 5(g) cat. A. Following are some other acts and rules related to environment which will be applicable for the proposed project;

- EIA Notification dated 14th September, 2006 and its sub sequent amendments.
- Air (Prevention & Control of Pollution) Act, 1981
- Water (Prevention & Control of Pollution) Act, 1974
- The Batteries (Management and Handling) Rules, 2001 & amendment rules 2010
- The Manufacture, Storage and Import of Hazardous Chemical (Amendment) Rules, 2000
- Hazardous and Other Wastes (Management and Trans boundary Movement) Rules, 2016
- Solid Waste Management Rules, 2016
- E-Waste Management Rules 2016
- E-Waste (Management & Handling) Rules, 2011
- The Wild Life (Protection) Act, 1972 & its subsequent amendments

1.7 Chronology of the Project

The chronology of the activities during initial stages of the environmental clearance for the proposed project is given below;

Table 1.2: Chronology of Environmental Clearance

| Sr. No. | Particulars | Date |
|---------|---------------------|---|
| 1. | TOR Application | 18 th May 2021 |
| 2. | TOR granted | 20 th May 2021 |
| 3. | Baseline Monitoring | 1 st March 2021 to 31 st May 2021 |
| 4. | Public Hearing | 28 th Oct 2021 |

1.8 Objective and Scope of the Study

The proposed project received Standard TOR from EAC, MoEFCC vide Letter No. IA-J-11011/201/2021-IA-II(I) dated 20th May, 2021 which is attached as **Annexure 2**. The baseline studies required for EIA report has been conducted as per the Office Memorandum issued by MoEF&CC dated 27.08.2017. Detail baseline study was undertaken during the period **1st March 2021 to 31st May 2021**. The objective of the study is to carry out Environmental Impact Assessment (EIA) for the proposed project to meet the environmental compliances laid down by the Ministry of Environment and Forests (MoEF&CC), Government of India.

1.8.1 The Steps in EIA

- Collection of baseline data on water, air, noise, biological & socio-economic status, existing roads and railway lines, water bodies and ecological sensitive areas in the project region.
- Identification of potential impacts on various environmental components due to activities envisaged during preconstruction, construction and operational phases of the proposed developments.
- Prediction and evaluation of significant impacts on the major environmental components.
- Preparation of environmental impact assessment statement based on identification, prediction, and evaluation of impacts.
- De-lination of Environmental Management Plan (EMP) outlining preventive and control strategies for minimizing adverse environmental impacts.

With above view to assess the environmental impacts arising due to proposed project, the project proponent appointed MITCON Consultancy & Engineering Services Ltd., Pune to undertake Environmental Impact Assessment and prepare environmental management plan for mitigation of the proposed adverse impacts. The baseline data has been collected in post

monsoon season for air, noise, water, land, biological and socio-economic environment and presented in this report.

Final EIA EMP report has been prepared in accordance with the Standard TOR issued and as per the generic structure of the EIA mentioned in EIA notification dated 14th September 2006 and its subsequent amendments.

CHAPTER II: PROJECT DESCRIPTION

2.0 Type of Project

Ian Macleod Distillers India Private Ltd. (IMDIPL) proposes to set up a new Malt Spirit 5000 litres per day and IMFL Bottling of 1000 Cases per day at Industrial Area Pandoga, District- Una, H.P. Proposed project is located as an independent unit.

2.1 Need of the Project

The project proposes to produce Malt Spirit, part of it matured for at least 2 years and above years for supplies to IMFL industry for blending in various proportions and part of the matured malt spirit will be matured for more than 3 years to be called Whisky under International norms and bottled as Indian Single Malt whisky for the Indian and export market. The following benefits to the State and Country can be predicted as below:

- Capital Investment being made in the State
- Employment generation (direct and indirect)
- Long term gain to farmers to sell Barley Malt (Grain) to an industry
- Increasing state revenues through sale of alcohol (Malt Spirit) which is one of the highest revenue generators for the State Governments in the country.
- First Indian Single Malt whisky to be produced and matured to meet the international specifications, made in India and exported across the globe to 50 + countries

Demand – Supply Gap

The part of matured malt spirit produced will cater to the premium Indian whisky market, which is growing steadily for the past 20 years. Ian Macleod Distillers has expertise in production of superior quality malt spirit and wood management for maturing malt spirit. Based on the experience as quality supplier of imported matured malt spirit to Indian distillers for the past 23 years, we foresee reasonable growth in demand for quality matured Indian malt spirit.

Import vs. Indigenous Production

In addition to the various advantages and benefits listed for the State and local industry, import duties on alcohol is currently at 150 %. This is certain rate of duty and is less expected to come down in near future. The demand for Indian Single Malt whisky is getting

established as a premium malt whisky in the Indian market and also getting acceptance in the global market. Ian Macleod Distillers view the opportunity of promoting globally ‘Indian Single Malt Whisky’ through its existing distribution network in 50 countries. We see a good demand for premium quality Indian liquors in Europe, US and some Asian countries by 2025-26.

Indian Single Malt whisky – Market (Domestic and Exports)

The production and sales data are not available, as the business is currently confined to three companies, namely Amrut Distilleries Ltd., John Distilleries Ltd. and Radico Khaitan Ltd.

The current size of the Indian Single Malt whisky market is between 36000 cases of 9 lit each and is growing. The export market is estimated at 60000 cases, per annum. The demand for Indian Single Malts is growing in airport duty free shops across the world. In about 2-3 years, the Indian single malt whisky production and sales will cross 1,00,000 – 1,20,000 cases and good portion of it will be sold in domestic market and rest for exports including travel retail. The Indian Single Malt whisky journey began sometime in 2004-2005 by introduction of an Indian Single Malt whisky by Amrut Distilleries, Bangalore. It has nearly taken nearly 10 years for the company to reach its commercial scale of operations.

The company’s malt spirit production, maturation and bottling facility is in Bangalore, Karnataka State. The capacity of the malt’s spirits plant is 2.5 KL per day and entire production is matured in once used bourbon oak and European oak casks. The Amrut Single Malt whiskies are sold in the domestic and export market. The company has 12 expressions of malt whiskies of which 11 are single malt whiskies and one is blended malt whisky (Indian Single Malt, Japanese Malt whisky and Scottish Blended Malt whiskies). Their principal brands are Amrut- Indian Single Malt whisky; Amrut – Fusion; Amrut– Peated; and Amrut – Amalgam (blended). John Distilleries Ltd., Goa are the second producer and marketer of Indian Single Malt whisky, having its production and maturation facility in Goa. The size of their production is around 5 KL per day, and their two principal brands are Paul John Single Malt whisky – Bold and Brilliance.

The third Indian company producing Single Malt whisky is Radico Khaitan Ltd. (Rampur Distillery). The company has been producing malt spirit since 1995 at Rampur, Uttar Pradesh and later set up maturation facility for using matured Indian malt spirit for use in blending with their own brands of Indian whiskies.

2.2 Project Location

2.2.1 Location of the Project Site

Proposed project shall be located at Plot No. A2, A3 & A4 in Pandoga Industrial Area at Khasra No. 1244, 1257, 1263, 3214/1265, 3215/ 1265, 1432, 1433, 1434, 1435, Kita- 9,2832 of Village Pandoga, Tehsil Haroli, District Una, Himachal Pradesh Pincode- 177207. The coordinates of the project site are 31°30'39.44"N, 76° 8'16.62"E, at a maximum elevation of 490 m above MSL. Project location on Google imagery is shown in Figure 2.1.

Nearest village Pandoga is in Haroli Tehsil in Una District of Himachal Pradesh State, India. Punjab- Himachal state boundary 3.0 km in west.

Table 2.1: Geographical Co-ordinates of Project Site

| Corners | Latitude | Longitude |
|----------|---------------|--------------|
| Centre | 31°30'39.44"N | 76°8'16.62"E |
| Corner 1 | 31°30'42.00"N | 76°8'12.96"E |
| Corner 2 | 31°30'42.99"N | 76°8'18.09"E |
| Corner 3 | 31°30'36.77"N | 76°8'20.42"E |
| Corner 4 | 31°30'33.23"N | 76°8'16.71"E |

Table 2.2: Environmental Settings of the Project Site

| Site Location | Name | Distance & Direction |
|---|--|----------------------|
| Nearest Habitation | Daulatpur | 1.3 Km |
| | Bankhandi | 1.5 Km |
| | Pandoga | 2.7 Km |
| Nearest Town | Una | 13.4 Km towards SE |
| Nearest Railway Station | Una | 12.8 Km towards SE |
| | Panoh | 7.88 Km towards NE |
| | Churaru | 9.65 Km towards NNE |
| Interstate boundary | Himachal Pradesh and Punjab state boundary at 3.0 km in west | |
| Nearest Airport | Shimla Airport | 100 Km towards SSE |
| Nearest River / Water body | Swan River | 5.76 Km (ESE) |
| | Bhakra Nangal Dam | 30 Km |
| Approach to site by Road | SH 22 Hoshiyarpur Una Road 0.27 Km in South | |
| Religious / Historical Place | None in 15 km | |
| Archaeological monuments | None in 15 km | |
| Ecological Sensitive Area / Reserve Forest/ national park/ sanctuary | Takhani Rehmanpur Wildlife Sanctuary 26.68 km in NW | |
| Seismic Zone | V | |
| Average altitude above MSL | 490 m | |
| Temperature in °C | The highest temperature is usually observed during the months of April–May and lowest temperature during December/January. Highest and lowest recorded are Max. 45.2 °C, Min. 2.4 °C | |
| Rainfall in mm | District annual average: 1,131.2 mm | |
| Wind velocity | This region is characterized by low to moderate wind velocities. The mean annual velocities are in the range of 4 to 6 Km/h and especially high during pre-monsoon period of June to August. | |

Proposed 5 KLPD Malt Spirit Distillery at Industrial Area Pandoga, District- Una, H.P.
by Ian Macleod Distillers India Pvt. Ltd.

Final EIA
EME/CS/MD/PI/2021-2022/114 Dated
30.07.2021 R01 03.08.2021 R02 16.12.2021

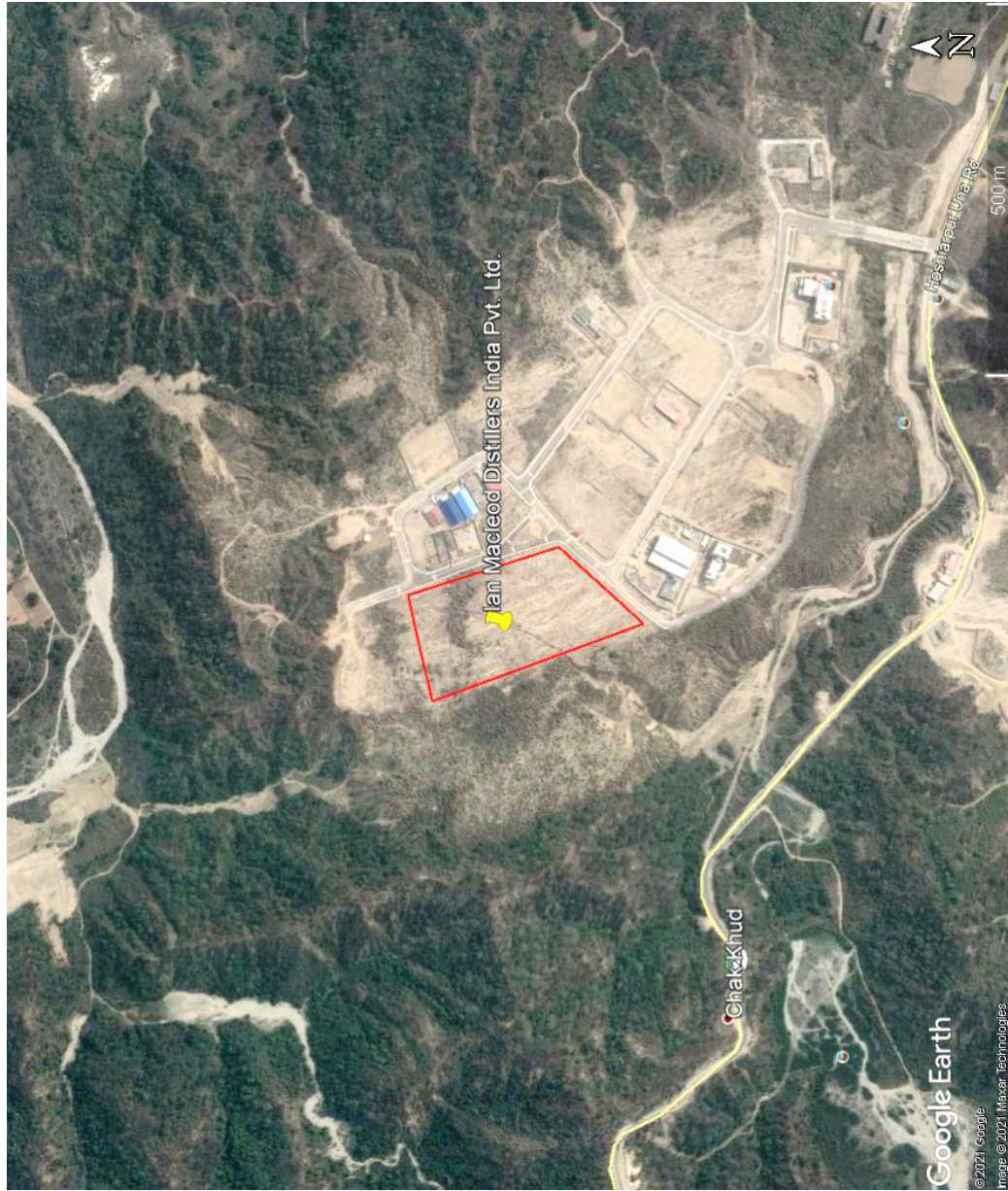


Figure 2.1: Google Image of Project Site

Proposed 5 KLPD Malt Spirit Distillery at Plot No. A2, A3 & A4, Industrial Area Pandoga, District- Una, H.P. by Ian Macleod Distillers India Pvt. Ltd.

Final EIA
 EME/CS/IMDIP/2021-2022/114 Dated 30.07.2021 R01
 03.08.2021 R02 16.12.2021



IAN MACLEOD DISTILLERS
 UNA, HIMACHAL PRADESH

SITE PLAN
 PANDOGA INDUSTRIAL ESTATE, DISTRICT UNA

Figure 2.2: Plant Layout

Final EIA
EME/CS/IMD/PL/2021-2022/114 Dated 30.07.2021 R01
03.08.2021 R02 16.12.2021

Proposed 5 KLPD Malt Spirit Distillery at Plot No. A2, A3 & A4, Industrial Area Pandoga, District- Una, H.P. by Ian Macleod Distillers India Pvt. Ltd.

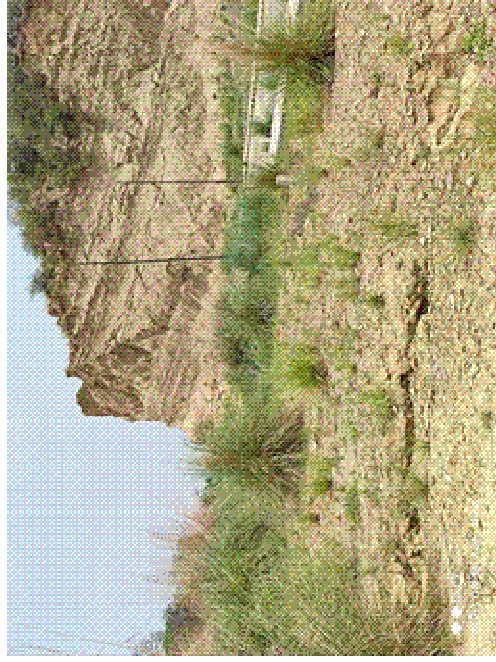


Figure 2.3: Project Site

2.3 Land Details

Total plot area available with the factory 10.8 Acres

| Particulars | Area (Sq. m.) |
|--------------------------------------|-----------------|
| Main Plant & Machinery, Utilities | 7214 |
| Maturation warehouses | 9000 |
| Bottling | 2020 |
| Storage W/H – dry and finished goods | 1352 |
| Roads and Drains | 7988 |
| Admin, Security, Excise Off. | 984 |
| Green Belt (34.64 %) | 15141 |
| Parking (15 %) | 6556 |
| Total | 43706.05 |

2.4 Size and Magnitude of the Operation

Size and magnitude of the project is given in following table; Table 2.

Table 2.3: Brief Description of the Project

| Sr. No. | Particulars | Description |
|---------|-----------------------------|---|
| 1. | Name of proponent & address | Ian Macleod Distillers India Pvt. Ltd. Plot No. A2, A3 & A4, Industrial Area Pandoga, District- Una, H.P. |
| 2. | Project | Proposed 5 KLPD Malt Spirit & 1000 Cases Per Day IMFL |
| 3. | Land | Total plot area available with the factory 10.8 Acre |
| 4. | Product | Malt Spirit: 5 KLPD IMFL: 1000 Cases DWGS (Spent Grain) Cattle feed: 5400 Kg/d |
| 5. | Operation days | Total Operation days= 300 days/annum |
| 6. | Raw materials | Barley (Malt): 10-11 TPD Chemicals: CIP Chemicals: 1 Kg/day Caustic Soda: 1 Kg/day Enzyme: 2 L/day Yeast: 10 Kg/day |
| 7. | Water | Total fresh water requirement for proposed distillery will be 102 CMD Industrial: 97 CMD Domestic: 5 CMD Source: Supply from Overhead Water Tank- DIC, UNA |
| 8. | Electricity | 650 KW Industry has also planned to use (10 %) non- conventional energy source for electricity generation |
| 9. | Steam | For Mashing & Lautering: 15 TPD @ 3.5 Kg/cm ² (g) |

| | | |
|-----|--------------------------------|--|
| | | For Distillation and Miscellaneous: 60 TPD @ 3.5 Kg/cm ² (g) For Brew House: 15 MTD Total Steam Required: 75 MTD |
| 10. | Fuel for boiler | Biomass (Pellets, Wood chips & Briquettes): 20-25 MT/Day |
| 11. | Boiler | 6 TPH |
| 12. | DG | 750 KVA (1 No. 500 & 1 No. 250 KVA each) |
| 13. | Effluent treatment system | Spent Wash Slops (approx. 7-8 % w/w solids) is initially settled in settling tank and mixed with other non-process effluent. Other effluent like DM plant washing & boiler blow down, Fermenter washings, Spent-leses will be neutralized in neutralization tanks and mixed with spent wash and then treated in Primary & Secondary Effluent treatment plant. The treated effluent is then passed through RO to get clean water for reuse in the cooling towers and gardening. |
| 14. | Man power | The total staff in the distillery is thus estimated as 77 Nos. including support staff. Man power requirement for construction work will be about 100 Nos. |
| 15. | Air pollution control measures | Multi Cyclone Stack height shall be as per SPCB/CPCB Norms (30 m) |
| 16. | Total Project Cost | Rs. 50.8 Cr. |
| 17. | Total EMP Cost | Estimated Capital Cost: Rs. 220 lacs. Recurring Cost/annum: Rs. 34.5 lacs. |

Table 2.4: Design Parameters of Boiler

| | |
|------------------------------|------------------|
| Boiler Capacity, TPH | 1 No. x 6 TPH |
| Pressure, kg/cm ² | 10.5 |
| Temperature, °C | 180-200 |
| Operation, days | 300 |
| Fuel used | Wood/ Briquettes |
| Boiler efficiency | 76 +-2 % |
| APC Proposed | Multi Cyclone |

2.5 Resource Requirement

2.5.1 Raw Material

Raw material required is given below,

Table 2.5: Details of Raw Material

| Sr. No. | Particulars | Total Requirement | Storage | Source & Mode of Transportation |
|---------|---------------|-------------------|---------|---------------------------------|
| 1 | Barley (Malt) | 10 -11 TPD | 300 MT | Malt supplier via road |

| | | | | |
|-------|------------------|----------|-------|--|
| 2 | Chemicals | | | |
| | CIP Chemicals | 1 kg/day | 30 kg | Chemicals supplier via road Nearby Markets via road |
| | Caustic soda | 1 kg/day | 30 kg | |
| | Enzyme | 2 L/day | 60 L | |
| Yeast | 10 kg/day | 300 kg | | |

2.5.2 Fuel Requirement

Fuel consumption details are given in below Table.

Table 2.6: Fuel Consumption

| Sr. No. | Fuel | Quantity |
|---------|--|-------------------|
| 1. | Biomass (Pellets, Wood chips & Briquettes) | 20-25 MT/Day |
| 2. | HSD Consumption | 250 Liter Max. |
| 3. | GCV | 3000-3500 kcal/kg |

2.5.3 Manpower

- The total manpower requirement of the company for the Malt Spirit Plant, Maturation Facility and Bottling Facility works out around 77 (Skilled- 30, Unskilled- 45 and IT prof- 2) persons.
- No. of working days- 300

2.5.4 Water Requirement

The total fresh required for the 5 KLPD distillery is 102 m³/day

Source: Supply from Overhead Water Tank- DIC, Una.

Plant & Process 62 m³; Power House & Boiler - 25 m³; Bottling 10 m³ and Domestic 5 m³). Plant & Process (Lab use, floor cleaning, washing – 4 m³; Cooling Tower - 8 m³ and Process 50 m³).

| Sr. No. | Process Details | Input | Effluent | Loss/ consumption/ Recycle in process |
|---------|-----------------------------|------------|-----------|---------------------------------------|
| 1 | Mashing and Process Water | 50 | 45 | 5 |
| 2 | Cooling Tower Make-up | 68 | 4 | 64 |
| 3 | Net DM water for Boiler | 25 | 10 | 15 |
| 4 | Washings | 4 | 3 | 1 |
| 5 | Bottling | 10 | 5 | 5 |
| 6 | Drinking Water | 5 | 4 | 1 |
| 7 | Total Water Requirement | 162 | 71 | 91 |
| 8 | Effluent Recycle | 60 | | |
| 9 | Net Fresh Water Requirement | 102 | | |

Effluent Treatment Plant:

ETP will follow the following units for treatment of effluent;

- Equalization Tank (RCC Tank)
- Anaerobic Digester (Mild Steel Tank with Epoxy Coating)
- Primary Clarifier (Lamella)
- Aeration Tank (RCC Tank)
- Clarifier (RCC Tank)
- Sludge Drying Beds
- Treated effluent storage Tank (RCC Tank)
- Multi Grade Filter and Carbon Filter
- RO Membrane Filter

Spent Wash Slops (approx. 7-8 % w/w solids) is initially settled in settling tank and mixed with other non-process effluent. Non-process effluents like DM plant washing & boiler blow down, Fermenter washings, Spent-lees etc., before mixing with Spent Wash will be neutralized in neutralization tanks and mixed with spent wash and then treated in Primary & Secondary Effluent treatment plant. The treated effluent is then passed through RO to finally get clean water. This treated effluent after ensuring compliance with standards stipulated by SPCB for wastewater for use in process and for on land greenbelt development.

Power Requirement for ETP:

Connected Load: 45 KW

ETP capacity: 75 KLD

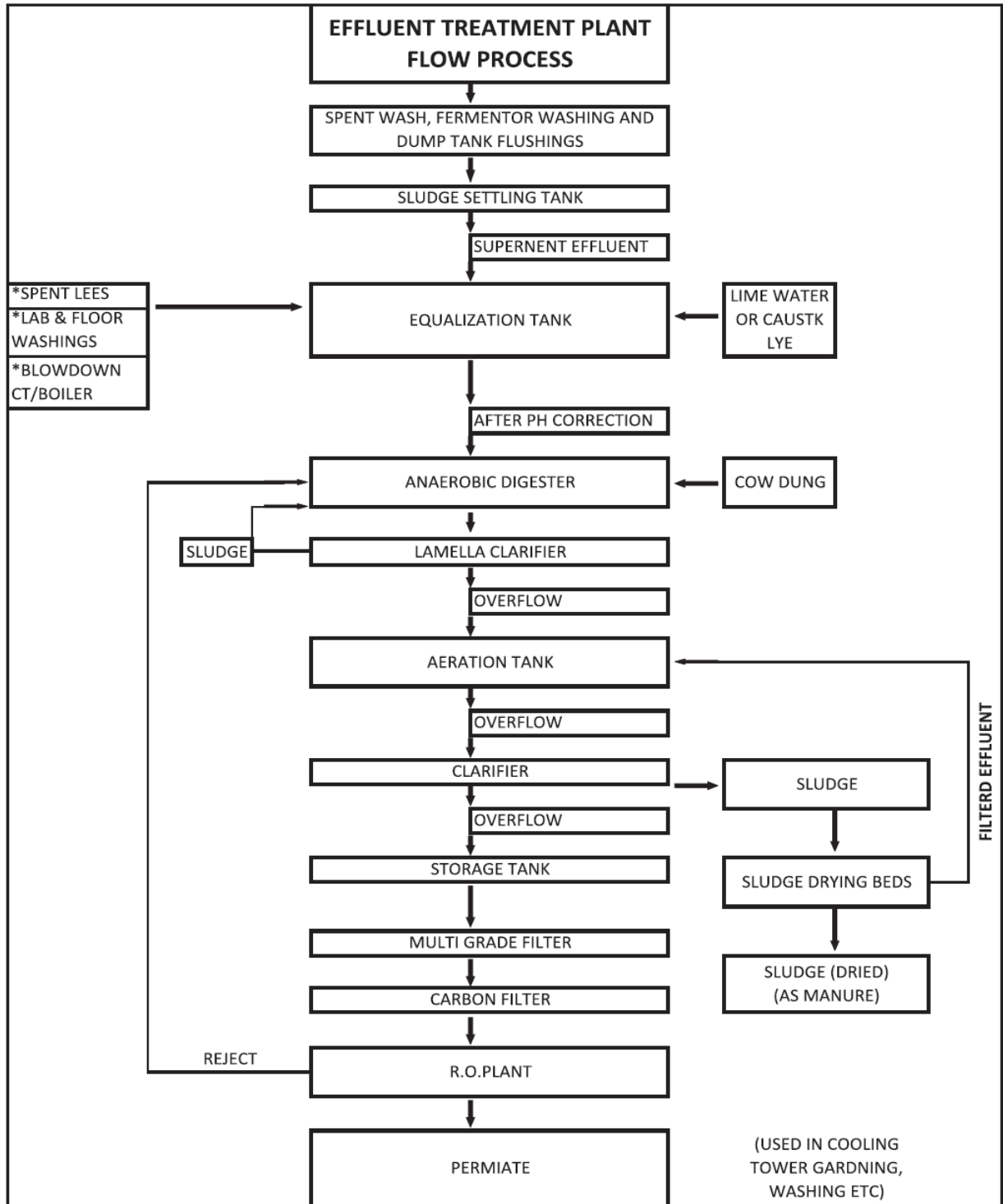


Figure 2.4: ETP Flow Chart

2.6 Technology and Process Description

Malt Spirit Produced 5,000 L/day at 62.5 % v/v strength Bottling of IMFL-1000 case per day.

Malt Spirits are distilled from malted barley or rye (usually) from a single distillery, The Malt spirit is being matured in Maturation's halls in special type oak wood casks and further used in blending of Whisky.

Malt spirit is produced in special type of plant, comprising sections like, Malt storage, Pre cleaning and Malt milling section.

Mashing and fermentation section,

Distillation section comprising pot stills for wash as well as spirit. Maturation or Aging.

The Pot Still process by which Malt Whisky is made may be divided into four main stages: Malting, Mashing, Fermentation and Distillation.

Malting

The barley is first screened to remove any foreign matter and then soaked for two or three days in tanks of water known as steeps. After this it is spread out on a concrete floor known as the malting floor and allowed to germinate. Germination may take from 8 to 12 days depending on the season of the year, the quality of the barley used and other factors. During germination the barley secretes the enzyme diastase which makes the starch in the barley soluble, thus preparing it for conversion into sugar. Throughout this period the barley must be turned at regular intervals to control the temperature and rate of germination.

At the appropriate moment germination is stopped by drying the malted barley or green malt in the malt kiln. More usually nowadays malting is carried out in Saladin boxes or in drum malting in both of which the process is controlled mechanically. Instead of germinating on the distillery floor, the grain is contained in large rectangular boxes (Saladin) or in large cylindrical drums. Temperature is controlled by blowing air at selected temperatures upwards through the germinating grain, which is turned mechanically. A recent development caused by the rapid expansion of the Scotch Whisky Industry is for distilleries to obtain their malt from centralized malting which supply a number of distilleries, thereby enabling the malting process to be carried out more economically. This malt is used for production of Malt Spirit.

Mashing

The dried malt is ground in a mill and the grist, as it is now called, is mixed with hot water in a large circular vessel called a Mashtun. The soluble starch is thus converted into a sugary liquid

known as wort. This is drawn off from the Mashtun and the solids and Husk remaining are removed for use as cattle food.

Fermentation

After cooling, the wort is passed into large vessels holding anything from 25000 to 45,000 liters of liquid where it is fermented by the addition of yeast. The living yeast attacks the sugar in the wort and converts it into crude alcohol. Fermentation takes about 48 hours and produces a liquid known as wash, containing alcohol of low strength, some unfermentable matter and certain by-products of fermentation.

Distillation

Malt Whisky is distilled twice in large copper Pot Stills. The liquid wash is heated to a point at which the alcohol becomes vapors. This rises up the still and is passed into the cooling plant where it is condensed into liquid state. The cooling plant may take the form of a coiled copper tube or worm that is kept in continuously running cold water, or it may be another type of condenser.

The first distillation separates the alcohol from the fermented liquid and eliminates the residue of the yeast and unfermentable matter. This distillate, known as low wines, is then passed into another still where it is distilled a second time. The first running from this second distillation are not considered potable and it is only when the spirit reaches an acceptable standard that it is collected in the Spirit Receiver. Again, towards the end of the distillation. The spirit begins to fall off in strength and quality. It is then no longer collected as spirit but drawn off and kept, together with the first running, for redistillation with the next low wines. Pot Still distillation is a Batch process.

Maturation

Both Malt Whisky must be matured after distillation has been completed. The new spirit is filled into casks of oak wood which, being permeable. Allows air to pass and evaporation takes place. By this means the harsher constituents in the new spirit are removed and it becomes in due course a mellow whisky. Malt Whisky which contains more of these flavory constituents takes longer to mature and is often left in the cask for 15/18 years or even longer.

The period of maturation Malt Whisky is also affected by the size of casks used. The strength at which the spirit is stored and the temperature and humidity of the warehouse.

A typical list of equipment in malt distilling process comprises of the following:

- Malt storage, conveying and cleaning system. Malt milling system
- Mashing system
- Lauter Tun system (for wort separation), wort cooling and process water systems
- Fermenters Wash stills Spirit stills
- Spirit receivers & effluent receivers

Malt Storage, Cleaning, Conveying & Milling

This section comprises of cleaning and milling of the malt. It would comprise of equipment for cleaning, aspiration, milling and grist storage.

Brew house

This section mainly comprises of the following:

- Steeles Masher
- Lauter tun
- Wort holding tank Water tanks
- Wort cooler
- Water heater

The grist is mixed with water at a recipe temperature and transferred into the lauter tun for collection of wort. The wort collected from this is termed as first wort. With lautering in progress, two sparging at recipe temperatures are done and the recipe amount of wort is collected. The last wort, also termed as weak wort is collected back into one of the hot process water tanks and used as mashing water for the next batch. The brewing process water will be stored in the tanks dedicated for the same.

The wort collected is then cooled to a recipe temperature and transferred into the fermenters via wort cooler. A wort holding tank is provided to smoothen out the process.

The draff or spent grain disposal system mainly comprises of dump tank and spent grain silo/s.

Fermentation Section

This section comprises of fermenters required for fermentation of wort production of wash used for distillation process. The process is batch process. Dry yeast is used and discarded at the end of every batch. The process is carried out at room temperature with low initial temperature.

Still House

The steps involved in the operation of still house are as follows:

1. Wash charging
2. First Distillation of wash
3. Collection of low wines
4. Charging of spirit stills
5. Second distillation (low wines + feints)
6. Spirit transfer

The description of the individual steps from (a) to (f) is given below:

a) Wash Charging

The fermented wash from the fermenters is preheated and transferred into the wash stills.

b) First Distillation of Wash

First distillation occurs in the Wash still where wash is distilled to give low wines. Steam is used for this process. This distillation is carried out for a recipe defined time.

c) Collection of Low Wine

The alcohol vapors generated are cooled by vertical condensers using cooling water. The low wine produced, having 15-16% alcohol produced is further cooled to the required temperature (approx. 17-18 deg C) via a subcooler which uses chilled water. The low wine is collected in the low wine receiver through the spirit safe. The low wine is used as charge to second distillation in the spirit still. The effluent i.e. potale is drained into the potale receiver and transferred to ETP. The heat from this effluent is recovered by using it for preheating of wash of the next batch.

d) Charging of Spirit Stills

The low wines and feints are preheated and charged into the spirit still/s for second distillation.

e) Second Distillation

During second distillation, spirit having about 64% alcohol will be collected and transferred to the intermediate spirit receiver through the spirit safe. The heads and tails, also called foreshots & feints is diverted via the spirit safe into the feint's receiver.

f) Spirit Transfer

The spirit is collected in the intermediate spirit receiver and further transferred to the final spirit receiver in the cask room.

Cleaning In Place (CIP)

This section would typically comprise of the following:

- Rinse water tank,
- Caustic tanks
- Chemical dosing tank
- PHEs for caustic heating

Maturation / Warehouse

This section would have Mild steel racking system, generally 3 to 4 levels height to accommodate required number of Oak wood casks matching with FMS production.

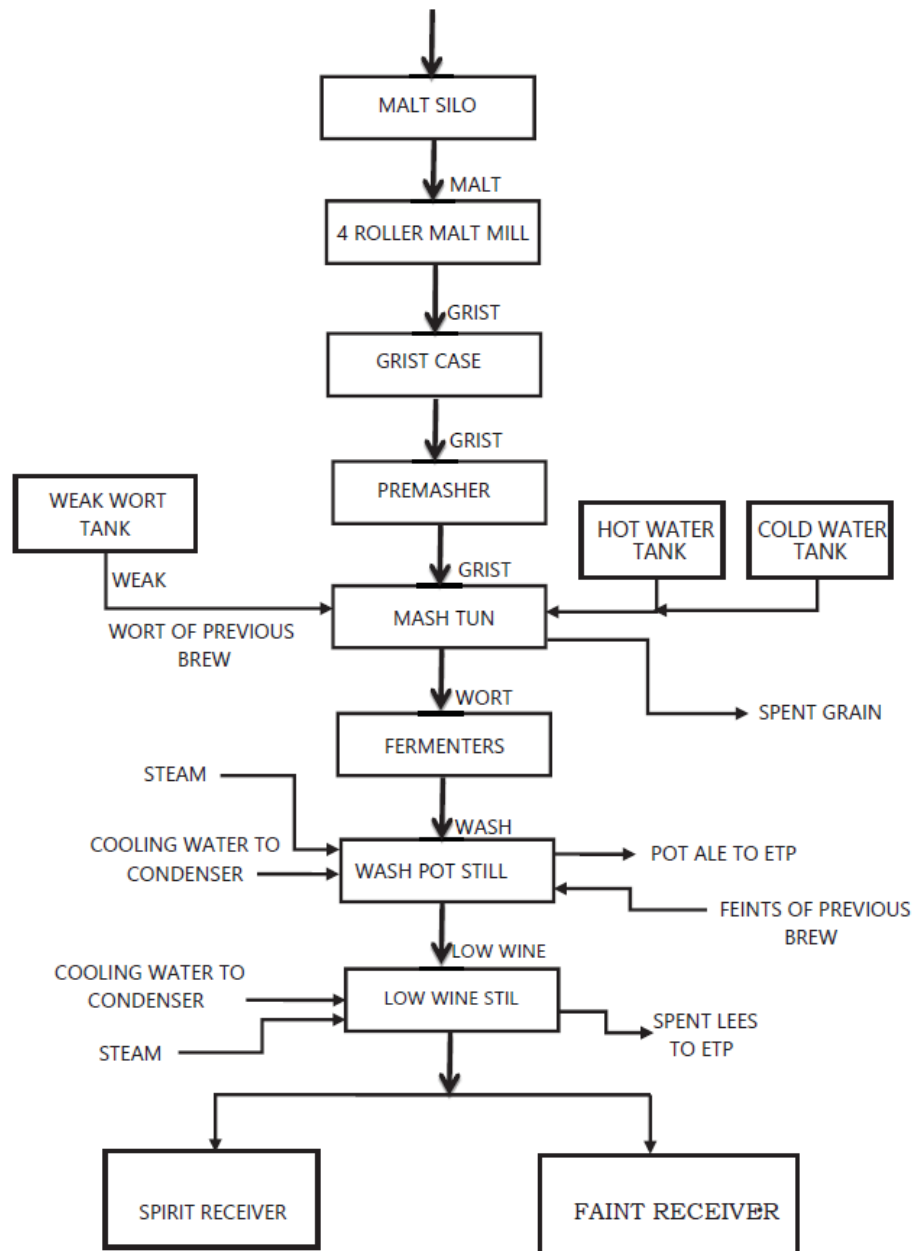


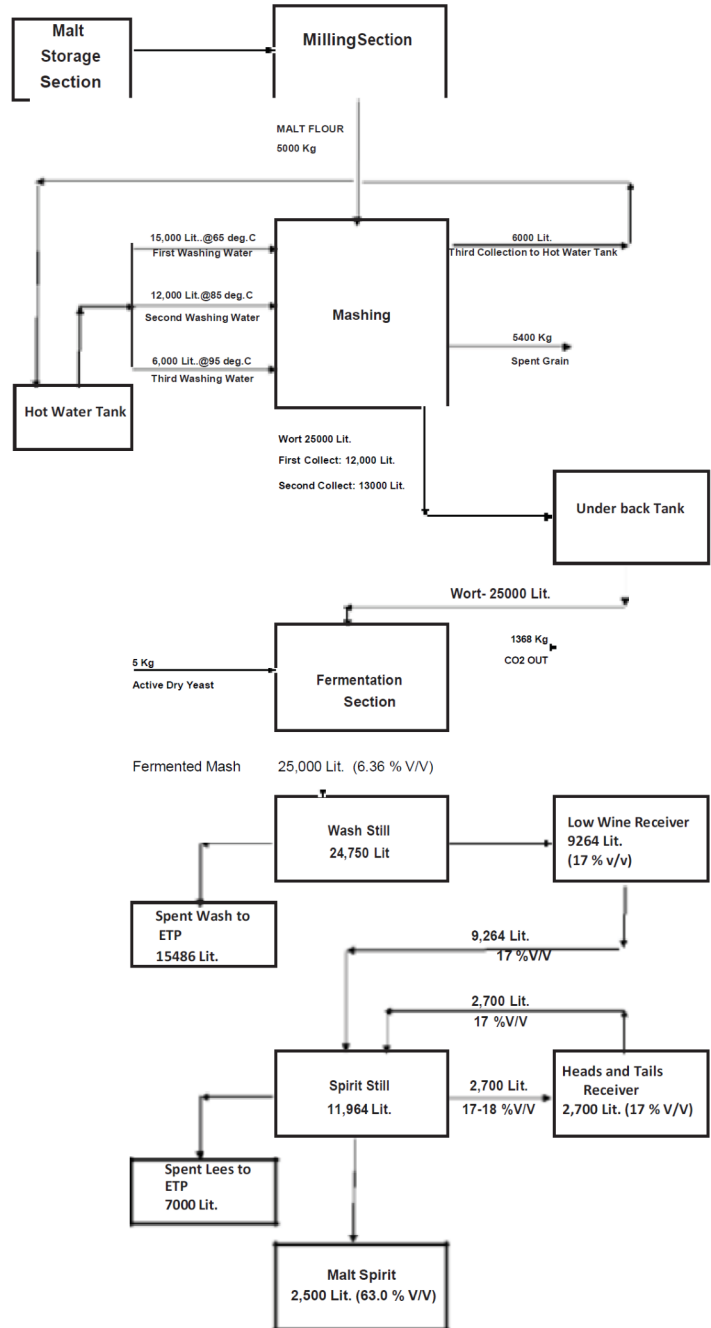
Figure 2.5: Process Flow Chart

Maturation in Oak Casks

The Malt Spirit is stored in once used Sherry Oak/ Bourbon casks having a capacity of 190 / 200 Lit or in Hogshead 240 Lit for a period of 3 years and more for maturing the Spirit. The casks / hogshead is kept in steel fabricated racks or on specially made pallets and is regularly monitored by the warehouse in-charge.

Bottling Section

Initially to Manufacture 1000 cases per day of IMFL in one line of Semi-Automatic, will be installed in a bottling hall having provision of adding 3 semi-automatic bottling lines in future.



Design Basis -
 1) Plant Capacity :- 5 KLPD Malt Spirit (63.0 % V/V)
 2) Mass balance is for 10 Hrs. Batch (5 Ton Malt per Batch)
 4) Spent Grain Contains 70 % Moisture

Figure 2.6: Mass Balance

2.7 Pollution Sources and its Mitigation Measures

Summary of major waste generation and its disposal/ treatment mechanism is given below,

Table 2.7: Major Pollution Sources and its Proposed Mitigation Measures

| Environmental Attributes | Sources | Mitigation Measures Proposed |
|--------------------------|---|---|
| Air pollution | Stack, Fugitive emissions, material handling | Proposed stack height (30 m) is as per SPCB/CPCB norms with Multi Cyclone |
| Waste water Management | Blow down from boiler, cooling tower, floor washing, other cleaning activities and domestic, Spent wash, spent lees | Malt Spirits Plant will be based on “Zero Effluent Discharge”. The treated water will be recycled back in plant activities. Sewage from domestic activity will be treated in septic tank |
| Solid waste management | ETP Sludge, ash, spent grain (DWGS) | <ul style="list-style-type: none"> • Solid waste from the operations generally comprises of fibers and proteins in the form of spent grain/DWGS, which will be ideally used as Cattle Feed. • ETP sludge will be dewatered in sludge drying beds and will be used as manure. • Fly ash generated from the boiler will be supplied to brick/cement manufacturers • Used oil & grease generated from plant machinery/gear boxes as hazardous waste will be sold out to the CPCB authorized recyclers. |

2.8 Project Implementation Schedule

Project action will start after getting Environment Clearance from concerned authority. Estimated time schedule of project implementation will be around 1-2 years.

2.9 Project Cost Estimate

The total cost of the project is estimated about Rs. 50.8 Cr. The project cost estimates include all expenses to be incurred towards the entire project for land & site development, civil costs, building/structure, construction costs, indigenous plant & machinery cost, preliminary & pre-operative and other expenses, contingencies as well as margin money of working capital, as summarized in Table below. Environment management cost for the proposed project will be around Rs. 34.5 lacs/annum. Land cost is approximate Rs. 5.25 Crores.

Table 2.8: Bifurcation of Project Cost

| Sr. No. | Particulars | Costing (in lacs.) |
|---------|--|--------------------|
| 1. | Plant & Machinery – Main Process and Utilities | |
| | Process Plant & Machinery (Malt Storage, Malt Cleaning, Milling, Mashing, Brew House, Fermentation, Distillation, Spirit Storage. Utilities – Chiller, Air Compressor, Cooling Towers, Water Treatment Plant, Effluent Treatment Plant, Boiler, DG Set, Electricals (PCC, MCC), Laboratory, Weigh Bridge and other allied equipment's. | 2000 |
| 2. | Land & Buildings | |
| | Land & Building (10 Acres+) Civil and Structural Construction– Distillery Building, Utilities Structures, Warehouses, Admin & other office set up | 1325 |
| | Oak wood Casks for Malt Spirit Storage for Maturation | 1755 |
| 3. | Total Fixed Assets (Incl. Taxes & Duties) | 5080 |

Table 2.9: Budgetary Allocation for Environmental Management

| Sr. No. | Construction Phase (with Break-up) | Capital Cost (Amount in lakhs) | O&M (Amount in lakhs) |
|---------|--|--------------------------------|-----------------------|
| 1. | Environmental monitoring | - | 01.50 |
| 2. | Air Environment | - | 00.50 |
| 3. | Occupational Health | 10.00 | 02.00 |
| | Total | 10.00 | 04.00 |
| Sr. No. | Operation Phase (with Break-up) | Capital Cost (Amount in lakhs) | O&M (Amount in lakhs) |
| 4. | Air Pollution Control System | 80.00 | 02.50 |
| 5. | ETP | 70.00 | 10.00 |
| 6. | Environmental Monitoring (Air, water, waste water, Soil, Solid waste, Noise) | - | 08.00 |
| 7. | Occupation Health | 35.00 | 10.00 |
| 8. | Green Belt Development | 15.00 | 02.00 |
| 9. | Solid Waste Management | 05.00 | 01.00 |
| 10. | Rain Water Harvesting | 15.00 | 01.00 |
| | Total | 220.0 | 34.50 |

CHAPTER III: DESCRIPTION OF THE ENVIRONMENT

3.1 Introduction

Field monitoring was done for primary data collection of various environment components such as air quality, water quality, soil quality, noise, etc. Also, secondary data such as micrometeorology, flora and fauna, socio-economic aspects, hydro-geological studies, traffic study etc. was collected from authenticated sources was used as a guideline and reference material. The entire data has been collected through actual physical surveys and observations, literature surveys, interaction with locals, government agencies, and departments. The baseline study begins with site visits and reconnaissance survey in the study area.

The guiding factors for the present baseline study are the requirements prescribed by the guidelines given in the EIA Manual of the MoEF&CC and methodologies mentioned in Technical Guidelines Manual for Distillery Projects.

3.2 Site Reconnaissance Visit

Reconnaissance visit was conducted to Ian Macleod Distillers India Pvt. Ltd. **from 25th to 26th Feb 2021**. During the visit, sampling sites were identified and finalized for monitoring of environmental parameters.

3.3 Baseline Environmental Study Area and Period

As a requirement of EIA process, primary baseline data has been collected at the Project site, as well as within 10 km radial distance around the project site (“Study Area”). Primary Baseline data was collected for prominent environmental attributes like ambient air, water, soil and noise, while data from authenticated sources (Secondary data) was collected for geology, hydrogeology, meteorology, socio-economic features, terrestrial ecology, land use, etc. The baseline studies were conducted in the period of **1st March 2021 to 31st May 2021**. SoI Toposheet showing project plot boundary and 10 km study Area is shown as **Figure 3.1** and Satellite Imagery of 10 km radius project area is shown in Figure 3.2.

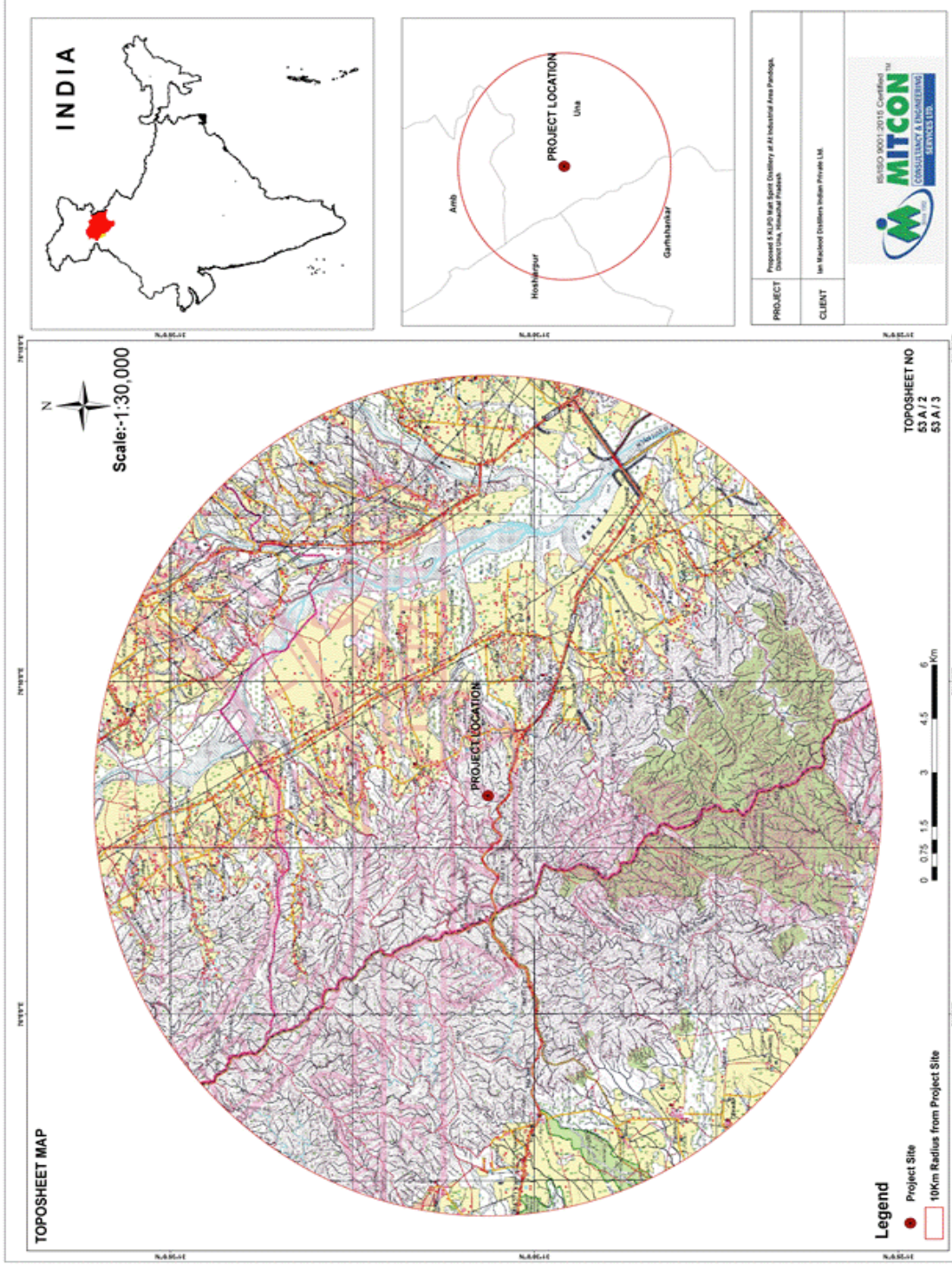


Figure 3.1: Toposheet Map showing Project site and 10 Km Study Area

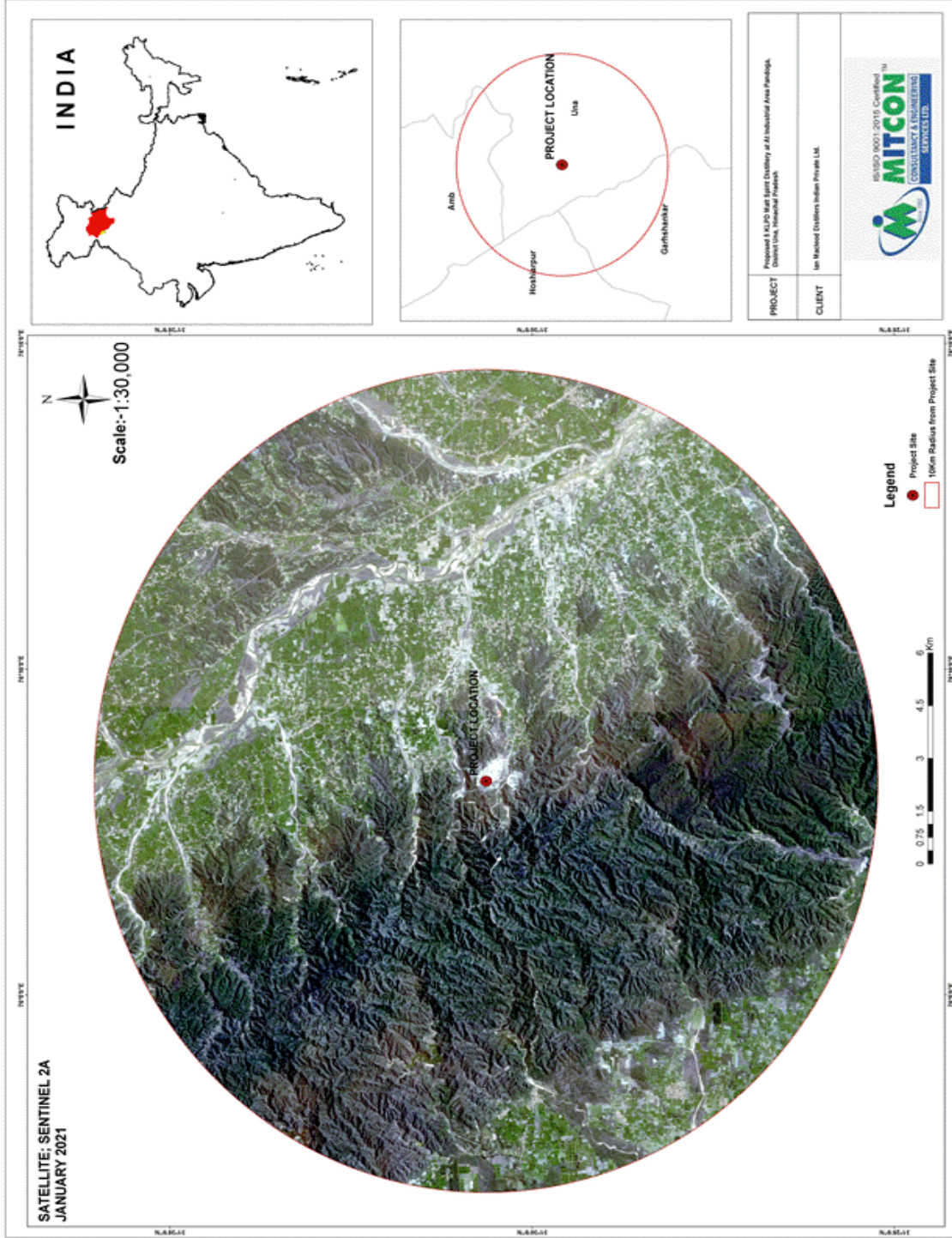


Figure 3.2: Satellite Imagery showing Project site and 10 Km Study Area

3.4 Environmental Parameters

Environmental parameters that were monitored and their frequency, are presented in following table.

Table 3.1: Environmental Parameters and Frequency of Monitoring

| Components | Parameters | Frequency | Methodology adopted |
|---------------------|---|---|--|
| Ambient Air Quality | As per the NAAQS dated 16 th November 2009: PM _{2.5} , PM ₁₀ , SO ₂ , NO _x | Ambient air quality samples are monitored at 9 locations for 24 hours twice a week for the study period. Sampling locations were chosen, such that: Upwind (2 Nos.) Crosswind (3 Nos.) Downwind (4 Nos.) | PM ₁₀ / PM _{2.5} : Gravimetric method SO ₂ : Modified West and Gaeke Method. (IS: 5182, Part II) NO _x : Jacobs and Hochheiser Method. (IS 5182 Part VI) |
| Meteorology | Wind Speed & Wind Direction, Temperature, Relative Humidity and Rainfall | Secondary data like average annual meteorological data was collected from IMD – Una | Monitoring data for primary data IS: 8829 |
| Water quality | Physical, Chemical and Biological parameters. | Sampling was done twice during the study period at 8 locations for groundwater quality and 3 locations for surface water quality. | Standard methods for Examination of Water and Wastewater published by American Public Health Association (APHA) |
| Ecology | Flora & Fauna within study area | Field survey conducted at 20 locations, once during the study period and secondary data. | Listing of floral & quadrat study and listing of faunal species. |
| Ambient Noise | Noise levels in dB(A) | Continuous 24 – hourly readings were taken once during the study period at 9 locations including Project site, within the 10 Km Study Area. | IS: 4954 as adopted by CPCB. |
| Soil | Physico-chemical parameters as per BIS standards | Sampling at 10 locations around project site twice during the study period. | BIS specifications |
| Socio-economic Data | Socio-economic characteristics of the local population | Based on data collected from the year 2011 Census Abstract. | - |

| | | | |
|--------------------------|---|---|----------------------------------|
| | in the Study Area. | | |
| Land use pattern | Land use for different categories | 10 km radius, based on data published in Primary Census Abstract and satellite imagery LISS –III | Toposheet Satellite imageries |
| Geology and Hydrogeology | Lithological types, drainage basins, etc. | Field observations in 10 km study area and from secondary data from authenticated sources like GSI, SoI, etc. | Authenticated published data. |

The environmental setting of the Study Area is shown in following table;

Table 3.2: Environmental Setting of the Study Area

| Sr. No. | Particulars | Description |
|---------|--|--|
| 1. | Project Location Geographical Coordinates | Latitude – 31°30'39.44"N Longitude – 76°8'16.62"E |
| 2. | Toposheet number | 53 A/2, 53 A/3 |
| 3. | Nearest Habitation | Daulatpur : 1.3 km towards NE Bankhandi : 1.5 km towards SE Panhera : 2.2 km towards N Bheli Khud : 2.4 Km towards SE Pandoga : 2.7 Km towards NE |
| 4. | Nearest Railway station | Panoh Railway Station: 7.88 km towards NE Churaru Railway Station: 9.65 km towards NE Una Railway Station: 12.8 km towards NE |
| 5. | Nearest Airport | Shimla Airport: 100 km towards SSE |
| 6. | Nearest IMD station | IMD Una: 13.3 km towards SE |
| 7. | Nearest Water body | Swan river– 5.76 km towards ESE Bhakra Dam– 30.1 km in SE |
| 8. | Nearest Road | SH 22 Hoshiyarpur Una Road 0.27 Km in South |
| 9. | Any Religious / Historical Place | None |
| 10. | Any Archaeological monuments | None |
| 11. | Ecological sensitive area / Reserve Biosphere within 5 km / Reserve Forest | Takhani Rehmanpur Wildlife Sanctuary 26.68 km in NW |
| 12. | Seismic Zone | Zone-V |
| 13. | Average altitude above MSL | 490 m |
| 14. | Temperature in °C | The highest temperature is usually observed during the months of April–May and lowest temperature during December/ January. Highest and lowest recorded are Max. 45.2 °C Min. 2.4 °C |
| 15. | Rainfall in mm | District annual average: 1,131.2 mm |

| | | |
|-----|---------------|--|
| 16. | Wind velocity | This region is characterized by low to moderate wind velocities. The mean annual velocities are in the range of 4 to 6 Km/h and especially high during pre-monsoon period of June to August. |
|-----|---------------|--|

3.5 Physical Environment

3.5.1 Geomorphology & Topography

Una district settles between Shivalik ranges and forms part of the lesser Himalayas. It has wide diverse landscape of hills, valleys with piedmont zone, terraces. The elevations of the land surface in the district, vary from 340 m in south-eastern part to 1041 m above mean sea level (amsl) in eastern part of the district. There are three hill ranges i.e. Chamukha Dhar with maximum elevation of 1041m amsl, which borders with district Hamirpur, Dhionsar Dhar with maximum elevation of 950m amsl and Ramgarh Dhar with maximum elevation of 997m amsl. In the southwest along the border with Punjab, Siwalik hill ranges form hilly upland or plateau area with elevation up to 666 m amsl. The vast area between the northwesterly & southeasterly hill ranges, on both sides of river Soan is known as Una valley. The undulating to plain fertile Una valley has an area of about 455 sq. km. and it extends from Daulatpur in the north – west to Santokhgarh in the south - east.

Soan or Swan River, a tributary of river Satluj, drains the major part (80%) of the Una district. Soan is an intermittent river and maintains base flow in the lower reaches. Soan River has about 80% catchment area in Una district and divides the district into two parts. Soan River flows in a southeastern direction and has a wide channel and exhibits braided nature. It originates near Daulatpur in the northeastern part and leaves the district near Santokhgarh and subsequently joins river Satluj. Many of the local streams (about 73 khads) joins the river within the district. During monsoon Soan river usually gets flooded due to shallow bank heights. In Bangana area, another stream (Khad), flowing parallel to Soan River, is Lunkhar khad, which debouches in Govind Sagar Lake.

Basically two types of soils are observed in the district viz., non-calcic brown soil and alluvial soil. Most of the area in the district is covered with alluvial soil and only about 25% of the area i.e. hilly area in the district is covered with non-calcic brown soil. Soils are rich in nutrients and thus are fertile.

Physiography and Drainage map of Una District is shown in Figure 3.3. Geomorphology map of Una District is shown in Figure 3.4.

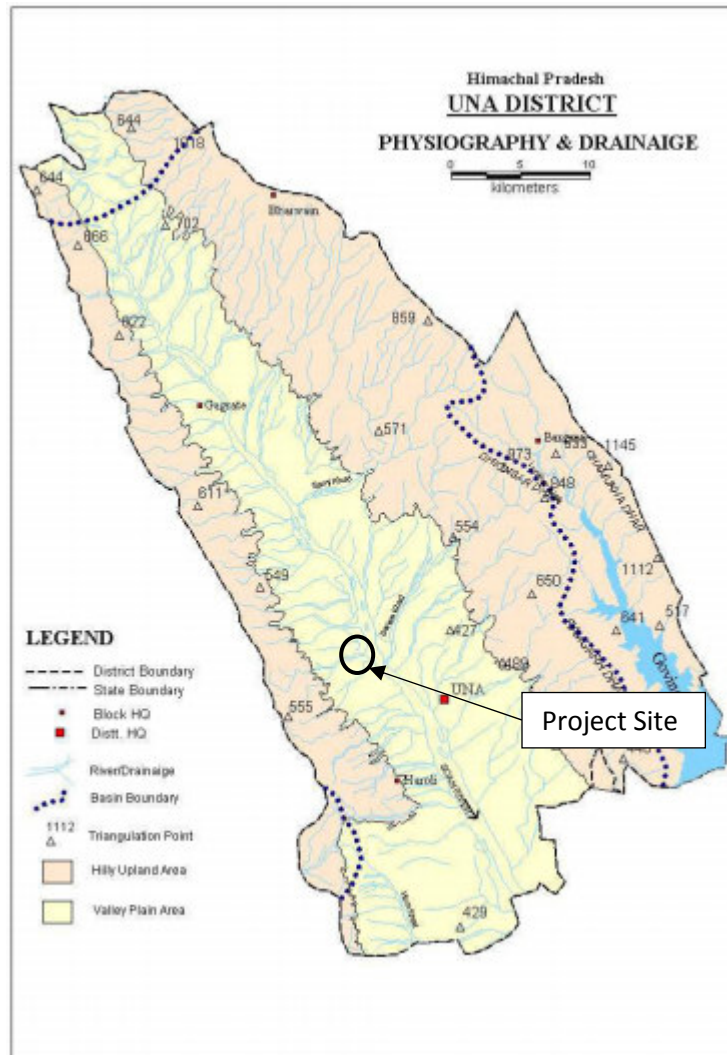


Figure 3.3: Physiography and Drainage Map of Una District¹

¹ Source: GROUND WATER INFORMATION BOOKLET UNA DISTRICT, HIMACHAL PRADESH by CGWB.

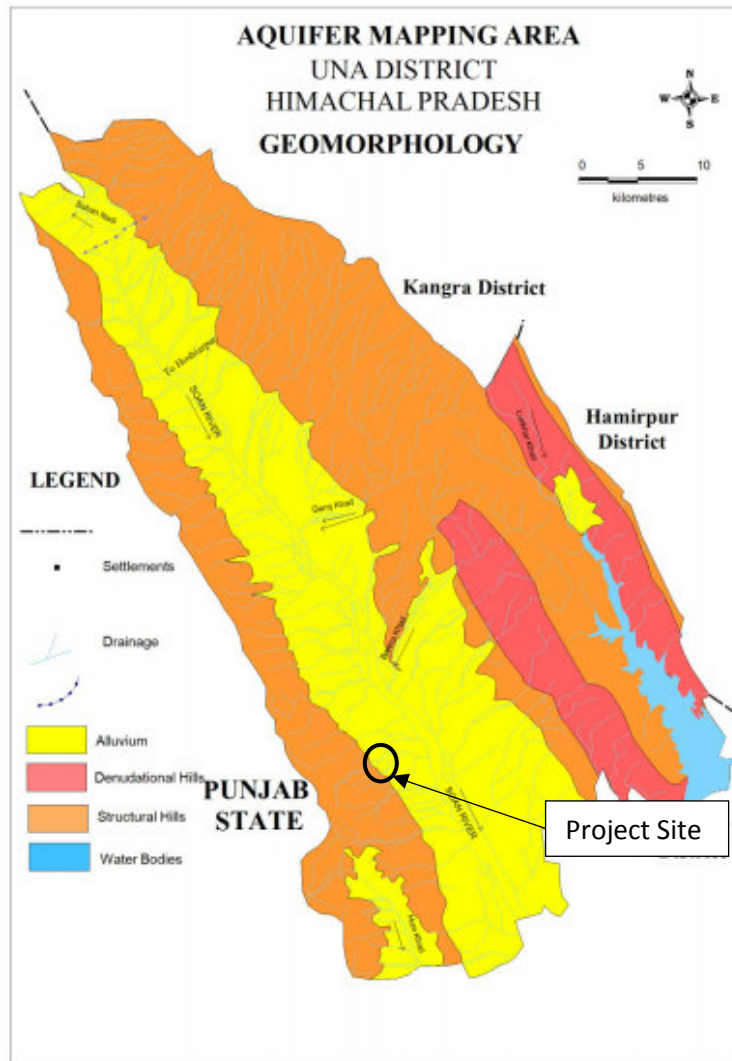


Figure 3.4: Geomorphology Map of Una District²

3.5.2 Digital Elevation Model

One of the most common applications of interpolation techniques is in the construction of a digital elevation model (DEM), sometimes referred to as a digital terrain model (DTM).

Digital elevation models were originally developed as part of the process required to create orthophotos. But they may also be used to calculate slope, aspect, line of sight, view sheds, watersheds and lots of other features, as well as providing a basis for more effective visualization using block diagrams, hill shading etc.

² Source: GROUND WATER INFORMATION BOOKLET UNA DISTRICT, HIMACHAL PRADESH by CGWB.

The study area comes in hilly region of Himachal Pradesh. As per DEM Model the maximum elevation is 657 m and minimum is 340 m. Digital Elevation map helps us identify areas susceptible to damages due to the proposed project.

The Digital elevation map of the project site and the 10 km study area is given in Figure 3.5 below;

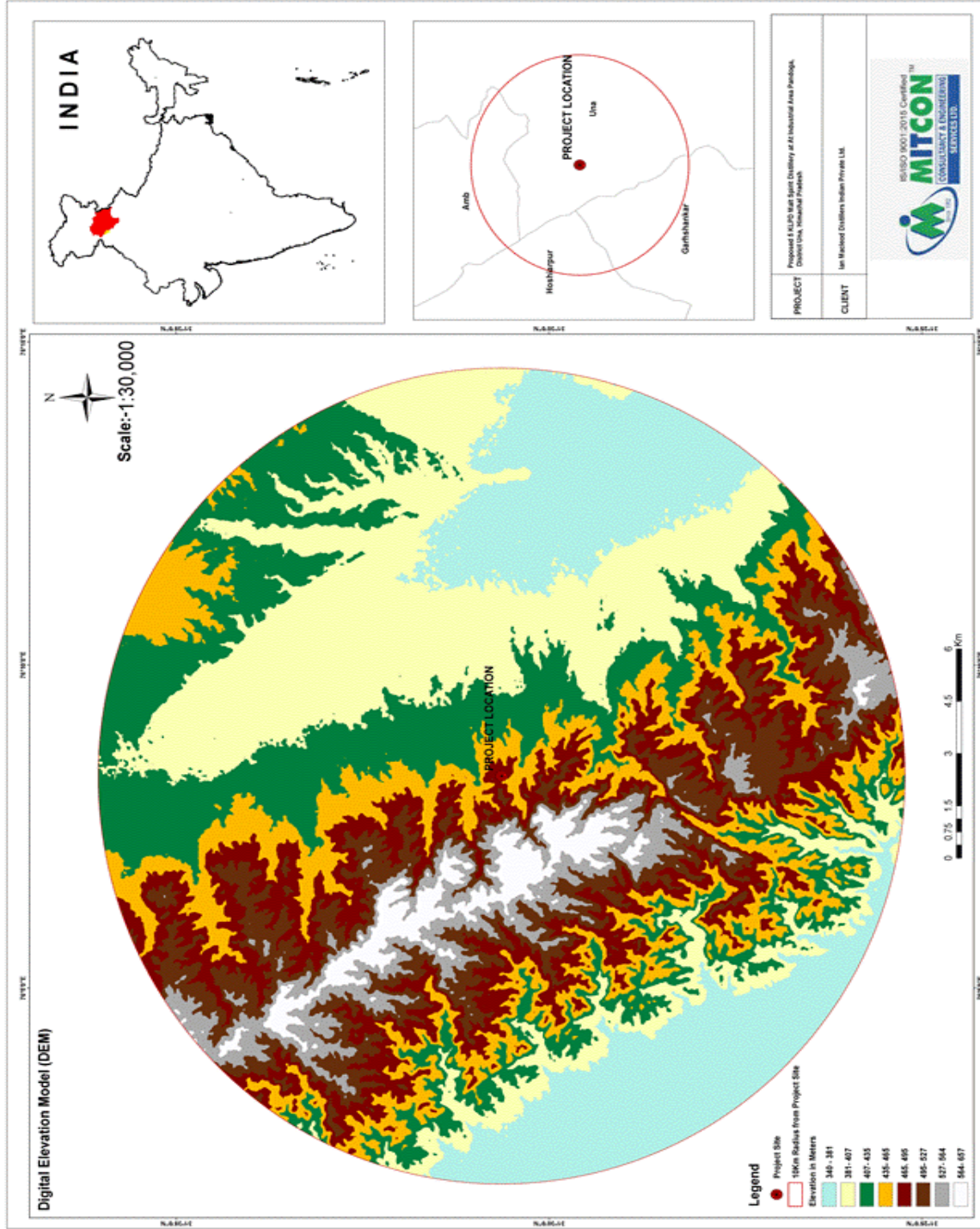


Figure 3.5: DEM Map of Una District

3.5.3 Seismicity

Figure 3.6 shows the project location marked on BMTPC Earthquake hazard map of India as well as that of Himachal Pradesh state, showing location of Project site in Zone V i.e. Very High Damage Risk Zone. The building will be constructed as per IS 1893 (Part I) and IS 4326 which is a code of practice for earthquake resistant design and construction of buildings. The buildings will be earthquake resistant and accordingly construction materials suitable for the same will be used.

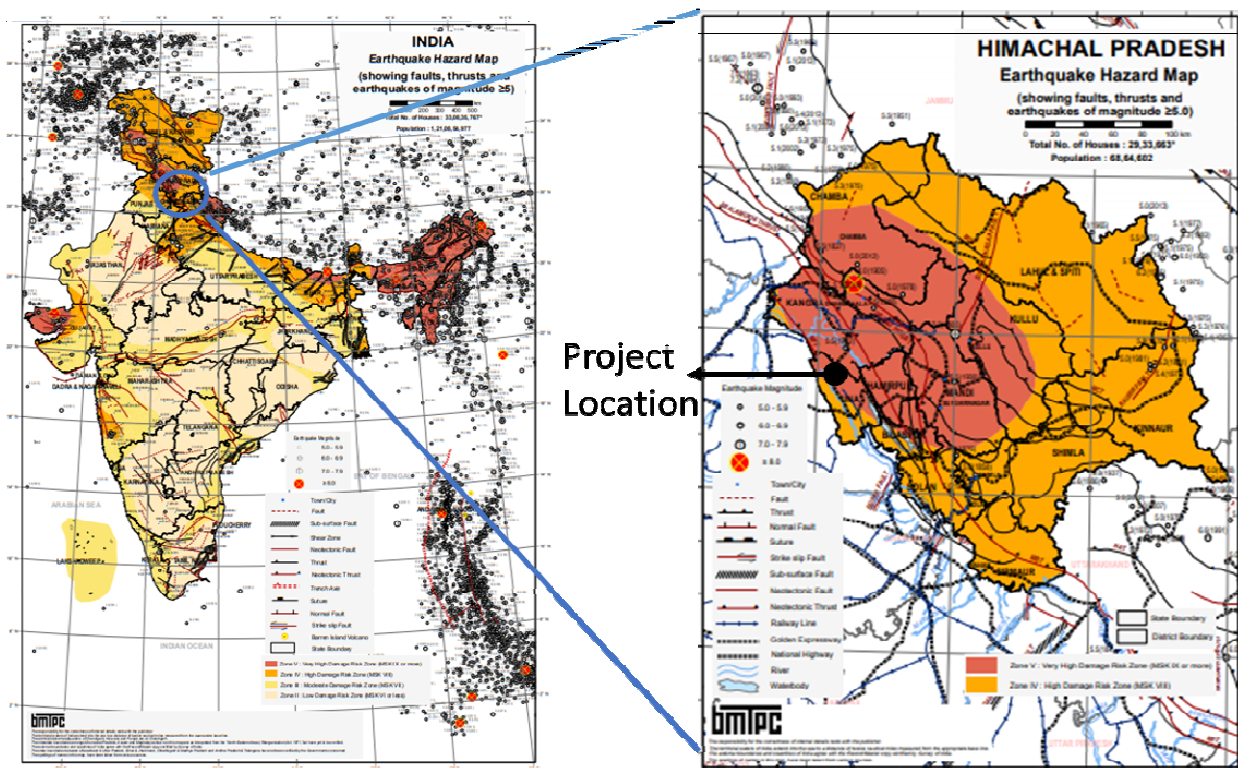


Figure 3.6: BMTPC Earthquake Hazard Map of India and Himachal Pradesh³

3.5.4 Drainage

The project area lies in River basin of Swan River which is replenished during monsoon and also during winter rains. The Catchment of Swan River of Una district or Himachal Pradesh is characterized by fragile and vulnerable Shivalik hills and sparse vegetative cover. Swan River overflows the banks during monsoons and causes severe soil erosion, land slide, deposition of sand on fertile agriculture and damage to life & properties and hence ancient Sobhadra or Swan

³ BMTPC Vulnerability Maps (3rd Edition)

River was termed as “Sorrow of Una”. Swan is one of the tributary of the River Sutlej has catchment area of 1215 Km² in Una district of the state. Total length of Swan River from Daulatpur (upstream) to Santoshgarh (downstream) is about 98 km and drains into Sutlej near Anandpur sahib, district Roopnagar of Punjab.

The drainage map of 10 km Study Area of the Project site is shown below as Figure 3.7.

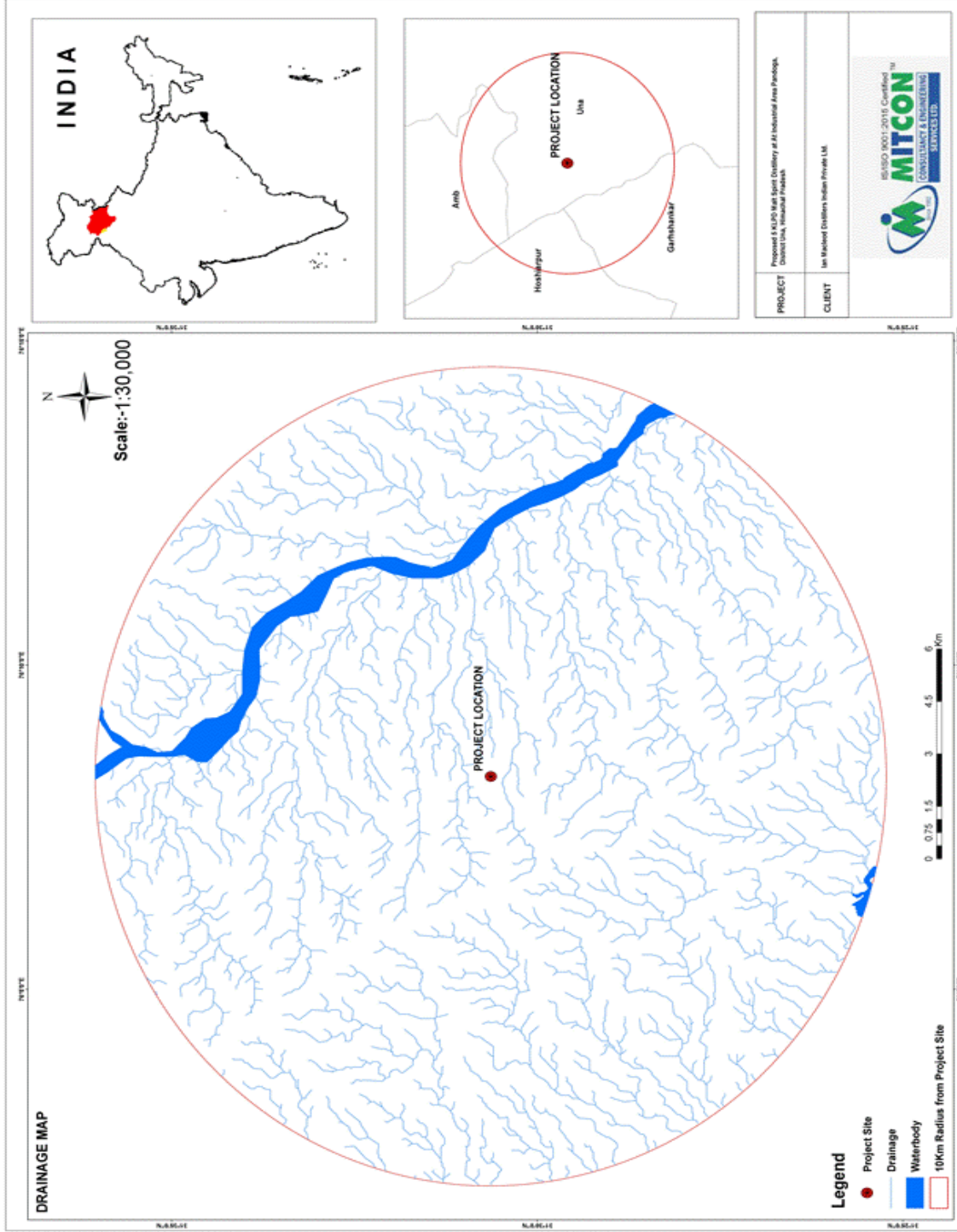


Figure 3.7: Drainage Pattern of the Project Study Area

3.5.5 Land Use / Land Cover

Land use is characterized by the arrangements, activities and inputs people undertake in a certain land cover type to produce, change, or maintain it. Land use establishes a direct link between land cover and the actions of people in the environment.

Land cover is the observed (bio-) physical cover on the earth's surface. Consequently, areas where the surface consists of bare rock or bare soil are land itself rather than land cover. However, in practice, the scientific community usually includes these features within the term land cover. Site specific Land Use / Land Cover Map in 10 km Study Area around the Project Site is shown below as Figure 3.8.

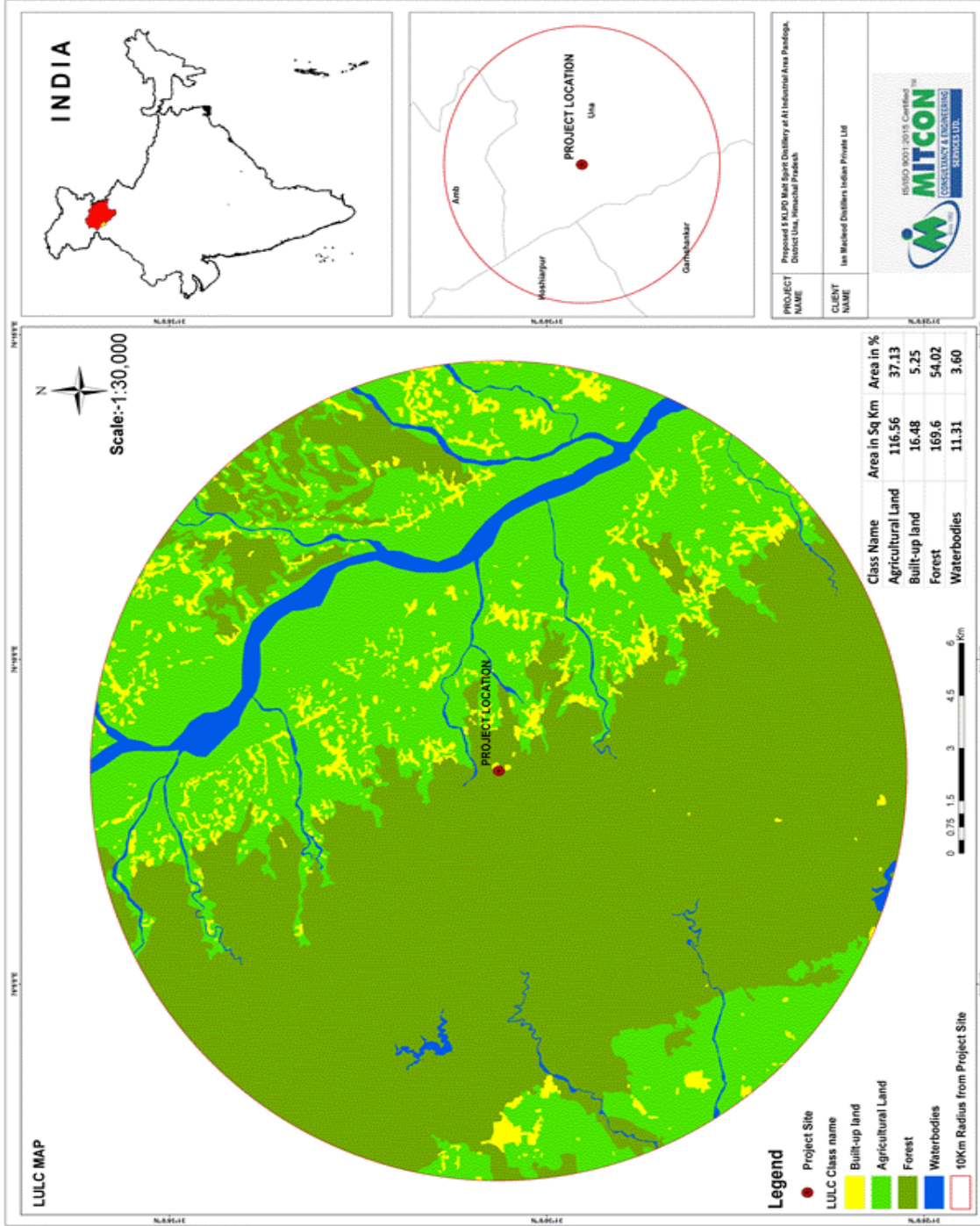


Figure 3.8: LULC Map of Project Site and Study Area (10 km radial distance)

Land Use/Land cover for 10 km radius around the project site were delineated based on the Landsat ETM+ satellite data; the Land use / Land cover classes are categorized based on ground truthing and site visit. Land is classified into vegetation, barren land, built-up area, water bodies, etc. classes. Land use of the study area is predominantly agricultural as seen from Table 3.3.

