**BEFORE THE HON'BLE NATIONAL GREEN TRIBUNAL PRINCIPAL BENCH, NEW DELHI HIGH COURT OF HIMACHAL PRADESH AT SHIMLA**

**O.A. 148 OF 2025**

**IN THE MATTER OF**

Rohit Singh **...Applicant**

**Versus**

Ministry of Environment Forest

and Climate Change & Ors. **...Respondents**

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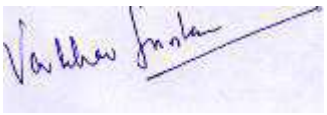

Vaibhav Srivastava

Advocate for Respondent No.2

**BEFORE THE NATIONAL GREEN TRIBUNAL**

**PRINCIPAL BENCH AT NEW DELHI**

**O. A. NO.148 of 2025**

**IN THE MATTER OF:**

Rohit Singh ....Applicant

Versus

Ministry of Environment,
Forest & Climate Change & Ors. ....Respondents

**REPLY ON BEHALF OF RESPONDENT NO. 2, HIMACHAL PRADESH BULK DRUG PARK INFRASTRUCTURE LTD.**

*Most Respectfully Showeth:*

**Preliminary Submissions:**

1. That Respondent No. 2 ("**Answering Respondent**") is a serving Government officer with Himachal Pradesh Bulk Drug Park Infrastructure Limited ("**HPBDPIL**"), and his impleadment in his personal capacity is wholly unsustainable. The Petitioner is only trying to seek some personal vendetta against a serving officer of impeccable official record, through such impleadment, as there could be no other reason for singling him out, while other Respondents have been impleaded in their official capacities. The attempt to array Respondent No. 2 in a personal capacity, without justification in the body of the petition, is clearly actuated by ulterior motives. Evidently, the deliberate targeting is clearly intended to harass and malign a

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Oath Commissioner

Addl. Cheif Executive Officer
H.P. Bulk Drug Park Infrastructure Ltd.
Head Office : Majitha House, Shimla-2

government officer rather than to advance any genuine environmental concern.

2. That the Applicant has grossly misrepresented facts. He is also guilty of supressing material facts before this Ld. Tribunal in relation to Applicant's purported claim of working for the welfare and betterment of society. It is submitted that in reality, he is a social-media influencer, highly active on platforms such as Facebook, YouTube, and Instagram, and has deliberately chosen the issue of the Bulk Drug Park as his primary content medium. The Applicant's involvement is therefore motivated by self-promotion and sensationalism rather than any bona fide concern for the environment.

3. It is further submitted that the Applicant's sole focus on the issue of the Bulk Drug Park across his social media platforms is only to garner views, subscriptions, and monetary gain. Pertinently, the Applicant's content is scandalous, baseless, frivolous, and whimsical, intended merely to create hysteria and sensationalism. To counter such false and misleading propaganda, the Answering Respondent has already instituted a Civil Suit seeking injunction against the Applicant before the Civil Court at Una, Himachal Pradesh. Additionally, an FIR has also been registered against the Applicant for spreading false and frivolous news. A copy of the above-mentioned FIR is annexed herewith as **Annexure R1.**

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4. The present Application is nothing but an attempt by the Applicant to sensationalize a developmental project of national significance for the sake of media attention and personal

Addl. Cheif Executive Officer
H.P. Bulk Drug Park Infrastructure Ltd.
Head Office : Majitha House, Shimla-2

publicity. Far from being a genuine environmental concern, the allegations have been made to generate traction and centralize the Applicant's presence on social media platforms. In reality, the project in question, i.e., the Bulk Drug Park at Tehsil Haroli in District Una, Himachal Pradesh, is a carefully planned initiative of the Government of India, spread over 1,405 acres of government land and duly approved under the Scheme for Promotion of Bulk Drug Parks, notified *vide* Gazette Notification No. *31026/16/2020-Policy* dated 21.07.2020. A copy of the Notification No. *31026/16/2020-Policy* dated 21.07.2020 is annexed herewith as **Annexure R2.**

5. It is submitted that this Scheme, was launched to reduce India's heavy dependence on imports of Active Pharmaceutical Ingredients (APIs) i.e., Bulk Drugs from China, directly addresses the strategic vulnerability posed by a 68–70% import reliance, which threatens domestic medical supplies in adverse diplomatic situations. Himachal Pradesh, already a pharmaceutical hub with over 600 formulation units and annual exports of Rs.10,000 crore (contributing 60% of the State's exports and nearly 45% of Northern India's pharma exports), occupies a pivotal role in this ecosystem. The Bulk Drug Park, therefore, is not merely a project for the State but one of national importance, aimed at strengthening healthcare security, advancing self-reliance under the vision of *Atmanirbhar Bharat*, and fostering economic growth for future generations. Accordingly, the Application being frivolous and motivated, deserves to be dismissed *in limine*.

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6. The Applicant has alleged without any actual data that the proposed Bulk Drug Park will cause severe groundwater depletion in Una and Hum Valley; that industries based on chemical synthesis will over-exploit scarce water resources; that waste disposal, effluent discharge and pollution levels have not been properly planned, that forest land and wildlife habitats will be destroyed and, that public health facilities are inadequate to deal with potential hazards. It is also alleged that the project timelines and safeguards are superficial, and that the establishment of the Park poses a grave risk to the environment, ecology, and people residing in the vicinity.

7. It is respectfully submitted that each of these allegations is baseless and unsupported by scientific or factual material. Authoritative assessments confirm that groundwater resources are abundant and safely manageable, with negligible drawal coupled with recharge and long-term augmentation from the Satluj already planned. Further, the state-of-the-art facilities, including a Common Effluent Treatment Plant (CETP) with Zero Liquid Discharge technology and a Hazardous Waste Management Plant, have been incorporated to address all waste and effluent concerns in line with CPCB standards. The Project involves no diversion of forest land, does not fall within protected wildlife zones, and complies fully with the Environment (Protection) Act, 1986 and other laws. Notably, public health, power supply, and infrastructure have been carefully planned and vetted by the various departments, including but not limited to the Department of Pharmaceuticals, NITI Aayog, and MoEF&CC.

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Oath Commissioner

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Head Office : Majitha House, Shimla-2

8. That, *inter alia*, the Applicant has alleged that the Project Proponent commenced construction activities prior to obtaining environmental clearance. The said allegation is wholly frivolous, baseless, and denied. It is respectfully submitted that the Project Proponent, being a 100% State Government-owned company, strictly adheres to the rule of law and has not initiated any construction within the Park pending the grant of environmental clearance from the Moef&Cc, the Government of India. It is further submitted that while tenders have been floated for works such as the CETP, Solid Waste Management Facilities, etc., the tender documents themselves categorically stipulate that no work shall be awarded or commenced until Environmental Clearance (EC) is duly obtained. The above fact is clarified from the Joint Inspection Committee report dated 28.08.2025 which is annexed herewith as **Annexure R3**, which clearly establishes that the allegation of applicant is based on mere surmises and appears to have been labelled with some ulterior motive.

9. Thus, an overall perusal of the Application shows that the said Application has been instituted on vague and unverified allegations, unsupported by any credible material or scientific evaluation. It is submitted that all the above-mentioned aspects are dealt with in detail in the Answering Respondent's paragraph-wise Reply. Thus, the Application, being misconceived and devoid of substance, deserves to be dismissed with exemplary costs.

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H.P. Bulk Drug Park Infrastructure Ltd.
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**PARA-WISE REPLY:**

1. The contents of Paragraph 1 pertains to the matter of record and hence do not merit a response.

2. The contents of Paragraph 2 alleging depletion of groundwater resources in Una and Hum Valley and claiming that chemical synthesis-based industries in the proposed Bulk Drug Park would overexploit water resources are denied as baseless and without any factual foundation. It is submitted that a Ground Water Impact Assessment Report for the Bulk Drug Park (Beet Area) was prepared by the Jal Shakti Vibhag to study water level behaviour during pre- and post-monsoon periods, and hydrographs of two piezometric wells were plotted. A copy of the Ground Water Impact Assessment Report is annexed herewith as **Annexure R4 Page No. 56 of the report.**

   It is pertinently submitted that the analysis does not reveal any declining or rising trend; rather, the water levels exhibit a near-stable pattern, with only minor fluctuations corresponding to the rise and fall of surface water levels in the Soan River. Notably, this establishes that recharge to groundwater in the Beet Area, wherein the Bulk Drug Park site is located, is substantial. The assessment further records that the 78 sq. km Beet Area contains a static groundwater reservoir of 655 million cubic meters (MCM) available for use.

   The total requirement of freshwater for the Bulk Drug Park is 5,25,000 $m^3$ per year (0.52 MCM). It is, therefore, evident that against the total recoverable availability of 655 MCM in the Beet Area, only 0.07% will be withdrawn, leaving 99.93% of

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H.P. Bulk Drug Park Infrastructure Ltd.
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groundwater available for other uses. Furthermore, analytical modelling undertaken to assess the impact of such withdrawal demonstrates that the estimated drawdown is 0.50 m in the principal conductivity direction during 12 hours of pumping at a constant discharge, dissipating to about 0.30 m at 500 m. Hence, it stands clearly established that the proposed withdrawal will not have any significant adverse impact on the overall groundwater regime of the Beet Area, contrary to the allegations of the Applicant.