Table 3.3: Land Use in the Study Area

| Sr. No. | Classes | Area in Sq. km. | Area in % |
|--------------|---------------|-----------------|---------------|
| 1 | Agriculture | 116.56 | 37.13 |
| 2 | Built Up Land | 16.48 | 5.25 |
| 3 | Forest Land | 169.6 | 54.02 |
| 4 | Waterbody | 11.31 | 3.60 |
| Total | | 314.26 | 100.00 |

3.6 Meteorology

The meteorological data recorded during the monitoring period is a useful tool for the interpretation of the baseline condition as well as for the input to predictive models for air quality dispersion.

The nearest IMD observatory from the Project site is situated at a distance of 13.3 Km towards the south-west in Una town of Himachal Pradesh.

As per IMD's classification of meteorological seasons in India, the year can be classified into the following four seasons:

- i. Winter season (January to February)
- ii. Pre-monsoon season (March to May)
- iii. Monsoon season (June to September)
- iv. Post-monsoon season (October to December)

The baseline environmental studies for the present project, were conducted from **1st March 2021 to 31st May 2021** (i.e., Pre-monsoon seasons).

3.6.1 Methodology

The methodology adopted for monitoring surface observations is as per the standard norms laid down by Bureau of Indian Standards, and the India Meteorological Department (IMD). On site monitoring was undertaken for various meteorological variables in order to generate the site-

specific data. The data generated has been compared with meteorological data generated by the nearest IMD Observatory at Una, Himachal Pradesh.

3.6.2 Site-specific Meteorological Data

An automatic weather monitoring station was installed at a height of 10 meters from the ground level at proposed site to monitor parameters of wind speed and wind direction, temperature & relative humidity. The 24-hourly meteorological data was collected for the study period from **1st March 2021 to 31st May 2021**. The data is recorded as maximum, minimum, and average value of all the readings collected during the preceding hour. Monitoring was done as per IS: 8829: Micro-meteorological Techniques in Air Pollution. The details of parameters monitored, equipment used and the frequency of monitoring are given in Table 3.4.

Table 3.4: Meteorological Parameters Monitored at Project Site

| Sr. No. | Parameters | Instruments | Frequency |
|---------|-------------------|------------------------|---------------------|
| 1. | Wind speed | Counter Cup Anemometer | Hourly / Continuous |
| 2. | Wind direction | Wind vane | Hourly / Continuous |
| 3. | Temperature | Thermo sensor | Hourly / Continuous |
| 4. | Relative humidity | Thermo-hydro sensor | Hourly / Continuous |

3.6.3 Average Meteorological Condition (Source: IMD – Una)

The mean maximum temperature, highest maximum temperature, mean minimum temperature, lowest minimum temperature and total monthly rainfall for the period - 1981 to 2010, was collected from GOI, Ministry of Earth Sciences. The average of meteorological data based on Climatological Normals (1981-2010) from the IMD observatory (Meteorological Centre) at Una is presented in Table 3.5.

Table 3.5: Average of Meteorological Data from Meteorological Centre (IMD, Una)⁴

| Location: IMD Una , Located in the premises of Deputy Commissioner office, exposure good. (Latitude: 31°28"N, Longitude: 76°16'E) | | | | | | | | | | |
|--|----------------|------------|-----------------|----------------|------------|-----|---------------|--------------|-----------------------|------------------------|
| Approximate aerial distance from Project Site: 13.3 Km towards SW | | | | | | | | | | |
| Elevation: 369 m above MSL | | | | | | | | | | |
| Month | Temperature °C | | | | Humidity % | | Rainfall | | Mean Wind Speed (m/s) | Pre dominant direction |
| | Daily Mean | Daily Mean | Monthly Highest | Monthly Lowest | Max | Min | Monthly Total | No. of Rainy | | |

⁴ Source: GOI, Ministry of Earth Sciences, IMD, Climatological Tables 1981-2010

| | Max | Min | | | | | (mm) | Days | | |
|-----------------------------|-------------|-------------|-----------|-------------|-----------|-----------|---------------|-------------|------------|-----------|
| January | 19.9 | 3.2 | 25 | -0.3 | 83 | 65 | 37 | 2.4 | 2.9 | SW |
| February | 23.1 | 5.7 | 27.7 | 2.5 | 83 | 63 | 42.4 | 3.4 | 3.5 | SW |
| March | 28.1 | 9.4 | 32.9 | 5.4 | 79 | 57 | 42.3 | 3.3 | 4.2 | SW |
| April | 34.3 | 13.5 | 39.1 | 9.3 | 66 | 42 | 24.9 | 1.6 | 3.6 | SW |
| May | 37.8 | 18.2 | 42.4 | 13.9 | 61 | 41 | 37.1 | 2.7 | 3.6 | NE |
| June | 37.9 | 21.2 | 42.6 | 17.4 | 67 | 49 | 89.6 | 5.5 | 2.8 | NE |
| July | 33.8 | 22.1 | 38.2 | 19.3 | 79 | 68 | 323.2 | 11.6 | 1.8 | NE |
| August | 32.8 | 21.9 | 35.9 | 19.3 | 84 | 72 | 320.3 | 11.6 | 1.2 | NE |
| September | 32.8 | 20.1 | 35.5 | 16.7 | 83 | 67 | 162.2 | 5.8 | 1.7 | NE |
| October | 31.1 | 13.8 | 34 | 9.8 | 81 | 61 | 21.1 | 1.2 | 2.2 | NE |
| November | 27.4 | 8.2 | 30.9 | 4.6 | 81 | 58 | 10.7 | 0.9 | 2.3 | NE |
| December | 22.3 | 4 | 25.9 | 0.8 | 82 | 61 | 20.4 | 1.2 | 2.8 | NE |
| Annual Total or Mean | 30.1 | 13.5 | 43 | -0.4 | 77 | 59 | 1131.2 | 51.2 | 2.7 | NE |

The Annual Wind-rose for the period June 2020 to May 2021 has been obtained from the Meteorological Centre (MC) - IMD Una and attached below as Figure 3.9.

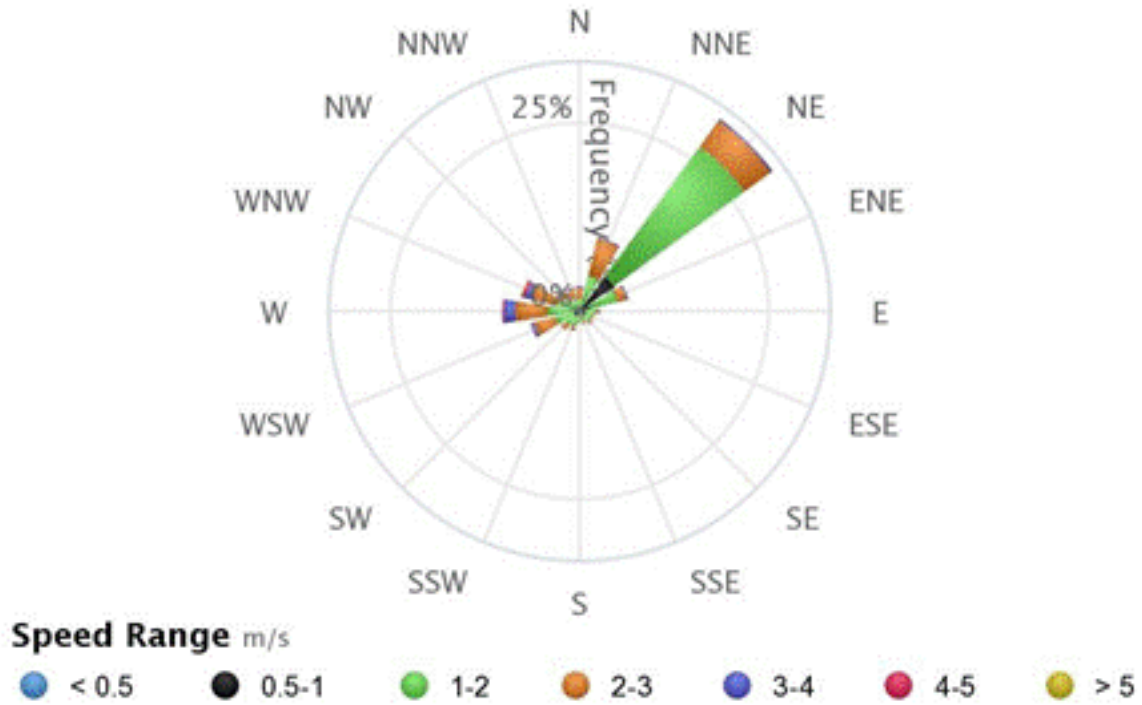


Figure 3.9 a: Annual Wind-rose – Una, Himachal Pradesh

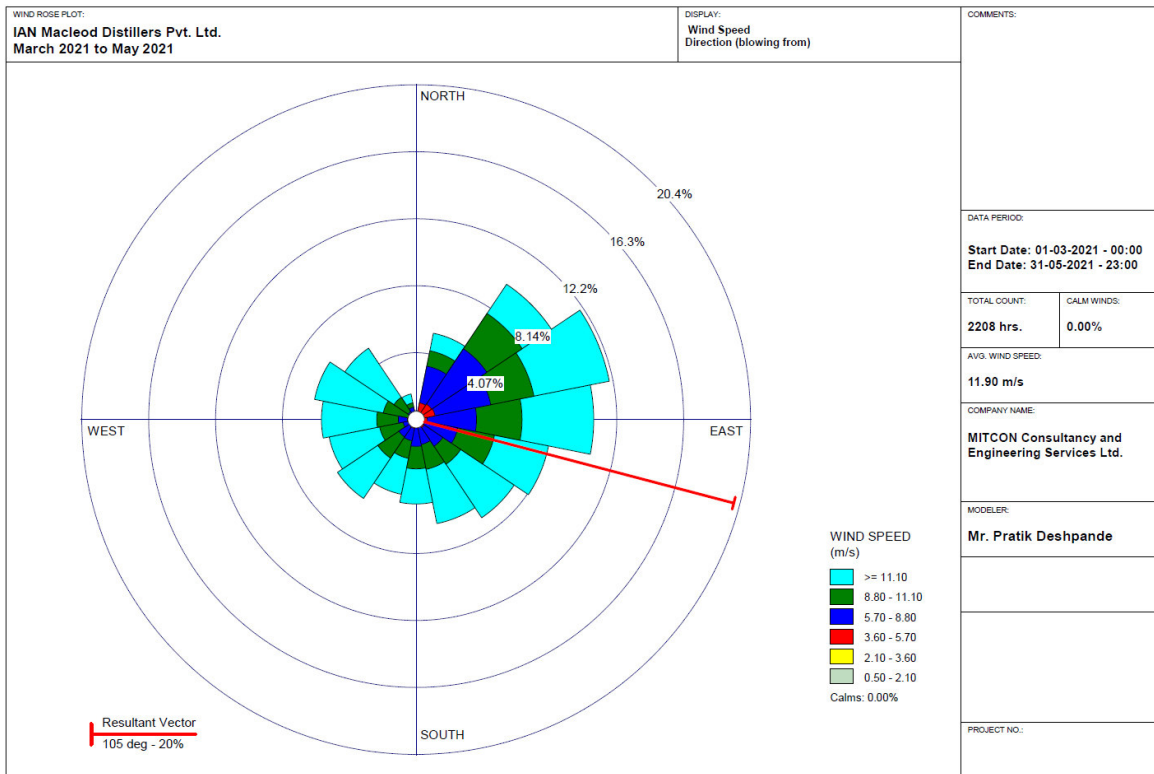


Figure 3.9 b: Seasonal Wind-rose – Una, Himachal Pradesh (March to May 2021)

3.7 Ambient Air Environment

Air quality is an important parameter of the baseline environment and its study is an indispensable tool for planning further development in the adjoining areas of the project. The extant air quality was studied to assess the current status of the same and to check the air quality status of the region vis-à-vis the air quality standards prescribed by the Central Pollution Control Board. Ambient air quality monitoring was conducted at 9 locations, details of which are given in Table 3.6. The monitoring locations have been selected primarily based on the predominant wind direction and accordingly 2 locations were selected in the Up-wind direction, 3 locations in the Cross-wind direction and 4 locations were selected in the Down-wind direction from the project site. The other factors considered while selection of the monitoring stations include topography, representative nature of the sample, accessibility, location of receptors and availability of power.

Table 3.6: Ambient Air Quality Stations

| Sample Code | Sampling Location | Latitude | Longitude | Distance (km) | Direction | Significance** |
|-------------|-----------------------------|---------------|---------------|---------------|-----------|----------------|
| AAQ 1 | Project site | 31°30'38.13"N | 76° 8'16.87"E | -- | -- | -- |
| AAQ 2 | Pandoga | 31°31'19.93"N | 76° 9'53.97"E | 2.87 | NE | UW |
| AAQ 3 | Chak Khud | 31°30'20.36"N | 76° 8'16.31"E | 0.55 | S | DW |
| AAQ 4 | Bankhandi | 31°30'11.04"N | 76° 9'3.34"E | 1.48 | SE | DW |
| AAQ 5 | Daulatpur | 31°30'49.72"N | 76° 9'10.17"E | 1.45 | NE | UW |
| AAQ 6 | Panehra | 31°31'27.46"N | 76° 8'33.79"E | 1.59 | N | CW |
| AAQ 7 | Bheli Khud | 31°29'22.51"N | 76° 9'18.87"E | 2.85 | SE | DW |
| AAQ 8 | In west side of the project | 31°30'30.27"N | 76° 7'0.08"E | 2.03 | W | DW |
| AAQ 9 | Loharli Nichli | 31°34'11.50"N | 76° 7'32.39"E | 6.67 | N | CW |

** DW – Down-wind; CW – Cross-wind; UW – Up-wind.

Sampling locations on marked SoI Toposheet have been shown in Figure 3.10. The sampling and analysis of ambient air quality parameters was carried out as per the procedures detailed in relevant Parts of IS-5182 (Indian Standards for Ambient Air Quality Parameters).

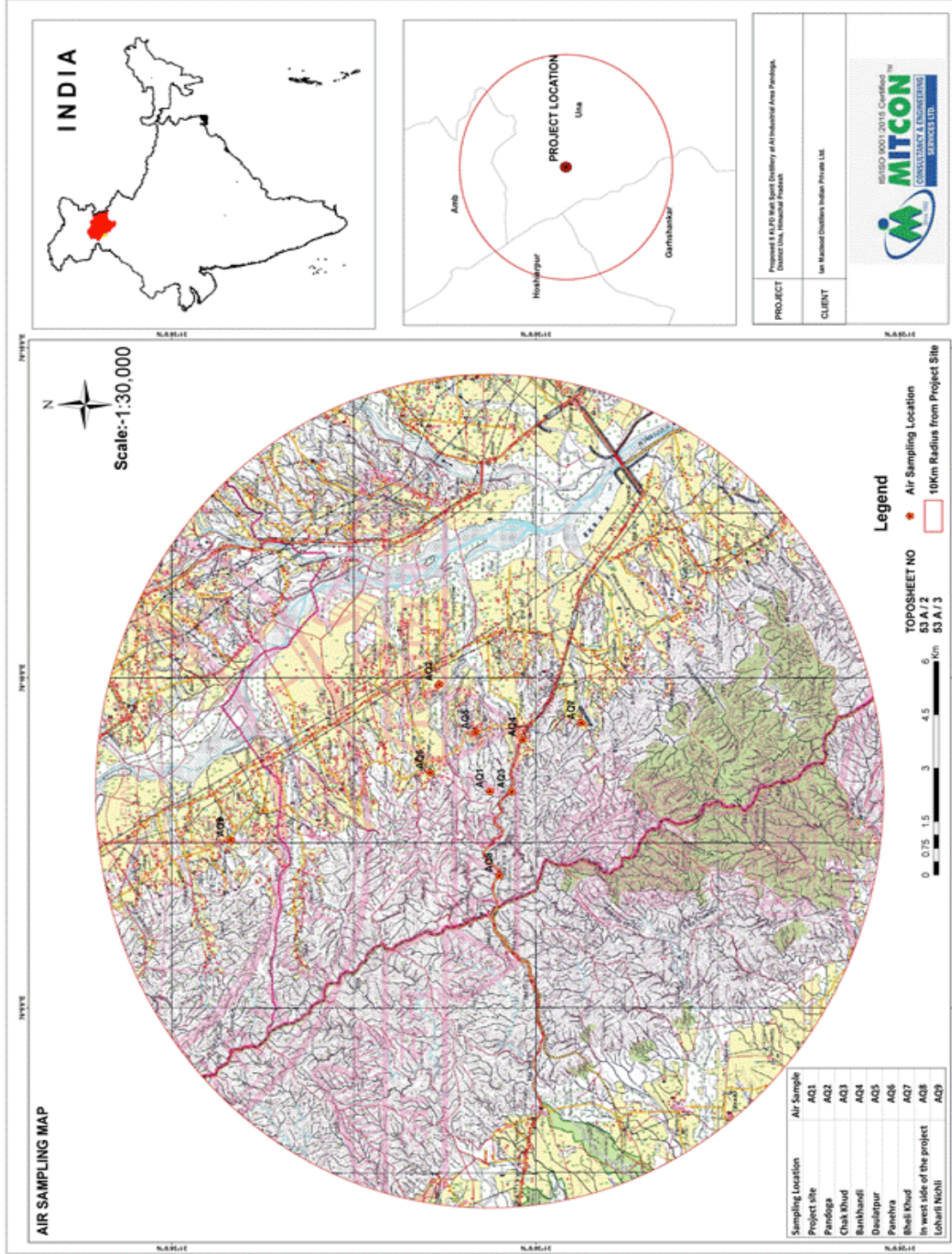


Figure 3.10: Ambient Air Quality Monitoring Stations on SoI Toposheet

3.7.1 Sampling Period, Frequency and Parameters

During the sampling period, from March to May 2021, 24-hourly samples were collected twice a week from each location. The following air pollution parameters were monitored and measured by sampling:

- Particulate Matter less than 10 μ m (PM₁₀)
- Particulate Matter less than 2.5 μ m (PM_{2.5})
- Sulphur dioxide (SO₂)
- Oxides of nitrogen (NO_x)

3.7.2 Techniques for Measurement

The ambient air quality monitoring was undertaken twice a week for a period of twelve weeks. One set of 24-hour average samples were collected continuously. Measurement techniques used for Air quality analysis are presented in Table 3.7.

Table 3.7: Measurement Techniques

| Parameter | Monitoring Equipment | Analytical Method | Minimum Detectable limit | Technical Protocol |
|-------------------|----------------------|---|---------------------------|--------------------------------------|
| PM _{2.5} | Fine Dust sampler | CPCB Guidelines for the measurement of Ambient Air pollutant Vol. I, 2011 | 10 μ g/m ³ | Gravimetric method |
| PM ₁₀ | Fine Dust sampler | IS 5182 (Part 23) : 2006, RA-2012 | 10 μ g/m ³ | Gravimetric method |
| SO ₂ | Gaseous sampler | IS 5182 (Part II) : 2001, RA-2012 | 5 μ g/m ³ | Improved West and Geake method |
| NO _x | Gaseous sampler | IS 5182 (Part VI) : 2006, RA-2012 | 5 μ g/m ³ | Modified Jacob and Hochheiser method |

3.7.3 Ambient Air Quality Results

Table 3.8 shows a summary of the analytical results of Air Quality monitoring samples.

Table 3.8: Ambient Air Quality Results

| Sampling Location | | PM _{2.5} | PM ₁₀ | SO ₂ | NO _x |
|-------------------------------------|-----------------------------------|-------------------|------------------|-----------------|-----------------|
| AAQ 1 - Project Site | Minimum | 15 | 40.1 | 6.5 | 10.3 |
| | Maximum | 20.6 | 52.4 | 14.8 | 10.4 |
| | Average | 17.3 | 44.1 | 12.4 | 8.0 |
| | 98th Percentile | 20.5 | 49.9 | 14.7 | 10.2 |
| AAQ 2 - Pandoga | Minimum | 16.2 | 42.3 | 8.2 | 11.6 |
| | Maximum | 22.8 | 58.7 | 12.5 | 18.1 |
| | Average | 19.2 | 49.6 | 10.1 | 13.8 |
| | 98th Percentile | 22.4 | 57.3 | 12.4 | 16.7 |
| AAQ 3 - Chak Khud | Minimum | 14.9 | 40.3 | 9.2 | 14.3 |
| | Maximum | 19.1 | 49.7 | 12.1 | 17.2 |
| | Average | 16.5 | 44.7 | 10.8 | 15.8 |
| | 98th Percentile | 18.7 | 49.2 | 12.0 | 17.1 |
| AAQ 4 - Bankhandi | Minimum | 15.9 | 40.7 | 6.1 | 10.3 |
| | Maximum | 21.1 | 54.2 | 8.5 | 12.5 |
| | Average | 17.7 | 45.4 | 6.8 | 11.3 |
| | 98th Percentile | 20.2 | 51.7 | 8.2 | 12.5 |
| AAQ 5 - Daulatpur | Minimum | 16.1 | 42.7 | 6.3 | 13.1 |
| | Maximum | 20.3 | 52.5 | 11.3 | 16.4 |
| | Average | 18.5 | 48.6 | 8.9 | 14.9 |
| | 98th Percentile | 20.3 | 52.5 | 11.2 | 16.4 |
| AAQ 6 - Panehra | Minimum | 15.3 | 40.3 | 6.4 | 11.8 |
| | Maximum | 18.8 | 49.6 | 11.0 | 17.6 |
| | Average | 16.8 | 44.1 | 9.9 | 14.2 |
| | 98th Percentile | 18.8 | 49.6 | 11.0 | 17.2 |
| AAQ 7 - Bheli Khud | Minimum | 16.6 | 43.7 | 7.6 | 11.4 |
| | Maximum | 19.9 | 52.4 | 12.4 | 15.5 |
| | Average | 18.2 | 47.8 | 9.7 | 13.8 |
| | 98th Percentile | 19.7 | 51.9 | 12.3 | 15.5 |
| AAQ 8 - In west side of the project | Minimum | 15.3 | 40.3 | 7.2 | 9.6 |
| | Maximum | 19.9 | 52.3 | 11.7 | 16.4 |
| | Average | 16.4 | 43.3 | 9.4 | 12.9 |
| | 98th Percentile | 19.0 | 50.0 | 11.4 | 16.4 |
| AAQ 9 - Loharli Nichli | Minimum | 16.2 | 27.2 | 6.9 | 11.2 |
| | Maximum | 22.8 | 48.5 | 11.5 | 16.8 |
| | Average | 19.1 | 41.7 | 9.2 | 13.8 |
| | 98th Percentile | 22.4 | 48.4 | 11.3 | 16.5 |

3.7.4 Inferences

The concentrations of PM₁₀, PM_{2.5}, SO₂ and NO_x were found within the National Ambient Air Quality Standards (NAAQ) as shown in above Table 3.8.

Table 3.9: National Ambient Air Quality Standards (NAAQ) - India⁵

| Pollutant, Unit | Time Weighted Average | Concentration in Ambient Air Industrial, Residential, Rural and Other Areas |
|--|-----------------------|---|
| Sulphur dioxide (SO ₂), µg/m ³ | Annual 24 hours | 80 |
| Nitrogen dioxide (NO ₂), µg/m ³ | Annual 24 hours | 80 |
| Particulate matter (< 10 µm) or PM ₁₀ , µg/m ³ | Annual 24 hours | 100 |
| Particulate matter (< 2.5 µm) or PM _{2.5} , µg/m ³ | Annual 24 hours | 60 |

3.8 Ambient Noise Environment

Ambient noise levels were monitored at 9 locations within the study area, including one at the Project site, identified during preliminary baseline survey. Continuous (24-hour) Noise level sampling was carried out once in the Study Area, in May 2021. Noise levels were measured by Noise meter, at predetermined sampling locations, the details of which are shown in Table 3.10. Sampling locations on SOI Toposheet are shown in Figure 3.11.

Table 3.10: Noise Monitoring Sampling Locations

| Sample Code | Sampling Location | Latitude | Longitude | Distance (km) | Direction |
|-------------|-----------------------------|---------------|---------------|---------------|-----------|
| N 1 | Project Site | 31°30'38.13"N | 76° 8'16.87"E | -- | -- |
| N 2 | Pandoga | 31°31'19.93"N | 76° 9'53.97"E | 2.87 | NE |
| N 3 | Chak Khud | 31°30'20.36"N | 76° 8'16.31"E | 0.55 | S |
| N 4 | Bankhandi | 31°30'11.04"N | 76° 9'3.34"E | 1.48 | SE |
| N 5 | Daulatpur | 31°30'49.72"N | 76° 9'10.17"E | 1.45 | NE |
| N 6 | Panehra | 31°31'27.46"N | 76° 8'33.79"E | 1.59 | N |
| N 7 | Bheli Khud | 31°29'22.51"N | 76° 9'18.87"E | 2.85 | SE |
| N 8 | In west side of the project | 31°30'30.27"N | 76° 7'0.08"E | 2.03 | W |
| N 9 | Loharli Nichli | 31°34'11.50"N | 76° 7'32.39"E | 6.67 | N |

⁵ Source: CPCB (<http://www.cpcbenvs.nic.in>)

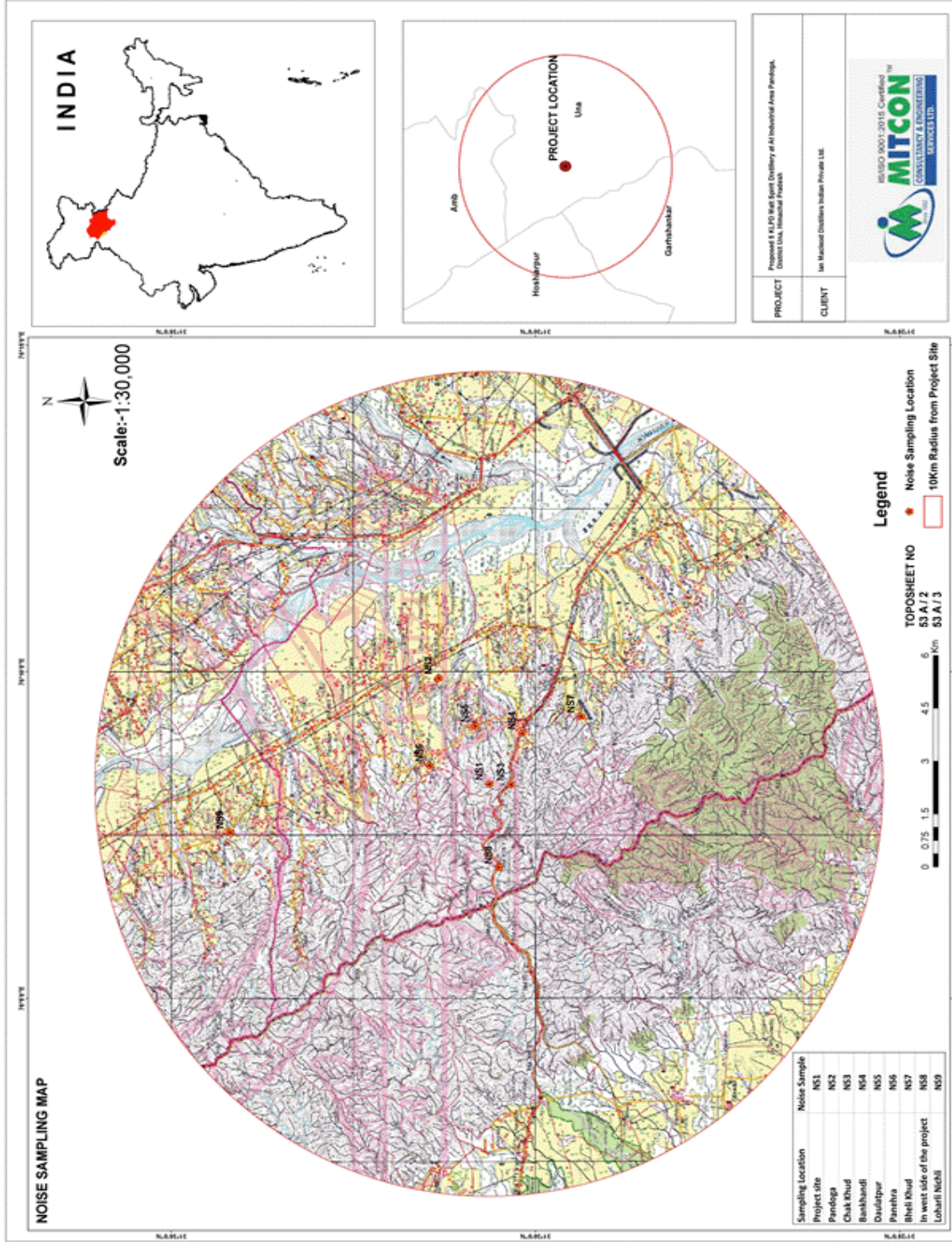


Figure 3.11: Noise Monitoring Sampling Locations on SoI Toposheet

3.8.1 Methodology

The methodology adopted for Noise Monitoring is outlined below:

- Site visit and identification of sources of noise
- Identifying monitoring locations and conducting noise monitoring
- Determining possible impacts of noise on the environment from proposed activities
- Suggestions of mitigation measures of noise and to reduce noise of sources exceeding the allowable limits

The noise monitoring locations are identified on the basis of following considerations:

- **Source:** The proximity of the villages to the alignment. The closer the villages are the severe would be the impact.
- **Path:** The meteorology and the wind flow affects the impact on the receiver. The impact is higher during night time and low in daytime (for the same intensity produced by source). Likewise, the impact is high during inversion conditions or on locations lying at the downwind of the alignment.
- **Receiver:** The impact is higher if the receiver is considered to be sensitive w.r.t the NAAQ Standards for noise. Such sensitive receptors could be hospital, school, libraries etc. Also, a high duration low intensity impact can be as detrimental as low duration high intensity impact.

3.8.2 Noise Quality Sampling Results

The analytical results of noise monitoring are summarized in Table 3.11.

Table 3.11: Noise Monitoring Results

| Sample No. | Locations (Village) | Category of Area / Zone | 24 hourly Average Noise Level Values [in L _{eq} DB (A)] | | Applicable CPCB Standards [in L _{eq} DB (A)] | |
|------------|---------------------|-------------------------|--|-------|---|-------|
| | | | Day | Night | Day | Night |
| NV 1 | Project Site | Industrial | 58.5 | 42.3 | 75 | 70 |
| NV 2 | Pandoga | Residential | 52.1 | 40.7 | 55 | 45 |
| NV 3 | Chak Khud | Commercial | 56.2 | 50.1 | 65 | 55 |
| NV 4 | Bankhandi | Residential | 49.7 | 43.2 | 55 | 45 |
| NV 5 | Daulatpur | Residential | 51.4 | 42.8 | 55 | 45 |
| NV 6 | Panehra | Residential | 53.3 | 41.7 | 55 | 45 |
| NV 7 | Bheli Khud | Residential | 49.6 | 38.4 | 55 | 45 |

| | | | | | | |
|------|-----------------------------|-------------|------|------|----|----|
| NV 8 | In west side of the project | Commercial | 59.7 | 53.8 | 65 | 55 |
| NV 9 | Loharli Nichli | Residential | 47.6 | 37.1 | 55 | 45 |



Figure 3.12: Noise Sampling within Study Area

3.8.3 Inferences

The Noise monitoring results at all sampling locations are within the prescribed standards shown in Table 3.11. The maximum noise level in day time is 59.7 dB (A) which is observed at west side of the project and is minimum of 47.6 dB (A) which was observed at Lohar Nichli. Maximum noise levels in Night time is of 50.6 dB (A) which was observed at west side of the project and in night time it is observed as 37.6 dB (A) at Lohar Nichli.

3.9 Land Environment

3.9.1 Geology

The Geology of the area can be described under two broad heads (i) Hilly areas, comprising of upper, middle and lower Siwalik formations. (ii) Quaternary sediments constituting the valley area.

The area is mainly occupied by the Siwalik formation of Tertiary age with narrow longitudinal tectonic valley i.e. Una valley (Fig. 3). Una valley ranges from Daulatpur to Santokhgarh and beyond the northern border of Dun-Syncline in the area is a thrust plane called Soan Thrust. Apart from Una valley, the rest of the area of the district is hilly region. Geological sequence is given below in following table.

Table 3.12: Generalized geological succession in the district

| Era | Period | Formation | Description |
|------------|-------------------------|--------------------------------------|--|
| Quaternary | Recent to sub-Recent | Alluvium; fluvial, terrace, piedmont | Sand, silt, clay, gravel, pebble and cobble etc. |
| | | Undifferentiated | Sand, clay, gravel, pebble, cobble and boulders |
| Tertiary | Pliocene to Mid Miocene | Upper Siwalik | Soft sandstone, brownish clay, shale, poorly sorted, crudely bedded conglomerate & boulder beds. |
| | | Middle Siwalik | Gray sandstone, and brownish clay/shale |
| | | Lower Siwalik | Red and purple sandstone and shale |

The younger valley fill deposits are Pleistocene to Recent in age and constitute unconsolidated elastic sediments comprising chiefly granular deposits interstratified in the clays and clay-boulder beds. Coarse-grained deposits usually fringe the hills and grade into fine-grained aggregates towards the central parts of the Una valley. The granular beds are interbedded with clays, of varying thickness. In the low-lying area of Una valley i.e. Central parts of the valley and the streams traversing the northern part of the valley finer elastic sediments comprising sand, silt and clay chiefly occur.

A map showing various geological formations of Una district is shown as Figure 3.13.

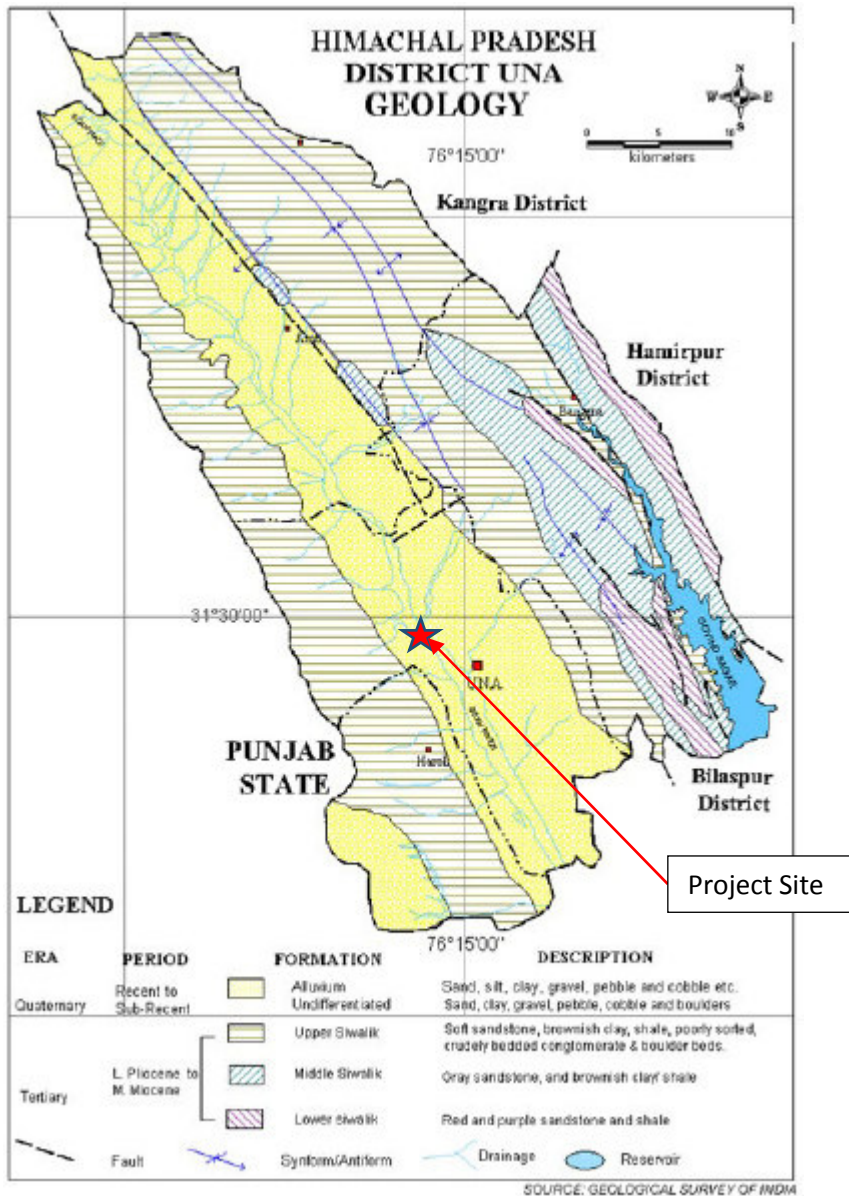


Figure 3.13: Geology of Una District⁶

The older valley fill deposits (Terraces) occur along the left bank of the Soan river and on the northern slopes of the valley chiefly comprise gravel, pebbles, boulders interstratified with thin clay lenses. The terrace formations are older than the river alluvium. The piedmont deposits occur along the sub. Mountain tract of Siwalik hills and comprise sand, pebbles, cobbles & boulders.

The upper Siwalik rocks are basically found in north and south east region of Una valley containing of indurated sands, sandstones, silts and brown clays. The conglomerate beds also

⁶ Source: Geological Survey of India

occur at places. Coarser sediments mainly comprise pebbles beds are prominent in the north western part of the area. In the southern parts, the boulder bed forms the upper most part, consist of pebbles, cobbles and boulders with intervening thin beds of clays. North of the valley, upper Siwalik formations are chiefly represented by massive sandstone and conglomerate with beds of clay and indurate sands. Sandstones are usually soft friable and pebbly.

The middle Siwalik includes hard, gray or brown colour sandstones with small proportion of drab shales, orange clays and occasional beds of gravel. Between Kathaulas-ki- Khad and Panjoa-ki-khad there are two isolated outcrops of middle Siwalik rocks comprising of moderately hard, massive medium to coarse grained micaceous sands tones with the thin intercalations of clays.

The lower Siwalik comprises hard sandstones with clay nodules and purple shale. The sandstone generally forms conspicuous strike ridges. The valley fill comprises unconsolidated fluvial deposits consisting gravels, pebbles, cobbles and boulders intermixed with clays. The various khads emerging on the left bank and joining Soan and formed piedmont deposits and fan deposits those are likely to emerges as potential ground water horizons. Cross – Section of the strata of Una District is shown in Figure 3.14.

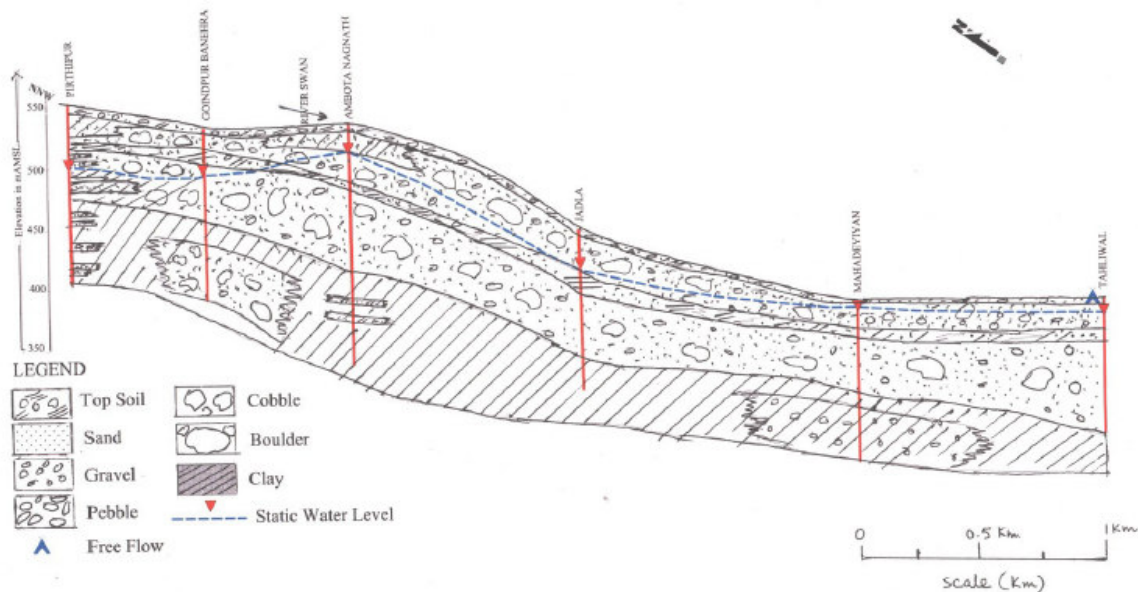


Figure 3.14: Cross-Section of Geological features of Una District⁷

⁷ Source: Geological Survey of India

3.9.2 Soils

Two types of soils are observed in the district viz., alluvial soil and non-calcic brown soil. Most of the area in district is covered with alluvial soil and only about 25% of the area i.e. hilly area in the district is covered with non-calcic brown soil. These soils are restricted to major drainage courses. They consist of very deep dark brown to dark grayish brown. Silty clayey loams are seasonally submerged. These are well drained and suitable for perennial irrigation. pH is 8.0. They are low in N and P and medium in K. Soil Map of Una district is shown below as Figure 3.15.

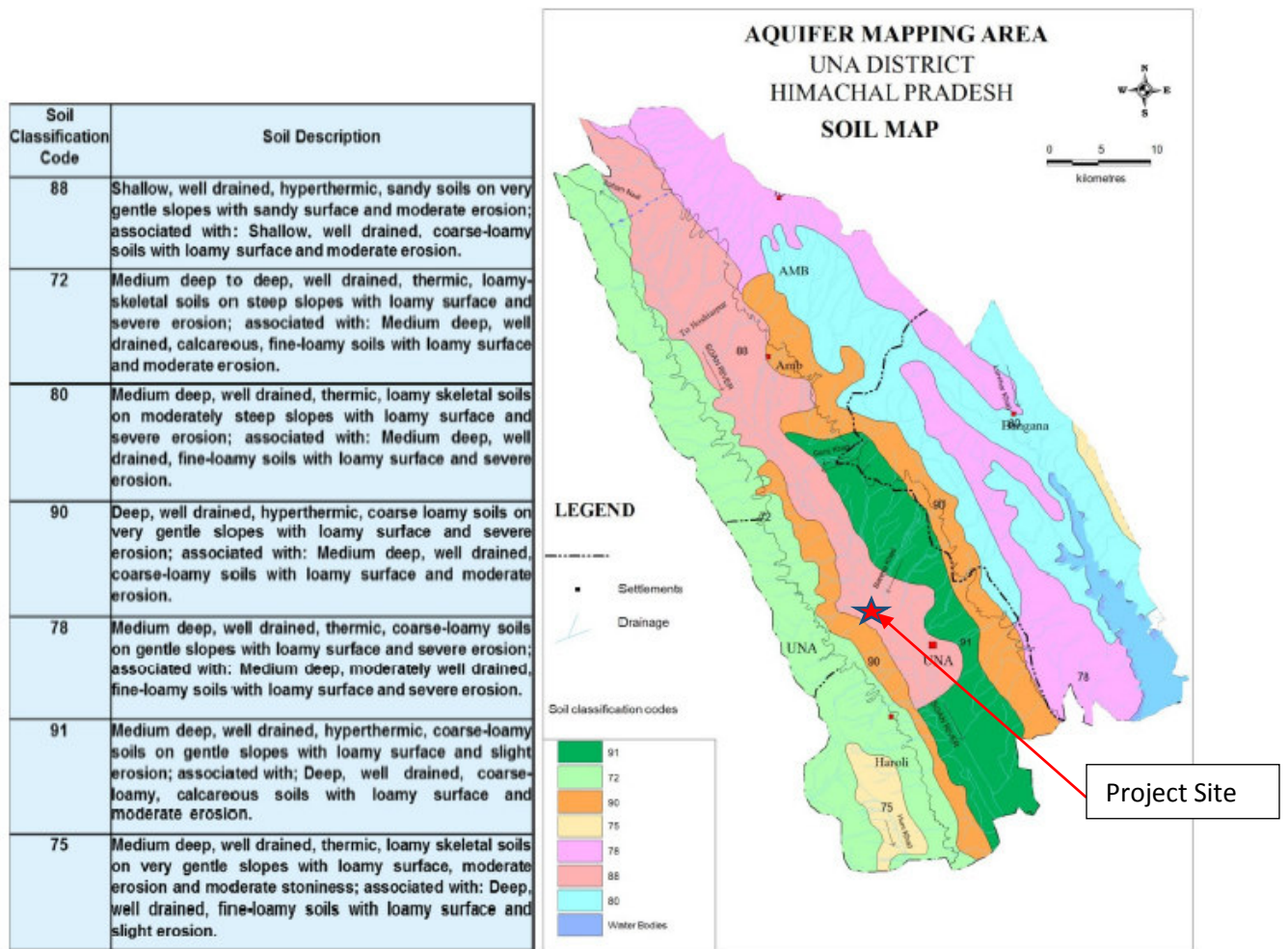


Figure 3.15: Soils of Una District⁸

⁸ Source: AQUIFER MAPPING AND MANAGEMENT OF GROUND WATER RESOURCES UNA, DISTRICT, HIMACHAL PRADESH BY CGWB

1.9.2.1 Methodology

- Manual sample was collected from the surface to plough depth (0-22 cm) using hammer and container bags for collecting undisturbed top soil.
- Locations such as recently fertilized farms, old bunds, marshy spots, spots near trees, compost heaps and farm sheds, etc. were avoided.
- Each collected Sample was a uniformly thick 2 cm slice of soil from the exposed soil face from a V-shaped hole dug in the ground.
- Selection of locations for soil sample was done on the basis of nearness to impact zone and possibility of alteration in the characteristics of soil due to failure of pollution control equipment and surface runoff.

3.9.2.2 Soil sampling location & frequency

Soil samples were collected from 10 different locations within the study area, as shown in **Table 3.13** and **Figure 3.16**, once in May 2021. Some photographs taken during soil sampling in the Study Area are shown in Figure 3.15.

Table 3.13: Soil Sampling Locations

| Sample Code | Sampling Location | Latitude | Longitude | Distance (km) | Direction |
|-------------|-----------------------------|---------------|---------------|---------------|-----------|
| S1 | Project Site | 31°30'38.13"N | 76° 8'16.87"E | -- | -- |
| S2 | Pandoga | 31°31'20.59"N | 76° 9'55.71"E | 2.9 | NE |
| S3 | Chak Khud | 31°30'19.57"N | 76° 8'15.81"E | 0.5 | S |
| S4 | Bankhandi | 31°30'10.98"N | 76° 9'4.29"E | 1.5 | SE |
| S5 | Daulatpur | 31°30'50.13"N | 76° 9'9.69"E | 1.4 | E |
| S6 | Panehra | 31°31'27.03"N | 76° 8'35.68"E | 1.5 | N |
| S7 | Bheli Khud | 31°29'21.20"N | 76° 9'17.01"E | 2.8 | SE |
| S8 | In west side of the project | 31°30'28.79"N | 76° 7'3.08"E | 1.9 | W |
| S9 | Loharli Nichli | 31°34'11.33"N | 76° 7'31.09"E | 6.7 | N |
| S10 | Bhadsali | 31°28'38.90"N | 76°10'27.27"E | 4.9 | SE |

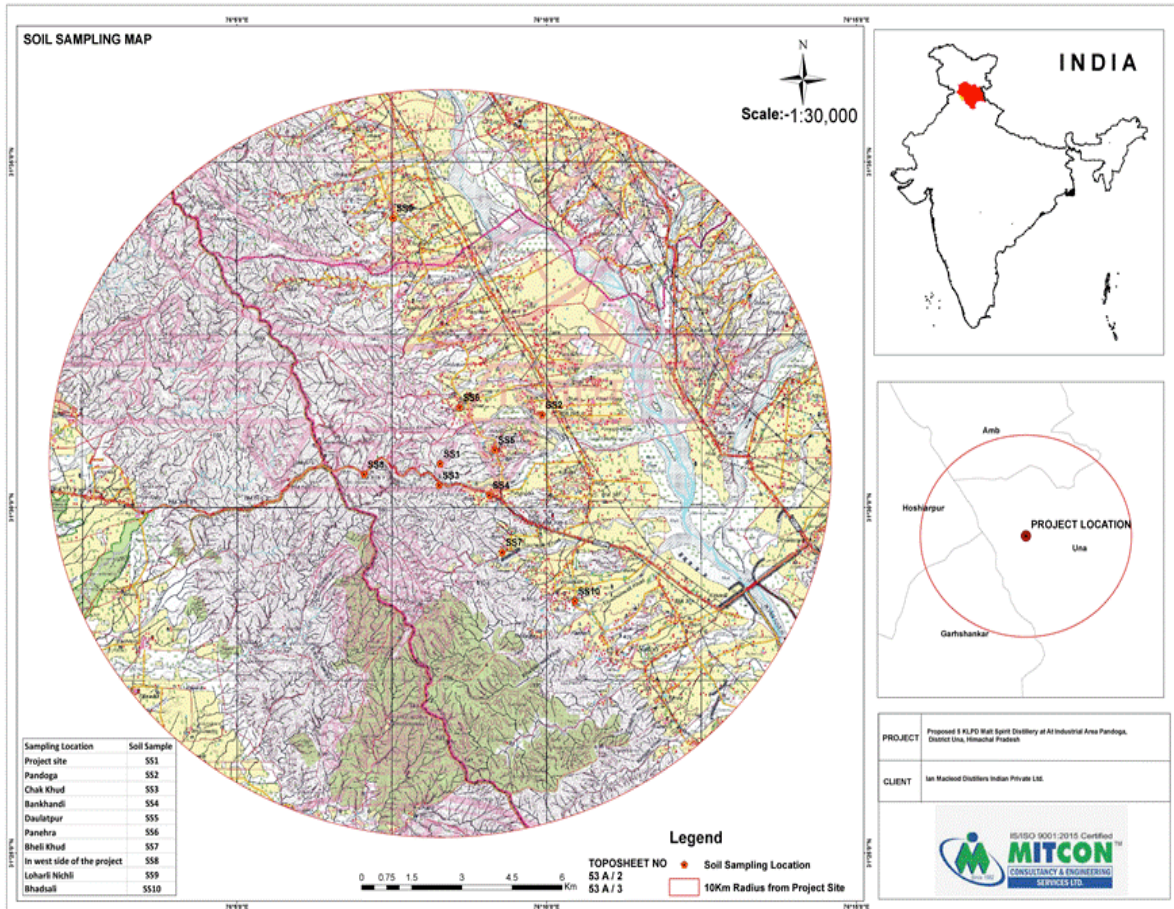


Figure 3.16: Soil Sampling locations marked on Soil Toposheet



Figure 3.17: Soil Sampling within Study Area

| | | | | | | | | | | | | | |
|----|-------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 19 | Total Chromium (as Cr) | mg/kg | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 |
| 20 | Nickel (as Ni) | mg/kg | <0.02 | <0.02 | <0.02 | <0.02 | <0.02 | <0.02 | <0.02 | <0.02 | <0.02 | <0.02 | <0.02 |
| 21 | Cadmium (as Cd) | mg/kg | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 |
| 22 | Lead (as Pb) | mg/kg | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 |
| 23 | Sodium absorption ratio | - | 4.52 | 4.21 | 3.53 | 3.43 | 4.05 | 4.39 | 4.04 | 4.10 | 3.59 | 3.86 | |

3.9.2.4 Inferences of Soil Sampling

- All the samples have pH in the range of 7.30 to 7.58
- Conductivity of the samples ranges between 114 to 487 $\mu\text{s}/\text{cm}$.
- N, P, K concentration in all soil samples are in the range of 110.3 to 160.2 kg/ha, 12.34 to 38.10 kg/ha and 104.8 to 188.9 kg/ha respectively.
- Heavy metals like Copper, Cadmium, Lead, Chromium and Manganese are all less than 0.4 mg/kg in all the samples.

3.9.3 Hydrogeology

The rock formations occupying the district, range in age from pre-Cambrian to Quaternary period. The generalized geological succession in the district is given in Table 3.14 below:

Hydro-geologically, the entire area of the Una district is divided into two aquifer system i.e. Consolidated and Unconsolidated aquifer system. The hilly areas comprise the rocks belonging to upper, middle and lower Siwalik. The major rocks found are sandstones, shale, clay, conglomerate and boulder beds exposed in the upland areas like Bhangana and Bharwain. Ground Water in these formations are poorly developed by constructing shallow dug wells along the drainage lines in low topography. Dug wells in the area with overburden have depth to water level varying from 2 to about 8 m and most of these structures dried up during peak summers. Springs exist in the low topographic areas along the lineaments, contact of various formations and along the streams.

The unconsolidated formations are confined to valley areas only. These covers low lying areas of the valleys and upland terrace deposits. These formations consist of pebble, cobble and boulder mixed with varying proportion of sand interstratified with clay and clay boulder bed. Proportion of coarse-grained sediments increases towards the hills and deposits become finer towards the Soan river i.e. central part of the Una valley. In terrace deposits the granular zones are more likely to form potential water bearing horizons.

The ground water occurs in porous unconsolidated / alluvial formation (valley fills) comprising sand, silt, gravel, cobbles / pebbles etc., and forms prolific aquifer. Ground water occurs both under phreatic and confined/artesian conditions. Free flowing wells are also observed in the lower part of Soan river. Ground water is extensively developed in the area by medium to deep tube wells, dug wells, dug cum bore wells and also by hand pumps.

Depth of dug wells and dug cum bored wells in area, ranges from 4.00 to 70.00 m bgl, whereas depth to water level ranges from near surface to 26.46 m bgl in pre monsoon. Yield of shallow aquifer is moderate with well discharges up to 10 lps. Hydrology Map of the Una District is shown in Figure 3.18 below;

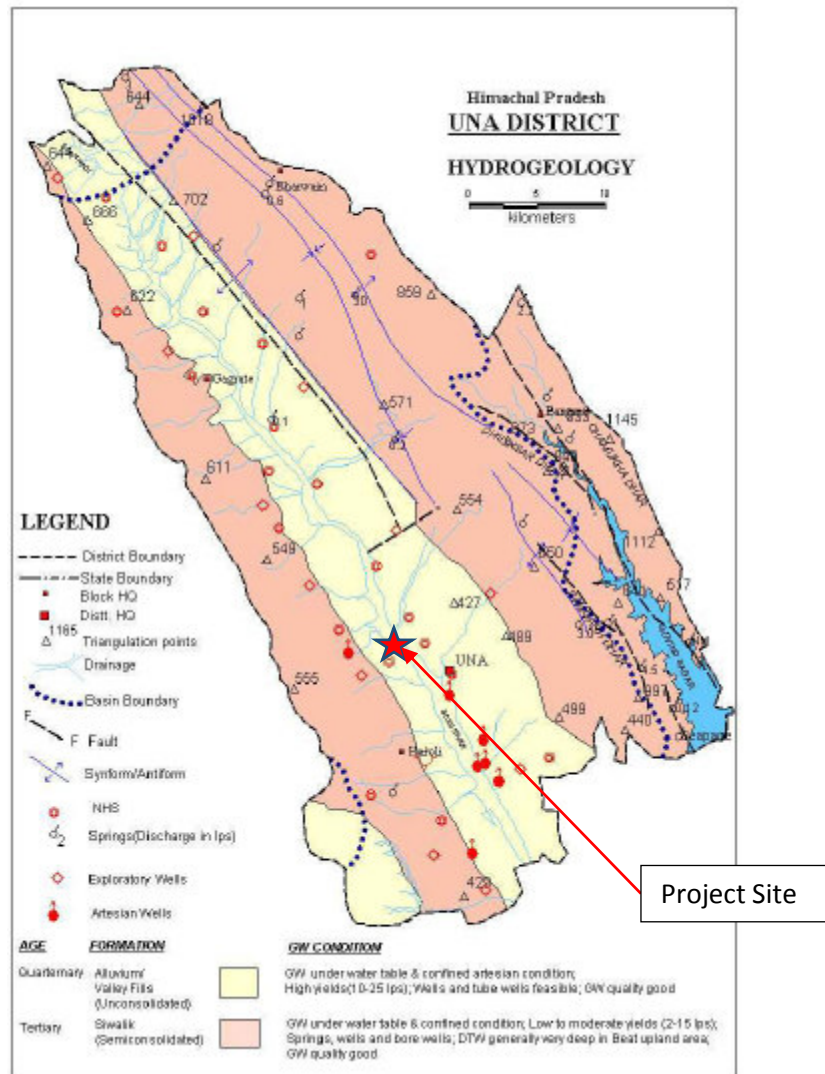


Figure 3.18: Hydrology Map of Una District⁹

⁹ Source: GROUND WATER INFORMATION BOOKLET UNA DISTRICT, HIMACHAL PRADESH by CGWB.

3.9.3.1. Water Level Scenario in Una District

CGWB has drilled/constructed 56 exploratory wells in the district, in the depth range of 51.00 to 220.00 mbgl. Static water level of the tube-wells ranges from 1.45 m agl to 43.20 m bgl and discharge ranges from 553 to 3500 lpm with the drawdown less than 8-10 m free flowing bore wells are observed along the terrace deposits on the both banks of Soan River. Water level scenario in Una district of Himachal Pradesh is summarized below:

Pre-monsoon Depth to Water Level (May-2012) : 2.0 to 45.0 m bgl

Post-monsoon Depth to Water Level (Nov.-2012) : 1.5 to 42.0 m bgl

3.9.3.2. Ground Water Resources

Rainfall is the major source of recharge to the groundwater body, apart from the influent seepage from the rivers, irrigated fields and inflow from upland areas, whereas discharge from ground water mainly takes place from wells and tube wells; effluent seepages of ground water in the form of springs and base flow in streams etc. Ground water resources and irrigation potential for Una valley and Hum valley of the district, have been computed as per the GEC-97 methodology, the resources for the year 2011 are presented below.

Dynamic Ground Water Resources (2013)¹⁰

Una Valley:

| | | |
|--|---|-------------|
| • Net Annual Ground Water Draft for all uses | : | 9559.66 ham |
| • Net Ground Water availability for future Irrigation | : | 4503.63 ham |
| • Projected Demand for Domestic and industrial Uses up to 2025 | : | 1290.67 ham |
| • Stage of Ground Water Development | : | 74.43 % |
| • Category | : | Safe |

3.9.3.3. Major Groundwater Problems and Issues

- Deeper Water Levels in hilly area or Beet area
- Decline in Water Levels
- Comparatively Steeper slopes

¹⁰ Source: AQUIFER MAPPING AND MANAGEMENT OF GROUND WATER RESOURCES UNA, DISTRICT, HIMACHAL PRADESH by CGWB

- Large no. of springs
- Open Dug Wells losing their Utility
- Deforestation led to reduced recharge
- Artesian Conditions: Ground water is lost through natural drainages
- Surface flows: Huge volume of unaccounted water flowing waste
- Water Logged Area – Reduced – declining ground water levels
- High NO₃ at a few isolated places

3.10 Water Environment

The development of any region is dependent on the availability of sufficient water resources, as developmental activities require water for construction, domestic and other purposes. The water resources in the study area broadly fall into following categories:

- Surface Water resources: Rivers / Ponds & Lakes / Canals / Dam Reservoirs.
- Ground Water resources: Dug Wells / Bore wells / Hand pumps.

The surface and ground water quality of the project area may get affected due to various factors like sedimentation & deposition of natural organic material, nutrients, bacteria & toxic substances, etc. These contaminants can contribute to water by either point or non-point sources. Point sources contribute contaminants from a discrete site, such as the outflow from a pipe, ditch, well, storage of solid waste, etc. These sources can be controlled by treatment at or before the point of discharge. Non-point sources, on the other hand include the atmosphere, agricultural areas, golf courses, residential developments, roads, parking lots, and contributions from groundwater along lengthy reaches of streams.

3.10.1 Methodology

Water environment consists of water availability in the form of surface and ground water resources, its quality and use (both present and intended). Study of the water environment is required in preparation of EIA for identification of critical issues including suggesting the mitigation measures with a view to have ideal use of the water resources. Assessment of baseline data of the Water environment (both surface and groundwater) in a study area includes:

- Identification of surface water sources
- Identification of ground water sources
- Collection of water samples
- Analyzing water samples for physico-chemical and biological parameters

In this context, 8 groundwater samples and 3 surface water samples were collected from the study area for analysis of existing water quality in the area. The criteria for selection of sites for water sampling were based on the following rationale:

- To characterize the groundwater in the study area in terms of location, behaviour, and quality.
- To identify potential effects of road construction and operation activities on groundwater regime of the area and any potential effects of groundwater quality on road construction and integrity.
- To identify measures to avoid, mitigate and manage any potential effects including any relevant design features of the road or techniques for construction.
- To identify residual effects of road construction and operation activities on groundwater in the project area.

3.10.2 Monitoring Stations for Water Quality Assessment

Sampling was carried out once in study period. During the study period, the 3 surface water bodies were found within the project study area i.e. 10 km radial distance around the Project site.

The details of sampling stations for Surface water samples and Groundwater samples are shown in Table 3.15 and Table 3.16, respectively. Sampling locations for surface water samples and groundwater samples are depicted in following figures respectively.

Surface Water Quality Monitoring locations:

Table 3.15: Monitoring Stations for Surface Water Quality Assessment

| Sample Code | Sampling Location | Latitude | Longitude | Distance (km) | Direction |
|-------------|-------------------------------------|--------------|---------------|---------------|-----------|
| SW 1 | Swan River near Sansala Nagar | 31°31'3.50"N | 76°13'2.44"E | 7.5 | E |
| SW 2 | Swan River (U/S of Pandoga Village) | 31°31'5.66"N | 76° 8'45.29"E | 1.1 | NE |
| SW 3 | Swan River (D/S of Pandoga Village) | 31°31'8.78"N | 76° 8'57.58"E | 1.4 | NE |

Ground Water Quality Monitoring Locations:**Table 3.16: Monitoring Stations for Ground Water Quality Assessment**

| Sample Code | Sampling Location | Latitude | Longitude | Direction | Distance (km) | Type |
|-------------|-------------------|---------------|---------------|-----------|---------------|-----------|
| GW 1 | Pandoga | 31°31'19.93"N | 76° 9'53.97"E | 2.8 | NE | Bore-well |
| GW 2 | Chak Khud | 31°30'20.36"N | 76° 8'16.31"E | 0.5 | S | Dug Well |
| GW 3 | Bankhandi | 31°30'11.04"N | 76° 9'3.34"E | 1.4 | SE | Dug-well |
| GW 4 | Daulatpur | 31°30'49.72"N | 76° 9'10.17"E | 1.4 | NE | Bore-well |
| GW 5 | Panehra | 31°31'27.46"N | 76° 8'33.79"E | 1.6 | N | Bore-well |
| GW 6 | Bheli Khud | 31°29'22.51"N | 76° 9'18.87"E | 2.8 | SE | Dug-well |
| GW 7 | Sansala Nagar | 31°30'58.83"N | 76°12'51.35"E | 7.2 | E | Dug-well |
| GW 8 | Bhadsali | 31°28'40.65"N | 76°10'23.00"E | 4.9 | SE | Hand pump |

**Figure 3.19: Water Sampling within Study Area**

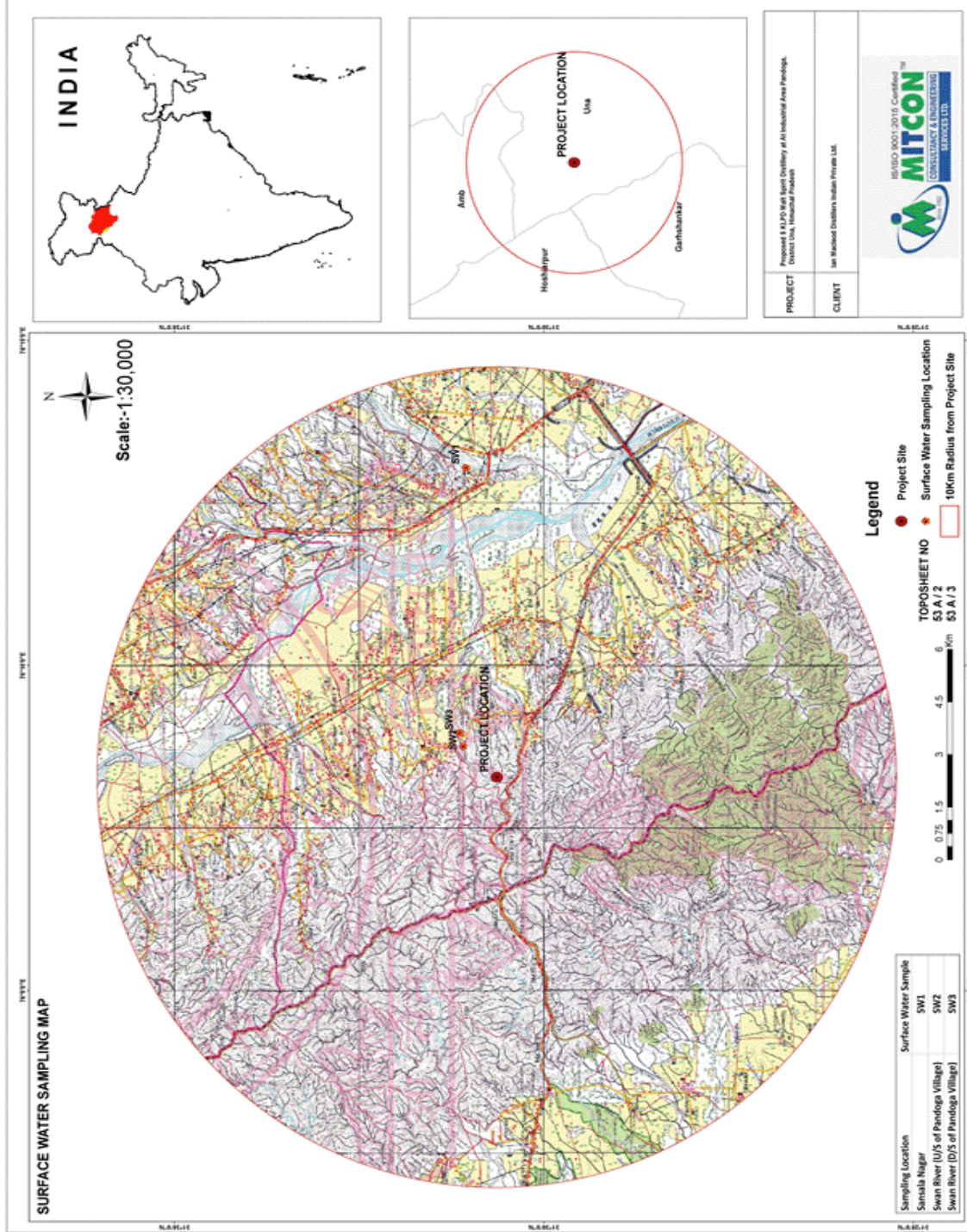


Figure 3.20: Surface-water Sampling Locations on SoI Toposheet

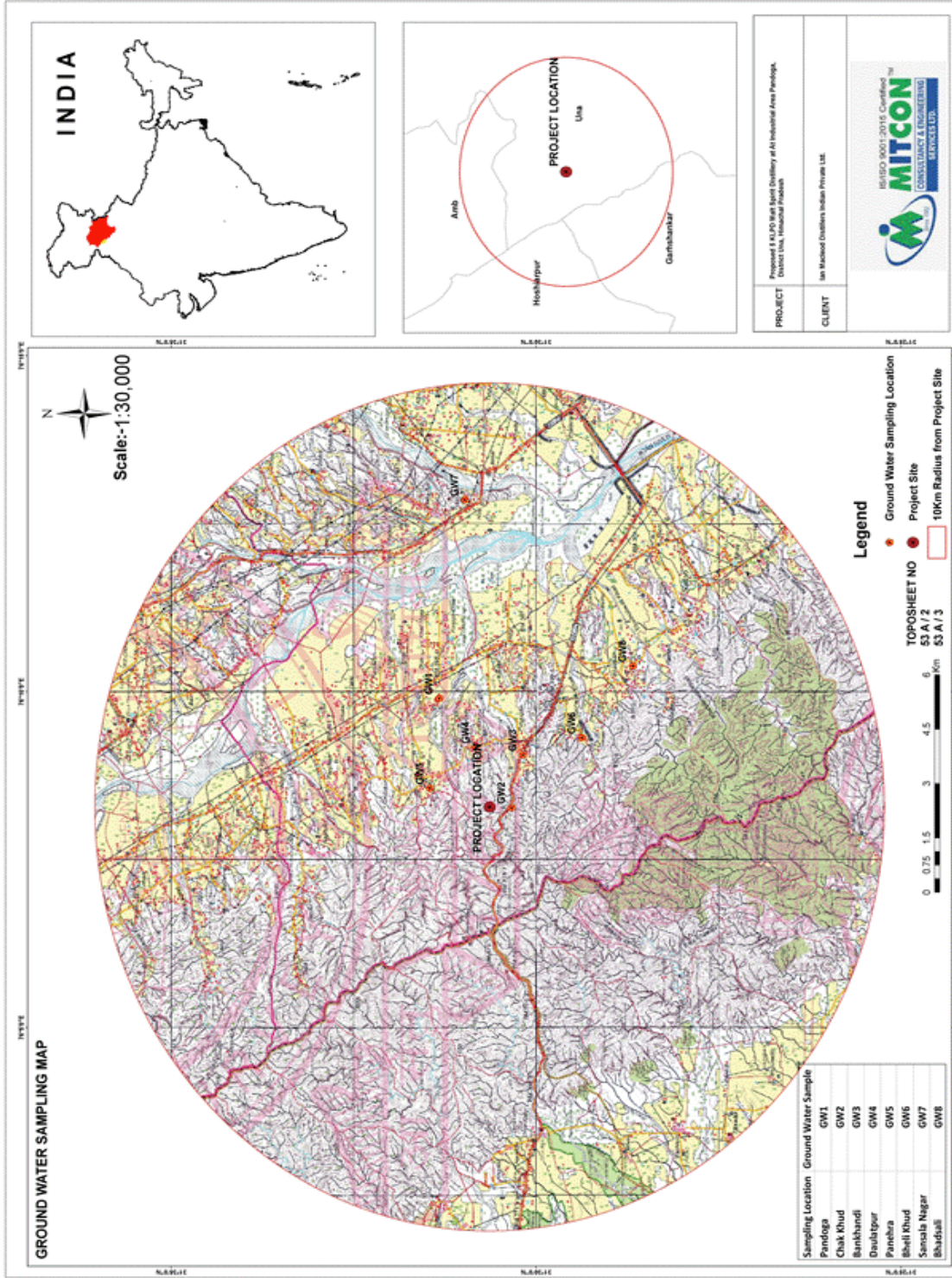


Figure 3.21: Ground water Sampling Locations marked on SoI Toposheet

3.10.3 Water Quality Analysis Results

Results of the surface water quality assessment are given in Table 3.17, while those for Ground water quality assessment are summarised in Table 3.18.

Table 3.17: Surface Water Quality Results

| Sr. No. | Parameters | Units | IS:10500:2012 Required Standards | SW 1 (Sansala Nagar) | SW 2 Swan River (U/S of Pandoga Village) | SW 3 Swan River (D/S of Pandoga Village) |
|----------------------------|---|-------|----------------------------------|----------------------|--|--|
| CHEMICAL POTABILITY | | | | | | |
| 1 | pH at 25°C | - | 6.50 to 8.50 | 7.24 | 7.08 | 7.10 |
| 2 | Temperature | °C | N.S. | 26.4 | 26.4 | 26.4 |
| 3 | Electrical Conductivity at 25°C | µS/cm | N.S. | 578.9 | 628.6 | 652.3 |
| 4 | Turbidity | NTU | ≤ 1 | 1.5 | <1 | <1 |
| 5 | Total Dissolved Solids | mg/l | ≤ 500 | 368 | 406 | 414 |
| 6 | Total Solids | mg/l | N.S. | 375 | 414 | 421 |
| 7 | Acidity as CaCO ₃ | mg/l | N.S. | <5 | <5 | <5 |
| 8 | Total Alkalinity as CaCO ₃ | mg/l | ≤ 200 | 145 | 130 | 140 |
| 9 | Total Hardness as CaCO ₃ | mg/l | ≤ 200 | 160.12 | 145.11 | 155.12 |
| 10 | Calcium as Ca | mg/l | ≤ 75 | 48.09 | 50.1 | 44.08 |
| 11 | Magnesium as Mg | mg/l | ≤ 30 | 9.72 | 4.86 | 10.93 |
| 12 | Chloride as Cl ⁻ | mg/l | ≤ 250 | 34.98 | 29.99 | 39.98 |
| 13 | Sulphates as SO ₄ | mg/l | ≤ 200 | 22.87 | 24.55 | 25.34 |
| 14 | Nitrate as NO ₃ | mg/l | ≤ 45 | 2.29 | 2.50 | 2.58 |
| 15 | Ammonical Nitrogen as NH ₄ -N | mg/l | N.S. | <0.1 | <0.1 | <0.1 |
| 16 | Total Kjeldahl Nitrogen as NH ₃ -N | mg/l | N.S. | <1 | <1 | <1 |
| 17 | Salinity | ppt | N.S. | 0.063 | 0.054 | 0.07 |
| 18 | Fluoride as F | mg/l | ≤ 1.0 | <0.1 | <0.1 | <0.1 |
| 19 | Total Phosphorous | mg/l | N.S. | <1 | <1 | <1 |
| 20 | Silica as SiO ₃ | mg/l | N.S. | 3.60 | 5.81 | 6.97 |
| 21 | Sodium as Na | mg/l | N.S. | 32 | 26 | 28 |
| 22 | Potassium as K | mg/l | N.S. | 10 | 07 | 9 |
| 23 | Hexavalent Chromium (as Cr ₆₊) | mg/l | N.S. | <0.02 | <0.02 | <0.02 |
| 24 | Iron (as Fe) | mg/l | ≤ 0.3 | <0.05 | <0.05 | <0.05 |
| 25 | Copper (as Cu) | mg/l | ≤ 0.05 | <0.04 | <0.04 | <0.04 |
| 26 | Nickel | mg/l | ≤ 0.01 | <0.01 | <0.01 | <0.01 |
| 27 | Zinc as Zn | mg/l | ≤ 5 | <0.05 | <0.05 | <0.05 |
| 28 | Manganese | mg/l | ≤ 0.1 | <0.1 | <0.1 | <0.1 |

| | | | | | | |
|-----------------------------------|---------------------------|-------------|---------|--------|--------|--------|
| 29 | Chromium | mg/l | ≤ 0.05 | <0.03 | <0.03 | <0.03 |
| 30 | Lead | mg/l | ≤ 0.01 | <0.01 | <0.01 | <0.01 |
| 31 | Cadmium | mg/l | ≤ 0.003 | <0.003 | <0.003 | <0.003 |
| 32 | Phenol | mg/l | ≤ 0.001 | <0.001 | <0.001 | <0.001 |
| 33 | Biochemical Oxygen Demand | mg/l | N.S. | <1 | <1 | <1 |
| 34 | Chemical Oxygen Demand | mg/l | N.S. | <5 | <5 | <5 |
| 35 | Dissolved Oxygen | mg/l | N.S. | 4.5 | 4.9 | 4.9 |
| 36 | Boron | mg/l | ≤ 0.5 | <0.04 | <0.04 | <0.04 |
| BACTERIOLOGICAL POTABILITY | | | | | | |
| 1 | Total Coliforms | MPN./100 ml | Absent | 130 | 110 | 80 |
| 2 | Faecal coliform | MPN./100 ml | Absent | 80 | 50 | 30 |

Surface water samples from 3 representative areas were taken from Swan River and interpretation is given as below:

- The pH values observed in water samples are in the range of 7.08-7.24.
- Electrical Conductivity ranged from 578.9 $\mu\text{S}/\text{cm}$ to 652.3 $\mu\text{S}/\text{cm}$.
- Turbidity observed was <1 - 1.5 mg/l at all sampling locations. Total Dissolved Solids was observed between 368 - 414 mg/l.
- Total Solids was observed between 375 - 421 mg/l.
- Total alkalinity ranges from 130 mg/l to 145 mg/l. Calcium ranges from 44.08 mg/l to 50.1 mg/l.
- Similarly, Magnesium was found between 4.86 to 10.93 mg/l.
- Hardness ranged from 145.11 mg/l to 160.12 mg/l.
- Concentration of Sodium ranges from 26 mg/l to 32 mg/l. Concentration of Potassium was 7 - 10 mg/l.
- Amount of Nitrate was found to be 2.29 – 2.58 mg/l.
- Ammonical Nitrogen found <0.1 at all sampling locations.
- Chloride was observed from 29.99 mg/l to 39.98 mg/l.

Table 3.18: Ground Water Quality Results

| Sr. No. | Parameters | Unit | IS:10500:2012 Required Standards | CHEMICAL POTABILITY | | | | | | | | GW 8 |
|---------|---|-------|----------------------------------|---------------------|-------|--------|--------|--------|--------|--------|--------|------|
| | | | | GW 1 | GW 2 | GW 3 | GW 4 | GW 5 | GW 6 | GW 7 | | |
| 1 | pH at 25°C | - | 6.50 to 8.50 | 7.00 | 7.20 | 8.04 | 7.25 | 7.69 | 7.08 | 7.81 | 7.54 | |
| 2 | Temperature | °C | N.S. | 26.4 | 26.4 | 26.4 | 26.4 | 26.4 | 26.4 | 26.4 | 26.4 | |
| 3 | EC 25°C | µS/cm | N.S. | 927.9 | 893.9 | 912.6 | 712.8 | 694.5 | 709.4 | 1121.6 | 683.9 | |
| 4 | Turbidity | NTU | ≤ 1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | |
| 5 | Total Dissolved Solids | mg/l | ≤ 500 | 526 | 562 | 618 | 454 | 408 | 412 | 692 | 394 | |
| 6 | Total Solids | mg/l | N.S. | 528 | 565 | 620 | 457 | 410 | 415 | 693 | 396 | |
| 7 | Total suspended Solids | mg/l | N.S. | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | |
| 8 | Acidity as CaCO ₃ | mg/l | N.S. | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | |
| 9 | Total Alkalinity as CaCO ₃ | mg/l | ≤ 200 | 240 | 260 | 280 | 180 | 160 | 155 | 300 | 145 | |
| 10 | Total Hardness as CaCO ₃ | mg/l | ≤ 200 | 270.21 | 290.2 | 310.24 | 210.16 | 190.15 | 185.14 | 330.26 | 215.17 | |
| 11 | Calcium as Ca | mg/l | ≤ 75 | 80.16 | 84.16 | 88.17 | 60.12 | 62.12 | 40.08 | 88.17 | 52.10 | |
| 12 | Magnesium as Mg | mg/l | ≤ 30 | 17.01 | 19.44 | 21.87 | 14.58 | 8.50 | 20.66 | 26.74 | 20.66 | |
| 13 | Chloride as Cl ⁻ | mg/l | ≤ 250 | 44.98 | 47.48 | 52.48 | 39.98 | 37.48 | 34.98 | 72.47 | 32.48 | |
| 14 | Sulphates as SO ₄ | mg/l | ≤ 200 | 17.92 | 21.98 | 28.71 | 14.95 | 19.10 | 24.05 | 56.77 | 20.39 | |
| 15 | Nitrate as NO ₃ | mg/l | ≤ 45 | 04 | 3.2 | 5.29 | 2.4 | 3.6 | 4.56 | 5.43 | 3.78 | |
| 16 | Ammonical Nitrogen as NH ₄ -N | mg/l | N.S. | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | |
| 17 | Total Kjeldahl Nitrogen as NH ₃ -N | mg/l | N.S. | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | |
| 18 | Iron (as Fe) | ppt | N.S. | 0.081 | 0.085 | 0.093 | 0.072 | 0.067 | 0.063 | 0.13 | 0.058 | |
| 19 | Copper (as Cu) | mg/l | ≤ 1.0 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | |

| | | | | | | | | | | | | | | | | | | | |
|----|--|------|---------|--------|--------|--------|--------|--------|--------|--------|--------|----|----|----|----|----|----|----|----|
| 20 | Nickel | mg/l | N.S. | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 |
| 21 | Zinc as Zn | mg/l | N.S. | 8.52 | 7.79 | 9.49 | 4.88 | 6.49 | 10.07 | 11.82 | 5.09 | | | | | | | | |
| 22 | Salinity | mg/l | N.S. | 10 | 12 | 14 | 09 | 08 | 07 | 23 | 09 | | | | | | | | |
| 23 | Fluoride as F | mg/l | N.S. | 04 | 06 | 08 | 03 | 05 | 03 | 5 | 04 | | | | | | | | |
| 24 | Total Phosphorous | mg/l | N.S. | <0.02 | <0.02 | <0.02 | <0.02 | <0.02 | <0.02 | <0.02 | <0.02 | | | | | | | | |
| 25 | Silica as SiO ₃ | mg/l | ≤ 0.3 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | | | | | | | | |
| 26 | Sodium as Na | mg/l | ≤ 0.05 | <0.04 | <0.04 | <0.04 | <0.04 | <0.04 | <0.04 | <0.04 | <0.04 | | | | | | | | |
| 27 | Potassium as K | mg/l | ≤ 0.01 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | | | | | | | | |
| 28 | Hexavalent Chromium (as Cr ₆₊) | mg/l | ≤ 5 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | <0.05 | | | | | | | | |
| 29 | Iron (as Fe) | mg/l | ≤ 0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | | | | | | | | |
| 30 | Copper (as Cu) | mg/l | ≤ 0.05 | <0.03 | <0.03 | <0.03 | <0.03 | <0.03 | <0.03 | <0.03 | <0.03 | | | | | | | | |
| 31 | Nickel | mg/l | ≤ 0.01 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | | | | | | | | |
| 32 | Zinc as Zn | mg/l | ≤ 0.003 | <0.003 | <0.003 | <0.003 | <0.003 | <0.003 | <0.003 | <0.003 | <0.003 | | | | | | | | |
| 33 | Manganese | mg/l | ≤ 0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | <0.001 | | | | | | | | |

BACTERIOLOGICAL POTABILITY

| | | | | | | | | | | | | | | | | | | | |
|---|-----------------|--------------|--------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 1 | Total Coliforms | MPN./ 100 ml | Absent | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 |
| 2 | Fecal coliform | MPN./ 100 ml | Absent | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 | < 2 |

Ground water samples from 8 representative areas were taken from sources and described in above Table.

- The pH values ranged from 7.0 to 8.04.
- Electrical Conductivity was maximum at GW8 (1121.6 $\mu\text{S}/\text{cm}$) and minimum at GW7 (683.9 $\mu\text{S}/\text{cm}$). Turbidity count ranges from <1 NTU at all sampling stations.
- Total Dissolved Solids was observed Minimum (394 mg/l) at GW7 and maximum (692 mg/l) at GW8.
- Total Alkalinity ranges from 145 mg/l to 300 mg/l. Maximum Calcium 88.17 mg/l was found at GW7. Minimum Calcium 52.10 mg/l was found at GW8.
- Similarly, maximum Magnesium 26.74 mg/l was found at GW7 and minimum Magnesium 8.5 mg/l was found at GW8.

3.11 Ecology and Biodiversity

3.11.1 Introduction

The vegetation and wild life describes the environment setting in terms of type of communities, community uniqueness, and types of species forming each community, dominant species, rare and endangered species, and their habitat vulnerability to various disturbances. Ecological cycle also is an important representation of biological environmental setting.

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

3.11.2 Ecological status of the Study area:

Natural flora and fauna are organized into natural communities and constantly interact with their physical environment as well as among themselves. They show various responses and sensitivities to outside influences. Hence, for a meaningful assessment is necessary to fully understand the ecological status of the proposed site for any development project before evaluating the probable environmental impact of the project. This impact can be maintained at a minimal level or can even be ameliorated if the probable shift the proposed activities envisaged in the project may induce in the dynamic equilibrium maintained in the ecosystem through the intricate interactions between the operative abiotic and biotic factors.

The sites for terrestrial ecology sampling were identified during the reconnaissance survey carried out from 25th to 26th February 2021. During the visit, sampling sites were identified and sampling was carried out in May 2021. The study includes listing of flora and fauna in and around 10 km radial from the project site.

3.11.3 Vegetation Study

To obtain the baseline information of the flora, detailed phytosociological studies were undertaken in May 2021. For the vegetation study, stratified quadrat sampling method is across the project area. The vegetation sampling was carried out at 12 different locations. The qualitative and Quantitative information such as species richness and diversity, abundance and density and diversity indices were obtained by using following formulae. Also, data collected during the filed survey entered in the excel sheet data and same has been used in Past4.08 software to analyse the diversity indices.

Formulae:

$$\text{Frequency} = \frac{\text{No. of sampling units in which the species occurred}}{\text{Total number of sampling units studied}} \times 100$$

$$\text{Density} = \frac{\text{Total no. of individuals of the species in all the sampling units}}{\text{Total no. of sampling units studied}}$$

$$\text{Abundance} = \frac{\text{Total no. of individuals of the species in all the sampling units}}{\text{No. of sampling units in which the species occur}}$$

$$\text{Simpson's Index (D)} = \sum (n/N)^2$$

$$\text{Shanon index H} = \sum_{si=1} - (pi * \ln Pi)$$

Frequency Class

A = 0 - 20

B = 21 - 40

C = 41 - 60

D = 61 - 80

E = 81 - 100

Table 3.19: Sampling Location

| Quadrates | Lat – Long |
|------------------|-----------------------------|
| Quadrat 1 | 31°30'31.71"N 76° 8'5.84"E |
| Quadrat 2 | 31°30'38.80"N 76° 7'11.92"E |
| Quadrat 3 | 31°29'59.52"N 76° 5'23.26"E |
| Quadrat 4 | 31°30'4.14"N 76° 3'56.95"E |
| Quadrat 5 | 31°27'45.74"N 76° 4'59.42"E |
| Quadrat 6 | 31°30'8.42"N 76° 8'48.61"E |
| Quadrat 7 | 31°29'54.20"N 76° 9'36.92"E |
| Quadrat 8 | 31°29'19.31"N 76°10'45.30"E |
| Quadrat 9 | 31°29'8.69"N 76° 8'55.58"E |
| Quadrat 10 | 31°31'13.43"N 76°12'45.46"E |
| Quadrat 11 | 31°32'59.40"N 76°12'2.90"E |
| Quadrat 12 | 31°34'45.37"N 76°10'40.72"E |
| Quadrat 13 | 31°30'51.99"N 76° 8'16.90"E |
| Quadrat 14 | 31°30'46.55"N 76° 8'6.87"E |
| Quadrat 15 | 31°32'12.32"N 76° 9'35.35"E |
| Quadrat 16 | 31°31'54.98"N 76° 8'53.49"E |
| Quadrat 17 | 31°31'30.51"N 76° 8'21.29"E |
| Quadrat 18 | 31°31'40.47"N 76° 7'48.53"E |
| Quadrat 19 | 31°32'48.91"N 76° 8'15.45"E |
| Quadrat 20 | 31°33'5.69"N 76° 6'43.17"E |

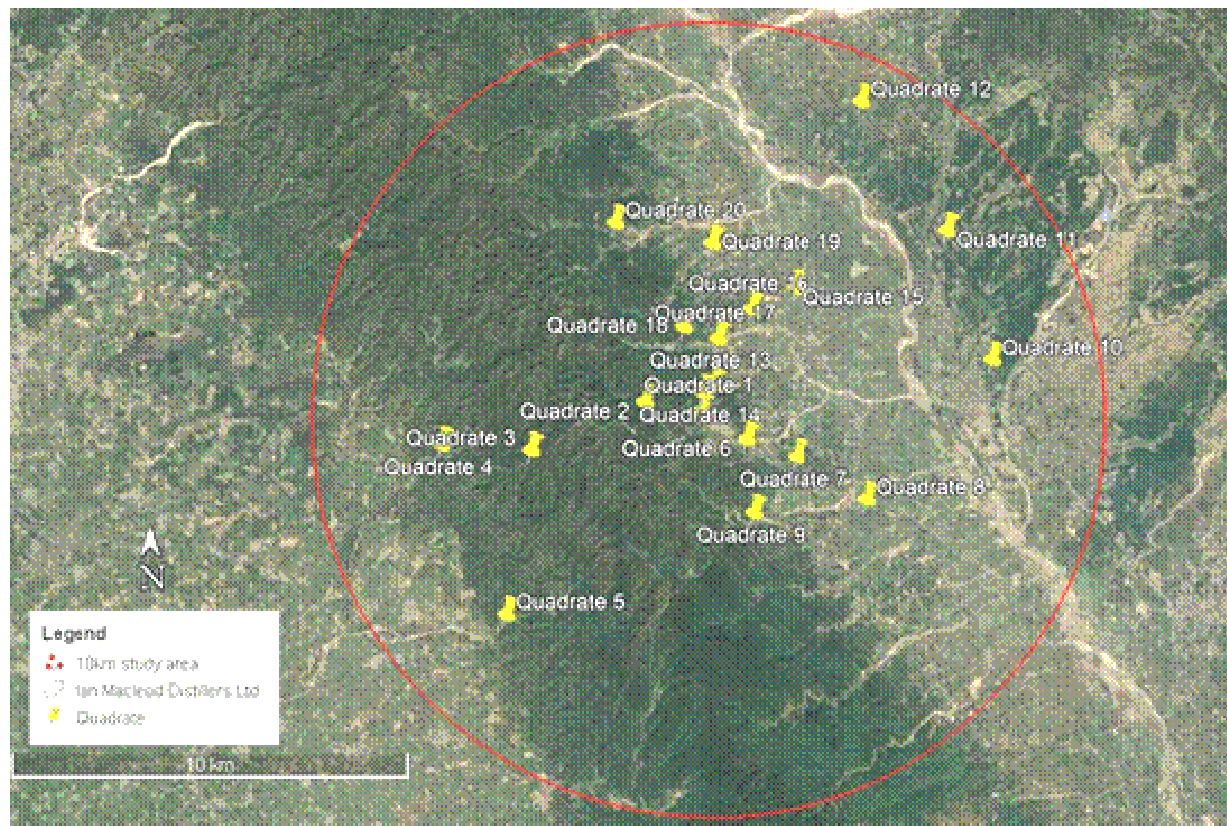


Figure 3.22: Google Image showing Sampling locations

Table 3.20: Phytosociological attributes of the study area

| SI | Species name | Frequency Class | Frequency % | Density | Abundance |
|----|---|-----------------|-------------|---------|-----------|
| 1 | <i>Acacia catechu</i> (L.f.) Willd. | C | 45 | 0.6 | 1.33 |
| 2 | <i>Acacia leucophloea</i> (Roxb.) Willd. | D | 70 | 0.9 | 0.78 |
| 3 | <i>Acacia nilotica</i> subsp. <i>cupressiformis</i> (J.L. Stewart) Ali & Faruqi | D | 70 | 0.9 | 0.78 |
| 4 | <i>Acacia senegal</i> (L.) Willd | B | 25 | 0.3 | 0.83 |
| 5 | <i>Acer campbellii</i> Hook.f. | B | 30 | 0.3 | 1.00 |
| 6 | <i>Acer negundo</i> L. | B | 25 | 0.25 | 1.00 |
| 7 | <i>Aegle marmelos</i> (L.) Corrêa | A | 20 | 0.25 | 0.80 |
| 8 | <i>Aesculus indica</i> (Wall. ex Cambess.) Hook. | A | 10 | 0.1 | 1.00 |
| 9 | <i>Ailanthus excelsa</i> Roxb. | A | 15 | 0.2 | 0.75 |
| 10 | <i>Alangium chinense</i> (Lour.) Harms | A | 15 | 0.2 | 0.75 |
| 11 | <i>Albizia chinensis</i> (Osbeck) Merr. | A | 20 | 0.2 | 1.00 |
| 12 | <i>Albizia lebbbeck</i> (L.) Benth. | A | 15 | 0.15 | 1.00 |
| 13 | <i>Albizia procera</i> (Roxb.) Benth. | A | 10 | 0.1 | 1.00 |

| SI | Species name | Frequency Class | Frequency % | Density | Abundance |
|----|--|-----------------|-------------|---------|-----------|
| 14 | <i>Anogeissus latifolia</i> (Roxb. ex DC.) Wall. ex Guillem. & Perr. | C | 45 | 0.5 | 0.90 |
| 15 | <i>Aphanamixis polystachya</i> (Wall.) R.Parker | A | 10 | 0.1 | 1.00 |
| 16 | <i>Azadirachta indica</i> A.Juss. | A | 10 | 0.1 | 1.00 |
| 17 | <i>Bambusa arundinacea</i> Willd. | B | 30 | 0.35 | 0.86 |
| 18 | <i>Barringtonia acutangula</i> (L.) Gaertn. | A | 15 | 0.2 | 0.75 |
| 19 | <i>Bauhinia acuminata</i> L. | A | 10 | 0.15 | 0.67 |
| 20 | <i>Bauhinia purpurea</i> L. | A | 10 | 0.1 | 1.00 |
| 21 | <i>Bauhinia racemosa</i> Lam. | A | 15 | 0.15 | 1.00 |
| 22 | <i>Bauhinia semla</i> Wunderlin | A | 20 | 0.2 | 1.00 |
| 23 | <i>Bauhinia variegata</i> L. | A | 20 | 0.35 | 0.57 |
| 24 | <i>Betula alnoides</i> Buch.-Ham. ex D.Don | D | 65 | 0.65 | 1.00 |
| 25 | <i>Bischofia javanica</i> Blume | C | 45 | 0.45 | 1.00 |
| 26 | <i>Bombax ceiba</i> L. | D | 70 | 1 | 0.70 |
| 27 | <i>Boswellia serrata</i> Roxb. ex Colebr. | B | 35 | 0.35 | 1.00 |
| 28 | <i>Bridelia retusa</i> (L.) A.Juss | D | 65 | 0.7 | 0.93 |
| 29 | <i>Broussonetia papyrifera</i> (L.) L'Hér. ex Vent | D | 60 | 0.6 | 1.00 |
| 30 | <i>Buchanania cochinchinensis</i> (Lour.) M.R.Almeida | C | 45 | 0.45 | 1.00 |
| 31 | <i>Butea monosperma</i> (Lam.) Taub. | C | 45 | 0.45 | 1.00 |
| 32 | <i>Callistemon citrinus</i> (Curtis) Skeels | E | 85 | 0.85 | 1.00 |
| 33 | <i>Calophyllum inophyllum</i> L. | C | 60 | 0.6 | 1.00 |
| 34 | <i>Cassia fistula</i> L. | B | 25 | 0.35 | 0.71 |
| 35 | <i>Cedrus deodara</i> (Roxb. ex D.Don) G.Don | C | 50 | 0.5 | 1.00 |
| 36 | <i>Celtis australis</i> L. | B | 25 | 0.25 | 1.00 |
| 37 | <i>Cordia dichotoma</i> Forst. f. | C | 55 | 0.65 | 0.85 |
| 38 | <i>Corylus jacquemontii</i> Decne. | C | 45 | 0.45 | 1.00 |
| 39 | <i>Dalbergia lanceolaria</i> L.f. | B | 35 | 0.45 | 0.78 |
| 40 | <i>Diospyros melanoxylon</i> Roxb. | C | 45 | 0.45 | 1.00 |
| 41 | <i>Exbucklandia populnea</i> (R.Br. ex Griff.) R.W.Br. | B | 35 | 0.35 | 1.00 |
| 42 | <i>Ficus benghalensis</i> L. | B | 35 | 0.4 | 0.88 |
| 43 | <i>Ficus elastica</i> Roxb. ex Hornem. | B | 30 | 0.3 | 1.00 |
| 44 | <i>Ficus glomerata</i> Roxb. | C | 45 | 0.55 | 0.82 |

| SI | Species name | Frequency Class | Frequency % | Density | Abundance |
|----|--|-----------------|-------------|---------|-----------|
| 45 | <i>Ficus semicordata</i> Buch.-Ham. ex Sm. | B | 25 | 0.25 | 1.00 |
| 46 | <i>Grevillea robusta</i> A.Cunn. ex R.Br. | B | 25 | 0.25 | 1.00 |
| 47 | <i>Lannea coromandelica</i> (Houtt.) Merr. | C | 50 | 0.5 | 1.00 |
| 48 | <i>Madhuca butyracea</i> (Roxb.) J.F.Macbr. | C | 45 | 0.55 | 0.82 |
| 49 | <i>Mallotus philippensis</i> (Lam.) Müll.Arg. | C | 50 | 0.55 | 0.91 |
| 50 | <i>Mangifera indica</i> L. | B | 35 | 0.5 | 0.70 |
| 51 | <i>Moringa oleifera</i> Lam. | B | 25 | 0.25 | 1.00 |
| 52 | <i>Murraya koenigii</i> (L.) Spreng. | C | 45 | 0.45 | 1.00 |
| 53 | <i>Phyllanthus emblica</i> L. | C | 50 | 0.55 | 0.91 |
| 54 | <i>Pinus palustris</i> Mill. | C | 50 | 0.55 | 0.91 |
| 55 | <i>Plumbago zeylanica</i> L. | B | 25 | 0.25 | 1.00 |
| 56 | <i>Pongamia pinnata</i> (L.) Pierre | C | 50 | 0.65 | 0.77 |
| 57 | <i>Rhododendron arboreum</i> Sm. | C | 50 | 0.55 | 0.91 |
| 58 | <i>Salix fragilis</i> L. | C | 50 | 0.5 | 1.00 |
| 59 | <i>Salix caprea</i> L. | A | 15 | 0.15 | 1.00 |
| 60 | <i>Shorea robusta</i> Gaertn. | C | 50 | 0.5 | 1.00 |
| 61 | <i>Spathodea campanulata</i> P.Beauv. | A | 20 | 0.2 | 1.00 |
| 62 | <i>Spondias pinnata</i> (L. f.) Kurz | C | 50 | 0.5 | 1.00 |
| 63 | <i>Syzygium cumini</i> (L.) Skeels | C | 45 | 0.45 | 1.00 |
| 64 | <i>Terminalia arjuna</i> (Roxb. ex DC.) Wight & Arn. | A | 10 | 0.1 | 1.00 |
| 65 | <i>Terminalia bellirica</i> (Gaertn.) Roxb. | B | 40 | 0.4 | 1.00 |
| 66 | <i>Terminalia chebula</i> Retz. | C | 45 | 0.45 | 1.00 |
| 67 | <i>Terminalia tomentosa</i> Wight & Arn. | D | 65 | 0.8 | 0.81 |
| 68 | <i>Vernicia fordii</i> (Hemsl.) Airy Shaw | A | 15 | 0.25 | 0.60 |

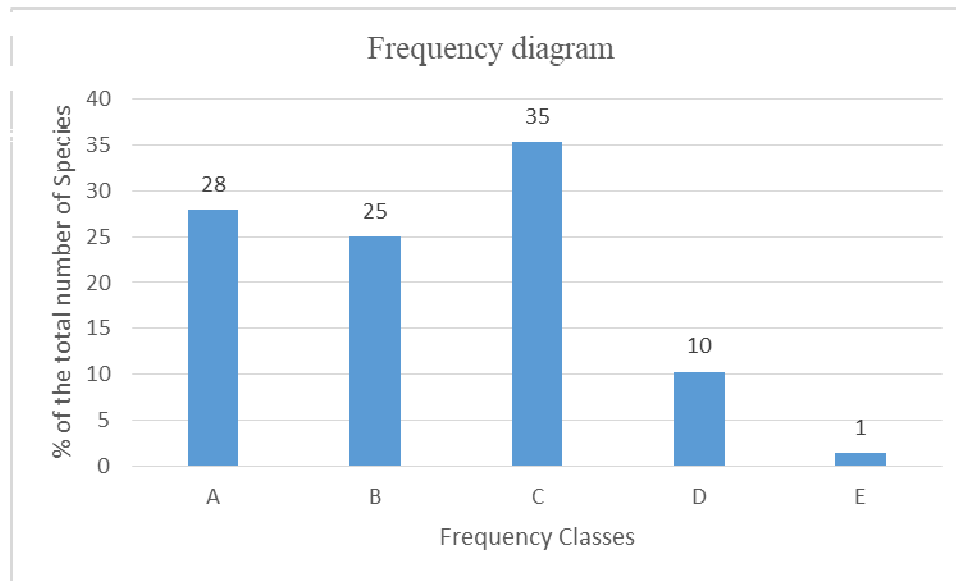


Figure 3.23: Frequency diagram

In this results A Class belongs to (19), B Class (17), C Class (24) D Class (7) and E Class belongs to 1 species respectively “J- shaped” curve as suggested by Raunkiaer (1934), showing the normal distribution of frequency percentage. Study results shows that, class ‘E’ is smaller than class ‘D’, the community or vegetation in the area shows considerable disturbance.

Diversity Index:

Normally, the Shannon index ranges between 1.5 to 3.5 and rarely goes to 4.5. On the other hand Simpson’s Index ranges from 0 to 1 wherein values near 0 indicates fewer species and higher abundance while values closer to 1 indicates many species with low abundances. Quadrat wise Floral Biodiversity Analysis i.e. Simpson’s Index (D) & Shannon Index (H) is as below

Table 3.21: Quadrat wise Floral Biodiversity Analysis

| Quadrates | Dominance_D | Simpson_1-D | Shannon_H | Evenness_e^H/S |
|-----------|-------------|-------------|-----------|----------------|
| Q 1 | 0.025 | 0.98 | 2.89 | 1.38 |
| Q 2 | 0.012 | 0.99 | 3.22 | 1.47 |
| Q 3 | 0.011 | 0.99 | 3.50 | 1.44 |
| Q 4 | 0.016 | 0.98 | 3.19 | 1.43 |
| Q 5 | 0.005 | 1.00 | 3.43 | 1.55 |
| Q 6 | 0.003 | 1.00 | 3.62 | 1.56 |
| Q 7 | 0.002 | 1.00 | 4.02 | 1.59 |
| Q 8 | 0.004 | 1.00 | 3.80 | 1.54 |

| Quadrates | Dominance_D | Simpson_1-D | Shannon_H | Evenness_e^H/S |
|-----------|-------------|-------------|-----------|----------------|
| Q 9 | 0.005 | 1.00 | 3.72 | 1.53 |
| Q 10 | 0.011 | 0.99 | 3.62 | 1.43 |
| Q 11 | 0.008 | 0.99 | 3.77 | 1.45 |
| Q 12 | 0.005 | 1.00 | 3.72 | 1.53 |
| Q 13 | 0.008 | 0.99 | 3.75 | 1.47 |
| Q 14 | 0.002 | 1.00 | 3.82 | 1.58 |
| Q 15 | 0.010 | 0.99 | 3.76 | 1.43 |
| Q 16 | 0.009 | 0.99 | 3.57 | 1.48 |
| Q 17 | 0.010 | 0.99 | 3.47 | 1.46 |
| Q 18 | 0.009 | 0.99 | 3.52 | 1.47 |
| Q 19 | 0.007 | 0.99 | 3.70 | 1.49 |
| Q 20 | 0.003 | 1.00 | 3.75 | 1.57 |

During the present study a total of 107 species belongs to 53 families (Trees; 68 Nos, Shrub: 18 nos, Herbs: 17 Nos and Climber 8 Nos respectively) are recorded. Poaceae is the most dominant family with 11 species, Leguminosae is the second largest families with 10 species followed by Combretaceae, Moraceae, Apocynacea, Anacardiaceae, Fabaceae, Mimosaceae, Euphorbiaceae, Caesalpinacea, Phyllanthaceae and Verbenaceae.

Table 3.22: Class wise vegetation diversity of the study area

| Sr. No. | Class | Total No. of Species |
|---------|---------|----------------------|
| 1 | Climber | 8 |
| 2 | Herb | 17 |
| 3 | Shrub | 18 |
| 4 | Tree | 68 |

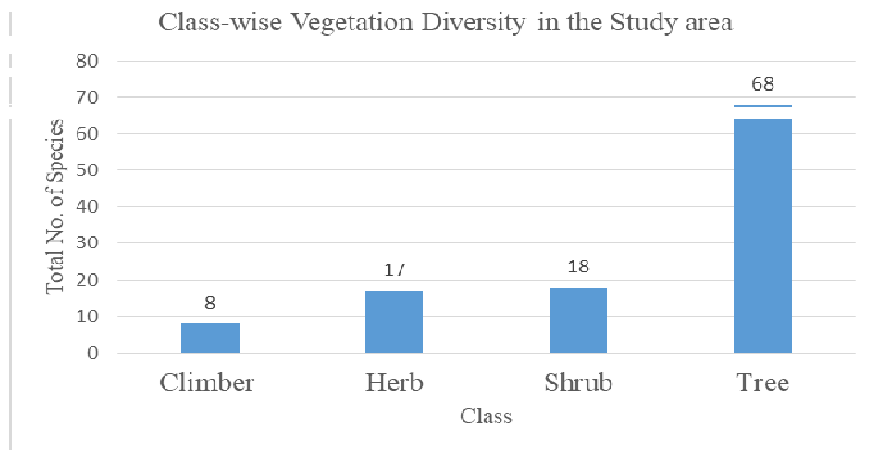


Figure 3.24: Class-wise Vegetation Diversity in the Study area

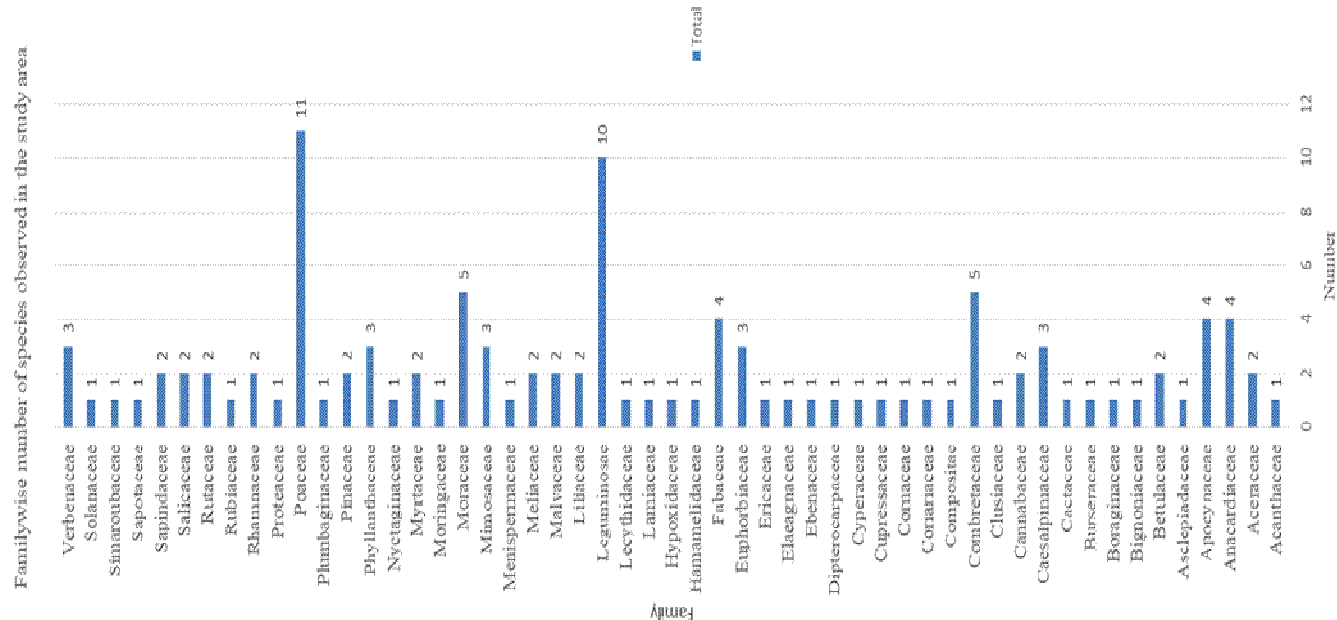


Figure 3.25: Family wise number of species observed in the study area

Table 3.23 List of Vegetation recorded in the study area

| SI | Botanical Name | Family | Vernacular Name | Habit | IUCN |
|----|--|---------------|-----------------------------------|---------|------|
| 1 | <i>Abrus precatorius</i> L. | Fabaceae | Jequirity bean or rosary pea | Climber | - |
| 2 | <i>Acacia catechu</i> (L.f.) Willd. | Mimosaceae | Cutch tree | Tree | - |
| 3 | <i>Acacia leucophloea</i> (Roxb.) Willd. | Mimosaceae | Kuteera-Gum, White-barked acacia. | Tree | - |
| 4 | <i>Acacia nilotica</i> subsp. <i>cupressiformis</i> (J.L. Stewart) Ali & Faruqui | Mimosaceae | Gum arabic tree, babul | Tree | - |
| 5 | <i>Acacia pennata</i> (L.) Willd. | Leguminosae | Climbing Acacia | Climber | - |
| 6 | <i>Acacia senegal</i> (L.) Willd | Leguminosae | Gum Arabic Tree | Tree | - |
| 7 | <i>Acer campbellii</i> Hook.f. | Aceraceae | Himalayan Maple | Tree | LC |
| 8 | <i>Acer negundo</i> L. | Aceraceae | Three-Leaved Maple | Tree | LC |
| 9 | <i>Aegle marmelos</i> (L.) Corrêa | Rutaceae | Stone apple | Tree | NT |
| 10 | <i>Aesculus indica</i> (Wall. ex Cambess.) Hook. | Sapindaceae | Indian Horse Chestnut | Tree | LC |
| 11 | <i>Ailanthus excelsa</i> Roxb. | Simaroubaceae | Tree of heaven | Tree | - |
| 12 | <i>Alangium chinense</i> (Lour.) Harms | Cornaceae | Chinese Alangium | Tree | - |
| 13 | <i>Albizia chinensis</i> (Osbeck) Merr. | Leguminosae | Chinese Albizia, silk tree | Tree | - |
| 14 | <i>Albizia lebbeck</i> (L.) Benth. | Leguminosae | Lebbek tree | Tree | LC |
| 15 | <i>Albizia procera</i> (Roxb.) Benth. | Fabaceae | White siris | Tree | LC |
| 16 | <i>Anogeissus latifolia</i> (Roxb. ex DC.) Wall. ex Guillem. & Perr. | Combretaceae | Axle Wood Tree | Tree | - |
| 17 | <i>Aphanamixis polystachya</i> (Wall.) R.Parker | Meliaceae | Pithraj Tree | Tree | LC |

| SI | Botanical Name | Family | Vernacular Name | Habit | IUCN |
|----|---|-----------------|------------------------------|---------|------|
| 18 | <i>Aristida depressa</i> Retz. | Poaceae | Common Needle Grass | Herb | - |
| 19 | <i>Asparagus racemosus</i> Willd. | Liliaceae | Shatavari | Climber | - |
| 20 | <i>Azadirachta indica</i> A.Juss. | Meliaceae. | Neem | Tree | LC |
| 21 | <i>Bambusa arundinacea</i> Willd. | Poaceae | Common Bamboo | Tree | - |
| 22 | <i>Barleria cristata</i> L. | Acanthaceae | Philippine Violet | Shrub | - |
| 23 | <i>Barringtonia acutangula</i> (L.) Gaertn. | Lecythidaceae | Samundarphal | Tree | LC |
| 24 | <i>Bauhinia acuminata</i> L. | Leguminosae | Dwarf White orchid tree | Tree | LC |
| 25 | <i>Bauhinia purpurea</i> L. | Leguminosae | Orchid tree, purple bauhinia | Tree | LC |
| 26 | <i>Bauhinia racemosa</i> Lam. | Caesalpiniaceae | The bidi leaf tree | Tree | - |
| 27 | <i>Bauhinia semla</i> Wunderlin | Caesalpiniaceae | Roxburgh's Bauhinia | Tree | - |
| 28 | <i>Bauhinia variegata</i> L. | Leguminosae | Mountain ebony | Tree | - |
| 29 | <i>Betula alnoides</i> Buch.-Ham. ex D.Don | Betulaceae | Himalayan Birch | Tree | LC |
| 30 | <i>Bischofia javanica</i> Blume | Phyllanthaceae | Bishop Wood, Tiger tree | Tree | LC |
| 31 | <i>Bombax ceiba</i> L. | Malvaceae. | Silk cotton tree | Tree | LC |
| 32 | <i>Boswellia serrata</i> Roxb. ex Colebr. | Burseraceae | Indian Olibanum | Tree | - |
| 33 | <i>Bougainvillea spectabilis</i> Willd. | Nyctaginaceae | Booganbel | Climber | - |
| 34 | <i>Bridelia retusa</i> (L.) A.Juss | Phyllanthaceae | Spinous Kino Tree | Tree | LC |
| 35 | <i>Broussonetia papyrifera</i> (L.) L'Hér. ex Vent | Moraceae | Paper Mulberry | Tree | LC |
| 36 | <i>Buchanania cochinchinensis</i> (Lour.) M.R.Almeida | Anacardiaceae | Chironji Tree | Tree | - |
| 37 | <i>Butea monosperma</i> (Lam.) Taub. | Fabaceae | Flame-of-the-forest | Tree | LC |
| 38 | <i>Caesalpinia bonduc</i> (L.) Roxb. | Caesalpiniaceae | Yellow Nicker, Gajaga | Climber | LC |
| 39 | <i>Callistemon citrinus</i> (Curtis) Skeels | Myrtaceae | Lemon bottlebrush | Tree | - |
| 40 | <i>Calophyllum inophyllum</i> L. | Clusiaceae | Beauty Leaf, sultan champa | Tree | LC |
| 41 | <i>Calotropis gigantea</i> (L.) R. Br. | Asclepiadaceae | Giant calotrope | Shrub | - |
| 42 | <i>Cannabis sativa</i> L. | Cannabaceae | Cannabis sativa | Shrub | - |
| 43 | <i>Cariaria nepalensis</i> | Coriariaceae | Masuri Berry | Shrub | - |
| 44 | <i>Carissa spinarum</i> L. | Apocynaceae | Wild Karanda | Shrub | LC |
| 45 | <i>Cassia fistula</i> L. | Leguminosae | Golden shower | Tree | LC |
| 46 | <i>Cedrus deodara</i> (Roxb. ex D.Don) G.Don | Pinaceae | Devdar, Himalayan Cedar | Tree | LC |
| 47 | <i>Celtis australis</i> L. | Cannabaceae | Mediterranean Hackberry | Tree | LC |
| 48 | <i>Chrysopogon fulvus</i> (Spreng.) Chiov. | Poaceae | Guria grass | Herb | - |
| 49 | <i>Clerodendrum infortunatum</i> L | Verbenaceae | Hill Glory Bower | Shrub | LC |
| 50 | <i>Cordia dichotoma</i> Forst. f. | Boraginaceae | Bhokar | Tree | LC |
| 51 | <i>Corylus jacquemontii</i> Decne. | Betulaceae | Jacquemont's Hazel | Tree | DD |
| 52 | <i>Cryptolepis buchananii</i> Roem. & Schult. | Apocynaceae | Wax Leaved Climber | Climber | - |
| 53 | <i>Curculigo orchioides</i> Gaertn. | Hypoxidaceae | Golden Eye Grass | Herb | - |

| SI | Botanical Name | Family | Vernacular Name | Habit | IUCN |
|----|---|----------------|------------------------------------|---------|------|
| 54 | <i>Cymbopogon citratus</i> (DC.) Stapf | Poaceae | Lemon Grass | Herb | - |
| 55 | <i>Cymbopogon martini</i> (Roxb.) W.Watson | Poaceae | Palmarosa Grass | Herb | - |
| 56 | <i>Cynodon dactylon</i> (L.) Pers. | Poaceae | Bermuda grass | Herb | - |
| 57 | <i>Cyperus rotundus</i> L. | Cyperaceae | Coco-grass, Java grass | Herb | LC |
| 58 | <i>Dalbergia lanceolaria</i> L.f. | Leguminosae | Takoli | Tree | - |
| 59 | <i>Dendrocalamus strictus</i> | Poaceae | Calcutta Bamboo, hard bamboo | Herb | - |
| 60 | <i>Diospyros melanoxylon</i> Roxb. | Ebenaceae | Coromandel Ebony, Black Ebony | Tree | - |
| 61 | <i>Dodonaea viscosa</i> (L.) Jacq. | Sapindaceae | Hop Bush, Hopseed | Shrub | LC |
| 62 | <i>Elaeagnus rhamnoides</i> (L.) A.Nelson | Elaeagnaceae | Leh Berry, Sea-buckthorn | Shrub | LC |
| 63 | <i>Eleusine indica</i> | Poaceae | Indian Crowfoot | Herb | LC |
| 64 | <i>Eulaliopsis binata</i> (Retz.) C.E.Hubb. | Poaceae | Sabai Grass | Herb | - |
| 65 | <i>Exbucklandia populnea</i> (R.Br. ex Griff.) R.W.Br. | Hamamelidaceae | Pipli Tree | Tree | LC |
| 66 | <i>Ficus benghalensis</i> L. | Moraceae | The banyan | Tree | - |
| 67 | <i>Ficus elastica</i> Roxb. ex Hornem. | Moraceae | Indian Rubber Tree | Tree | - |
| 68 | <i>Ficus glomerata</i> Roxb. | Moraceae | Cluster fig | Tree | - |
| 69 | <i>Ficus semicordata</i> Buch.-Ham. ex Sm. | Moraceae | Drooping Fig | Tree | LC |
| 70 | <i>Gloriosa superba</i> L. | Liliaceae | Glory Lily, Gloriosa lily | Climber | LC |
| 71 | <i>Grevillea robusta</i> A.Cunn. ex R.Br. | Proteaceae | Silver Oak | Tree | LC |
| 72 | <i>Heteropogon contortus</i> (L.) P.Beauv. ex Roem. & Schult. | Poaceae | Black Speargrass, tanglehead grass | Herb | - |
| 73 | <i>Hibiscus rosa-sinensis</i> L. | Malvaceae | China Rose, Chinese hibiscus | Herb | - |
| 74 | <i>Ixora coccinea</i> L. | Rubiaceae | Ixora, Jungle geranium | Shrub | - |
| 75 | <i>Juniperus communis</i> L. | Cupressaceae | Common Juniper | Shrub | LC |
| 76 | <i>Lannea coromandelica</i> (Houtt.) Merr. | Anacardiaceae | Indian Ash Tree, Moya | Tree | LC |
| 77 | <i>Lantana camara</i> L. | Verbenaceae | Lantana | Shrub | - |
| 78 | <i>Madhuca butyracea</i> (Roxb.) J.F.Macbr. | Sapotaceae | Indian Butter Tree | Tree | - |
| 79 | <i>Mallotus philippensis</i> (Lam.) Müll.Arg. | Euphorbiaceae | Kaamala Tree | Tree | LC |
| 80 | <i>Mangifera indica</i> L. | Anacardiaceae | Mango | Tree | DD |
| 81 | <i>Moringa oleifera</i> Lam. | Moringaceae | Drumstick tree | Tree | LC |
| 82 | <i>Murraya koenigii</i> (L.) Spreng. | Rutaceae | Curry patta | Tree | LC |
| 83 | <i>Nerium indicum</i> Mill. | Apocynaceae | Kaner | Shrub | - |
| 84 | <i>Ocimum tenuiflorum</i> L. | Lamiaceae | Holy basil | Herb | - |
| 85 | <i>Opuntia stricta</i> (Haw.) Haw. | Cactaceae | Erect Prickly Pear | Shrub | LC |
| 86 | <i>Phyllanthus emblica</i> L. | Phyllanthaceae | Amla | Tree | LC |
| 87 | <i>Pinus palustris</i> Mill. | Pinaceae | Chir pine, Himalayan longleaf pine | Tree | EN |
| 88 | <i>Plumbago zeylanica</i> L. | Plumbaginaceae | Chitrak, Plumbago | Tree | - |

| SI | Botanical Name | Family | Vernacular Name | Habit | IUCN |
|-----|--|------------------|-----------------------------------|---------|------|
| 89 | <i>Pongamia pinnata</i> (L.) Pierre | Leguminosae | Pongam Tree, Indian Beech Tree | Tree | LC |
| 90 | <i>Rauvolfia serpentina</i> (L.) Benth. ex Kurz | Apocynaceae | Sarpagandha | Shrub | - |
| 91 | <i>Rhododendron arboreum</i> Sm. | Ericaceae | Burans | Tree | LC |
| 92 | <i>Ricinus communis</i> L. | Euphorbiaceae | Castor oil plant | Shrub | |
| 93 | <i>Saccharum sara</i> Roxb. | Poaceae | Sarkanda, Munj Sweetcane | Herb | |
| 94 | <i>Salix × fragilis</i> L. | Salicaceae | Brittle Willow, Crack willow | Tree | LC |
| 95 | <i>Salix caprea</i> L. | Salicaceae | Indian Willow | Tree | LC |
| 96 | <i>Shorea robusta</i> Gaertn. | Dipterocarpaceae | Sal | Tree | LC |
| 97 | <i>Spathodea campanulata</i> P.Beauv. | Bignoniaceae | African tulip tree | Tree | LC |
| 98 | <i>Spondias pinnata</i> (L. f.) Kurz | Anacardiaceae | Wild Mango, Ambara | Tree | - |
| 99 | <i>Syzygium cumini</i> (L.) Skeels | Myrtaceae | Indian blackberry or Jamun. | Tree | LC |
| 100 | <i>Tagetes erecta</i> L. | Compositae | Marigold, African Marigold | Herb | - |
| 101 | <i>Terminalia arjuna</i> (Roxb. ex DC.) Wight & Arn. | Combretaceae | Arjuna | Tree | - |
| 102 | <i>Terminalia bellirica</i> (Gaertn.) Roxb. | Combretaceae | Behada | Tree | LC |
| 103 | <i>Terminalia chebula</i> Retz. | Combretaceae | Hirada | Tree | LC |
| 104 | <i>Terminalia tomentosa</i> Wight & Arn. | Combretaceae | Asan, Indian Laurel | Tree | |
| 105 | <i>Tinospora sinensis</i> (Lour.) Merr. | Menispermaceae | Malabar Gulbel, Chinese tinospora | Climber | - |
| 106 | <i>Trifolium alexandrinum</i> L. | Fabaceae | Egyptian Clover, Berseem clover | Herb | - |
| 107 | <i>Vernicia fordii</i> (Hemsl.) Airy Shaw | Euphorbiaceae | Tung Tree | Tree | LC |
| 108 | <i>Vitex negundo</i> L. | Verbenaceae | Chinese chaste tree | Shrub | LC |
| 109 | <i>Withania somnifera</i> (L.) Dunal | Solanaceae | Ashwagandha | Herb | DD |
| 110 | <i>Ziziphus mauritiana</i> Lam. | Rhamnaceae | Indian jujube | Shrub | LC |
| 111 | <i>Ziziphus xylopyrus</i> (Retz.) Willd. | Rhamnaceae | Katber | Shrub | - |

Data Deficient (DD)

Least Concern (LC)

Endangered (EN)

Near Threatened (NT)

3.11.4 Faunal Diversity**Methodology:**

Faunal studies were restricted to major groups such as reptiles, birds & mammals. For preparation of the checklist of mammals and reptiles of the project area, direct sightings during baseline study period, interviews with local communities regarding presence or absence of species and literature studies were taken into consideration. The areas reported for the presence of the species were visited during the day as well as night. Apart from the direct sightings of the

animals during visits, indirect signs such as calls & feedback from local people were also considered as an indicator for the presence of the species

The checklists of Mammals, Butterflies, Birds, Reptiles, prepared. IUCN Red List and Indian Wildlife (Protection) Act, 1972 was referred for the preparation of checklist of fauna. Secondary data, published articles, and scientific publications etc. were also referred.

The checklists of Reptiles, Mammals and Birds which are present in the study area, are discussed as below;

Table 3.24: Checklist of Reptiles in and around study area

| SI | Scientific Name | Common Name | Family | IUCN | IWPA |
|----|--|---|------------|------|-------------------|
| 1. | <i>Calotes versicolor</i> (Daudin, 1802) | Indian Garden Lizard or Changeable Lizard | Agamidae | LC | - |
| 2. | <i>Varanus bengalensis</i> (Daudin) | Bengal Monitor Lizard | Varanidae | NT | Sch. I (Part II) |
| 3. | <i>Bungarus caeruleus</i> (Schneider, 1801) | Common Krait | Elapidae | LC | Sch. IV |
| 4. | <i>Ptyas mucosa</i> (Linnaeus, 1758) | Indian Rat Snake / <i>Dhaman</i> | Colubridae | LC | Sch. II (Part II) |
| 5. | <i>Lycodon aulicus</i> (Linnaeus, 1754) | Common wolf snake | Colubridae | LC | Sch. IV |
| 6. | <i>Xenochrophis piscator</i> (Schneider, 1799) | Checkered keelback | Colubridae | LC | Sch. II (Part II) |
| 7. | <i>Ahaetulla nasuta</i> (Lacepede, 1789) | Long-nosed Tree snake | Colubridae | LC | Sch. IV |
| 8. | <i>Python molurus</i> (Linnaeus, 1758) | Rock python | Pythonidae | NT | Sch. I (Part II) |
| 9. | <i>Ophiophagus hannah</i> (Cantor, 1836) | King Cobra | Elapidae | VU | Sch. II (Part II) |

Table 3.25: Checklist of Mammals in and around study area

| SI | Scientific Name | Common Name | Family | IUCN | IWPA |
|----|--|-------------------------------------|-----------------|------|------------------|
| 1. | <i>Macaca mulatta</i> (Zimmermann, 1780) | Rhesus Macaque | Cercopithecidae | LC | Sch. II (Part I) |
| 2. | <i>Semnopithecus hector</i> | Tarai gray langur or Hanuman Langur | Cercopithecidae | NT | Sch. II (Part I) |
| 3. | <i>Panthera pardus</i> | Common Leopard | Felidae | VU | Sch. I (Part I) |
| 4. | <i>Axis axis</i> | Chittal (Spotted deer) | Cervidae | LC | Sch. III |
| 5. | <i>Boselaphus tragocamelus</i> | Nilgai (Blue Bull) | Bovidae | LC | Sch. III |
| 6. | <i>Rusa unicolor</i> | Sambhar | Cervidae | VU | Sch. III |

| | | | | | |
|-----|--|------------------|-------------|----|----------|
| 7. | <i>Lepus nigricollis</i> (F. Cuvier, 1823) | Indian Hare | Leporidae | LC | Sch. IV |
| 8. | <i>Sus scrofa</i> | Wild Pig | Suidae | LC | Sch. III |
| 9. | <i>Muntiacus muntjak</i> | Barking Deer | Cervidae | LC | Sch. III |
| 10. | <i>Hystrix indica</i> | Indian Porcupine | Hystricidae | LC | Sch. IV |

Table 3.26: Checklist of Bird in and around study area

| SI | Scientific Name | Common Name | IWPA Status | IUCN Status |
|------------------------------|---|---------------------------|-------------------|-------------|
| Family – Ardeidae | | | | |
| 1 | <i>Bubulcus ibis</i> (Linnaeus, 1758) | Cattle Egret | Sch. IV | LC |
| Family – Phasianidae | | | | |
| 2 | <i>Pavo cristatus</i> Linnaeus, 1758 | Indian Peafowl | Sch. I (Part III) | LC |
| Family – Columbidae | | | | |
| 3 | <i>Columba livia</i> Gmelin, 1789 | Blue Rock Pigeon | Sch. IV | LC |
| 4 | <i>Streptopelia chinensis</i> (Scopoli, 1786) | Spotted Dove | Sch. IV | LC |
| Family – Psittacidae | | | | |
| 5 | <i>Psittacula krameri</i> (Scopoli, 1769) | Rose-ringed Parakeet | Sch. IV | LC |
| Family – Cuculidae | | | | |
| 6 | <i>Cuculus micropterus</i> Gould, 1838 | Indian Cuckoo | - | LC |
| 7 | <i>Eudynamis scolopacea</i> (Linnaeus, 1758) | Asian Koel | NA | LC |
| Family – Alcedinidae | | | | |
| 8 | <i>Halcyon smyrnensis</i> (Linnaeus, 1758) | White-throated Kingfisher | Sch. IV | LC |
| Family – Coraciidae | | | | |
| 9 | <i>Coracias benghalensis</i> (Linnaeus, 1758) | Indian Roller | Sch. IV | LC |
| Family – Meropidae | | | | |
| 10 | <i>Merops orientalis</i> Latham, 1801 | Green Bee-eater | Sch. IV | LC |
| Family – Upupidae | | | | |
| 11 | <i>Upupa epops</i> Linnaeus, 1758 | Common Hoopoe | Sch. IV | LC |
| Family – Hirundinidae | | | | |
| 12 | <i>Hirundo daurica</i> Linnaeus, 1771 | Red-rumped Swallow | - | LC |
| Family – Pycnonotidae | | | | |
| 13 | <i>Pycnonotus cafer</i> (Linnaeus, 1766) | Red-vented Bulbul | Sch. IV | LC |
| Family – Muscicapidae | | | | |
| 14 | <i>Copsychus saularis</i> (Linnaeus, 1758) | Oriental Magpie-Robin | - | LC |
| 15 | <i>Turdoides caudatus</i> (Dumont, 1823) | Common Babbler | - | LC |
| Family – Passeridae | | | | |
| 16 | <i>Passer domesticus</i> (Linnaeus, 1758) | House Sparrow | - | LC |
| Family – Sturnidae | | | | |
| 17 | <i>Acridotheres tristis</i> (Linnaeus, 1766) | Common Myna | Sch. IV | LC |

| SI | Scientific Name | Common Name | IWPA Status | IUCN Status |
|--------------------------|--|---------------------|-------------|-------------|
| 18 | <i>Sturnus contra Linnaeus, 1758</i> | Asian Pied Starling | Sch. IV | LC |
| Family - Corvidae | | | | |
| 19 | <i>Corvus splendens Vieillot, 1817</i> | House Crow | Sch. V | LC |

3.11.5 Conservation measures for Schedule Species

Direct and indirect approach is required to provide effective conservation, which is recommended as under:

- Implementation of mitigation measures & EMP suggested for Air, Water & Noise environment.
- Regular monitoring of stack emission & ambient air quality to be carried out.
- Factory will explore possibilities to extend support to the existing forest and wildlife conservation plans in consultation with the forest department and Contribute Rs. 25 lakhs to support the awareness activities, purchasing new advanced equipment and conservation plan.
- Company will participate in awareness campaigns by forest department at the village level/ community and school level to make the locals aware about the protected species in the area; their behavior, habitat, ecology, breeding/nesting seasons, threats to habitats and species, laws regarding protection of species. Awareness can also be done through organizing competitions during “Wildlife Week” and “Van Mahotsav” celebrations.
- Though these species are not reported from the core project area and its immediate periphery, however they are reported from nearby villages. Therefore, direct impacts of the proposed project are likely to be low on their habitats as such. Industry shall minimize disturbance caused by noise, vibrations and illuminations in the core area which could lower impact on the species. Even small vibrations could disturb sensitive, nocturnal carnivore species such as Leopard
- Industry shall take utmost care in controlling dust, fugitive emissions using best pollution control methods during construction and operation phases
- None or minimum firewood shall be used during the construction and operation phases
- No food waste shall be dumped in open area and proper food waste disposal system shall be in place.

- Industry shall adopt no use of Plastic Policy in order to protect any harm to the environment & fauna of the study area
- Immediate information to authorities regarding poaching and illegal trade in wildlife (if observed).
- Suggest strategies to minimize negative impacts of changing environment in nearby area of schedule species population and to promote conservation of schedule habitats.

The budgetary provisions for proposed conservation for Schedule-I Species in the vicinity of the Project are given in below table;

Table 3.27: Budgetary Provision for Proposed Conservation of Schedule I species in Project Study Area

| Sr. No. | Conservation Activities | Expenditure (in lakhs) |
|------------------------------|---|------------------------|
| 1. | Provide necessary equipment (like binoculars, snake-sticks, etc.) as well as necessary apparel (wind jackets, shoes, etc.) to State forest Department, Una | 5.0 |
| 2. | Awareness program for Schedule species conservation Workshops, Training & Awareness Programs amongst the labour, locals from nearby villages and nearby schools | 15.0 |
| 3. | Required Signage / signboards, speed-breakers etc. on approach road and known habitat areas | 5.0 |
| Total Budget proposed | | 25.0 |

**Detailed Wildlife Conservation Plan attached as Annexure 5*

3.12 Socio Economic Environment

This discusses the baseline scenario of the socio-economic environment in the study area and anticipated impacts of the project on the socio-economic environment. The issues under focus in this topic are demographic pattern, economic activity, education and literacy profile, etc. The assessment attempts to predict and evaluate the future impacts of the proposed project on socio-economic environment.

Baseline Socio-Economic Status

Baseline data regarding the socio-economic profile with reference to demographic structure, infrastructure resource base, health status and economic resource base is collected using secondary sources Census data for the year 2011 within 10 km radius around project site

All developmental activities are primarily catered on human development. When industrial activities are to be scoped socio-economic surveys play a key role. They not only emphasize the

individual standing of a community but also delineate the possible socio-economic outcomes of any project. They include all the elements; from the conditions of the people living in that area to their working status. When developmental activities are about to occur in any area the socio-economic standing of the locality comes to the forefront. A socio-economic survey highlights all the characteristics that jointly constitute a community. To conduct this study secondary data sources are referred.

There are 28 number of villages falling within the 10 km radius of project site. Out of 28 villages, 8 villages from Punjab & 21 villages from Himachal Pradesh. In these 28 villages, total 7243 households are presents. Total population residing in the study area is 35862. Out of total population, 51.51% are male and 48.49% are female. Total schedule caste population is 7355, which is 20.50% of the total population within 10 km project boundary. Total schedule tribe's population is 147 which is only from State Himachal Pradesh is 0.4% of total population.

Observations recorded during survey in the study area:

- Majority of the respondents are engaged in cultivation activity while near about 50% of the population are engaged in agricultural and its allied activities. The main crop grown in the study area is Rice, Barley, Wheat, Maize, Lentils, etc.
- Sanitation facilities are satisfactory in the study area. There are open drains from where the domestic waste water is disposed.
- Power supply facility is available in almost all villages and town in the study area.
- Drinking water sources is mostly from bore wells and hand pump.
- Medical facilities in terms of primary health center and primary health sub centers in the rural areas are good. Hospitals are equipped with good facilities.
- Transportation facility is seen satisfactory in the study area and road conditions are very well maintained.
- Majority of the population use Kerosene & LPG as a main source of fuel and wood for cooking is rarely observed.
- Efficient communication facility are available in the study area
- Educational facilities are available in the form of primary and secondary schools. For higher studies people avail the facility from the nearest city.
- Houses of the region are mostly puccha houses

3.12.1 Demography of Una District

According to the Census 2011, the total population of Una district is 521,173 comprising 263,692 males and 257,481 females. This population of the district forms 8.44 % of the state population and ranks at 6th place among the districts. Out of the total population of the district 91.38 per cent lives in rural areas while 8.62 % lives in urban areas. Rural population of the district is distributed among 5 sub-districts (previously known as tehsils/ sub-tehsil) and urban population is spread over in equal number of towns. The total urban population in the district is 44,913 persons comprising 23,438 males and 21,475 females. The total rural population in this district comes to 476,260 persons and is composed of 240,254 males and 236,006 females as per Census 2011. This rural population is distributed in 790 villages. Out of the total 848 villages in the district 790 are inhabited villages while 58 villages are uninhabited. Soan valley has dense concentration of villages which are bigger in their size. The main concentration of villages is mainly in this valley as it is flat and most fertile area of the district.

Table 3.28: List of Villages within 10km Study Area of Project Site

| Sr. No. | Village Name | District Name | Sub District Name | Total HH | Total Pop | Total M_P | Total F_P | Total SC_P | Total SC_M_P | Total SC_F_P | Total ST_P | Total ST_M_P | Total ST_F_P |
|----------------------------------|------------------------|---------------|-------------------|-------------|--------------|--------------|--------------|-------------|--------------|--------------|------------|--------------|--------------|
| STATE - HIMAPCHAL PRADESH | | | | | | | | | | | | | |
| 1 | Saloh (5) | Una | Amb | 349 | 1498 | 703 | 795 | 446 | 206 | 240 | 0 | 0 | 0 |
| 2 | Chak (156) | Una | Amb | 186 | 894 | 462 | 432 | 58 | 27 | 31 | 51 | 30 | 21 |
| 3 | Charuru (166) | Una | Amb | 334 | 1619 | 822 | 797 | 45 | 21 | 24 | 0 | 0 | 0 |
| 4 | Baheri (170) | Una | Amb | 144 | 717 | 370 | 347 | 168 | 91 | 77 | 0 | 0 | 0 |
| 5 | Seri (176) | Una | Amb | 128 | 572 | 276 | 296 | 82 | 44 | 38 | 0 | 0 | 0 |
| 6 | Nagnoli (178) | Una | Una | 183 | 888 | 468 | 420 | 162 | 86 | 76 | 89 | 44 | 45 |
| 7 | Nagnuli Har (178) | Una | Una | 99 | 500 | 240 | 260 | 37 | 17 | 20 | 4 | 3 | 1 |
| 8 | Panjawar (179) | Una | Una | 775 | 3537 | 1744 | 1793 | 820 | 412 | 408 | 0 | 0 | 0 |
| 9 | Daulatpur (180) | Una | Una | 180 | 826 | 412 | 414 | 77 | 37 | 40 | 0 | 0 | 0 |
| 10 | Pandogha Nichla (195) | Una | Una | 369 | 1949 | 1017 | 932 | 24 | 17 | 7 | 0 | 0 | 0 |
| 11 | Pandogha Khas (195) | Una | Una | 321 | 1532 | 755 | 777 | 211 | 107 | 104 | 0 | 0 | 0 |
| 12 | Pandogha Uparla (195) | Una | Una | 234 | 1138 | 600 | 538 | 313 | 172 | 141 | 0 | 0 | 0 |
| 13 | Pandogha Kairian (195) | Una | Una | 127 | 672 | 366 | 306 | 138 | 76 | 62 | 0 | 0 | 0 |
| 14 | Ispur Upperla (196) | Una | Una | 214 | 1164 | 584 | 580 | 323 | 165 | 158 | 0 | 0 | 0 |
| 15 | Ispur Tanda (196) | Una | Una | 504 | 2513 | 1289 | 1224 | 286 | 145 | 141 | 0 | 0 | 0 |
| 16 | Ispur (196) | Una | Una | 214 | 1091 | 551 | 540 | 255 | 121 | 134 | 3 | 2 | 1 |
| 17 | Bhadsali Har (197) | Una | Una | 264 | 1242 | 626 | 616 | 24 | 12 | 12 | 0 | 0 | 0 |
| 18 | Bhadsali (197) | Una | Una | 255 | 1121 | 554 | 567 | 120 | 57 | 63 | 0 | 0 | 0 |
| 19 | Bhalola (182) | Una | Una | 91 | 430 | 247 | 183 | 0 | 0 | 0 | 0 | 0 | 0 |
| 20 | Badsala (187) | Una | Una | 162 | 709 | 357 | 352 | 141 | 68 | 73 | 0 | 0 | 0 |
| 21 | Basal (194) | Una | Una | 315 | 1640 | 827 | 813 | 16 | 10 | 6 | 0 | 0 | 0 |
| STATE - PUNJAB | | | | | | | | | | | | | |
| 22 | Dalewal (500) | Hoshiarpur | Hoshiarpur | 139 | 707 | 386 | 321 | 405 | 212 | 193 | 0 | 0 | 0 |
| 23 | Patiari (501) | Hoshiarpur | Hoshiarpur | 103 | 558 | 279 | 279 | 348 | 175 | 173 | 0 | 0 | 0 |
| 24 | Kharkan (502) | Hoshiarpur | Hoshiarpur | 363 | 2529 | 1547 | 982 | 549 | 289 | 260 | 0 | 0 | 0 |
| 25 | Dhrowal (338) | Hoshiarpur | Hoshiarpur | 42 | 220 | 108 | 112 | 205 | 98 | 107 | 0 | 0 | 0 |
| 26 | Bachhohi (331) | Hoshiarpur | Garhshankar | 500 | 2552 | 1301 | 1251 | 1446 | 729 | 717 | 0 | 0 | 0 |
| 27 | Suna (332) | Hoshiarpur | Garhshankar | 139 | 661 | 368 | 293 | 196 | 106 | 90 | 0 | 0 | 0 |
| 28 | Maili (333) | Hoshiarpur | Garhshankar | 509 | 2383 | 1216 | 1167 | 460 | 239 | 221 | 0 | 0 | 0 |
| | | | | 7243 | 35862 | 18475 | 17387 | 7355 | 3739 | 3616 | 147 | 79 | 68 |

Table 3.29: Infrastructure of the villages of the Study Area

| Sr. No. | Village Name | Govt Pre - Primary School (Nursery/LKG/UKG) (Nos) | Govt Primary School (Nos) | Govt Middle School (Nos) | Govt Secondary School (Nos) | Govt Senior Secondary School (Nos) | Govt Arts and Science Degree College (Nos) | Primary Health Centre (Nos) | Primary Health Sub Centre (Nos) | Dispensary (Nos) | Tap Water-Treated (Status A(1)/NA(2)) | Covered Well (Status A(1)/NA(2)) | Hand Pump Functioning All round the year (Status A(1)/NA(2)) | Tube Wells/Borehole (Status A(1)/NA(2)) | River/Canal (Status A(1)/NA(2)) | Tank/Pond/Lake (Status A(1)/NA(2)) | Sub Post Office (Status A(1)/NA(2)) | Telephone (landlines) (Status A(1)/NA(2)) | Public Bus Service (Status A(1)/NA(2)) | Private Bus Service (Status A(1)/NA(2)) |
|----------------------------------|------------------------|---|---------------------------|--------------------------|-----------------------------|------------------------------------|--|-----------------------------|---------------------------------|------------------|---------------------------------------|----------------------------------|--|---|---------------------------------|------------------------------------|-------------------------------------|---|--|---|
| STATE - HIMAPCHAL PRADESH | | | | | | | | | | | | | | | | | | | | |
| 1 | Saloh (5) | 0 | 3 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 2 | 1 | 1 | 2 | 1 | 2 | 1 | 1 | 2 |
| 2 | Chak (156) | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 2 | 1 | 1 | 2 | 1 | 2 | 1 | 1 | 1 |
| 3 | Charuru (166) | 0 | 1 | 1 | 1 | 1 | 0 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 2 | 1 | 1 | 1 | 1 | 1 |
| 4 | Baheri (170) | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 2 | 1 | 2 | 1 | 1 | 2 |
| 5 | Seri (176) | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 2 | 1 | 2 | 1 | 1 | 2 |
| 6 | Nagnoli (178) | 0 | 2 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 1 | 1 | 2 | 1 | 1 | 1 | 1 | 2 |
| 7 | Nagnuli Har (178) | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 2 | 1 | 1 | 2 | 2 | 2 | 1 | 1 | 1 |
| 8 | Panjawar (179) | 0 | 2 | 2 | 1 | 1 | 0 | 0 | 0 | 1 | 1 | 2 | 1 | 1 | 2 | 2 | 1 | 1 | 1 | 1 |
| 9 | Daulatpur (180) | 3 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 2 | 0 | 1 | 2 | 2 | 2 | 1 | 1 | 1 |
| 10 | Pandogha Nichla (195) | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 2 | 1 | 1 | 2 | 2 | 2 | 1 | 1 | 1 |
| 11 | Pandogha Khas (195) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 2 | 1 | 1 | 2 | 2 | 2 | 1 | 1 | 1 |
| 12 | Pandogha Uparla (195) | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 2 | 0 | 2 | 2 | 2 | 1 | 1 | 1 | 1 |
| 13 | Pandogha Kairian (195) | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 1 | 1 | 2 | 2 | 2 | 1 | 1 | 2 |
| 14 | Ispur Upperla (196) | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 2 | 2 | 2 | 1 | 1 | 2 |
| 15 | Ispur Tanda (196) | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 2 | 1 | 1 | 2 | 2 | 2 | 1 | 1 | 1 |
| 16 | Ispur (196) | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 1 | 0 | 1 | 2 | 1 | 1 | 2 | 2 | 2 | 1 | 1 | 1 |
| 17 | Bhadsali Har (197) | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 2 | 1 | 1 | 2 | 2 | 2 | 1 | 1 | 1 |
| 18 | Bhadsali (197) | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | 1 | 2 | 1 | 1 | 1 | 1 | 1 |
| 19 | Bhalola (182) | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 1 | 2 | 2 | 2 | 1 | 1 | 2 |
| 20 | Badsala (187) | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 2 | 0 | 1 | 2 | 1 | 1 | 1 | 1 | 1 |

| Sr. No. | Village Name | Govt Pre - Primary School (Nursery/LKG/UKG) (Nos) | Govt Primary School (Nos) | Govt Middle School (Nos) | Govt Secondary School (Nos) | Govt Senior Secondary School (Nos) | Govt Arts and Science Degree College (Nos) | Primary Health Centre (Nos) | Primary Health Sub Centre (Nos) | Dispensary (Nos) | Tap Water-Treated (Status A(1)/NA(2)) | Covered Well (Status A(1)/NA(2)) | Hand Pump Functioning All round the year (Status A(1)/NA(2)) | Tube Wells/Borehole (Status A(1)/NA(2)) | River/Canal (Status A(1)/NA(2)) | Tank/Pond/Lake (Status A(1)/NA(2)) | Sub Post Office (Status A(1)/NA(2)) | Telephone (landlines) (Status A(1)/NA(2)) | Public Bus Service (Status A(1)/NA(2)) | Private Bus Service (Status A(1)/NA(2)) | |
|-----------------------|----------------|---|---------------------------|--------------------------|-----------------------------|------------------------------------|--|-----------------------------|---------------------------------|------------------|---------------------------------------|----------------------------------|--|---|---------------------------------|------------------------------------|-------------------------------------|---|--|---|---|
| 21 | Basal (194) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 1 | 1 | 2 | 1 | 1 | 1 | 1 | 1 | 1 |
| STATE - PUNJAB | | | | | | | | | | | | | | | | | | | | | |
| 22 | Dalewal (500) | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 1 | 2 | 1 | 2 | 1 | 2 | 1 | 2 | 2 | 2 |
| 23 | Patiari (501) | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 2 | 2 | 2 | 2 | 2 | 2 | 1 | 1 | 1 | 1 |
| 24 | Kharkan (502) | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 2 | 1 | 2 | 2 | 1 | 1 | 1 | 1 | 1 |
| 25 | Dhirowal (338) | 1 | 1 | 1 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 2 | 2 | 2 | 2 | 2 | 2 | 1 | 1 | 1 | 2 |
| 26 | Bachhohi (331) | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 2 | 1 | 1 | 2 | 1 | 1 | 1 | 2 | 2 | 2 |
| 27 | Suna (332) | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 2 | 2 | 1 | 2 | 2 | 2 | 1 | 2 | 2 | 1 |
| 28 | Maili (333) | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 1 | 1 | 2 | 1 | 2 | 1 | 2 | 1 | 1 | 2 | 2 | 2 |
| 29 | Maili (333) | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 1 | 1 | 2 | 1 | 2 | 1 | 2 | 1 | 1 | 2 | 2 | 2 |

Population Growth –

According to the Census 2001, the total population of the Una district was 448,273 which rose to 521,173 in Census 2011. Overall addition of 72,900 persons is there during 2001-2011. The decadal growth rate of district is around 16.3 per cent. The growth rates for the rural and urban areas of the district are 16.5 and 13.9 %, respectively. The growth rate of rural population is higher than the urban population in the district due to plain terrain of the district and industrial development. All the five towns of district are showing positive growth in population. The highest growth of urban population is in Gagret (N.P.) where population increased by 12.19 % during the decade.

Density –

The density of population in Una district is 338 persons per sq. km. against the state average of 123 persons. At sub-district level, the density of population varies between 569 persons in Una tahsil and 177 persons each in Bangana tahsil and Bharwain sub-tahsil. In rural areas, the density of population works out to 313 persons per sq. km. while in urban areas it comes to 2,191 persons.

Sex Ratio –

There are 976 females for every thousand males in Una district. The sex-ratio figures for rural and urban areas of the district are 982 and 916, respectively. It is witnessed that, the proportion of females in rural areas is higher than that of urban areas. Among the sub-district, the highest sex ratio of 1,010 has been recorded in Bangana sub-district and the lowest is recorded in Una (958). The urban areas of Mehatpur Basdehra is having lowest sex ratio of around 865. Sex-ratio in age-group 0-6 comes to 875 in the district, as a whole. In rural areas, this ratio is 872 while in urban areas the sex-ratio of child population works out at 908.

Work Participation Rate –

The work participation rate is defined as percentage of total workers to total population. In the same way it is defined for main workers and marginal workers. According to Census 2011, the total workers including main and marginal workers constitute 41.3 per cent of the total population of the district. Of the total workers, the share of the main workers is 25.8 per cent and the marginal workers are 15.5 per cent. The remaining 58.7 per cent, which constitute more than half of the population, belongs to the category of non-workers.

As per Census 2011 among the main workers, male participation rate in the district is 40.2 per cent and corresponding proportion of females is 11.1 per cent. Male and female marginal workers account for 13.5 and 17.5 per cent, respectively. The proportion of female marginal workers is substantially higher than males, as the females are attending to one or more economic activities in addition to their household duties to improve the family income. It is witnessed that in rural as well and in urban areas of district, the proportion of male main workers is higher than that of the female main workers.

Literacy –

As per Census 2011 Una district reported 399,715 persons as literates constituting 86.5 per cent of the total population excluding 0-6 age-group population. The proportion of male and female literates in district is 91.9 and 81.1 %, respectively. The literacy rate of males is much higher than that of females. The difference of male and female literacy rate is 10.8 points in the district.

In the total literacy rates of rural and urban areas the difference is hardly of 0.1 point in the district. The total literacy rates of rural and urban areas are 86.5 and 86.6 per cent, respectively. The proportion of male and female literates in rural areas is 92.1 and 80.9 per cent, respectively. In urban areas this proportion is 89.9 and 83.1 per cent, respectively. The difference between male and female literacy rates in urban areas is about 6.8 points as against 11.2 points in rural areas. It is thus clear that females are better educated in urban areas than their counterparts in rural areas.

Cultural and aesthetic attributes: Villagers celebrate Hola Mohalla fair, Chintpurni fair, Sawan Ashtami fair, Paanch Bhisham fair, Piplu fair, Baisakhi festival, Prakash Utsav etc., Proposed project will not disturb any cultural and aesthetic environment in study area.

Infrastructure resource base: The infrastructure resources base of the study area with reference to education, medical facility, water supply, post and telegraph, transportation and communication facility and power supply etc. are available in the area.

Education: Public and private schools and colleges for higher secondary education facilities are available within the project site.

Drinking Water: The water supply in the region is mostly through bore wells and hand pumps. For drinking purpose people are using only ground water supply.

Communication and Transportation: Transportation is to the satisfactory level in the villages. Bus service is available in all most all villages. The road condition is good and also properly maintained. Most of the villages in the study area have communication facility i.e. post office at village, private telephone connections etc.

Power Supply: Power supply in villages is available sufficiently.

Medical/Primary Health Care:

As per the National Health Policy (1983), Primary Health Care has been accepted as main instrument for achieving this goal of development and strengthening rural health infrastructure through a three-tier system, viz., Primary Health Centre (PHCs), Sub Centres and Community Health Centre, which have been established.

CHAPTER IV: ANTICIPATED ENVIRONMENT IMPACT AND MITIGATION MEASURES

4.1 IDENTIFICATION OF THE IMPACT

Environmental Impact is the alteration of environmental conditions or creation of a new environmental conditions, it may be adverse or beneficial, caused or induced by the action or set of actions under consideration. Both the beneficial (positive) and adverse (negative) impacts on various components of environment due to proposed Project are identified, based on the nature of the various activities associated with the proposed project operations. Environment impact analysis gives an indication of ways to consider modeling the project to mitigate adverse impacts through best practicable environmental option or alternate processes.

Based on the current environmental scenario and baseline data, practical has been done to identify and evaluate the impacts on the environment within the study area due to the proposed project.

The proposed project may affect the environment in two phases:

Phase I: During the Construction period, the impact may be temporary or short term

Phase II: During the Operation Phase which may have long term effects.

Phase I: During Construction

The construction phase of the project is expected to last for about one year. Hence, all construction impacts on the environment can be considered short term as compared to the operational impacts. During construction stage, excavation, material storage and movement, vehicular movement, etc. will generate fugitive dust pollution, mixing operation and vehicular emissions at the project site. However, by taking appropriate measures as described in EMP, such impacts will be minimized.

The following activities among others are likely to contribute towards impacts on the surroundings during construction phase:

- Site preparation and development

- Civil construction work
- Vehicular movement
- Loading and unloading civil items and plant machineries
- On site storage of civil items & plant machineries.
- Erection of plant and civil structures
- Maintenance of construction machinery
- Disposal of solid wastes
- Accommodation for construction workers.

Phase II: During Operation

The important activities contributing to environmental impacts are as follows:

- Fuel biomass & other raw material consumption
- Storage and transportation of raw material and Alcohol
- Fermentation and distillation process
- Solid Waste like ash, yeast sludge generation (Solid and hazardous waste): handling, storage and disposal
- Air emission through stack and material handling, transport and storage its control
- Spent wash generation and its disposal

Impact criteria will be;

| Type of Impact | Criteria |
|--------------------|---|
| Adverse | <ul style="list-style-type: none"> • Effects on biota health • Effects on rare or endangered species • Reductions in species diversity • Habitat loss • Transformation of natural landscapes • Effects on human health • Effects on current use of lands and resources for traditional purposes by aboriginal persons; and • Foreclosure of future resource use or production |
| Significant | <ul style="list-style-type: none"> • Extensive over space or time • Intensive in concentration or proportion to assimilative capacity • Exceed environmental standards or thresholds |

| | |
|---------------------------|---|
| | <ul style="list-style-type: none"> • Not comply with environmental policies, land use plans, sustainability strategy • Seriously affect ecologically sensitive areas • Seriously affect heritage resources, other land uses, community lifestyle and/or indigenous peoples traditions and values |
| Likelihood | <ul style="list-style-type: none"> • Probability of occurrence • Scientific uncertainty |
| Negligible Impacts | <ul style="list-style-type: none"> • It signifies that the actions have some effect, but it will not cause any harmful quantifiable damage or benefit to the environmental parameters concerned. |
| Moderate Impacts | <ul style="list-style-type: none"> • The activities and their environmental impacts are to be slightly potential significant or significant but for short term |

(Source: TGM Distillery Industry by IL&FS)

4.1.3 Environmental parameters to be considered

Below mentioned environmental parameters are considered while identifying the impact.

- **Environmental impacts due to project location**

Disruption of Surface and Groundwater, rehabilitation, land use, ecological sensitive area other sensitive receptor (highway, airport, habitation, archeological site),

- **Air/Odor Environment**

Sources, ambient air quality, emission control, environment and health effects

- **Water Environment**

Sources, water & wastewater quality, environment and health effects

- **Noise Environment**

Sources, control measures, environment and health effects

- **Soil/ Land Environment**

Land use, change in land use pattern, pollution sources, soil quality change, environment and health effects

- **Biological Environment**

Flora and fauna of the study area, vegetation, and habitat change and control measures

- **Socioeconomic Environment**

Demographical details, economic status, employment status, infrastructure availability, environment and health effects

- **Occupational health and Safety Environment**

Identification of health hazard due to operation, material handling, exposure of hazardous chemical, health and safety plan and disaster management.

4.2 IDENTIFICATION OF IMPACT DUE TO PROJECT LOCATION

Project location Impacts are anticipated as disruption of Surface and Groundwater, rehabilitation, land use, ecological sensitive area other sensitive receptor (highway, airport, habitation, Archeological site), Impact and its mitigation measures due to project locations are given below in Table 4.1.

Table 4.1 Impacts Due to Project Location

| Impacts on | Status / Mitigation Measures |
|--|--|
| Disruption of Surface and Groundwater | Proposed project location do not cross any surface water body. Waste water from proposed distillery will be treated through zero discharge treatment scheme. Hence, no surface water or ground water pollution envisaged. |
| Rehabilitation | As proposed distillery location is in industrial area, there will be no rehabilitation. |
| Land use change | Present land use is under industrial activity, hence there will not be any major change in land form. 33% Greenbelt will be developed around whole factory premises. |
| Ecological Sensitive Area | Takhani Rehmanpur Wildlife Sanctuary 26.68 km in NW |
| Other sensitive receptor | Nearest Road is SH 22 Hoshiyarpur Una Road 0.27 Km in South, Nearest Railway station is Panoh 7.88 Km towards NE and Airport Shimla 100 Km towards SSE. There is no major human habitation nearby. Hence, there is impact is envisaged on other sensitive receptors. |

4.3 IMPACT IDENTIFICATION DURING CONSTRUCTION AND COMMISSIONING PHASE

The construction phase of the project is expected to last for about one to two years. During construction stage, activities like excavation, material storage and movement, vehicular movement, mixing operation etc. could be affected environment components. Impact assessment and its mitigation measures have been discussed in below given table.

Table 4.2 Impact Identification during Construction and Commissioning Phase

| Environment Aspects | Project Activities | Anticipated Pollutant | Impacts Prediction | Mitigation Measures |
|---------------------------------|--|--|--|---|
| <p>Air Environment</p> | <ul style="list-style-type: none"> • Movement of vehicles and construction equipment's at site, • Dust emitted during leveling, foundation works • Transportation of construction material, loading and unloading of construction materials • Leveling, grading, earthworks, foundation works and other construction related activities • Resources utilization | <p>PM, SO₂, NO_x and CO</p> | <ul style="list-style-type: none"> • Dust accumulation on leaf retard the photosynthesis rate of plant which affect growth of plants • Health problems to construction workers Ex. eye irritation, coughing & sneezing. • Dust generation. • Continuous exposure causes respiratory diseases | <ul style="list-style-type: none"> • Temporary impact within factory premises. • Precautions like water sprinkling, PPE's to worker • Covered transportation, regular • Maintenance of vehicles, • PUC check, avoiding • Overloading, minimize idling of vehicles |
| <p>Noise Environment</p> | <ul style="list-style-type: none"> • Leveling, grading, earthworks foundation works and other • Excavation • Loading and unloading, | <p>Noise Nuisance</p> | <ul style="list-style-type: none"> • High noise level leads to disturbance to immediate surrounding i.e. workers, biological and social environment. • Birds, reptiles are sensitive to high noise | <ul style="list-style-type: none"> • Ear muffs and Ear plugs shall be provided to workers. • Regular maintenance of vehicles. • Temporary walls around construction will acts as noise barrier. • Night time construction |

| Environment Aspects | Project Activities | Anticipated Pollutant | Impacts Prediction | Mitigation Measures |
|------------------------------|--|--|---|--|
| | <ul style="list-style-type: none"> fabrication etc. Equipment and materials Handling | | level. Continuous exposure of high noise level sometimes leads to hearing defects and physical <ul style="list-style-type: none"> Increasing in road traffic disrupts social environment i.e. residential, hospital, and school religious places in the area. | activity shall be prohibited. <ul style="list-style-type: none"> Peak hour traffic shall be avoided. Regular maintenance of vehicles. Internal village road shall be avoided. |
| Water Environment | <ul style="list-style-type: none"> Runoff from construction activity during rainy season Stagnation of sewage and construction waste water if any Sewage disposal surface and ground water contamination due to percolation of leachate generated during construction | Effect on water quality i.e. pH, EC, BOD, COD. Soil parameter | Disposal of sewage, runoff, & percolation of leachate causes water pollution and deterioration of water quality i.e. pH, EC, BOD, COD. | <ul style="list-style-type: none"> Sanitation facility to the construction workers shall be provided Construction materials shall be covered with tarpaulin sheets Leachate from storage shall not be allowed to runoff into natural water body. Separate drain will be provided to avoid surface runoff. |
| Soil/Land Environment | <ul style="list-style-type: none"> Excavation, land clearance Waste water and solid waste from | Change in land use, Untreated sewage and garbage disposal on land may alter physical and | <ul style="list-style-type: none"> Loss of fertility of top soil and will change the natural terrain. Fertile soil and nature of | <ul style="list-style-type: none"> Excavated soil will be reused for backfilling and landscape development. Spillage & leakage of fuel |

| Environment Aspects | Project Activities | Anticipated Pollutant | Impacts Prediction | Mitigation Measures |
|---------------------|------------------------------|---|--|---|
| | <p>construction activity</p> | <p>chemical properties of soil change in soil like PH, EC, Organic matter, etc.</p> | <p>terrain supports associated living organisms. Change in land cover affects the specific niche of the organism.</p> <ul style="list-style-type: none"> • Excavated top soil will be reused for backfilling and in green belt development. • There will be tree no cutting as proposed land is vacant land plot with scrubby vegetation. • Construction debris pollute aesthetics environment & human health. • Spillage & leakage of fuel spill on land may alter the soil property and wash away with the surface runoff. • Open dumping or improper disposal of sewage and garbage provides breeding ground for pathogenic bacteria and other | <p>will be prevented by providing well lined/paved area for the works having potential of leakage/ spillage of fuel or material. Hence contamination of land due to spillage/ leakage of fuel or construction material with soil would not arise.</p> <ul style="list-style-type: none"> • Sewage generation will be very minor and will not cause harmful effect on land. Infrastructure facilities like toilet, canteen shall be made available. • The packaging materials like wooden boxes and jute wrappers will be stored and disposed of properly. |

| Environment Aspects | Project Activities | Anticipated Pollutant | Impacts Prediction | Mitigation Measures |
|---------------------------------------|---|-------------------------------|---|---|
| Biological Environment | Transportation, leveling, grading, earthworks, foundation works and other construction related activities | PM and Soil erosion | <p>creatures which may spread diseases.</p> <ul style="list-style-type: none"> Impacts on ecology due project on immediate surrounding is not envisaged. Particulate matter emission affect impacts on flora & fauna in the area and may hinder the growth. Loss of scrubby vegetation Soil Erosion | <ul style="list-style-type: none"> Development of thick green belt. Indigenous, local, nesting, tress while development of green belt |
| Social Environment | Proposed Distillery establishment in industrial area | Socioeconomics | <ul style="list-style-type: none"> Increase in floating population. Increase in demand of ancillary services. Economic upliftment of the area | <ul style="list-style-type: none"> Local people shall be given preference for employment depending on their qualification |
| Occupational health and safety | <ul style="list-style-type: none"> Storage of hazardous material/ chemicals ex. diesel, petrol etc. Working at height Site sanitation Working without protective equipment and/or safety belt | Dust, Working Risk and hazard | <ul style="list-style-type: none"> Accident like falling, improper safety Fire & explosion causes risk to human health | <ul style="list-style-type: none"> Use of personal protective equipment's. Safety trainings will be conducted Safety instructions will be placed. Emergency preparedness plan will be implemented from construction phase |

| Environment Aspects | Project Activities | Anticipated Pollutant | Impacts Prediction | Mitigation Measures |
|---------------------|--------------------|-----------------------|--------------------|---|
| | | | | <ul style="list-style-type: none"> Sign boards such as safety, isolated area, risk prone area will be placed |

4.4 IDENTIFICATION OF IMPACT DURING OPERATION PHASE

During operation phase major impacts are anticipated from Storage, transportation, manufacturing processes. In absence of mitigation measures effluent generation deteriorates the water quality, which ultimately affect other environmental parameters.