Further, as per the Impact Assessment study, the present annual groundwater draft in the Beet Area is 4.15 MCM, while the additional requirement for the Bulk Drug Park will be 0.52 MCM. Thus, the total draft amounts to 4.67 MCM, which is negligible when compared with the available recharge of 655 MCM. A copy of the Impact Assessment Study is annexed herewith as **Annexure – R4 Page No. 74 of the report.** Accordingly, it is submitted that the withdrawal of groundwater for the Bulk Drug Park will not have any significant adverse impact on the overall groundwater regime of the Beet Area. This conclusion is also substantiated by the Report which records no adverse effect on groundwater extraction in view of the highly transmissive aquifer formations and high lateral hydraulic conductivity (permeability) in the region. A copy of the aforesaid Report is annexed herewith as **Annexure – R4 Page No. 68 of the report.** Moreover, the National Compilation of Ground Water Resources of India prepared by the Central Ground Water Board, Ministry of Jal Shakti, for the years 2022, 2023, and 2024, confirms that no assessment unit in Himachal Pradesh, including Una and Hum Valley, reflects depleted water resources. The

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Head Office : Majitha House, Shimla-2

allegations made in the application are, therefore, vague, factually incorrect, and without any scientific foundation. A copy of the National Compilation of Ground Water Resources of India, as compiled by the Central Ground Water Board, Ministry of Jal Shakti, for the year 2022 is annexed herewith as **Annexure R-5.** A copy of the National Compilation of Ground Water Resources of India for the year 2023 is annexed herewith as **Annexure R-6,** whereas a copy of National Compilation of Ground Water Resources of India for the year 2024 is annexed herewith as **Annexure R-7.**

As a matter of fact, it is reiterated that all assessment units in Himachal Pradesh continue to be categorized under the '*Safe Category*'. Collary to this, it is submitted that groundwater management in the State of Himachal Pradesh is undertaken on the basis of periodical estimations carried out jointly by the State Ground Water Organisation, Jal Shakti Vibhag, Una (Himachal Pradesh) and the Central Ground Water Board, under the guidance of the State Level Committee on Ground Water Assessment and the overall supervision of the Central Level Expert Group. A copy of the Estimation Report prepared by State Ground Water Organisation, Jal Shakti Vibhag, Una and Central Ground Water Board is annexed herewith as **Annexure R-4.** It is also submitted that the assessment units are categorised on the basis of the 'Stage of Groundwater Extraction', which is validated with long-term water level trends. The 'Stage of Groundwater Extraction' is computed as the ratio of annual groundwater extraction to annual extractable groundwater resources, expressed in percentage. The categorization is as follows:

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H.P. Bulk Drug Park Infrastructure Ltd.
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| Stage of Groundwater Category | Extraction |
|---|---|
| Safe | ≤70% |
| Semi Critical | >70% and ≤90% |
| Critical | >90% and ≤100% |
| Over-Exploited | >100% |

Categorization of Ground Water Resources, Himachal Pradesh March 2022, 2023 & 2024 Reports is:-

| Category | March 2022 | March 2023 | March 2024 |
|---|---|---|---|
| Over Exploited Assessment Units | 0 | 0 | 0 |
| Critical Assessment units | 0 | 0 | 0 |
| Semi- Critical Assessment units | 0 | 0 | 0 |
| Safe Assessment units | 10 | 10 | 10 |
| Total Number of Assessment units | 10 | 10 | 10 |

A copy of the aforesaid Report of Senior Hydrogeologist, Ground Water Organisation, Jal Shakti Vibhag, Una (HP) received *vide* his office letter No. JSV.GWO/E-32/2024-25-490-91 dated 14.07.2025 along with its enclosures is annexed as **Annexure R-8.** A perusal of the same clearly establishes that the allegations advanced by the Applicant are unfounded, unverified, and unsupported by any material on record. The initiation of proceedings on such baseless assertions amounts to an abuse of the process of this Hon'ble Tribunal, whose time is to be devoted to just and legally sustainable causes, and not expended on speculative or sensational claims. The official data conclusively demonstrates that groundwater resources in Una

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H.P. Bulk Drug Park Infrastructure Ltd.
Head Office : Majitha House, Shimla-2

and Hum Valley are abundantly sufficient and sustainably managed to support the proposed Bulk Drug Park. Accordingly, the allegations raised by the Applicant are misconceived, factually incorrect, and legally untenable.

3. That the contents of Paragraph 3 are admitted only to the extent that the total water requirement of the upcoming Bulk Drug Park is 15 MLD. The remaining allegations are categorically denied, as there will be no adverse impact on the groundwater table, which have already been clarified in the preceding paragraphs. It is submitted that out of the total requirement of 15 MLD, approximately one-third (1/3rd), i.e., 5 MLD, will be re-used. Pertinently, HPBDPIL has adopted a twin strategy of utilizing both groundwater and surface water to ensure long-term water sustainability and security for the project as well as the surrounding area.

As a part of the short-term strategy, groundwater use is being undertaken with an integrated recharging mechanism, for which an amount of Rs. 11.75 crore has already been sanctioned by the High-Powered Committee of HPBDPIL. A copy of the sanction letter is annexed herewith as **Annexure – R9.** Notably, 60% of the recharge facilities outside the notified Bulk Drug Park have been completed even prior to the commencement of unit operations. Simultaneously, the availability of surface water from the Satluj River had been duly assessed at the stage of project conceptualization and incorporated in the DPR submitted to the Government of India. A copy of the Assessment Report assessing the availability of surface water is annexed herewith as **Annexure R-10.** It is further submitted

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Head Office : Majitha House, Shimla-2

that the Beet Area comprises gently undulating, elongated land within the Upper Siwaliks, aligned NW–SE parallel to the general strike of the Upper Siwaliks and Himalayas.

The Beet Area spans 150 sq. kms., of which approximately 72 sq. kms. fall in Punjab and 78 sq. kms. lie within the Una district of Himachal Pradesh. A lineament along the Hum Khad alters its course from west to east. It is noteworthy to state that geologically, the plateau comprises boulders, pebbles, gravel, sand, and clay, lying unconformably over the Upper Siwaliks. These boulder formations, largely deposits of the Satluj River following Himalayan upliftment, are still actively recharged by both the Soan and Satluj rivers flowing in the north and northeast. Owing to their high transmissivity, these formations provide copious water reserves. That groundwater exploration in the area has been ongoing since 1998, and no significant decline in water levels has been observed in the tube wells. Piezometers at villages Singha and Pubowal record water levels between 123.50–125.10 m bgl and 138.80–142.95 m bgl, respectively, as reflected in the Hydrogeological Image of the Beet Area which is annexed herewith as **Annexure – R11**. Furthermore, a groundwater recharge and conservation plan is under implementation, supported by an average annual rainfall of 1110 mm. Further, ponds with a cumulative area of 53,300 sq. m are being repaired, renovated, and restored for water conservation and recharge, as shown in the photographs which are annexed herewith as **Annexures – R12 photograph of ponds works**.

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It is further submitted that the HPBDPIL have consistently remained vigilant in ensuring sustainable and long-term water

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Head Office : Majitha House, Shimla-2

security for the Bulk Drug Park through measures such as recycled water, groundwater recharge, and surface water augmentation. To this effect, an underground water recharging system has already is being implemented at a cost of INR 11.75 crore outside the Park. Furthermore, recognizing the critical importance of assured long-term water availability, which is a vital input for API manufacturing units, a Detailed Project Report (DPR) amounting to Rs. 170.76 crore has been prepared and submitted to the Ministry of Jal Shakti, Government of India, and NITI Aayog for sanction of funds, a copy of which is annexed herewith as **Annexure – R10**.

The DPR further envisages augmentation of water supply by drawing 50 MLD from the Bhakra–Nangal reservoir, thereby providing a reliable alternative surface water source to secure the long-term operational requirements of the Park. In light of the above measures, it is evident that the Respondents have ensured that conservation of water resources and sustainable development go hand in hand. A well-planned roadmap has already been prepared, which is both effective and long-term sustainable, ensuring that neither the groundwater aquifers are adversely impacted nor any adverse effect is caused to the water reservoirs. Accordingly, the averments made by the Applicant are factually incorrect, misconceived, and legally untenable.

4. That the contents of paragraph 4 of the Application are denied as baseless. It is submitted that project timelines and parameters relating to waste disposal, effluent generation, and pollutant discharge are duly standardized in accordance with the applicable rules and regulations of the State as well as the Government of India. All project safety parameters have been

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Oath Commissioner

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carefully considered by the Department of Pharmaceuticals, in consultation with NITI Aayog, prior to grant of final approval. The Detailed Project Report (DPR) was submitted to the Department of Pharmaceuticals, Government of India, in 2022, and final approval was accorded on 08.10.2022, a copy of which is annexed herewith as **Annexure – R13**.

In order to address the waste management challenges of the Park, HPBDPIL has already submitted an Environmental Impact Assessment (EIA) Report to the MoEF&CC, wherein categorical provisions have been made for the disposal and management of all types of waste including, solid waste, hazardous waste, bio-medical waste, e-waste, and plastic waste, strictly in accordance with the Waste Management Rules notified under the Environment (Protection) Act, 1986. The said EIA Report, based on standard methodologies and conservative estimates as per MoEF&CC guidelines, is annexed herewith as **Annexure–R14**. Further, the design and operation of the Common Effluent Treatment Plant (CETP) shall primarily conform to CPCB standards, and provisions have been made for monitoring and implementation of the prescribed pollution control measures through regular inspections, sampling, compliance verifications, and the imposition of penalties under the *"Polluter Pays Principle"* in case of violations. A copy of the letter of the Himachal Pradesh State Pollution Control Board bearing No. HPSPCB/RO/Una/OA No. 148 of 2025/2025-1107 dated 26.07.2025, confirming the same, is annexed herewith as **Annexure – R15.**

In addition, it is respectfully submitted that a state-of-the-art Hazardous Waste Management Plant, with a designed capacity

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Head Office : Majitha House, Shimla-2

of 50,000 MT per annum, constitutes an integral part of the Common Infrastructure Facilities to be established within the Park. That for this purpose, a land parcel measuring 15 acres has already been earmarked in the approved master plan. This facility is designed to provide for the scientific collection, treatment, and environmentally compliant disposal of hazardous waste, thereby ensuring strict adherence to prescribed statutory requirements and environmental safeguards. To this effect, a tender has already been issued for the establishment of the Hazardous Waste Management Plant at an estimated cost of Rs. 52.88 crore, a copy of which is annexed herewith as **Annexure – R16.** Likewise, to comprehensively address the issue of pollutant discharge, a state-of-the-art Common Effluent Treatment Plant (CETP) with Zero Liquid Discharge (ZLD) technology, along with an Effluent Conveyance System, is proposed to be established with an aggregate treatment capacity of 5.0 MLD. The Common Effluent Treatment Plant (CETP) is specifically designed to treat both High Total Dissolved Solids (HTDS) and Low Total Dissolved Solids (LTDS) effluents, thereby ensuring compliance with prescribed environmental standards.