Table 4.3: Impact Identification during Operation Phase

| Environment Aspects | Project Activities and pollutants | Anticipated Pollutant | Impacts Prediction | Mitigation Measures |
|------------------------|---|--|---|--|
| Air Environment | Utility emissions from boiler stacks, DG set. Proposed boiler 1 No. x 6 TPH DG for emergency power failure: 750 KVA (1 No. 500 & 1 No. 250 KVA each) Types of pollutant emission are given as below, | | | |
| | <p>Vehicular movement, material and product transportation</p> <p>Fugitive emissions due Storage and handling of raw materials & products</p> | <p>PM, SO₂ and NO_x</p> <p>PM, SO₂, NO_x, minor VOCs from storage of raw material and products</p> | <ul style="list-style-type: none"> Health impact like Short-term effects include irritation to the eyes, nose and throat, and upper respiratory infections such as bronchitis and pneumonia. Others include headaches, nausea and allergic reactions. Short-term air pollution can | <p>During the operation phase of the proposed project, movement of goods vehicles, loading and unloading operations may contribute to air emission.</p> <p>Fugitive emissions from raw material storage yards, loading and unloading operations will be controlled water sprinkling system, whenever necessary.</p> <ul style="list-style-type: none"> Trucks and tractors are used for transportation. |

| Environment Aspects | Project Activities and pollutants | Anticipated Pollutant | Impacts Prediction | Mitigation Measures |
|---------------------|--|--|--|---|
| | | | aggravate the medical conditions of individuals with asthma and emphysema. <ul style="list-style-type: none"> Long-term health effects can include chronic respiratory disease, lung cancer, heart disease, | <ul style="list-style-type: none"> All industrial area internal roads are already constructed and regular water sprinkling shall be carried out for preventing fugitive dust emissions. Tree plantation will be carried out around plant area for minimizing environmental impacts of the proposed activities over a period of time. Greenbelt will be developed on 15141 Sq. m. (>33% of the total land area). |
| | Process emissions & Utility operations | PM, SO ₂ , NO _x , CO ₂ and VOCs | | <ul style="list-style-type: none"> Major source of air pollution will be the boiler stack. Height of the proposed stack will be 30 m with multicyclone for 6 TPH boiler. Stack height designed on the basis of CPCB guidelines to ensure proper disposal of gas emissions. Online monitoring system shall be installed. Since biomass will be used as fuel to generate steam in the boilers, SO₂ and NO_x are negligible. |
| | System break down | PM, SO ₂ , NO _x , & VOC | | <ul style="list-style-type: none"> Emergency shutdown will be done in case of system failure. |

| Environment Aspects | Project Activities and pollutants | Anticipated Pollutant | Impacts Prediction | Mitigation Measures |
|--------------------------|--|-------------------------------|--|---|
| Noise Environment | Ash handling, steam turbines and transportation etc. Distillery: Fans, blowers and compressors, steam turbines etc. | - | <ul style="list-style-type: none"> Noise health effects are the health consequences of regular exposure to consistent elevated sound levels. Elevated workplace or environmental noise can cause hearing impairment, hypertension, ischemic heart disease, annoyance, and sleep disturbance. | <ul style="list-style-type: none"> Vibrating pads & acoustic enclosure will be provided Lubrication of moving / rotating part or component of machineries will be done. The insulation provided for prevention of loss of heat Personal safety gears to workers Design and layout of building to minimize transmission of noise, segregation of particular items of plant. The operator's cabins (control rooms) will be properly (acoustically) insulated with special doors with observation windows. The operators working in the high-noise areas will be provided with ear-muffs or plugs. Acoustic enclosures and silencers will be provided to the Equipment wherever necessary. Proper green belt will be developed to reduce the noise level. |
| Traffic density | The transportation shall be carried out by | PM, Noise, Nuisance, increase | <ul style="list-style-type: none"> Fugitive emissions will be increased | <ul style="list-style-type: none"> Due to proposed project additional 80-100 Nos. of |

| Environment Aspects | Project Activities and pollutants | Anticipated Pollutant | Impacts Prediction | Mitigation Measures |
|-------------------------------|--|---|---|---|
| | <p>tempo, trucks/ and tractors. Hence, additional impact on air due to vehicular emission for incoming raw material is anticipated. The site is well connected by pucca internal roads. Project site is connected to SH 22 Hoshiyarpur Una Road 0.27 Km in South</p> | <p>in traffic density</p> | <ul style="list-style-type: none"> Noise Nuisance | <ul style="list-style-type: none"> vehicle will be increased. Present road condition is good with sufficient width and capacity to carry the number of vehicle. The trucks carrying biomass will be covered, alcohol will be transported in tankers hence there will not be any fugitive dust/ VOC generation during transportation of raw materials, fuel, and products. Good traffic management system will be developed and implemented for the incoming and outgoing vehicles so as to avoid congestion on the public road. Sufficient parking area (15 %) has been provide for staff and transportation vehicles. |
| <p>Odor Management</p> | <ul style="list-style-type: none"> Typical compounds generating odor in industry are bacterial decomposition of organic matter & bacterial decomposition of | <p>Release of foul odors are due to creation of anaerobic condition in waste which releases of hydrogen sulfide, other volatile</p> | <ul style="list-style-type: none"> Nausea, insomnia, and discomfort. Nasal irritation; trigger symptoms in individuals with breathing problems or asthma. | <ul style="list-style-type: none"> Better management to avoid staling. Use of sanitation bio-cides to minimize the growth of aerobic / anaerobic micro-organisms. Steaming of major pipe lines Proper cleaning of drains Efficient operation of ETP. |

| Environment Aspects | Project Activities and pollutants | Anticipated Pollutant | Impacts Prediction | Mitigation Measures |
|---------------------|---|--|--------------------|--|
| | <p>sulfur compounds (H₂S), NH₃.</p> <ul style="list-style-type: none"> Causes of odor are bad sanitation, bacterial growth in the interconnecting pipes & unattended drains etc. Typical odor compounds in distillery are storage tank, spent wash, iso amyl & iso butyl alcohol (fuel oils), acetic acid, Sludge from fermentation, DDGS/DWGS and ETP Causes of odor are bad management of fermentation house, long retention of fermented wash, unattended drains & ETP. | <p>compounds, such as Indole, Skatole and Mercaptans, may cause odours far more unpleasant than H₂S. Some other gases, such as carbon dioxide resulting from the decomposition of organic matter or nitrogen dissolved from the atmosphere, are also responsible for odour.</p> | | <ul style="list-style-type: none"> Regular cleaning to avoid growth of Sulphur decomposing micro-organisms to control H₂S generation. Use of efficient bio-cides to control bacterial contamination. Better housekeeping by regular steaming of all fermentation equipment's Control of temperature during fermentation to avoid in-activation / killing of yeast. Avoiding staling of fermented wash. |

| Environment Aspects | Project Activities and pollutants | Anticipated Pollutant | Impacts Prediction | Mitigation Measures |
|---------------------------------|---|--|---|---|
| <p>Water Environment</p> | <p>Effluent generation from distillery Storm water runoff:</p> | <p>Undesirable changes in surface and ground water quality i.e change in pH, COD, BOD, EC, DO etc.</p> | <ul style="list-style-type: none"> No negative impacts are envisaged on surface water availability as proposed water source is from Supply from Overhead Water Tank- DIC, Una. Distillery will generate ~31 CMD spent wash. Discharge of waste water within & outside plant boundary will leads to the ground water pollution. Discharge of distillery effluent leads to loss of soil fertility and deteriorate the soil quality. High organic and inorganic load effluent discharge of in the surface water body alters the water characteristics and may leads to eutrophication of water bodies. Further, its dark color hinders photosynthesis by blocking sunlight and is therefore deleterious to aquatic life. Failure in effluent treatment and storage | <ul style="list-style-type: none"> Total spent wash will be around 31 CMD will be treated through Primary & Secondary Effluent treatment plant followed by RO. Spent lees, boiler and cooling tower blow down will be the major effluent streams. Details of effluent generation and its characteristic are below given in section 4.4 Table Effluent water generation and its quantification and its characteristics are described in section 4.4 |

| Environment Aspects | Project Activities and pollutants | Anticipated Pollutant | Impacts Prediction | Mitigation Measures |
|-----------------------|---|--------------------------------------|---|---|
| Soil/Land Environment | Disposal of spent wash, solids such as yeast sludge, boiler ash, ETP sludge and hazardous waste on land | Spent wash, yeast sludge, ETP sludge | <p>system leads to undesirable changes on living and nonliving things by means of alteration in environment, which causes health impact and deterioration of environment.</p> <ul style="list-style-type: none"> • Nearest impact zone which may suffer is village Una located at 13.4 Km towards SE. However, chances of arising such situation are very rare. If occurs, plant will be shut down immediately. <p>Spent wash if discharged directly on land, damages the soil characteristics like porosity, soil fertility etc. These factors cause germination disorders in seeds that are plated. Infiltration of silt and sand with storm water collection.</p> | <ul style="list-style-type: none"> • Proposed distillery unit will be zero liquid discharge distillery unit. No spent wash shall be disposed on land. All solid waste and hazardous waste from the proposed Distillery Unit will be properly collected, stored and disposed. • The hazardous waste i.e. spent oil generated will be sent to authorize recycler/burnt in boiler along with fuel. • Solid waste such as ETP sludge will be used as manure as it is |

Proposed 5 KLPD Malt Spirit Distillery at Plot No. A2, A3 & A4, Industrial Area Pandoga, District- Una, H.P. by Ian Macleod Distillers India Pvt. Ltd.

Final EIA
 EME/CS/MI/DI/L/2021-2022/114 Dated 30.07.2021 RO1
 03.08.2021 RO2 16.12.2021

| Environment Aspects | Project Activities and pollutants | Anticipated Pollutant | Impacts Prediction | Mitigation Measures |
|-------------------------------|--|--|---|--|
| | | | | non-hazardous. <ul style="list-style-type: none"> • Yeast sludge will be used as manure. • Boiler ash will be sold to as manure as it is rich in potash alternatively sold to brick manufacturers. • Storm water will be collected in proposed rain water harvesting pond. • Greenbelt has been planned for the proposed project which will result in the overall considerable beneficial impacts on land/ soil. It also prevent erosion of soil by holding the soil by its roots. • Quantification of Solid waste generation is described in section 4.4 |
| Biological Environment | Burning of fuel and flue gas emission, Vehicular movement, effluent disposal | Effluent, flue gas emission and solid waste disposal | <ul style="list-style-type: none"> • Flue gas emissions in the air will lead to increase in concentration of particulate matter, minor sulfur dioxide and oxides of nitrogen. An increase in air pollutants may affect the vegetation growth in and around the area. • Dust emission is envisaged | <ul style="list-style-type: none"> • Flue gas emission will be controlled by Multicyclone. • No effluent discharged • ETP treated water shall be used for green belt development. • Zero liquid discharged will be implemented for proposed distillery, hence no adverse impacts on surrounding ecology. • Well-designed material storage |

| Environment Aspects | Project Activities and pollutants | Anticipated Pollutant | Impacts Prediction | Mitigation Measures |
|----------------------------------|---|-----------------------|---|---|
| <p>Social Environment</p> | <p>Establishment of distillery unit</p> | | <p>during material handling & transportation, which affects the growth of vegetation.</p> <ul style="list-style-type: none"> Disposal of solid/hazardous waste on land pollute the soil, which eventually affect the vegetation Waste water disposal thorough runoff/leakages to land will effect negatively on terrestrial flora of the surrounding area and also affect crop productivity. | <p>area as well as handling facilities will be provided to prevent particulate emissions from the storage, handling, & transportation activities.</p> <ul style="list-style-type: none"> Solid waste storage area will be designed as per the guidelines to avoid the leachate percolation into the ground or surface water bodies present if any. Distillery effluent will be treated in ETP and recycled in the process. Greenbelt area will be developed in & around the plant premises and shall be maintained properly. |
| | | | <ul style="list-style-type: none"> The impacts of the proposed project will lead to the positive impact on surrounding. The proposed project will generate the employment to local people. The proposed activities shall generate indirect employment in the region due to the requirement of workers, supply of raw material, auxiliary and ancillary works, which would marginally improve the economic status of the people. The proposed project will increase in local skill levels through exposure to activities. Thus, the said project will not have any significant impact on socio-economic pattern of the surrounding region. The project will provide stability to distillery in financial terms. This will ultimately benefit to nearby farmers and opportunities for local | |

| Environment Aspects | Project Activities and pollutants | Anticipated Pollutant | Impacts Prediction | Mitigation Measures |
|--|---|------------------------|---|---|
| <p>Occupational health and safety</p> | <p>Workplace area involving Pan boiling, Centrifugation, production unit, distillation unit, Boiler section, turbine section, raw material handling area etc.</p> | <p>Risk and hazard</p> | <p>employment will be available.</p> <ul style="list-style-type: none"> It is envisaged that occupational health hazards shall be associated with operational activities such as spillage and exposure to the chemical, mechanical hazards like cuts, hits and electrical shocks. Accident due to fall from height, burn injury and trap in the machine or motors during operation. | <ul style="list-style-type: none"> All safety signs will be placed at proper location. First aid kits will be made available at every department Pre-employment medical checkup and periodical medical checkup shall be undertaken to know the occupational health hazards at the early stage. Work permit system will be introduced to avoid the entry or un-authorized working to avoid the incidences which can lead to the accident if proper care is not taken. All arrangement required for fire hydrant system shall made at every vulnerable location to have the firefighting facility. Apart from above, all required fire extinguishers shall be provided at appropriate locations All staff and workers will be trained in firefighting operations and emergency preparedness plan or to tackle the accident Apart from all engineering control measures, if required |

| Environment Aspects | Project Activities and pollutants | Anticipated Pollutant | Impacts Prediction | Mitigation Measures |
|---------------------|-----------------------------------|-----------------------|--------------------|---|
| | | | | necessary PPEs shall be provided as last protection measures to the employees. • Good housekeeping also plays important role in avoiding the undesirable incidences / accidents, hence good housekeeping practices will be employed throughout the Factory premises. |

4.5 QUALITATIVE AND QUANTITATIVE IMPACT ASSESSMENT

4.4.1 Air Emissions

Fuel Composition

Details of Boiler fuel composition, stack details and incremental concentration air emissions are given in below table.

Table 4.4: Proximate analysis of Biomass (Wood chips)

| Sr. No. | Constituent | % in Biomass |
|---------|------------------|--------------|
| 1. | Moisture Content | 50 - 60 |
| 2. | Volatile Matter | 70 - 80 |
| 3. | Ash Content | 4 - 10 |
| 4. | Fixed Carbon | 24- 40 |
| 5. | GCV (kcal/kg) | 3000-5000 |
| 6. | Sulphur Content | 0.01 |

4.4.1.1 Details of mathematical modeling

Prediction of impacts on air environment shall be carried out by employing a mathematical model. In the present case, Aermol dispersion model based on steady state Gaussian plume dispersion, designed for multiple point sources for short term has been used for predicting the ground level concentrations. The computations deal with major pollutants like Sulphur dioxide and Suspended Particulate Matter and Oxides of Nitrogen.

Methodology

The dispersion modelling studies of proposed pollutant was carried out using AERMOD version 10.0.1 which is also approved by United States Environmental Protection Agency (USEPA) and also recommended by the Ministry of Environment, Forests and Climate Change (MoEFCC).

Meteorological Input Data to the Model

The hourly secondary data collected from IMD has been used in the model. In absence of site specific mixing depths, mixing depths published in “Spatial Distribution of hourly Mixing Depths over Indian Region” recommended by CPCB have been used.

Model Input Data

The air pollution modeling carried out denotes the worst case and normal operating scenarios. The pollutants considered for modeling include suspended particulate matter, sulphur dioxide and oxides of nitrogen.

Atmospheric dispersion modelling is the mathematical simulation of how air pollutants disperse in the ambient atmosphere. It is performed with by various softwares. The dispersion models are used to estimate the downwind ambient concentration of air pollutants or toxins emitted from sources as well as the distance travelled by these harmful pollutants. They can also be used to predict future concentrations under specific scenarios. Prior to air quality modelling exercise, meteorological condition of one season within the study area was studied. Concentrations were estimated for the critical pollutants over 8 and 24 hours and compared with NAAQS.

The details of the stack and emissions envisaged from the proposed plant are given in below Table;

Table 4.5: Stack Details

| Stack Details | Proposed Distillery Boiler 6 TPH |
|--|----------------------------------|
| Boiler Capacity | 6 TPH |
| Stack Height | 30 m |
| Fuel: Wood/ Briquettes | 20-25 MTD |
| Stack Diameter | 1.5 m |
| Flue gas temperature | 150-200 °C |
| Flue gas velocity (m/s) | 8 m/s |
| Flue gas flow rate (m ³ /s) | 45.6159 |
| PM (g/s) | 2 |
| SO ₂ Produced (g/s) | 0.22 |
| NO _x (g/s) | 1.5 |

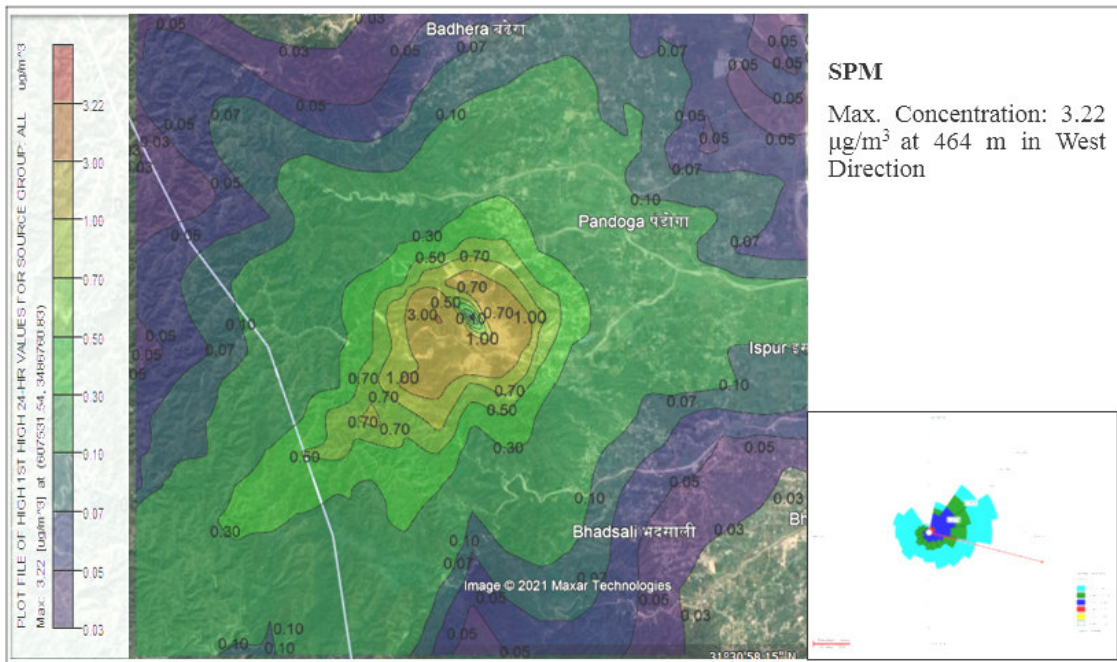


Figure 4.1: Spatial distribution of 24-hour average SPM Conc. ($\mu\text{g}/\text{m}^3$)

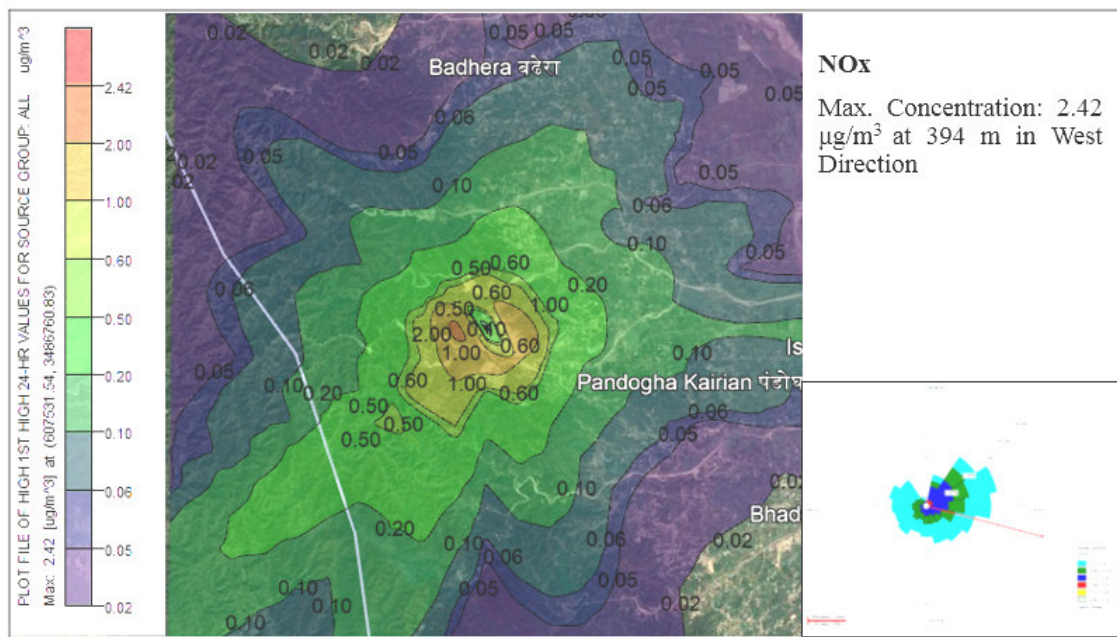


Figure 4.2: Spatial distribution of 24-hour average NOx Conc. ($\mu\text{g}/\text{m}^3$)

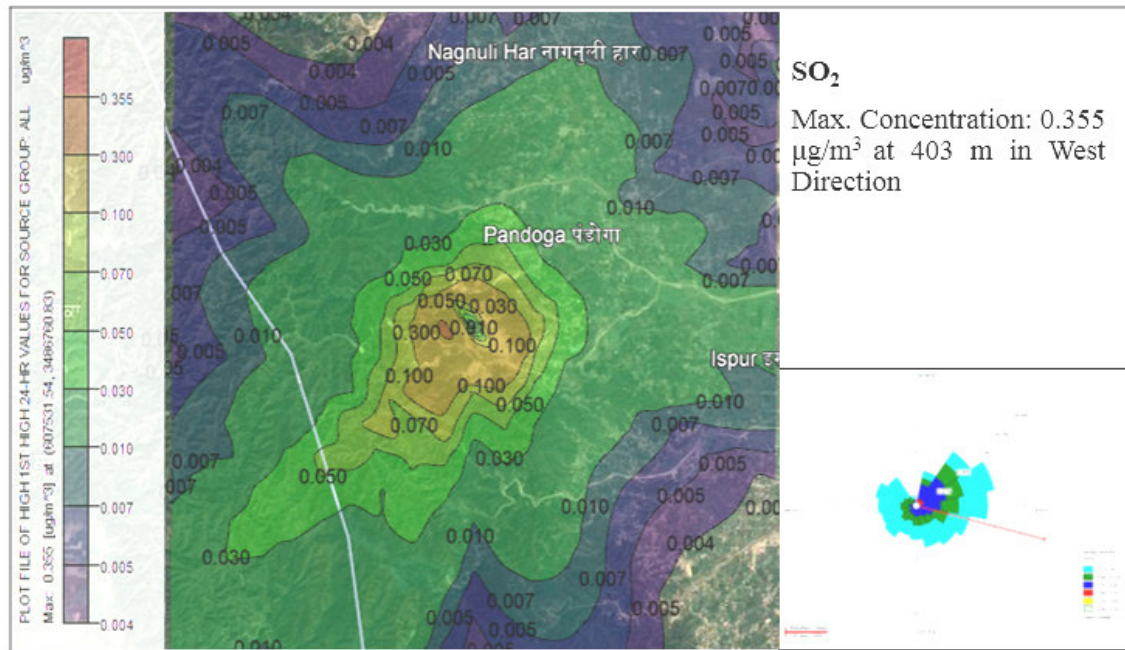


Figure 4.3: Spatial distribution of 24-hour average SO₂ Conc. (µg/m³)

Presentation of Results

During operation phase, one Steam Boiler of capacity 6 TPH will be proposed with separate stack of height 30 m. The main air pollutants are Particulate Matter (SPM), SO₂ and NO_x. Based on the model simulation result under observed meteorological condition, 24 hours average maximum GLC of SPM, NO_x & SO₂ due to proposed boiler are predicted to be approximately 3.22, 2.42 & 0.355 µg/m³ respectively and occurs at a distance at about 464 m, 394 m & 403 m from the common stack. Model simulated result envisages that incremental ground level concentrations of critical pollutants due to proposed plant operation may be expected minimal and the resultant concentration level of all pollutants may also be expected well within the NAAQS.

4.4.2 Waste water quantitative and quality assessment

Wastewater from proposed project will have significant BOD / COD levels. All waste water will be collected in effluent treatment plant and treated water will be used for green belt development. The treatment scheme incorporates Aerobic treatment for the wastewater with

state of the art. Domestic wastewater will be treated in proposed ETP. Composition of different effluent streams are given in below table.

Cooling tower blow down

- The usage of cooling water will be low because the condenser system for the turbine and generator. In addition to the condenser, the auxiliaries of the turbine/ generator like the oil cooler and generator air cooler use cooling water. The cooling water is circulated through the condenser, the other coolers and through the cooling water. The cooling water is cooled by evaporative cooling and the cooling water consequently gets concentrated with the chemicals in the water.
- The cooling tower blow down water would be used for dust suppression. The low level of pollutants will be achieved by operating at sufficient blow down levels to prevent the buildup of pollutants.
- Cooling blow down can be used for green belt irrigation based on COC.

Boiler Blow Down

- The pH and temperature of water are main factors for boiler blow down, as quantity of suspended solids is negligible. The pH will be in the range of 9.8 to 10.3 and the temperature of 100 °C.
- The blow down is small and hence, it will be collected in a trench and connected to the effluent ponds. However, the main usage for blow-down water will be for ash quenching.

DM Plant Blow Down

- The effluent from the cation resin units in the water treatment plant (DM plant) is acidic in nature and from the anion resin units are alkaline in nature. The combined wastewater from the DM plant would be neutralized in a neutralizing pit, if required lime dosing for final pH adjustment will be followed. The neutralized effluent is expected to have suspended solids.
- This shall be pumped and mixed with other effluents & the entire treated waste water will be recycled and reused.

Table 4.6: Effluent generation from Distillery Unit

| S. No. | Process Details | Input | Effluent | Loss/ consumption/ Recycle in process |
|--------|-----------------------------|------------|-----------|---------------------------------------|
| 1 | Mashing and Process Water | 50 | 45 | 5 |
| 2 | Cooling Tower Make-up | 68 | 4 | 64 |
| 3 | Net DM water for Boiler | 25 | 10 | 15 |
| 4 | Washings | 4 | 3 | 1 |
| 5 | Bottling | 10 | 5 | 5 |
| 6 | Drinking Water | 5 | 4 | 1 |
| 7 | Total Water Requirement | 162 | 71 | 91 |
| 8 | Effluent Recycle | 60 | | |
| 9 | Net Fresh Water Requirement | 102 | | |

Table 4.7: Characteristics of various effluent streams

| Description | Flow CMD | TEMP. °C | COD mg/l | BOD mg/l | TSS mg/l | PH | TDS mg/l |
|--------------------------------------|----------|----------|----------|----------|----------|-----|----------|
| Spent Wash | 31 | 50 | 45000 | 20000 | 7800 | 3.5 | 4000 |
| Fermenter Washing & CIP | 8 | 50 | 18000 | 3500 | 5500 | 7 | 3000 |
| Lab & Floor Washing | 3 | 35 | 6000 | 3000 | 2000 | 5 | 2000 |
| C. tower, DM plant & Boiler Blowdown | 14 | 32 | 4000 | 2000 | 3500 | 7.5 | 2000 |
| Bottle Washing | 5 | 32 | 2000 | 1000 | 1000 | 6.5 | 500 |
| Average for Maximum 3 Brew/ Day | 67 | 44.2 | 24850.7 | 10567.2 | 5385.1 | 5.1 | 2888.1 |

4.4.3 Solid Waste Generation

Solid waste generation from proposed distillery will be press mud, ash, ETP and yeast sludge. Qualitative and quantitative assessment is given in below table;

Table 4.8: Solid Waste generation and its Characteristics

| SN | Type of waste | Quantity | Quality | | Final Disposal |
|----|------------------|-------------|------------------|-------|--|
| 1. | Proposed Fly Ash | 1.5 TPD | Loss of Ignition | 0.9 % | Supplied to brick / cement manufacturers |
| 2. | ETP Sludge | 0.5-0.6 TPD | - | | Partly recirculate and |

| | | | | |
|----|-----------------|------------------------|---|---|
| | | | | remaining will be used in composting. |
| 3. | Domestic | ~50 kg/d Negligible | - | Handover to local waste collection system |
| 4. | Spent oil (5.1) | Negligible | Mainly mineral oil waste containing 10%-90% water, oil, oxidized lubricants, waste metal particles <i>(Source: Recycling and Analysis of Spent Engine Oil, International Journal of Scientific & Engineering Research, Volume 6, Issue 11, Nov 2015,711, ISSN 2229-5518)</i> | Authorized recycler |

4.6 IMPACT ASSESSMENT MATRIX

Impact matrix facilitates to identify components and phases of project activities for determination of likely impacts. Matrix identifies the interaction between project activities and environmental components using a grid like table. Entries are made in the cell which highlights impact severity in the form of symbols or numbers or descriptive comments. The impact of different project activities on various environmental components like biological environment, air environment, aesthetics and socio-economic have been summarized in a form of a matrix in Table 4.9.

- Environmental Pollution
 - ✓ Water: surface and ground water pollution
 - ✓ Air: Ambient air quality
 - ✓ Soil: Soil quality
 - ✓ Land: Change in land use pattern and topography
- Biological Environment
 - ✓ Existing Flora and fauna
 - ✓ Aquatic Ecosystem
- Socioeconomic Environment
- Health and safety, cultural, aesthetic and economic aspects

Table 4.9: Impact Matrix of Proposed Project

| 1 | 2 | Pre-construction | | Construction Phase | | | | | Operation and Maintenance | | | | | | |
|--------------------------|---|------------------|---------------|--------------------|----------------------------------|----------------------------|-------------------------|--------------------------------|----------------------------|-----------------------------|-------------------------------|----------------------------------|---|-----------------------------|--|
| | | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
| Environmental components | Project activity | | | | | | | | | | | | | | |
| | Parameters | Land acquisition | Site clearing | Site preparation | Excavation / Temporary structure | Transportation of material | Civil/construction work | Influx of construction workers | Transportation of material | Movement of energy reserves | Alcohol Manufacturing process | Raw Material / Finished Products | Storage of raw material and finished products | Operation of cooling system | Pollution control equipment's nonfunctioning |
| Resources utilization | Fuel | 0 | 0 | 0 | 0 | 0 | 0 | 0 | -1 | -1 | -1 | 0 | 0 | 0 | 0 |
| | Electricity | 0 | 0 | 0 | 0 | 0 | 0 | -1 | -1 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Water | 0 | 0 | 0 | 0 | 0 | 0 | -1 | -1 | 0 | -1 | -1 | 0 | 0 | -1 |
| | Construction material ex. Stone | 0 | 0 | 0 | 0 | 0 | 0 | -1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Land | 0 | 0 | 0 | 0 | 0 | 0 | 0 | -1 | 0 | 0 | 0 | 0 | 0 | 0 |
| Air | Air Quality | 0 | 0 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | 0 | -2 |
| | Climate | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Water | Alteration of surface/ groundwater bodies | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | -2 |
| | Alteration of surface run-off and interflow | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Alteration of Hydraulic Regime | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Contamination | 0 | 0 | 0 | 0 | 0 | 0 | 0 | -1 | 0 | 0 | -1 | -1 | -1 | -2 |
| Soil/Land | Soil erosion | 0 | 0 | 0 | -1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Contamination | 0 | 0 | 0 | 0 | 0 | 0 | -1 | -1 | 0 | -1 | -1 | -1 | -1 | -3 |
| | Alteration of Soil properties/ Soil Quality | 0 | 0 | -1 | -1 | 0 | -1 | -1 | 0 | -1 | -1 | -1 | 0 | -1 | -3 |
| | Land topography | 0 | -1 | -1 | -1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Noise | Noise pollution | 0 | 0 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | -1 | 0 | -1 | -2 |
| Ecology | Effect on trees, grasses, herbs & shrubs | 0 | -1 | -1 | -1 | -1 | 0 | 0 | -1 | 0 | 0 | 0 | 0 | 0 | -3 |
| | Effect on farmland | 0 | 0 | 0 | 0 | -1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Effect on aquatic | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| | | | | | | | | | | | | | | | |
|--|--|----|----|----|----|----|----|----|----|---|----|----|----|---|----|
| | Effects on fauna | 0 | -1 | 0 | 0 | -1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | -2 |
| | Habitat change and removal | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | -1 |
| | Introduce new exotic species | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Occupational Health & Hazards | Health | 0 | 0 | -1 | -1 | -1 | -1 | 0 | -1 | 0 | -1 | -1 | -1 | 0 | -3 |
| | Sanitation | 0 | 0 | 0 | 0 | 0 | 0 | -1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Socio-economy | Creation of new economic activities | +1 | 0 | 0 | 0 | 0 | +1 | 0 | +1 | 0 | +1 | 0 | 0 | 0 | 0 |
| | Commercial value of properties | +1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Generation of temporary and permanent Jobs | 0 | 0 | 0 | 0 | 0 | +1 | 0 | 0 | 0 | +1 | +1 | +1 | 0 | 0 |
| | Effect on crops | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | -1 |
| | Reduction of farmland productivity | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | -1 |
| | Income for the state and private sector | +1 | 0 | 0 | 0 | +1 | 0 | 0 | +1 | 0 | +2 | 0 | 0 | 0 | 0 |
| | Savings in foreign currency for the state | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | +2 | +1 | 0 | 0 | 0 |
| | Training in new technologies and new skills to workers | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | +1 | 0 | 0 | 0 | 0 |
| | Political/social Conflicts | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | -2 |
| | Land use change | 0 | 0 | -1 | -1 | 0 | 0 | -1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Aesthetics and human interest | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | -1 |
| | Cultural status | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

Evaluation marking criteria

| Description | Value |
|-------------------------------------|-------|
| No / Zero Impact | : 0 |
| Minor/ Negligible negative impacts | : -1 |
| Minor / Negligible positive impacts | : +1 |
| Significant negative impact | : -2 |
| Significant positive impact | : +2 |
| High negative impact | : -3 |
| High positive impact | : +3 |

4.6.1 Conclusion of Impact Matrix Assessment

Proposed project will not have any significant negative impacts on the environment. In absence of pollution control equipment, project will have high negative impact. Appropriate Environmental Management Plan (EMP) nullifies all high potential adverse impacts on the project.

4.6.2 Summary of Impact

Based on the assessment made in the preceding sections the overall impacts due to the proposed project are summarized in **Table 4.10**.

Table 4.10: Assessment of Impacts due to proposed activity on Environment

| Sr. No. | Environmental Component | Project Activity | Impacts Identified | Impact Assessment after Mitigation |
|---------|-------------------------|-------------------------|--|------------------------------------|
| 1. | Topography | Site Clearance | Minor changes in landscape | Insignificant |
| | | Construction Activities | Changes in landscape | Insignificant |
| | | Operation activities | Changes in land use. The available free land is utilized. | Insignificant |
| 2. | Air Quality | Site clearance | Excavation and levelling activities are limited hence, fugitive emissions would be restricted. | Insignificant |
| | | Construction activities | Local increase in SPM | Insignificant |
| | | Transportation | Vehicular and fugitive emissions | Insignificant |
| 3. | Noise | Construction activities | Temporary local increase in noise | Insignificant |
| | | Operation activities | Continuous noise but confined to within the plant area | Insignificant |
| | | Transportation | Increase in noise levels due to vehicular traffic | Insignificant |
| 4. | Water Resources | Construction activities | The water will be used during the construction activities. | Insignificant |
| | | Operation activities | Surface water | Insignificant |
| 5. | Water Pollution | Construction activities | Small volume of wastewater from the construction and sanitation | Insignificant |

| | | | | |
|-----|-----------------------|-------------------------|---|--|
| | | Operation activities | Effluent generated in the plant | Insignificant as there will be zero discharge of effluent. |
| 6. | Ecology | Site Clearance | There will not be major disturbance to flora fauna | Insignificant |
| | | Construction activities | There will not be major disturbance | Insignificant |
| | | Operation activities | There will not be major disturbance to flora & fauna. | Insignificant |
| 7. | Soil Characteristics | Construction activities | Since there is minimal levelling and excavation, the proposed project area is within the industrial area. | Insignificant |
| | | Operation activities | No changes are envisaged in this phase. | Insignificant |
| 8. | Land Use | Construction activities | There will be change in land use for industrial purpose. | Significant |
| | | Operation activities | The existing land use is already allotted for industrial use. | Insignificant |
| 9. | Socio-economics | Construction activities | Creation of additional jobs/businesses. | Significant |
| | | Operation activities | Rise in per capita income due to increased opportunities. | Significant |
| 10. | Civic Amenities | Construction activities | Built up of temporary structures for workers and non-workers. | Moderately insignificant |
| | | Operation activities | Availability of permanent structures for workers, non-workers | Moderately insignificant |
| 11. | Occupational Health | Construction activities | Dusty conditions during summer with vehicular movement | Insignificant |
| | | Operation activities | Process specific activities, heat and emission protective control measures followed | Insignificant |
| 12. | Vibrations | Construction activities | Heavy equipment usage will be temporary | Insignificant |
| | | Operation activities | Continuous usage of machinery | Insignificant |
| 13. | Solid/Hazardous waste | Construction activities | General construction waste will be disposed of in designated sites | Insignificant |
| | | Operation activities | Ash from burning of biomass in boilers | Insignificant |

4.7 CONCLUSION

The anticipated/identified potential environmental impacts of proposed project will be mainly from solid waste disposal, effluent disposal, ground water exploitation and flue gas emissions. However, an effective mitigation measure reduces level of significant impact on the environment. Hence, proposed project will be safe as there won't be disposal of effluent on the land or into the water body. Moreover, all required control measures and required equipment shall be provided to mitigate the impacts.

CHAPTER V: ANALYSIS OF ALTERNATIVES

5.1 SITE ALTERNATIVES

Proposed project will be within Industrial Area Pandoga, District-Una, H.P. Location of the site has following advantages,

Availability of raw material/fuel

Raw material required is grains which is abundantly available in nearby states of Haryana, Rajasthan, Uttar Pradesh & Punjab. The transportation logistics is cost-effective and readily available.

Availability of water supply

The availability of water from the source is adequate to meet the requirement of the proposed distillery. Source of water for proposed distillery is from Overhead Water Tank- DIC, Una.

Availability of infrastructural facility

Industrial infrastructural facilities such as roads, transport, security, water, power, administration, health facilities etc. are available within industrial area. Community facilities such as medical services, education and training facility etc. are also available nearby site.

Environmental features of site

There are no any eco-sensitive areas such as biosphere, mangrove, protected forest, national parks etc. or environmental sensitive locations such as protected monuments, historical places within 10 km from the site.

5.2 Assessment of New & Untested Technology for the Risk of Technological Failure

No new technology will be used for proposed distillery unit, as selected technology is a proven technology in the field of grain based distillery.

5.3 Description of Alternative Technologies

The technology selection is done on the basis of following considerations

- Indigenous technology
- Least stress on resources
- Reduce, recycle and reuse of waste

- Reduce the pollution from industry
- No risk to human and property

Alcohol manufacturing is based on two main steps, Fermentation and Distillation.

Different technologies are available in the field, fermentation and distillation are given below,

5.3.1 Different Fermentation Technologies

1. Multistage continuous fermentation
2. Immobilized enzyme fermentation
3. Continuous fermentation without yeast separators

The continuous fermentation proposed is the latest and proven technology as compared to the old batch fermentation technology. It has many advantages like continuity of operation, higher efficiency and ease of operation. Continuous fermentation also results into consistent performance over a long period as compared to batch fermentation. To adopt continuous or fed-batch fermentation process is an appropriate step towards the updating technology of alcohol production for efficient performance. Volume of effluent discharged is less than that of total effluent discharged in Conventional distillation process.

Advantages of continuous fermentation

- **Fermentation**

- ✓ Good ease of operation and easy way as no daily cleaning / filling required
- ✓ Consistency in plant operation and performance is very high
- ✓ Less operating manpower required
- ✓ The process is automated with less cost and great ease
- ✓ Easy to control & trouble shoot

- **Cultured Yeast Advantage**

- ✓ No fresh yeast dosage required. Yeast is present in its culture form and hence saving in cost of the yeast

- ✓ Elimination of other yeast related problems like wild yeast and contamination along with the fresh yeast
- ✓ Yeast culturing and activation will also ensure optimum yeast concentration in the Fermenters, even when there is some bacterial growth
- **Higher Alcohol Concentration in Wash**
 - ✓ Less effluent volume and low cost of treatment
 - ✓ Reduced steam consumption in Distillation
 - ✓ Higher alcohol concentration ensures low bacterial activity in Fermenters
- **Rugged Process based on culture Yeast Technology**
 - ✓ Can handle varying quality raw material
 - ✓ Easy to start and stop, as and when required
 - ✓ Can take care of fluctuations like temperature and other conditions
 - ✓ Good control and handling of bacterial contamination
- **Minimum and controlled air sparging is employed for Fermenter:**
 - ✓ Low electricity consumption
 - ✓ Maximum CO₂ recovery of up to 80 to 85 % of the total CO₂ production is possible

5.3.2 Distillation

Malt Whisky is distilled twice in large copper Pot Stills. The liquid wash is heated to a point at which the alcohol becomes vapour. This rises up the still and is passed into the cooling plant where it is condensed into liquid state. The cooling plant may take the form of a coiled copper tube or worm that is kept in continuously running cold water, or it may be another type of condenser.

The first distillation separates the alcohol from the fermented liquid and eliminates the residue of the yeast and unfermentable matter. This distillate, known as low wines, is then passed into another still where it is distilled a second time. The first runnings from this second distillation are not considered potable and it is only when the spirit reaches an acceptable standard that it is collected in the Spirit Receiver. Again, towards the end of the distillation. The spirit begins to fall off in strength and quality. It is then no longer collected

as spirit but drawn off and kept, together with the first running, for redistillation with the next low wines. Pot Still distillation is a Batch process.

5.4 Distillery Spent Wash Treatment

The following process shall be adopted for proposed distillery;

Spent Wash Slops (approx. 7-8 % w/w solids) is initially settled in settling tank and mixed with other non-process effluent.

Non-process effluents like DM plant washing & boiler blow down, Fermenter washings, Spent-lees etc., before mixing with Spent Wash will be neutralized in neutralization tanks and mixed with spent wash and then treated in Primary & Secondary Effluent treatment plant. The treated effluent is then passed through RO to get clean water.

This treated effluent after ensuring compliance with standards stipulated by SPCB for wastewater for use in process and for on land greenbelt development.

- Solid waste from the operations generally comprises of fibers and proteins in the form of DWGS, which will be ideally used as Cattle Feed.
- ETP sludge will be dewatered in sludge drying beds and will be used as manure.
- Fly ash generated from the boiler will be supplied to brick/cement manufacturers.

Used oil & grease generated from plant machinery/gear boxes as hazardous waste will be sold out to the CPCB authorized recyclers.

Most of the industries are adopting these steps as a primary treatment of the effluent. In case of secondary treatment, there are few treatment options available, which are discussed in this chapter. There are various ways of treatment of wastewater. The various alternative technologies for treatment of spent wash are as given below:

Table 5.1: List of Technologies and Associated Merits and Demerits

| Sr. No. | Technology | Merits | Demerits |
|---------|-----------------------|---|---|
| 1. | MEE followed by dryer | Reduction in volume. Formation of by-product DDGS which can be used as cattle feed and is environment friendly. The MEE technology adopted seems to be giving good results. | Start-up and restart-up is a problem. Scaling problem. |

| | | | |
|----|-------------------|--|---|
| | | Generation of biogas is not possible in MEE technology as we concentrate the wash through steam. | |
| 2. | Decantation | Separation of wet cake from thin slop. Wet cake can be further dried and converted to DDGS | For treatment of Thin slop MEE is required |
| 3. | Bio-methanation | Energy generation | Increase in volume. Higher initial cost. No cattle feed generated as by-product |
| 4. | Extended Aeration | Low cost | High organic not acceptable Power consumption is high Skilled supervision and operator required |
| 5. | R.O. System | Recovery of water Reduction in volume. | Higher initial and operational cost. Fouling problem. Membranes are not indigenously available. |
| 6. | Trickling Filter | Low maintains cost | Odour formation Nuisance of Flies |

Thus, out of all the available technologies, IMDIPL is adopting suitable technology due to the below mentioned merits.

- The final spent wash converted to DDGS is rich in protein
- Useful as livestock feed
- The final output (i.e. DDGS) is not a waste but a nutrient rich by-product.
- This technology will help in meeting the global protein requirement for livestock.
- Zero Discharge Technology

Choice of treatment technology

Spent wash generated during the process of distillation will be neutralized in neutralization tanks and then treated in Primary & Secondary Effluent treatment plant. The treated effluent is then passed through RO to get clean water.

Summary of adverse impacts of each alternative

Other fermentation technologies and atmospheric distillation technologies are energy consuming and less effluent generating. Continuous fermentation and Multi-pressure distillation are the proven technology as compared to other old technologies.

5.5 Selection of Technology

Technology selection is done on the basis of efficient utilization of raw material, water, electricity, fuel and considering the recycle and reuse of wastes generated from industry. Considering the advantages and technology feasibility, distillery will be operated through batch fermentation & double distillation process. Spent wash generated during the process of distillation will be treated in anaerobic digester followed by Primary Clarifier (Lamella), Aeration tank, clarifier, Multi Grade Filter and Carbon Filter along with RO Membrane Filter. The proposed spent wash treatment option will be able to achieve the aim of “**zero discharge**” of effluent.

CHAPTER VI: ENVIRONMENTAL MONITORING PROGRAM

6.1 Importance of Post Environment Monitoring

Regular monitoring of environmental parameters is of huge importance to measure the status of environment during operation phase of project. With the information of baseline conditions, the monitoring program will help as an indicator for any deterioration in environmental conditions due to operation of the project, to enable taking up suitable mitigatory steps in time to maintain the environment. Monitoring is an important for control of pollution since the efficiency of control measures can only be determined by monitoring. Usually, as in the case of the study, an Impact Assessment study is carried over short period of time and the data cannot bring out all variations induced by the natural or human activities. Therefore, regular monitoring program of the environmental parameters is essential to take into account the changes in the environmental quality.

An environmental monitoring program is important as,

- It assists in detecting the impacts and control measures.
- It evaluates the performance and effectiveness of mitigation measures proposed in the Environment Management Plan (EMP) and suggests improvements in management plan, if required.

An Environmental Monitoring Program has scheduled with the following objectives,

- To verify the result of the impact assessment study with respect to new developments
- To study the parameters which have been identified as critical
- Status of pollution load within the project site and its vicinity
- Generation of data for predictive or corrective purpose in respect of pollution
- To check or assess the efficiency of controlling measures

6.2 Objectives of Monitoring

The primary objectives for carrying out monitoring of different environmental parameters are

- To comply with the statutory requirements of monitoring for compliance conditions of EC, Consent to Establish, Consent to operate and provisions under Environment Protection Act.

- Assessment of the changes in environmental conditions, if any, during the construction and operation phase of the proposed project.
- Monitoring & Tracking the effectiveness of Environment Management Plan & Implementation of mitigations measures planned
- Identification of any significant adverse transformation in environmental condition to plan additional mitigation measures; if required.

M/s. Ian Macleod Distillers India Pvt. Ltd. will implement the environment monitoring plan in line with planned schedule as given in **Table 6.1**. The factory shall ensure that the necessary requisite facilities are made available and budgetary provision is made as & when required to ensure regular efficient environmental monitoring activities.

6.3 Proposed Environmental Monitoring Plan

To evaluate the effectiveness of environmental management plan, regular monitoring of the important environmental parameters will be taken up. In case of accidental spill & leak of hazardous chemicals, monitoring of the environment for detection of the spilled/ leaked chemical shall be done in the affected area immediately after the spill/ leak irrespective of the given monitoring schedule. In such case, soil & groundwater samples of the affected area shall be collected and analysed for detection of the spilled/ leaked chemicals at regular intervals for the period as required to ensure safe level of the parameters. If any pollution is detected in the analysis, corrective measures shall be taken to ensure the parameters to be in limits. The schedule, duration and parameters to be monitored for Construction phase are given in **Table 6.1** whereas that for Operation Phase are presented in **Table 6.2**.

6.3.1 Environment Monitoring Plan during Construction Stage

The construction activities require clearing of vegetation, mobilization of construction material and equipment. The proposed activity envisages setting up of boilers, turbines and cooling towers, establishment of storage facilities. The generic environmental measures that are to be undertaken during project construction stage are given in **Table 6.1**.

Table 6.1: Environment Monitoring Plan during Construction Phase

| Environmental Facets | Parameter | Frequency of Monitoring |
|---|---|--|
| Air Emissions | Random checks of equipment's logs/manuals | Weekly |
| | Vehicle logs | Weekly during site clearance & construction activities |
| | Gaseous emissions (SO ₂ , CO, NO _x) | Monthly emission monitoring |
| | The ambient air quality will conform to the standards for PM ₁₀ , PM _{2.5} , SO ₂ , NO _x and CO | As per CPCB/ SPCB requirement or on monthly basis whichever is earlier |
| Noise | Equipment logs, noise reading | Weekly during construction |
| | Working hour records | Daily records |
| | Maintenance of record of vehicles | Daily records |
| | Spot Noise recording | As per CPCB/SPCB requirement or on monthly basis whichever is earlier |
| Wastewater Discharge | No discharge shall be in vicinity of watercourse | Monthly during construction activities. |
| Soil Erosion | Effective cover in place | Period during construction activities |
| Drainage & effluent Management | Visual inspection of drainage and record thereof | Weekly during construction activities |
| Waste Management | Comprehensive Waste Management plan should be in place and available for inspection onsite. | Fortnightly check during construction activities |
| Non-routine events & accidental releases | Mock drills and records of the same | Monthly during construction activities |
| Health of workers | All relevant parameters including HIV | Monthly check ups |
| Loss of flora and fauna | No. of plants, species | During site clearance Phase. |

6.3.2 Environment Monitoring Plan during Operation Phase

Environmental parameters to be monitored and its frequency after commissioning of proposed project is mentioned in **Table 6.2**.

Table 6.2: Environment Monitoring Plan during Operation Phase

| Sr. No. | Particulate | Parameters | Number of location | Frequency |
|---------|-----------------------------------|--|---|--------------------------------|
| 1. | Ambient air quality | PM ₁₀ , PM _{2.5} , SO ₂ , NO _x etc. | Ambient air quality at minimum 3 locations. Two samples downwind direction at 500 m and 1000 m respectively. One sample upwind direction at 500 m. | Monthly |
| 2. | Stack gas | PM, SO ₂ and NO _x | Number of stacks | Monthly |
| | | | Online stack monitoring shall be installed. | - |
| 3. | Work place | PM _{2.5} , SO ₂ , NO _x , O ₃ | Process emission in workplace area/plants (for each area/plant minimum 2 locations and 1 location outside plant area near vent) | Monthly |
| 4. | Waste water | pH, EC, SS, TDS, O&G, Ammonical Nitrogen, COD, BOD, Chloride, Sulphides etc. | Wastewater from all sources. Inlet & outlet of ETP, spent wash | Monthly |
| | | | Online Monitoring machine shall be installed at ETP. | |
| 5. | Surface water and ground water | pH, Salinity, Conductivity, TDS, Turbidity, DO, BOD, Phosphate, Nitrates, Sulphates, Chlorides, Total Coliforms (TC) & <i>E.Coli</i> | 3-5 location Ground as well as Surface water. Within 1 km radius from the proposed distillery. 2 locations downward 1 location upward additional three locations within 10 km radius from the site. River sample One each at upstream and downstream | Half yearly |
| 6. | Solid waste | Ash | <ul style="list-style-type: none"> Process generated sludge and ash. Before used as manure if used as manure | Monthly |
| 7. | Soil Organic and Inorganic matter | N, P, K, moisture, EC, heavy metals etc. | 3 locations if any | Pre – monsoon and Post monsoon |
| 8. | Noise | Equivalent noise level - dB (A) at min. Noise Levels measurement at high noise generating places as well as | 5 locations At all source and outside the Plant area. 2 locations inside the plant. | Monthly |

| | | | | |
|-----|---|---|--|--------------------------------|
| | | sensitive receptors in the vicinity | | |
| 9. | Green belt | Number of plantation (units), number of survived plants/trees, number of poor plant/ trees. | In and around the plant site | Monthly |
| 10. | Soil | Texture, pH, electrical conductivity, cation exchange capacity, alkali metals, Sodium Absorption Ratio (SAR), permeability, porosity. | 2-3 near Solid/ hazardous waste storage. At least five locations from Greenbelt and area where manure of biological waste is applied. | Quarterly |
| 11. | Occupational health | Health and fitness checkup of employees getting exposed to various hazards and all other staff | All workers | Yearly/ twice a year |
| 12. | Emergency preparedness, such as fire fighting | Fire protection and safety measures to take care of fire and explosion hazards, to be assessed and steps taken for their prevention. | Mock drill records, on site emergency plan, evacuation plan | Monthly during operation phase |

6.4 Monitoring Methodologies

Environmental samples will be collected as per the guidelines provided by MoEFCC/ CPCB. The method followed for monitoring will be recommended/ standard method approved/ recommended by MoEFCC/ CPCB. Detail of the same is mentioned in **Table 6.3**.

Table 6.3: Methodology of Environment Monitoring

| Sr. No. | Description | Method | |
|---------|------------------------|--|---|
| | | Sampling/ Preservation | Analysis |
| 1. | Ambient air monitoring | Samplers (Designed as per USEPA) to collect PM _{2.5} , PM ₁₀ & the gaseous samples | Any standard methods such as IS 5182, CPCB guideline etc. |
| 2. | Stack gas monitoring | Samplers (Designed as per USEPA) to collect particulate | - |

| | | | |
|----|-----------------------|---|---|
| | | matter & the gaseous samples | |
| 3. | Water and waste water | Standard methods for examination of water and wastewater published by APHA 21 st edition, 2005 | Standard methods for examination of water and wastewater published by APHA 21 st edition, 2012 |
| 4. | Noise monitoring | Instrument : Sound level meter | - |
| 5. | Soil monitoring | Collected as per soil analysis reference book, M. I. Jackson and soil analysis reference book by C.A. Black | Analysis reference book, M. I. Jackson and soil analysis reference book by C.A. Black |

6.5 Reporting and Documentation

All the necessary reports and documents will be prepared to comply with statutory rules and regulations. The records of the monitoring program along with the results of all the parameters being monitored will be maintained on consistent basis. The environmental monitoring activities will be recorded and the following documents are proposed to be maintained,

1. Log sheets of operation and maintenance of pollution control facilities/ equipment such as ETP/slope fired boiler operation and test results of inlet and outlet.
2. Instruction manuals for operation and maintenance of pollution control facilities/ equipment like ETP as well as for manual for monitoring of water, solid and gaseous parameter discharged from the project.
3. Statutory records as per the environment related legislation.
4. Monthly and annual progress report.
5. Bi-annual compliance statement for Regional Office, MoEFCC.
6. Annual environmental audit statements and compliance to NOC/ Consent conditions to State Pollution Control Board/ Regional Office, MoEFCC.

6.6 Laboratory Facility

The plant will hire an external environmental laboratory for the routine monitoring of water and wastewater. The outside agencies are also being hired for analysis of other environment aspects like air, noise, and soil.

6.7 Formulation of Environment Management Cell (EMC)

The Environmental Management Cell shall be responsible for the environmental management, monitoring, and implementation activities of the proposed unit. EMC will carry out various activity of environment under the supervision of the Head of the plant. EMC cell shall be responsible for,

- Monitoring of efficiency of pollution control equipment's
- Preparation of maintenance schedule of pollution control equipment and treatment plants and see that it is followed strictly.
- Monitoring activities within core and buffer zone of proposed project as per monitoring schedule.
- Inspection and regular cleaning of setting tanks, drainage system etc.
- Greenbelt development and maintenance
- Water and energy conservation measures
- Good housekeeping

Structure of EMC is mentioned in below –

Table 6.4: Environment Monitoring Cell

| | |
|--|-------|
| CEO | : One |
| Environment Officer / Production Manager | : One |
| Chemist | : One |
| Safety Officer | : One |
| Supporting Staff | : Two |

6.8 Effective Implementation of Environmental Management Program

The mitigation measures suggested in Chapter IV Anticipated Environment & Mitigation measures will be implemented so as to reduce the impact on environment due to the operations of the proposed project. In order to facilitate easy implementation of mitigation measures, the phased priority of implementation is given in **Table 6.5**.

Table 6.5: Implementation Plan to mitigate Environmental Impacts

| Sr. No. | Recommendations | Time Requirement | Action |
|---------|----------------------------------|--|-----------|
| 1 | Air pollution control measures | Before commissioning of respective units | Immediate |
| 2 | Water pollution control measures | Before commissioning of the plant | Immediate |

| | | | |
|---|--|---|-------------------------|
| 3 | Noise control measures | Along with the commissioning of the Plant | Immediate |
| 4 | Ecological preservation and up gradation | Stage wise implementation | Immediate & Progressive |
| 5 | Green Belt development | Stage wise implementation | Immediate & Progressive |

6.9 Budgetary Provision for Environment Management Plan

Environment management cost will be around Rs. 220 lakhs & recurring cost will be 34.5 lakhs.

The details of EMP cost is mentioned in **Table 6.6**.

Table 6.6: Environment Management Cost

| Sr. No. | Construction Phase (with Break-up) | Capital Cost (Amount in lakhs) | O&M (Amount in lakhs) |
|---------|--|--------------------------------|-----------------------|
| 1. | Environmental monitoring | - | 01.50 |
| 2. | Air Environment | - | 00.50 |
| 3. | Occupational Health | 10.00 | 02.00 |
| | Total | 10.00 | 04.00 |
| Sr. No. | Operation Phase (with Break-up) | Capital Cost (Amount in lakhs) | O&M (Amount in lakhs) |
| 4. | Air Pollution Control System | 80.00 | 02.50 |
| 5. | ETP | 70.00 | 10.00 |
| 6. | Environmental Monitoring (Air, water, waste water, Soil, Solid waste, Noise) | - | 08.00 |
| 7. | Occupation Health | 35.00 | 10.00 |
| 8. | Green Belt Development | 15.00 | 02.00 |
| 9. | Solid Waste Management | 05.00 | 01.00 |
| 10. | Rain Water Harvesting | 15.00 | 01.00 |
| | Total | 220.0 | 34.50 |

CHAPTER VII: ADDITIONAL STUDIES**7.1 Public Consultation**

The project falls under Category “A”, Activity 5 (g) of schedule-I of the EIA notification-2006 (as amended timely). As per the Standard ToR issued by Impact Assessment Division, MoEFCC dated 20/05/2021, public consultation is applicable to the proposed project. Notice of public hearing was circulated in English and Hindi widely circulated local newspapers on 28th Sept. 2021. Public hearing was conducted by HP State Pollution Control Board, Regional Office, Una on 28th Oct 2021 at 11:30 am in the premises of Common Facility Centre, Industrial Area Pandoga, Sub Tehsil Ispur, Dist. Una (H.P.). Public hearing was conducted under the chairmanship of Sh. Amit Kumar, Additional Deputy Commissioner, Una. Project was presented in front of respective authorities and public. Following are the questions raised by public;

Table 7.1: Public Consultation

| Sr. No. | Name and address | Issues raised/ Suggestions submitted | Justification |
|----------------|--|---|---|
| 1. | Sh. Surinder Thakur VPO, Pandoga, Tehsil Haroli, Dist. Una (H.P) | He gave the example of the already established liquor factory in the industrial area of Mehatpur and said that if the proposed unit also spreads pollution in the area like the said liquor factory, then it will become difficult for the local people to live here. He referred the incident of flowing of chemicals in the Khad from the pharmaceutical company of the industrial area along with the rain water and asked the consultant that what arrangements have been made to prevent such incidents in the proposed unit. He demanded that the people of the local village should be given priority for employment in the proposed unit, so that they can work here and earn their living. | The consultant of the proposed industrial unit said that no waste material would be discharged outside the proposed unit. The solid waste generated during the manufacturing process in the proposed unit will be used for making cattle feed. Waste water generated during the manufacturing process will be treated through Reverse Osmosis Process (RO) and the treated water will be used again within the unit. She informed that the proposed unit is based on zero liquid discharge (ZLD) process in which the waste water generated in the plant after the treatment. She further informed that gutters would be constructed |

| | | | |
|----|--|---|---|
| | | | <p>in the raw material storage rooms of the proposed unit. These gutters will be further connected with the large tanks, so that no material or raw material will flow out along with the water.</p> <p>She said that in the proposed unit there is proposal of employing total 77 persons and assured that the priority for the employment will be given to local people only.</p> |
| 2. | <p>Sh. Sushil Kumar Dhiman Ind. Area Pandoga, Dist. Una (H.P)</p> | <p>He said that it is being told here that Air and Water quality monitoring of the 6-7 locations in the area has already been conducted. In this connection, he asked the consultant when such monitoring was conducted and whether this monitoring was conducted in the presence of State Pollution Control Board officials or they had been informed in this context. In addition to this, on the air quality monitoring carried out at Daulatpur which is far away from the consultant what could be the impact of the proposed unit at such a distance. He also asked whether this monitoring was conducted throughout this year.</p> | <p>The consultant of the proposed industrial unit replied that according to the guidelines of the Central Ministry, the quality of air and water has to be monitored within a radius of 10 km of the proposed location. Therefore, keeping account of the direction of air flow, the sites are selected for the assessment of the effect, out of which some places are close to the proposed location and some distant places are selected for the monitoring. She further said that this monitoring have to be carry out either in pre-monsoon time or in post-monsoon time and monitoring of air & water quality of the area for the impact assessment report of the proposed unit has been carried out in the months March to May.</p> |
| 3. | <p>Sh. Gurpal Singh Up-pradhan, Gram Panchayat Pandoga, Dist. Una (HP)</p> | <p>He said that Gram Panchayat Pandoga has no objection for the setting up of the proposed unit and he demanded that the priority in employment should</p> | - |

be given to the unemployed people of the village in the proposed unit.



Figure 7.1: Photographs of Public Hearing

Minutes of public hearing attached as Annexure 3.

7.2 Risk Assessment

Risk is a probability or threat of damage, injury, liability, loss, or any other negative occurrence that is caused by external or internal vulnerabilities. It is important to note that risk is the

mathematical product of hazard and exposure. This relationship can, be expressed in the following simple formula;

$$\text{Risk} = \text{Hazard} \times \text{Exposure} \times \text{Vulnerability}$$

7.2.1 Identification of Risk and Hazards

For identification of risk due to proposed project, it requires in depth study of

- Raw material
- Process Risk
- Storages
- Operations
- Maintenance
- Safety
- Fire protection
- Effluent disposal

Details of major anticipated risks from the Hazards is given in **Table 7.2.**

Table 7.2: Hazards of the proposed plant

| Sr. No. | Name | Description | Severity | Hazard |
|---------|-------------------------------------|---|----------|----------------------------|
| 1. | Transportations of raw material | CIP Chemicals | Minor | Exposure & inhalation |
| | | Yeast | Minor | Exposure & inhalation |
| | | Enzyme, Caustic soda | Minor | Exposure & inhalation |
| 2. | Storage of products and by products | Malt Spirit, IMFL | Major | Explosion, Fire |
| 3. | Manufacturing process | Fermentation | Major | Fire |
| | | Distillation Unit | Major | Heat & fire |
| 4. | Utilities | D.G set, Boiler, Turbine | Major | Heat, fire & electrocution |
| 5. | Other accidents | Leakages from the vessels, Catastrophic rupture of pressure vessels and Storage Tanks | Major | Exposure & fire |

A) Risk: Potential exposure to electricity –

Particular: Specifically the generator area, distribution panel, and control rooms.

Follow up of standard operating procedures and regular training on electrical safety. Ensure suitability and adaptability of electrical equipment with respect to classified hazardous areas and protection against lightning protection and static charges. Adopting preventive maintenance practices as per testing and inspection schedules. Ensure all maintenance and repair jobs with prior work permit system. Use of personal protective equipment and ensuring compliance of the Indian Electricity Rules, 2003. Ensure all electrical circuits designed for automatic, remote shut down.

B) Risk: Fire incident –

Particular: Biomass (Wood Chips, Pellets and Briquette) Storage Yard, Product Storage facility, electrical wearing and fuel handling area.

Follow up of standard operating procedures and regular training on firefighting Mock drills of firefighting .Installation of fire alarm & proper fire extinguisher. Ensure suitability and adaptability of electrical equipment with respect to classified hazardous areas and protection against lightning protection and static charges. Adopting preventive maintenance practices as per testing and inspection.

C) Risk: Solid/ liquid waste disposal

Particular: Ash generated from boiler and effluent generated from distillery unit.

Standard operating procedures for disposal of ash need to be followed like isolated disposal of hot ash inside the silo, use ash will sold, brick & cement manufacturing industries. Effluent will be treated as per regulatory norms and treated water will be reused. Regular monitoring will be carried out as per schedule to avoid any kind of pollution

D) Risk: Health risk

Particular: Exposure to toxic and corrosive chemicals

Provision of secondary containment system for all liquid corrosive chemicals fuel and lubricating oil storages. Constructing storage tanks and pipes for toxic chemicals and fuel oil as per the applicable standards. Inspection and radiography will be followed to minimize risk of tank or pipeline failure. Provision of protective equipment's such as protective clothing, goggles, safety shoes and breathing masks for workers working in chemical storage. Provision of emergency eyewash and showers in the working area.

E) Risk: Safety risk

Particular: Ensure Worker Safety

Periodical SHE training of staff and contractor. Ensuring special training to develop competent persons to manage specific issues such as safety from the system, risk assessment, scaffolding, and fire protection, Training will include the proper use of all equipment operated, safe lifting practices, the location and handling of fire extinguishers, and the use of personal protective equipment. Ensure good housekeeping practices (e.g., keeping all walkways clear of debris, cleaning up oil spots and excess water as soon as they are noticed, and regular inspection and maintenance of all machinery). Daily collection and separate storage of hazardous and non-hazardous waste.

F) Risk: Force Majeure and Insurance coverage to the Project

Particular: Natural calamities like flood, earthquake, fire, and other act of God and Act of Man etc.

Mitigation: Complete plant need to be insured and also care has been considered while designing and construction of the plant to minimize the impact. Third party Liability, Workers compensation, Employers Liability, Legal and contractual liabilities, Loss of profit due to interruption due to fire machine, break down, and related perils, Loss of profit due to loss of generation are some of the other risk against which the mitigation measures have been considered in the project by the way of insurance.

7.2.2 Salient Features of Risk Mitigation

- Design, manufacture and construction of buildings, plant and machineries will be as per National and International Codes as applicable in specific cases and laid down by statutory authorities
- Provision of adequate access ways for movement of equipment and personnel will be made.
- Minimum of two numbers of gates for escape during disaster will be provided
- In the vicinity of main plant entrance, there will be an emergency assembly point where plant personnel will assemble in the event of any disaster.

- Adequate numbers of Fire Fighting equipment's & Fire extinguishers will be installed in the work places for emergency purpose and the Supervisors / Workers will be trained to use the equipment's.
- An ambulance will be provided in the factory premises.
- A qualified Doctor and a compounder will be employed for attending to any emergency.

7.3 Fire & Explosion Index

Fire, Explosion and Toxicity Indexing (FETI) is a rapid ranking method for identifying the degree of hazard. In preliminary hazard analysis, chemical storages are considered to have Toxic and Fire hazards. The application of FETI would help to make a quick assessment of the nature and quantification of the hazards in these areas. However, this does not provide precise information.

- Respective Material Factor (MF),
- General Hazard Factors (GHF)
- Special Process Hazard Factors (SPH)

They are computed using standard procedure of awarding penalties based on storage handling and reaction parameters.

It can be used to classify separate elements of plant within an industrial complex. Before indexing is done, the plant is divided into plant elements. Depending upon the material in use, material factor, number of parameters such as exothermic reactions, handling hazards, pressure of system, flash point, operating temperature, inventory of flammable material, corrosive property, leakage points and toxicity are taken into consideration in determining a plant/equipment /operation hazard. A standard method of awarding penalties and comparing the indices is used. However, this method does not give absolute status of the equipment or section. Dow's Fire and Explosion Index (F and E) is a product of Material Factor (MF) and hazard factor (F3) while MF represents the flammability and reactivity of the substances, the hazard factor (F3), is itself a product of General Process Hazards (GPH) and special process hazards (SPH). An accurate plot plan of the plant, a process flow sheet and Fire and Explosion Index and Hazard Classification Guide published by Dow Chemical Company are required to estimate the FE & TI of any process plant or a storage unit.

Computations and evaluation of fire and explosion index

The degree of hazard potential is identified based on the numerical value of F&EI as per the criteria given **Table 7.3**.

Table 7.3: Fire & Explosion Index

| F&EI Range | Degree of Hazard |
|-------------|------------------|
| 0-60 | Light |
| 61-96 | Moderate |
| 97-127 | Intermediate |
| 128-158 | Heavy |
| 159 & above | Severe |

Risk Index (RI)

The risk categories can be expressed in terms of the risk index as given below –

Table 7.4: Risk Index

| Category | Risk Index |
|---------------------|------------|
| Acceptable Region | <0 |
| Low Risk | 0 |
| Moderate Risk | 0.67 |
| Significant Risk | 1.33 |
| High Risk | 2 |
| Unacceptable Region | >2 |

Table 7.5: Physiological effects of threshold Thermal Doses

| Threshold Dose (kJ/m ²) | Effect |
|-------------------------------------|--|
| 375 | 3 rd degree burn |
| 250 | 2 nd degree burn |
| 125 | 1 st degree burn |
| 65 | Threshold of pain, no reddening or blistering of skin caused |

Note:

1st degree burn- Involves only epidermis. Example sunburn. Blisters may occur.

2nd degree burn- Involves whole of epidermis over the area of burn plus some portion of dermis area.

3rd degree burn- Involves whole of epidermis and dermis. Sub cutaneous tissues may also be affected.

*Risk analysis is not carried out by using ALOHA as there are no explosive chemicals nor any storage tanks involved in the project which have potential explosive threats to the project site and surroundings.

7.4 Consequence Analysis

Hazardous substance on release can cause damage on a large scale in the environment. The extent of the damage is dependent upon the nature of the release and the physical state of the material. It is necessary to visualize the consequences and the damages caused by such releases.

The quantification of the physical effects can be done by means of various models, which can then be translated in terms of injuries and damage to exposed population and buildings.

Hazardous substances may be released as a result of a catastrophe causing possible damage to the surrounding areas. The extent of damage depends upon the nature of the release. The release of flammable materials and subsequent ignition results in heat radiation, pressure wave or vapour cloud depending upon the flammability. It is important to visualize the consequences of the release of such substances and the damage caused to the surrounding areas. An insight into physical effects resulting from the release of hazardous substances can be had by means of various models. Vulnerability models are used to translate the physical effects occurring in terms of injuries and damage to exposed population and buildings.

7.5 Risk Mitigation Measures

The materials handled at the proposed installation are inflammable and reactive substances and based on the consequence analysis; the following measures are suggested as risk mitigation measures.

- It should be ensured that combustible materials such as oiled rags, wooden supports, oil buckets etc. are not kept in the storage and process areas as well as road tankers loading/unloading sites where there is maximum possibility of presence of flammable hydrocarbons in large quantities, to reduce the probability of secondary fires.
- Smoke and fire detectors should be suitably located and linked to firefighting system to reduce the response time and ensure safe dispersal of vapours before ignition can occur.
- Training in firefighting, escape action, operation of emergency switches etc. is vital.

- Pump loading line failures also have possibility of causing major damage. Strict inspection, maintenance and well laid down operation procedures are essential for preventing escalation of such incidents.
- Emergency procedures should be well rehearsed to achieve state of readiness.

| ALCOHOL (RS) STORAGE | |
|---|---|
| Anticipated Impacts | Risk mitigation measures for minimizing and/or offsetting adverse impacts identified |
| <ul style="list-style-type: none"> ▪ Vapour may travel considerable distance to source of ignition and flash back May burn with near invisible flame. Vapours in confined areas may explode when exposed to fire. Lower flammability 10% estimated to prevail up to 53 m down wind and flash fire is likely within this zone leading to burn injury. ▪ Organic contaminated water/ diluting (The flash point of 50% water solution is 24°C) the alcohol generated during firefighting operations is having potential fire hazard. ▪ Exposure to emergency respondents; pure ethyl alcohol may cause drying, redness, and irritation of skin. Additives in denatured alcohol may result in other more severe symptoms. (The odor threshold is 100 ppm.) ▪ Inventory of ethanol is more than threshold specified under “The MSIHC RULES, 1989” and amendments to classify the unit as MAH installation. | <ul style="list-style-type: none"> ▪ Provision of Dyke to contain accidental spill from the storage tank. ▪ Fire Fighting System will be as per the OISD-117 Norms. ▪ Evacuate the area immediately. ▪ On site emergency plan and MOCK drills ▪ Restrict entry of any unauthorized person/ not connected to the tank farm operations in to tank farm area. ▪ Spare capacity tank to transfer the spill material (if safe). ▪ Fire hydrant system with fire water runoff collection system. ▪ Employees expected to fight fires, must be trained and equipped in OSHA 1910.156. The only respirators recommended for firefighting are self-contained breathing apparatuses that have full face pieces and are operated in a pressure-demand or other positive-pressure mode. ▪ If cooling streams are ineffective (venting sound increases in volume and pitch, tank discolours, or shows any signs of deforming), withdraw immediately to a secure position. ▪ Prepare Off site emergency plan and safety report. Carry external safety audit towards statutory compliance. |
| Note: Depending the prevailing atmospheric conditions at the time of the event the impact will undergo change. | |

| RAW MATERIAL STORAGE TANKS | |
|--|---|
| Anticipated Impacts | Risk mitigation measures for minimizing and/or offsetting adverse impacts identified |
| <ul style="list-style-type: none"> ▪ Raw Material can ferment if excessive moisture contamination is allowed. | <ul style="list-style-type: none"> ▪ Store in good quality ventilated and leak-proof tanks (mild steel, stainless steel, |

| | |
|--|--|
| <ul style="list-style-type: none"> ▪ Fermentation can yield carbon dioxide with possible traces of ethanol or volatile fatty acids (e.g. acetic, propionic, lactic, or butyric) and if exposed to a spark or flame may result in an explosion. Fermentation may also occur in dilute surface layers formed by condensation from the headspace above the liquid. ▪ If maintenance of a storage tank requires entry by personnel, confined space precautions should be complied with. Insufficient oxygen may be present in vessels containing the product due to the generation of gases during fermentation. ▪ Product spillage hazard. | <ul style="list-style-type: none"> polyethylene, PVC) at ambient temperatures, out of moisture. ▪ Provide mixing & cooling arrangements to avoid auto combustion. ▪ Avoid Heat over 60° C. ▪ Provide A temperature recorder to the tanks In case of increase in temperature of tank external cooling of tanks should be provided. ▪ Avoid microbiological contamination or dilution with water. ▪ Regular monitoring and maintenance to avoid leakages. ▪ Fire-fighters should wear full protective clothing and self-contained breathing apparatus (SCBA) operated in positive pressure mode. ▪ Introduce permit confined space entry work. |
|--|--|

OCCUPATIONAL HEALTH

| Anticipated Impacts | Risk mitigation measures for minimizing and/or offsetting adverse impacts identified |
|---|---|
| <ul style="list-style-type: none"> ▪ Prolonged inhalation of alcohol concentrations above 5000 ppm may produce symptoms of headache, dizziness, tremor, and fatigue. Additives in denatured alcohol ▪ May result in other more severe symptoms. ▪ Pure alcohol may cause drying, redness, and irritation of skin. May be absorbed through damaged skin. ▪ Repeated skin exposure to alcohol may result in skin irritation and if persistent, dermatitis which may become infected. ▪ High levels of Methane can cause suffocation. Symptoms are due to a decrease in the concentration of oxygen available for breathing and include dizziness, difficult breathing, bluish color of the skin, and loss of consciousness. ▪ Exposure of workers to high noise levels in the plant area will generally include: rushers, belt conveyors, fans, pumps, milling plant, compressors, and boiler, turbine etc. | <ul style="list-style-type: none"> ▪ Medical Surveillance: For those with frequent or potentially high exposure (half the TLV or greater or significant skin contact), the following are recommended before beginning work and at regular times after that: Liver function tests. Ethyl alcohol can be measured in the blood, urine, and exhaled breath. ▪ NIOSH lists the following tests: whole blood (chemical/metabolite), expired air, urine (chemical/metabolite) End-of-shift. ▪ Occupational health centre for medical examination of employees with all the basic facilities will be established with in the plant. ▪ Pre-employment check-up and periodic check-up Medical records of each employee toll be maintained separately and will be updated as per finding during monitoring. ▪ The noise levels in critical area shall be monitored regularly and the workers at high noise level generating areas should undergo audiometric tests once in six months. Provision of green belt around the plant will further reduce noise levels. ▪ Proper Designing of building, Work area for |

| | |
|--|---|
| | <p>well-engineered ventilation & exhaust system.</p> <ul style="list-style-type: none"> ▪ Relaxation facilities to workers with good ventilation & air circulation to help in relieving of thermal stress. ▪ Enclosure and isolation of specific areas. ▪ Enforcement of usage of Personal Protective Devices. ▪ Regular Work Environment Monitoring ▪ Working hours and Rotation of employees in specific areas to avoid continuous exposure ▪ Spraying of Spent wash: Auto spraying with fine droplets. |
|--|---|

FERMENTATION AND DISTILLATION SECTION

| Anticipated Impacts | Risk mitigation measures for minimizing and/or offsetting adverse impacts identified |
|--|---|
| <ul style="list-style-type: none"> ▪ The Carbon di oxide is liberated during fermentation process any release to atmosphere leads to environmental hazards. ▪ This Carbon di oxide contains traces of ethanol and such emission leads hazard at work place. ▪ Fire and explosion in handling of alcohol in Malt Spirit/ IMFL section. | <ul style="list-style-type: none"> ▪ Provide Safe disposal of the Carbon di oxide which is liberated in fermentation. The options available are as follows; <ul style="list-style-type: none"> a) Bottling of the carbon di oxide gas if applicable. b) Dry ice. c) Alkali Scrubber. <p>In proposed distillery CO₂ generation (1.368 TPD) is less than 2 Tonne per day thus no bottling of CO₂ is viable.</p> <ul style="list-style-type: none"> ▪ The unit operation is fully automatic and all operations are governed by logics executed by a PLC Control system. ▪ Fire hydrant system with fire water runoff collection system. |

Risk Mitigation Measures Suggested

To address the residual risk issues risk mitigation measures are suggested which includes preventive as well as protective measures to achieve reasonable acceptable risk level.

1. Dyke wall of adequate capacity for containment of accidental leakage/ spillage for storage tanks.
2. Fire hydrant system with fire water runoff collection system.
3. Monitoring of air born concentration of air born chemicals in work place within

the prescribed limits.

4. Provide specified routes for road tankers, dedicated parking space with fire-fighting facilities and accidental spill control arrangement at parking area.
5. Periodic medical surveillance of the employees.
6. On Site Disaster Control Plan as per the format specified under “The MSIHC Rules, 1989”.
7. Offsite Disaster Control Plan as per the format specified under “The MSIHC Rules, 1989”.
8. Develop P & I Diagram and carry out identification of hazards to prepare SOP and design interlocks for critical process parameters before commissioning of the plant.
9. Display electrical area classification. Provide flame proof electrical and ensure flameproof worthiness of the same

General:

- a) D.G. Sets stand by source of power.
- b) Alcohol storage tanks shall be fitted with breather cum flame arrestor, vapour cooling arrangement and suitable level instrumentation.
- c) Provide earthing to Alcohol tanker prior to each loading. It is strongly recommended to provide intelligent earth system to ensure proper earthing.
- d) All flange joints of piping carrying alcohol shall be provided with continuity jumpers.
- e) All the vehicles carrying alcohol shall be fitted with spark arrestor in its exhaust to avoid source of ignition.
- f) Avoid hot work in distillery section however if it is required during maintenance and repair work; it shall be done with work permit and under strict supervision.
- g) Adequate & effective cooling arrangement and temperature monitoring of the raw material and finished product storage tanks.
- h) Install hydrocarbon sensors as per need to warn in case of leakages of Methane.
- i) Provide fire extinguishers, fire detector, smoke detectors and fire alarm at strategic locations.
- j) Introduce work permit system.

- k) Provide lightening protection system.
- l) Preventive maintenance.
- m) Provide and maintain all safety interlocks of boiler.
- n) Statutory testing of gas holder.
- o) Use of non-sparking tools in distillery section.
- p) Maintain integrity of flameproof condition of equipment and other fittings.
- q) Provide spark arrestor in exhaust of all vehicles working in fuel storage yard to avoid source of ignition.
- r) Regular safety inspection for unsafe conditions, maintenance of floor, platforms, staircases and passages to avoid the slip incident. Good housekeeping and obstruction free walkways and workplace.
- s) Safety shower and eye wash fountain, SCBA and PPE's like safety belt, safety shoes, safety goggles, helmets, earplug, masks, hand gloves, safety shower, eye wash fountain.

7.6 Disaster Management Plan

This DMP has been designed based on the range, scales and effects of "Major Generic Hazards" described in the Risk Assessment. The DMP addresses the range of thermal and mechanical impacts of these major hazards so that potential harm to people onsite and off-site, plant and environment can be reduced to a practicable minimum. The scenarios of loss of containment are credible worst cases to which this DMP is linked.

Disaster Management Plan is an elaborate scheme of planning events and organizing the chain of command which will enact swiftly to counter contingencies arising out of the accident whose cause can be catastrophic rupture of tank leading to pool fire –among many others. The general description of the emergency management plan is discussed below which is further bifurcated into the onsite emergency plan and off-site emergency plan.

The project is in its formative stage and detail engineering is yet to be done, so the elements of the DMP are based on concepts.

7.6.1 Capabilities OF DMP

The emergency plan envisaged will be designed to intercept full range of hazards such as fire, explosion, major spill etc. In particular, the DMP will be designed and conducted to mitigate those losses of containment situations, which have potentials to escalate into major perils.

Another measure of the DMP's capability will be to combat small and large fires due to ignition, of flammable materials either from storage or from process streams and evacuate people from the affected areas speedily to safe locations to prevent irreversible injury.

Emergency medical aids to those who might be affected by incident heat radiation flux, shock wave overpressures, and toxic exposure will be inherent in the basic capabilities.

The most important capability of this DMP will be the required speed of response to intercept a developing emergency in good time so that disasters such as explosion, major fire etc. are never allowed to happen.

7.6.2 Declaration of Emergency

a) Communication with declarer of emergency –

When an emergency situation arises in the plant, it will be first noticed by some workers on the shop floor. He will immediately get in touch with shift –in-charge of that particular section. The shift –in-charge will initiate action to overcome the emergency, and will use his discretion to shut – down the factory if he feels that emergency situation is very serious. He will simultaneously get in touch with the Declarer of Emergency. The possible Declarers of Emergency in the order of priority are given below

- i) Chairman/ General Manager
- ii) Distillery Manager

b) Communication with Declarer

The shift in charge has to try to get in touch with number one of the declarer of emergency on phone. The phone number of the Declarers of Emergency should be known to every worker. In case the phones are out of order due to some reason or the other, a messenger has to be immediately sent by the shift by the shift –in-charge to contact the Declarer of Emergency As the vehicles are coming under the jurisdiction of the Transport Department, which is open all the 24

hours, the shift-in-charge will get in touch with the in charge of the Transport Department, who will in turn make arrangements to send a messenger to the Declarer of Emergency. In case the first Declarer is not available or is out of station, as the case may be, due to some reason or the other, the Shift-in-charge or the messenger, will get in touch with the second or the subsequent Declarer of Emergency in order of priority given in the above section.

7.6.3 Control of Emergency

The emergency has to be controlled from one particular spot. This spot should be away from the likely points of accident, should be easily accessible to workers / officers / police / Ambulance and also there should be easy asphalted access from the factory to the Control Room.

Facilities at the Control Room

- Factory Layout Plan
- Emergency telephone numbers;
- General telephone numbers;
- Emergency lighting;
- Hooters
- Daily number of people working in hazardous area;
- Population around the factory;
- Hot lines to the District Magistrate, Police Control Room, Fire brigade, antidotes and telephone numbers of hospitals etc.,
- Information regarding dispersion and
- Safety equipment.

Apart from the above information, the control rooms shall have a list of possible accidents and the number of people to be affected in each of possible accident displayed on daily basis depending on the predominant wind direction and weather conditions.

The Control room shall not be on the main road as it is likely that there will be traffic congestion at these points. This should make the task of controlling the Emergency as well as controlling the traffic easier.

After the assembly of plant workers at the control room suitable evacuation and plant shut down methodology is to be adopted.

7.6.4 Emergency Fire Fighting Equipment

The industry will provide firefighting facilities in the industry in order to tackle the emergency firefighting:

- Adequate number of fire extinguishers as per the factory rules shall be provided.
- A storage sump exclusively for storing water for meeting emergency fire conditions will be provided with necessary piping and pumping facilities;
- Adequate number of safety showers and eye wash fountains in the plant as per the factory rules shall be provided.
- Regular firefighting and safety training shall be imparted to the employees

7.6.5 Evacuation of Workers and Plant Shut Down

When the emergency is declared, all workers should leave their places of work and reach the safe place has been recognized as the Main Gate of the Plant. However in confusion and excitement, the workers may not exactly know which path as it may not be visible.

Further when the emergency is in the same section in which a particular worker is working; there will be so much smoke or toxic fumes that it may be difficult for him to find the path or exit and he will require some special guidance. Thus it is very necessary that there are guide paths for the workers to follow in case of emergency so that they can reach the main gate in safe condition. The especial guide paths with an emergency lighting shall be drawn and workers will be made familiar with them. It may so happen that these paths fall in the way of toxic fumes. Thus alternate paths have also been decided upon.

There may be some workers who could be hurt and/ or unable to come out. To help them, a special team has to be selected on voluntary basis. This team will be quite a large one because not all its voluntary members will be available in one shift. The appropriate members who should send this team with hooters to the factory area along with necessary safety equipment which will always be kept ready for use in the main control room. This team shall pick up those workers who have been hurt and make arrangements to bring them to safe place near the main gate.

At the gate it there shall be arrangement for counting of the workmen reporting there. In some cases, it may so happen that in the excitement of the emergency some workmen may go away without reporting at the main gate, in spite of the fact the training being given to them to report at

the main gate. All the workers who have arrived at the main gate. All the workers who have arrived at the main gate should be counted against the number which had entered. The total number consists of not only the workers but also the visitors and contract labourers (not only associated with the factory but also associated with the contractors).

When the injured workers are brought to the main gate, they have to be shifted to the hospitals with or without the help of police. For this, arrangements will be made for a number of vehicles, ambulances etc.

If outside public in the nearby villages are affected, their evacuation shall be done by police. The local controller of emergency shall also arrange for guarding the property and law and order control. The police shall also arrange for temporary shelter and food and will also make arrangements to take the public back to their residences, after the emergency situation has been controlled.

It is absolutely necessary that the plant is shut down immediately. For the shutting down of the plant, the procedure to be followed is described below.

7.7 Disaster Control Philosophy

The principal strategy of DMP is "Prevention" of identified major hazards. The "Identification" of the hazards will employ one or more of the techniques [e.g. Hazard and Operability Study (HAZOP), accident consequence analysis etc.]. Since these hazards can occur only in the event of loss of containment, one of the key objectives of technology selection, project engineering, construction, commissioning, and operation is "Total and Consistent Quality Assurance". The Project Authority will be committed to this strategy right from the conceptual stage of the plant so that the objective of prevention can have ample opportunities to mature and be realized in practice.

The DMP or Emergency Preparedness Plan (EPP) will consist of:

- On-site Emergency Plan
- Off-site Emergency Plan

Disaster Management Plan preparation under the headlines of On-site Emergency Plan and Off-site Emergency Plan is in consonance with the guidelines laid by the Ministry of Environment and Forests & Climate Change (MoEF&CC) which states that the "Occupier" of the facility is

responsible for the development of the On-site Emergency Plan. The Off-site Emergency Plan should be developed by the Government (District Authorities).

7.7.1 On-Site Emergency Plan

The following section describes methodology to deal with On-site emergency. The responsibilities of the various plant personnel are also indicated.

A. Chief Co-coordinator

Functions

He will declare the state of emergency to everyone concerned, especially to people above him and to the senior officials of the organizations whose help will be required. He will be in constant contact with the Deputy Chief Co-coordinator

- 1) He will receive all information regarding the emergency from the disaster site
- 2) He will receive information regarding additional resources requirement from site
- 3) He will convey necessary instructions to the site - Dy. Chief Co-ordinator
- 4) He will authorize evacuation of personnel through Dy. Chief Co-ordinator
- 5) He will authorize additional resources mobilization through his advisors
- 6) He will approve release of information regarding disasters to outside agencies through Administration Advisor.

B. Special Advisor (Location: Main Control Centre)

Functions

If the chief Coordinator is not in the spot then he is in charge of the crisis control room

- 1) He is communicator between the chief Co-coordinator higher up like Director, C. & M. D., Ministry, etc.
- 2) He is Coordinating with Air force, Navy and air freighting special equipment / material will be done by the special advisor on behalf of the chief advisor

C. Technical Advisor

Functions

- 1) Collection of data and analysis all the available data regarding the disaster

- 2) He is the communicator between Dy. Chief Co-ordinator through Chief Co-ordinator
- 3) He is responsible for maintenance of logbook record charts etc. will be in his custody
- 4) Any queries that regarding chemical, or any oils will be answered through him

D. Material coordinator

Functions

- 1) He is responsible and regularize for procurements being made on an emergency basis.
- 2) He will inform about all purchases to finance advisor

E. Finance Advisor

Functions:

- 1) He is responsible for all finance-related work such as excise and customs, insurance formalities and FR cashier and relating emergency cash if required

F. Administration Advisor

Functions

- 1) He takes approval from the chief coordinator and will inform the press and outside agencies regarding disaster.
- 2) He will arrange catering and inform through welfare officer regarding communication to relative of the injured employees
- 3) When approved by the chief coordinator he will supervise to as of the emergency location with the press/Govt. agencies along with the Technical advisor.
- 4) He arranges CISF for transport and additional manpower.

G. Fire and Safety Coordinator

Function

- 1) On arrival at the scene, he will evaluate the strategy chalked out by Manager-Fire & Safety / Manager-Shift and coordinate with Civil Fire Brigade for effective control
- 2) Co-ordinate with Dy. Chief Co-coordinator for actions as deemed necessary, which will assist the operations department to carry out their activities safety

- 3) Assess the need of rescue operation and make arrangements for the same
- 4) Co-ordinate with Medical Adviser for ambulance and other medical assistance as may be necessary
- 5) Ensure that all the assigned personnel as mentioned above are carrying out their duties and whenever any extra assistance is required makes arrangements for the same
- 6) Co-ordinate with Manager-PR, for meeting the Press and members of public, if called
- 7) Ensure adequacy of men and equipment at the scene and proposed plant premises. If required, make arrangements for getting necessary assistance
- 8) Make arrangements for replacements of unwanted equipment/damaged equipment from the scene Ensure that all approaches are clear and safe and deploy men and equipment in a coordinated fashion
- 9) Provide necessary expert guidance for firefighting operation and carry out further operations safety
- 10) If any maintenance assistance is required, liaises with Maintenance Co-ordinator for the same

Functions of medical centre

1. Co-ordinate Ambulance Activities
2. Get blood donors
3. Give First Aid
4. Get more ambulance
5. Hospital Co-ordination
6. Keep Statistics of injured employees
7. Take out History Cards of injured employees
8. Procure additional medicines/bandages Etc.

Functions of medical advisor

1. He will be stationed at the dispensary
2. He will be coordinating with first aid & ambulance teams
3. He will direct ambulances to the designated hospitals
4. He will be talking to different Hospitals in the city regarding admission to injured
5. He will call more Doctors to the factory if found necessary

6. He will consult with other specialists whenever necessary
7. He will arrange for outside ambulances and first aider if the situation calls for

Actions to be taken by Shift security chief

A: Function of Security Centre

1. Receive and co-ordinate with police
2. To give direction to incoming external help
3. Cordon off area and provide road blocks as per instruction
4. Review evacuation procedure with police
5. Control incoming traffic, traffic near main gate & outgoing movements
6. Mobilize available vehicles
7. Get additional help from barracks

Actions to be taken by External Centre

A: Function of Mechanical centre

1. Arrange available transport at different locations.
2. Arrange the additional vehicles.
3. Mobile Canteen.
4. Emergency maintenance jobs.

B: Function of Transport Officer

1. Will mobile all the available vehicles and drivers
2. He will rent vehicles as needed
3. Will arrange for vehicles requirement of plant coordinator, chief coordinator

A typical organogram for the on-site emergency plan is shown in **Figure 7.2**.

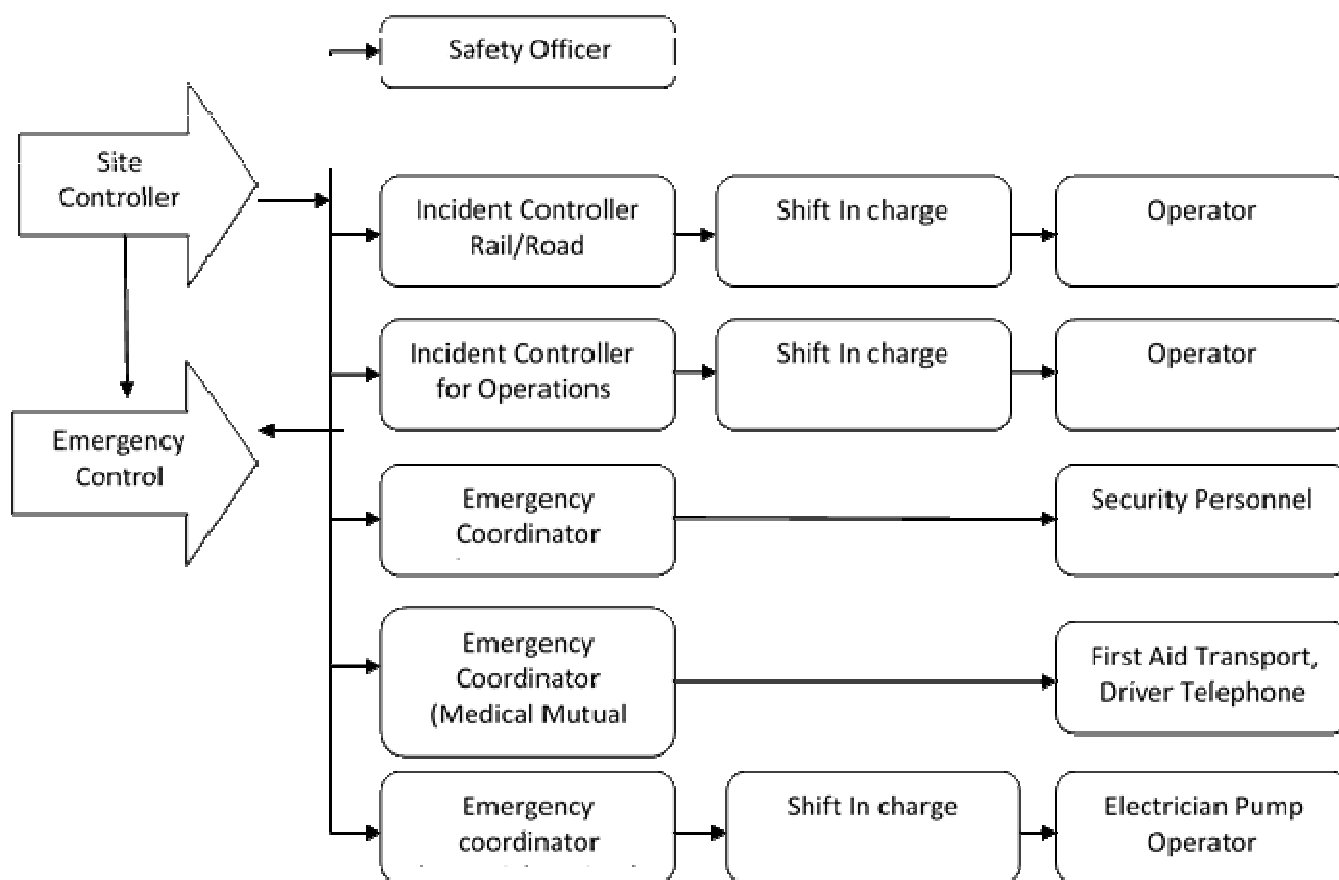


Figure 7.2: Typical Organogram for Onsite Emergency Management Plan

7.7.2 Off-Site Emergency Plan

The off-site emergency plan begins beyond the premises of the plant. The possible impact on the immediate vicinity of the plant when emergency condition arises from the proposed plant. The responsibilities of various personnel and departments are as given below:-

Responsibilities of the Police

- Communicate the information about the mishap to the other agencies.
- Provide support to the other agencies as required.
- Traffic management by cordoning of the area.
- Arrange the evacuation of people.

Responsibilities of the Fire Brigade

- Fighting fire and preventing the spread.

- Plugging the leaks of the chemicals, reducing the effects of gases and fumes.
- Rescue and salvage operation.

Medical/ Ambulance

- First aid to persons affected.
- Medical treatment.

Technical (Factory Inspectorate, Pollution Board, Technical experts from industry, research and training institution)

- Furnish all the technical information to emergency services as required.
- Investigate the causes of disaster.
- Suggest the preventive measures for future action.

Rehabilitation (Local authorities and district administration)

- Provide emergency control center in the area with facilities for directing, coordinating emergency control activities.
- Arrange for rehabilitation of persons evacuated and arrange for food, medical, hygienic requirements.
- Arrange for transportation for evacuation from residential location when required.
- Maintain communication facilities and conditions with the help of the telephone department.

Measures to be taken during the Emergency

- The plant authorities shall immediately send messages to the administration in case the hazard is likely to spread beyond the plant.
- The concerned Police officers along with civic officials shall make arrangements for evacuation of the people from the villages to the safer areas.
- The plant authorities shall extend the technical support in containing the damage.
- Most importantly, it is the responsibility of the officials of the plant that the people don't get panicky.

- After, all the hazard is totally curbed, people may be brought back to their respective villages.

A typical organogram for the off-site emergency plan is shown in **Figure 7.2**

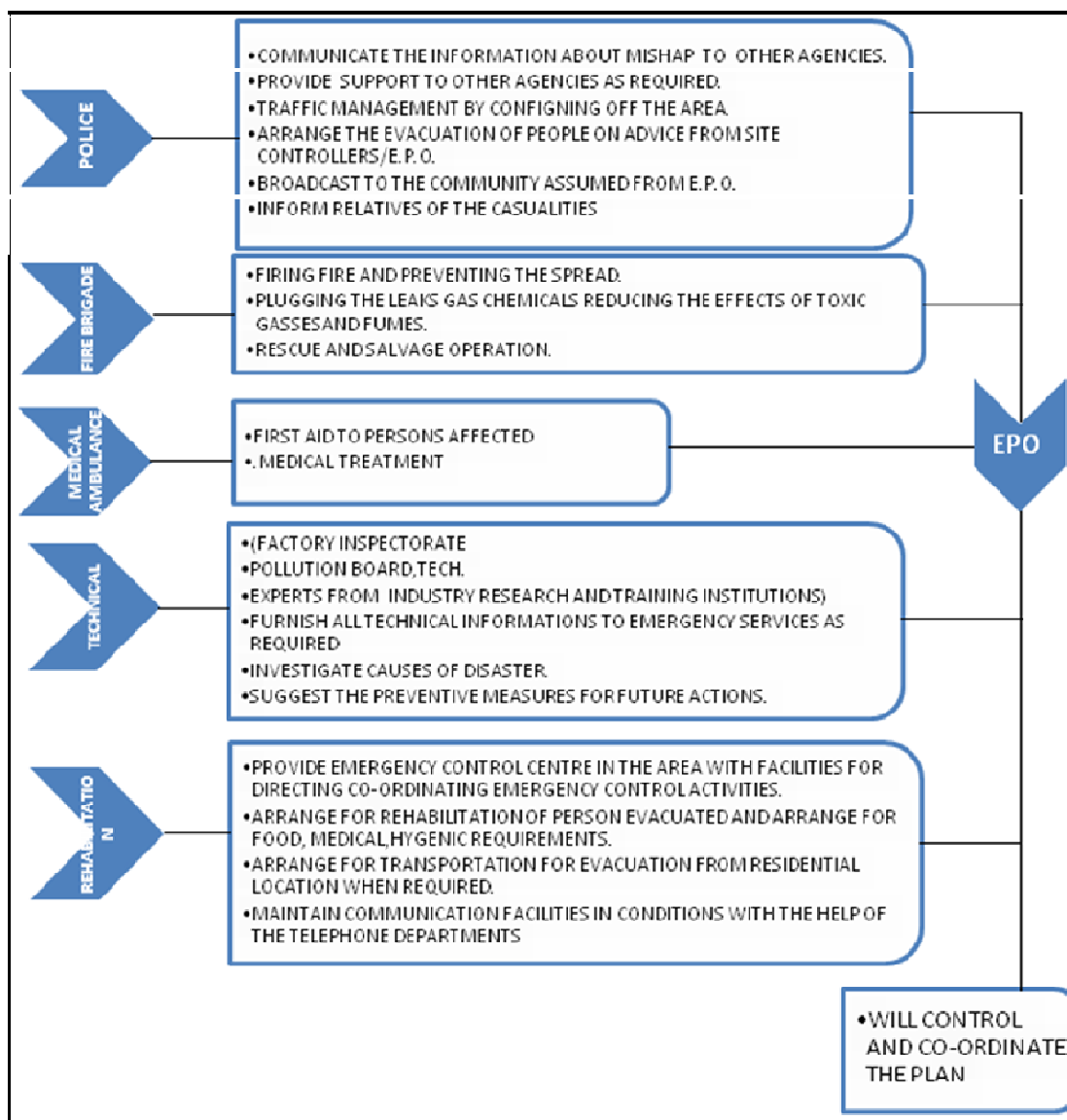


Figure 7.3: Typical Organogram for off-site emergency management plan

7.8 Conclusion

Project proponent will implement all preventive measures to tackle all type of emergencies arising out of operation or malfunction of individual unit's. The required resources for Onsite and Offsite emergency management plan will be properly planned and provided to implement the plan effectively. The factory shall give highest priority towards Health and safety of the

employees and people residing nearby areas Management shall conduct the training to the nearby villagers to appraise them about their role during emergency. All nearby people shall be given training on do's and don'ts during emergency situation.

Distillery Industry (Alcohol Plant) is associated with potential hazards to the employee and environment. As the hazards involved during operation and production activities will be known to the management, all required mitigation measures shall be implemented in time to avoid the emergency situation from the arising. Unfortunately, if there is any emergency onsite or offsite, it will be tackled effectively due to availability of required resources at the site. Similarly, all the concerned staff and members of the team shall be trained appropriately to tackle the emergencies in the plant. By knowing the type of emergency situation that may arise during operation of the plant, appropriate control measures will be implemented to reduce the gravity of the emergencies. Similarly, to avoid the emergency situation, all required mitigation measures will be implemented as recommended.

7.9 Traffic Study:

Traffic survey has been conducted for peak and non-peak hours at Una-Hoshiarpur road which is the only approach road to the proposed factory site in 0.63 Km S direction. The traffic survey monitoring was performed in May 2021 to predict the future traffic growth and the load due to the proposed project. The location of the traffic study on google map is depicted in Figure 7.3.

7.9.1 Objective

The objective of the study is to assess & evaluate the present traffic pattern from the main access roads to the project site in order to estimate the traffic flow pattern on completion of the proposed project.

7.9.2 Methodology

Generally traffic surveillance study involves one or other survey techniques either by manual observation or automatic method by using instruments. The traffic survey methodology adopted for current study is manual observation. The survey method mainly physical visual counts by the survey team.

Equipment's utilized

- 1) Garmin GPS - was used to locate the pre decided observation points.
- 2) Measuring Tape - A measuring tape was used to measure the road width.



Figure 7.4: Traffic Study Location

7.9.3 Categorization of Traffic

To establish effective vehicle count during the survey the traffic was categorized into Truck, Tempo, Car, Auto (Three Wheelers), Motorcycle (Bike), Cycle & Bullock cart. The results of vehicle count are converted into Passenger Car Units (PCU's) as per the equivalent PCUs prescribed by Indian Road Congress (IRC) guidelines, as given in following Table 7.6.

Table 7.6: Recommended PCU factors for various types of vehicles on rural roads

| Types of Vehicles | Equivalent PCU's |
|---|------------------|
| Two Wheelers, Motor Cycle or Scooter etc. | 0.5 |
| Passenger Car, Pick – up Van or Auto-Rickshaw | 1.0 |
| Agriculture Tractor, Light commercial vehicle | 1.5 |
| Truck or Bus | 3.0 |
| Truck – Trailer, Agricultural Tractor Trailer | 4.5 |

| | |
|---------------------|-----|
| Cycle | 0.5 |
| Cycle Rickshaw | 2.0 |
| Horse drawn vehicle | 4.0 |
| Hand Cart | 3.0 |
| Bullock cart* | 8.0 |

*For Smaller bullock carts, a value of 6 will be appropriate, Source IRC: 64-1990

Table 7.7: Existing Traffic Scenario

| Time | Type of Vehicle | | | | | | | | Total Vehicle | Total PCU/hr. |
|-----------------------|-------------------------------|-----------|---|-----------|----------------------|-----------|--------------|-----------|---------------|---------------|
| | Cycle, motor cycle or scooter | @ 0.5 PCU | Passenger car, tempo, Cars, auto rickshaw | @ 1.0 PCU | Agri. Tractor/ Truck | @ 3.0 PCU | Bullock cart | @ 6.0 PCU | | |
| Peak Hours | | | | | | | | | | |
| 9.00 -10.00 am | 38 | 19 | 14 | 14 | 1 | 3 | 0 | 0 | 53 | 36 |
| 10.00 – 11.00 am | 45 | 22.5 | 21 | 21 | 5 | 15 | 0 | 0 | 71 | 58.5 |
| 4.00 -5.00 pm | 56 | 28 | 26 | 26 | 6 | 18 | 0 | 0 | 88 | 72 |
| 5.00 - 6.00 pm | 43 | 21.5 | 32 | 32 | 2 | 6 | 0 | 0 | 77 | 59.5 |
| Non-Peak Hours | | | | | | | | | | |
| 2.00 -3.00 pm | 24 | 12 | 8 | 8 | 3 | 9 | 0 | 0 | 35 | 29 |
| 8.00– 9.00 pm | 30 | 15 | 18 | 18 | 1 | 3 | 0 | 0 | 49 | 36 |

Table 7.8: Proposed Traffic Scenario

| Time | Type of Vehicle | | | | | | | | Total Vehicle | Total PCU/hr. |
|-------------------|-------------------------------|-----------|---|-----------|----------------------|-----------|--------------|-----------|---------------|---------------|
| | Cycle, motor cycle or scooter | @ 0.5 PCU | Passenger car, tempo, Cars, auto rickshaw | @ 1.0 PCU | Agri. Tractor/ Truck | @ 3.0 PCU | Bullock cart | @ 6.0 PCU | | |
| Peak Hours | | | | | | | | | | |
| 9.00 - 10.00 am | 46 | 23 | 17 | 17 | 3 | 6 | 0 | 0 | 66 | 46 |
| 10.00 – 11.00 am | 53 | 26.5 | 24 | 24 | 7 | 12 | 0 | 0 | 84 | 63 |
| 4.00 - 5.00 pm | 64 | 32 | 29 | 29 | 8 | 10 | 0 | 0 | 101 | 71 |
| 5.00 - 6.00 pm | 51 | 25.5 | 35 | 35 | 4 | 8 | 0 | 0 | 90 | 68.5 |

Table 7.9: Traffic Survey Comparison

| Name of Road | Recommended PCU/day as per IRC 64-1990 guidelines for capacity of Roads in Rural Areas (for single lane Roads) | Maximum PCU/hr. observed during peak hour | Expected from the proposed project PCU/hr. | Recommended PCU/day as per IRC 64-1990 guidelines for capacity of Roads in Rural Areas (for single lane Roads) |
|---------------------|--|---|--|--|
| Una-Hoshiarpur road | 2000 PCU/day | 68.5 | 9 | 77.5 PCU/hr. Total PCU/day after proposed project will be 77.5, which is less than standards |

7.9.4 Level of Service (LOS)

Capacity standards are fixed normally in relation to the Level of Service (LOS) adopted for design. Five levels of service are recognized commonly designated from A to E. Considering the need for smooth traffic flow; it is recommended that normally LOS-C be adopted for design of urban roads. At this level volume of traffic will be around 0.70 times the maximum capacity. Capacity or Design Service volume is the maximum hourly volume at which vehicle can reasonably be expected to transfers a point or uniform section of a lane or road way during a given time period. As per IRC 64: 1990 guidelines, ratio of existing volume of PCU on roads (V) and its capacity (C) with corresponding level of services (LOS) and their performance is given below Table No 7.10.

Table 7.10: LOS and its Performance

| V/C | LOS | Performance |
|-----------|-----|---------------------|
| 0.0 – 0.2 | A | Excellent |
| 0.2 – 0.4 | B | Very Good |
| 0.4 – 0.6 | C | Good/ Average/ Fair |
| 0.6 – 0.8 | D | Poor |
| 0.8 – 0.9 | E | Very Poor |
| 1.0 | F | Worst |

7.9.5 Results

Peak hours are considered from 9:00 am – 11:00 am and 4:00 pm – 6:00 pm. The average PCU/hr at study area (i.e. Una-Hoshiarpur Road) during morning and evening was found to be

109 and 139.5 respectively. Non-peak hours are considered from 2:00 pm – 3:00 pm and 8:00 pm – 9:00 pm.

Hence, after proposed project total 77.5 PCU/hr might be observed during peak hour in a day.

LOS for the said project is 0.03 which represent LOS of 'A' category which represents excellent performance.

As per the above data, the additional load on the carrying capacity of the concern road is not likely to have any significant adverse effect.

CHAPTER VIII: PROJECT BENEFITS

8.1 Proponent Approach towards the Project

The production capacity of the Indian malt distillery would be 5000 bulk liters (63% v/v) per day (5 KL per day) and will be operating for 300 days in a year, approx. 1.50 million bulk liters alcohol per year. The raw material used in the production of malt spirit is 'Barley Malt' which is an agricultural produce and is available in Himachal Pradesh & nearby states of Punjab, Haryana and Rajasthan.

In view of good demand the Ian Macleod Distillers India Pvt. Ltd., has decided to set up a new Malt Spirit 5000 LPD Malt Spirit and bottling of 1000 Cases per day IMFL at Industrial Area Pandoga, District- Una, H.P.

8.2 Projects Benefits

8.2.1 Improvements in Physical Infrastructure

The industry is established in the rural region of the state. The establishment of industry will provide direct and indirect employment to more than 77 local rural persons. Major part of these labours will be from local nearby villages who are expected to engage themselves both in agriculture and project activities. This will enhance their income and lead to overall economic growth of the area.

It helps to sustain the development of this area including further development of physical infrastructural facilities.

The following physical infrastructure facilities will be improved due to proposed project.

- **Road transport facilities**

The road connectivity will get improved due to the industry. This improved physical infrastructure will be an added facility to the community for surface transport.

- **Water supply**

Efforts will be more focused on recycling of wastewater after adequate treatment. Thus water extraction for process will be minimized.

- **New Ancillary Business will be developed in the vicinity of the proposed industry.**

8.2.2 Improvements in Social Infrastructure

- The industry is in the rural region. Creation of job opportunity and other business activity will improve the economy and attitude of the public towards education and health. This may result in the creation of additional education and health care facilities in this rural area.
- The proposed project will change the pattern of demand of various items of food and non-food products. It will help to generate sufficient income to local people.
- Living in harmony is an important aspect of the society. This can happen only if, all the components are comfortably placed. Persons engaged in their respective vocation and accruing job satisfaction leads to this. This will become possible by this venture.
- Rural sector economy is generally growing slow because of lack of amenities and facilities. Proposed project helps to provide steady support of money-flow, such utilities can come to that area and sustain.
- This improved physical infrastructure will increase purchasing power of the farmers. They will be able to invest in modern agricultural practices.
- As per the O.M No. 22-65/2017-IA.II (M) dated 1st May, 2018, Rs. 1 Cr. which is 2% of the Total Capital Cost i.e. Rs. 50.8 Cr has been earmarked for Corporate Environment Responsibility (CER) Activities.

In short, many developmental activities will take place due to the establishment of distillery.

8.2.3 Employment Potential

During construction phase 100 skilled and un-skilled labors will be required. Local labors will be engaged during construction phase. During operation phase around 77 permanent skilled and unskilled employees whereas 10-15 temporary employees will be needed.

- Permanent Employment - During Construction 5
- Permanent Employment - During Operation 77
- Temporary Employment - During Construction 95
- Temporary Employment - During Operation 10-15

8.2.4 Advantages of Distillery

- The economic benefits available to the nearby residing population in terms of jobs
- Development of road, water supply infrastructure in vicinity
- Improvement in nearby associated business.

8.3 Conclusion

This venture of the proponents will bring improvement in the physical infrastructure of the surrounding area. It will recharge the groundwater by rain-harvesting, the road structure will be repaired, massive greening drive will improve the aesthetics, organic fertilizer and nursery will be available to the people, and generally the land prices will go up. The venture will also improve the social infrastructure, by way of strengthening the domestic set-up of the village Gram-Panchayat. Property Tax and other facilities such as security and safety will be a welcome feature. The project will have excellent multiplier effect and will become truly a win-win situation for all the stakeholders. Thus, the proposed project has substantial socio-economic and environmental benefits at the local, the State, the Regional and the National levels.

CHAPTER IX: ENVIRONMENTAL COST BENEFIT ANALYSIS

9.1 Environmental Benefits

- Factory shall follow safety rules & regulations, maintain good housekeeping and judiciously operate eco-friendly and zero discharge project to meet the prescribed norms and shall promote environment friendliness.
- Factory proposes zero liquid discharge method for waste water treatment. Maximum waste water will be recycled back into the system.

Factory proposes to install ETP and RO to treat the effluent which will help in reduction in water pollution and achieve zero discharge in inland surface water.

- Factory proposes to develop >33% of greenbelt within the project premises.
- Rainwater harvesting is proposed for the project.

CHAPTER X: ENVIRONMENT MANAGEMENT PLAN

10.1 Introduction

The objective of Environment Management Plan (EMP) is to conserve resources, minimize waste generation, treatment of wastes and protect natural properties.

Commitment and Policy: of proposed project will strive to provide and implement the Environmental Management Plan that incorporates all issues related to air, land and water.

Planning: This includes identification of environmental impacts, legal requirements and setting environmental objectives.

Implementation: This comprises of resources available to the developers, accountability of contractors, training of operational staff associated with environmental control facilities and documentation of measures to be taken

Measurement and Evaluation: This includes monitoring, corrective actions, and record keeping.

During study of the environmental attributes it was seen that all the aspects would be considered to promote the better development in case of future aspects of project as well as environmental aspects.

The Factory management will take all the necessary steps to control and mitigate the environmental pollution in the designing stage of the project. While implementing the project, factory will follow guidelines specified by CPCB under the Corporate Environment responsibility (CER) for project. The EMP task will likely be administered by the Health, Safety and Environment (HSE) Department/ Environment department, who will have the authority where necessary to “stop the job” if an environmentally detrimental activity is being conducted. The EMP operation/implementation will be the responsibility of the “HSE Officer (health, safety, and environment officers)”, who will be coordinating, arranging the collection and reporting of the results of all emissions, ambient air quality, noise and water quality monitoring.

10.2 Environmental Management Plan during Construction Stage

The construction activities of the proposed unit will increase in dust concentrations and fugitive emission due to vehicles movement. The following control measures are recommended to mitigate the probable adverse impacts.

Table 10.1: Environment Management Plan during Construction Stage

| Aspect | Description | Responsibility | Record |
|---|---|--|--|
| Site preparation | <ul style="list-style-type: none"> Regular sprinkling of water around vulnerable areas of the construction sites to control the dust spread or emission into the atmosphere. Excavated soil will be covered with tarpaulin sheet or shall be kept in such way that dust emission will be avoided. Top excavated soil be used in greenbelt development, rest hard rock will be used in leveling work. First Aid facilities shall be made available during construction | <ul style="list-style-type: none"> Construction supervisor/ Contractor Safety officer/ Site Engineer | <ul style="list-style-type: none"> Water consumption Excavated soil quantity and utilization |
| Noise | <ul style="list-style-type: none"> No idling of machine shall be allowed during construction activities Night time construction activities and vehicular movement shall not be allowed. Personal protective equipment like ear muffs or ear plugs, masks etc. will be provided to workers who will be exposed to high noise. | <ul style="list-style-type: none"> Construction supervisor/ Contractor Safety officer/ Site Engineer | Vehicular and construction equipment check record |
| Construction equipment and waste | <ul style="list-style-type: none"> Transport vehicles as well as transport routes should be properly maintained during whole construction phase to minimize smoke / dust emission from vehicle exhausts and unpaved roads. Composite solid wastes including metal scrape, earthwork, other wastes, getting | <ul style="list-style-type: none"> Construction supervisor/ Contractor Safety officer/ Site Engineer | Record of transport vehicles Generation of solid waste, its storage and its disposal |

| Aspect | Description | Responsibility | Record |
|--|---|--|--|
| | generated in construction process should be disposed as per construction waste disposal guidelines. | | |
| Site security and Occupational Health | <ul style="list-style-type: none"> • Construction site has a potential hazardous environment. To ensure that the local inhabitants are not exposed to these hazards, the site shall be secured by fencing and manned entry points. It will be fully illuminated during nighttime • Necessary care will be taken as per the safety norms for the storage of the chemical products • Contractor will supervise the safe working of their employees. • Barricades and fences are provided around the construction area personnel protective equipment's e.g. safety helmet, goggles, gumshoes, etc. will be provided to the workers. • Accidental spill of oils from construction equipment and storage sites will be prevented. • Tree plantation will be undertaken during the construction phase for to prevent air pollution will be nullify in operation phase of the project. • Personal Protective Equipment like ear muffs or ear plugs, masks etc. will be provided to workers who will be exposed to high noise. • First Aid facilities shall be made available during construction. • All necessary infrastructural services like water, drainage facilities and electrification will be provided as per requirement | <ul style="list-style-type: none"> • Construction supervisor/ Contractor • Safety officer/ Site Engineer | <ul style="list-style-type: none"> • Record and Supervision of Personal protective equipment's provided • Record of all safety signs • Record of First aid kits • Record of medical check up • Supervision and record of good house keeping |

| Aspect | Description | Responsibility | Record |
|-----------------------|--|--|---|
| | <ul style="list-style-type: none"> Drainage network will be properly channelized. Storm water drainage will be developed properly. This network will be checked & maintained regularly. | | |
| Greenbelt development | <ul style="list-style-type: none"> Green belt shall be develop well before starting construction. Green cover shall be increase all around factory in in tiers and along the road with native and thick canopy forming plants. Green belt development will help to reduce Air and Noise pollution during construction works | <ul style="list-style-type: none"> Construction supervisor/ Contractor Safety officer/ Site Engineer | Record of planting, mainly around the factory supervision on irrigation facility and survival rate. |

10.3 Environment Management Plan for Operation Phase

Table 10.2: Detailed EMP for Operation Phase

| S.N. | Activity | Responsibility | Implementation | Record |
|------|---------------------------------|---|--|---|
| 1. | Water Pollution Control devices | Process manager/ Distillery manger/ Environment Officer | Distillery trade effluent shall be treated through Effluent treatment plant. The treated effluent is then passed through RO to get clean water. Spent wash (31 m ³ /d) will be neutralized in neutralization tanks and then treated in Primary & Secondary Effluent treatment plant. The treated effluent is then passed through RO to get clean water. Domestic Sewage from proposed distillery will be disposed through proposed ETP and septic tanks with soak pits. | Monitoring of wastewater Treatment: All the treated effluents will be monitored regularly for flow rate and its characteristics in order to assess the performance. Appropriate measures will be taken if the treated effluent quality does not conform to the permissible limits. Record of ETP performance. Spent wash, spent lees. Record of third party laboratory analysis report. Regular |

| | | | | |
|----|-------------------------------|---|--|--|
| | | | | inspection record, control & necessary maintenance for reduction of evaporation loss and blow down from cooling system, Optimization of COC in cooling system. |
| 2. | Air Pollution Control devices | Process manager/ Distillery manger/ Environment Officer | Commissioning of boiler before starting operation. | <ul style="list-style-type: none"> • Ambient Monitoring record. Maintains record for storage of raw material and products. The emissions from the stack will be monitored continuously for exit concentration of the suspended particulate matter, SO₂ µg/m³ and NO_x µg/m³. • Sampling ports will be provided in the stacks as per CPCB guidelines. If the concentration of these pollutants exceeds the limits, necessary control measures will be taken. |

| | | | | |
|----|---|--|---|---|
| 3. | Noise pollution | Process manager/ Distillery manger/ Environment Officer | Immediate during Operation | Record of noise monitoring. The workers working in the high noise areas like Boiler house, Distillation, feed pumps, steam generation plant and turbo generator area will be provided with ear muffs/ear plugs. The silencers and mufflers of the individual machines will be regularly checked Supervision record for Acoustic enclosure to DG, Boiler, insulation. |
| 4. | Solid waste Management | Process manager/ Distillery manger/ Environment Officer | Immediate during operation | Records of generation of solid waste. Supervision record of storage and disposal of solid waste. |
| 5. | Greenbelt development | Process manager/ Distillery manger/ Environment Officer | Gradually during Operation | Record of planting / number of plants planted and to be plant, supervision on irrigation facility and survival rate ensuring healthy and dense greenbelt. Greenbelt development plan is described in EIA. |
| 6. | Rainwater harvesting and storm water drainage | Process manager/ Distillery manger/ Environment Officer | • Gradually during construction and operation. Storm water drainage system will consist of well-designed network of open surface drains with rainwater harvesting pits. RWH | Record of rainwater harvesting plan in the factory, collection lines provided and location of the same. Record of supervision and maintenance. |

| | | | | |
|----|--------------------------------|--|--|--|
| | | | <p>structures will be provided to harvest the rain water from roof top and plant area.</p> <ul style="list-style-type: none"> The collected rain water will be utilized for plant uses to optimize the raw water requirement. The surface water run-off from the main plant area would be led to a sump for settling and the over flow would be collected in the common water basin for Industrial uses. Tentative Rainwater Harvesting System (RWHS) designs and construction details are discussed in EIA. | Monitoring of rainwater system to avoid mixing of effluent into storm water. |
| 7. | Occupational Health and Safety | Process manager/ Distillery manger/ Environment Officer | During Operation | Record and Supervision of Personal protective equipment's provided. Record of all safety signs. Record of First aid kits Record of medical check up Supervision and record of good housekeeping. Record ad supervision of firefighting equipment's provided and its regular check |
| 8. | CER | Chairman/Managing Director /Process manager/ Distillery manger/ Environment Officer | During Operation | Maintain separate record of CER activity carried out year wise and amount spent on that. |
| 9. | Resource | Process manager/ | During Operation | Reuse of process |

| | | | | |
|--|---------------------------------|--|--|---|
| | saving, Recycle/ Recovery | Distillery manger/ Environment Officer | | water, recycling of ETP treated water, recycling of used oil, use of power saving equipment's, natural ventilation designs in construction phase, use of thermal insulations wherever heat transfer is anticipated, LED lighting, photosensitive switches, rainwater harvesting |
|--|---------------------------------|--|--|---|

10.4 Rain Water Harvesting and Storm Water Management

Rain water harvesting is the collection rainwater from the surfaces on which it falls.

Proponent has planned to install rainwater harvesting program. The collected rain water can be used as source of water for whole industry.

Storm water Drainage Line: Based on the rainfall intensity of the proposed area, storm water drainage system will be designed at the construction stage of the project. Storm water drainage system will consist of well-designed network of open surface drains with rainwater harvesting pond. A separate drainage system will be provided in which plant effluent will not be mixed.

Conduits: Pipes will be used to carry rain water from catchment to the recharge pond, passing through filter. A valve will be put at the end of wall for first flushing.

Filter: Sand Filter will be used to remove suspended pollutants from the rainwater.

Rain water harvesting and storm water calculations are predicted as follows;

Table 10.3: Rainwater Harvesting Calculations

| Particulars | Details | |
|---------------------------------------|----------|----------|
| Roof top area (m ²) | a | 20570.0 |
| Run off coefficient | b | 0.8 |
| Filter efficiency | c | 0.9 |
| Effective catchment (m ²) | d= a*b*c | 14810.40 |
| Total annual rainfall (in m) | e | 1.13 |
| Max. rainfall intensity (in m) | f | 1.13 |

| | | |
|--|-----|---------------|
| Annual harvesting potential (in m ³ /Annum) | d*e | 16735.8 |
| Maximum daily harvesting potential (in m ³ /Day) | f*d | 16735.75 |
| Maximum daily harvesting potential (in m³/Hr.) | | 697.32 |

Table 10.4: Storm water Calculations

| Particulars | Details | |
|---|-----------------|----------------|
| Paved area (m ²) | a | 19218.0 |
| Run off coefficient | b | 0.80 |
| Unpaved area (m ²) | c | 47642.0 |
| Run off coefficient | d | 0.25 |
| Effective catchment (m ²) | e = (a*b)+(c*d) | 63016.65 |
| Total annual rainfall (in m) | f | 1.13 |
| Max. rainfall intensity (in m) | g | 1.13 |
| Annual harvesting potential (in m ³ /Annum) | e*f | 71284.4 |
| Maximum daily harvesting potential (in m ³ /Day) | e*g | 71284.43 |
| Total storm water load on the site with per hour retention (in m³/Hr) | | 2970.18 |

10.5 Greenbelt Development Plan

Greenbelt will be developed along the periphery of the project area, along roads, around each separate unit, around storage area, periphery and around ETP. Factory shall develop greenbelt on 15141 Sq. m. Which is >33% of the total plot area. This green belt will be maintained. The following characteristics have been taken into consideration while selecting plant species.

- Fast growing
- Thick canopy cover
- Perennial and ever green
- Large leaf area
- Preferably Indigenous
- Resistant to pollutants and should maintain ecological balance for soil and geo-hydrological conditions of the region.
- Abundance of surfaces on bark and foliage through roughness of bark, epidermal outgrowth on petioles, abundance of auxiliary hairs, hairs or scales on laminar surfaces and protected stomata (by wax, arches, rings, hairs, etc.)

Greenbelt will be as developed as follows,

- Trees growing up to 5 m or more will be planted along the plant premises and along the road sides
- 8-10 m width green belt all along the border
- Tree plantation on both sides of interior roads in the premise.
- The spacing between the trees will be maintained slightly less than the normal spaces, so that the trees will grow vertically and slightly increase the effective height of the green belt.
- Since the trunks of the tall trees are generally devoid of foliage, it will be useful to have shrubs in front of the trees so as to give coverage to this portion.
- Shrubs and trees will be planted in encircling rows around the project site.
- The small trees (<10 m height) will be planted in the first two rows (towards plant side) of the green belt. The tall trees (>10 m height) will be planted in the outer three rows (away from plant side).
- Trees should be planted along road sides, to arrest auto-exhaust and noise pollution.

Table 10.5: Planned Schedule for Greenbelt Development

| Trees interspacing | Planned scheduled | Tree density/ 100 m ² | Size/type | Location | Providing |
|--------------------|-------------------|----------------------------------|--------------------------------|--|--|
| 3 x 3 m | 2020-21 | 25 | Shrubs, small and medium trees | Periphery of the industrial area. Along the road Near storage tanks, process area | <ul style="list-style-type: none"> • Plan to develop well designed greenbelt as per CPCB guidelines • Irrigation facility for greenbelt • Monitoring survival rate • Providing fertilizers |

Table 10.6: List of Plant Species for Plantations

| SI | Scientific Name | Vernacular Name |
|----|--|-----------------------|
| 1 | <i>Acacia catechu</i> (L.f.) Willd. | Cutch tree |
| 2 | <i>Acer campbellii</i> Hook.f. | Himalayan Maple |
| 3 | <i>Acer negundo</i> L. | Three-Leaved Maple |
| 4 | <i>Aegle marmelos</i> (L.) Corrêa | stone apple |
| 5 | <i>Aesculus indica</i> (Wall. ex Cambess.) Hook. | Indian Horse Chestnut |
| 6 | <i>Albizia procera</i> (Roxb.) Benth. | white siris |
| 7 | <i>Anogeissus latifolia</i> (Roxb. ex DC.) Wall. ex Guillem. & Perr. | Axle Wood Tree |

| SI | Scientific Name | Vernacular Name |
|----|---|-------------------------|
| 8 | <i>Aphanamixis polystachya</i> (Wall.) R.Parker | Pithraj Tree |
| 9 | <i>Azadirachta indica</i> A.Juss. | Neem |
| 10 | <i>Bambusa arundinacea</i> Willd. | Common Bamboo |
| 11 | <i>Barleria cristata</i> L. | Philippine Violet |
| 12 | <i>Bauhinia racemosa</i> Lam. | the bidi leaf tree |
| 13 | <i>Butea monosperma</i> (Lam.) Taub. | flame-of-the-forest |
| 14 | <i>Callistemon citrinus</i> (Curtis) Skeels | lemon bottlebrush |
| 15 | <i>Calotropis gigantea</i> (L.) R. Br. | Giant calotrope |
| 16 | <i>Cannabis sativa</i> L. | Cannabis sativa |
| 17 | <i>Cassia fistula</i> L. | golden shower |
| 18 | <i>Cedrus deodara</i> (Roxb. ex D.Don) G.Don | Devdar, Himalayan Cedar |
| 19 | <i>Dalbergia lanceolaria</i> L.f. | Takoli |
| 20 | <i>Ficus benghalensis</i> L. | the banyan |
| 21 | <i>Ficus glomerata</i> Roxb. | Cluster fig |
| 22 | <i>Mangifera indica</i> L. | Mango |
| 23 | <i>Phyllanthus emblica</i> L. | Amla |
| 24 | <i>Syzygium cumini</i> (L.) Skeels | Indian blackberry |
| 25 | <i>Vitex negundo</i> L. | Chinese chaste tree |

10.6 Occupational Health and Safety

All precautionary methods will be adopted by the company to reduce the risk of exposure of employees to occupational safety and health hazards. Pre & post medical check-ups will be done of all the employees. Employees will be regularly examined and the medical records will be maintained for each employee. Pulmonary function test and periodical medical checkup shall be done once in every year. The following tests shall be conducted for each worker.

- Lung Function Test
- Radiology – X-ray
- Pulmonary Function Test
- Audiometric Test
- General clinical examination with emphasis on respiratory system
- Pre-employment examinations
- Periodical medical examinations at the time of employment and after completion of employment

Following control measures will be taken for the employees and workers engaged in work:

- Personal protective equipment's will be provided to all concern staffs and workers.
- Every employ will be trained for specific working
- Awareness program for workers will be carried out for likely adverse impact on their health due to working and use of precautionary measures.
- All safety signs will be placed at proper location
- First aid kits will be made available at every department
- Medical check-up at regular intervals for monitoring of health status of all workers
- Work permit system will be introduced to avoid un-authorized person's entry
- Review of impact of various health measures undertaken after every two year.
- Fire hydrant system, fire extinguishers will be provided at specific locations
- All staff and workers will be trained to fight the emergency situation
- Good housekeeping also plays important role in avoiding the undesirable incidences.

Therefore, good housekeeping practices will be employed.

Facilities such as provision of good quality water, sanitation and clean room for eating and resting shall be provided. It is evident from the project details that the risk or accidental spillage of chemicals may cause ill effects on the health of employees involved. In view of the effect on the health of workers from various activities and exposure during the work, required mitigation/control measures shall be implemented to reduce the associated risk and hazards.

10.7 Risk Assessment

Storage & Transportation of RS

The proposed project will produce RS which is a flammable liquid. Leaving aside earthquake, cyclone, lightning, flood, arson, war and sabotage, the possible emergencies that can arise in the proposed project are:

- Failure of vessels resulting in the release of RS.
- Failure of pipelines resulting in the release of RS.
- Failure of process equipment resulting in the release of RS.
- Specific failures like accidental spillage of RS during handling.

- Consequential fires involving the flammable materials.

Table 10.7: Hazards & Mitigation Measures Associated with RS

| Description | Clear Solution |
|--------------------------|--|
| Flash Point | 21 °C |
| Boiling Point | 78 °C |
| Specific Gravity | 0.8 |
| Toxic hazards | Highly Toxic |
| Fire Extinguishing Media | Use water, alcohol foam, dry chemical, carbon dioxide |
| Mitigation Measures | <ul style="list-style-type: none"> • Avoid breathing vapours. • Use Self Contained Breathing Apparatus. • Fire fighters should wear proper protective equipment. • Adequate Fire Fighting arrangements will be made. • Spark & Leak arrestors will be provided at proper places. • During transportation the electrostatic charges should be prevented to avoid the explosion. |

10.8 Fire Fighting & Protection System

The firefighting system will be designed in conformity with the recommendations of the Tariff Advisory Committee (TAC) of Insurance Association of India. While designing the fire protection systems for this power station its extreme ambient conditions need special attention. Codes and Standards of National Fire Protection Association (NFPA) will be followed, as applicable. The different types of fire protection / detection system envisaged for the entire project are given below.

- Hydrant System for entire area of plant.
- High Velocity Water Spray System (HVWS) for main plant, Boiler burner front, diesel oil tank of DG set.
- Portable and mobile fire extinguishers for entire plant.

Fire Detection and Alarm System

Fire Detection and alarm system will be provided for all Central Control room, Control Equipment Room, battery rooms, all switchgear rooms / MCC rooms, Cable spreader room and Computer rooms located in Power block area and in other auxiliary buildings.

A microprocessor-based Fire Detection and Alarm system shall be provided for the entire plant area consisting of Intelligent Analog Addressable type detectors. The system will consist

of a central monitoring station and the main Fire Alarm Panel (FAP) located in unit control room and one fire alarm and control panel and repeater panel provided in the fire station office

An industrial siren will be installed in the turbine generator building. The siren shall have an audible range of 3 km and produce a minimum sound level of 80 dB (A) above any other noise likely to persist for a period longer than 30 seconds. Additionally all exit routes and hallways in each occupied building shall be provided with sounders and flash light to facilitate safe evacuation in case of fire in the area. All necessary instruction and warning plates will be displayed.

10.9 CER Activities Plan

In accordance with the circular issued by Ministry of Environment, Forest and Climate Change (MoEF&CC) dated May 01, 2018 and subsequent circular of June 19, 2018 on Corporate Environment Responsibility. CER cost will be 2 % of the total project cost. Estimated cost of the project is 50.8 Cr. and accordingly CER activities cost will be 100 Lakhs.

Proposed activities and year wise action plan is given below

- Lighting by LED bulb / solar street lamps.
- Drinking water supply
- Water shed management in the area
- Tree plantation
- Construction of Road

Villages in which CER will be covered are Pandoga, Chak Khud, Panhera, Bheli Khud, Lohar Nichli, etc.

Table 10.8: CER Activity Plan

| CER activity | 2021-22 (Lacs) | 2022-23 (Lacs) | 2023-24 (Lacs) | Total (Lacs) |
|--|-------------------|-------------------|-------------------|-----------------|
| Lighting by LED bulb/ solar panels | 4 | 5 | 5 | 14 |
| Providing water filters in the nearby villages | 8 | 9 | 10 | 27 |
| Tree plantation along the road side | 5 | 7 | 10 | 22 |
| Storage tanks /toilet facilities with water storage tank in schools/ Water shed programs | 10 | 12 | 15 | 37 |
| Total | 24 | 22 | 18 | 100 |

10.10 Environment Management Cell (EMC)

Environmental Management Cell will be established, which will be supervised and controlled by an independent Plant Manager supported by a team of technically qualified personnel apart from other operating staff.

It will be the responsibility of this cell to supervise the monitoring of environmental attributes viz. ambient air quality, water and effluent quality, noise level etc. either departmentally or by appointing external agencies wherever necessary. In case the monitored results of environmental contaminants are found to exceed the standard limits, the Environmental Management Cell will suggest remedial measures and get them implemented.

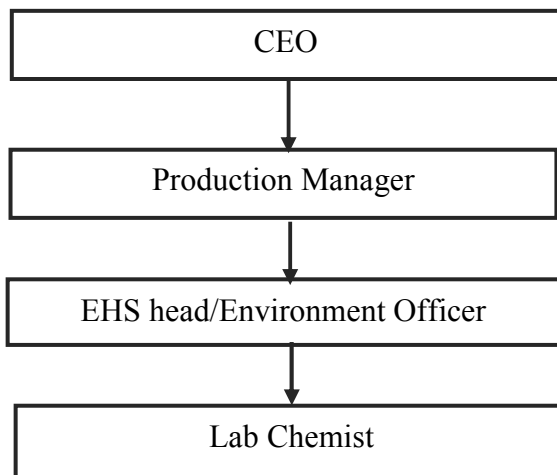


Figure 10.1: Environment Management Cell

Table 10.9: Environment Monitoring Cell and its responsibilities

| Sr. No. | Members | Number | Responsibility |
|---------|---------------------|--------|---|
| 1. | CEO | One | Supervision of overall implementation of environment management in the factory. |
| 2. | Production Manager | One | Implementation of mitigation measures considering all environment components. |
| 3. | Environment Officer | One | Implementation of mitigation measures considering all environment components, Health and safety of the workers. Technical advisory for all legal issues of environment as well as implementation of Environment Management in the Factory. Arranging the training programs for staff. Monitoring of efficiency of pollution control equipment's, Water and energy conservation measures, Maintenance, supervision on housekeeping, ETP, Supervision and |

| | | | |
|----|-------------|-----|---|
| | | | record keeping of compliance of all regulatory authorities. |
| 4. | Lab Chemist | One | Monitor the work environment, health and safety of the workers. Implementation of occupational health and safety policies, program, procedures. Undertaking the Awareness activities. |

10.11 Responsibilities of Environmental Management Cell

The EMC has the responsibility to supervise all the activities in the plant to ensure that those are being carried out as per the standard operating procedure to avoid any type harm to the environment. The EMC also undertake periodical monitoring or survey of various environmental parameters including monitoring and analysis of effluent, air, water and noise to ensure that these parameters are maintained within the prescribed limits. If any deviation observed, they will inform to initiate corrective action by the concern department or they will do themselves if required.

They also undertake the physical survey of the green belt to ensure required growth and survival rate of the plant. They will also inform the concern department for corrective action if any to have proper growth of the plants.

Environmental monitoring: EMC will ensure that pollution is well below the prescribed limits or there is no much difference between the present concentrations and baseline data. If wide difference is observed then they will need to initiate required corrective action either by optimizing the treatment process or by providing equipment or improving the performance of existing pollution controls equipment. In case the results indicate parameters exceeding the prescribed limits, remedial actions will be taken through the concerned plant people. The actual operation and maintenance of pollution control equipment will be the responsibility of respective department head or a plant in charge.

Legal and statutory compliance: EMC will also supervise the work of other department pertaining to the activities of preparation of environment statement report, environment audit, Water Cess return and consent application as per the requirement under various Rules and regulations. They will also guide the HODs of individual department to fulfill the statutory requirements under various acts and applicable rules. Following Rules shall be applicable to the facility:

- The Water (Prevention and Control of Pollution) Act, 1974
- The Air (Prevention and Control of Pollution) Act, 1981
- Hazardous and Other Waste (Handling and Trans-boundary Movement) Rules, 2016
- The Environment Protection Act, 1986
- Explosive Act 1884 & the Explosive Rules, 2008
- E-Waste (Management) Rules, 2016

Documentation: The cell will also be responsible for maintaining the records of data, documents and information in line with the legislative requirement and will regularly furnish the same to the concern statutory authorities.

10.12 Post Clearance Monitoring Protocol

After grant of environmental clearance by the MoEFCC, half yearly compliance reports will be submitted in hard and soft copies to the concerned regional MoEFCC office on 1st June and 1st December of each calendar year with respect to EC conditions. All such compliance reports submitted will be the public documents. Copies of the same will be made available to the stakeholder upon the request. Factory shall submit all compliance to the regional MoEFCC office.

10.13 Environment Management Cost

Table 10.10: Environment Management Cost

| Sr. No. | Construction Phase (with Break-up) | Capital Cost (Amount in lakhs) | O&M (Amount in lakhs) |
|---------|--|-----------------------------------|--------------------------|
| 1. | Environmental monitoring | - | 01.50 |
| 2. | Air Environment | - | 00.50 |
| 3. | Occupational Health | 10.00 | 02.00 |
| | Total | 10.00 | 04.00 |
| Sr. No. | Operation Phase (with Break-up) | Capital Cost (Amount in lakhs) | O&M (Amount in lakhs) |
| 1. | Air Pollution Control System | 80.00 | 02.50 |
| 2. | ETP | 70.00 | 10.00 |
| 3. | Environmental Monitoring (Air, water, waste water, Soil, Solid waste, Noise) | - | 08.00 |
| 4. | Occupation Health | 35.00 | 10.00 |
| 5. | Green Belt Development | 15.00 | 02.00 |
| 6. | Solid Waste Management | 05.00 | 01.00 |
| 7. | Rain Water Harvesting | 15.00 | 01.00 |
| | Total | 220.0 | 34.50 |

CHAPTER XI: SUMMARY AND CONCLUSION

11.1 Project in Brief

M/s. Ian Macleod Distillers India Pvt. Ltd. is proposed to be located at Industrial Area Pandoga, District- Una, H.P. Ian Macleod Distillers India Private Ltd. (IMDIPL), is registered under Indian Companies Act 1956 in 2009 which is a wholly owned subsidiary of Ian Macleod Distillers Ltd, Scotland, UK. IMD India is engaged in import and re-distribution of parent company's products in India. Ian Macleod Distillers Ltd., Scotland, UK is a family owned and one of the most respected spirits company in world. The project will be implemented by Indian subsidiary Ian Macleod Distillers India Pvt. Ltd. IMDIPL proposes to install a new 5 KLPD Distillery Plant to produce Malt Spirit, IMFL and DWGS (Spent Grain) Cattle feed which will operate for 300 days in a year. Raw materials shall be procured from nearby for production of Malt Spirit and IMFL. Proposed distillery is graphically located at Latitude 31°30'39.44"N & Longitude 76° 8'16.62"E which is at a maximum elevation of 490 m above MSL.

11.2 Project Information in Brief

Table 11.1: Salient features of Project

| Sr. No. | Particulars | Description | | | | | | | | | | |
|---------|--------------------------|---|-------------|------------------------|-------------------|---------------------------------|---------------------------------|---|---------------|-------------|--------|------------------------|
| 1. | Project Name | Proposed 5 KLPD Malt Spirit Distillery at Industrial Area Pandoga, District- Una, H.P. by Ian Macleod Distillers India Pvt. Ltd. | | | | | | | | | | |
| | Project Location | Plot No. A2, A3 & A4 in Pandoga Industrial Area at Khasra No. 1244, 1257, 1263, 3214/1265, 3215/ 1265, 1432, 1433, 1434, 1435, Kita- 9,2832 of Village Pandoga, Tehsil Haroli, District Una, Himachal Pradesh Pincode- 177207 | | | | | | | | | | |
| 2. | Product | Malt Spirit: 5 KLPD IMFL: 1000 Cases DWGS (Spent grain) Cattle feed: 5400 Kg/d | | | | | | | | | | |
| 3. | Raw Material Requirement | <table border="1"> <thead> <tr> <th>Sr. No.</th> <th>Particulars</th> <th>Total Requirement</th> <th>Storage</th> <th>Source & Mode of Transportation</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Barley (Malt)</td> <td>10 - 11 TPD</td> <td>300 MT</td> <td>Malt supplier via road</td> </tr> </tbody> </table> | Sr. No. | Particulars | Total Requirement | Storage | Source & Mode of Transportation | 1 | Barley (Malt) | 10 - 11 TPD | 300 MT | Malt supplier via road |
| | | Sr. No. | Particulars | Total Requirement | Storage | Source & Mode of Transportation | | | | | | |
| 1 | Barley (Malt) | 10 - 11 TPD | 300 MT | Malt supplier via road | | | | | | | | |
| | | | | | | | | | | | | |

| | | | | | | |
|-----|--------------------------------|---|---|--|----------------------------------|--|
| | | 2 | Chemicals CIP Chemicals Caustic soda Enzyme Yeast | 1 kg/day 1 kg/day 2 L/day 10 kg/day | 30 kg 30 kg 60 L 300 kg | Chemicals supplier via road Nearby Markets via road |
| 4. | Operation Days | 300 Days | | | | |
| 5. | Water Requirement | 102 CMD | | | | |
| 6. | Source of water | Overhead Water Tank- DIC, Una | | | | |
| 7. | Boiler | Proposed Distillery: 1 No. x 6 TPH | | | | |
| 8. | DG Set | 750 KVA (1 No. 500 & 1 No. 250 KVA each) | | | | |
| 9. | Fuel | Sr. No. | Fuel | Quantity | | |
| | | 1. | Biomass (Pellets, Wood chips & Briquettes) | 20-25 MT/Day | | |
| | | 2. | HSD Consumption | 250 Liter Max. | | |
| | | 3. | GCV | 3000-3500 kcal/kg | | |
| 10. | Steam | For Mashing & Lautering: 15 TPD @ 3.5 Kg/cm ² (g) For Distillation and Miscellaneous: 60 TPD @ 3.5 Kg/cm ² (g) For Brew House: 15 MTD Total Steam Required: 75 MTD | | | | |
| 11. | Power Requirement | 650 KWH Industry has also planned to use (10 %) non- conventional energy source for electricity generation | | | | |
| 12. | Total Effluent Generation | 71 CMD | | | | |
| 13. | Ash Generation | Fly ash from boiler: 1.5 TPD and ETP Sludge: 0.5-0.6 TPD | | | | |
| 14. | Air pollution control measures | Multicyclone with stack of adequate height (30 m) will be installed shall be as per SPCB/CPCB Norms. | | | | |
| 15. | Man-power | The total staff in the distillery is thus estimated as 77 Nos. including support staff. Man power requirement for construction work will be about 100 Nos. | | | | |
| 16. | Total Project Cost | 50.8 Cr. | | | | |
| 17. | EMP Capital Cost | 2.2 Cr. | | | | |
| 18. | CER Cost | 1 Cr. (Green field project 2 % of the total project cost) | | | | |

11.3 Process Description

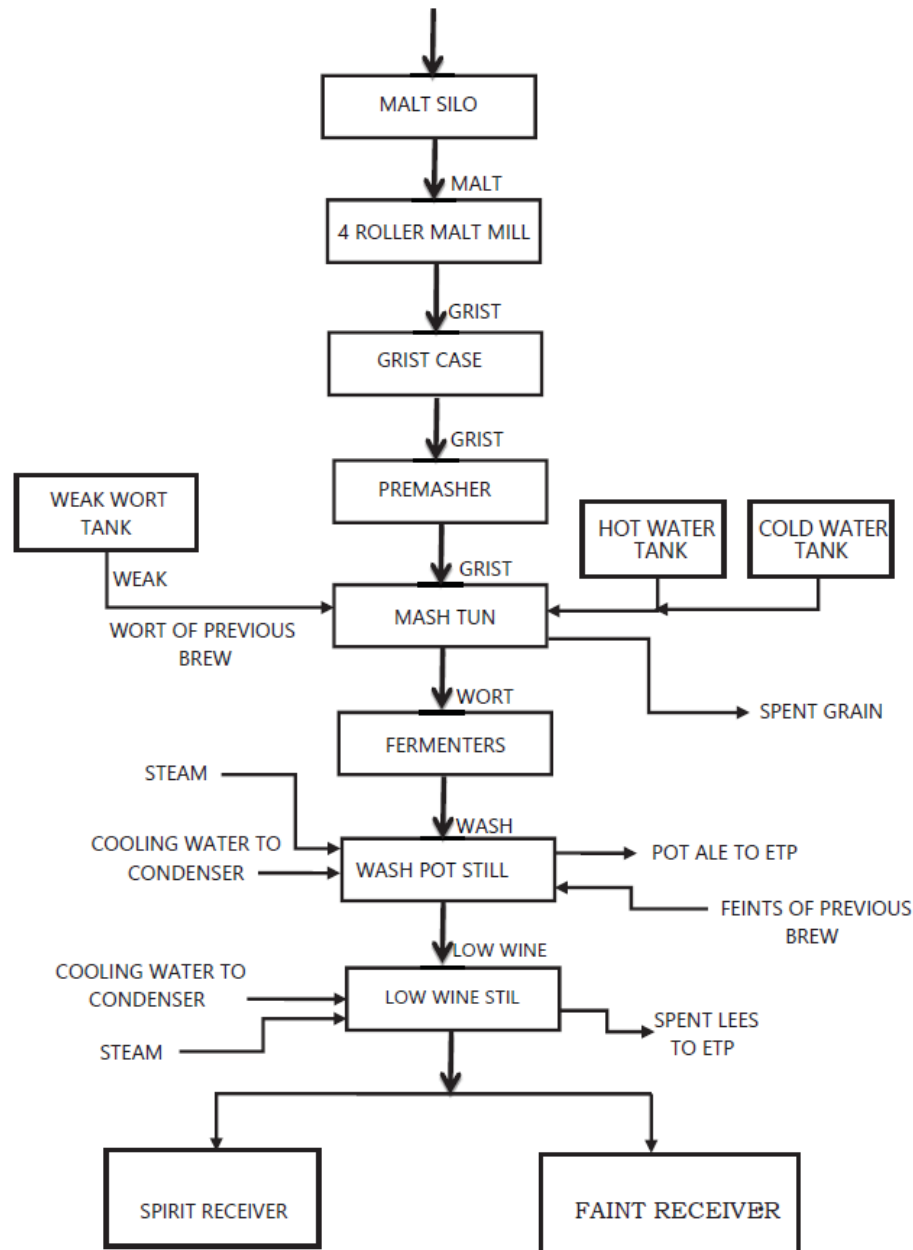


Figure 11.1: Manufacturing Process Flow Chart

11.4 Description of the Environment

The study area is carried out as per the approved standard ToR granted by EAC. The baseline study is conducted from March to May 2021. Baseline study has been conducted as per EIA

Manual of the MoEFCC and methodologies mentioned in Technical EIA Guidelines Manual for Distilleries by IL&FS Ecosmart Ltd., approved by MoEFCC.

Table 11.2: Baseline Monitoring Parameters and Frequency

| Components | Parameters | Frequency | Methodology adopted | Observation |
|---------------------|--|---|---|---|
| Ambient air quality | PM _{2.5} , PM ₁₀ , SO ₂ , NO _x , CO | Ambient air quality samples are monitored at 9 locations for 24 hours twice a week for the study period | PM ₁₀ /PM _{2.5} : Gravimetric method SO ₂ : Modified West and Gaeke Method. (IS : 5182, Part II) NO _x : Jacobs and Hochheiser Method. (IS 5182 Part VI) | All parameters are within NAAQ standards. |
| Meteorology | Surface: Wind speed and direction, temperature, relative humidity and rainfall | Secondary data Hourly continuous readings during the study period at plant site secondary data collected IMD | Monitoring data for primary data IS: 8829 | Monthly total annual avg. rainfall 1,131.2 mm (IMD Una) Highest recorded temperature: 45.2 °C Lowest recorded temperature: 2.4 °C |
| Water Quality | Physical, Chemical and Bacteriological parameters | Primary data: Ground water samples were collected from 8 locations and 3 surface water samples were collected from one locations | Standard methods for Examination of Water and Wastewater published by American Public Health Association (APHA) | All parameters are within limits except MPN count and E-Coli in surface water. |
| Ecology | Terrestrial and flora fauna | Field survey conducted in 10 km study area, once during the study period | Listing of floral and faunal species | <i>Abrus precatorius</i> , <i>Aegle mormelos</i> , <i>Mangifera indica</i> , etc. <i>Columba livia</i> , <i>Acridotheres</i> |

| | | | | |
|--------------------------|---|--|------------------------------------|--|
| | | | | <i>tristis, Passer domesticus, etc.</i> |
| Noise | Noise levels in dB(A) | Continuous 24 – hourly monitoring at 9 locations once during the study period | IS: 4954 as adopted by CPCB | Day: 59.7 – 53.8 dB(A) Night: 47.6-37.1 dB(A) |
| Soil | Physico-chemical | Sampling at 10 locations around project site once during the study period. | BIS specifications | Alluvial soil and non-calcic brown soil is medium in fertility, good water holding capacity, heavy metal contamination signs not seen. |
| Socioeconomic Data | Socio-economic characteristics of the affected area | General in 10 km radial study area and data collected around the project site through field visits | - | Sanitation facilities are satisfactory, Power supply facility is available in almost villages and town, Drinking water source is mostly from ground water supply, Medical facilities in terms of primary health center and primary health sub centers in the rural areas are good. |
| Land use pattern | Land use for different categories | 10 km radius, Based on data published in Primary Census Abstract and satellite imagery LISS –III | Topo-sheets Satellite imageries | Most of the land is Agricultural land followed by Barren land |
| Geology and hydrogeology | Type, drainage etc. | Field observations in 10 km study area and from | Authenticated published data. | Basaltic lava flows, the ground water in Deccan trap basalt occurs |

| | | | | |
|--|--|----------------|--|--|
| | | secondary data | | mostly in the upper weathered and fractured parts down to 20-25 m depth, alluvium occurs in small areas. |
|--|--|----------------|--|--|

11.5 Anticipated Environmental Impacts

Anticipated environmental impacts due to operation of the proposed project are given in below

Table 11.3.

Table 11.3: Anticipated Impacts

| Environmental Facets | Anticipated Impacts |
|------------------------------|---|
| Air Environment | Probable increase in concentration of air pollutants due to process, fugitive and utility emissions. |
| Water Environment | Generation of industrial & domestic wastewater. |
| Land Environment | Impacts on land due to improper disposal of hazardous/ solid waste. |
| Ecological Environment | Positive impact as greenbelt of appropriate width will be developed and maintained by the factory in the premises. No impacts are envisaged on aquatic flora & fauna as there will be zero effluent discharge outside the plant premises. |
| Social Environment | Overall development of the area in respect of the infrastructure development, educational growth, health facilities etc. |
| Socioeconomic Environment | Positive impacts on economy of the region and the country as the Malt spirit will be exported and revenue generation shall occur. |
| Noise Environment | Minor increase in noise level within the project area. |
| Occupational Health & Safety | Major health hazards are identified in worst case scenario. |

11.6 Environmental Monitoring Program

Table 11.4: Environmental Monitoring Schedule

| Components | Parameters | Frequency | Methodology Adopted |
|---------------------|--|---|---|
| Ambient air quality | PM _{2.5} , PM ₁₀ , SO ₂ , NO _x , | Ambient air quality samples are monitored at 9 locations for 24 hours twice a week for the study period | PM ₁₀ /PM _{2.5} : Gravimetric method SO ₂ : Modified West and Gaeke Method. (IS : 5182, Part II) NO _x : Jacobs and Hochheiser Method. (IS 5182 Part VI) |

| | | | |
|--------------------------|--|--|---|
| Meteorology | Surface: Wind speed and direction, temperature, relative humidity and rainfall | Secondary data Hourly continuous readings during the study period at plant site secondary data collected IMD | Monitoring data for primary data IS: 8829 |
| Water quality | Physical, Chemical and Bacteriological parameters. | Primary data: Ground water samples were collected from 8 locations and 3 surface water samples were collected from one locations | Standard methods for Examination of Water and Wastewater published by American Public Health Association (APHA) |
| Ecology | Terrestrial fauna and flora and River ecology | Field survey conducted in 10 km study area, once during the study period | Listing of floral and faunal species. |
| Noise | Noise levels in dB(A) | Continuous 24 – hourly monitoring at 9 locations once during the study period | IS: 4954 as adopted by CPCB. |
| Soil | Physico-chemical | Sampling at 10 locations around project site once during the study period. | BIS specifications |
| Socioeconomic Data | Socio-economic characteristics of the affected area | General in 10 km radial study area and data collected around the project site through field visits | - |
| Land use pattern | Land use for different categories | 10 km radius, Based on data published in Primary Census Abstract and satellite imagery LISS – III | Topo-sheets Satellite imageries |
| Geology and hydrogeology | Type, drainage etc. | Field Observations in 10 km study area and from secondary data | Authenticate published data. |

11.7 Additional Studies

The following Additional Studies shall be done in reference to the awarded Terms of References issued by MoEFCC, New Delhi.

- Public Consultation

11.8 Project Benefits

- Readily available infrastructure, fuel, raw materials & water for project.
- The economic benefits available to the nearby residing population

11.9 Environmental Management Plan

Following mitigation measures shall be adopted by factory to minimize the impact of project on the surrounding environment.

Table 11.5: EMP for various Environmental Attributes

| Environmental Attributes | Mitigation Measures |
|--|--|
| Air Quality Management | <p>Process Emissions</p> <ul style="list-style-type: none"> • Multi cyclone shall be provided as air pollution control equipment. • The whole process will be carried out in closed condition so as to avoid any chances of VOC emissions. <p>Utility Emissions</p> <ul style="list-style-type: none"> • All the D.G. sets shall be standby arrangement and will only be used during power failure. • Adequate stack height (30 m) shall be provided to Boiler and D.G. sets stack shall be as per CPCB norms • Multi cyclone shall be provided as an air pollution control device to the boiler. <p>Fugitive Emission</p> <ul style="list-style-type: none"> • The main raw material and product shall be brought in and dispatched by road in covered enclosures. • Dust suppression on haul roads shall be done at regular intervals. |
| Water & Wastewater Management | <ul style="list-style-type: none"> • The proposed distillery would be based on “Zero Liquid Discharge” technology. • Total Spent wash generation will be 31 CMD. Proposed Distillery Spent wash will be neutralized in neutralization tanks and mixed with Spent wash and then treated in Primary & Secondary Effluent Treatment Plant. The treated effluent is then passed through RO to get clean water. • Domestic wastewater will be sent to ETP and partly sent to septic tank via soak pits. • Proper storm water drainage will be provided during rainy season to avoid mixing of storm water with effluent. • Rain water harvesting from the catchment area will be done for the proposed distillery project. |

| | |
|---|--|
| Noise Management | <ul style="list-style-type: none"> • Closed room shall be provided for all the utilities so as to attenuate the noise pollution. • Acoustic enclosure shall be provided to D.G sets. • Free flow of traffic movement shall be maintained. Earmuffs shall be used while running equipment's of the plant. • Proper maintenance, oiling and greasing of machines at regular intervals shall be done to reduce generation of noise. • Greenbelt shall be developed around the periphery of the plant to reduce noise levels. |
| Odor Management | <ul style="list-style-type: none"> • Odor shall be primarily controlled at source by good operational practices, including physical and management control measures. • Better housekeeping will maintain good hygiene condition by regular steaming of all fermentation equipment. • Use of efficient biocides to control bacterial contamination. • Control of temperature during fermentation to avoid in-activation/killing of yeast. • Avoid staling of fermented wash. |
| Solid & Hazardous Waste Management | <ul style="list-style-type: none"> • The hazardous waste i.e. spent oil generated shall be very minor and shall be burnt in boiler along with fuel. • Ash will be provided to brick manufacturers • ETP sludge & yeast sludge shall be used in greenbelt development |
| Traffic Management | <ul style="list-style-type: none"> • Culverts shall be maintained. • The trucks carrying raw material & fuel shall be covered to reduce any fugitive dust generation. • Good traffic management system shall be developed and implemented for the incoming and outgoing vehicles so as to avoid congestion on the public road. |
| Green Belt Development / Plantation | <ul style="list-style-type: none"> • Plantation shall be done as per Central Pollution Control Board (CPCB) Norms. • The plantation in and around the plant site helps/will help to attenuate the pollution level. • Native species shall be given priority for avenue plantation. |
| Corporate Social Responsibility | <ul style="list-style-type: none"> • An amount of INR 100 Lakhs (2% of the total cost) will be allocated for CSR activities in the coming 3 years which will be utilized on the basis of requirement for weaker sections of the society for next 3 years. |
| Occupational Health & Safety | <ul style="list-style-type: none"> • Factory shall monitor the health of its workers before placement and periodically examine during the employment • Health effects of various activities and health hazard if any observed shall be recorded and discussed with the health experts for corrective and preventive actions need to be taken by the industry • All safety gear shall be provided to workers and care shall be taken by EMC that these are used properly by them. All safety norms shall be followed |

CHAPTER XII: DISCLOSURE OF CONSULTANT

12.1 Background of Organisation

MITCON Consultancy and Engineering Services Ltd., (MITCON) is a rapidly growing, an ISO 9001-2008 certified Consultancy Company, promoted by ICICI, IDBI, IFCI, and State Corporations of Maharashtra and Public Commercial Banks. It was founded in 1982; with Head Office at Pune and with supporting offices spread over entire country including Mumbai, Delhi, Bangalore, Hyderabad, Chennai, Chandigarh, and Ahmadabad etc. With experience, expertise, and track record developed over last almost three decades, MITCON provides diverse range of macro and micro consultancy services in the areas of

- Environment Management and Engineering (EME).
- Energy Efficiency.
- Biomass and Co-gen power.
- Agricultural Business and Bio-technology.
- Infrastructure.
- Market Research.
- Banking Finance and Securitization.
- Micro Enterprise Development.
- IT Training and Education

12.2 Environmental Management and Engineering Division (EME)

Environmental Management and Engineering Division (EME) is one of the key divisions of MITCON and provide expert consultancy and laboratory services for various matrixes of services in the field of environmental management. Thus, EME division partners with an organization in their efforts of achieving sustainable business model.

Some of our credentials of EME division is,

- State-of-the-art Environment Laboratory with experienced and trained manpower.