It is pertinent to note that the provision of Zero Liquid Discharge (ZLD) technology for a landlocked State like Himachal Pradesh is imperative to effectively address effluent discharge from red category projects. In the present project, the Common Effluent Treatment Plant (CETP) with Zero Liquid Discharge (ZLD) facility has been provided at a total estimated cost of Rs. 273.49 crore, out of which approximately Rs. 100 crore is earmarked exclusively for the ZLD system.

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Oath Commissioner

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This clearly establishes that HPBDPIL has duly incorporated all requisite and proven technologies to comprehensively address environmental and health concerns. The same stands incorporated in the Request for Proposal (RFP), a copy of which is annexed herewith as **Annexure – R17**.

In this regard, a tender has already been floated for the establishment of the Common Effluent Treatment Plant (CETP) with Zero Liquid Discharge (ZLD) facility along with the Effluent Conveyance System at an estimated cost of Rs. 273.49 crore, a copy of which is annexed herewith as **Annexure–R18.** It is further submitted that the standards for the CETP have been prescribed by the Central Pollution Control Board (CPCB) *vide* Notification S.O. 3864(E) dated 09.09.2024 under the Environment (Protection) Second Amendment Rules, 2024, effective from 01.09.2025, a copy of which is annexed herewith as **Annexure – R19**. These Rules amend Schedule–I of the Environment (Protection) Rules, 1986 at serial number 55. Sector-specific standards shall also be duly complied with. Accordingly, the design and operation of the CETP shall primarily conform to CPCB standards, unless otherwise specifically directed.

Therefore, it is abundantly clear that there are no borderline projections in the execution of the project as the respondents have diligently acted to implement and execute the project by incorporating the present state of art technologies and measures which are in themselves, concrete and efficient mechanism to ensure that no adverse impact is created, and the project is executed under the guiding principle of sustainable development.

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5. The averments contained in Paragraph 5 of the Application are denied as being vague and devoid of any merit. The issue of water impact has already been comprehensively dealt with in para 2 above. It is further submitted that, in accordance with Rule 10 of the Himachal Pradesh Minor Minerals (Concession) and Minerals (Prevention of Illegal Mining, Transportation and Storage) Rules, 2015, the Jal Shakti Vibhag is a member of the Joint Inspection Committee. After a careful study of the schemes and the prevailing water regime, a No Objection Certificate (NOC) is issued by the Department, and permission for any mining-related activity is granted by the Joint Inspection Committee, which notably, is only after compliance with environmental norms, obtaining consent from the State Pollution Control Board (SPCB), and securing an NOC from the local Panchayat. A copy of the relevant extract of the Rules is annexed herewith as **Annexure – R20**.

The average monthly water level at the piezometer at Gurplah School from October 2022 to April 2025 ranged between 8.40 m and 11.85 m bgl; at Gurplah near Government Tubewell No. 61 from January 2022 to June 2025 between 10.30 m and 16.70 m bgl; and at Bela Bathri near D.J. Boitech from August 2019 to June 2025 between 5.55 m and 10.15 m bgl. Hydrographs for all these stations are annexed herewith as **Annexures–R21**. The water level in the Beet/Hum Khad area generally ranges between 90–179 m bgl, varying with the surface elevation from the Soan River and topography. Piezometers have also been constructed at Village Singhan (N 31.31966667, E 76.24619444) and at Village Pubowal (N 31.38233333, E

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76.204250). At Singhan, the average monthly water level from January 2022 to April 2025 ranged between 123.50 m and 125.10 m bgl, while at Pubowal, it ranged between 138.80 m and 142.95 m bgl. Hydrographs for these stations are annexed herewith as **Annexure – R4 (page no 57 to 59 of report)**.

The groundwater abstraction in the Beet Area is consistent with its hydrogeology and recharge conditions, with aquifer formations being highly transmissive and lateral hydraulic conductivity notably high in the fluvial deposits. Water levels are deep owing to tectonic uplift of the alluvial bed, but the aquifers are continuously recharged through the Satluj and Soan Rivers across the fault zone. The area thus has substantial hydrogeological reserves, and the drawal of water for the Bulk Drug Park will have no significant adverse impact. This position is also confirmed by letter No. Udyog (Bhu)-Laghu-UNA-2269 dated 22.07.2025, annexed herewith as **Annexure–R22**. Accordingly, all industrial water requirements of the Bulk Drug Park will be met through scientifically planned and environmentally sustainable mechanisms, without adverse impact on local communities or existing resources.

6. That the contents of paragraph 6 pertain to waste generation and pollution attributable to the project. It is submitted that all strategies for mitigation of potential environmental impacts have already been comprehensively outlined. In particular, reliance is placed on the comments of the Regional Officer, H.P. State Pollution Control Board, Una, conveyed *vide* office letter No. HPSPCB/RO/Una/OA No. 148 of 2025/2025-1107 dated 26.07.2025, annexed herewith as **Annexure – R15**. Further, as per the draft EIA Report, the Project Proponent has proposed to

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establish scientifically validated pollution control measures to ensure effective management and mitigation of any potential environmental impacts. These measures include, inter alia, the following:

A. **Water Pollution Control Measures:** Common Effluent Treatment Plant (CETP): A CETP of 5 MLD has been proposed for treating industrial effluents from the API manufacturing units. The treated effluent will be reused for non-potable purposes such as cooling, landscaping and horticulture within Bulk Drug Park thereby reducing freshwater dependency and mitigating risk to groundwater.

B. Further, a Hazardous Waste Management and Treatment Facility with an annual capacity of 50,000 MT is proposed to scientifically treat and dispose of hazardous and domestic wastewater generated from residential and ancillary facilities. The treated water will be reused for flushing and gardening, promoting circular water use and aligning with the constitutional mandate under Article 21 (Right to Clean Environment), Article 48A (State's duty to protect environment), and Article 51A(g) (Fundamental duty of citizens to safeguard natural resources).

C. **Air Pollution Control Measures:**

**Boilers:** It is submitted that 6 (six) industrial multifuel boilers, proposed to be operated on rice husk, shall be equipped with Electrostatic Precipitators (ESPs), which are established and widely adopted air pollution control devices, thereby ensuring compliance with prescribed emission standards.

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**Incinerators:** It is further submitted that 4 (four) incinerators, proposed to be operated using HSD/CNG/LPG, shall be equipped with wet scrubbers to ensure effective control of emissions and adherence to prescribed environmental standards.

**Process Reactors:** Each of the 80 process reactors shall be equipped with wet scrubbers as air pollution control devices, thereby ensuring effective management of gaseous pollutants generated from chemical processes.

**DG Sets:** 2 silent DG sets (1000 KVA each) will be installed with acoustic enclosures and stacks of adequate height to mitigate noise and air emissions.

**D. Waste Management:**

**Solid Waste:** Solid waste generation is estimated at 0.6 TPD during the construction phase and 8.8 TPD during the operational phase. The waste shall be segregated at source into biodegradable and non-biodegradable fractions. Biodegradable waste will be composted on-site, while recyclable waste will be disposed of through authorized vendors, strictly in compliance with the Solid Waste Management Rules, 2016.

**Hazardous Waste:** At full operational capacity, the Bulk Drug Park is expected to generate approximately 700–800 TPD of hazardous waste. Of this, about 10–12 TPD will fall under the storage-able category (such as CETP sludge and MEE residue), while the remaining quantity will be incinerable or co-processable. To address this, the Project Proponent has proposed the establishment of an integrated

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Treatment, Storage and Disposal Facility (TSDF) comprising a secured landfill and incinerator over an area of 33.6 acres within the project site. A separate detailed proposal for the TSDF shall be submitted in accordance with the requirements of the EIA Notification, 2006.

**Biomedical Waste:** The proposed dispensary and Research Institute for Pharmaceutical Advancement are expected to generate approximately 4–5 kg/day of biomedical waste. The same shall be disposed of through an authorized Common Bio-Medical Waste Treatment Facility, strictly in accordance with the Bio-Medical Waste Management Rules, 2016. The pollution control measures proposed by the Project Proponent are scientifically validated, technically feasible, and in full alignment with national regulatory frameworks. The State Pollution Control Board will ensure strict implementation and continuous monitoring of these measures through inspections and sampling. Any violation of environmental law shall be dealt with strictly under the provisions of the Environment (Protection) Act, 1986, and penalties shall be imposed in terms of the "*Polluter Pays Principle*" as per CPCB/SPCB guidelines. It is further submitted that the strategies outlined in the EIA Report comprise proven technologies already successfully adopted in industrial parks across the country.

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In this regard, it is pertinent to submit that the Environmental Impact Assessment (EIA) Report prepared for the Bulk Drug Park has duly assessed the likely impacts relating to waste generation,

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air emissions, and water pollution, and has outlined comprehensive mitigation measures in conformity with the Terms of Reference (ToR) prescribed by the Ministry of Environment, Forest and Climate Change (MoEF&CC). It is further submitted that adequate strategies and scientifically proven mechanisms for waste management, air pollution control, and water pollution mitigation have been incorporated into the project design through Common Infrastructure Facilities, as detailed hereinabove. Accordingly, the plea raised by the Applicant is without cogent proof, contrary to record, and unsustainable in law.