- Recognition by Ministry of Environment, Forest and Climate Change (MoEF&CC), Government of India and ISO 45001: 2018.
- We are recommended as Technical Consultant by Directorate of Municipal Administration, Govt. of Maharashtra, Mumbai, for preparation of Detailed Project Reports (DPR) on Municipal Solid Waste Management for the Municipal Councils in Maharashtra.
- Accredited by QCI-NABET as an EIA consultant.
- Environmental Impact Assessment
- Environmental Audit / Status Report
- Consent from SPCB
- Municipal Solid Waste Management (MSW)/ Hazardous Waste (HZ) Management & Technical Services
- Water Supply and Sanitation
- Small Turnkey Projects
- Technical Appraisal
- GIS and Remote Sensing
- Laboratory Services
- Water Quality
- Soil Quality
- Wastes (Solid & Semisolid)
- Specialized Services
- Monitoring Services
- Operation & Maintenance Services

EME division of MITCON serves to various sectors like – GIS & RS, solid waste, infrastructure, power, sugar, engineering, chemical, real estate etc.

12.3 NABET Accreditation

MITCON Consultancy and Engineering Services Ltd. is accredited from National Accreditation Board for Education and Training (NABET), Quality Council of India for the EIA consultancy services in 16 sectors.

12.4 Key Personnel's Engaged in Preparation of EIA

Dr. Hemangi Nalawade is an EIA coordinator for this project. Other Functional Area Expertise (FAE) and Team Members (TM) undertaking this project with their specific roles and responsibilities are given in below,

EIA Coordinator – Dr. Hemangi Nalawade

TM- Mr. Nikhil Chavan

Table 12.1: Experts Engaged in Preparation of EIA

| Sr. No. | Name of Experts | Functional Areas | Team Members Involved |
|---------|----------------------|------------------|-----------------------|
| 1. | Dr. Hemangi Nalawade | AQ, SHW | AP, WP |
| 2. | Dr. Sandeep Jadhav | SC, LU | |
| 3. | Mr. Shrikant Kakade | EB | WP |
| 4. | Mr. Nikhil Chavan | AQ, NV | AP, SHW |
| 5. | Mr. Aditya Athavale | Geo, HG | |
| 6. | Mr. Ganesh Khamgal | SE | |
| 7. | Mr. Santosh Gupta | RH, WP, AP, SHW | |

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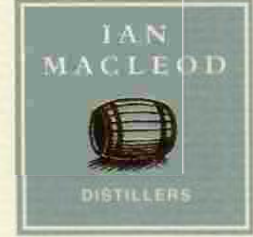
Ian Macleod Distillers India Private Limited
705, B-Wing, Rohini House,
3, Talsay Marg,
New Delhi 110001
India
Tel/Fax:- +9111 2332 3156
www.ianmacleod.com
www.glen.goyne.com
www.smokehead.com
CIN No U15139HR2009PTC039601

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Annexure R7/8

Ref. IMDIPL-EA/2021-22/05
Date: 3rd August 2021

To,
Member Secretary
Him Parivesh,
Phase III, New Shimla
Himachal Pradesh



Sub: Application for conducting public hearing for, 'Proposed 5 KLPD Malt Spirit Distillery at Industrial Area Pandoga, District-Una, H.P. by Ian Macleod Distillers India Pvt. Ltd.'

Dear Sir,

This is with reference to above mentioned subject, we have Proposed 5 KLPD Malt Spirit Distillery at Industrial Area Pandoga, District- Una, H.P. The project falls under 5(g) Category 'A' and attracts Public Consultation, as per EIA notification 2006 and amendments, thereof.

Hon'ble EAC has approved the Standard Terms of Reference for the said project vide Letter No. IA-J-11011/201/2021-IA-II(I) dtd. 20th May 2021.

As per EIA Notification 2006, Environmental Impact Assessment (EIA) study has been carried out.

We are submitting herewith the following necessary documents to conduct Public Hearing,

1. ToR copy
2. Draft EIA Report
3. English Executive Summary
4. Hindi Executive Summary
5. Soft Copy of the data listed above in CD
6. Hard and Soft copy of DPR

Capital cost of the project is INR 50.8 Cr., accordingly please find enclosed herewith the photocopy of Demand Draft of INR 25,000/- (Twenty-Five thousand only) in favor of Assistant Environmental Engineer, HPSPCB, Una {DD No. 146444 dated 26.07.2021}, as fees for conducting the Public Hearing.

We hope the above is in line with the requirements. We are looking forward for further action in this regard.

Thanking You,

Yours faithfully,
For Ian Macleod Distillers India Pvt Ltd

RV Subramanian
Director

Encl: As stated



हिमाचल प्रदेश राज्य प्रदूषण नियंत्रण बोर्ड

हिमपरिवेश, चरण-3, न्यू शिमला-171009

सार्वजनिक सूचना

पर्यावरण प्रभाव आर्द्र. आई.ए. (EIA) अधिसूचना संख्या : का. आ. 1533 (अ) दिनांक 14-09-2006 के प्रावधानों के अनुसार हिमाचल प्रदेश राज्य प्रदूषण नियंत्रण बोर्ड श्रीयुत इयान मैक लिबोर्ड डिस्टीलरीज प्रॉप्राइेट लिमिटेड, औद्योगिक क्षेत्र पंडोगा, ग्राम पंडोगा, जिला ऊना हिमाचल प्रदेश द्वारा प्लॉट नं. A2, A3 और A4, औद्योगिक क्षेत्र पंडोगा, तह-तहसील इसपुर, जिला ऊना हिमाचल प्रदेश में माल्ट स्पिरिट डिस्टिलरी (5 कै.एल.टी.) की स्थापना के प्रस्ताव पर सार्वजनिक सुझाव, विचार, सुझाव एवं आपत्तियां आमंत्रित करता है। उपरोक्त परियोजना के शर्तों में कार्यकारी सारांश (हिंदी व अंग्रेजी) में तथा परियोजना के पर्यावरण प्रभाव निर्धारण रिपोर्ट (अंग्रेजी) प्रोप्राइटर श्री राजेश गर्ग द्वारा सर्व संबंधित अवलोकनार्थ हेतु प्रस्तुत किए गए हैं।

स्थानीय प्रभावित व्यक्तियों एवं परियोजना के पर्यावरणीय प्रभावों के अन्य समुचित स्वायत्तधारी परियोजना के प्रबंधकों द्वारा प्रस्तुत कार्यकारी सारांश (हिंदी व अंग्रेजी) में तथा परियोजना के पर्यावरण प्रभाव निर्धारण रिपोर्ट प्रारूप (ई.आई.ए. रिपोर्ट प्रारूप) (अंग्रेजी) की जांच हेतु (1) निदेशक, पर्यावरण, विज्ञान एवं प्रौद्योगिकी विभाग, पर्यावरण भवन, नजदीक यू.एस. क्लब शिमला, हिमाचल प्रदेश-171001, (2) उप जिला दंडाधिकारी, जिला हरोली, हिमाचल प्रदेश, (3) अध्यक्ष, जिला परिषद, जिला ऊना हिमाचल प्रदेश, (4) जिला औद्योगिक केंद्र, जिला ऊना, हिमाचल प्रदेश, (5) क्षेत्रीय कार्यालय, पर्यावरण एवं वन मंत्रालय, पियर्सन रोड, एफ.आर. आई. कैम्पस, न्यूफोरेस्ट्स, देहरादून-248006, (6) सहायक पर्यावरण अभियंता, हिमाचल प्रदेश राज्य प्रदूषण नियंत्रण बोर्ड, ऊना जिला ऊना व (7) मुख्य कार्यालय, हिमाचल प्रदेश राज्य प्रदूषण नियंत्रण बोर्ड, 'हिमपरिवेश', चरण-3 न्यू शिमला-171009, हिमाचल प्रदेश के कार्यालय में किसी भी कार्य दिवस पर सामान्य दैनिक कार्यसमय में जनसुनवाई संपन्न होने तक संपर्क कर सकते हैं। इसके अतिरिक्त उपरोक्त दस्तावेज राज्य बोर्ड की वेबसाइट (Website: www.hpppcb.nic.in) के अलावा उपमंडल अधिकारी, जिला ऊना हिमाचल प्रदेश के कार्यालय में भी जनसाधारण के अवलोकनार्थ हेतु उपलब्ध हैं। राज्य बोर्ड द्वारा स्थानीय प्रभावित व्यक्तियों एवं परियोजना के पर्यावरणीय प्रभावों के अन्य समुचित स्वायत्तधारियों से सुझाव, विचार, टिप्पणियां 28-10-2021 तक स्वीकार की जाएंगी। इस इकाई हेतु पर्यावरण जनसुनवाई का आयोजन दिनांक 28-10-2021 को 11.30 बजे पूर्वाह्न, कॉमन म्यूजिक गैटो सेंटर के परिसर में औद्योगिक क्षेत्र पंडोगा, तह-तहसील इसपुर, जिला ऊना, हिमाचल प्रदेश में प्रस्तावित है। स्थानीय प्रभावित व्यक्तियों एवं परियोजना के पर्यावरणीय प्रभावों के अन्य समुचित स्वायत्तधारी उपरोक्त सार्वजनिक सुनवाई में उपस्थित करके अपने अमंत्रित किए जाते हैं। सार्वजनिक सुनवाई में भाग लेने हेतु समस्त यात्रा व प्रासंगिक व्यय हिस्सा लेने वाले को स्वयं वहन करना होगा।

(अपूर्व देवगन, भा.प्र.स.)

सदस्य सचिव

हिमाचल प्रदेश राज्य प्रदूषण नियंत्रण बोर्ड



H.P. STATE POLLUTION CONTROL BOARD

Regional Office Una
Phase-IV Rakkar Colony, Tehsil & Distt. Una, Pin-174303(H.P.)
Phone: 01975-238134 e-mail: pcbrcouna@gmail.com
Website: <http://www.hppcb.nic.in>

Dated: 29/8/2021

No: HPSPCB/RO/Una/ (M/s Ian Macleod Distillers India Pvt. Ltd.)/2021: 1127

From: Regional Officer
To: The Member Secretary,
HP State Pollution Control Board,
Shimla-9 (HP).

Subject: Regarding Environmental Public Hearing as per the procedure prescribed under EIA Notification 2006 as amended on the proposal submitted by M/s Ian Macleod Distillers India Pvt. Ltd. for setting up of 05 KLPD Malt Spirit Distillery at Plot No. A2, A3 & A4 in Industrial Area Pandoga, Sub Tehsil Ispur, Distt. Una (HP).

Sir,

With reference to the subject cited proposal submitted by the M/s Ian Macleod Distillers India Pvt. Ltd. vide letter dated 07/08/2021 for setting up 05 KLPD Malt Spirit Distillery at Plot No. A2, A3 & A4 in Industrial Area Pandoga, Sub Tehsil Ispur, Distt. Una (HP).

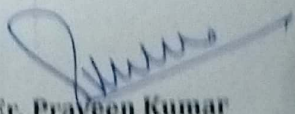
In this context, please find enclosed herewith 20 sets in each Hard & Soft copies of Draft EIA/EMP reports along with Executive Summary (Hindi & English) of the proposal of above said Distillery along with copy of TOR letter granted by MoEF & CC vide letter No. IA-J-11011/201/2021-IA-II(I) dated 20/05/2021 and list of local representatives i.e. Sub Divisional Officer (C) Haroli, Naib Tehsildar Ispur, Executive Officer Municipal Council Una, Chairman Zila Parishad Una, Pradhan Gram Panchayat Pandoga etc.

The venue of public hearing is finalized at the premises of Common Facility Centre, in Industrial Area Pandoga, Sub Tehsil Ispur, Distt. Una (HP). Project Proponent of M/s Ian Macleod Distillers India Pvt. Ltd. has deposited public hearing fee of Rs. 25000/- (Rs. Twenty Five Thousand only) in this office vide R. No. 0115084 dated 19/08/2021. Therefore as per the consent already given by the Additional Deputy Commissioner Una, you are hereby requested to schedule the subject cited Environmental Public Hearing on 28/10/2021 at 11:30 AM please.

This is for favour of your kind information and further necessary action please.

Yours faithfully,

Encls. As above.


Er. Praveen Kumar
Regional Officer

List of Name & Address of Local Representatives

| r. No. | Name of Representative | Designation | Office/Address |
|--------|------------------------|--------------------------------------|--|
| 1. | Sh. Vikas Sharma | Sub Divisional Officer (C) Haroli | O/o SDO (C) Haroli, Tehsil Haroli, Distt. Una (HP) |
| 2. | Sh. Prakash Chand | Naib Tehsildar Ispur | O/o Naib Tehsildar Ispur, Distt. Una (HP) |
| 3. | Sh. Anshul Dhiman | General Manager, DIC Una | DIC Una, Distt. Una (HP) |
| 4. | Sh. Sandeep Kumar | Executive Officer MC Una | O/o Municipal Council Una, Distt. Una (HP) |
| 5. | Smt. Neelam Kumari | Chairman Zila Parishad Una | Zila Parishad Una, Tehsil & Distt. Una (HP) |
| 6. | Smt. Rajni Mankotia | BDC Chairman Haroli | O/o BDO Haroli, Tehsil Haroli, Distt. Una (HP) |
| 7. | Sh. Gulwinder Singh | Pradhan Gram Panchayat Pandoga | Gram Panchayat Pandoga, Sub Tehsil Haroli, Distt. Una (HP) |

No.IA-J-11011/201/2021-IA-II(I)
Government of India
Minister of Environment, Forest and Climate Change
Impact Assessment Division

Indira Paryavaran Bhavan,
Vayu Wing, 3rd Floor, Aliganj,
Jor Bagh Road, New Delhi-110003
20 May 2021

To,

M/s IAN MACLEOD DISTILLERS INDIA PRIVATE LIMITED
Pandoga Industrial area, Village Pandoga, Tal.Haroli, Dist. Una, Himachal Pradesh,
Una-110001
Himachal Pradesh

Tel.No.011-23323156; Email:rv.subramanian@ianmacleod.com

Sir/Madam,

This has reference to the proposal submitted in the Ministry of Environment, Forest and Climate Change to prescribe the Terms of Reference (TOR) for undertaking detailed EIA study for the purpose of obtaining Environmental Clearance in accordance with the provisions of the EIA Notification, 2006. For this purpose, the proponent had submitted online information in the prescribed format (Form-1) along with a Pre-feasibility Report. The details of the proposal are given below:

- | | |
|---|--|
| 1. Proposal No.: | IA/HP/IND2/212301/2021 |
| 2. Name of the Proposal: | Proposed 5 KLPD Malt Spirit Distillery |
| 3. Category of the Proposal: | Industrial Projects - 2 |
| 4. Project/Activity applied for: | 5(g) Distilleries |
| 5. Date of submission for TOR: | 18 May 2021 |

In this regard, under the provisions of the EIA Notification 2006 as amended, the Standard TOR for the purpose of preparing environment impact assessment report and environment management plan for obtaining prior environment clearance is prescribed with public consultation as follows:

STANDARD TERMS OF REFERENCE (TOR) FOR EIA/EMP REPORT FOR
PROJECTS/ACTIVITIES REQUIRING ENVIRONMENT CLEARANCE

**5(g): STANDARD TERMS OF REFERENCE FOR CONDUCTING
ENVIRONMENT IMPACT ASSESSMENT STUDY FOR
DISTILLERIES AND INFORMATION TO BE INCLUDED IN EIA/EMP
REPORT**

A. STANDARD TERMS OF REFERENCE

1) Executive Summary

2) Introduction

- i. Details of the EIA Consultant including NABET accreditation
- ii. Information about the project proponent
- iii. Importance and benefits of the project

3) Project Description

- i. Cost of project and time of completion.
- ii. Products with capacities for the proposed project.
- iii. If expansion project, details of existing products with capacities and whether adequate land is available for expansion, reference of earlier EC if any.
- iv. List of raw materials required and their source along with mode of transportation.
- v. Other chemicals and materials required with quantities and storage capacities
- vi. Details of Emission, effluents, hazardous waste generation and their management.
- vii. Requirement of water, power, with source of supply, status of approval, water balance diagram, man-power requirement (regular and contract)
- viii. Process description along with major equipments and machineries, process flow sheet (quantative) from raw material to products to be provided
- ix. Hazard identification and details of proposed safety systems.
- x. Expansion/modernization proposals:
 - a. Copy of all the Environmental Clearance(s) including Amendments thereto obtained for the project from MOEF/SEIAA shall be attached as an Annexure. A certified copy of the latest Monitoring Report of the Regional Office of the Ministry of Environment and Forests as per circular dated 30th May, 2012 on the status of compliance of conditions stipulated in all the existing environmental clearances including Amendments shall be provided. In addition, status of compliance of Consent to Operate for the ongoing existing operation of the project from SPCB shall be attached with the EIA-EMP report.
 - b. In case the existing project has not obtained environmental clearance, reasons for not taking EC under the provisions of the EIA Notification 1994 and/or EIA Notification

**STANDARD TERMS OF REFERENCE (TOR) FOR EIA/EMP REPORT FOR PROJECTS/
ACTIVITIES REQUIRING ENVIRONMENT CLEARANCE**

2006 shall be provided. Copies of Consent to Establish/No Objection Certificate and Consent to Operate (in case of units operating prior to EIA Notification 2006, CTE and CTO of FY 2005-2006) obtained from the SPCB shall be submitted. Further, compliance report to the conditions of consents from the SPCB shall be submitted.

4) Site Details

- i. Location of the project site covering village, Taluka/Tehsil, District and State, Justification for selecting the site, whether other sites were considered.
- ii. A toposheet of the study area of radius of 10km and site location on 1:50,000/1:25,000 scale on an A3/A2 sheet. (including all eco-sensitive areas and environmentally sensitive places)
- iii. Details w.r.t. option analysis for selection of site
- iv. Co-ordinates (lat-long) of all four corners of the site.
- v. Google map-Earth downloaded of the project site.
- vi. Layout maps indicating existing unit as well as proposed unit indicating storage area, plant area, greenbelt area, utilities etc. If located within an Industrial area/Estate/Complex, layout of Industrial Area indicating location of unit within the Industrial area/Estate.
- vii. Photographs of the proposed and existing (if applicable) plant site. If existing, show photographs of plantation/greenbelt, in particular.
- viii. Landuse break-up of total land of the project site (identified and acquired), government/private - agricultural, forest, wasteland, water bodies, settlements, etc shall be included. (not required for industrial area)
- ix. A list of major industries with name and type within study area (10km radius) shall be incorporated. Land use details of the study area
- x. Geological features and Geo-hydrological status of the study area shall be included.
- xi. Details of Drainage of the project upto 5km radius of study area. If the site is within 1 km radius of any major river, peak and lean season river discharge as well as flood occurrence frequency based on peak rainfall data of the past 30 years. Details of Flood Level of the project site and maximum Flood Level of the river shall also be provided. (mega green field projects)
- xii. Status of acquisition of land. If acquisition is not complete, stage of the acquisition process and expected time of complete possession of the land.
- xiii. R&R details in respect of land in line with state Government policy

5) Forest and wildlife related issues (if applicable):

- i. Permission and approval for the use of forest land (forestry clearance), if any, and recommendations of the State Forest Department. (if applicable)

**STANDARD TERMS OF REFERENCE (TOR) FOR EIA/EMP REPORT FOR
PROJECTS/ACTIVITIES REQUIRING ENVIRONMENT CLEARANCE**

- ii. Landuse map based on High resolution satellite imagery (GPS) of the proposed site delineating the forestland (*in case of projects involving forest land more than 40 ha*)
 - iii. Status of Application submitted for obtaining the stage I forestry clearance along with latest status shall be submitted.
 - iv. The projects to be located within 10 km of the National Parks, Sanctuaries, Biosphere Reserves, Migratory Corridors of Wild Animals, the project proponent shall submit the map duly authenticated by Chief Wildlife Warden showing these features vis-à-vis the project location and the recommendations or comments of the Chief Wildlife Warden-thereon
 - v. Wildlife Conservation Plan duly authenticated by the Chief Wildlife Warden of the State Government for conservation of Schedule I fauna, if any exists in the study area
 - vi. Copy of application submitted for clearance under the Wildlife (Protection) Act, 1972, to the Standing Committee of the National Board for Wildlife
- 6) Environmental Status**
- i. Determination of atmospheric inversion level at the project site and site-specific micro-meteorological data using temperature, relative humidity, hourly wind speed and direction and rainfall.
 - ii. AAQ data (except monsoon) at 8 locations for PM10, PM2.5, SO₂, NO_x, CO and other parameters relevant to the project shall be collected. The monitoring stations shall be based CPCB guidelines and take into account the pre-dominant wind direction, population zone and sensitive receptors including reserved forests.
 - iii. Raw data of all AAQ measurement for 12 weeks of all stations as per frequency given in the NAQQM Notification of Nov. 2009 along with - min., max., average and 98% values for each of the AAQ parameters from data of all AAQ stations should be provided as an annexure to the EIA Report.
 - iv. Surface water quality of nearby River (100m upstream and downstream of discharge point) and other surface drains at eight locations as per CPCB/MoEF&CC guidelines.
 - v. Whether the site falls near to polluted stretch of river identified by the CPCB/MoEF&CC, if yes give details.
 - vi. Ground water monitoring at minimum at 8 locations shall be included.
 - vii. Noise levels monitoring at 8 locations within the study area.
 - viii. Soil Characteristic as per CPCB guidelines.
 - ix. Traffic study of the area, type of vehicles, frequency of vehicles for transportation of materials, additional traffic due to proposed project, parking arrangement etc.
 - x. Detailed description of flora and fauna (terrestrial and aquatic) existing in the study area shall be given with special reference to rare, endemic and endangered species. If Schedule-I fauna are found within the study area, a Wildlife Conservation Plan shall be prepared and furnished.
 - xi. Socio-economic status of the study area.

STANDARD TERMS OF REFERENCE (TOR) FOR EIA/EMP REPORT FOR PROJECTS/
ACTIVITIES REQUIRING ENVIRONMENT CLEARANCE

7) **Impact and Environment Management Plan**

- i. Assessment of ground level concentration of pollutants from the stack emission based on site-specific meteorological features. In case the project is located on a hilly terrain, the AQIP Modelling shall be done using inputs of the specific terrain characteristics for determining the potential impacts of the project on the AAQ. Cumulative impact of all sources of emissions (including transportation) on the AAQ of the area shall be assessed. Details of the model used and the input data used for modelling shall also be provided. The air quality contours shall be plotted on a location map showing the location of project site, habitation nearby, sensitive receptors, if any.
- ii. Water Quality modelling - in case of discharge in water body
- iii. Impact of the transport of the raw materials and end products on the surrounding environment shall be assessed and provided. In this regard, options for transport of raw materials and finished products and wastes (large quantities) by rail or rail-cum road transport or conveyor-cum-rail transport shall be examined.
- iv. A note on treatment of wastewater from different plant operations, extent recycled and reused for different purposes shall be included. Complete scheme of effluent treatment. Characteristics of untreated and treated effluent to meet the prescribed standards of discharge under E(P) Rules.
- v. Details of stack emission and action plan for control of emissions to meet standards.
- vi. Measures for fugitive emission control
- vii. Details of hazardous waste generation and their storage, utilization and management. Copies of MOU regarding utilization of solid and hazardous waste in cement plant shall also be included. EMP shall include the concept of waste-minimization, recycle/reuse/recover techniques, Energy conservation, and natural resource conservation.
- viii. Proper utilization of fly ash shall be ensured as per Fly Ash Notification, 2009. A detailed plan of action shall be provided.
- ix. Action plan for the green belt development plan in 33 % area i.e. land with not less than 1,500 trees per ha. Giving details of species, width of plantation, planning schedule etc. shall be included. The green belt shall be around the project boundary and a scheme for greening of the roads used for the project shall also be incorporated.
- x. Action plan for rainwater harvesting measures at plant site shall be submitted to harvest rainwater from the roof tops and storm water drains to recharge the ground water and also to use for the various activities at the project site to conserve fresh water and reduce the water requirement from other sources.
- xi. Total capital cost and recurring cost/annum for environmental pollution control measures shall be included.
- xii. Action plan for post-project environmental monitoring shall be submitted.

**STANDARD TERMS OF REFERENCE (TOR) FOR EIA/EMP REPORT FOR PROJECTS/
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bound action plan shall be included. Socio-economic development activities need to be elaborated upon.

- 12) Any litigation pending against the project and/or any direction/order passed by any Court of Law against the project, if so, details thereof shall also be included. Has the unit received any notice under the Section 5 of Environment (Protection) Act, 1986 or relevant Sections of Air and Water Acts? If so, details thereof and compliance/ATR to the notice(s) and present status of the case.
- 13) A tabular chart with index for point wise compliance of above TOR.

**B. SPECIFIC TERMS OF REFERENCE FOR EIA STUDIES FOR
DISTILLERIES**

1. List of existing distillery units in the study area along with their capacity and sourcing of raw material.
2. Number of working days of the distillery unit.
3. Details of raw materials such as molasses/grains, their source with availability.
4. Details of the use of steam from the boiler.
5. Surface and Ground water quality around proposed spent wash storage lagoon, and compost yard.
6. Plan to reduce spent wash generation within 6-8 KL/KL of alcohol produced.
7. Proposed effluent treatment system for molasses/grain based distillery (spent wash, spent lees, condensate and utilities) as well as domestic sewage and scheme for achieving zero effluent discharge (ZLD).
8. Proposed action to restrict fresh water consumption within 10 KL/KL of alcohol production.
9. Details about capacity of spent wash holding tank, material used, design consideration. No. of piezometers to be proposed around spent wash holding tank.
10. Action plan to control ground water pollution.
11. Details of solid waste management including management of boiler ash, yeast, etc. Details of incinerated spent wash ash generation and its disposal.
12. Details of bio-composting yard (if applicable).
13. Action plan to control odour pollution.
14. Arrangements for installation of continuous online monitoring system (24x7 monitoring device)

Proceeding of Environmental Public Hearing organized by HP State Pollution Control Board Una according to the provisions of EIA Notification No: S.O. 1533 (E) Dated: 14/09/2006 on the proposal of unit M/s IAN Macleod Distillers India Pvt. Ltd., Industrial Area Pandoga, Sub Tehsil Ispur, Distt. Una (HP) for setting up of Malt Spirit Distillery (05 KLPD) at Plot No. A2, A3 & A4 of Industrial Area Pandoga, Sub Tehsil Ispur, Distt. Una (HP) on 28/10/2021 at 11:30 AM in the premises of Common Facility Centre, Industrial Area Pandoga, Sub Tehsil Ispur, Distt. Una (HP).

Environmental Public Hearing on the proposal of unit M/s IAN Macleod Distillers India Pvt. Ltd., Industrial Area Pandoga, Sub Tehsil Ispur, Distt. Una (HP) for setting up of Malt Spirit Distillery (05 KLPD) at Plot No. A2, A3 & A4 of Industrial Area Pandoga, Sub Tehsil Ispur, Distt. Una (HP) was organized by HP State Pollution Control Board, Regional Office Una on 28/10/2021 at 11:30 AM in the premises of Common Facility Centre, Industrial Area Pandoga, Sub Tehsil Ispur, Distt. Una (HP), as per the provisions of notification No-SO-1533(E) dated 14.09.2006. This public Hearing was organized by HP State Pollution Control Board under the Chairmanship of Sh. Amit Kumar, Additional Deputy Commissioner Una cum Chairman of Environmental Public Hearing, according to prescribed process of public Hearing. The attendance sheet of participants in the public hearing is enclosed as **Annex-I**.

In the Public Hearing, Officers/Officials of various Departments of local Administration, representative of proposed Unit & their consultants, representatives of local Gram Panchayats and residents of local & nearby villages were also present.

First of all, Er. Praveen Kumar, Assistant Environmental Engineer, HP State Pollution Control Board Una, welcomed the Chairman, Officers/Officials of various Departments of local Administration, representative of Local Panchayats, Project Proponent & their consultant and the Public. Thereafter he gave detailed information to the people present regarding organization of the Environmental Public Hearing and started the process of Environmental Public Hearing with the permission of ADC cum Chairman, Environment Public Hearing.

Thereafter, Assistant Environmental Engineer, HPSPCB Una requested the Consultant of M/s IAN Macleod Distillers India Pvt. Ltd., to provide the detailed information of the proposed Malt Distillery Plant to the public. After the detailed description of various aspects of proposed Malt Distillery Plant by the consultant of the proposed unit, the Assistant Environmental Engineer, HP State Pollution Control Board Una asked the people present in the Environment Public Hearing to express their views, comments, suggestion and objections on the proposed Malt Distillery, without any fear and pressure from any corner.

Videography of the Public hearing was also conducted. Accordingly, the proceeding of the Environmental Public Hearing was recorded and same is reproduced hereunder:

| S. No. | Name and Address | Issues raised/Suggestions submitted | Reply of Issues raised/Suggestions submitted |
|--------|--|---|--|
| 1. | Sh. Surinder Thakur, VPO Pandoga, Tehsil | He gave the example of the already established liquor factory in the industrial area of Mehatpur and said | The consultant of the proposed industrial unit said that no waste material would be discharged |

| | | | |
|----|---|--|--|
| | Haroli, Distt. Una (HP) | <p>that if the proposed unit also spreads pollution in the area like the said liquor factory, then it will become difficult for the local people to live here.</p> <p>He referred the incident of flowing of chemicals in the Khad from the pharmaceutical company of the industrial area along with the rain water and asked the consultant that what arrangements have been made to prevent such incidents in the proposed unit.</p> <p>He demanded that the people of the local village should be given priority for employment in the proposed unit, so that they can work here and earn their living.</p> | <p>outside the proposed unit. The solid waste generated during the manufacturing process in the proposed unit will be used for making cattle feed. Waste water generated during the manufacturing process will be treated through Reverse Osmosis Process (RO) and the treated water will be used again within the unit. She informed that the proposed unit is based on Zero Liquid Discharge (Z.L.D) process in which the waste water generated in the plant will be reused within the plant after the treatment.</p> <p>She further informed that gutters would be constructed in the raw material storage rooms of the proposed unit. These gutters will be further connected with the large tanks, so that no material or raw material will flow out along with the water.</p> <p>She said that in the proposed unit there is proposal of employing total 77 persons and assured that the priority for the employment will be given to local people only.</p> |
| 2. | Sh. Sushil Kumar Dhiman, Ind. Area Pandoga, Distt. Una (HP) | <p>He said that it is being told here that Air & Water Quality monitoring of the 6-7 locations in the area has already been conducted. In this connection, he asked the consultant when such monitoring was conducted and whether this monitoring was conducted in the presence of State Pollution Control Board Officials or they had been informed in this context. In addition to this, on the air quality monitoring carried out at Daulatpur which is far away from the proposed location, he asked the consultant what could be the impact of the proposed unit at such a distance. He also asked whether this monitoring was conducted throughout</p> | <p>The consultant of the proposed industrial unit replied that according to the guidelines of the Central Ministry, the quality of air and water has to be monitored within a radius of 10 km of the proposed location. Therefore, keeping account of the direction of air flow, the sites are selected for the assessment of the effect, out of which some places are close to the proposed location and some distant places are selected for the monitoring. She further said that this monitoring have to be carry out either in pre-monsoon time or in post-monsoon time and</p> |

| | | | |
|----|---|--|---|
| | | the year. | monitoring of air & water quality of the area for the impact assessment report of the proposed unit has been carried out in the months March to May. She also informed that according to the term of references, it is mandatory to study the quality of air and water in the area for obtaining environmental clearance and the draft report of this study has already been submitted to the State Pollution Control Board. |
| 3. | Sh. Gurpal Singh, Up-Pradhan, Gram Panchayat Pandoga, Distt. Una (HP) | He said that Gram Panchayat Pandoga has no objection for the setting up of the proposed unit and he demanded that the priority in employment should be given to the unemployed people of the village in the proposed unit. | |

In the end, Er. Praveen Kumar, Assistant Environmental Engineer, Himachal Pradesh State Pollution Control Board, Una thanked the Chairman and all other participants for participating in this environmental Public Hearing.


Amit Kumar (I.A.S.)
Additional Deputy Commissioner
Una, Distt. Una (HP)

मसर्स इयान मैकलियोड डिस्टिलर्स इंडिया प्राइवेट लिमिटेड, औद्योगिक क्षेत्र पंडोगा, ग्राम पंडोगा, उप तहसील ईसपुर, जिला ऊना (हि.प्र.) के प्लॉट संख्या ए2, ए3 व ए4, औद्योगिक क्षेत्र पंडोगा, उप तहसील ईसपुर, जिला ऊना (हि.प्र.) में मॉल्ट स्पिरिट डिस्टिलरी, कुल उत्पादन क्षमता 05 किलो लीटर प्रति दिन की स्थापना के प्रस्ताव पर पर्यावरणीय जनसुनवाई पर कॉमन फैंसीलिटी सेंटर के परिसर, औद्योगिक क्षेत्र पंडोगा, उप तहसील ईसपुर, जिला ऊना (हि.प्र.) प्रस्ताव पर आयोजित पर्यावरणीय जन सुनवाई की कार्यावाही का विवरण।

हिमाचल प्रदेश राज्य प्रदूषण नियंत्रण बोर्ड द्वारा आज दिनांक 28.10.2021 को मैसर्स इयान मैकलियोड डिस्टिलर्स इंडिया प्राइवेट लिमिटेड, औद्योगिक क्षेत्र पंडोगा, ग्राम पंडोगा, उप तहसील ईसपुर, जिला ऊना (हि.प्र.) के प्लॉट संख्या ए2, ए3 व ए4, औद्योगिक क्षेत्र पंडोगा, उप तहसील ईसपुर, जिला ऊना (हि.प्र.) में मॉल्ट स्पिरिट डिस्टिलरी, कुल उत्पादन क्षमता 05 किलो लीटर प्रति दिन की स्थापना के प्रस्ताव पर कॉमन फैंसीलिटी सेंटर के परिसर, औद्योगिक क्षेत्र पंडोगा, उप तहसील ईसपुर, जिला ऊना (हि.प्र.) में पर्यावरणीय जन सुनवाई का आयोजन भारत सरकार द्वारा जारी की गई अधिसूचना संख्या: एस. ओ. - 1533 दिनांक 14 सितम्बर 2006 के अर्न्तगत निर्धारित प्रक्रिया के अनुसार माननीय अतिरिक्त जिलाधीश ऊना एवं अध्यक्ष पर्यावरण जन सुनवाई की अध्यक्षता में करवाया गया।

इस पर्यावरणीय जन सुनवाई के दौरान विभिन्न विभागों के अधिकारीगण, स्थानीय ग्राम पंचायतों के प्रतिनिधि, प्रस्तावित इकाई के प्रतिनिधि व उनके परामर्शदाता और स्थानीय व निकटवर्ती गांवों के निवासी उपस्थित थे।

सर्वप्रथम, प्रवीण कुमार, सहायक पर्यावरण अभियंता, हिमाचल प्रदेश राज्य प्रदूषण नियंत्रण बोर्ड क्षेत्रीय कार्यालय ऊना ने अध्यक्ष महोदय, विभिन्न विभागों के अधिकारियों व कर्मचारियों, स्थानीय पंचायत के प्रतिनिधियों, प्रस्तावित इकाई के प्रतिनिधि व उनके परामर्शदाता और उपस्थित जनता का अभिनन्दन किया। उन्होंने पर्यावरणीय जनसुनवाई के आयोजन के सभ्य में जनसमूह को एक विस्तृत जानकारी दी और तत्पश्चात अध्यक्ष महोदय की आज्ञा से जन सुनवाई की कार्यावाही आरम्भ की।

तत्पश्चात, सहायक पर्यावरण अभियंता, हिमाचल प्रदेश राज्य प्रदूषण नियंत्रण बोर्ड क्षेत्रीय कार्यालय ऊना ने मैसर्स इयान मैकलियोड डिस्टिलर्स इंडिया प्राइवेट लिमिटेड के परामर्शदाता को प्रस्तावित मॉल्ट स्पिरिट डिस्टिलरी की स्थापना के संबंध में विस्तृत जानकारी जनसमूह को देने का निवेदन किया। इसके उपरान्त प्रस्तावित इकाई के परामर्शदाता द्वारा प्रस्तावित इकाई के प्रस्ताव की विस्तृत जानकारी उपस्थित जनसमूह को दी गई। इस विस्तृत जानकारी के उपरान्त सहायक पर्यावरण अभियंता ने उपस्थित जनसमूह को संबोधित करते हुए उन्हें प्रस्तावित औद्योगिक इकाई के प्रस्ताव के सम्बन्ध में अपने सुझाव, विचार, टिप्पणियां एवं आपत्तियों को बिना किसी दबाव व भय के पूछने को कहा।

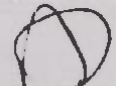
इस पर्यावरण जन सुनवाई की संपूर्ण कार्यवाही की वीडियोग्राफी भी की गई। इस पर्यावरण जन सुनवाई के दौरान उठाए गए मुद्दों एवं उन पर की गई टिप्पणियों की कार्यवाही का विवरण निम्न प्रकार से हैं:

| क्रमांक | नाम व पता | मामले/ सुझाव | उत्तर |
|---------|---|---|--|
| 1. | श्री सुरेन्द्र ठाकुर, गांव व डाकखाना पंडोगा, जिला ऊना (हि.प्र.) | उन्होंने औद्योगिक क्षेत्र मेहतपुर में पहले से स्थापित शराब फैक्टरी का उदाहरण दिया और कहा कि अगर प्रस्तावित इकाई भी उक्त शराब फैक्टरी की भांति इलाके में प्रदूषण फैलायेगी तो स्थानीय | प्रस्तावित औद्योगिक इकाई की परामर्शदाता ने बताया कि प्रस्तावित इकाई में से किसी भी तरह के व्यर्थ पदार्थ को बाहर नहीं छोड़ा जाएगा। प्रस्तावित इकाई में निर्माण प्रक्रिया के दौरान उत्पन्न होने वाले ठोस |

| | | | |
|---|--|---|--|
| | | <p>लोगो का यहां रहना दुश्वार हो जाएगा। उन्होंने औद्योगिक क्षेत्र की एक दवा निर्माता कंपनी के कैमिकलयुक्त पानी के बरसात के पानी के साथ बहकर खड्ड में आने की घटना का जिक्र किया और पूछा कि प्रस्ताविक इकाई में इस तरह की घटनाओं को रोकने के लिए क्या प्रबंध किए गए हैं। उन्होंने मांग की कि प्रस्ताविक इकाई में रोजगार के लिए स्थानीय गांव के लोगो को ही प्राथमिकता दी जाए, जिससे वह यहां पर काम कर सकें और अपना जीवन-यापन कर सकें।</p> | <p>व्यर्थ का उपयोग मवेशी चारा/फीड बनाने में किया जाएगा। निर्माण प्रक्रिया के दौरान निकले व्यर्थ जल का उत्कृष्ट प्रसारण (आर.ओ.) के माध्यम से शोधन किया जाएगा और इस जल को फिर से इकाई के अंदर प्रयोग में लाया जाएगा। उन्होंने बताया कि प्रस्तावित इकाई एक जैड. एल.डी. आधारित इकाई होगी, जिसमें संयंत्र से निकलने वाले व्यर्थ जल को उपचारित करने के बाद संयंत्र में ही पुनः उपयोग में लाया जाएगा। उन्होंने आगे बताया कि प्रस्तावित इकाई में कच्चा माल के भंडारण कक्षों में गटर का निर्माण किया जाएगा। यह गटर आगे बड़े टैंकों के साथ जुड़े होंगे, जिससे कोई भी सामग्री अथवा कच्चा माल पानी के साथ बह के बाहर नहीं जा सकेगा। उन्होंने बताया कि प्रस्तावित इकाई में कुल 77 लोगो को रोजगार दिया जाना प्रस्तावित है जिसमें स्थानीय लोगो को ही प्राथमिकता दी जाएगी।</p> |
| 2 | <p>श्री सुशील कुमार धीमान, औद्योगिक क्षेत्र पंडोगा, जिला ऊना (हि.प्र.)</p> | <p>उन्होंने कहा कि परामर्शदाता द्वारा यहां बताया गया है कि इलाके में 6 से 7 जगहों पर वायु एवं जल गुणवत्ता की जांच करवाई जा चुकी है। इस संबंध में उन्होंने पूछा कि यह जांच कब करवाई गई और क्या यह जांच प्रदूषण नियंत्रण बोर्ड के अधिकारियों की उपस्थिति में करवाई गई है या उन्हें इस संदर्भ में सूचित किया गया था। इसके अलावा दौलतपुर जो कि प्रस्तावित स्थान से बहुत दूर है इसमें की गई वायु गुणवत्ता जांच पर उन्होंने परामर्शदाता से पूछा कि प्रस्तावित इकाई का इतनी दूरी पर क्या</p> | <p>प्रस्तावित औद्योगिक इकाई की परामर्शदाता ने बताया कि केन्द्रीय मंत्रालय के दिशा निर्देशों के अनुसार वायु एवं जल की गुणवत्ता की जांच 10 किलोमीटर के दायरे में की जानी होती है। अतः इसमें वायु प्रवाह की दिशा को ध्यान में रखते हुए प्रभाव के आकलन के लिए स्थलों का चयन किया जाता है जिनमें से कुछ स्थल प्रस्तावित स्थान के नजदीक होते हैं और कुछ दूर स्थित स्थलों का चयन जांच के लिए किया जाता है। उन्होंने आगे बताया कि यह जांच मानसून से पूर्व के समय या मानसून के बाद के समय में की जाती है और प्रस्तावित इकाई के प्रभाव आकलन</p> |

| | | | |
|----|---|--|--|
| | | <p>प्रभाव हो सकता है। उन्होंने यह भी पूछा कि यह जांच क्या पूरे वर्ष की जाती है।</p> | <p>रिपोर्ट के लिए इलाके की वायु एवं जल की गुणवत्ता की जांच मार्च से मई के दौरान की गई है। उन्होंने यह भी बताया कि पर्यावरण स्वीकृति प्राप्त करने के लिए टर्म आफ रैपरेंस के अनुसार इलाके में वायु एवं जल की गुणवत्ता का अध्ययन करना अनिवार्य है और इस अध्ययन की प्रारूप रिपोर्ट राज्य प्रदूषण नियंत्रण बोर्ड के सम्मक्ष प्रस्तुत कर दी गई है।</p> |
| 3. | <p>श्रीमती गुरपाल सिंह उप प्रधान, ग्राम पंचायत पंडोगा, जिला ऊना (हि.प्र.)</p> | <p>उन्होंने कहा कि ग्राम पंचायत पंडोगा प्रस्ताविक इकाई की स्थापना से कोई आपत्ति नहीं है और उन्होंने प्रस्ताविक इकाई में गांव के बेरोजगार लोगों को रोजगार में प्राथमिकता दिये जाने की मांग रखी।</p> | |

अतः मे श्री प्रवीण कुमार, सहायक पर्यावरण अभियंता, हिमाचल प्रदेश राज्य प्रदूषण नियंत्रण बोर्ड ऊना ने ~~अध्ययन~~ महोदय एवं अन्य सभी प्रतिभागियों का इस पर्यावरण जन सुनवाई में भाग लेने का धन्यवाद किया।


 अमित कुमार (भा.प्र.से.)
 अतिरिक्त जिलाधीश,
 ऊना, जिला ऊना (हि.प्र.)

Attendance Sheet of Environmental Public Hearing organized by HP State Pollution Control Board Una according to the provisions of EIA Notification No: S.O. 1533 (E) Dated: 14/09/2006 on the proposal of unit M/s IAN Macleod Distillers India Pvt. Ltd., Industrial Area Pandoga, Sub Tehsil Ispur, Distt. Una (HP) for setting up of Malt Spirit Distillery (05 KLD) at Plot No. A2, A3 & A4 of Industrial Area Pandoga, Sub Tehsil Ispur, Distt. Una (HP) held under the Chairmanship of Addl. Deputy Commissioner Una on 28/10/2021 at 11:30 AM in the Premises of Common Facility Centre, Industrial Area Pandoga, Sub Tehsil Ispur, Distt. Una (HP).

| Sr. No. | Name & Designation/Address | Contact Number | Signature |
|---------|---|----------------|-----------------------|
| 1 | Arun Sharma, manager (MC) | 701338 1156 | Arun Sharma |
| 2 | Anshul Shiman, Guard manager (OIC) | 941874622 | Anshul Shiman |
| 3 | Sushil Kumar Shiman, D-11 I. A. Pandoga | 841850631 | Sushil Kumar Shiman |
| 4 | Dr. Hemraj Nalavade | 5667966038 | Dr. Hemraj Nalavade |
| 5 | JASPAL SINGH NEGI SURINTENDENT G-II CPRIE, RTE UNA | 986597341 | Jaspal Singh Negi |
| 6 | Gopal Kac up Pandoga Pandoga | 986593691 | Gopal Kac |
| 7 | Ashok Shiman, Dy. Director Horticulture (Una) | 945972027 | Ashok Shiman |
| 8 | Pardeep Singh Pandoga, Civil Engineer Thakur | 9730401110 | Pardeep Singh |
| 9 | Pranveer Dhillon APE HSPCB Una | 9418508787 | Pranveer Dhillon |
| 10 | Gurpreet Singh Atrwal, JEE-III, HSPCB Una | 8210307313 | Gurpreet Singh Atrwal |

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Annexure R7/12(COLLY)

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Date 21/10/2024


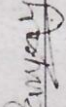
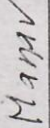





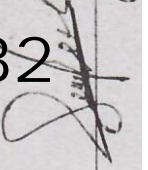
| Sr. No. | Name, Designation & Address | Contact Number | Signature |
|---------|-----------------------------|----------------|------------------|
| 1 | 218112 218 403011 | 3 980567780 | 4 [Signature] |
| 21 | [Signature] 403011 | 980567780 | [Signature] |
| 22 | [Signature] 403011 | 980567780 | [Signature] |
| 23 | [Signature] [Signature] | 980567780 | [Signature] |
| 24 | [Signature] 403011 | 980567780 | [Signature] |
| 25 | [Signature] [Signature] | 980567780 | [Signature] |
| 26 | [Signature] [Signature] | 980567780 | [Signature] |
| 27 | [Signature] [Signature] | 980567780 | [Signature] |
| 28 | [Signature] [Signature] | 980567780 | [Signature] |
| 29 | [Signature] [Signature] | 980567780 | [Signature] |

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3

Date - 28/10/2021

| Sr. No. | Name, Designation & Address | Contact Number | Signature |
|---------|------------------------------------|----------------|---|
| 1 | 2 | 3 | 4 |
| 31 | Raman Kumar Badhera Rajputan | 9816075436 |  |
| 32 | Ranjay Khad | 9805977058 |  |
| 33 | Manu Badhera Rajputan | 9805842852 |  |
| 34 | Jagdeep Singh Shahpur | 7888334364 |  |
| 35 | Anand Bedi V.P.O. Sapsan | 8264821510 |  |
| 36 | Tiku Badhera Rajputan | |  |
| 37 | Nehal Shoni Poncha chand v.o.h | 9882349523 |  |
| 38 | Amit Kumar Shri Sukhaley chand | 9894933380 |  |
| 39 | ATTA GATTI | 8219881392 | |
| 40 | Subhinder Sesh Vigra Haryet Pur | 9818157388 |  |

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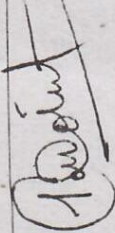
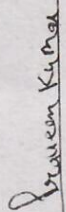
9

| Sr. No. | Name, Designation & Address | Contact Number | Signature |
|---------|--|----------------|-----------|
| 1 | 2 | 3 | 4 |
| 41 | Mandant Singh, Village Bedhela | 709826304 | |
| 42 | Gaurai | 981695304 | |
| 43 | Nehal Kumar, Village Bedhela, Distt Una | 7882-81301 | |
| 44 | Sukhlinder Singh, Village Bedhela, Distt Una | 98213431 | |
| 45 | Srikanth Sharma, Village Bedhela, Distt Una | 9210-16081 | |
| 46 | Rajul Singh, Village Bedhela, Distt Una | 83251837374 | |
| 47 | Ramu Kant, Village Bedhela, Distt Una | 98161-51155 | |
| 48 | Gopal, Village Bedhela, Distt Una | 98161-15521 | |
| 49 | Shankar Jang | 9210509089 | |
| 50 | Lian Chand PCB Una | 98162,68032 | |

Date 28/10/2022

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| Sr. No. | Name, Designation & Address | Contact Number | Signature |
|---------|-------------------------------|----------------|---|
| 1 | Paveen Kumar, Clerk MPSCB Una | 731611070 |  |
| S1 | | | |
| S2 | Monit Bhasi, JEE, MPSCB Una | 7085-18461 |  |
| S3 | Paveen Kumar Helper MPSCB Una | 94183-31786 |  |
| | | | |
| | | | |
| | | | |
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6

HP STATE POLLUTION CONTROL BOARD
Regional Office Una (H.P.)

"ENVIRONMENTAL PUBLIC HEARING"

Environmental Public Hearing organized by HP State Pollution Control Board Una according to the provisions of EIA Notification No: S.O. 1533 (E) Dated: 14-09-2006 on the proposal of unit M/S IAN Macleod Distillers India Pvt. Ltd., Industrial Area Pandoga, Sub Tehsil Ispur, Distt. Una (HP) for setting up of Malt Spirit Distillery (05 KLD) at Plot No. A2, A3 & A4 in Industrial Area Pandoga, Sub Tehsil Ispur, Distt. Una (HP).

Date: 28/10/2021 Time: 11:30 AM
Venue: Common Facility Center, Industrial Area Pandoga, Sub Tehsil Ispur, Distt. Una (HP).

हिमाचल प्रदेश राज्य प्रदूषण नियंत्रण बोर्ड
क्षेत्रीय कार्यालय ऊना (हि.प्र.)

"पर्यावरण जन सुनवाई"

भारत सरकार द्वारा जारी ई.आई.ए. अधिनियम संख्या का. अ. - 1533(अ) दिनांक 14 सितम्बर 2006 के प्रावधानों के अनुसार, हिमाचल प्रदेश राज्य प्रदूषण नियंत्रण बोर्ड ऊना द्वारा मैसर्स इयान मैकलीडो डिस्टिलर्स इंडिया प्राइवेट लिमिटेड, औद्योगिक क्षेत्र पंडोगा, चम पंडोगा चम तहसील ईसपुर, जिला ऊना (हि.प्र.) के प्लॉट संख्या ए2, ए3, व ए4, औद्योगिक क्षेत्र पंडोगा, चम तहसील ईसपुर, जिला ऊना (हि.प्र.) में मॉल्ट डिस्टिलरी डिस्टिलरी, कुल उत्पादन क्षमता 05 किलो लीटर प्रति दिन की स्थापना के प्रस्ताव पर पर्यावरणीय जनसुनवाई का आयोजन।

दिनांक: 28 अक्टूबर 2021 समय: 11:30 बजे सुबह
स्थान: कॉमन फॅसिलिटी सेंटर का परिसर, औद्योगिक क्षेत्र पंडोगा, उप तहसील ईसपुर, जिला ऊना (हि.प्र.)



Statement of issues raised in the Environmental Public Hearing organized by HP State Pollution Control Board Una according to the provisions of EIA Notification No: S.O. 1533 (E) Dated: 14/09/2006 on the proposal of unit M/s IAN Macleod Distillers India Pvt. Ltd., Industrial Area Pandoga, Sub Tehsil Ispur, Distt. Una (HP) for setting up of Malt Spirit Distillery (05 KLPD) at Plot No. A2, A3 & A4 of Industrial Area Pandoga, Sub Tehsil Ispur, Distt. Una (HP) on 28/10/2021 at 11:30 AM in the premises of Common Facility Centre, Industrial Area Pandoga, Sub Tehsil Ispur, Distt. Una (HP).

Annexure R7/13

Environmental Public Hearing on the proposal of unit M/s IAN Macleod Distillers India Pvt. Ltd., Industrial Area Pandoga, Sub Tehsil Ispur, Distt. Una (HP) for setting up of Malt Spirit Distillery (05 KLPD) at Plot No. A2, A3 & A4 of Industrial Area Pandoga, Sub Tehsil Ispur, Distt. Una (HP) was organized by HP State Pollution Control Board, Regional Office Una on 28/10/2021 at 11:30 AM in the premises of Common Facility Centre, Industrial Area Pandoga, Sub Tehsil Ispur, Distt. Una (HP), as per the provisions of notification No-SO-1533(E) dated 14.09.2006. This public Hearing was organized by HP State Pollution Control Board under the Chairmanship of Sh. Amit Kumar, Additional Deputy Commissioner Una cum Chairman of Environmental Public Hearing, according to prescribed process of public Hearing. The attendance sheet of participants in the public hearing is enclosed as **Annex-I**.

In the Public Hearing, Officers/Officials of various Departments of local Administration, representative of proposed Unit & their consultants, representatives of local Gram Panchayats and residents of local & nearby villages were also present.

First of all, Er. Praveen Kumar, Assistant Environmental Engineer, HP State Pollution Control Board Una welcomed the Chairman, Officers/Officials of various Departments of local Administration, representative of Local Panchayats, Project Proponent & their consultant and the Public. Thereafter he gave detailed information to the people present regarding organization of the Environmental Public Hearing and started the process of Environmental Public Hearing with the permission of ADC cum Chairman, Environment Public Hearing.


Thereafter, Assistant Environmental Engineer, HPSPCB Una requested the Consultant of M/s IAN Macleod Distillers India Pvt. Ltd., to provide the detailed information of the proposed Malt Distillery Plant to the public. After the detailed description of various aspects of proposed Malt Distillery Plant by the consultant of the proposed unit, the Assistant Environmental Engineer, HP State Pollution Control Board Una asked the people present in the Environment Public Hearing to express their views, comments, suggestion and objections on the proposed Malt Distillery, without any fear and pressure from any corner.

Videography of this Public hearing was also conducted. Accordingly, the Statement of issues raised in the Environmental Public Hearing was recorded and same is reproduced hereunder:

| S. No. | Name and Address | Issues raised/Suggestions submitted |
|--------|--|---|
| 1. | Sh. Surinder Thakur, VPO Pandoga, Tehsil Haroli, Distt. Una (HP) | He gave the example of the already established liquor factory in the industrial area of Mehatpur and said that if the proposed unit also spreads pollution in the area like the said liquor factory, then it will become difficult for the local people to live here. |

| | | |
|----|---|--|
| | | <p>He referred the incident of flowing of chemicals in the Khad from the pharmaceutical company of the industrial area along with the rain water and asked the consultant that what arrangements have been made to prevent such incidents in the proposed unit.</p> <p>He demanded that the people of the local village should be given priority for employment in the proposed unit, so that they can work here and earn their living.</p> |
| 2. | Sh. Sushil Kumar Dhiman, Ind. Area Pandoga, Distt. Una (HP) | <p>He said that it is being told here that Air & Water Quality monitoring of the 6-7 locations in the area has already been conducted. In this connection, he asked the consultant when such monitoring was conducted and whether this monitoring was conducted in the presence of State Pollution Control Board Officials or they had been informed in this context. In addition to this, on the air quality monitoring carried out at Daulatpur which is far away from the proposed location, he asked the consultant what could be the impact of the proposed unit at such a distance. He also asked whether this monitoring was conducted throughout the year.</p> |
| 3. | Sh. Gurpal Singh, Up-Pradhan, Gram Panchayat Pandoga, Distt. Una (HP) | <p>He said that Gram Panchayat Pandoga has no objection for the setting up of the proposed unit and he demanded that the priority in employment should be given to the unemployed people of the village in the proposed unit.</p> |

In the end, Er. Praveen Kumar, Assistant Environmental Engineer, Himachal Pradesh State Pollution Control Board, Una thanked the Chairman and all other participants for participating in this environmental Public Hearing.


Amit Kumar (I.A.S.)
Additional Deputy Commissioner
Una, Distt. Una (HP)

मैसर्स इयान मैकलियोड डिस्टिलर्स इंडिया प्राइवेट लिमिटेड, औद्योगिक क्षेत्र पंडोगा, ग्राम पंडोगा, उप तहसील ईसपुर, जिला ऊना (हि.प्र.) के प्लॉट संख्या ए2 1522, औद्योगिक क्षेत्र पंडोगा, उप तहसील ईसपुर, जिला ऊना (हि.प्र.) में मॉल्ट स्पिरिट डिस्टिलरी, कुल उत्पादन क्षमता 05 किलो लीटर प्रति दिन 288 की स्थापना के प्रस्ताव पर पर्यावरणीय जनसुनवाई पर कॉमन फैंसीलिटी सेंटर के परिसर, औद्योगिक क्षेत्र पंडोगा, उप तहसील ईसपुर, जिला ऊना (हि.प्र.) में आयोजित पर्यावरणीय में उठाए गए मुद्दों का विवरण।

हिमाचल प्रदेश राज्य प्रदूषण नियंत्रण बोर्ड द्वारा आज दिनांक 28.10.2021 को मैसर्स इयान मैकलियोड डिस्टिलर्स इंडिया प्राइवेट लिमिटेड, औद्योगिक क्षेत्र पंडोगा, ग्राम पंडोगा, उप तहसील ईसपुर, जिला ऊना (हि.प्र.) के प्लॉट संख्या ए2, ए3 व ए4, औद्योगिक क्षेत्र पंडोगा, उप तहसील ईसपुर, जिला ऊना (हि.प्र.) में मॉल्ट स्पिरिट डिस्टिलरी, कुल उत्पादन क्षमता 05 किलो लीटर प्रति दिन की स्थापना के प्रस्ताव पर कॉमन फैंसीलिटी सेंटर के परिसर, औद्योगिक क्षेत्र पंडोगा, उप तहसील ईसपुर, जिला ऊना (हि.प्र.) में पर्यावरणीय जन सुनवाई का आयोजन भारत सरकार द्वारा जारी की गई अधिसूचना संख्या: एस. ओ. - 1533 दिनांक 14 सितम्बर 2006 के अन्तर्गत निर्धारित प्रक्रिया के अनुसार माननीय अतिरिक्त जिलाधीश ऊना एवं अध्यक्ष पर्यावरण जन सुनवाई की अध्यक्षता में करवाया गया।

इस पर्यावरणीय जन सुनवाई के दौरान विभिन्न विभागों के अधिकारीगण, स्थानीय ग्राम पंचायतों के प्रतिनिधि, प्रस्तावित इकाई के प्रतिनिधि व उनके परामर्शदाता और स्थानीय व निकटवर्ती गांवों के निवासी उपस्थित थे।

सर्वप्रथम, प्रवीण कुमार, सहायक पर्यावरण अभियंता, हिमाचल प्रदेश राज्य प्रदूषण नियंत्रण बोर्ड क्षेत्रीय कार्यालय ऊना ने अध्यक्ष महोदय, विभिन्न विभागों के अधिकारियों व कर्मचारियों, स्थानीय पंचायत के प्रतिनिधियों, प्रस्तावित इकाई के प्रतिनिधि व उनके परामर्शदाता और उपस्थित जनता का अभिनन्दन किया। उन्होंने पर्यावरणीय जनसुनवाई के आयोजन के संबंध में जनसमूह को एक विस्तृत जानकारी दी और तत्पश्चात अध्यक्ष महोदय की आज्ञा से जन सुनवाई की कार्यवाही आरम्भ की।


तत्पश्चात सहायक पर्यावरण अभियंता, हिमाचल प्रदेश राज्य प्रदूषण नियंत्रण बोर्ड क्षेत्रीय कार्यालय ऊना ने मैसर्स इयान मैकलियोड डिस्टिलर्स इंडिया प्राइवेट लिमिटेड के परामर्शदाता को प्रस्तावित मॉल्ट स्पिरिट डिस्टिलरी की स्थापना के संबंध में विस्तृत जानकारी जनसमूह को देने का निवेदन किया। इसके उपरान्त प्रस्तावित इकाई के परामर्शदाता द्वारा प्रस्तावित इकाई के प्रस्ताव की विस्तृत जानकारी उपस्थित जनसमूह को दी गई। इस विस्तृत जानकारी के उपरान्त सहायक पर्यावरण अभियंता ने उपस्थित जनसमूह को संबोधित करते हुए उन्हें प्रस्तावित औद्योगिक इकाई के प्रस्ताव के सम्बन्ध में अपने सुझाव, विचार, टिप्पणियां एवं आपत्तियों को बिना किसी दबाव व भय के पूछने को कहा।

इस पर्यावरण जन सुनवाई की संपूर्ण कार्यवाही की वीडियोग्राफी भी की गई। इस पर्यावरण जन सुनवाई के दौरान उठाए गए मुद्दों का विवरण निम्न प्रकार से हैं:

| क्रमांक | नाम व पता | मामले/ सुझाव |
|---------|---|---|
| 1. | श्री सुरेन्द्र ठाकुर, गांव व डाकखाना पंडोगा, जिला ऊना (हि.प्र.) | उन्होंने औद्योगिक क्षेत्र मैहतपुर में पहले से स्थापित शराब फैक्टरी का उदाहरण दिया और कहा कि अगर प्रस्तावित इकाई भी उक्त शराब फैक्टरी की भांति इलाके में प्रदूषण फैलायेगी तो स्थानीय लोगों का यहां रहना दुश्वार हो जाएगा। उन्होंने औद्योगिक क्षेत्र की एक दवा निर्माता कंपनी के कैमिकलयुक्त पानी के बरसात के पानी के साथ बहकर खड्ड में आने की घटना का जिक्र किया और पूछा कि |

| | | |
|----|---|---|
| | | <p>प्रस्ताविक इकाई में इस तरह की घटनाओं के लिए क्या प्रबंध किए गए हैं।</p> <p>उन्होंने मांग की कि प्रस्ताविक इकाई में रोजगार के लिए स्थानीय गांव के लोगों को ही प्राथमिकता दी जाए, जिससे वह यहां पर काम कर सकें और अपना जीवन-यापन कर सकें।</p> |
| 2. | <p>श्री सुशील कुमार धीमान, औद्योगिक क्षेत्र पंडोगा, जिला ऊना (हि.प्र.)</p> | <p>उन्होंने कहा कि परामर्शदाता द्वारा यहां बताया गया है कि इलाके में 6 से 7 जगहों पर वायु एवं जल गुणवत्ता की जांच करवाई जा चुकी है। इस संबंध में उन्होंने पूछा कि यह जांच कब करवाई गई और क्या यह जांच प्रदूषण नियंत्रण बोर्ड के अधिकारियों की उपस्थिति में करवाई गई है या उन्हें इस संदर्भ में सूचित किया गया था। इसके अलावा दौलतपुर जो कि प्रस्तावित स्थान से बहुत दूर है इसमें की गई वायु गुणवत्ता जांच पर उन्होंने परामर्शदाता से पूछा कि प्रस्तावित इकाई का इतनी दूरी पर क्या प्रभाव हो सकता है।</p> <p>उन्होंने यह भी पूछा कि यह जांच क्या पूरे वर्ष की जाती है।</p> |
| 3. | <p>श्रीमती गुरपाल सिंह उप प्रधान, ग्राम पंचायत पंडोगा, जिला ऊना (हि.प्र.)</p> | <p>उन्होंने कहा कि ग्राम पंचायत पंडोगा प्रस्ताविक इकाई की स्थापना से कोई आपत्ति नहीं है और उन्होंने प्रस्ताविक इकाई में गांव के बेरोजगार लोगों को रोजगार में प्राथमिकता दिये जाने की मांग रखी।</p> |

अतः मैं श्री प्रवीण कुमार, सहायक पर्यावरण अभियंता, हिमाचल प्रदेश राज्य प्रदूषण नियंत्रण बोर्ड ऊना ने अध्यक्ष महोदय एवं अन्य सभी प्रतिभागियों का इस पर्यावरण जन सुनवाई में भाग लेने का धन्यवाद किया।


 अमित कुमार (भा.प्र.से.)
 अतिरिक्त जिलाधीश,
 ऊना, जिला ऊना (हि.प्र.)

1524

290

No. Ind.-A(F)6-1/2021
Government of Himachal Pradesh
Department of Industries

From

Annexure R7/14

To

The Addl. Chief Secretary(Inds.) to the
Government of Himachal Pradesh.

✓ The Director of Industries,
Himachal Pradesh, Shimla-01

Dated: Shimla-02, the

16-11-2021.

Subject:

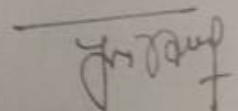
Regarding allotment of land measuring 43699 Sq. Mtrs. in Industrial Area, Pandoga in favour of M/s Ian Macleod Distillers India Pvt. Ltd. for setting up of State-of-Art Malt Spirit Plant (Malt Distillery).

Sir,

I am directed to refer to your letter No.Ind-Dev-F(16)IAs/IEs Committee/2021/-2474 dated 21-09-2021 on the subject captioned above and to convey the approval of Government for allotment of land measuring 43699 Sq. Mtrs. in Industrial Area, Pandoga in favour of M/s Ian Macleod Distillers India Pvt. Ltd. on lease hold basis for a period of 95 years for setting up of State-of-the-Art Malt Distillery Plant.

You are, therefore, requested to take further necessary action in the matter accordingly.

Yours faithfully,



(C.P. Verma)

Special Secretary(Inds.) to the
Govt. of Himachal Pradesh.
Phone No. 2620887.

D/16/11/21

A-D/CDer/16/11/21

✓

No.Ind.U/Dev./IAP/A-2,A-3 & A-4 / 3073
 Office of the General Manager,
 District Industries Centre, Una
 Department of Industries
 Dated: Una-174302 19-01-2022

To

✓ M/s Ian Macleod Distillers India Pvt. Ltd.,
 705, B-Wing , Rohit House, 3 Tolstoy Marg,
 New Delhi-110001.

Subject:- Provisional allotment of plot /Land in Industrial Area Pandoga ,Distt.Una, Himachal Pradesh

Madam/Sir,

This is with reference to your letter /application No.1950 dated 18/12/2021 for the allotment of land measuring 43699 Sq. Mtrs. in industrial area Pandoga, District Una(H.P.)

As per the direction of Addl. Chief Secretary (Inds) to the Govt. of H.P. vide letter No. Ind-A (F)6-1/2021 dated 16/11/2021 land measuring 43699 Sq. Mtrs comprising in Plot No. . A-2, A-3 & A-4 **Industrial Area Pandoga** District Una has been provisionally allotted in favour of **M/s Ian Macleod Distillers India Pvt. Ltd.**, for setting up of **State-of-the-Art Malt Sprit Plant (Malt Spirit Distillery) etc.**

The provisional allotment of the plot is however subject to the following terms and conditions; -

- 1 That the premium of the plot will be charged on approved rates i.e Rs.3000/-per Sq. Mtrs. for the 2021-22 conveyed by Director of Industries, H.P. vide letter No. Ind. Dev. F(13)Plots-883/95-XIII-9606 dated 24/09/2021 @ Rs.3000/-per Sq. Mtrs. as per HP Industrial Investment Policy-2019 and service tax applicable at the time of allotment. In case of any variation in the area subsequently, the premium will be revised accordingly. The allottee shall be liable to pay additional amount on account of premium of land in case the cost of land is enhanced as a result of any land reference made to a court of law under the provisions contained in the Land Acquisition Act-1894 or any other orders passed by the appellate or reviewing Authority against the decision of such Court.
- 2 The allottee will have to deposited 12% premium of land i.e. 1,57,31,640/-(Rs. 65,54,850/- have already been deposited with application form) within 30 days of allotment and 88% balance premium in 8 equal installments payable on Ist. of the month of allotment every year. No interest will be charged on the balance installments. However, interest will be charged on delayed payment @ 9% per Annum or as applicable from time to time as per the provisions of Incentive Rules applicable.

- 3 In case the approved industrial enterprise of allottee commences commercial production within 2 years of handing over the possession it would be eligible to avail incentive of concessional rate equivalent to 60% premium of fixed at time of provisional allotment .
- 4 In case allottee after commencement of production offers to clear balance payment of premium in lump sum ,a rebate of 10 % on balance premium of land will be given.
- 5 That the allottee has applied for the allotment of 43699 Sq.mtrs of land/plot and provisional allotment of 43699 Sq. Mtrs is hereby made, which is equal to the size applied for.
- 6 That in case the allottee fails to deposit Rs. 91,76,790/- (Rs. 65,54,850/-- already been deposited as earnest money)as 12% premium of land and execute the agreement to lease within 30 days of allotment then this provisional allotment will stand automatically withdrawn. An amount of Rs.10,000/- will be deducted from the earnest money as processing fee and the balance earnest money deposited by the allottee will be refunded without interest.
- 7 Allottee will have to take the possession of plot within 21 days after the execution of agreement of lease, failing which allotment offer shall be withdrawn without any further notice.
- 8 That the possession of plot on 'as is where is basis' will be handed over to the allottee after receipt of 12% premium of land and execution of agreement to lease.
- 9 That in case the allottee surrenders the possession of the land/plot provisionally allotted within a period of two years from the date of issuance of this letter then this provisional allotment would be deemed to have been cancelled and 10% of the premium paid or Rs. 10,000/-whichever is higher will be deducted and the balance amount of premium deposited by the allottee would be refunded without any interest.
- 10 That the provisional allotment is valid for a period of two years from the date of handing over possession of plot/land. The allottee has to commence commercial production within this period. The Director/Commissioner Industries, H.P. may, however extend the period of the provisional allotment for one year at a time on the merits of each case, subject to the total period(including the original period of 2 years not exceeding 5 years from the date of handing over of possession. Such cases for grant of each extension will only be considered if the premium due to the Department till the time of making the application for extension in time period has been fully paid and there is no default in the payments due to the Department. Extension fee equivalent to 10%, 15% and 20% of the total premium assessed at the time of provisional allotment of the plot will be charged for extension sought for the 1st,2nd and 3rd year respectively, which will not be refundable/adjustable in the premium of the plot.
- 11 That the allotment of plot/land will be valid for 95 years on lease hold basis in case the allottee commences commercial production within the validity period of provisional allotment. In case the allottee is refused extension in time for setting up of the enterprise as

stated supra or otherwise violates any provision of Rules Regarding Grant of incentives, Concessions and Facilities for investment promotion in Himachal Pradesh-2019 as amended from time to time or any condition of allotment. The allotment will be cancelled and the premium and extension fee, if any paid by the allottee will be forfeited. The possession shall be resumed by the Department after giving notice to the allottee to vacate the plot and surrender the possession free from all encumbrances peacefully within 2 months failing which the provisions of the H.P. Public Premises & Land (Eviction and Rent Recovery) Act, 1971 and other legal remedies will be invoked to resume the plot.

- 12 That the Department reserves the right to change the allotment of any plot/land or to change the size of plot/land before the execution of regular lease deed.
- 13 That the Maintenance Charges @ Rs. 7/- per square meter per annum or as decided by Industrial Area Development Agency (IADA) from time to time/other charges as decided by IADA and lease rent @ Rs 1/- per annum will be realized from the date of taking over the possession.
- 14 That the allotment, change of activity/ item of manufacture, constitution, transfer of lease hold rights and other related/incidental matters thereto will be regulated by the provisions made under Rules regarding Grant of Incentives, Concessions and Facilities to the Industrial Units in H.P.2019 or Rules in force at the time of granting such permission /processing such request.
- 15 That the allottee will employ at all level at least 80% (or as prescribed from time to time) of the total manpower, whether on regular/contractual/sub. contractual/ daily basis/ or any other mode from amongst bonafide , Himachalies.
- 16 That the allottee will obtain prior approval of the competent authority as provided under the Himachal Pradesh Ground Water (Regulation and Control of Development and Management) Act,2005 to extract and use ground water. Further in order to conserve water and improve the ground water situation, rainwater harvesting system and recharging structure must be provided in the factory premises.
- 17 The building/shed will only be constructed on plot after approval of map by the Department. The allottee will submit building plan/map for approval within 45 days from the allotment of land. Rates as approved by IADA will be charged for approval of map.
- 18 1% cess on the actual cost of construction shall be deposited by the allottee under the Building and other construction Workers Welfare Cess Act 1996.
- 19 The allottee has to bear the actual expenditure incurred towards cutting /repairing of the road for water and sewerage connection and also deposit money demanded for sewerage and water connection as fixed by the Government/IADA/Maintenance Agency/local Municipal Authority from time to time.
- 20 The allottee shall not without sanction or permission in writing of the Department or any other authority prescribed by the Department erect any building or make any alteration or

addition to such building on the plot and comply drainage and other bye-laws of the municipal or other authority for the time being in force.

21 The allottee will utilize the entire allotted area of the plot for setting/running up of industrial enterprise. In case the land so allotted is found surplus of the actual requirement at any stage, Department reserves the right to resume such unutilized land.

22 The allottee will not use the industrial plot or building constructed thereon or part thereof for carrying out any activity other than the activity for which the plot has been allotted.

23 The High/ Low Tension Wires/Lines, if any, passing over the land/plot shall be got removed/shifted, if so required, by the allottee at his own level & cost and Department will not be bound in any manner regarding shifting of such lines.

24 The allottee shall not cut/damage/destroy trees, if any standing in the said plot/land without written approval of the competent Authority.

25 Electric connection for setting up/ running the industrial enterprise will be obtained by the allottee at its own level/cost.

26 The aforesaid conditions of allotment shall be deemed to have been incorporated in agreement to lease and lease deed to be executed with the allottee and shall form a part thereof.

27 The unit will have to take necessary permission for setting for manufacturing of **Malt Spirit Distillery** etc. from the Government of Himachal Pradesh.

28 In case of any dispute the decision of the Director/Commissioner Industries shall be final & binding upon both the parties.

You have deposited Rs. 65,54,850/- .You are requested to deposit Rs. 91,76,790/- and also execute the agreement to lease within 30 days from the issue of this letter positively.

In case you are ready to accept this provisional allotment of land/plot on the above terms and conditions failing which allotment of plot/land will stand automatically withdrawn as stated in conditions No. 4 supra.

Yours faithfully,



General Manager
District Industries Centre,
Una (H.P.) Tele.No.01975-223002.
Gmdicuna12@gmail.com

Endst.No.As above.....

Copy to:-

- 1.The Assistant Engineer, HPSIDC., Ltd, Sub Division Pandoga, Distt.Una, H.P.Una (H.P.)for information.
- 2.Extension officer (Inds) Haroli for information.

General Manager,
District Industries Centre,
Una (H.P.) Tele No. 01975-223002

| | | | |
|--|--|---------------|--------------------|
| | Belt Development: 3.0KLD, Total: 3.3KLD, Source: Nearby Municipal Source | Total: 0.2KLD | municipal Drain |
|--|--|---------------|--------------------|

0.55 m³/day waste water generated which will be disposed off soak pit via septic tank.

- Waste Water will be generated during the construction phase of pipeline to the tune of 0.55 KLD from washing and cleaning which will be Disposed through Sock Pit via Septic Tank.
- No need of Industrial Water requirement during operation phase of proposed Natural Gas Pipeline project.
- In view of the above, No need to carry – out: Any Additional Measures, for the W. P. C. (Water Pollution Control).

Required power for SV / TOP/ IP/ Dispatch / Receiving stations shall be drawn from nearest local power source of the state Electricity Boards. However, for SVs & control stations, 40 KVA DG sets will be kept as stand by for backup power at each Station. Stack (height 6m) will be provided as per GPCB norms to the proposed DC sets.

Proposed pipeline route passes through Eco-Sensitive Zone of Gir Wild Life Sanctuary for around 25.816 km and at a nearest distance of 4.815 km away from the boundary of Gir Wild Life Sanctuary in Gir Somnath District. As the proposed pipeline passes through ESZ but not passing through any core areas of National parks /Sanctuaries/ Coral reefs / Ecological Sensitive Areas, EAC opined that the proposal may be referred to IA-Policy Division of the ministry for further clarification regarding applicability of EC in the instant proposal.

Accordingly, the project was **recommended** by the committee subject to clarifications from IA-Policy division of the Ministry.

Agenda No. 49.4

Proposed 5 KLPD Malt Spirit Distillery by M/s. Ian Macleod Distillers India Pvt. Ltd. located at Plot No. A2, A3 & A4, Industrial Area Pandoga, District- Una, Himachal Pradesh - Consideration of Environment Clearance.

[IA/HP/IND2/212301/2021, J-11011/201/2021-IA-II(I)]

The Project Proponent and the accredited Consultant M/s. MITCON Consultancy and Engineering Services Ltd., made a detailed presentation on the salient features of the project and informed that:

The proposal is for environmental clearance to the project for Proposed 5 KLPD Malt Spirit Distillery by M/s. Ian Macleod Distillers India Pvt. Ltd.

located at Plot No. A2, A3 & A4, Industrial Area Pandoga, District- Una, Himachal Pradesh.

All non molasses based distilleries up to 200 KLPD are listed at S.N. 5(g) of Schedule of Environment Impact Assessment (EIA) Notification under category 'B' and are appraised at State Level by Expert Appraisal Committee (SEAC). Due to applicability of General Condition i.e the Interstate boundary within 5 km, the project is appraised at Central Level by Expert Appraisal Committee (EAC).

The ToR has been issued by Ministry vide letter No. IA-J-11011/201/2021-IA-II(I) dated 20.05.2021. Public Hearing for the proposed project has been conducted by HPPCB, Una on 28.10.2021 at Common Facility Centre, Industrial Area Pandoga, Una and chaired by Additional Deputy Commissioner, Una. There were no major issues raised during the public hearing. It was requested that the priority in employment should be given to the unemployed people of the village in the proposed unit. It was informed that no litigation is pending against the project.

The details of products and capacity are as under:

| Sr. No. | Particulars | Capacity |
|-----------------|-------------|------------|
| Products | | |
| 1. | Malt Spirit | 5 KLPD |
| 2. | IMFL | 1000 Cases |
| 3. | DWGS | 13 TPD |

Proposed land area available for the project is 43699 m². Industry will develop greenbelt in an area of 34.64 % i.e., 15141 m² out of total area of the project. The estimated project cost is Rs. 50.8 Cr. Total capital cost earmarked towards environmental pollution control measures is Rs. 3.0 Cr. and the recurring cost (operation and maintenance) will be about Rs. 34.5 lakhs per annum. Total employment will be 77 persons as direct & indirect. Industry proposes to allocate Rs. 1.0 Cr. @ 2.0% of Total Project Cost (Rs. 50.5 Cr.) towards Corporate Environment Responsibility.

There are No national parks, wildlife sanctuaries, Biosphere Reserves, Tiger/ Elephant Reserves, Wildlife Corridors etc., within 10 km distance from the project site, However, Reserved Forest is at 500 m in North Direction. River Swan is flowing at a distance of 5.76 km in ESE direction.

Ambient air quality monitoring was carried out at 9 locations during March to May 2021 and the baseline data indicates the ranges of concentrations as: PM₁₀ 27.2 to 58.2 µg/m³, PM_{2.5} 14.9 to 22.8, SO₂ 6.1 to 14.8 µg/m³, NOx 9.6 to 18.1 µg/m³. AAQ modeling study for point source emissions indicates that the maximum incremental GLCs after the

proposed project would be $3.22 \mu\text{g}/\text{m}^3$, $0.355 \mu\text{g}/\text{m}^3$ and $2.42 \mu\text{g}/\text{m}^3$ with respect to SPM, SO_2 and NO_x . The resultant concentrations are within the National Ambient Air Quality Standards (NAAQS).

Total water requirement is $162 \text{ m}^3/\text{day}$ of which fresh water requirement of $102 \text{ m}^3/\text{day}$ will be met from Overhead Water Tank- DIC, Una. (In principal approval No. CAF/12/03/21657/112 dtd. 21.01.2021). Distillery effluent of $71 \text{ m}^3/\text{day}$ * quantity will be treated through $75 \text{ m}^3/\text{day}$ ETP. The plant will be based on Zero Liquid Discharge (ZLD) system. (*Conc. Spent Wash Slops (approx. 7 to 8 % w/w solids) is initially settled in settling tank and mixed with other non-process effluent. Other effluent like DM plant washing & boiler blow down, Fermenter washings, Spent- lees will be neutralized in neutralization tanks and mixed with spent wash and then treated in Primary & Secondary Effluent treatment plant. The treated effluent is then passed through RO to get clean water for reuse in the cooling towers and gardening. Industry is based on zero liquid discharge (ZLD) scheme).

Power requirement will be 650 KWH and will be met from Industrial Area, Una. Proposed unit will have 750 KVA (1 No. 500 & 1 No. 250 KVA each) DG sets will be used only as standby during power failures. Stack height >11 m will be provided as per CPCB norms to the proposed DG sets. Proposed 6 TPH boiler based on wood chips/briquettes will be installed for proposed Distillery. Multicyclone with 30 m stack will be installed for proposed boiler for controlling of particulate emission within statutory limit of $115 \text{ mg}/\text{Nm}^3$ for the proposed boiler.

Details of process emissions generation and its management:

| Project Activity | Anticipated pollutant | Management |
|--|--|---|
| Process emissions | CO_2 and Negligible VOCs | Minor CO_2 generation (1.368 TPD). |
| Stack, Fugitive emissions, material handling | PM_{10} , $\text{PM}_{2.5}$, NO_x , SO_2 , CO_2 | Multicyclone with 30 m stack |

Details of Solid waste/Hazardous waste generation and its management:

| Sr. No. | Type of waste | Quantity | Final Disposal |
|---------|---------------|-------------|---|
| 1. | DWGS | 13 TPD | DWGS is the by-product and will be sold to cattle/poultry feed. |
| 2. | Fly Ash | 1.5 TPD | Coal ash will be sold to brick manufacturers. |
| 3. | ETP Sludge | 0.5-0.6 TPD | ETP sludge will be Partly recirculate |

| | | | |
|----|-----------------|------------|---|
| | | | and remaining will be used in composting. |
| 4. | Spent oil (5.1) | Negligible | Quantity of Spent oil will be negligible and shall be sent to authorized recycler |

During deliberations EAC sought the following information/commitments from PP:

- Entire project shall be ZLD and no single drop of water shall be discharged outside the plant premises.
- PP shall allocate at least Rs. 35 Lakhs/year for Occupational Health Safety.
- Company to construct a storage pond of 60 days capacity and the accumulated water to be used as fresh water thereby reducing fresh water consumption.
- PP shall utilize 10% (65 KW) of the total power requirement from solar power.
- PP proposed a budget allocation of Rs. 1.0 Crores towards CER and it shall be used for construction/up-gradation of school building with provision of facilities e.g. Toilets, Drinking Water Facilities, Computers/Laptops and Solar light etc. Further, the works under CER Plan shall be implemented in consultation with District Collector and the CER plan shall be completed in two years as planned.

PP has submitted the desired information as sought above.

The EAC, constituted under the provision of the EIA Notification, 2006 and comprising of Experts Members/domain experts in various fields, have examined the proposal submitted by the Project Proponent in desired form along with EIA/EMP report prepared and submitted by the Consultant accredited by the QCI/ NABET on behalf of the Project Proponent. The EAC noted that the Project Proponent has given undertaking that the data and information given in the application and enclosures are true to the best of his knowledge and belief and no information has been suppressed in the EIA/EMP report. If any part of data/information submitted is found to be false/ misleading at any stage, the project will be rejected and Environmental Clearance given, if any, will be revoked at the risk and cost of the project proponent.

The Committee noted that the EIA/EMP report is in compliance of the ToR issued for the project, reflecting the present environmental concerns and the projected scenario for all the environmental components. The Committee has found the baseline data is within NAAQ standards. The Committee has deliberated the action plan proposed by the project proponent to arrest the incremental GLC due to the project. The Committee has also deliberated on the CER plan and found to be addressing the issues in the study area. The EAC has deliberated the proposal and has made due diligence in the process as notified under the

provisions of the EIA Notification, 2006, as amended from time to time and accordingly made the recommendations to the proposal. The Experts Members of the EAC have found the proposal in order and have **recommended** for grant of environmental clearance.

The environmental clearance granted to the project/activity is strictly under the provisions of the EIA Notification 2006 and its amendments. It does not tantamount/construe to approvals/consent/ permissions etc. required to be obtained or standards/conditions to be followed under any other Acts/ Rules/ Subordinate legislations, etc., as may be applicable to the project. The project proponent shall obtain necessary permission as mandated under the Water (Prevention and Control of Pollution) Act, 1974 and the Air (Prevention and Control of Pollution) Act, 1981, as applicable from time to time, from the State Pollution Control Board, prior to construction & operation of the project.

The EAC, after detailed deliberations, **recommended** the project for grant of environmental clearance, subject to compliance of terms and conditions as under, and general terms of conditions at Annexure: -

- (i). The company shall comply with all the environmental protection measures and safeguards proposed in the documents submitted to the Ministry. All the recommendations made in the EIA/EMP in respect of environmental management, and risk mitigation measures relating to the project shall be implemented.
- (ii). The project proponent will treat and reuse the treated water within the factory and no waste or treated water shall be discharged outside the premises.
- (iii). Total fresh water requirement shall not exceed 102 m³/day and will be met from Overhead Water Tank- DIC, Una. Prior permission shall be obtained from the concerned regulatory authority/CGWA in this regard, and renewed from time to time. No ground water recharge shall be permitted within the premises. Company to construct a storage pond of 60 days capacity and the accumulated water to be used as fresh water thereby reducing fresh water consumption.
- (iv). The spent wash shall be concentrated and dried to form DDGS to be used as cattle feed. PP shall utilize 10% (65 KW) of the total power requirement from solar power.
- (v). CO₂ generated from the process shall be bottled/made solid ice and utilized/sold to authorized vendors.
- (vi). PP shall allocate at least Rs. 35 Lakhs/year for Occupational Health Safety. Occupational Health Centre for surveillance of the worker's health shall be set up. The health data shall be used in deploying the

duties of the workers. All workers & employees shall be provided with required safety kits/mask for personal protection.

- (vii). Training shall be imparted to all employees on safety and health aspects of chemicals handling. Safety and visual reality training shall be provided to employees.
- (viii). The unit shall make the arrangement for protection of possible fire hazards during manufacturing process in material handling. Firefighting system shall be as per the norms. PESO certificate shall be obtained.
- (ix). Process organic residue and spent carbon, if any, shall be sent to Cement and other suitable industries for its incinerations. ETP sludge, process inorganic & evaporation salt shall be disposed of to the TSDF.
- (x). The company shall undertake waste minimization measures as below
(a) Metering and control of quantities of active ingredients to minimize waste; (b) Reuse of by-products from the process as raw materials or as raw material substitutes in other processes. (c) Use of automated filling to minimize spillage. (d) Use of Close Feed system into batch reactors. (e) Venting equipment through vapour recovery system. (f) Use of high pressure hoses for equipment clearing to reduce wastewater generation.
- (xi). The green belt of at least 5-10 m width shall be developed in nearly 33% of the total project area, mainly along the plant periphery. Selection of plant species shall be as per the CPCB guidelines in consultation with the State Forest Department. Records of tree canopy shall be monitored through remote sensing map.
- (xii). PP proposed to allocate Rs. 1.0 Crores towards CER and it shall be used for construction/up-gradation of school building with provision of facilities e.g. Toilets, Drinking Water Facilities, Computers/Laptops and Solar light etc. Further, the works under CER Plan shall be implemented in consultation with District Collector and the CER plan shall be completed in two years as planned.
- (xiii). There shall be adequate space inside the plant premises earmarked for parking of vehicles for raw materials and finished products and no parking to be allowed outside on public places.
- (xiv). Storage of raw materials shall be either stored in silos or in covered areas to prevent dust pollution and other fugitive emissions.
- (xv). Continuous online (24x7) monitoring system for stack emissions shall be installed for measurement of flue gas discharge and the pollutants concentration, and the data to be transmitted to the CPCB and SPCB server. For online continuous monitoring of effluent, the unit shall

install web camera with night vision capability and flow meters in the channel/drain carrying effluent within the premises.

- (xvi). A separate Environmental Management Cell (having qualified person with Environmental Science/Environmental Engineering/specialization in the project area) equipped with full-fledged laboratory facilities shall be set up to carry out the Environmental Management and Monitoring functions.

Agenda No. 49.5

Proposed 50 KLPD Molasses/Sugar cane Juice based Distillery/Ethanol plant by M/s. Sri Basaveshwara Sugars Ltd. located at Survey No. 362/1, 362/2 and 366/P1 of Village Balligeri, Tal. Athani, Dist. Belgaum, Karnataka - Consideration of Environment Clearance.

[IA/KA/IND2/244694/2021, J-11011/67/2021-IA-II(I)]

The Project Proponent and the accredited Consultant M/s. MITCON Consultancy and Engineering Services Ltd., made a detailed presentation on the salient features of the project and informed that:

The proposal is for environmental clearance to the project for Proposed 50 KLPD Molasses/Sugar cane Juice based Distillery/Ethanol plant by M/s. Sri Basaveshwara Sugars Ltd. located at Survey No. 362/1, 362/2 and 366/P1 of Village Balligeri, Tal. Athani, Dist. Belgaum, Karnataka.

All molasses based distilleries up to 100 KLPD are listed at S.N. S(g) of Schedule of Environment Impact Assessment (EIA) Notification under category 'B' and are appraised at State Level by Expert Appraisal Committee (SEAC). Due to applicability of General Condition i.e the Interstate boundary within 5 km, the project is appraised at Central Level by Expert Appraisal Committee (EAC)

The ToR has been issued by Ministry vide letter NO. IA-J-11011/67/2021-IA-II (I)] dated 02.03.2021. Public Hearing for the proposed project has been conducted by the Karnataka State Pollution Control Board on 15th September, 2021 on site at Sri Basaveshwara Sugars Ltd., Belgaum and chaired by Additional Deputy Commissioner, Belgaum. The main issues raised during the public hearing are related to queries on employment, odor and effluent management. It was informed that no litigation is pending against the project.

The details of products and capacity are as under:

| Sr. No. | Particulates | Capacity |
|----------------|---|-----------------|
| 1. | Distillery/ Ethanol plant- RS/ ENA/AA/Ethanol (One at a time or in combination) | 50 KLPD |

OFFICE OF THE ASSISTANT ENGINEER H. P.S.I.D.C. LIMITED
INDUSTRIAL AREA PANDOGA DISTRICT UNA (H.P.)

Ref No: AE/HPSIDC/PDG/100 -- 2304-2305.


Dated: 04/09/2022

With reference to the General Manager Distt Industries Centre Una Letter No- IND/U/Dev/IAP/A-2,A-3& A-4/4307 Dated 11-02-2022 regarding Physical possession of Plot No. A-2,A-3& A-4 in Industrial Area Pandoga Distt. Una measuring 43699.00 Sqm is handed over M/S Ian Macleod Distillers India Pvt. Ltd. Plot No. A-2,A-3& A-4 in Industrial Area Pandoga Distt. Una on dated 21-2-2022. (As per site plan attached)

Handed over by:-
 Assistant Engineer
 H.P.S.I.D.C. Ltd.
 Ind. Area, Mehatpur
 Distt. Una (H.P.)

Taken over by:-

M/S Ian Macleod Distillers India Pvt. Ltd.


 Director

Copy to:-

1. G.M DIC, Una Distt Una for kind information and necessary action. This is with reference to your office Letter No- IND/U/Dev/IAP/A-2,A-3& A-4/4307 Dated 11-02-2022
2. M/S Ian Macleod Distillers India Pvt. Ltd. Plot No. A-2,A-3& A-4 in Industrial Area Pandoga Distt. Una for information.

Assistant Engineer
 H.P.S.I.D.C. Ltd.
 Ind. Area, Mehatpur
 Distt. Una (H.P.)

ENVIRONMENTAL
CLEARANCE

Government of India
Ministry of Environment, Forest and Climate Change
(Impact Assessment Division)

To,

The Director
IAN MACLEOD DISTILLERS INDIA PRIVATE LIMITED
Pandoga Industrial area, Village Pandoga, Tal.Haroli, Dist. Una, Himachal Pradesh,,Una,Himachal Pradesh-110001

Subject: Grant of Environmental Clearance (EC) to the proposed Project Activity under the provision of EIA Notification 2006-regarding

Sir/Madam,

This is in reference to your application for Environmental Clearance (EC) in respect of project submitted to the Ministry vide proposal number IA/HP/IND2/212301/2021 dated 04 Jan 2022. The particulars of the environmental clearance granted to the project are as below.

- | | |
|--|--|
| 1. EC Identification No. | EC22A022HP156935 |
| 2. File No. | IA-J-11011/201/2021-IA-II(I) |
| 3. Project Type | New |
| 4. Category | A |
| 5. Project/Activity including Schedule No. | 5(g) Distilleries |
| 6. Name of Project | Proposed 5 KLPD Malt Spirit Distillery |
| 7. Name of Company/Organization | IAN MACLEOD DISTILLERS INDIA PRIVATE LIMITED |
| 8. Location of Project | Himachal Pradesh |
| 9. TOR Date | 20 May 2021 |

The project details along with terms and conditions are appended herewith from page no 2 onwards.

Date: 02/03/2022

(e-signed)
A.K Pateshwary
Director
IA - (Industrial Projects - 2 sector)

Note: A valid environmental clearance shall be one that has EC identification number & E-Sign generated from PARIVESH. Please quote identification number in all future correspondence.

This is a computer generated cover page.

PARIVESH

(Pro-Active and Responsive Facilitation by Interactive,
and Virtuous Environment Single-Window Hub)



This has reference to your online proposal no. IA/HP/IND2/212301/2021, dated 04th January, 2022 for environmental clearance to the above mentioned project.

2. The Ministry of Environment, Forest and Climate Change has examined the Proposed 5 KLPD Malt Spirit Distillery by M/s. Ian Macleod Distillers India Pvt. Ltd. located at Plot No. A2, A3 & A4, Industrial Area Pandoga, District- Una, Himachal Pradesh.

3. All non molasses based distilleries up to 200 KLPD are listed at S.N. 5(g) of Schedule of Environment Impact Assessment (EIA) Notification under category 'B' and are appraised at State Level by Expert Appraisal Committee (SEAC). Due to applicability of General Condition i.e. the Interstate boundary within 5 km, the project is appraised at Central Level by Expert Appraisal Committee (EAC).

4. The ToR has been issued by Ministry vide letter No. IA-J-11011/201/2021-IA-II(I) dated 20.05.2021. Public Hearing for the proposed project has been conducted by HPPCB, Una on 28.10.2021 at Common Facility Centre, Industrial Area Pandoga, Una and chaired by Additional Deputy Commissioner, Una. There were no major issues raised during the public hearing. It was requested that the priority in employment should be given to the unemployed people of the village in the proposed unit. It was informed that no litigation is pending against the project.

5. The details of products and capacity are as under: -

| Sr. No. | Particulars | Capacity |
|-----------------|-------------|------------|
| Products | | |
| 1. | Malt Spirit | 5 KLPD |
| 2. | IMFL | 1000 Cases |
| 3. | DWGS | 13 TPD |

6. Proposed land area available for the project is 43699 m². Industry will develop greenbelt in an area of 34.64 % i.e., 15141 m² out of total area of the project. The estimated project cost is Rs.50.8 Cr. Total capital cost earmarked towards environmental pollution control measures is Rs. 3.0 Cr. and the recurring cost (operation and maintenance) will be about Rs. 34.5 lakhs per annum. Total employment will be 77 persons as direct & indirect. Industry proposes to allocate Rs. 1.0 Cr. @ 2.0% of Total Project Cost (Rs. 50.5 Cr.) towards Corporate Environment Responsibility.

7. There are No national parks, wildlife sanctuaries, Biosphere Reserves, Tiger / Elephant Reserves, Wildlife Corridors etc., within 10 km distance from the project site, However, Reserved Forest is at 500 m in North Direction. River Swan is flowing at a distance of 5.76 km in ESE direction.

8. Ambient air quality monitoring was carried out at 9 locations during March to May 2021 and the baseline data indicates the ranges of concentrations as: PM₁₀ 27.2 to 58.2 µg/m³, PM_{2.5} 14.9 to 22.8, SO₂ 6.1 to 14.8 µg/m³, NOx 9.6 to 18.1

$\mu\text{g}/\text{m}^3$. AAQ modeling study for point source emissions indicates that the maximum incremental GLCs after the proposed project would be $3.22 \mu\text{g}/\text{m}^3$, $0.355 \mu\text{g}/\text{m}^3$ and $2.42 \mu\text{g}/\text{m}^3$ with respect to SPM, SO_2 and NO_x . The resultant concentrations are within the National Ambient Air Quality Standards (NAAQS).

9. Total water requirement is $162 \text{ m}^3/\text{day}$ of which fresh water requirement of $102 \text{ m}^3/\text{day}$ will be met from Overhead Water Tank- DIC, Una. (In principal approval No.CAF/12/03/21657/112 dtd. 21.01.2021). Distillery effluent of $71 \text{ m}^3/\text{day}$ * quantity will be treated through $75 \text{ m}^3/\text{day}$ ETP. The plant will be based on Zero Liquid Discharge (ZLD) system. (*Conc. Spent Wash Slops (approx. 7 to 8 % w/w solids) is initially settled in settling tank and mixed with other non-process effluent. Other effluent like DM plant washing & boiler blow down, Fermenter washings, Spent- lees will be neutralized in neutralization tanks and mixed with spent wash and then treated in Primary & Secondary Effluent treatment plant. The treated effluent is then passed through RO to get clean water for reuse in the cooling towers and gardening. Industry is based on zero liquid discharge (ZLD) scheme).

10. Power requirement will be 650 KWH and will be met from Industrial Area, Una. Proposed unit will have 750 KVA (1 No. 500 & 1 No. 250 KVA each) DG sets will be used only as standby during power failures. Stack height $>11 \text{ m}$ will be provided as per CPCB norms to the proposed DG sets. Proposed 6 TPH boiler based on wood chips/briquettes will be installed for proposed Distillery. Multi cyclone with 30 m stack will be installed for proposed boiler for controlling of particulate emission within statutory limit of $115 \text{ mg}/\text{Nm}^3$ for the proposed boiler.

11. Details of process emissions generation and its management:

| Project Activity | Anticipated pollutant | Management |
|--|--|---|
| Process emissions | CO_2 and Negligible VOCs | Minor CO_2 generation (1.368 TPD). |
| Stack, Fugitive emissions, material handling | PM_{10} , $\text{PM}_{2.5}$, NO_x , SO_2 , CO_2 | Multi cyclone with 30 m stack |

12. Details of Solid waste/ Hazardous waste generation and its management:

| Sr. No. | Type of waste | Quantity | Final Disposal |
|---------|---------------|-------------|---|
| 1. | DWGS | 13 TPD | DWGS is the by-product and will be sold to cattle/poultry feed. |
| 2. | Fly Ash | 1.5 TPD | Coal ash will be sold to brick manufacturers. |
| 3. | ETP Sludge | 0.5-0.6 TPD | ETP sludge will be Partly recirculate and remaining will be used in composting. |
| 4. | Spent oil | Negligible | Quantity of Spent oil will be negligible and |

| | | | |
|--|-------|--|--------------------------------------|
| | (5.1) | | shall be sent to authorized recycler |
|--|-------|--|--------------------------------------|

13. During deliberations EAC sought the following information/commitments from PP:

- Entire project shall be ZLD and no single drop of water shall be discharged outside the plant premises.
- PP shall allocate at least Rs. 35 Lakhs/year for Occupational Health Safety.
- Company to construct a storage pond of 60 days capacity and the accumulated water to be used as fresh water thereby reducing fresh water consumption.
- PP shall utilize 10% (65 KW) of the total power requirement from solar power.
- PP proposed a budget allocation of Rs. 1.0 Crores towards CER and it shall be used for construction/up-gradation of school building with provision of facilities e.g. Toilets, Drinking Water Facilities, Computers/Laptops and Solar light etc. Further, the works under CER Plan shall be implemented in consultation with District Collector and the CER plan shall be completed in two years as planned.

PP has submitted the desired information as sought above.

14. The proposal was considered by the EAC in its 49th meeting held on 27th - 28th January, 2022 in the Ministry, wherein the project proponent and their consultant M/s. MITCON Consultancy and Engineering Services Ltd., presented the case. The Committee **recommended** the project for grant of environmental clearance.

15. The EAC constituted under the provision of the EIA Notification, 2006 and comprising of Experts Members/domain experts in various fields, have examined the proposal submitted by the Project Proponent in desired form along with EIA/EMP report prepared and submitted by the Consultant accredited by the QCI/NABET on behalf of the Project Proponent. The EAC noted that the Project Proponent has given undertaking that the data and information given in the application and enclosures are true to the best of his knowledge and belief and no information has been suppressed in the EIA/EMP report. If any part of data/information submitted is found to be false/ misleading at any stage, the project will be rejected and Environmental Clearance given, if any, will be revoked at the risk and cost of the project proponent.

16. The Committee noted that the EIA/EMP report is in compliance of the ToR issued for the project, reflecting the present environmental concerns and the projected scenario for all the environmental components. The Committee has found the baseline data is within NAAQ standards. The Committee has deliberated the action plan proposed by the project proponent to arrest the incremental GLC due to the project. The Committee has also deliberated on the CER plan and found to be addressing the issues in the study area. The EAC has deliberated the proposal and has made due diligence in the process as notified under the provisions of the EIA Notification, 2006, as amended from time to time and

accordingly made the recommendations to the proposal. The Experts Members of the EAC have found the proposal in order and have **recommended** for grant of environmental clearance.

17. The environmental clearance granted to the project/activity is strictly under the provisions of the EIA Notification 2006 and its amendments. It does not tantamount/construe to approvals/consent/ permissions etc. required to be obtained or standards/conditions to be followed under any other Acts/ Rules/ Subordinate legislations, etc., as may be applicable to the project. The project proponent shall obtain necessary permission as mandated under the Water (Prevention and Control of Pollution) Act, 1974 and the Air (Prevention and Control of Pollution) Act, 1981, as applicable from time to time, from the State Pollution Control Board, prior to construction & operation of the project.

18. Based on the proposal submitted by the project proponent and recommendations of the EAC (Industry-2), Ministry of Environment, Forest and Climate Change hereby accords environmental clearance to the project for **Proposed 5 KLPD Malt Spirit Distillery by M/s. Ian Macleod Distillers India Pvt. Ltd. located at Plot No. A2, A3 & A4, Industrial Area Pandoga, District- Una, Himachal Pradesh**, under the provisions of the EIA Notification, 2006, and the amendments therein, subject to compliance of the terms and conditions as under:-

A. Specific Condition:

- (i). The company shall comply with all the environmental protection measures and safeguards proposed in the documents submitted to the Ministry. All the recommendations made in the EIA/EMP in respect of environmental management, and risk mitigation measures relating to the project shall be implemented.
- (ii). The project proponent will treat and reuse the treated water within the factory and no waste or treated water shall be discharged outside the premises.
- (iii). Total fresh water requirement shall not exceed 102 m³/day and will be met from Overhead Water Tank- DIC, Una. Prior permission shall be obtained from the concerned regulatory authority/CGWA in this regard, and renewed from time to time. No ground water recharge shall be permitted within the premises. Company to construct a storage pond of 60 days capacity and the accumulated water to be used as fresh water thereby reducing fresh water consumption.
- (iv). The spent wash shall be utilized as DWGS to be used as cattle feed. PP shall utilize 10% (65 KW) of the total power requirement from solar power.
- (v). CO₂ generated from the process shall be bottled/made solid ice and utilized/sold to authorized vendors.

- (vi). PP shall allocate at least Rs. 35 Lakhs/year for Occupational Health and Safety. Occupational Health Centre for surveillance of the worker's health shall be set up. The health data shall be used in deploying the duties of the workers. All workers & employees shall be provided with required safety kits/mask for personal protection.
- (vii). Training shall be imparted to all employees on safety and health aspects of chemicals handling. Safety and visual reality training shall be provided to employees.
- (viii). The unit shall make the arrangement for protection of possible fire hazards during manufacturing process in material handling. Firefighting system shall be as per the norms. PESO certificate shall be obtained.
- (ix). Process organic residue and spent carbon, if any, shall be sent to Cement and other suitable industries for its incinerations. ETP sludge, process inorganic & evaporation salt shall be disposed of to the TSDF.
- (x). The company shall undertake waste minimization measures as below (a) Metering and control of quantities of active ingredients to minimize waste; (b) Reuse of by-products from the process as raw materials or as raw material substitutes in other processes. (c) Use of automated filling to minimize spillage. (d) Use of Close Feed system into batch reactors. (e) Venting equipment through vapour recovery system. (f) Use of high pressure hoses for equipment clearing to reduce wastewater generation.
- (xi). The green belt of at least 5-10 m width shall be developed in nearly 33% of the total project area, mainly along the plant periphery. Selection of plant species shall be as per the CPCB guidelines in consultation with the State Forest Department. Records of tree canopy shall be monitored through remote sensing map.
- (xii). PP proposed to allocate Rs. 1.0 Crores towards CER and it shall be used for construction/up-gradation of school building with provision of facilities e.g. Toilets, Drinking Water Facilities, Computers/Laptops and Solar light etc. Further, the works under CER Plan shall be implemented in consultation with District Collector and the CER plan shall be completed in two years as planned.
- (xiii). There shall be adequate space inside the plant premises earmarked for parking of vehicles for raw materials and finished products and no parking to be allowed outside on public places.
- (xiv). Storage of raw materials shall be either stored in silos or in covered areas to prevent dust pollution and other fugitive emissions.
- (xv). Continuous online (24x7) monitoring system for stack emissions shall be installed for measurement of flue gas discharge and the pollutants concentration, and the data to be transmitted to the CPCB and SPCB

server. For online continuous monitoring of effluent, the unit shall install web camera with night vision capability and flow meters in the channel/drain carrying effluent within the premises.

- (xvi). A separate Environmental Management Cell (having qualified person with Environmental Science/Environmental Engineering/specialization in the project area) equipped with full-fledged laboratory facilities shall be set up to carry out the Environmental Management and Monitoring functions.

B. General Condition:

- (i) No further expansion or modifications in the plant, other than mentioned in the EIA Notification, 2006 and its amendments, shall be carried out without prior approval of the Ministry of Environment, Forest and Climate Change/SEIAA, as applicable. In case of deviations or alterations in the project proposal from those submitted to this Ministry for clearance, a fresh reference shall be made to the Ministry/SEIAA, as applicable, to assess the adequacy of conditions imposed and to add additional environmental protection measures required, if any.
- (ii) The energy source for lighting purpose shall be preferably LED based, or advanced having preference in energy conservation and environment betterment.
- (iii) The overall noise levels in and around the plant area shall be kept well within the standards by providing noise control measures including acoustic hoods, silencers, enclosures etc. on all sources of noise generation. The ambient noise levels shall conform to the standards prescribed under the Environment (Protection) Act, 1986 Rules, 1989 viz. 75 dBA (day time) and 70 dBA (night time).
- (iv) The company shall undertake all relevant measures for improving the socio-economic conditions of the surrounding area. CER activities shall be undertaken by involving local villages and administration and shall be implemented. The company shall undertake eco-developmental measures including community welfare measures in the project area for the overall improvement of the environment.
- (v) The company shall earmark sufficient funds towards capital cost and recurring cost per annum to implement the conditions stipulated by the Ministry of Environment, Forest and Climate Change as well as the State Government along with the implementation schedule for all the conditions stipulated herein. The funds so earmarked for environment management/pollution control measures shall not be diverted for any other purpose.
- (vi) A copy of the clearance letter shall be sent by the project proponent to concerned Panchayat, Zilla Parishad/Municipal Corporation, Urban local Body and the local NGO, if any, from whom suggestions/ representations, if any, were received while processing the proposal.

- (vii) The project proponent shall also submit six monthly reports on the status of compliance of the stipulated Environmental Clearance conditions including results of monitored data (both in hard copies as well as by e-mail) to the respective Regional Office of MoEF&CC, the respective Zonal Office of CPCB and SPCB. A copy of Environmental Clearance and six monthly compliance status report shall be posted on the website of the company.
- (viii) The environmental statement for each financial year ending 31st March in Form-V as is mandated shall be submitted to the concerned State Pollution Control Board as prescribed under the Environment (Protection) Rules, 1986, as amended subsequently, shall also be put on the website of the company along with the status of compliance of environmental clearance conditions and shall also be sent to the respective Regional Offices of MoEF&CC by e-mail.
- (ix) The project proponent shall inform the public that the project has been accorded environmental clearance by the Ministry and copies of the clearance letter are available with the SPCB/Committee and may also be seen at Website of the Ministry and at <https://parivesh.nic.in/>. This shall be advertised within seven days from the date of issue of the clearance letter, at least in two local newspapers that are widely circulated in the region of which one shall be in the vernacular language of the locality concerned and a copy of the same shall be forwarded to the concerned Regional Office of the Ministry.
- (x) The project authorities shall inform the Regional Office as well as the Ministry, the date of financial closure and final approval of the project by the concerned authorities and the date of start of the project.
- (xi) This Environmental clearance is granted subject to final outcome of Hon'ble Supreme Court of India, Hon'ble High Court, Hon'ble NGT and any other Court of Law, if any, as may be applicable to this project.

19. The Ministry reserves the right to stipulate additional conditions, if found necessary at subsequent stages and the project proponent shall implement all the said conditions in a time bound manner. The Ministry may revoke or suspend the environmental clearance, if implementation of any of the above conditions is not found satisfactory.

20. Concealing factual data or submission of false/fabricated data and failure to comply with any of the conditions mentioned above may result in withdrawal of this clearance and attract action under the provisions of Environment (Protection) Act, 1986.

21. Any appeal against this environmental clearance shall lie with the National Green Tribunal, if preferred, within a period of 30 days as prescribed under Section 16 of the National Green Tribunal Act, 2010.

22. The above conditions will be enforced, inter-alia under the provisions of the Water (Prevention & Control of Pollution) Act, 1974, the Air (Prevention & Control of Pollution) Act, 1981, the Environment (Protection) Act, 1986, the Hazardous Waste (Management, Handling and Transboundary Movement) Rules, 2016 and the Public Liability Insurance Act, 1991 read with subsequent amendments therein.

23. This issues with the approval of the competent authority.

(Ashok Kr. Pateshwary)
Director

Copy to: -

1. The Additional Chief Secretary, Department of Forests, Government of Himachal Pradesh, Secretariat, Shimla-171001
2. Regional Officer, Ministry of Environment, Forest and Climate Change, Integrated Regional Office, Shimla 1st & 2nd Floor, C.G.O. Complex, Longwood, Shimla - 171001
3. The Member Secretary, Central Pollution Control Board Parivesh Bhavan, CBD-cum-Office Complex, East Arjun Nagar, Delhi -32
4. The Member Secretary, Himachal Pradesh State Pollution Control Board, Him Parivesh, Phase 3, New Shimla, Shimla, Himachal Pradesh 171009
5. Monitoring Cell, Ministry of Environment, Forest and Climate Change, Indira Paryavaran Bhawan, Jor Bagh Road, New Delhi
6. District Magistrate/ Collector, Una, Himachal Pradesh
7. Guard File/Monitoring File/Parivesh portal/Record File

(Ashok Kr. Pateshwary)
Director
E-mail: ak.pateshwary@gov.in
Tel. No. 24695290

KARNATAKA POWER CORPORATION LIMITED

(A Government of Karnataka Enterprise)

CIN: U85110KA1970SGC001919
No. A1M1B3/Fly Ash/BTPS/Mar 2022 Dated: 07.03.2022

E-AUCTION NOTIFICATION (Through e-Procurement Portal of GoK)

(Evaluation of Auction participants and E-Auction bidding)
Name of Work: SALE OF DRY FLY ASH FROM BELLARY THERMAL POWER STATION (BTPS) Unit 1 to 3 OF KPCL. KPCL has already finalized H1 (M/s. UltraTech Cement Ltd.) and H2 (M/s. Dalmia Bharat Cement Ltd.) bidders in the previous tender cum auction for lifting of dry fly ash from Bellary TPS and is already issuing fly ash to them after entering into contract agreements with them. Tenders are invited through e-auction from direct end-users/ suppliers to end-users of fly ash for H3, H4, H5.Hn positions for 'Lifting of dry fly ash of approximately 7.30 lakh MT per annum (2000 MT per day) on 'as available' basis for a period from finalization of this auction and issue of Letter of Award up to 06.06.2024 from Bellary, i.e., from Bellary Thermal Power Station - Unit # 1 to 3 of KPCL. Even the above two existing H1 and H2 bidders can participate in this auction and have a separate contract additionally. Operation & Maintenance of Ash Handling System and Silo of BTPS, Unit 1, 3, including Spares, Consumables, Housekeeping & Miscellaneous works, if any, is in the scope of KPCL. The last date for receipt of the completed bids: 17.00 Hrs. on 21.03.2022. The Auction document can be downloaded from the website <https://www.eproc.karnataka.gov.in>. Further details can be had from: The Superintending Engineer (Mines), KPCL, No.82, Shakti Bhavan, III Floor, Race Course Road, Bengaluru-560001. e-mail: cefuelskpc@karnataka.gov.in / sefuels@gmail.com Website: www.karnatakapower.com e-Portal/ HP Helpdesk : 080-22234115 / 22230960.

DEBTS RECOVERY TRIBUNAL- II, CHANDIGARH

SCO 33.34.35, First Floor Sector 17 A, Chandigarh

Summons under sub-section (4) of section 19 or the Act, read with sub-rule (2A) of rule 5 of the Debt Recovery Tribunal (Procedure) Rules, 1993.

Exh. No. 5423 PUBLICATION SUMMONS Case No. OA/643/2021

HDFC Bank Vs. Bhim Sain

- Bhim Sain S/o Sh. Ram Singh Bhim Sain Son of Shri Kashri Ram Resident of Near Dew Saw Mill Village Nathohar Tehsil Rania District Sirsa Haryana 125076 (Borrower)
- Malkeet Singh Son of Shri Mani Ram Resident of Bacher (237) Nathohar Tehsil Rania District Sirsa (Haryana)

WHEREAS, OA/643/2021 was listed before Hon'ble Presiding Officer/ Registrar on 21/02/2022.

WHEREAS this Hon'ble Tribunal is pleased to issue summons/ notice on the said application under section 19(4) of the Act. (OA) filed against you for recovery of debts of Rs. 32,76,828/- (Application along with copies of documents etc. annexed).

In accordance with sub-section (4) of section 19 of the Act, you, the defendants are directed as under:-

- to show cause within thirty days of the service or summons as to why relief prayed for should not be granted;
- to disclose Particulars of properties or assets specified by the applicant under serial number 3A or the original application;
- you are restrained from dealing with or disposing of secured assets or such other assets and properties disclosed under serial number 3A of the original application, pending hearing and disposal of the Application for attachment of properties;
- you shall not transfer by way of sale, lease or otherwise, except in the ordinary course of his business any of the assets over which security interest is created and/ or other assets and properties specified or disclosed under serial number 3A of the original application without the prior approval of the Tribunal;
- you shall be liable to account for the sale proceeds realized by sale of secured assets or other assets and Properties in the ordinary course of business and deposit such sale proceeds in the account maintained with the bank or financial institutions holding security interest over such assets.

You are also directed to file the written statement with a copy thereof furnished to the applicant and to appear before Registrar on 25/04/2022 at 10:30A.M. failing which the application shall be heard and decided in your absence.

Given under my hand and the seal of this Tribunal on this date: 25.02.2022 Sd/ Registrar, DRT-II, Chandigarh

Environment Clearance

This is to inform that, Ministry of Environment, Forest and Climate Change (MOEFCC) has granted Environmental clearance to IAN MACLEOD DISTILLERS INDIA PRIVATE LIMITED for 5 KLPD MALT Spirit / Distillery located at Plot No.A-2; A-3 and A-4 Pandoga Industrial Estate, Pandoga Village, Tehsil Haroli, District Una, Himachal Pradesh. EC Identification number is EC22A022HP156935 and File No. IA-J-11011/201/2021-IA-II(I) dated 02/03/2022. Environmental clearance letter copy is available with the SPCB and at website of the Ministry and at <https://parivesh.nic.in>.

DEBTS RECOVERY TRIBUNAL- II, CHANDIGARH

SCO 33.34.35, First Floor Sector 17 A, Chandigarh

Summons under sub-section (4) of section 19 or the Act, read with sub-rule (2A) of rule 5 of the Debt Recovery Tribunal (Procedure) Rules, 1993.

Exh. No. 5339 PUBLICATION SUMMONS Case OA No. 910/2021

HDFC Bank Vs. Charan Singh

- Charan Singh Son of Gyan Singh Village Uplana Tehsil Assandh District Karnal, Haryana PIN-132039 Contact 8295810091 (Borrower-Mortgagor)
- Sanjeey Son of Kushal Pal Village Uplana Tehsil Assandh District Karnal Haryana (Co-Borrower)

WHEREAS, OA/910/2021 was listed before Hon'ble Presiding Officer/ Registrar on 11/02/2022.

WHEREAS this Hon'ble Tribunal is pleased to issue summons/ notice on the said application under section 19(4) of the Act. (OA) filed against you for recovery of debts of Rs. 40,90,270.20 (Application along with copies of documents etc. annexed).

In accordance with sub-section (4) of section 19 of the Act, you, the defendants are directed as under:-

- to show cause within thirty days of the service or summons as to why relief prayed for should not be granted;
- to disclose Particulars of properties or assets specified by the applicant under serial number 3A or the original application;
- you are restrained from dealing with or disposing of secured assets or such other assets and properties disclosed under serial number 3A of the original application, pending hearing and disposal of the Application for attachment of properties;
- you shall not transfer by way of sale, lease or otherwise, except in the ordinary course of his business any of the assets over which security interest is created and/ or other assets and properties specified or disclosed under serial number 3A of the original application without the prior approval of the Tribunal;
- you shall be liable to account for the sale proceeds realized by sale of secured assets or other assets and Properties in the ordinary course of business and deposit such sale proceeds in the account maintained with the bank or financial institutions holding security interest over such assets.

You are also directed to file the written statement with a copy thereof furnished to the applicant and to appear before Registrar on 25/04/2022 at 10:30A.M. failing which the application shall be heard and decided in your absence.

Given under my hand and the seal of this Tribunal on this date: 21.02.2022 Sd/ Registrar, DRT-II, Chandigarh

Classifieds
FROM ANYTHING TO EVERYTHING.

EXPRESS EDUCATION

LAW AMBITION
LAW INSTITUTE

Law is nothing but common sense and logic,
Alok Kr. Ronjan
Headmaster

PUBLIC NOTICE

EXCISE & TAXATION DEPARTMENT CHANDIGARH ADMINISTRATION

NOTICE FOR REGISTRATION FOR PARTICIPATION IN E-TENDERING PROCESS FOR ALLOTMENT OF RETAIL LIQUOR LICENSES OF INDIAN MADE FOREIGN LIQUOR, IMPORTED FOREIGN LIQUOR AND COUNTRY LIQUOR (L-2/L-14A) FOR THE YEAR 2022-23 IN U.T., CHANDIGARH.

This is for the information of General Public that the process of online registration of persons to participate in the e-tendering process for allotment of liquor vends for the year 2022-23 in U.T., Chandigarh, will commence from 14.03.2022.

All willing persons may visit the official website of the department i.e. www.etdud.gov.in/exciseonline for information/ to know the procedure and those who intend to participate in the e-tendering may get themselves registered at <https://etenders.chd.nic.in>.

It is further, informed that all prospective bidders will have to get themselves registered for e-tendering on the Chandigarh Administration's e-tender website i.e. <https://etenders.chd.nic.in>. For the convenience of the participants, a live demo-cum-workshop on e-tendering will be held on 09.03.2022 and 10.03.2022 at 03:00 pm to 05:00 pm in the Conference Hall of the Excise & Taxation Department, 1st Floor, Additional Town Hall Building, Sector-17, Chandigarh.

A helpdesk has also been set up in the office of the Assistant Excise & Taxation Commissioner, U.T., Chandigarh for providing assistance to the participants for e-tendering.

-sd-
Excise & Taxation Commissioner
Union Territory, Chandigarh

CHANDIGARH ADMINISTRATION DEPARTMENT OF EXCISE & TAXATION

Notice for inviting e-tenders for allotment of Licences for Retail Sale Vends (L-2/L-14A) from the general public for the year 2022-23 in U.T., Chandigarh

- It is hereby notified for the information of general public that e-tenders are invited for the grant of retail sale i.e. L-2/L-14A licences in the form of licensing units for the Excise Policy, 2022-23 (commencing from 1st April, 2022 to 31st March 2023). Each Licensing Unit will comprise L-2/L-14A (Indian Made Foreign Liquor, Imported Foreign Liquor and Country Liquor) under one roof. There will be 96 licensing units across the entire city and e-tenders shall be invited individually for all the licensing units.

The Retail sale vends shall be allotted to the highest eligible bidder, quoting equal to or above the reserve price of the licensing unit. In case of more than one bid quoting the same highest price is received, the allotment shall be determined by draw of lots among the bidders quoting the same highest price.

- All willing participants may visit the official website of the department i.e. www.etdud.gov.in/exciseonline for information/ to know the procedure. The detailed procedure for e-tenders and submission of participation fee and earnest money, in accordance with the Excise Policy 2022-23, is available on the official website of the department i.e. www.etdud.gov.in/exciseonline as well as in the Excise Office of the Department.

कार्यालय पंचायत सामुदायिक केंद्र मझिया

विकासखंड नारदीन जिला हमीरपुर (हिमाचल प्रदेश)

वर्ष 2022-23 के लिए सभी नदी मनरेगा, सामान्य, 15वां वित्तियोग आदि कार्य हेतु निविदाएं आमंत्रित की जाती हैं। जिनका पैटर्न निम्न प्रकार है।

- क्रेशर बजरी C10, 20, 40MM प्रति क्यूबिक मीटर
- क्रेशर रेत/ खड्ड रेत प्रति क्यूबिक मीटर
- सोलिंग प्रति क्यूबिक मीटर
- खड्ड बजरी प्रति क्यूबिक मीटर
- पेवर डाइल 60, 40 80mm (151 मार्की) प्रति पीस
- इंट प्रति इंट (अथवा/ दोगम)
- शटरिंग लकड़ी/ स्टील (प्रति स्वचायर मीटर)
- पानी टैंकर प्रति (3000 लीटर) प्रति टैंकर
- साइन बोर्ड (2x3, 3x4 फुट) लिखाई सहित
- कंक्रीट ब्लॉक (08, 06,16) प्रति पीस
- सीमेंट केरिंग प्रति बैग
- गोला पत्थर प्रति क्यूबिक मीटर
- मिक्चर मशीन with oil per day

यह सभी निविदाएं जीएसटी नंबर की होनी चाहिए, जीएसटी नंबर की प्रति साथ में होनी चाहिए। निविदाएं बंद लिफाफे में दिनांक 23 मार्च 2022 को सांन 4:00 बजे तक दूर, कार्यालय ग्राम पंचायत वेला में पहुंच जानी चाहिए। इसके बाद कोई भी निविदा को मान्य नहीं होगा। निविदाएं 24 मार्च को सुबह 11:00 बजे पंचायत कार्यालय में जनरी के समक्ष स्थली जाएगी। जिस किसी की निविदा पास होगी वह 100000 सिंब्योटी के रूप में यहाँ जमा करवाएगा। यह निविदा 01/04/2022 से लागू कर दी जायेगी

प्रधान, ग्राम पंचायत मझिया

THE ADMINISTRATION OF UNION TERRITORY OF LADAKH OFFICE OF THE CHAIRMAN LPSSRB

(email-igp-ladakh@police.ladakh.gov.in (Office Phone No.019822-260887.

NOTICE

SUBJECT: PMT/PST test for the Post of Constable Executive, Armed/ IRP, HG/CD/SDRF in Ladakh Police.

Through the medium of this notice it is informed to all the applicants for the post of Constable Executive, Armed/IRP, HG/CD/SDRF in Ladakh Police Advised vide Notification No. 385 of 2021 dated 16.10.2021 and the tentative date of commencement notified through Notice dated 14-02-2022 that, the Physical Measurement Test/ Physical Endurance Test (PMT/PET) shall commence from 15-03-2022. The Schedule for Physical Test (PMT/PET) is as follows.

Kargil: 15-03-2022 to 24-03-2022.
Leh: 28-03-2022 to 01-04-2022.

The Admit Cards can be downloaded from the Web Portal www.ladakhpolice Recruitment.in. The link will remain active with effect from 04-03-2022 to 14-03-2022 (1600 hrs).

The Candidates are advised to download their admit card and report at the given examination center on the schedule date and time as provided in the Admit Card.

The candidates are further advised to follow the following advisory for their convenience during the examination.

- The candidates shall carry a valid ID card and a printout of the Admit card.
- The candidates shall bring all their original documents/ testimonials along with one set of photo copies of the documents and two passport size photographs.
- The candidates shall not bring any mobile phone and eatables.

Sd/-
Chairman,
LPSSRB, PHQ UT-Ladakh.

No: PHQ/UTL/Pers/RR/2022-3420-30 Dated 02.03.2022

indianexpress.com



INDIA EXPOSITION MART LTD

CIN: U99999DL2001PLC110396
Regd. Office: Plot No. 1; 210 - Atlantic Plaza, 2nd Floor, Local Shopping Centre, Mayur Vihar Phase-4, Delhi - 110091 Tel: +91-120-2328011-20, Fax: +91-120-2328010 Email id: cs@indiaexpocentre.com, Website: www.indiaexpomart.com

NOTICE OF THE 12TH EXTRAORDINARY GENERAL MEETING, INFORMATION ON E-VOTING
NOTICE IS HEREBY GIVEN THAT the 12th



H.P.STATE POLLUTION CONTROL BOARD

HIM PARIVESH, PHASE-III, NEW SHIMLA-171009.

Website:- <http://hppcb.nic.in>

HPSPCB No : 546

Date: 08/04/2022

Industry Registration ID: HP12429509

Application No : 5286468

To,

Ian Macleod Distillers India Private Limited
Plot No. A2, A3 & A4 of Industrial Area Pandoga, Sub Tehsil Ispur, Distt. Una (HP)

Una
177207

Subject: Consent to Establish u/s 25/26 of Water (Prevention & Control of Pollution) Act, 1974 and u/s 21 of Air (Prevention & Control of Pollution) Act, 1981.

With reference to your application for obtaining 'Consent to Establish' u/s 25/26 of Water (Prevention & Control of Pollution) Act, 1974 and u/s 21 of Air (Prevention & Control of Pollution) Act, 1981, you are hereby, authorized to Establish an industrial unit subject to the Terms and Conditions as mentioned in this Consent letter.

1.Particulars of Consent to Establish under Water Act, 1974 and Air Act, 1981 granted to the industry

| | |
|-------------------------------|------------------------------|
| Consent No. | CTE/BOTH/NEW/RO/2022/5286468 |
| Date of issue : | 30/03/2022 |
| Date of expiry : | 29/03/2023 |
| Certificate Type : | NEW |
| Previous CTE No. & Validity : | |

2. Particulars of the Industry

| | | |
|--|---|------------|
| Name & Designation of the Applicant | RV Subramanian , (Director) | |
| Address of Industrial premises | Ian Macleod Distillers India Private Limited, Plot No. A2, A3 & A4 of Industrial Area Pandoga, Sub Tehsil Ispur, Distt. Una (HP), ,Una-177207 | |
| Capital Investment of the Industry | 5580.0 lakhs | |
| Category of Industry | Red | |
| Type of Industry | 1060-Distillery (molasses / grain / yeast based) | |
| Scale of the Industry | Medium | |
| Office District | Una | |
| Capacity | | |
| Raw Materials (Name with quantity per day) | | |
| Raw Materials | Quantiry | Unit |
| Barley Malt | 300 | M.T./Month |

"This is computer generated document from OCMMS by HPSPCB"

Ian Macleod Distillers India Private Limited,Plot No. A2, A3 & A4 of Industrial Area Pandoga, Sub Tehsil Ispur, Distt. Una (HP),,Una,177207

Products (Name with quantity per day)

| Name of Products | Unit | Quantity | Intermediate Product | Principal Use |
|--------------------|---------------|----------|----------------------|---|
| IMFL | Cases per Day | 1000 | NIL | for reselling |
| DWGS (Spent Grain) | M.T./Year | 3900 | NIL | Cattle Feed |
| Malt Spirit | K.L./Year | 1500 | NIL | For blending of Liquor, Production of Single Malt Whisky and Resale |

Details of the Effluent Treatment Plant

| Type of Effluent | Capacity(KLD) | Quantity(KLD) |
|------------------|---------------|---------------|
| ETP | 75 | 67 |
| Septic Tank | 25 | 4 |

Mode of Disposal

| Description | Quantity(in KLD) | Method of Treatment | Method of Disposal |
|--------------------|------------------|----------------------|--------------------|
| Domestic | 4 | Soak Pit/Septic Tank | Other |
| Industrial Process | 67 | ETP | Recycle |

Quantity of fuel required (in TPD) and capacity of boilers/ Furnace/Thermo heater etc.

| Type | No.of Boiler/'Heater/ Evaporator/Incinerator/DG Set/Other | Capacity | Type of Boiler/'Heaters /Evaporators/Incinerator/DG Sets/Others | Type of Fuel | Fuel consumption rate in MT/hour or KL/hour or M3 /hour |
|---------|---|-------------------|---|-------------------------------------|---|
| Boilers | 1 | 6 TPH | Saturated Steam Boiler | Wood Chips, Palettes and Briquettes | 1.02 -1.25 MT/Hour |
| DG Sets | 2 | 500 KVA & 250 KVA | DG Set | HSD | 0.25 KL/Hour |

Type of Air Pollution Control Devices installed

| Equipment Type | Equipment Name | Date/proposed date of installation | Efficiency(%reduction) | Final concentration of pollution being emitted |
|--|----------------|------------------------------------|------------------------|--|
| Multi Cyclone | Boilers | Sat Jan 08 00:01:00 IST 2022 | 98% | PM 10, PM 2.5, Nox, SO2, CO2 |
| Acoustic Enclosure, proper exhaust muffler and adequate stack height | DG Sets | Sat Jan 08 00:01:00 IST 2022 | 98% | Nox+HC4.0 g/kW-hr, CO3.5 g/kW-hr, PM0.2 g/kW-hr, Smoke Limit 0.7 per meter |

"This is computer generated document from OCMMS by HPSPCB"

**Apoorv Devgan, IAS
Member Secretary
For & on behalf of
(H. P. State Pollution Control Board)**

Endst. No.:

Copy To:-

1. The Regional Officer, HPSPCB, Una for information and shall ensure the operation of the unit as per consent conditions & with adequate pollution control devices.

**Apoorv Devgan, IAS
Member Secretary
For & on behalf of
(H. P. State Pollution Control Board)**

A. SPECIFIC CONDITIONS

1. This Consent to Establish is only for the purpose and under the provision of Water Act, 1974 and Air Act, 1981 as the case may be, and will not construed as substitute for mandatory clearances required for the project under any other law/regulation/direction/order and the applicant shall obtain any such mandatory clearance before taking any steps to establish industry/ industrial plant, operation or process or any treatment and disposal system or an extension or addition thereto.
2. Nothing in this Consent shall be deemed to neither preclude the institution of any legal action nor relieve the applicant from any responsibilities, liabilities or penalties to which the applicant is or may be subjected to under this or any other Act.
3. The unit shall apply for further extension in the validity of the Consent to Establish, at least two months before the expiry of this 'Consent to Establish', if applicable.
or
The unit shall obtain prior Consent to Operate from the State Board, before starting operational activity and gets its completion plan approved by the Competent Authority (As applicable).
4.
 - i) The unit shall made provisions for the compliance of Waste Management Rules i.e. Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016/ Plastic Waste Management Rules, 2016/ E-Waste (Management) Rules, 2016/Construction & Demolition Waste Management Rules, 2016 and Manufacture, Storage & Import of Hazardous Chemical Rules, 1989 and provisions made thereunder, as amended from time to time, without any adverse effect on the environment, in any manner (As Applicable)
 - ii) The unit shall made provisions for the compliance Solid Waste Management Rules, 2016 and provisions made thereunder and unit shall also not practice burning activity of solid waste/waste generated from fuel within/outside premises, to avoid public nuisance.
5. This 'Consent to Establish' is for:-
 - i) The emissions from all sources conforming to the norms as prescribed in Schedule-I of Environment (Protection) Rules, 1986 as amended from time to time.
 - ii) Noise and Ambient Air Quality shall be maintained within Ambient Air Quality Standards for noise as specified in Schedule-III of Environment (Protection) Rules, 1986 and Noise Pollution (Regulation and Control) Rules, 2000, as amended from time to time.
 - iii) The effluent (Domestic/Industrial) shall conform to the limits as prescribed in Schedule-I or Schedule-VI or Industry specific standards of Environment (Protection) Rules, 1986 as amended from time to time.
 - iv) Sewage and sullage generated from the unit to be disposed-off in a properly designed septic tank system/Sewage Treatment Plant/ Public Sewer System (as applicable).
6. The unit shall install adequate pollution control devices and provide the separate energy meter and flow meter. The unit shall maintain the logbook/ record with respect to operation of pollution control devices (As applicable). The achievement of the adequacy and efficiency of the effluent treatment plant/pollution control devices/re-circulation system installed shall be the entire responsibility of the unit.
7. **CONDITIONS UNDER WATER (PREVENTION & CONTROL OF POLLUTION) ACT, 1974.**
 - a) The unit shall provide terminal manhole(s) at the end of each collection system and a manhole upstream of final outlet (s) out of the premises of the industry for measurement of flow and for taking samples.
 - b) The unit shall install flow meter and maintain the record regarding the daily water consumption.

- c) The pollution control devices shall be interlocked with the manufacturing process of the industry (if applicable) and the authorized outlet and mode of disposal shall not be changed without the prior written permission of the Board. Unit shall not use any unauthorized outlet(s) for discharging effluents from its premises.
- d) Solids, sludge, filter backwash or other pollutant removed from or resulting from treatment or control of waste waters shall be disposed-off in scientific manner.
- e) The unit shall submit a detailed plan showing therein, the distribution system for conveying wastewaters.

8. CONDITIONS UNDER AIR (PREVENTION & CONTROL OF POLLUTION) ACT, 1981.

- a) The unit shall provide canopy and stack of adequate height of the D.G sets so as to control the noise & air pollution in order to comply with the provision of notification No GSR-371 E dated 17-5-2002 or direction as issued by MOEF from time to time, under Environment (Protection) Act, 1986.
- b) The unit shall ensure disposal of boiler ash/fuel ash through authorized person or within premises in a scientific manner (as the case may be) and shall maintain proper record for the same, if applicable.
- c) The unit shall provide proper and adequate air pollution control arrangements for control emission from its coal/fuel handling area and emissions from handling, transportation and processing of raw material & product of the industry, as applicable.
- d) The unit shall provide port-holes, platforms and/or other necessary facilities as may be required for collecting samples of emissions from any chimney, flue or duct or any other outlets as per the specifications.

Specifications of the port-holes shall be as under:-

- i) The sampling ports shall be provided atleast 8 times chimney diameter downstream and 2 times upstream from the flow disturbance. For a rectangular cross section the equivalent diameter (D_e) shall be calculated from the following equation to determine upstream, downstream distance:-

$$D_e = 2 LW / (L+W)$$
 Where L= length in mts. W= Width in mts.
- ii) The sampling port shall be 7 to 10 cm in diameter
- e) The unit shall submit a detailed plan showing therein, the distribution system for conveying wastewaters.

(i) Stack height for boiler plants

| S.NO. | Boiler with Steam Generating Capacity | Stack heights |
|-------|---------------------------------------|---|
| 1. | Less than 2 ton/hr. | 9 meters or 2.5 times the height of neighboring building which ever is more |
| 2. | More than 2 ton/hr. to 5 ton/hr. | 12 meters |
| 3. | More than 5 ton/hr. to 10 ton/hr | 15 meters |
| 4. | More than 10 ton/hr. to 15 ton/hr | 18 meters |

| | | | |
|----|------------------------------------|---|-----|
| 5. | More than 15 ton/hr. to 20 ton/hr | 21 meters | 319 |
| 6. | More than 20 ton/hr. to 25 ton/hr. | 24 meters | |
| 7. | More than 25 ton/hr. to 30 ton/hr. | 27 meters | |
| 8. | More than 30 ton/hr. | 30 meters or using the formula $H = 14 Qg^{0.3}$ or $H = 74 (Qp)^{0.24}$ Where Qg = Quantity of SO ₂ in Kg/hr. Qp = Quantity of particulate matter in Ton/day. | |

Note : Minimum Stack height in all cases shall be 9.0 mtr. or as calculated from relevant formula whichever is more.

(ii) For industrial furnaces and kilns, the criteria for selection of stack height would be based on fuel used for the corresponding steam generation.

(iii) Stack height for diesel generating sets:

| Capacity of diesel generating set | Height of the Stack | |
|-----------------------------------|------------------------|-----------|
| 0-50 KVA | Height of the building | + 1.5 mt |
| 50-100 KVA | -do- | + 2.0 mt. |
| 100-150 KVA | -do- | + 2.5 mt. |
| 150-200 KVA | -do- | + 3.0 mt. |
| 200-250 KVA | -do- | + 3.5 mt. |
| 250-300 KVA | -do- | + 3.5 mt. |

For higher KVA rating stack height H (in meter) shall be worked out according to the formula:

$$H = h + 0.2 (KVA)^{0.5}$$

where h = height of the building in meters where the generator set is installed.

9. The unit shall submit on-site and off-site emergency plan approved by the Chief Inspector of Factories, Himachal Pradesh (If applicable)
10. The unit shall provide real time online monitoring equipment's and provisions for the uninterrupted transfer of data as per guidelines of CPCB (if applicable).
11. The unit shall provide adequate arrangements for fighting the accidental leakages/ discharge of any air pollutant/gas/liquids from the vessels, mechanical equipment's etc. which are likely to cause environmental pollution.
12. The unit shall plant minimum three layer of trees so far possible as per plantation guide (may be download from the website <http://hppcb.nic.in/plantationguide.pdf>) all along the boundary of the industrial premises and check air/water/noise pollution at source.
13. Any guidelines issued by the Central Government/State Government/MoEF/CPCB/SPCB/any other authority concerned, shall be binding.
14. This 'Consent to Establish' is subject to orders on any litigation pending in any Court of Law. Any direction/order issued by any court shall be binding (if any).
15. The Board reserves the right to revoke the 'Consent to Establish' granted to the industry at any time, in case the industry is found violating the provisions of Water (Prevention & Control of Pollution) Act, 1974 and Air (Prevention & Control of Pollution) Act, 1981 as amended from time to time.
16. The unit shall comply with any other conditions laid down or directions issued in due course by the Board under the provisions of the Water (Prevention & Control of Pollution) Act, 1974 and Air (Prevention & Control of Pollution) Act, 1981.

B. OTHER CONDITIONS

1. The unit shall comply with the conditions imposed by the MoEF/State Level Environment Impact Assessment Authority/ District Level Environment Impact Assessment Authority in the environmental clearance granted to it as required under EIA notification dated 14-9-06, if applicable.
2. The issuance of this consent does not convey any property right in either real or personal property, or any exclusive privileges, nor does it authorize any injury to private property or any invasion of personal rights, nor any infringement of Central, State or Local Laws or Regulations.
3. Stone Crusher units shall comply with the provisions of guidelines notified by the State Government vide Notification No. STE-E(3)-11/2012, dated 29-05-2014 (If Applicable).
4. Brick Kiln units shall comply with the provisions of guidelines notified by the MoEF vide Notification No. G.S.R.233.(E), dated-15-03-2018 and by the State Government vide Notification No. STE-E(5)-6/2013, dated-07-03-2014 (If Applicable).
5. Hydroelectric Projects shall install Online Real Time Monitoring System for the measurement of 15% of minimum discharge in lean season as per orders of Court/Government. The unit shall also ensure provisions for the regular and uninterrupted transfer of data from the real time online monitoring system for 15% of minimum discharge of flow to SPCB, failing which unit shall be liable for action on account of violation of the directions issued by Court/Government/SPCB in this regard (If Applicable).
6. Unit shall strictly adhere to the capacity approved by the Industries Department/ Department of Tourism & Civil Aviation/any other concerned Authority (As Applicable).
7. The unit shall not cause any nuisance/traffic hazard in vicinity of the area.
8. The unit shall ensure that there will not be significant visible dust emissions beyond the property line.
9. The unit shall obtain and submit Insurance cover as required under the Public Liability Insurance Act, 1991.
10. The unit shall put display Board indicating environmental data in the prescribed format at the main entrance gate.
11. The unit shall maintain record regarding the operation of effluent treatment plant i.e. record of quantity of chemicals and energy utilized for treatment and sludge generated from treatment so as to satisfy the Board regarding regular and proper operation of pollution control equipment.
12. Any amendments/revisions made by the Board/CPCB/MOEF in the emission/stack height standards shall be applicable to the industry from the date of such amendments/revisions.

Apoorv Devgan, IAS
Member Secretary
For & on behalf of
(H. P. State Pollution Control Board)



H.P.STATE POLLUTION CONTROL BOARD

HIM PARIVESH, PHASE-III, NEW SHIMLA-171009

HPSPCB No : 546

Date: 15/06/2024

Industry Registration ID: HP12429509

Application No : 12037526

To,

Ian Macleod Distillers India Private Limited
Plot No. A2, A3 & A4 of Industrial Area Pandoga, Sub Tehsil Ispur, Distt. Una (HP)

Una
177207

Subject: Renewal of 'Consent to Operate' u/s 25/26 of Water (Prevention & Control of Pollution) Act, 1974 and u/s 21 of Air (Prevention & Control of Pollution) Act, 1981.

With reference to your application for obtaining Renewal of 'Consent to Operate' u/s 25/26 of Water (Prevention & Control of Pollution) Act, 1974 and u/s 21 of Air (Prevention & Control of Pollution) Act, 1981, you are hereby, authorized to operate an industrial unit subject to the Terms and Conditions as mentioned in this Consent letter.

1.Particulars of Consent to Operate under the Water Act, 1974 and Air Act, 1981 granted to the industry

| | |
|--|---------------------------------|
| Consent No. | CTO/BOTH/RENEW/RO/2024/12037526 |
| Consent valid from: | 01/04/2024 |
| Consent valid upto: | 31/03/2025 |
| Certificate Type : | RENEW |
| Previous CTE/CTO No. & Validity : | |

2. Particulars of the Industry

| | |
|--|---|
| Name & Designation of the Applicant | RV Subramanian , (Director) |
| Address of Industrial premises | Ian Macleod Distillers India Private Limited, Plot No. A2, A3 & A4 of Industrial Area Pandoga, Sub Tehsil Ispur, Distt. Una (HP), ,Una-177207 |
| Capital Investment of the Industry | 5580.0 lakhs |
| Category of Industry | Red |
| Type of Industry | 1060-Distillery (molasses / grain / yeast based) |
| Scale of the Industry | Large |
| Office District | Una |
| Capacity | |

Raw Materials (Name with quantity per day)

| Raw Materials | Quantity | Unit |
|---------------|----------|------------|
| Barley Malt | 300 | M.T./Month |

Products (Name with quantity per day)

| Name of Products | Unit | Quantity | Intermediate Product | Principal Use |
|--------------------|---------------|----------|----------------------|---|
| IMFL | Cases per Day | 1000 | - | For Reselling |
| DWGS (Spent Grain) | M.T./Year | 3900 | - | Cattle Feed |
| Malt Spirit | K.L./Year | 1500 | - | For Blending of Liquor, Production of Single Malt Whisky and Resale |

Details of the Effluent Treatment Plant

| Type of Effluent | Capacity | Quantity |
|------------------|----------|----------|
| ETP | 75 KLD | 67 KLD |
| Septic Tank | 25 KLD | 4 KLD |

Mode of Disposal

| Description | Quantity(in KLD) | Method of Treatment | Method of Disposal |
|--------------------|------------------|----------------------|----------------------|
| Industrial Process | 67 | ETP | Other |
| Domestic | 4 | Soak Pit/Septic Tank | Soak Pit/Septic Tank |

Quantity of fuel required (in TPD) and capacity of boilers/ Furnace/Thermo heater etc.

| Type | No.of Boiler/'Heater /Evaporator/Incinerator/DG Set/Other | Capacity | Type of Boiler/'Heaters/Evaporators/Incinerator/DG Sets/Others | Type of Fuel | Fuel consumption rate in MT/hour or KL/hour or M3 /hour |
|---------|---|----------|--|------------------------------------|---|
| DG Sets | 01 | 500 KVA | DG Set | Diesel | 0.25 KL/Hrs |
| Boilers | 01 | 6 TPH | Saturated Steam Boiler | Wood Chips, Pellets and Briquettes | 1.02 - 1.25 MT/Hour |

Type of Air Pollution Control Devices installed

| Equipment Type | Equipment Name | Date/proposed date of installation | Efficiency(%reduction) | Final concentration of pollution being emitted |
|--|----------------|------------------------------------|------------------------|--|
| Multicyclone and bagfilters | Boilers | Sat Jan 14 00:07:00 IST 2023 | 98% | PM<150.00 microgram per cubic meter at all time NoX+HC<= 4.0 g/KW-hr, CO<= 3.5 g/KW-hr |
| Acoustic enclosure, proper exhaust muffler and adequate stack height | DG Sets | Fri Jan 27 00:12:00 IST 2023 | 98% | PM<=0.2 g/KW-hr, smoke limit <= 0.7 per meter |



**Approved By
Chairman
(H. P. State Pollution Control Board)**

Endst. No.:

Copy To:-

The Regional Officer, HPSPCB, Una for information and shall ensure the operation of the unit as per consent and with adequate PCDs.



**Anil Joshi, IFS
Member Secretary
For & on behalf of
(H. P. State Pollution Control Board)**

TERMS AND CONDITIONS**A. SPECIFIC CONDITIONS**

1. This 'Renewal of Consent to Operate' is only for the purpose and under the provision of Water Act, 1974 and Air Act, 1981 as the case may be, and will not construed as substitute for mandatory clearances required for the project under any other law/regulation/direction/order and the applicant shall obtain any such mandatory clearance before taking any steps to establish industry/ industrial plant, operation or process or any treatment and disposal system or an extension or addition thereto.
2. Nothing in this Consent shall be deemed to neither preclude the institution of any legal action nor relieve the applicant from any responsibilities, liabilities or penalties to which the applicant is or may be subjected to under this or any other Act.
3. The unit shall apply for further renewal/extension in the validity of the Consent, before the expiry of this 'Renewal of Consent to Operate'.
4.
 - i) The unit shall ensure compliance of Waste Management Rules i.e. Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016/ Plastic Waste Management Rules, 2016/ E-Waste (Management) Rules, 2016/Construction & Demolition Waste Management Rules, 2016 and Manufacture, Storage & Import of Hazardous Chemical Rules, 1989 and provisions made thereunder, as amended from time to time, without any adverse effect on the environment, in any manner (As Applicable).
 - ii) The unit shall made provisions for the compliance Solid Waste Management Rules, 2016 and provisions made thereunder and unit shall also not practice burning activity of solid waste/waste generated from fuel within/outside premises, to avoid public nuisance.
5. This 'Renewal of Consent to Operate' is for:-
 - i) The emissions from all sources conforming to the norms as prescribed in Schedule-I of Environment (Protection) Rules, 1986 as amended from time to time.
 - ii) Noise and Ambient Air Quality shall be maintained within Ambient Air Quality Standards for noise as specified in Schedule-III of Environment (Protection) Rules, 1986 and Noise Pollution (Regulation and Control) Rules, 2000, as amended from time to time.
 - iii) The effluent (Domestic/Industrial) shall conform to the limits as prescribed in Schedule-I or Schedule-VI or Industry specific standards of Environment (Protection) Rules, 1986 as amended from time to time.
 - iv) Sewage and sullage generated from the unit to be disposed-off in a properly designed septic tank system/Sewage Treatment Plant/ Public Sewer System (as applicable).
6. The unit shall ensure regular operation and maintenance of Pollution Control Devices to achieve the norms as prescribed in Environment (Protection) Act, 1986 and the achievement of the adequacy and efficiency of the effluent treatment plant/pollution control devices/recirculation system installed shall be the entire responsibility of the unit.
7. The unit shall ensure regular operation and maintenance of separate energy meter/flow meter for running pollution control devices and shall also maintain record with respect to operation of air pollution control device/effluent treatment plant, so as to the satisfy the Board regarding the regular operation of air pollution control device/effluent treatment plant and shall maintain log book for the monthly reading / record.
8. **CONDITIONS UNDER WATER (PREVENTION & CONTROL OF POLLUTION) ACT, 1974.**
 - a) The unit shall maintain the record regarding the daily water consumption as per flow meter installed.
 - b) The unit shall ensure that terminal manhole(s) at the end of each collection system and a manhole upstream of final outlet (s) out of the premises of the industry for measurement of flow and for taking samples.

- c) The pollution control devices shall be interlocked with the manufacturing process of the industry (if applicable) and the authorized outlet and mode of disposal shall not be changed without the prior written permission of the Board. Unit shall not use any unauthorized out-let(s) for discharging effluents from its premises.
- d) Solids, sludge, filter backwash or other pollutant removed from or resulting from treatment or control of waste waters shall be disposed-off in scientific manner.

9. **CONDITIONS UNDER AIR (PREVENTION & CONTROL OF POLLUTION) ACT, 1981.**

- a) The unit shall ensure port-holes, platforms and/or other necessary facilities as may be required for collecting samples of emissions from any chimney, flue or duct or any other outlets as per the specifications.
 - b) The unit shall discharge air emissions through a stack of minimum height as specified in 'Consent to Establish' and shall follow standards laid down from time to time.
 - c) For industrial furnaces and kilns, the criteria for selection of stack height would be based on fuel used for the corresponding steam generation & as per specification.
 - d) Unit shall ensure Stack height for diesel generating sets as per specification.
 - e) The unit shall ensure regular operation and maintenance of installed canopy and stack of the D.G sets so as to control the noise & air pollution in order to comply with the provision of notification No GSR-371 E dated 17-5-2002 or direction as issued by MOEF from time to time, under Environment (Protection) Act, 1986.
 - f) The unit shall ensure disposal of boiler ash/fuel ash through authorized person or within premises in a scientific manner (as the case may be) and shall maintain proper record for the same, if applicable.
 - g) The unit shall ensure regular operation and maintenance of air pollution control arrangements for control emission from its coal/fuel handling area and from handling, transportation and processing of raw material & product of the industry.
- 10. The unit shall ensure valid and approved on-site and off-site emergency plan, approved by the Chief Inspector of Factories, Himachal Pradesh (If applicable).
 - 11. The unit shall ensure regular operation and maintenance of real time online monitoring equipment's and provisions for the un-interrupted transfer of data as per guidelines of CPCB (if applicable).
 - 12. The unit shall provide adequate arrangements for fighting the accidental leakages/ discharge of any air pollutant/gas/liquids from the vessels, mechanical equipment's etc. which are likely to cause environmental pollution.
 - 13. The unit shall plant & maintain minimum three layer of trees so far possible as per plantation guide (may be download from the website <http://hppcb.nic.in/plantationguide.pdf>) all along the boundary of the industrial premises and check air/water/noise pollution at source.
 - 14. Any guidelines issued by the Central Government/State Government/MoEF/CPCB/SPCB/any other authority concerned, shall be binding.
 - 15. This 'Renewal of Consent to Operate' is subject to orders on any litigation pending in any Court of Law. Any direction/order issued by any court shall be binding (if any).
 - 16. The Board reserves the right to revoke the 'Renewal of Consent to Operate' granted to the industry at any time, in case the industry is found violating the provisions of Water (Prevention & Control of Pollution) Act, 1974 and Air (Prevention & Control of Pollution) Act, 1981 as amended from time to time.
 - 17. The unit shall comply with any other conditions laid down or directions issued in due course by the Board under the provisions of the Water (Prevention & Control of Pollution) Act, 1974 and Air (Prevention & Control of Pollution) Act, 1981.

B. OTHER CONDITIONS

- 1. The unit shall comply with the conditions imposed by the MoEF/State Level Environment Impact Assessment Authority/ District Level Environment Impact Assessment Authority in the environmental clearance granted to it as required under EIA notification dated 14-9-06, if applicable.

2. The issuance of this consent does not convey any property right in either real or personal property, or any exclusive privileges, nor does it authorize any injury to private property or any invasion of personal rights, nor any infringement of Central, State or Local Laws or Regulations.
3. Stone Crusher units shall comply with the provisions of guidelines notified by the State Government vide Notification No. STE-E(3)-11/2012, dated 29-05-2014 (If Applicable).
4. Brick Kiln units shall comply with the provisions of guidelines notified by the MoEF vide Notification No. G.S.R.233.(E), dated-15-03-2018 and by the State Government vide Notification No. STE-E(5)-6/2013, dated-07-03-2014 (If Applicable).
5. Hydroelectric Projects shall install Online Real Time Monitoring System for the measurement of 15% of minimum discharge in lean season as per orders of Court/Government. The unit shall also ensure provisions for the regular and uninterrupted transfer of data from the real time online monitoring system for 15% of minimum discharge of flow to SPCB, failing which unit shall be liable for action on account of violation of the directions issued by Court/Government/SPCB in this regard (If Applicable).
6. Unit shall strictly adhere to the capacity approved by the Industries Department/ Department of Tourism & Civil Aviation/any other concerned Authority (As Applicable).
7. The unit shall not cause any nuisance/traffic hazard in vicinity of the area.
8. The unit shall ensure that there will not be significant visible dust emissions beyond the property line.
9. The unit shall obtain and submit Insurance cover as required under the Public Liability Insurance Act, 1991.
10. Unit shall submit all the annual/quarterly returns, as per timeline.
11. The industry shall submit a yearly certificate to the effect that no addition/up-gradation/modification/ modernization has been carried out during the previous year otherwise the industry shall apply for the varied consent.
12. The unit shall maintain record regarding the operation of effluent treatment plant i.e. record of quantity of chemicals and energy utilized for treatment and sludge generated from treatment so as to satisfy the Board regarding regular and proper operation of pollution control equipment.
13. Any amendments/revisions made by the Board/CPCB/MOEF in the emission/stack height standards shall be applicable to the industry from the date of such amendments/revisions.

C. SPECIAL CONDITIONS

1. The Unit shall neither change the type of products nor shall exceed the production beyond the approved capacity without obtaining consent of the state Board.
2. This consent of the State Board shall be only for the purpose and under the provisions of the Water Act, 1974, Air Act, 1981 shall not be considered as substitute or pre-requisite clearances required from other departments.
3. This consent is subject to ratification of State Board or any litigation pending at any Court of Law.
4. Pollution Control devices provided by the unit shall comply with norms as prescribed under Environment protection rules, 1986.
5. Regional Officer to ensure that unit doesn't attract the provisions of EIA, 2006.
6. Unit shall comply with the fuel policy of the State Government as notified from time to time and as per various directives of the Hon'ble National Green Tribunal for use of fuel in the unit furnace.
7. Unit shall ensure compliance under PWMR, 2016.
8. Unit shall use all the treated water which will not be allowed for gardening.

By Order
Chairman
(H. P. State Pollution Control Board)

1561

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Proceedings of the Joint Inspection conducted by the committee on 8-10-2024 constituted by the Director of Industries, Himachal Pradesh to assess the industries set-up in Industrial Area, Pandoga, District Una, HP, regarding effluent discharge and to submit a detailed report on non-requirement of setting-up of common effluent treatment plant (CETP) of 5 MLD capacity in Industrial Area Pandoga.

In view of the application titled Manoj Kumar v/s State of HP & others (OA No. 646/2023) in the Hon'ble NGT, a committee, comprising of following members was constituted by Director Industries, Govt. of Himachal Pradesh, vide office order no.Ind.Dev.F(16)OA No. 646/2023/NGT/-11422-11423 dated 26-09-2024 (Copy of letter is attached at Annex.-I).

1. Sh. Tilak Raj Sharma, Addl. Director of Industries (Dev.), H.P, Shimla, Chairman
2. Sh. Anshul Dhiman, Joint Director of Industries, DIC, Una- Member
3. Sh. Surender Katna, Executive Engineer, HPSIDC Ltd, Mehatpur Member
4. Sh. Praveen Kumar, Regional Officer, HP State Pollution Control Board, Una- Member
5. Sh. Sunil Rana, Scientific Officer, HP State Pollution Control Board, Member
Una-

The purpose of committee is to assess the industries established in Industrial Area, Pandoga, District Una (H.P) for the effluents being discharged from Industrial units and to assess whether there is need to set-up a CETP in Industrial Area based upon the effluents discharge and status of its treatment.

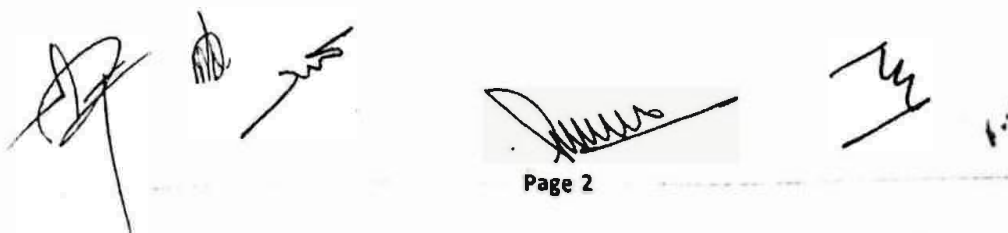
Joint Director (Industries) Una, apprised the committee that land measuring 60-29-20 hectare was transferred in the name of Department of Industries, Government of Himachal Pradesh, vide government order no. D(3)8-12/20145 dated 06.08.2015. Prior to transfer of this land approval was obtained under FCA from Ministry of Environment Forest vide letter no. 8-91/2014-FC dated 21.07.2015. (Copy of

letter is attached at **Annex.-II)**

The project was submitted to Ministry of MSME, Government of India under MIUS scheme amounting to rupees 121.95 cr. The major components of the project and their financial cost were as under:-

| S.No. | DESCRIPTION OF ITEMS | AMOUNT |
|-----------|--|---------------|
| A) | PHYSICAL INFRASTRUCTURE | |
| 1. | Construction of roads, storm water drainage, paths & green cover development | 17.37 |
| 2. | Construction of bridges | 2.33 |
| 3. | Water Distribution System | 1.07 |
| 4. | Construction of 1 Nos RCC Over Head Water Storage Tank 2.00 lac. Ltrs Net Capacity | 0.77 |
| 5. | Drilling, Development and Installation of 2 Nos Small Tube Wells | 0.46 |
| 6. | Construction of Pump House and laying pumping machinery in tube wells | 0.39 |
| 7. | Providing and laying Sewerage Line | 2.98 |
| 8. | Providing Electrical & Solar street lighting system | 1.94 |
| B) | TECHNICAL INFRASTRUCTURE | 27.31 |
| 1. | Installation of 132 KV Sub-Station | 33.92 |
| 2. | Construction of Common Facility Centre | 11.06 |
| 3. | Construction of Common Effluent Treatment Plant- 5MLD | 33.89 |
| | SUB-TOTAL (B) | 78.88 |
| C) | SOCIAL INFRASTRUCTURE | |
| 1. | Construction of Working Women Hostel | 6.56 |
| 2. | Construction of Rain Shelters/ bus stops | 1.73 |
| | SUB-TOTAL (C) | 8.29 |
| D) | PRE OPERATIVE EXPENSES | |
| 1. | Establishment expenses during construction period | 1.00 |
| 2. | Interest during construction (IDC) | 6.47 |
| | SUB-TOTAL (D) | 7.47 |
| | GRAND TOTAL (A+B+C+D) | 121.95 |

However, the final approval accorded by Government of India vide letter no.5/12/2/2014-DBA-I dated 30.03.2015 was only to the tune of rupees 88.05 Crore, excluding cost of CETP (Copy of sanction letter is attached at **Annex.-III)**



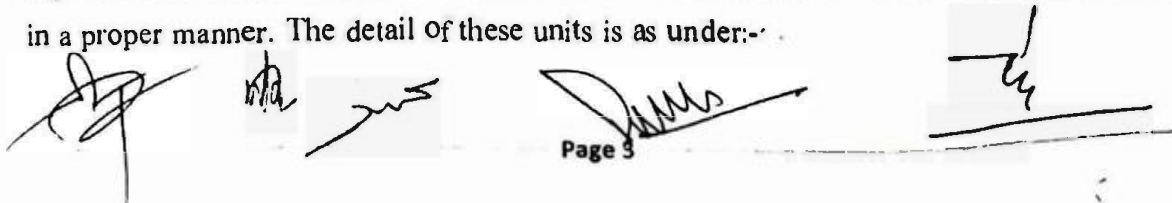
The financial pattern approved was as under:-

| S.No. | Category | Components | Total Cost(in cr.) | Central grant(in cr.) |
|-------|----------------------------|---|--------------------|-----------------------|
| 1 | Physical Infrastructure | Road & Storm water Drainage, Street lights, Augmentation of 132 KVG power sub-station | 61.23 | 12.5 |
| 2 | Technical infrastructure | Common Facility Centre | 11.06 | 5.53 |
| 3 | Social Infrastructure | Working women hostel, Bus stop & rain shelters, community Health Centre | 8.29 | 4.15 |
| 4 | Other costs | | 7.47 | - |
| 5 | Total | | 88.05 | 22.18 |
| 6 | Administrative grant(@ 2%) | | | 0.44 |
| | Grant Total | | 88.05 | 22.62 |

The proposal of setting-up 5MLD CETP was included in anticipation that sufficient number of liquid effluent discharge plants/ industries will come-up in the Industrial Area. Therefore, the environment impact assessment for CETP (5MLD) was conducted and EC was granted by MOEF vide letter no.10-25/2015-LA-III dated 14.01.2019 (Copy of letter is attached at **Annex.-IV**).

However, at present, the situation of the Industrial Area vis-a-vis type of industries set-up is completely different. In total, 74 plots have been developed in the industrial area, out of which 67 plots have been allotted to 60 Industrial units. Out of these, industries have been established over 29 numbers of plots. The plot wise status is enclosed at **Annex.-V**.

As informed by Regional Officer, Himachal Pradesh State Pollution Control Board, Una, presently, there are only 3 industrial units which are generating liquid effluents and all three units have installed their captive Zero Liquid Discharge, Effluent Treatment Plants. These units are generating 93 KLPD of liquid and no effluent is being discharged by these units. According to Regional Officer, HPPCB, regular monitoring is being done by the Board to ensure that these ZLD's are functioning in a proper manner. The detail of these units is as under:-



| S.No | Name of the unit | Item of manufacture | Effluent Generation | ZLD ETP Capacity (Killo Leters Per Day) | Liquid Discharge |
|------|--|---|---------------------|---|------------------|
| 1 | M/s Hindustan Farmdirect Ingredients Pvt. Ltd. | Pectin Powder, Citric Acid, lime oil etc. | 25 KLPD | 35 KLPD | Zero |
| 2 | M/s Ian Macleod Distillers India Ltd. | Malt spirit | 65 KLPD | 75 KLPD | Zero |
| 3 | M/s Ambaji Enterprises | Milk Chilling & Processing | 3KLPD | 5KLPD | Zero |

Joint Director (Industries) Una(H.P) and RO, HPSPCB have also presented before the committee the unit wise detail of all the industries established and are proposed to be established as per Annex.-V. All the functional units have obtained necessary consent to establish and consent to operate from the HP PCB. None of the units except above three units are generating liquid effluents.

Thereafter, committee also inspected the ETP's of above referred units and found that ETP's were functioning satisfactory and no liquid discharge was noticed.

After discussion and deliberation on the issue, the committee noticed following facts:-

1. Presently, out of functional units, only 03 units are generating liquid effluents, the total quantity of which is 93 KLPD.
2. All these three units have installed their captive Zero Liquid Discharge (ZLD), Effluent Treatment Plant (ETP) and no effluent is being discharged.
3. Therefore, presently, the liquid effluent discharge from units is zero.
4. Further, the committee also observed that as against the proposed initial capacity of 5MLD CETP, only 93 KLPD of liquid effluent is being generating which is less than 2% of the proposed capacity.
5. Committee found that no liquid effluent discharging unit is being set-up amongst the projects for which, industrial plots have been allotted.
6. Keeping in view the facts narrated above, committee further recommends that

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Department of Industries may pass an order that in future only green and orange category units shall be set-up in this Industrial Area. 332

In view of the facts referred above, committee is of the opinion that presently, there is no need to set-up CETP in the area as it is no more required. Additional Director (Industries), has further informed that MOEF, Government of India will be informed accordingly in this behalf. It was further recommended by committee that Government may issue directions that henceforth, no liquid effluent discharging units will allowed to be set-up in the area and only green and orange category units will be allowed to be set-up in Industrial Area Pandoga.