7. That the contents of paragraph 7, alleging threat to forest and wildlife species including Schedule I species under the Wildlife (Protection) Act, 1972, baseless, without any merit and denied. The land on which the Bulk Drug Park Project is proposed to be established is not a forest land. While the reserve forest Polian (Una Forest Division) is situated adjacent to the proposed site, notably, no part of this or any other forest area is involved in the Project. The nearest protected areas, namely the Eco-Sensitive Zone of Pong Dam Wildlife Sanctuary and the Dhauladhar Wildlife Sanctuary, are situated at distances of 80 km and 140 km (approx.) respectively, as confirmed by letter No. 6086 dated 21.09.2020 issued by the Divisional Forest Officer, Una, also annexed herewith as **Annexure – R23**. In view of the proximity of the Polian Reserve Forest, it was recommended that a Wildlife Conservation Plan be prepared to ensure minimal disturbance to biodiversity and ecology. Thus, the District Forest Officer, Una, has accordingly prepared and submitted such a Plan, which is presently under consideration by the Competent Authority.

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8. That while the averments in paragraph 8 pertain to general observations regarding healthcare infrastructure in Una, the same are not relevant to the present Project. Without prejudice, it is submitted that a comprehensive Health Risk Analysis, including sensitivity assessments relating to potential long-term exposure to contaminants from the operations of the Bulk Drug Park, was duly conducted and incorporated in the final project proposal submitted to the Department of Pharmaceuticals, Government of India, in 2022, a copy of which is annexed herewith as **Annexure–R10**. To effectively mitigate risks such as chemical exposure, fire, explosion, gas hazards, and water contamination, the Bulk Drug Park has been designed with state-of-the-art safety and environmental infrastructure, including *inter alia* the following:

- A dedicated Emergency Response Centre (ERC), operational 24/7, to handle any unforeseen incidents promptly and efficiently.
- Regular fire and safety audits, establishment of fire stations within the Park, and mandatory hazardous operations audit certifications for all operational units.
- A Zero Liquid Discharge (ZLD) Common Effluent Treatment Plant (CETP) to ensure that no untreated effluent or hazardous waste is released into the environment.
- Hazardous Solid Waste Management facilities to scientifically and safely dispose of chemical and other hazardous wastes, thereby preventing any adverse impact on human health and the environment.
- A Safety and Hazardous Operations Audit Centre for continuous monitoring of plant safety and compliance.

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- Regular health check-ups, exposure monitoring, and ambient/water quality assessments to protect both the workforce and the surrounding communities.

Further, it is submitted that the Employees' State Insurance Corporation (ESIC), Ministry of Labour & Employment, Government of India, has recently sanctioned a 30-bedded ESIC Hospital, extendable up to 100 beds, for the Bathu–Bathri–Tahliwal Industrial Corridor, District Una, located approximately 7 km from the project site. The said hospital has been strategically located in close proximity to the industrial cluster and the Bulk Drug Park, thereby ensuring timely access to medical care for both workers and nearby residents. It is further submitted, as per the report of the Chief Medical Officer, District Una (**Annexure–R24**), that Una District is well-equipped to manage both routine and emergency healthcare needs. The District Hospital, Una, is a 200-bedded facility with emergency services, diagnostic facilities, and specialist support. Additionally, a 100-bedded Maternal and Child Health Care Centre is fully operational, while a 50-bedded Critical Care Block is under construction at the District Hospital, Una, to further augment healthcare delivery and emergency response capacity.

Further, Civil Hospitals at Haroli, Amb, Gagret, Bangana, and Shri Chintpurni, together with 10 Community Health Centres (CHCs), 24 Primary Health Centres (PHCs), and multiple Health and Wellness Centres (HWCs) under the Ayushman Arogya Mandir initiative, are already providing essential services including deliveries, basic emergency care, and referral stabilization. Cases requiring advanced super-specialty care are appropriately referred

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to premier tertiary centres such as PGIMER, Chandigarh, and AIIMS, Bilaspur, in line with standard protocols across the State. Comparisons with other industrial areas, such as Baddi–Barotiwala–Nalagarh, are misplaced and contextually irrelevant, as healthcare preparedness in Una District is aligned with both present and projected requirements. In this context, it is also pertinent to mention that the Postgraduate Institute of Medical Education and Research (PGIMER) Satellite Centre at Una functions under the administrative control of PGIMER, Chandigarh, one of the premier institutes of the country (**Annexure–R24**). The District continues to remain committed to strengthening healthcare infrastructure and services to meet evolving needs, as further evidenced by letter No. HFW-Una (Court Case)/2025-9251 dated 01.08.2025, annexed herewith as **Annexure – R24.**

9. The contents of Paragraph 9 regarding the allegations of inadequacy or uncertainty of power supply for the upcoming Bulk Drug Park Project are denied as incorrect, misleading, and factually unsustainable. It is submitted that the State of Himachal Pradesh possesses abundant water resources which form the basis for large-scale hydroelectric power generation, adequately meeting the State's energy requirements. Presently, Himachal Pradesh accounts for approximately 25% of the national potential for hydroelectric power, estimated at 24,000 MW, of which only 11,290 MW has been harnessed to date, clearly reflecting surplus power availability in the State. A copy of the official record evidencing the same is annexed herewith as **Annexure–R25**. To meet the projected power requirement of 120 MW for the Bulk Drug Park, the following mechanism has been formulated:

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A. **On-Site Power Generation:** The Park will have a Steam Generation and Distribution System, comprising two 50 TPH AFBC multifuel boilers and four 50 TPH multifuel boilers, designed to generate high-pressure steam, which will be utilized to produce approximately 36 MW of captive power.

B. **Solar Power Integration:** A solar power plant with a capacity of 25 MW has been within the Park premises to supplement the energy requirement and promote renewable energy usage.

C. **Grid Connectivity:**

- Construction of a 10 MVA power supply line through upgradation of existing infrastructure by Himachal Pradesh State Electricity Board Limited (HPSEBL), which is presently in progress.

- Additionally, Himachal Pradesh Power Transmission Corporation Limited (HPPTCL) is in the process of providing a dedicated 25 MVA power supply to the Park.

- A No Objection Certificate has been obtained from the Bhakra Beas Management Board (BBMB) for tapping 50 MVA power from the existing Bhakra–Jamalpur KV line. For this purpose, a 220/132 KV sub-station of 100 MVA capacity is being established at Tahliwal (Gurplah) by HPPTCL.

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- In addition, a proposal has been considered for the construction of a new 220/132 KV, 2×100 MVA sub-station at Pekhubela, with Double Circuit input from the 220 KV Bus Bar at Nehrian. The proposed Pekhubela sub-station is situated at a distance of approximately 9 km from the project site.

Hence, as per inputs provided by the Power Department of the State, the total addition of power infrastructure capacity in Una District will be approximately 250 MVA. To cater to the Bulk Drug Park's anticipated long-term load of 100–120 MVA, proposed to be developed in multiple phases, it is envisaged to install five 33/11 KV substations (each of 2×10 MVA) alongside a 132/33/11 KV sub-station (3×50 MVA) within the BDP premises. These facilities will be energized through the new upstream 220/132 KV Sub-Station at Pekhubela. For the initial construction load, augmentation of existing infrastructure has already been undertaken, including the upgradation of the 2×6.3 MVA 33/11 KV Sub-Station at Gondpur Bulla to 2×10 MVA capacity. Additionally, a new 132/33 KV 25/31.5 MVA Power Transformer is under installation at the 132/33/11 KV Sub-Station, Tahliwal (Gurplah). A copy of the communication of the Power Department vide letter No. 264/CB/Court Case/2025-26-2033-34 dated 21.07.2025 is annexed herewith as **Annexure–R26**.

In summary, the projected load requirement of the Bulk Drug Park is around 100–120 MVA, whereas the proposed capacity enhancement in Una District stands at approximately 200–250 MVA. The balance capacity of 120–130 MVA shall be available to meet additional commercial and residential requirements of the

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District. The establishment of one 132/33/11 KV sub-station together with five 33/11 KV substations within the BDP premises, coupled with augmentation of existing infrastructure, will fully accommodate the Park's demand without compromising the present or future power needs of Una District.

In view of the detailed submissions made hereinabove, it is respectfully submitted that the application has been instituted on false, frivolous, and untenable grounds and is devoid of merit. The same deserves to be dismissed with exemplary costs, to deter the filing of such frivolous applications in the future, in the interest of justice and law.

Addl. Cheif Executive Officer
H.P. Bulk Drug Park Infrastructure Ltd.
Head Office : Majitha House, Shimla-2

Vaibhav Srivastava
Advocate for Respondent No.2

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Oath Commissioner

**BEFORE THE HON'BLE NATIONAL GREEN TRIBUNAL, PRINCIPAL BENCH, NEW DELHI**

O.A. No. 148/2025

IN THE MATTER OF:-

Rohit Singh ..... Applicant

Versus

Ministry of Environment Forest & Climate Change & Ors. ...Respondents

**AFFIDAVIT IN SUPPORT OF DETAILED REPLY- BY RESPONDENT NO. 2:**

I, Tilak Raj Sharma, S/o Sh. Braham Dass, aged 55 years, presently posted as Additional CEO-cum-Coordinator, HPBDPIL-cum-Addl. Director of Industries, Himachal Pradesh, Majitha House, Near H.P. Secretariat, Chotta Shimla-171002, do hereby solemnly affirm and declare as under:-

1. That I am functioning as Additional CEO-cum-Coordinator, HPBDPIL-cum-Addl. Director of Industries, Himachal Pradesh, and I have been arranged as one of the respondents of the above noted case in the capacity of Addl.-CEO-cum-Coordinator, HPBDPIL and being so I am fully conversant with the facts and circumstances of the case and I am competent to swear and state in evidence by way of the affidavit.