Enclosures:-

| Sr. No. | Detail | Annex. | Page no. |
|---------|---|--------|----------|
| 1. | Notification of the committee constituted by Director Industries, Govt. of Himachal Pradesh, vide office order no.Ind.Dev.F(16)OA No. 646/2023/NGT/-11422-11423 dated 26-09-2024. | I | 06 |
| 2. | Approval under FCA from Ministry of Environment Forest vide letter no. 8-91/2014-FC dated 21.07.2015. | II | 07-09 |
| 3. | Final approval/sanction accorded by Government of India vide letter no.5/12/2/2014-DBA-I dated 30.03.2015 | III | 10-14 |
| 4. | EC was granted by MOEF vide letter no.10-25/2015-IA-III dated 14.01.2019 | IV | 15-21 |
| 5. | List of Industrial units alongwith detail of project and present status of implantation. | V | 22-25 |
| 6. | Photographs of Joint Inspection & ZLD plants of industrial units | VI | 26-30 |

Executive Engg
 HPS Division
 HP State Pollution Control Board
 Una (H.P.)

Scientific Officer,
 HP State Pollution Control Board- Una

Regional Officer,
 HP State Pollution Control Board
 Una
 Phase-IV, Rakkhwa
 Distt. Una (H.P.)

Joint Director
 (Industries)
 Distt. Industries Centre
 Una, Distt. Una (H.P.)

Additional
 Director Industries
 (Dev.) Shimla

No. Ind.Dev.F(16)OA No. 646/2023/NGT/- 11422-11423
 Government of Himachal Pradesh
 "Directorate of Industries"

Dated: Shimla-171002; the 26 SEP 2024

From:-

Director of Industries,
 Himachal Pradesh.

To

The Joint Director of Industries,
 District Industries Centre,
 Una, Distt. Una, H.P.

Subject: OA No. 646/2023 titled as Manoj Kumar Kaushal Versus State of HP & others.

Sir,

Kindly refer to your letter No. Ind/U/Dev/OA No. 646/2023/1660 dated 25.9.2024 on the subject cited above.

In this regard, a Committee of the following officers is hereby constituted to carry out a detailed survey of units located in Industrial Area, Pandoga and prepare a justification for non-implementation of CETP in this Industrial Area:-

- | | |
|--|--------------|
| 1. Addl. Director of Industries (Dev.), H.P., Shimla | --- Chairman |
| 2. Joint Director of Industries, DIC, Una | --- Member |
| 3. Executive Engineer, HPSIDC Ltd., Mehatpur | --- Member |
| 4. Regional Officer, HP State Pollution Control Board, Una | --- Member |
| 5. Sr. Scientist, HP State Pollution Control Board, Una | --- Member |

The Committee may opt any other member as and when required.

Yours faithfully,

Director of Industries,
 Himachal Pradesh.

Indst. No. Ind.Dev.F(16)OA No. 646/2023/NGT/-

Dated:

Copy to the Principal Secretary (Industries) to the Govt. of Himachal Pradesh,
 Shimla-2 for kind information.

Director of Industries,
 Himachal Pradesh.

File No. 8-91/2014-FC
 Government of India
 Ministry of Environment, Forests and Climate Change
 (Forest Conservation Division)

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 Annex.- II

Indira Paryavaran Bhawan,
 Allganj, Jorbagh Road,
 New Delhi - 110003.
 Dated: 21st July 2015

To

The Principal Secretary (Forests),
 Government of Himachal Pradesh,
 Shimla.

Sub: Diversion of 60.2920 ha of forest land in favour of General Manager, District Industries Centre Una, H.P. for the establishment of State of Art Industrial Area in village Pandoga Uperla Distt. Una, within the jurisdiction of Una Forest Division, Distt. Una, Himachal Pradesh - regarding.

Sir,

I am directed to refer to the State Government of Himachal Pradesh's letter no. No. Ft. 48-2797/2014 (FCA) dated 18.09.2014 on above mentioned subject seeking prior approval of the Central Government under Section-2 of the Forest (Conservation) Act, 1980. After careful examination of the proposal by the Forest Advisory Committee constituted under Section-3 of the said Act, 'in-principle' approval was granted vide this Ministry's letter of even number dated 19.03.2015 subject to fulfillment of certain conditions prescribed therein. The State Government has furnished compliance report in respect of the conditions stipulated in the 'in-principle' approval and has requested the Central Government to grant final approval.

In this connection, I am directed to say that on the basis of the compliance report furnished by the Nodal Officer - cum- Addl. PCCF (FCA), Government of Himachal Pradesh vide his letter no. Ft. 48-2797/2014(FCA) dated 7th July, 2015, final approval of the Central Government is hereby granted under Section-2 of the Forest (Conservation) Act, 1980 for diversion of 60.2920 ha of forest land in favour of General Manager, District Industries Centre Una, H.P. for the establishment of State of Art Industrial Area in village Pandoga Uperla Distt. Una, within the jurisdiction of Una Forest Division, Distt. Una, Himachal Pradesh subject to fulfillment of the following conditions:

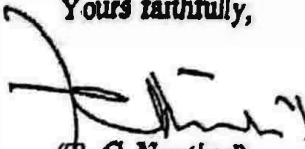
- (i) Legal status of the diverted forest land shall remain unchanged;
- (ii) Compensatory afforestation over 60.9599 ha of Shamlat land transferred and mutated in favour of the State Forest Department and notified by the State Government as RF under Section-20 of the Indian Forest Act, 1927 vide Government of Himachal Pradesh notification No. FFE-B-G (8)-3/2004-Pt-II dated 30th June 2015 shall be raised and

- maintained by the State Government as per approved CA Scheme from the funds already provided by the user agency. ✓
- The User Agency shall pay the additional amount of NPV, if so determined, as per the final decision of the Hon'ble Supreme Court of India; ✓
- (iv) The User Agency shall obtain the Environment Clearance as per the provisions of the Environmental Protection Act, 1986, if required; ✓
- (v) No labour camp shall be established on the forest land; ✓
- (vi) The User Agency shall provide fuels preferably alternate fuels to the labourers and the staff working at the site so as to avoid any damage and pressure on the nearby forest areas; ✓
- (vii) The boundary of the diverted forest land shall be demarcated on ground at the project cost by erecting four feet high reinforced cement concrete pillars, each inscribed with its serial number, forward and back bearing and distance from pillar to pillar; ✓
- (viii) The layout plan of the proposal shall not be changed without the prior approval of the Central Government. ✓
- (ix) The forest land shall not be used for any purpose other than that specified in the proposal; ✓
- (x) The forest land proposed to be diverted shall under no circumstances be transferred to any other agency, department or person without prior approval of the Central Government; ✓
- (xi) No damage to the flora and fauna of the adjoining area shall be caused; ✓
- (xii) Any tree felling shall be done only when it is unavoidable and that too under strict supervision of the State Forest Department. ✓
- (xiii) Felling shall be done only in built up area and bare minimum felling shall be permitted in other non-built up areas. Felling of trees before the start of construction should be verified by the concerned DFO. ✓
- (xiv) In case of blank areas along the roads planting of trees should be done in at least 5 meter wide strip. ✓
- (xv) Only built up area should be fenced so that other areas are available for free movement of animals. ✓
- (xvi) Along the arterial roads, natural forests should be maintained. ✓
- (xvii) No additional or new path will be constructed inside the forest area for carrying out any activities related to the project work. ✓
- (xviii) The user agency shall submit the annual self-compliance report in respect of the above conditions to the State Government and to the concerned Regional Office of the Ministry regularly. ✓
- (xix) Any other condition that the concerned Regional Office of this Ministry may stipulate, from time to time, in the interest of conservation, protection and development of forests & wildlife. ✓

(xx)

The User Agency and the State Government shall ensure strict compliance to provisions of all the conditions stipulated in the Stage-I approval for which undertakings have been obtained from the project proponent and also compliance of Acts, Rules, Regulations and Guidelines, for the time being in force, as applicable to the project.

Yours faithfully,

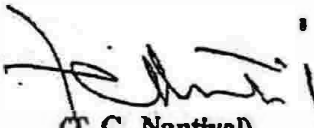


(T. C. Nautiyal)

Sr. Assistant Inspector General of Forests

Copy to:-

1. The Principal Chief Conservator of Forests, Government of Himachal Pradesh, Shimla.
2. The Addl. PCCF (Central), Regional Office, Dehradun.
3. The Nodal Officer (FCA), O/o the PCCF, Government of Himachal Pradesh, Shimla.
4. User Agency (General Manager, District Industries Center, Una (HP)).
5. Monitoring cell, FC Division, MoEF&CC, New Delhi.
6. Guard File.



(T. C. Nautiyal)

Sr. Assistant Inspector General of Forests

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No. S/12/2/2014-DBA-I

Government of India

Ministry of Commerce & Industry

Department of Industrial Policy & Promotion

(DBA-I section)

Annex-III
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Udyog Bhawan, New Delhi

Dated: 30th March, 2015

To

The Accounts Officer,
Pay & Accounts Office,
Ministry of Commerce and Industry,
Department of Industrial Policy & Promotion,
Udyog Bhawan, New Delhi.

Subject: Release of 1st installment of Grant-in-Aid (Plan/Non-Recurring) to SIA (Himachal Pradesh State Industrial Development Corporation Ltd.) for the project at Industrial Area, Pandoga, Himachal Pradesh for the financial year 2014-15 under Modified Industrial Infrastructure Upgradation Scheme (MIUS).

Sir,

Sanction of the President of India is hereby conveyed to the release of ₹3,00,00,000/- (₹ Three crore only) as 1st instalment of central grant towards Non-recurring Grant-in-Aid (Creation of Capital Assets) to SIA (Himachal Pradesh State Industrial Development Corporation Ltd. (HPSIDC) Shimla, H.P. for the project at Industrial Area, Pandoga, Himachal Pradesh for the financial year 2014-15. The project was granted final approval vide this Department's letter No. 19/1/2014-DBA-I/Vol.I dated 05.03.2015 with a total cost of ₹ 88.05 crore including central grant of ₹ 22.62 crore. The funding pattern of the project is as follows:

| Means of Finance | Amount (Rs. in crore) |
|------------------|-----------------------|
| Central Grant | 22.62 |
| SIA | 23.97 |
| Debt | 41.46 |
| Total | 88.05 |

2. The grant in aid will be regulated in accordance with the provisions contained in the Guidelines of Modified Industrial Infrastructure Upgradation Scheme (MIUS) of this Department and by the terms and conditions conveyed at the time of approval vide this Department's letter No. 19/1/2014-DBA-I/Vol.I dated 05.03.2015. The Grant-in-Aid is also subject to the provisions contained in Chapter 9 of the General Financial Rules, 2005, as amended from time to time, read with the Government of India's decisions incorporated there-under, and any other guidelines which may be issued in this regard, and in particular to the following conditions:

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- (x) Grant in Aid shall be utilized subject to the Economy and other Instructions issued from time to time by the Ministry of Finance, Government of India or by the Competent Authority.
 - (xi) The SIA shall certify that the utilization certificates due for submission for the Grants-in-aid sanctioned in the previous years containing all the relevant details required under GFR 212(1) have been submitted to the satisfaction of this Department.
 - (xii) The SIA shall certify that no grants-in-aid for this purpose or activities have been applied for or obtained from any other Ministry or Department of the Government of India or State Government.
 - (xiii) The SIA shall adhere to all the relevant provisions of GFR and any other instructions/guidelines issued by the Government from time to time, while making procurement/purchase of goods and services including compliance to GFR provisions in case of out-sourcing of services and engagement of consultants.
 - (xiv) Before release of payment involved in this sanction, the members of the Executive Committee of the SIA will have to execute a bond in the prescribed format binding themselves jointly and severally to abide by the conditions of grant in aid. In the event of failing to comply with the conditions or committing breach of the conditions of the bond, the signatories of the bond shall be jointly and severally liable to refund to the President of India, the whole or part amount of the grant with interest at 10% per annum thereon or the sum specified under the bond.
 - (xv) In no case the grant released under this sanction will be utilized for any purpose other than those indicated in the sanction. The SIA shall not divert the grants and entrust execution of the Scheme or work concerned to another Institution or Organization and shall abide by the terms & conditions of the grant and follow/adhere to all the relevant provisions of GFR regarding Grants-in-aid. If the SIA fails to utilize the grant for the purpose for which the same has been sanctioned or does not adhere to the terms & conditions of Grant and GFR provisions, the SIA shall be required to refund the grant with interest @ 10 % per annum.
 - (xvi) The SIA shall not utilize the interest earned on the grant so released to it for any purpose. The interest earned shall be indicated in the UC which can either be adjusted in next release or to be refunded to Government of India after grants-in aid sanctioned is utilized.
 - (xvii) The SIA shall submit its Annual Report and Audited Accounts for laying on the Table of both the Houses of Parliament as per the Rule 212.2.(ii) of the General Financial Rules 2005.
 - (xviii) The SIA should follow the provisions of Rule 4(i) (a) & (b) of the RTI Act, 2005, as substantial part of approved cost is funded under the MIUS grant.
 - (xix) Noted at serial No.19 /2014-15 in the Register of Grants.
 - (xx) The Section Officer (DBA-I), DIPP, will act as Drawing & Disbursing Officer for the purpose of this sanction.
 - (xxi) SIA (Himachal Pradesh State Industrial Development Corporation Ltd. (HPSIDC) Shimla, H.P. has to furnish the Utilization Certificate of this sanction and no Utilization Certificate is 'due for rendition' under the rules under the Scheme in question.

3. As this is 1st instalment of central grant, therefore after release of 1st instalment of ₹ 3,00,00,000/- physical target/outcome is to be achieved in the components mentioned in Para 2 (i) above by 30%.

4. The total release under the Object Head including the present sanction would be ₹ 10986 crore during the current financial year as against the provision of ₹ 113.00 crore for the financial year 2014-15.

5. The expenditure involved will be met from within the sanctioned budget grant of the Ministry under Demand No. 12 for the financial year 2014-15 (Plan) Major Head -2852, Minor Head - 80.800 (Industrial Infrastructure), Object Head 14.00.35 Grant In aid for Creation of Capital Assets.

Signed by

5. The Bank details of the SIA for making payment are as below:-

| Name of the SIA | Name of the Bank where A/c of the SIA held | Address/Code of Bank/Branch | Escrow A/c no. | MICR Code and IFSC/ RTGS Code |
|--|--|--|------------------|-------------------------------|
| Himachal Pradesh State Industrial Development Corporation Ltd. (HPSIDC) Shimla, H.P. | Punjab National Bank | The Mall, Shimla -171001 Shimia (H.P.) | 0427002106673099 | 171024002 PUNB 0042700 |

7. This issues with the concurrence of Integrated Finance Wing vide their Dy. No.242/IF-II dated 27th March, 2015.

Yours faithfully,

Binod Kumar

(Binod Kumar)

Under Secretary to the Govt. of India
Tel. No. 011-23061526

F.No. 10-25/2015-IA-III

F. No.10-25/2015-IA-III
 Government of India
 Ministry of Environment, Forest and Climate Change
 (IA.III Section)

Indira Paryavaran Bhawan,
 Jor Bagh Road, New Delhi-3

Date: 14th January, 2019

To,

M/s Himachal Pradesh State Industrial Development Corporation Limited
 New Himrus Building,
 Shimla - 171 001, Himachal Pradesh
 Email: hpsidc@rediffmail.com

**Subject: Proposed CETP - 5 MLD at Pandoga, Himachal Pradesh by M/s
 Himachal Pradesh State Industrial Development Corporation Limited
 - Environmental Clearance - reg.**

Sir,

This has reference to your online proposal No. IA/HP/MIS/30340/2015 dated 15th May, 2017, submitted to this Ministry for grant of Environmental Clearance (EC) in terms of the provisions of the Environment Impact Assessment (EIA) Notification, 2006 under the Environment (Protection) Act, 1986.

2 The proposal for grant of environmental clearance to the project 'Proposed CETP- 5 MLD at Pandoga, Himachal Pradesh promoted by M/s Himachal Pradesh State Industrial Development Corporation Limited, was considered by the Expert Appraisal Committee (Infra-2) in its 19th meeting held on 27-29 June, 2017, 28th meeting held on 5th March, 2018, 32nd meeting held on 2-4 July, 2018 and 35th meeting held on 29-31 October, 2018. The details of the project, as per the documents submitted by the project proponent, and also as informed during the above meeting, are as under:-

- (i) Common Effluent Treatment Plant (CETP) of 5 MLD is proposed at Khasra No.1244,1257,1263,3214/1265,3215/1265,1432,1433,1434,1435, Kita-928; 12 of Village Pandoga, Tehsil Haroli, District Una (Himachal Pradesh).
- (ii) Total site area is 2.511 Hect. (25,112 sqm). The nearest National Highway is (NH-22) at a distance of 500 m in the south direction and state highway (SH-25) at distance of 6.88 Km in the NE direction. Nearest railway station is Panoh about 7.88 NE direction and UNA Railway Station about 12.80 km SE (Aerial distance) from project site.
- (iii) Terms of Reference was granted to the project vide F.No.10-25/2015-IA.III dated 29th February, 2016.
- (iv) Public hearing (consultation) was conducted on 3rd January, 2017 at project site.
- (v) Water Requirement will be 15 KLD and will be met out through bore Well
- (vi) Waste water quantity will be 6 MLD. The treated water from the ZLD based CETP plant can be used in horticultural activity and also can be sell it back to

the individual industrial unit or builders to minimize the use of bore well water for horticulture and flushing purpose by Pipelines. 342

- (vii) Bio sludge can be used as manure. The chemical inorganic hazardous sludge will be sent to the solid waste management facility for final disposal. Used oil will be sold to the registered dealer/vendor. Discarded containers will be decontaminated and given to the state authorized vendor.
- (viii) Power requirement will be 2,000 kW and will be supplied by 132 KVA Substation. It will be sourced from Himachal Pradesh State Electricity Board. Two DG sets of 1000 kVA capacity will be installed for emergency backup supply.
- (ix) Investment/cost of the project is Rs. 33.89 Crore.
- (x) Employment potential: During Construction 150 workers and during operational phase 30 workers will work. Indirect Employment is about 12300.
- (xi) Benefits of the project:: Positive impact on environment in terms of better management of waste water in the region, More employment opportunities will be created and Aesthetics of the area will improve.

3. The project/activity is covered under category 'B' of Item 7(h) 'CETPs' of the Schedule to the EIA Notification, 2006, and requires appraisal at SEAC level. However due to applicability of general Condition i.e. Punjab Inter-State boundaries at a distance of 3.35 km (W), the proposal is appraised at Central level.

4. The EAC, deliberated the proposal 19th meeting held on 27-29 June, 2017, 28th meeting held on 5th March, 2018, 32nd meeting held on 2-4 July, 2018 and 35th meeting held on 29-31 October, 2018. After detailed deliberations on the proposal and additional information provided by the project proponent, the EAC recommended the project for grant of Environmental Clearance. As per recommendations of the EAC, the Ministry of Environment, Forest and Climate Change hereby accords Environmental Clearance to the project 'Proposed CETP - 5 MLD at Pandoga, Himachal Pradesh promoted by M/s Himachal Pradesh State Industrial Development Corporation Limited, under the provisions of the EIA Notification, 2006 and amendments/circulars issued thereon, and subject to the specific and general conditions as under:-

PART A – SPECIFIC CONDITIONS:

- (i) The project proponents will implement the project only after getting Consent to Establish from the Himachal Pollution Control Board.
- (ii) It shall be ensured that primary treatment of effluents to the level of influent quality standards as prescribed by the Board, is ascertained at the member units.
- (iii) Members shall only be allowed access to the CETP if they have consent from the State Pollution Control Board.
- (iv) A dedicated access controlled conveyance system shall be provided for transporting effluents from the member units to the CETP.
- (v) Conformance to the influent and effluent standards shall be the responsibility

of the CETP.

- (M) The Design of the CETP should be as approved by the Pollution Control Board.
- (N) The composition of industries and waste water quantity shall be restricted as follows :

| | |
|--|--|
| Textile | Total effluents from all textile units not to exceed 500 KLD |
| Food and Spice | Total effluents from all Food and spice units not to exceed 1250 KLD |
| Bakery and confectionary: | Total effluents from all Bakery and confectionary units not to exceed 250 KLD |
| Synthetic Detergent | Total effluents from all Synthetic Detergent Units not to exceed 750KLD |
| Pharmaceutical (Ayurvedic and Homoeopathic) | Total effluents from all such pharmaceutical units not to exceed 1500 KLD |
| Automobile Assembling and services without Metal Plating and finishing | Total effluents from all such automobile assembling and servicing units not to exceed 1250 KLD |

- (viii) The CETP shall operate on the principle of ZLD into inland surface waters. Treated effluents shall be used in Horticulture and shall also be sent back, in ratios of their receipts, to the various industrial units for recycle and reuse to the satisfaction of the Pollution Control Board.
- (ix) There shall be Flow meters at inlet and outlet of CETP to monitor the flow. Suitable meters shall be provided to measure the quantity of effluent received, quantity of effluent recycled/reused and discharged.
- (x) The units and the CETP will maintain daily log book of the quantity and quality of discharge from the units, quantity of inflow into the CETP, details of the treatment at each stage of the CETP including the raw materials used, quantity of the treated water proposed to be recycled, reused within the textile park/units, quantity of the treated effluent discharged. All the above information shall be provided on-line of the web site exclusively prepared for the purpose by the CETP owner. The website shall be accessible by the public. The financial and energy details of the CETP will also be provided along with details of the workers of the CETP.
- (xi) Periodical monitoring shall be carried out for the functioning of CETP and outlet parameters.
- (xii) The MoU between CETP and member units shall indicate the maximum quantity of effluent to be sent to the CETP along with the quality.
- (xiii) Individual members to the CETP shall treat their effluents in Primary treatment systems to the Inlet quality standards of the CETP as prescribed by the State Pollution Control Board.
- (xiv) Individual Members shall segregate their wastes in to concentrated and diluted streams and also as per the nature of chemical contamination viz. Cr^{6+} , Ni, Pb, Zn etc and store them as per conditions to be specifically imposed in this regards by the State Pollution Control Board.

- (xv) Chemical recovery and reuse, either in-house or outside shall be practiced to the satisfaction of the State Pollution Control Board. Use in agriculture shall be exercised with caution after getting the irrigation management plan approved by the SPCB.
- (xvi) All tankers carrying untreated wastes and all hazardous and other wastes shall be properly labeled and transported as per the Hazardous and Other Wastes (Management and Transboundary) Rules, 2016.
- (xvii) The detailed design of the various unit operations shall strictly conform to the directions of the state pollution control board as given in the consent to establish.
- (xviii) The Project Proponent and the State Pollution Control Board should ensure that the Member Ship of the CETP is restricted to only those industries which legitimately exist in the area. A list of Industries in this regards shall be prepared by the Association which will have the following details.
- Name of Industry
 - Office Address
 - Location of Industry
 - Status of Consent under Water Act along with order number.
 - Status of consent under Air Act along with order number.
 - Production capacity as per consent orders.
 - Total Industrial Effluent to CETP as per consent order.
- (xix) The Unit shall inform the State Pollution Control Board at least a week prior to undertaking maintenance activities in the recycle system and store/dispose treated effluents under their advice in the matter.
- (xx) The unit shall also immediately inform the Pollution Control Board of any breakdown in the recycling system, store the effluents in the interim period and dispose effluents only as advised by the Pollution Control Board.
- (xxi) The unit shall maintain a robust system of conveyance for primary treated effluents from the member units and constantly monitor the influent quality to the CETP. The Management of the CETP and the Individual member shall be jointly and severally responsible for conveyance and pre-treatment of effluents. Only those units will be authorized to send their effluents to the CETP which have a valid consent of the Pollution Control Board and which meet the primary treated standards as prescribed. The CETP operator shall with the consent of the State Pollution Control Board retain the powers to delink the defaulter unit from entering the conveyance system.
- (xxii) The CETP operator will maintain an annual register of member units which will contain the details of products with installed capacities and quality and quantity of effluents accepted for discharge. This will form a part of the initial and renewal applications for consent to operate to be made before the State Pollution Control Board.
- (xxiii) Any changes in the manufacturing process, installed capacity or the quality or quantity of effluents as agreed upon in the initial MOU between the operator and the member units, will only be done after an approval of the Gujarat State Pollution Control Board in the matter.


- (xxiv) The treated effluent from CETP shall be blended with treated sewage prior to its discharge in river.
- (xxv) Domestic water requirement is 0.675 KLD, which will be met through Water Tankers supply.
- (xxvi) The quantity of hazardous waste i.e. ETP sludge to be generated from CETP facility shall be handled and disposed to nearby authorized TSDF site as per HWM Rules, 2016.
- (xxvii) Non Hazardous solid wastes and sludges arising out of the operation of the CETP shall be adequately disposed as per the Consent to be availed from the State Pollution Control Board. Non Hazardous solid wastes and sludges shall not be mixed with Hazardous wastes.
- (xxviii) The effluent from member units shall be transported through pipeline. In case the effluent is transported through road, it shall be transported through CETP tankers only duly maintaining proper manifest system. The vehicles shall be fitted with proper GPS system.
- (xxix) Before accepting any effluent from member units, the same shall be as permitted by the SPCB in the consent order. No effluent from any unit shall be accepted without consent from SPCB under the Water Act, 1974 as amended.
- (xxx) The CETP shall have adequate power back up facility, to meet the energy requirement in case of power failure from the grid.
- (xxxi) All the recommendation of the EMP shall be complied with letter and spirit. All the mitigation measures submitted in the EIA report shall be prepared in a matrix format and the compliance for each mitigation plan shall be submitted to RO, MoEF&CC along with half yearly compliance report.
- (xxxii) The project proponent shall set up separate environmental management cell for effective implementation of the stipulated environmental safeguards under the supervision of a Senior Executive.
- (xxxiii) The funds earmarked for environment management plan shall be included in the budget and this shall not be diverted for any other purposes.
- (xxxiv) Project proponent should develop green belt all along the periphery of the site with native plant species that are significant and used for the pollution abatement.
- (dix) As per the Ministry's Office Memorandum F.No. 22-65/2017-IA.III dated 1st May 2018, and proposed by the project proponent, an amount of Rs. 67.78 Lakhs @ 2.0% of project cost (expansion) shall be earmarked under Corporate Environment Responsibility (CER) for the activities such as road development, solar panel for street lighting, construction roads in the locality, skill development programs, drinking water facilities and health camps in the area as proposed. The activities proposed under CER shall be restricted to the affected area around the project. The entire activities proposed under the CER shall be treated as project and shall be monitored. The monitoring report shall be submitted to the regional office as a part of half yearly compliance report, and to the District Collector. It should be posted on the website of the project proponent.

- (i) A copy of the environmental clearance letter shall also be displayed on the website of the concerned State Pollution Control Board. The EC letter shall also be displayed in the Regional Office, District Industries Centre and Collector's Office & Tahsildar's office for 30 days.
- (ii) The funds earmarked for environmental protection measures shall be kept in separate account and shall not be diverted for other purpose. Year-wise expenditure shall be reported to this Ministry and its concerned Regional Office.
- (iii) Officials from the Regional Office of MoEF&CC, Dehradun who would be monitoring the implementation of environmental safeguards should be given full cooperation, facilities and documents/data by the project proponents during their inspection. A complete set of all the documents submitted to MoEF&CC shall be forwarded to the APCCF, Regional Office of MoEF&CC, Dehradun.
- (iv) In the case of any change(s) in the scope of the project, the project would require a fresh appraisal by this Ministry.
- (v) The Ministry reserves the right to add additional safeguard measures subsequently, if found necessary, and to take action including revoking of the environment clearance under the provisions of the Environmental (Protection) Act, 1986, to ensure effective implementation of the suggested safeguard measures in a time bound and satisfactory manner.
- (vi) All other statutory clearances such as the approvals for storage of diesel from Chief Controller of Explosives, Fire Department, Civil Aviation Department, the Forest Conservation Act, 1980 and the Wildlife (Protection) Act, 1972 etc. shall be obtained, as applicable by project proponents from the respective competent authorities.
- (vii) These stipulations would be enforced among others under the provisions of the Water (Prevention and Control of Pollution) Act, 1974, the Air (Prevention and Control of Pollution) Act 1981, the Environment (Protection) Act, 1986, the Public Liability (Insurance) Act, 1991 and the EIA Notification, 2006.
- (viii) The project proponent shall advertise in at least two local Newspapers widely circulated in the region, one of which shall be in the vernacular language informing that the project has been accorded Environmental Clearance and copies of clearance letters are available with the State Pollution Control Board and may also be seen on the website of the Ministry of Environment, Forest and Climate Change at <http://www.envfor.nic.in>. The advertisement shall be made within Seven days from the date of receipt of the Clearance letter and a copy of the same shall be forwarded to the Regional Office of this Ministry at Dehradun.
- (ix) Any appeal against this clearance shall lie with the National Green Tribunal, if preferred, within a period of 30 days as prescribed under Section 18 of the National Green Tribunal Act, 2010.
- (x) A copy of the clearance letter shall be sent by the proponent to concerned Panchayat, Zilla Parishad/Municipal Corporation, Urban Local Body and the

Local NGO, if any, from whom suggestions/representations, if any, were received while processing the proposal. The clearance letter shall be put on the website of the company by the proponent.


- (xi) The proponent shall upload the status of compliance of the stipulated EC conditions, including results of monitored data on their website and shall update the same periodically. It shall simultaneously be sent to the Regional Office of MoEF&CC, the respective Zonal Office of CPCB and the SPCB. The criteria pollutant levels namely; PM_{2.5}, PM₁₀, SO₂, NO_x (ambient levels as well as stack emissions) or critical sectoral parameters, indicated for the project shall be monitored and displayed at a convenient location near the main gate of the company in the public domain.
- (xii) The environmental statement for each financial year ending 31st March in Form-V as is mandated to be submitted by the project proponent to the concerned State Pollution Control Board as prescribed under the Environment (Protection) Rules, 1986, as amended subsequently, shall also be put on the website of the company along with the status of compliance of EC conditions and shall also be sent to the respective Regional Offices of MoEF&CC by e-mail.

5. This issues with the approval of the Competent Authority.


(Kushal Vashist)
Director

Copy to:

- 1) The Additional Chief Secretary, Department of Environment, Science and Technology, Paryavaran Bhawan, Near US Club, Shimla - 171001, Himachal Pradesh:
- 2) The Chairman, Central Pollution Control Board, Parivesh Bhavan, CBD-cum-Office Complex, East Arjun Nagar, Delhi - 32.
- 3) The Member Secretary, Himachal Pradesh State Pollution Control, Board, Him Parivesh, Phase-III, New Shimla - 171009, Himachal Pradesh.
- 4) The Additional Principal Chief Conservator of Forests (C), Ministry of Environment, Forest and Climate Change, Regional Office (NCZ), Regional Office (NCZ), 25, Subhash Road, Dehradun - 248001.
- 5) Monitoring Cell, MoEF&CC, Indra Paryavaran Bhavan, New Delhi.
- 6) Guard File/Monitoring File.
- 7) MoEF&CC website.


(Kushal Vashist)
Director

Annex - V

Detail of Industrial Units to whom Industrial Plots allotted in Industrial Area Pandoga, Distt. Una, H.P.

| Plot No | Area | Date of Allotment | Date of Possession | Date of execution of lease deed | Activity | Investment | Empty to establishment | Date of consent to establish | Date of consent to operate | Whether discharging Liquid | If, Yes Whether ETP installed | Type of ETP ZLD/Non ZLD | Capacity | Status of monitoring by HPPCB | Remarks |
|---------|------|-------------------|--------------------|---------------------------------|--|------------|------------------------|------------------------------|----------------------------|----------------------------|-------------------------------|-------------------------|----------|--------------------------------|---|
| C11 | 2000 | 25-10-2019 | 20-03-2020 | | agricultural implements | 70.00 | 6 | Not required | NA | NA | NA | NA | NA | NA | NOC granted under Non-Polluting /White category of Industry |
| D16 | 786 | 20-11-2019 | 12-03-2019 | | Mfg of jute, plastic bag | 102.00 | 5 | Not required | NA | NA | NA | NA | NA | NA | NOC granted under Non-Polluting /White category of Industry |
| D5-1 | 509 | 23-11-2019 | 15/01/2020 | 08-04-2021 | Mfg of food products | 100.00 | 7 | 19.03.2021 | 06.03.2024 | No | NA | NA | NA | NA | NOC granted under Non-Polluting /White category of Industry |
| D8-4 | 500 | 23-11-2019 | 17-01-2020 | 15-03-2022 | carry bags | 18.00 | 4 | 09.11.2021 | N.A (Not established yet) | No | NA | NA | NA | NA | NOC granted under Non-Polluting /White category of Industry |
| A5 | 8569 | 29-11-2019 | 12-03-2019 | 24-12-2019 | Pretin powder, citri acid, lime oil etc | 2038.00 | 100 | 04.03.2021 | 07.10.2021 | Yes | Yes | ZLD | 35 KLD | Regular monitoring carried out | Complying to PCB effluent/emission norms |
| D24 | 1110 | 30-11-2019 | 18-01-2021 | 30-06-2021 | electronics transformers | 200.00 | 6 | 31-05-2021 | 23.07.2024 | No | NA | NA | NA | NA | |
| D23 | 1160 | 30-11-2019 | 08-01-2021 | 30-06-2021 & 11-10-2022 | electronics transformers | 200.00 | 70 | 31-05-2021 | 21.07.2024 | No | NA | NA | NA | NA | |
| D19-1 | 500 | 30-11-2019 | 16-12-2020 | 10-06-2021 | flour mill | - | - | 22.07.2021 | 15.12.2022 | No | NA | NA | NA | NA | |
| D13 | 1150 | 30-11-2019 | 30-11-2019 | 8/1/2020 & 23-04-2022 | Bathroom Jali ,other sanitary items | 250.00 | 5 | 28.01.2020 | 28.01.2022 | No | NA | NA | NA | NA | |
| B7-1 | 2000 | 14-02-2020 | 19-02-2020 | | disposal of medical/waste | 300.00 | 7 | 05-12-2021 | 05-12-2021 | No | NA | NA | NA | NA | NOC granted under Non-Polluting /White category of Industry |
| D4 | 778 | 18-02-2020 | 10-06-2020 | | Mfg concrete blocks ,bricks | 7.60 | 7 | Not required | NA | NA | NA | NA | NA | NA | NOC granted under Non-Polluting /White category of Industry |
| D7,D8-1 | 1705 | 18-02-2020 | 12-01-2021 | 05-02-2024 | disposable petal,dune ,glasses | 160.00 | 5 | Not required | NA | NA | NA | NA | NA | NA | NOC granted under Non-Polluting /White category of Industry |
| C14 | 1610 | 29-06-2020 | 27/08/2020 | 09-08-2022 | Mfg. Of all types of steel tubular poles | 2.00 | 7 | Not required | NA | NA | NA | NA | NA | NA | NOC granted under Non-Polluting /White category of Industry |
| D11 | 656 | 30-06-2020 | 07-02-2020 | | Mfg. corrugated boxes | 30.00 | 9 | 23.06.2021 | 01.09.2022 | No | NA | NA | NA | NA | NOC granted under Non-Polluting /White category of Industry |
| C15 | 1573 | 02-07-2020 | 27/08/2020 | 09-08-2022 | Steel Tubular poles | 4.00 | 6 | Not required | NA | NA | NA | NA | NA | NA | NOC granted under Non-Polluting /White category of Industry |
| B7-II | 1344 | 09-07-2020 | 06-10-2020 | | disposal of medical/waste | 119.38 | 30 | 06.07.2023 | 25.09.2023 | No | NA | NA | NA | NA | NOC granted under Non-Polluting /White category of Industry |
| C72-1 | 1000 | 28-07-2020 | 02-04-2022 | 19-09-2022 | cosmetic item | 30.00 | 2 | Not required | NA | NA | NA | NA | NA | NA | NOC granted under Non-Polluting /White category of Industry |
| D12 | 1014 | 25-06-2020 | 18/09/2020 | 19-02-2021 | Mfg of carry bags ,tintus papers | 22.53 | 4 | 02.03.2021 | 06.09.2021 | No | NA | NA | NA | NA | NOC granted under Non-Polluting /White category of Industry |
| D14 | 1212 | 02-11-2020 | 11-09-2020 | 23-06-2021 | Mfg oil and cattle food | 14.85 | 4 | 01.02.2021 | 27.05.2022 | No | NA | NA | NA | NA | NOC granted under Non-Polluting /White category of Industry |
| C12 | 2051 | 05-11-2020 | 07-11-2020 | 31-05-2022 | plastic pipes | 17.40 | 4 | 04.04.2022 | 04.05.2022 | No | NA | NA | NA | NA | NOC granted under Non-Polluting /White category of Industry |

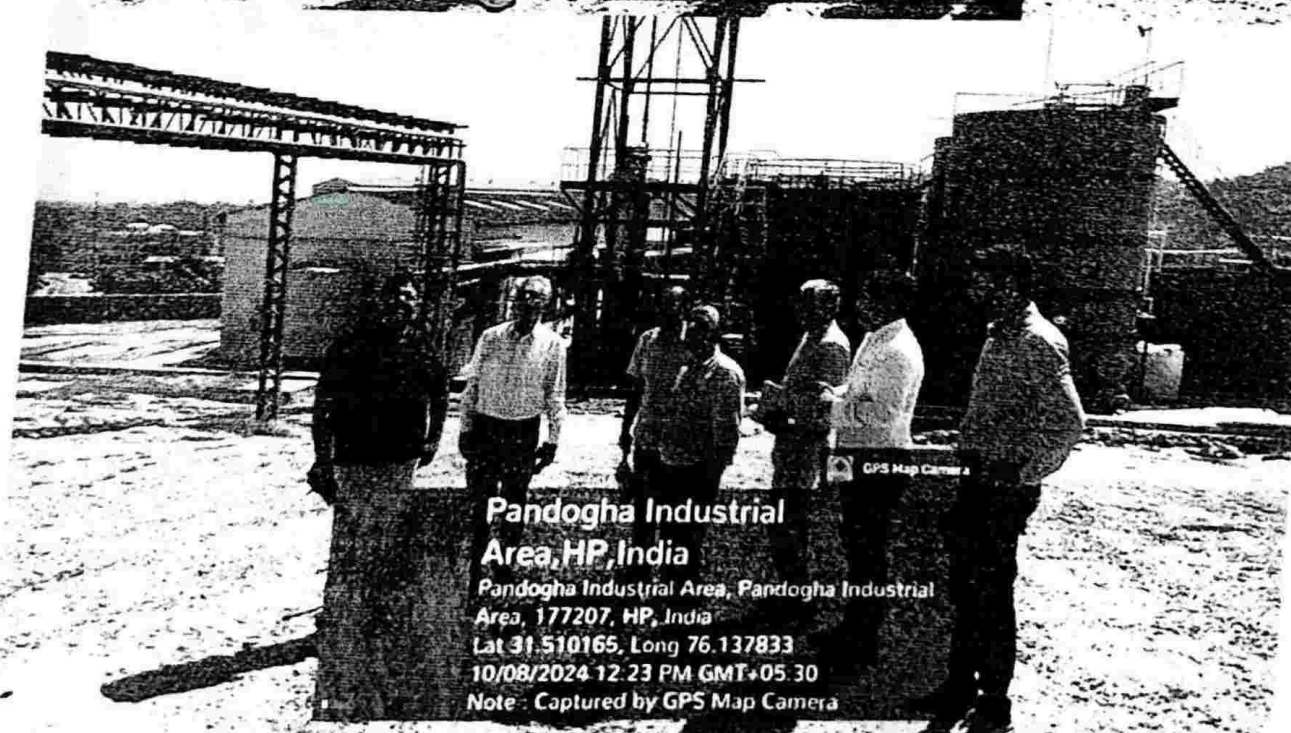
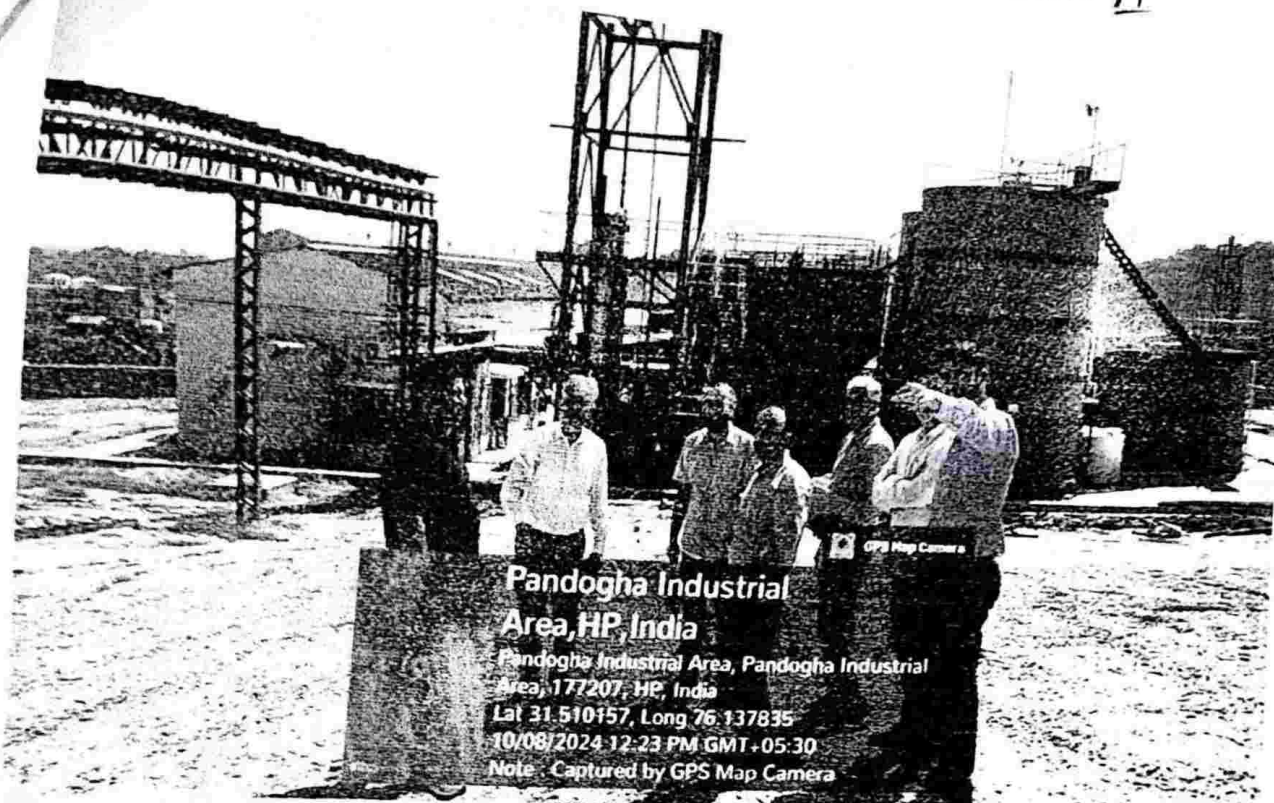
| Plot No | Area | Date of Allotment | Date of Possession | Date of execution of lease deed | Activity | Investment | Employment | Date of consent to establish | Date of consent to operate | Whether discharging Liquid | If, Yes Whether ETP installed | Type of ETP ZLD/Non ZLD | Capacity | Status of monitoring by HPPCB | Remarks |
|---------|----------|-------------------|--------------------|---------------------------------|--|------------|------------|------------------------------|----------------------------|----------------------------|-------------------------------|-------------------------|----------|--------------------------------|---|
| 1 | 2000 | 05-11-2020 | 07-11-2020 | 31-05-2022 | plastic pipes | 16.16 | 4 | 29.03.2022 | 04.05.2022 | No | NA | NA | NA | NA | Earlier, CTE & CTO was issued to the unit. However, later on NOC under Non-Polluting Industry was granted to the unit |
| 2 | 4081 | 02-12-2020 | 28/12/2020 | | Mfg. sanitary napkins | 800.00 | 10 | 19.02.2021 | 06.12.2021 | No | NA | NA | NA | NA | |
| 3 | 2000 | 31-12-2020 | 12-01-2021 | 26-05-2023 | e vehicles | 411.57 | 51 | 22.12.2023 | 10.01.2023 | No | NA | NA | NA | NA | |
| 4 | 8323 | 31-12-2020 | 12-01-2021 | 04-03-2023 | turpentine oil etc | 355.88 | 12 | 29.12.2022 | 16.05.2023 | No | NA | NA | NA | NA | |
| 5 | 380 | 07-01-2021 | 02-02-2021 | 19-05-2022 | Wood work cooler jhali | 14.75 | 3 | 07.06.2022 | 31.08.2022 | No | NA | NA | NA | NA | |
| 6 | 2000 | 24-07-2021 | 09-08-2021 | | Mfg. food process products | 30.57 | 2 | 02.06.2023 | 21.06.2023 | No | NA | NA | NA | NA | |
| 7 | 1204 | 30-07-2021 | 05-08-2021 | 15-03-2022 | turpentine oil | 35.00 | 5 | 16.11.2021 | 03.08.2023 | No | NA | NA | NA | NA | |
| 8 | 4745 | 12-10-2021 | 14-10-2021 | 24-02-2022 | masala, medicine oil etc | 200.00 | 7 | 04.12.2021 | 12.04.2023 | No | NA | NA | NA | NA | |
| 9 | 2000 | 14-12-2021 | 14/01/2022 | 19-12-2022 | Mfg. of E-Riksha | 30.00 | 4 | 04.10.2022 | 14.11.2022 | No | NA | NA | NA | NA | being set-up |
| 10 | 1152 | 14-12-2021 | 15/03/2024 | | Mfg. of besan | 18.00 | 9 | | | | NA | NA | NA | NA | |
| 11 | 2000 | 17-12-2021 | 10-01-2023 | 02-09-2023 | Mfg. bottles syrup | 374.91 | 8 | 16.06.2023 | 16.09.2023 | No | NA | NA | NA | NA | |
| 12 | A-3, A-4 | 19-01-2022 | 21-02-2022 | 02-01-2023 | Distillation malt spirit | 4787.00 | 77 | 08.04.2022 | 06.03.2024 | Yes | Yes | ZLD | 75 KLD | Regular monitoring carried out | Complying to PCB effluent/emission norms |
| 13 | 1035 | 15-06-2022 | 07-03-2023 | 27-10-2023 | Hings a/d r/lowe r belt, channeleic | 400.00 | 12 | 22.08.2023 | 15.05.2024 | No | NA | NA | NA | NA | |
| 14 | 2000 | 22-06-2022 | | | mfg. Pressure cooker and Parts thereof | 231.90 | 23 | | | No | NA | NA | NA | NA | being set-up |
| 15 | 2000 | 22-06-2022 | | | mfg. utensils ,kitchenware and accessories | 245.56 | 23 | | | No | NA | NA | NA | NA | being set-up |
| 16 | 2031 | 27-06-2022 | 17-02-2023 | | Agricultural product | 188.00 | 20 | | | No | NA | NA | NA | NA | being set-up |
| 17 | 4070 | 17-09-2022 | 03-06-2023 | | Mfg. of defence items | 1430.49 | 51 | | | No | NA | NA | NA | NA | being set-up |
| 18 | 1000 | 10-10-2022 | 20/10/2022 | 26-12-2022 | Mfg. Oxygen gas processor filling etc | 99.00 | 3 | 31-10-2022 | 31-10-2022 | NA | NA | NA | NA | NA | NOC granted under Polluting /White category of Industry |
| 19 | 486 | 03-01-2023 | 02-10-2023 | | Mfg of steel fabrication | 16.67 | 9 | Not required | NA | NA | NA | NA | NA | NA | NOC granted under Polluting /White category of Industry |

| Sl. No. | Company Name | Plot No. | Area (sq. ft.) | Date of Allotment | Date of Possession | Date of execution of lease deed | Activity | Investment | Emplyment | Date of consent to operate | Whether discharging liquid | If, Yes, Whether ETP installed | Type of ETP ZLD/Non ZLD | Capacity | Status of monitoring by HPPCB | Remarks |
|---------|--------------------------------------|-------------|----------------|-------------------|--------------------|---------------------------------|--------------------------------------|------------|-----------|------------------------------------|----------------------------|--------------------------------|-------------------------|----------|--------------------------------|--|
| 42 | M/s. Kumbh ji food | D9-II & D10 | 1570 | 10-01-2023 | 24-01-2023 | 04-10-2023 | chilling Processing of milk | 200.00 | 7 | 04-09-23 | Yes | Yes | Non ZLD | 5 | Regular monitoring carried out | Complying to PCS effluent/emission norms |
| 43 | Swami Lubricant | C1 | 2000 | 19-01-2023 | 20-02-2023 | - | lubricant | 80.00 | 7 | 28.01.2025 | No | Proposed | NA | 4 KLD | NA | being set-up |
| 44 | M/s. Rada Interiors | D22 | 1000 | 19-01-2023 | 22-02-2023 | 21-03-2023 | glass work | 99.84 | 8 | - | No | NA | NA | NA | NA | being set-up |
| 45 | M/s. carlife Foods Pvt. Ltd. unit-II | E-6 | 2000 | 20-01-2023 | - | - | Flour Mill | 100.00 | 20 | - | No | NA | NA | NA | NA | being set-up |
| 46 | M/s. carlife Foods Pvt. Ltd. | E-5 | 2000 | 01-03-2023 | - | - | Flour Mill | 100.00 | 20 | - | No | NA | NA | NA | NA | being set-up |
| 47 | M/s. Nivan Healthcare | D-9-1 | 1296 | 05-04-2023 | 05-04-2023 | 31-03-2024 | Mfg. Tab, capsule, liquid syrup etc | 376.00 | 15 | 04.09.2023 | No | NA | NA | NA | NA | - |
| 48 | M/s. Shubh Agro Industries | C6 | 1500 | 13-04-2023 | - | - | Agro based products | 94.00 | 25 | - | No | NA | NA | NA | NA | being set-up |
| 49 | M/s. Ayurvedic OPC Private Ltd | D-25 | 1000 | 20-10-2023 | - | - | corrugated paper and paper board | 95.18 | 9 | - | No | NA | NA | NA | NA | being set-up |
| 50 | M/s. Wild Natural Meals | D-II | 500 | 18-12-2023 | - | - | Mfg. of all types of honey flavours | 58.03 | 20 | - | No | NA | NA | NA | NA | being set-up |
| 51 | M/s. Selig Hardware | C-8 | 2000 | 28-12-2023 | - | - | Hings,al,droi,towe r belt,chainete | 621.61 | 33 | - | No | NA | NA | NA | NA | being set-up |
| 52 | New Chem Agro Industries | C-7-1 | 1129 | 09-01-2024 | 21-02-2024 | 08-07-2024 | mfg Bio fertilizers | 99.54 | 24 | GTE. Fresh applied (under Process) | No | NA | NA | NA | NA | Under process |
| 53 | M/s. Manarath Overseas Ventures | B-6 | 1694 | 19-03-2024 | 28-03-2024 | 24-07-2024 | Plastic waste recycling unit | 61.36 | 60 | 04.05.2024 | No | NA | NA | NA | NA | being set-up |
| 54 | Shalabhra Enterprises Pvt. Ltd | B-5-1 | 2000 | 21-05-2024 | 27-06-2024 | 26-07-2024 | apple cider Vinegar processing | 1050.00 | 13 | - | No | NA | NA | NA | NA | being set-up |
| 55 | KS Associates | D-15 | 1000 | 03-07-2024 | - | - | Mfg. all types of injection moulding | 99.00 | 6 | 19.09.2024 | No | NA | NA | NA | NA | - |
| 56 | M/s. Coro Safe Pvt. Ltd -I | E-1 | 2023 | 03-07-2024 | 22-08-2024 | - | Corrugated Boxes | 99.50 | 20 | - | No | NA | NA | NA | NA | being set-up |
| 57 | M/s. Coro Safe Pvt. Ltd | E-II | 2119 | 03-07-2024 | 22-08-2024 | - | Corrugated Boxes | 100.00 | 20 | - | No | NA | NA | NA | NA | being set-up |
| 58 | M/s. Coro Safe Pvt. Ltd -II | E-III | 2254 | 03-07-2024 | 22-08-2024 | - | Corrugated Boxes | 100.00 | 12 | - | No | NA | NA | NA | NA | being set-up |
| 59 | M/s. Coro Safe Pvt. Ltd -III | E-IV | 2177 | 03-07-2024 | 22-08-2024 | - | Corrugated Boxes | 100.00 | 20 | - | No | NA | NA | NA | NA | being set-up |

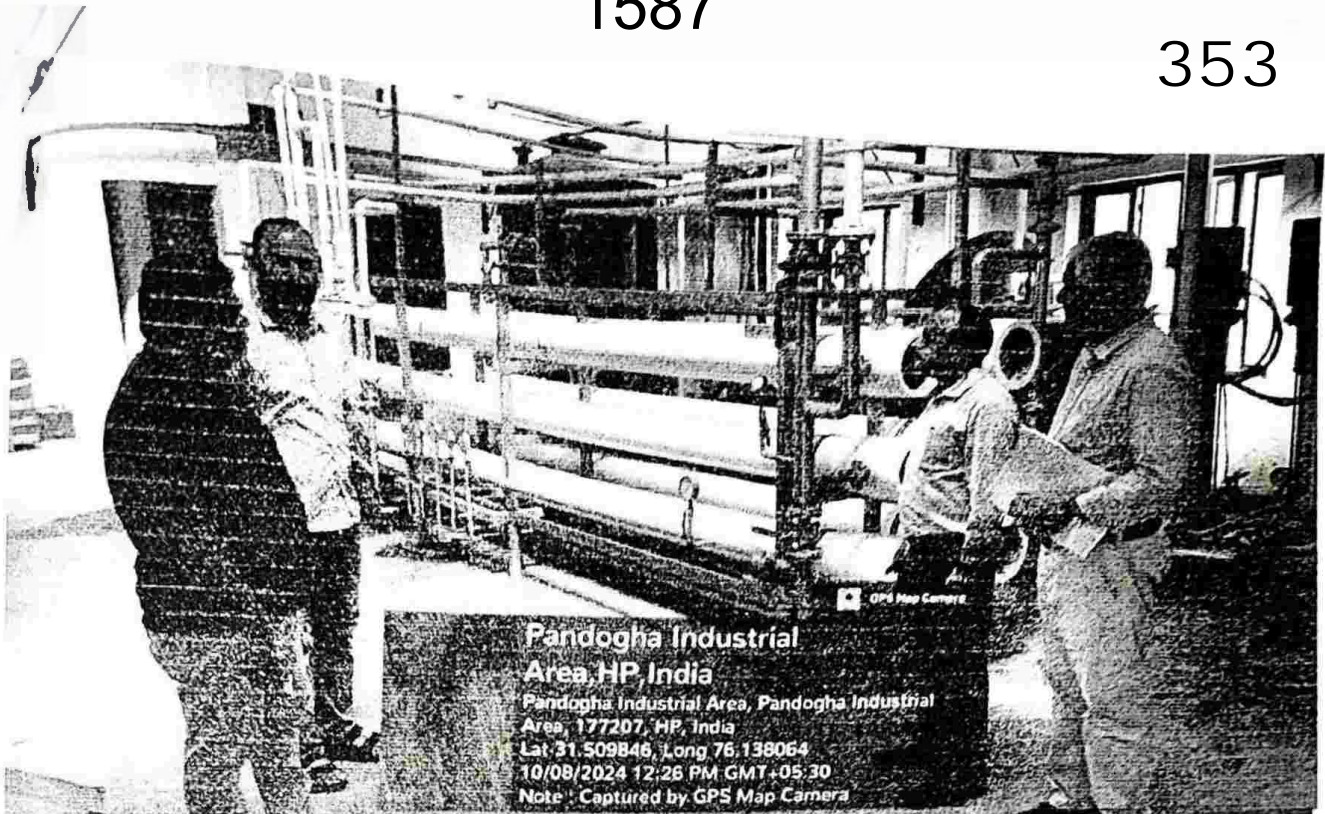
| Plot No | Area | Date of Allotment | Date of Possession | Date of execution of lease deed | Activity | Investment | Employment | Date of consent to establish | Date of consent to operate | Whether discharging Liquid | If, Yes Whether ETP installed | Type of ETP ZLD/Non ZLD | Capacity | Status of monitoring by NPPCB | Remarks |
|---------|------|-------------------|--------------------|---------------------------------|---|------------|------------|------------------------------|----------------------------|----------------------------|-------------------------------|-------------------------|----------|-------------------------------|----------------|
| C-21 | 3000 | 26-07-2024 | - | - | Mfg STP's and Civil an Electrical Instrumentation | 650.00 | 6 | - | - | NO | NA | NA | NA | NA | being set-up |
| A-1-III | 2000 | 22-06-2022 | - | - | Electric fans and its components | 281.43 | 75 | - | - | NO | NA | NA | NA | NA | being set-up |
| D-20 | - | - | - | - | - | - | - | - | - | NO | NA | NA | NA | NA | Bank Take Over |

| | |
|---|----------------------|
| Total No. of Plots: | 74 |
| Allotted Plots: | 67 Plots to 60 Units |
| No. of units set-up / functional | 29 |
| No. of units being set-up | 31 |
| No. of units issued Consent to Establish/Consent to Operate | 39 |
| No. of units in White, Green, Orange, category : | 59 |
| No of Units in Red Category | 1 |
| No. of units Generating liquid effluent | 3 |
| no of units installed captive ZLD | 3 |
| Liquid effluent discharge presently | Zero |

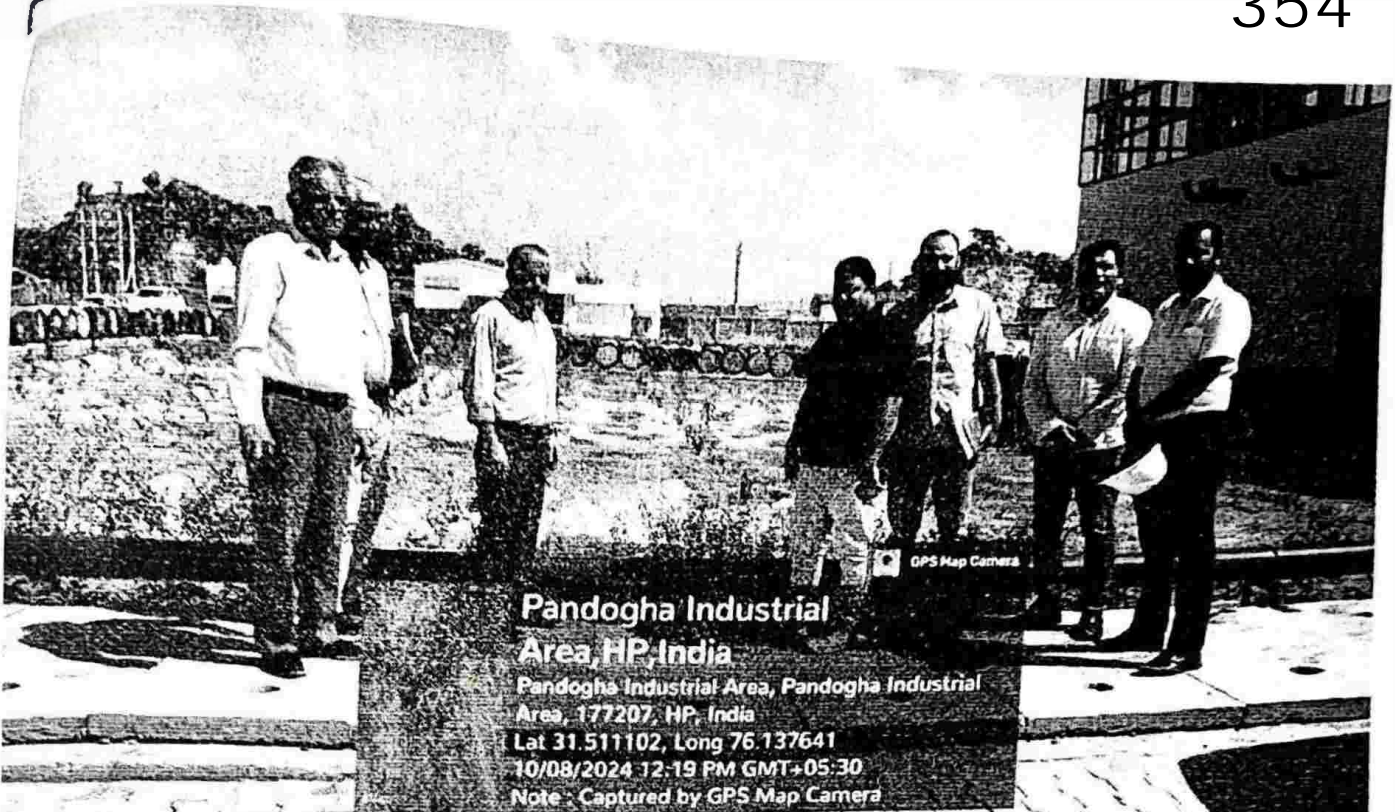
Annex. - VI



Zero Liquid Discharge, Common Effluent Treatment Plant at M/S IAN Macleod, I. A. Pandoga Distt. Una

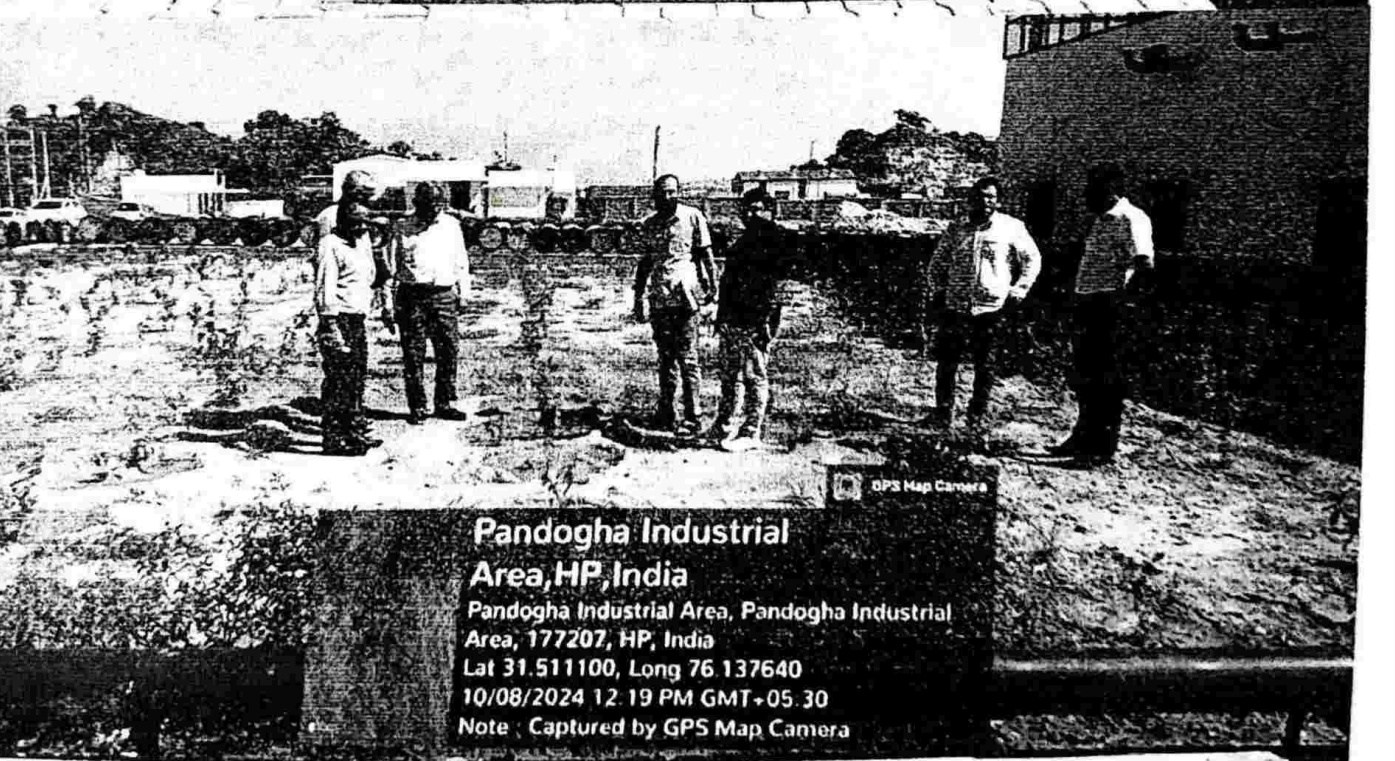


RO Plant at M/S IAN Macleod, I. A. Pandoga Distt. Una.



Pandogha Industrial Area, HP, India

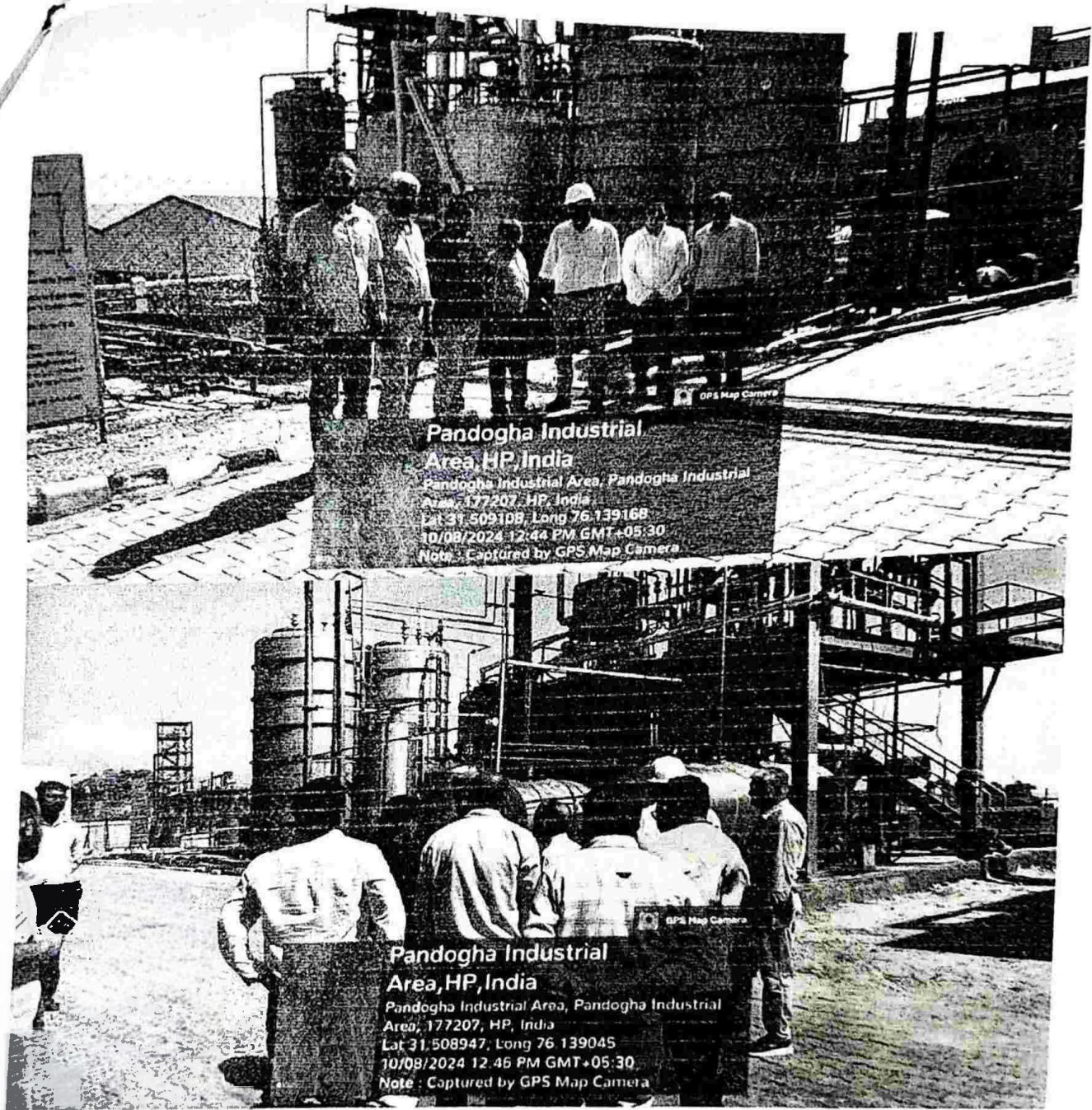
Pandogha Industrial Area, Pandogha Industrial Area, 177207, HP, India
Lat 31.511102, Long 76.137641
10/08/2024 12:19 PM GMT+05:30
Note: Captured by GPS Map Camera



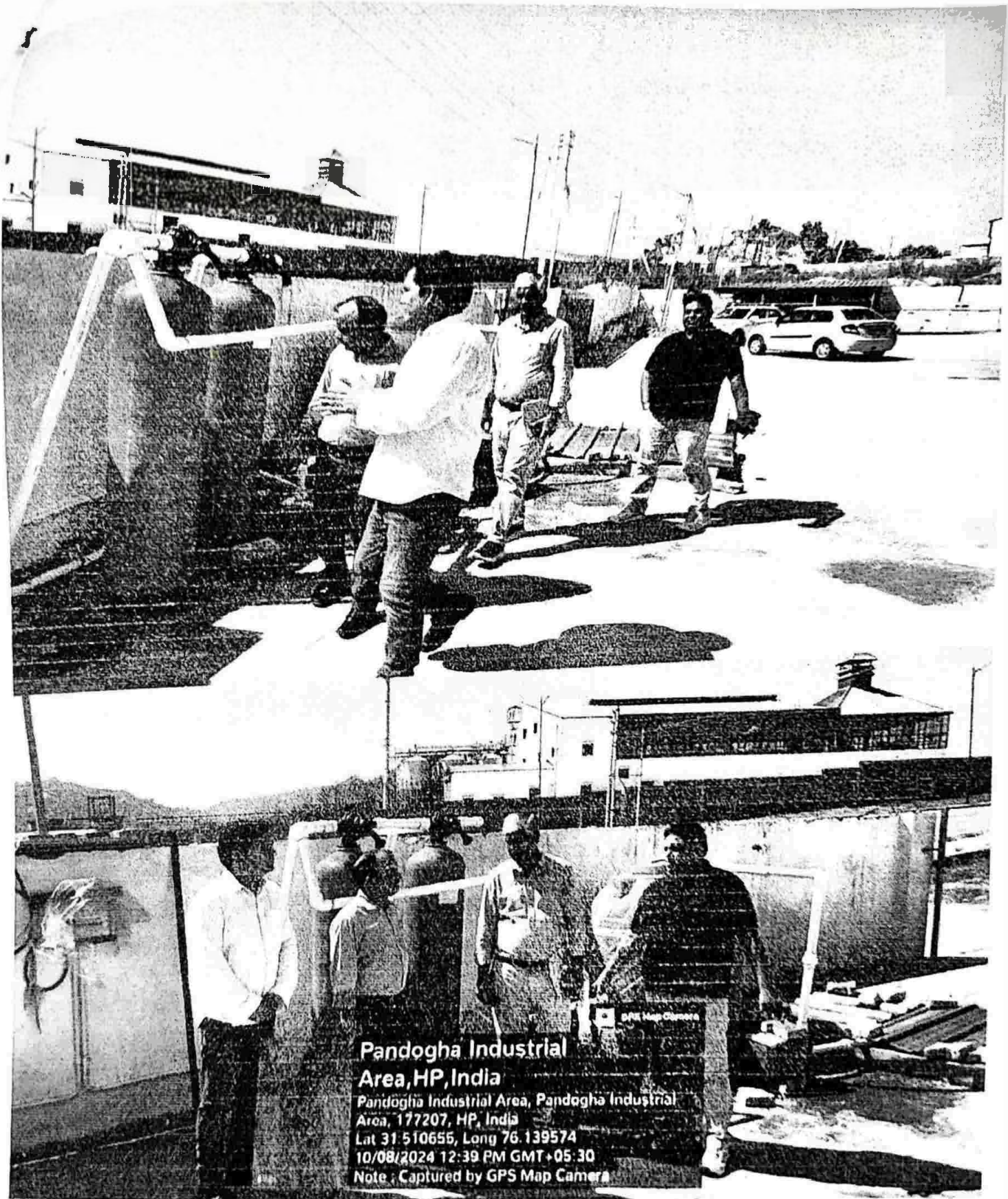
Pandogha Industrial Area, HP, India

Pandogha Industrial Area, Pandogha Industrial Area, 177207, HP, India
Lat 31.511100, Long 76.137640
10/08/2024 12:19 PM GMT+05:30
Note: Captured by GPS Map Camera

Tree Plantation at M/S IAN Macleod, I. A. Pandoga Distt. Una



**ETP Plant at M/S Hindustan Farmdirect Ingredients Pvt. Ltd. I.A. Pandoga
Distt Una HP**



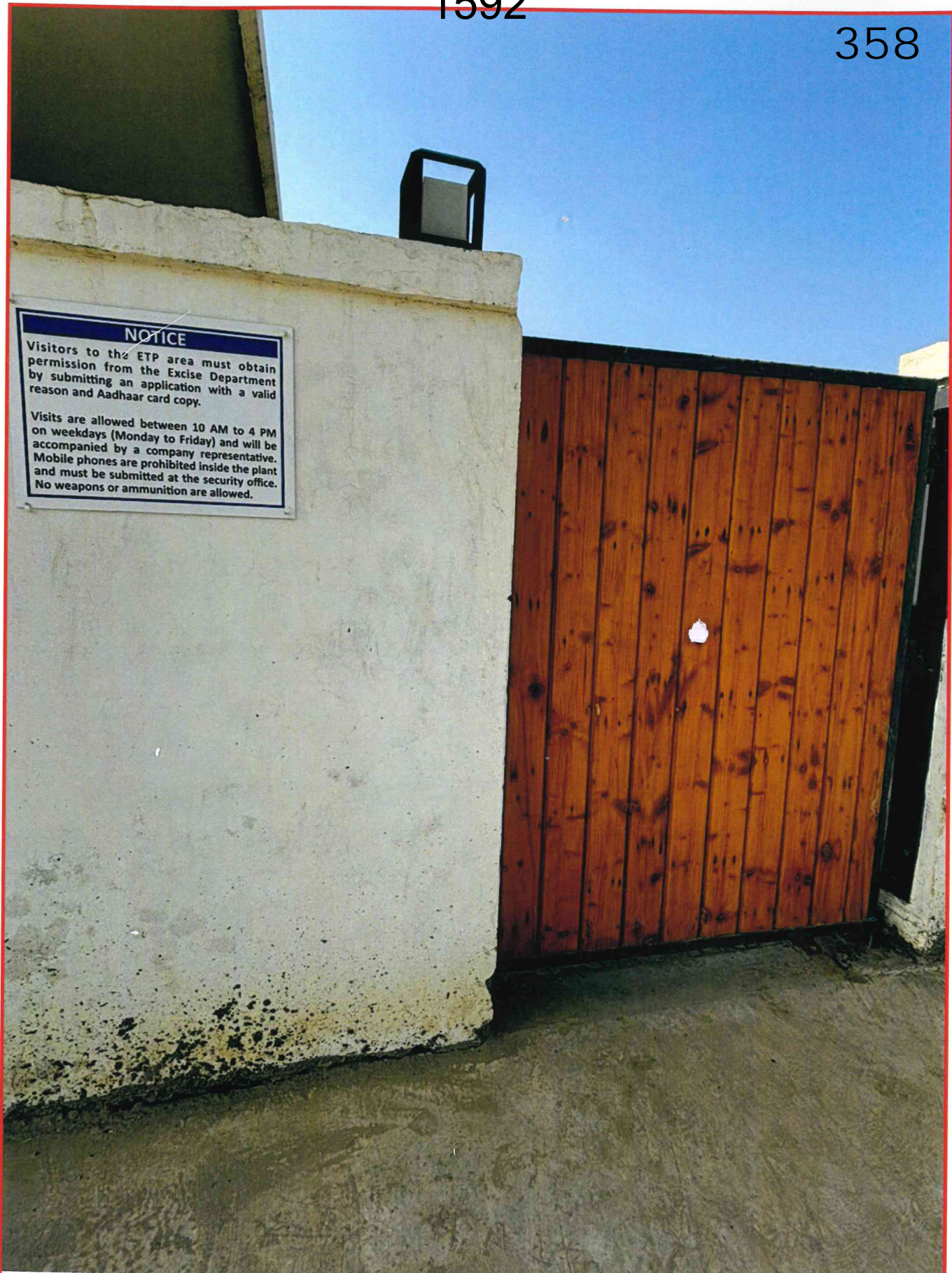
ETP Plant at M/S Amba Ji Enterprises I.A. Pandoga Distt. Una HP

NOTICE

Visitors to the ETP area must obtain permission from the Excise Department by submitting an application with a valid reason and Aadhaar card copy.

Visits are allowed between 10 AM to 4 PM on weekdays (Monday to Friday) and will be accompanied by a company representative. Mobile phones are prohibited inside the plant and must be submitted at the security office. No weapons or ammunition are allowed.

Notice : Visitors allowed to ETP Area



Notice : Visitors allowed to ETP Area



Planting of Trees by District Judge, UNA



Planting of Tree by Excise & Forest Officials



Planting of Tree by Pollution Control Official

**BEFORE THE HON'BLE NATIONAL GREEN TRIBUNAL,
PRINCIPAL BENCH, NEW DELHI
IN O.A. 646/2023**

IN THE MATTER OF:

MANOJ KUMAR KAUSHAL

...APPLICANT

VERSUS

STATE OF HIMACHAL PRADESH & ORS

...RESPONDENTS

KNOWN ALL to whom these presents shall come that I, R.V.Subramanian, Authorized Representative of Respondent No. 7 in the above captioned matter, do hereby appoint:

VERTARILEGAL

Madhav Bhatia, Shreshth Arya,
A-446 (LGF), Defence Colony, New Delhi-110024
(M) +91 9910572585; (E) madhavbhatia@vertarilegal.com

- Herein after called Advocates to be my/ our advocates in the above noted case and authorized them to act appear and plead in the above noted case in the Court or in any court in which the same may be tried or heard and also in the appellate courts including High Court and the Supreme Court
- To sign, verify and present pleadings application, appeals, cross objections or petitions for execution, review, restoration, withdrawal, compromise or other petitions, replies, objections or affidavits or documents as may be deemed necessary or proper for the prosecution of the said case in all its stages.
- To file and take back documents.
- To withdraw or compromise the said case or submit to arbitration any difference of disputes that may arise touching or in any manner relating to the said case. To take out execution proceedings.
- To deposit, draw and receive moneys, cheques and grant receipts there and to all other acts and things which may be necessary to be done for the progress and in the course of prosecution of that said case.
- To appoint and instruct other legal practitioners authorizing him to exercise the power and authorize hereby confer upon the advocate whenever he may think fit to do so and singe the power of attorney on our behalf.
- And I/ We undersigned do hereby agree ratify and confirm acts done by the advocates or his substitute in the matter is my/ our acts as if done by me/us to all intents and purposes.
- And I/ We undersigned do hereby agree that in the event of any part of the fees agreed by me/ us to be paid to the advocate remaining unpaid, he shall be entitled to withdraw from the prosecution and would be entitled to the same.

IN THE WITNESS WHEREOF I/ We do hereby upto put my/ our hand to these presents the contents to which have been understood by me/us on the 25 day of Nov 2024

Accepted



Client




D7747/2021

D2956/2018





Re: Reply on behalf of "Ian McLeod" in OA-646/2023/PZ titled "Manoj Kumar Kaushal v State of Himachal Pradesh & Ors."

From Apurv Yash <Apurvyash@vertarilegal.com>

Date Thu 05-12-2024 18:46

To cs-hp@nic.in <cs-hp@nic.in>; indussecy-hp@nic.in <indussecy-hp@nic.in>; dc-una-hp@nic.in <dc-una-hp@nic.in>; head-fordivuna-hp@hp.gov.in <head-fordivuna-hp@hp.gov.in>; mspcb-hp@nic.in <mspcb-hp@nic.in>; info@farmdirect.org.in <info@farmdirect.org.in>

Cc Litigation Team <LitigationTeam@vertarilegal.com>

Sir/Ma'am,

We act for and on behalf of our client, i.e., **Ian Macleod Distilleries India Pvt Ltd.**, the **Respondent No. 7** in OA No. 646/2023 titled "**Manoj Kumar Kaushal v State of Himachal Pradesh & Ors.**" pending before the Ld. National Green Tribunal, Principal Bench, New Delhi.

You are requested to kindly find attached the Reply on behalf of my client, i.e., Respondent No. 7 in the aforementioned matter.

Kindly note that this mail shall be treated as sufficient proof of service for all purposes henceforth.

 [00. Final Reply with Ann. - Ian Macleod.pdf](#)

Regards

Apurv Yash

Associate

Vertari Legal

A – 446 (LGF), Defence Colony, New Delhi – 110024

E-mail: apurvyash@vertarilegal.com

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From: Apurv Yash <Apurvyash@vertarilegal.com>

Sent: Thursday, December 5, 2024 6:37 PM

To: cs-hp@nic.in <cs-hp@nic.in>; indussecy-hp@nic.in <indussecy-hp@nic.in>; dc-una-hp@nic.in <dc-una-hp@nic.in>; head-fordivuna-hp@hp.gov.in <head-fordivuna-hp@hp.gov.in>; mspcb-hp@nic.in <mspcb-hp@nic.in>; info@farmdirect.org.in <info@farmdirect.org.in>

Cc: Litigation Team <LitigationTeam@vertarilegal.com>