2. That the accompanying detailed reply is drafted under my instructions and instance, based on my personal knowledge under official capacity and official record, being an officer of the State Government. The averments made in the reply are to be treated the part and parcel of this affidavit and the same are not being repeated here for the sake of brevity.

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Advocate
Oath Commissioner

**Deponent**

Addl. Chief Executive Officer
H.P. Bulk Drug Park Infrastructure Ltd.
Head Office : Majitha House, Shimla-2

Identified by

**Verification**

I, the above-named deponent herein verify on this 28 day of August, 2025 that the contents of the all the paras of the above-mentioned affidavit are true and correct to the best of my knowledge derived from the official records and nothing material has been concealed therein.

ATTESTED

Advocate
Oath Commissioner

**Deponent**

Addl. Chief Executive Officer
H.P. Bulk Drug Park Infrastructure Ltd.
Head Office : Majitha House, Shimla-2

Certified that the above/overleaf was declared before me on solemn affirmation on this 28 day of Aug 2025 at District Shimla by Sh. Balak Ram Sharma who was Identified by Sh. Tarun Sen who is personally known to me and the contents of the above affidavit have been read over & explained to the deponent in vernacular who admitted them to be correct and true at the time of making there of.

Advocate
Oath Commissioner
H.P. High Court, Shimla

All Cutting and Corrections are Attested by me

28/08/25

Oath Commissioner

OATH COMMISSIONER
Pankaj Choudhri
Advocate
H.P. High Court

-30

Annexure R1
Annexure R1.

PS HAROLI DISTT UNA (HP)

(FIR REGISTRATION TIME 10.48 PM DATED-02.07.2025)

FIR No:- 112/25 DATED 02.07.2025 U/S 23(a),353(1)(b) BNS & 54 DISASTER MANAGEMENT ACT

Complainant- Anshul Dhiman Joint Director, Industries, District Industries Centre, Una District Una, H.P.Phone: 01975-223002

Against:- Mr. Rohit Katwal S/o Sh. K. P. Singh R/o Vasant Vihar, Rakkar Colony, Una, H.P.

□□□ □□□□□□ □□□ □□□-No.: Ind/U/Dev/BDP/986 Office of the Joint Director (Industries), District Industries Centre, Una, H.P. Dated: Una, the 30TH June, 2025 To The Superintendent of Police,Una, District Una, H.P. Subject:- Request for Filing FIR Against Mr. Rohit Katwal S/o Sh. K. P. Singh R/o Vasant Vihar, Rakkar Colony, Una, H.P. for Circulating Malicious and False Campaigns Against the Bulk Drug Park Project Under Section 152, 353(2) of BNS and Section 69A/B of Information and Technology Act. Sir It is respectfully submitted that one self styled self-styled social media activist namely Rohit Katwal S/o Sh. K. P. Singh R/O Vasant Vihar, Rakkar Colony, Una, H.P. is intentionally spreading misinformation and carrying out a malicious campaign against the Bulk Drug Park Project which is a project of national importance and is being developed jointly by Government of India and Government of Himachal Pradesh with a total project outlay of Rs.1923 Cr. in Tehsil Haroli, District Una. Also despite having complete ban on the drone flying activities by the central and state government, he is still carrying illegal drone flying activities continuously over and around places of national interest like industrial belts of Haroli, Tahliwala, Bulk Drug Park site. He is carrying these activities in contravention to the instruction issued by the Chairman-DDMA-cum District Magistrate, Una vide office order No. 655-661/DRO/Relief-DDMA dated 10.06.2025 (Copy Attached) as well as the provisions laid in "The Drone Rules, 2021." All these videos are available on his various social media sites like facebook.The brief history of the project and various measures initiated by government to implement the project in a scientific manner to mitigate the environmental concerns are as under:1. That this Bulk Drug Park (BDP) project is of National Importance, sanctioned under the Government of India's Bulk Drug Parks Scheme, jointly funded by the Central Government and the Government of Himachal Pradesh with a total project outlay of Rs.1923 cr. (Copy of sanction order of Government of India are enclosed of Annexure-I) The Project is aimed at promoting self-reliance in the pharmaceutical sector, generating large-scale employment for the youth of the State, and significantly contributing to local and national revenue. It is pertinent to highlight that Himachal Pradesh occupies pivotal position in India's pharmaceutical ecosystem, the state is home to more than 600 pharmaceutical units, which contributes approximately 45% of Northern India's pharma

exports, thereby reflecting it's economic and strategic importance. The annual API demand of Himachal Pharma Industry is Rs. 40,000 Cr approximately and 60% of this demand is met through imports from China. 2. That the Project, was secured by the State of Himachal Pradesh through an extremely competitive and rigorous bidding process conducted by the Department of Pharmaceuticals Ministry of Chemicals and Fertilizers, Government of India, under the centrally sponsored Scheme for Promotion of Bulk Drug Parks (here in after referred to as scheme). The scheme was launched to reduce India's dependence on imports for key raw materials in the pharmaceutical sector and to promote indigenous manufacturing (copy of guidelines for inviting bids from State by Government of India are enclosed at Annexure-II). It is pertinent to highlight that Himachal Pradesh occupies pivotal position in India's pharmaceutical ecosystem. The state is home to more than 600 pharmaceutical units, which contributes approximately 45% of Northern India's pharma exports, thereby reflecting its economic and strategic importance. The annual API demand of Himachal Pharma industry is Rs. 40000 Cr approximately and 60% of this demand is met through imports from China. The upcoming Bulk Drug Park at Una will not only reduce the dependency on imports from China but also bring investment of Rs 10,000 Cr in Himachal Pradesh and potential direct and indirect employment opportunities to around 25,000 persons. 3. That as per the scheme guidelines, only three states across the country were to be selected for the establishment of bulk drug parks, each eligible for substantial financial assistance from the Union Government in the form of grant-in-aid up to 1,000 crore. In response to this, more than a dozen states submitted Detailed Project Reports (hereinafter referred to as DPR's) and proposals outlining technical feasibility, environmental compliance, land availability, connectivity and long-term viability.4. That State of Himachal Pradesh, through its Department of Industries, prepared and submitted an exhaustive and meticulously planned bid, backed by a dedicated task force was formed by the State Government to coordinate with various departments, secure inter-ministerial approvals, identify suitable land parcels, and align state industrial policy with national pharmaceutical goals. The proposed site at Haroli in Una district was chosen due to its proximity to the Baddi-Barotiwala-Nalagarh pharmaceutical hub, access to road and rail connectivity, and availability of utilities and infrastructure.5. That despite being a relatively smaller state with resource constraints, Himachal Pradesh faced stiff competition from larger states like Gujarat, Maharashtra, Andhra Pradesh, and Tamil Nadu, which also submitted technically robust proposals. It was only through persistent advocacy, transparent inter-departmental coordination, and adherence to environmental norms and central guidelines as envisaged by the officers under the aegis of the executive of the state that Himachal Pradesh emerged as a winner in this nationwide contest.6. That the successful awarding of the Bulk Drug Park to Himachal Pradesh stands as a testament to the vision and administrative commitment of the State Government, and reflects its long-standing reputation as a hub

for pharmaceutical manufacturing. It is a matter of great pride for the people of Himachal Pradesh, as the Project is poised to generate significant employment, attract large-scale investments, and solidify the State's position in the national pharmaceutical value chain.7. That this self-styled social media "influencer" operating under the handles We Are Himachal on Facebook, Instagram and Youtube, has past some time is continuosly uploading and circulating multiple false, misleading, and malicious statements, videos, and social media posts targeting the said Project, without any factual or legal basis (various such media posts links are detailed hereinafter and soft copies in pen drive are also enclosed for ready reference).8. That this person has falsely alleged, inter alia, that the Bulk Drug Park will cause irreparable environmental harm, displace local populations, will cause dangerous diseases like cancer amongst local population and that the project is mired in corruption, all of which are patently untrue, unverified, and aimed at creating public unrest and undermining public trust in a legitimate state initiative. Moreover, this person has no legal or technical authority to raise such baseless issues. 9. That the acts of this person are malicious, unverified, presumptive in nature and intended to spread misinformation to mislead the general public and provoke local dissent, which poses a grave risk to the execution and acceptance of the said project. In one of the videos, he can be actually seen instigating the local population to raise an agitation against this project. 10. That such misinformation campaigns pose a serious threat to public order, investor confidence, inter-governmental collaboration, and the smooth execution of the Project, and may result in disruption of law and order, loss of employment opportunities, and damage to the State's economic interests. 11. That such misinformation, if not immediately curtailed, is likely to delay or derail a project of critical importance to the economic and social development of the region and the nation, and also poses a threat to law and order by inciting unwarranted protest or obstruction. That this person, without seeking any clarification or verification from the government or any competent authority, has deliberately and recklessly disseminated such content, with the intention to mislead the general public and obstruct a project of strategic national importance.12. That this person has no locus standi, no technical or administrative expertise, nor any legal authority to comment authoritatively or factually on the project and has failed to verify facts with any government department before making such public statements. That the false propaganda material and baseless and false allegations through these video posts remains in circulation and accessible in the public. In addition, he has also flown drones to record the project site in violation of the guidelines issued by state and central government 13. That the state government is well aware of its role as a guardian of the environment and sensitive to the environmental issues and is taking all the effective steps to address the concerns as per the procedures laid down by different departments which are as under:-a. In order to address the issue of water pollution, the State Government propose to set up a 5MLD Zero Liquid Discharge, Effluent Treatment Plant

in accordance with the provisions laid down by HP State Pollution Control Board (HPPCB), Central Pollution Control Board (CPCB) and Ministry of Environment, Forest and Climate Change, Government of India. This will be a Zero Liquid Discharge (ZLD) Plant and even after treatment of water, no liquid shall be discharged in open. The CETP will be constructed and operated in strict compliance to the guidelines stipulated by Himachal Pradesh Pollution Control Board. The tenders for this project amounting to Rs. 284.43 Cr. have already been floated (copy of advertisement is enclosed at Annexure-III). b. In order to deal with the solid waste, which will be generated from the project, a Treatment, Storage and Disposal facility (TSDF) will be set-up for treatment, storage and disposal of the solid waste with an annual capacity of 50,000 MT per annum. This TSDF shall also be operated in strict compliance to the guidelines and norms as laid by State Pollution Control Board and Central Pollution Control Board. This facility will ensure that no solid waste is disposed in the open and treated and disposed off in scientific manner to avoid any damage to environment. The tender amounting to Rs.55 Cr. have already been floated (copy of the advertisement and closed at Annexure-III). c. The process of obtaining environment clearance for the project is in advanced stage. Public hearing for the same has been conducted on 20-11-2024. Proper publicity prior to public hearing was made through local newspapers (including one in the local vernacular language) at least 30 days in advance. In addition, proper drum beating publicity was also made in the local area by HPPCB (Copies of the advertisement for public hearing are enclosed at Annex-IV). d. Some observations have been raised by Ministry of Environment and Forest (MoEF). Government of India, which are being addressed to and Environmental Clearance is likely to be issued in near future by Ministry of Environment, Forest and Climate Change, Government of India. In addition, as suggested in the terms of reference for Environment Clearance, State Government will further undertake following steps broadly to safeguard environment:- Plantation of trees to the ratio 1:10 in lieu of felled tree. Maintaining a green corridor of 15 meters on the periphery of the project to maintain and develop green cover. Proper measures shall be undertaken for water and Soil Conservation in consultation with reputed Institutions like National Institute of Technology, Hamirpur, Central Building Research Institute and Indian Council of Agricultural Research as well as for preservation of green cover in consultation with State Forest Department. The State Government is preparing a comprehensive soil and water conservation plan to safeguard the environment. State Government is committed to ensure that no harm is caused to the environment by way of implementation of this project through the above listed measures. This project will also be implemented under strict guidance and as per statutory requirements of Central and State government authorities. It is therefore evident the state is committed and taking all effective measures to mitigate any negative impact to the environment and all the allegations of this social activist are imaginary, unfound and baseless, and are merely an attempt to get cheap publicity by spreading

canards about the project. The links to the objectionable and misleading videos uploaded by Mr. Rohit Katwal are as follows:

| S. No. | Platform | Name of Handle | Video Link |
|---|---|---|---|
| 1. | Facebook | We Are Himachal | https://www.facebook.com/weare himachal.official?mibextid=wwX Ifr&mibextid=wwXIfr<br>https://www.facebook.com/share/r/1C9kvQB 8sS/?mibextid=wwXIfr<br>https://www.facebook.com/wearehimachal.of ficial?mibextid=wwXIfr&mibextid=wwXIfr<br>https://www.facebook.com/share/r/1B8wPuh Kcn/?mibextid=wwXIfr<br>https://www.facebook.com/share/r/1C5W63f NMg/?mibextid=wwXIfr |
| 2. | Instagram | wearehimachal | https://www.instagram.com/wearehimachal?igsh=dD13bDJkaDAxO XZ6<br>https://www.instagram.com/reel/DLM1isTR5 id/?igsh=cWpnOTBrMGp3ZmY=<br>https://www.instagram.com/reel/D18oFG_vtJD/?igsh=bzFxcjUwcXFoZ3h6<br>https://www.instagram.com/reel/DKMoOHWvMoK/?igsh=MWNudW5xMmJ3cTFkcA== |
| 3. | YouTube | We Are himachal<br>@wearehimachal | https://youtube.com/@wearehimachal?si-sdNs1KNIzoSPK4CM<br>https://youtube.com/shorts/v2qQbw0n8ul?Si=KpC-mLhMXKsr 1 kDa<br>https://youtube.com/shorts/G9oqEkgYspc?si =Ey4XqsWHZXuvF7TN |

https://youtube.com/shorts/B4xNgvSeMr8? si=lauUx6gOOUvxLApK

https://youtube.com/shorts/boQtTStokC4?si=F4l2bkXV1-fxKv6J

This malicious activity will not only create unwarranted public unrest but will also hamper the pace of project implementation. Such acts fall under the ambit of cyber defamation, misinformation, and public mischief, and are punishable under relevant Act. Therefore, it is earnestly requested that an FIR may kindly be registered against Mr. Rohit Katwal at the earliest and strict legal action may be initiated to prevent further spread of this misinformation against the project. Yours Faithfully sd/-English (Anshul Dhiman) Joint Director, Industries, District Industries Centre, Una District Una, H.P.Phone: 01975-223002 Endst No: As above Copy to :-1. The Director of Industries, Himachal Pradesh, Majitha House, Shimla -171002. Joint Director, Industries, District Industries Centre, Una District Una, H.P.Phone: 01975-223002 □□□□□□□□□ □□□□□□-□□□□ □□□□ □□□□□□-□□□□ □□ □□□□ □ □□□□ □□□□ □□□□□□□□ □□□□ □□□ □□ □□□□□ □□□□□□-□□□□ □□ □□□□□ □□□□□□□ MR. ROHIT KATWAL S/O SH. K. P. SINGH R/O VASANT VIHAR, RAKKAR COLONY, UNA, H.P.□□□□□□□ □□□□□ □□□ □□□□ U/S 223(a),353(1)(b) BNS & 54 DISASTER MANAGEMENT ACT □□ □□□□ □□□ □□□ □□□□ □□□□ □□ □□□□□□ □□□□□□□ □ □□□□□ □□□□□ □□□□ □□□□□□□ □□□□ □□□□ □□□ □ □□□□□□□ □ □□□□□ □□□□□ □□□□ □□□□□□□ □□□□ □□□□ □□□ □ NAME OF I/O- SI □□□□ □□□□ I/O □□□□□ □□□□ □□□□□ □□□□ □□□ (□□0□□□□0)

Accused Arrested - nil

रजिस्ट्री सं. डी.एल.- 33004/99

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भारत का राजपत्र
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भाग I—खण्ड 1
PART I—Section 1

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## उर्वरक और रसायन मंत्रालय

## (औषध विभाग)

## अधिसूचना

नई दिल्ली, 21 जुलाई, 2020

**विषयः- भारत में महत्वपूर्ण बुनियादी प्रारंभिक सामग्री (केएसएम)/ड्रग इन्टरमीडिएट (डीआई) और सक्रिय फार्मास्यूटिकल्स सामग्री (एपीआई) के घरेलू विनिर्माण को बढ़ावा देने के लिए उत्पादन लिंक्ड प्रोत्साहन (पीएलआई) योजना।**

**सं. 31026/16/2020-पॉलिसी.—1. पृष्ठभूमि**

1.1. देश में स्वास्थ्य सेवा प्रदान करने में दवाइयां एक मुख्य भूमिका निभाती हैं। नागरिकों को वहनीय स्वास्थ्य सेवा प्रदान करना सुनिश्चित करने के लिए दवाइयों की निरन्तर आपूर्ति आवश्यक है। दवाइयों की आपूर्ति में कोई व्यवधान देश की औषध सुरक्षा पर महत्वपूर्ण प्रतिकूल प्रभाव डाल सकता है।

1.2. भारतीय दवा उद्योग मात्रा के हिसाब से दुनिया में तीसरा और मूल्य के मामले में 14वां सबसे बड़ा उद्योग है। भारत वैश्विक स्तर पर निर्यात की जाने वाली कुल ड्रग्स और दवाइयों का 3.5 प्रतिशत योगदान देता है। तथापि, इन उपलब्धियों के बावजूद, भारत कुछ बुनियादी कच्चे माल, अर्थात् बल्क दवाइयों के आयात पर बहुत हद तक निर्भर है, जिनका उपयोग तैयार खुराक फॉर्मूलेशनों के विनिर्माण में किया जाता है। भारत आर्थिक दृष्टि से बड़े पैमाने पर बल्क दवाइयां आयात करता है। वित्तीय वर्ष 2018-2019 के दौरान देश में कुल औषधीय आयातों में से 63 प्रतिशत बल्क दवाइयां हैं।

1.3. औषध विभाग द्वारा गठित दवा सुरक्षा पर एक समिति ने देश में आयातित एपीआई के विवरणों को मिलाया और 53 एपीआई की पहचान की, जिसके लिए देश आयात पर बहुत अधिक निर्भर है। ऐसे एपीआई की सूची **अनुलग्नक-क** पर दी गई है।

1.4. देश की औषध सुरक्षा गुणवत्तापूर्ण बल्क दवाइयों की अबाधित आपूर्ति सुनिश्चित करने और आपातकालीन स्थितियों से निपटने के लिए उनकी विनिर्माण क्षमता को अपग्रेड करने की हमारी क्षमता पर निर्भर करती है। इसलिए दवाइयों के विनिर्माण में आत्मनिर्भरता अत्यधिक वांछनीय है।

1.5. आत्मनिर्भरता प्राप्त करने और महत्वपूर्ण एपीआई में आयात निर्भरता को कम करने के उद्देश्य से, "भारत में महत्वपूर्ण बुनियादी प्रारंभिक सामग्री (केएसएम)/ड्रग इंटरमीडिएट (डीआई) और सक्रिय फार्मास्यूटिकल्स सामग्री (एपीआई) के घरेलू विनिर्माण को बढ़ावा देने के लिए एक उत्पादन लिंक्ड प्रोत्साहन (पीएलआई)" योजना दिनांक 20 मार्च, 2020 को भारत सरकार द्वारा अनुमोदित की गई है।

2. **उद्देश्य:** इस योजना का अभिप्राय महत्वपूर्ण केएसएम/ड्रग इंटरमीडिएट और एपीआई के घरेलू विनिर्माण को बढ़ावा देना है ताकि इस क्षेत्र में बड़े निवेशों को आकर्षित किया जा सके और इस तरह चिन्हित एपीआई में भारत की आयात निर्भरता को कम किया जा सके।

3. **व्यापकता:** योजना के अंतर्गत, 41 उत्पादों के लिए चयनित निर्माताओं द्वारा की गई बिक्री के आधार पर वित्तीय प्रोत्साहन दिया जाएगा। ये 41 उत्पाद जो सभी चिन्हित 53 एपीआई को कवर करतें हैं, अनुलग्नक-**ख** में सूचीबद्ध हैं।

4. **प्रोत्साहन की मात्रा:** इस योजना के तहत वित्तीय प्रोत्साहन नीचे दिए गए दरों पर छह (06) वर्षों के लिए 41 पहचाने गए उत्पादों की बिक्री पर प्रदान किया जाएगा:

4.1. किण्वन आधारित उत्पादों के लिए, वित्तीय वर्ष 2023-24 से वित्तीय वर्ष 2026-27 के लिए प्रोत्साहन 20 प्रतिशत, वित्तीय वर्ष 2027-28 के लिए प्रोत्साहन 15 प्रतिशत और वित्तीय वर्ष 2028-29 के लिए प्रोत्साहन 5 प्रतिशत होगा।

4.2. रासायनिक रूप से संश्लेषण आधारित उत्पादों के लिए, वित्तीय वर्ष 2022-23 से वित्तीय वर्ष 2027-28 के लिए प्रोत्साहन 10 प्रतिशत होगा।

5. **लक्ष्य क्षेत्र:** 41 उत्पादों को कवर करते हुए चार लक्ष्य क्षेत्र **अनुलग्नक-ख** में सूचीबद्ध हैं।

6. **अनुप्रयोज्यता:** योजना केवल ग्रीनफील्ड परियोजना के लिए लागू है।

7. **पात्रता:**

7.1. योजना के तहत सहायता केवल भारत में पंजीकृत महत्वपूर्ण केएसएम/डीआई और एपीआई के विनिर्माताओं को प्रदान की जाएगी।

7.2. पात्रता **अनुलग्नक-ग** में दिए गए ग्रीनफील्ड परियोजना में सीमा निवेश के अध्यधीन होगी।

7.3. योजना के अंतर्गत पात्रता किसी अन्य योजना के अंतर्गत और इसके विपरीत पात्रता को प्रभावित नहीं करेगी।

8. **योजना का कार्यकाल :** योजना का कार्यकाल वित्तीय वर्ष 2020-21 से वित्तीय वर्ष 2029-30 तक की अवधि के लिए होगा।

9. **आवेदन खिड़की:** आवेदन प्राप्त करने के लिए आवेदन खिड़की 120 दिनों की होगी।

10. **आधार वर्ष:** वित्तीय वर्ष 2019-20 ।

11. **वित्तीय परिव्यय:** योजना का कुल वित्तीय परिव्यय 6940 करोड़ रुपए है।

12. **संगणना का आधार:**विनिर्मित उत्पादों के सीमा निवेश और बिक्री का आकलन विभागों/मंत्रालयों/ एजेंसियों और सांविधिक लेखा परीक्षक प्रमाणपत्रों से सुसज्जित विवरण पर आधारित होगा।

13. **अनुमोदन और संवितरण प्रक्रिया:**

13.1. योजना के अंतर्गत आवेदन भारत में पंजीकृत किसी भी विनिर्माता द्वारा किया जा सकता है।

13.2. सभी पहलुओं में पूर्ण, एक प्रारंभिक आवेदन, आवेदन खिड़की पर जमा करना होगा।

13.3. पात्र आवेदनों का मूल्यांकन किया जाएगा और अनुमोदन के लिए विचार किया जाएगा।

13.4. प्रोत्साहन ऐसे चयनित आवेदकों के लिए जारी किया जाएगा, जो अपेक्षित सीमाएं पूरी करेंगे और जिनके संवितरण दावे क्रम में पाए जाएंगे।

**14. परियोजना प्रबंधन एजेंसी:**

14.1. यह योजना एक नोडल एजेंसी के माध्यम से लागू की जाएगी।

14.2. ऐसी नोडल एजेंसी एक परियोजना प्रबंधन एजेंसी (पीएमए) के रूप में कार्य करेगी और सचिवीय, प्रबंधकीय और कार्यान्वयन सहायता प्रदान करने के लिए उत्तरदायी होगी ।

14.3. पीएमए के विस्तृत गठन, कामकाज और जिम्मेदारियों को योजना के दिशानिर्देशों में विस्तार किया जाएगा।

14.4. योजना के कार्यान्वयन से संबंधित क्रियाकलापों को करने के लिए, पीएमए इसके साथ-साथ निम्नलिखित के लिए भी उत्तरदायी होगा:-

14.4.1. योजना के तहत प्रोत्साहन के लिए आवेदनों का मूल्यांकन और पात्रता का सत्यापन।

14.4.2. योजना के तहत प्रोत्साहन के वितरण के लिए पात्र दावों की जांच।

14.4.3. योजना की प्रगति और प्रदर्शन के संबंध में आंकड़ों का संकलन जिसमें योजना के तहत चयनित आवेदकों की विनिर्मित वस्तुओं का सीमा निवेश और बिक्री शामिल है।

**15. अधिकार प्राप्त समिति (ईसी)**

15.1 योजना के अंतर्गत निम्नलिखित सदस्यों वाली एक अधिकार प्राप्त समिति (ईसी) का गठन किया जाएगा-

i. सीईओ, नीति आयोग, (अध्यक्ष)

ii. सचिव, औषध विभाग

iii. सचिव, रसायन और पेट्रो रसायन विभाग

iv. सचिव, उद्योग और आंतरिक व्यापार संवर्धन विभाग

v. सचिव, वाणिज्य विभाग

vi. सचिव, पर्यावरण, वन और जलवायु परिवर्तन मंत्रालय

vii. सचिव, स्वास्थ्य और परिवार कल्याण विभाग

विशेषज्ञों को विशेष आमंत्रितों के रूप में आमंत्रित किया जा सकता है, जैसा समय-समय पर आवश्यक समझा जाएगा।

15.2. अधिकार प्राप्त समिति की सहायता औषध विभाग द्वारा गठित विशेषज्ञों की एक तकनीकी समिति द्वारा की जाएगी।

15.3. योजना के अंतर्गत अनुमोदन के लिए परियोजना प्रबंधन एजेंसी द्वारा पात्र पाए गए आवेदनों पर अधिकार प्राप्त समिति द्वारा विचार किया जाएगा।

15.4. परियोजना प्रबंधन एजेंसी द्वारा परीक्षित तथा सिफारिश किए गए दावों पर अधिकार प्राप्त समिति विचार करेगी और संवितरण निर्धारित प्रक्रिया तथा मार्गदर्शी सिद्धांतों के अनुसार किया जाएगा।

15.5. अधिकार प्राप्त समिति चयनित आवेदकों की परियोजनाओं की आवधिक समीक्षा करेगी जो योजना के तहत उनके निवेश, रोजगार सृजन, उत्पादन के संबंध में होगा।

15.6. अधिकार प्राप्त समिति प्रोत्साहन दरों, अधिकतम सीमा या पात्र उत्पादों को संशोधित करने के अतिरिक्त योजना तथा दिशा-निर्देशों में किसी भी प्रकार के संशोधन करने के लिए भी प्राधिकृत है।

15.7. योजना के दिशा-निर्देशों में अधिकार प्राप्त समिति के विस्तृत गठन, कार्यप्रणाली और जिम्मेदारियों का विस्तार से उल्लेख किया जाएगा।

16. योजना के विस्तृत दिशानिर्देश विभाग की वेबसाइट पर अपलोड किए जाएंगे।

17. यह अधिसूचना औषध विभाग की इस विषय पर जारी पूर्व अधिसूचना दिनांक 2 जून, 2020 की अधिसूचना संख्या 31026/16/2020-पॉलिसी का अधिक्रमण करती है।

नवदीप रिनवा, संयुक्त सचिव

**अनुलग्नक-क**

**पहचान किए गए उत्पादों की सूची**

| क्र.सं. | उत्पाद का नाम | क्र.सं. | उत्पाद का नाम |
|---|---|---|---|
| 1. | एमोक्सिलिन | 28. | सिप्रोफ्लोक्सासिन |
| 2. | एज़िथ्रोमायसिन | 29. | लोसार्टन |
| 3. | एरिथ्रोमाइसिन स्टीयरेट / एस्टोलेट | 30. | टेल्मिसर्टन |
| 4. | सेफ्ट्रियक्सोने | 31. | आर्टिसुनेट |
| 5. | सेफोपेराजोन | 32. | नॉरफ्लोक्सासिन |
| 6. | सेफीक्सीम | 33. | ओफ़्लॉक्सासिन |
| 7. | सिफ़ालेक्सिन | 34. | मैट्रोनिडाज़ोल |
| 8. | पाइपरसिलिन तज़ोबैक्टम | 35. | सुल्फडिआजिन |
| 9. | सलबैक्टम | 36. | लिवोफ़्लॉक्सासिन |
| 10. | डेक्सामेथासोन | 37. | मेरोपेनम |
| 11. | प्रेडनिसोलोन | 38. | पैरासिटामोल |
| 12. | मेटफोर्मिन | 39. | टिनिडाज़ोल |
| 13. | गाबापेंटिन | 40. | ओरनिडाज़ोल |
| 14. | रिफैम्पिसिन | 41. | रिटोनाविर |
| 15. | विटामिन बी 1 | 42. | डिक्लोफेनाक सोडियम |
| 16. | विटामिन बी 6 | 43. | एस्पिरिन |
| 17. | क्लिंडामाइसिन फॉस्फेट | 44. | लेवेतिराकेटम |
| 18. | क्लिंडामाइसिन एचसीएल | 45. | कार्बीडोपा |
| 19. | स्ट्रेप्टोमाइसिन | 46. | लीवोडोपा |
| 20. | नेओमाइसीन | 47. | कार्बामाज़ेपाइन |
| 21. | जेनटामाइसीन | 48. | ओक्स्कार्बज़ेपिंन |
| 22. | डॉक्सीसाइक्लिन | 49. | वाल्सर्टन |
| 23. | पोटेशियम कलाउलनते | 50. | ओल्मेसार्टन |
| 24. | ऑक्सिटेट्रासायक्लीन | 51. | एटोरवास्टेटिन |
| 25. | टेट्रासाइक्लिन | 52. | ऐसीक्लोविर |
| 26. | क्लैरीथ्रोमायसिन | 53. | लोपिनाविर |
| 27. | बेटामेथासोन | | |

**अनुलग्नक-ख**

**लक्ष्य क्षेत्र**

**I. किण्वन आधारित केएसएम/ड्रग इंटरमीडिएट**

1. पेनिसिलिन जी
2. 7-एसीए
3. इरीथ्रोमाइसीन थीओसीएनटे/टीआईओसी
4. क्लाउलनिक एसिड

**II. किण्वन आधारित आला केएसएम/ ड्रग इंटरमीडिएट**

5. नियोमाइसिन
6. जेंटामाइसिन
7. बेटामेथासोन
8. डेक्सामेथासोन
9. प्रेडनिसोलोन
10. रिफैम्पिसिन
11. विटामिन बी1
12. क्लींडामाइसिन बेस
13. स्ट्रेप्टोमाइसिन
14. टेट्रासाइक्लिन

**III. महत्वपूर्ण रासायनिक संश्लेषण पर आधारित केएसएम/ ड्रग इंटरमीडिएट**

15. 1,1 साइक्लोहेक्सेन डायएसेटिक एसिड (सीडीए)
16. 2-मिथाइल-5निट्रो-इमिडाज़ोल्स (2-एमएनआई)।
17. डाईसिनामाईड (डीसीडीए)
18. पेरा एमिनो फिनोल

**IV. अन्य रासायनिक संश्लेषण पर आधारित केएसएम/ ड्रग इंटरमीडिएट**

19. मेरोपेनम
20. एटोरवास्टेटिन
21. ओल्मेसार्टन
22. वाल्सर्टन
23. लोसटर्न
24. लिवोफ़्लॉक्सासिन
25. सुल्फडिआजिन
26. सिप्रोफ्लोक्सासिन
27. ओफ़्लॉक्सासिन
28. नॉरफ्लोक्सासिन
29. आर्टिसुनेट

30. टेल्मिसर्टन
31. एस्पिरिन
32. डिक्लोफेनाक सोडियम
33. लेवेतिराकेटम
34. कार्बीडोपा
35. निट्रोनाविर
36. लोपिनाविर
37. एसिक्लोवीर
38. कार्बामाज़ेपाइन
39. ओक्स्कार्बज़ेपिंन
40. विटामिन बी6
41. लीवोडोपा

**अनुलग्नक-ग**

**पात्रता सीमा मानदण्ड**

| क्रम सं. | क्षेत्र | सीमा निवेश |
|---|---|---|
| 1 | किण्वन आधारित 04 केएसएम/ड्रग इंटरमीडिएट | 400 करोड रुपये |
| 2 | किण्वन आधारित 10 आला केएसएम/ड्रग इंटरमीडिएट/एपीआई | 50 करोड रुपये |
| 3 | महत्वपूर्ण रासायनिक संश्लेषण आधारित 04 केएसएम/ड्रग इंटरमीडिएट | 50 करोड रुपये |
| 4 | अन्य 23 रासायनिक संश्लेषण आधारित केएसएम/ड्रग इंटरमीडिएट/एपीआई | 20 करोड रुपये |

**MINISTRY OF CHEMICALS AND FERTILIZERS**

**(Department Of Pharmaceuticals)**

**NOTIFICATION**

New Delhi, the 21st July, 2020

**Subject:- Production Linked Incentive (PLI) Scheme for promotion of domestic manufacturing of critical Key Starting Materials (KSMs)/ Drug Intermediates(DIs) and Active Pharmaceutical Ingredients (APIs) In India.**

**No. 31026/16/2020-Policy.—1. Background**

1.1. Drugs play a major role in healthcare delivery in the country. Continuous supply of drugs is necessary to ensure delivery of affordable healthcare to the citizens. Any disruption in supply of drugs can have significant adverse impact on drug security of the country.

1.2. Indian pharmaceutical industry is the 3rd largest in the world by volume and 14th largest in terms of value. India contributes 3.5% of total drugs and medicines exported globally. However, despite these achievements, India is significantly dependent on import of some of the basic raw materials, viz., bulk drugs that are used to produce the finished dosage formulations. India imports bulk drugs largely for economic considerations. Bulk drugs accounted for 63% of the total pharmaceutical imports in the country during FY 2018-19.

1.3. A committee on drug security constituted by the Department of Pharmaceuticals collated the details of APIs imported in the country and identified 53 APIs for which the country is heavily dependent on imports. A list of such APIs is given in **Annexure A.**

1.4. Drug security of the country is dependent upon our ability to ensure un-interrupted supply of quality bulk drugs and also our capacity to upscale their manufacturing to meet emergency situations. Self-reliance in manufacturing of drugs is, therefore, highly desirable.

1.5. With a view to attain self-reliance and reduce import dependence in critical APIs, a scheme called "Production Linked Incentive (PLI) Scheme for promotion of domestic manufacturing of critical Key Starting Materials (KSMs)/ Drug Intermediates (DIs) and Active Pharmaceutical Ingredients (APIs) In India" has been approved by the Government of India on 20th March, 2020.

2. **Objective:** The scheme intends to boost domestic manufacturing of identified KSMs, Drug Intermediates and APIs by attracting large investments in the sector and thereby reduce India's import dependence in critical APIs.

3. **Scope:** Under the Scheme, financial incentives shall be given based on sales made by selected manufacturers for 41 products. These 41 products, which cover all the identified 53 APIs, are listed in **Annexure B.**

4. **Quantum of Incentive:** Financial incentive under the scheme shall be provided on sales of 41 identified products for six (06) years at the rates given below:

4.1. For fermentation based products, incentive for FY 2023-24 to FY 2026-27 would be 20%, incentive for 2027-28 would be 15% and incentive for 2028-29 would be 5%.

4.2. For chemical synthesis based products, incentive for FY 2022-23 to FY 2027-28 would be 10%.

5. **Target Segments:** Four Target Segments covering 41 products are listed in **Annexure B.**

6. **Applicability:** The scheme is applicable only for greenfield projects.

7. **Eligibility**

7.1. Support under the scheme shall be provided only to manufacturers of critical KSMs/DIs and APIs registered in India.

7.2. Eligibility shall be subject to threshold investment in green field projects as given in **Annexure C.**

7.3. Eligibility under the scheme shall not affect eligibility under any other scheme and vice-versa.

8. **Tenure of the Scheme**: The tenure of the scheme is from FY 2020-21 to FY 2029-30.

9. **Application Window:** The application window for receiving the applications shall be 120 days.

10. **Base Year:** Financial Year 2019-20.

11. **Financial Outlay:** Total financial outlay of the scheme is Rs. 6,940 crore.

12. **Basis of Computation:** Assessment of threshold investment and sales of manufactured products shall be based on details furnished to the Departments/Ministries/Agencies and Statutory Auditor certificates.

13. **Approval and Disbursement Process**

13.1. Application under the Scheme can be made by any manufacturer registered in India.

13.2. An initial application, complete in all aspects, shall have to be submitted within the application window.

13.3. Eligible applications will be appraised and considered for selection.

13.4. Incentive shall be released to selected applicants, meeting the required thresholds and whose disbursement claims are found to be in order.

14. **Project Management Agency**

14.1. The Scheme shall be implemented through a Nodal Agency.

14.2. Such Nodal Agency shall act as a Project Management Agency (PMA) and be responsible for providing secretarial, managerial and implementation support.

14.3. Detailed constitution, functioning and responsibilities of the PMA will be elaborated in the Scheme guidelines.

14.4. For carrying out activities related to the implementation of the Scheme, PMA would, inter alia, be responsible for-

14.4.1. Appraisal of applications and verification of eligibility for support under the Scheme.

14.4.2. Examination of claims eligible for disbursement of incentive under the Scheme.

14.4.3. Compilation of data regarding progress and performance of the Scheme including threshold investment and sales of manufactured goods of applicants selected under the Scheme.

15. **Empowered Committee (EC)**

15.1. An Empowered Committee (EC) comprising of following members shall be formed under the Scheme:

CEO, NITI Aayog (Chairman)

Secretary, Department of Pharmaceuticals

Secretary, Department of Chemicals and Petrochemicals

Secretary, Department for Promotion of Industry & Internal Trade

Secretary, Department of Commerce

Secretary, Ministry of Environment, Forest and Climate Change

Secretary, Department of Health & Family Welfare

Experts may be invited as special invitees, as may be felt necessary, from time to time.

15.2. The Empowered Committee will be assisted by a Technical Committee of experts constituted by Department of Pharmaceuticals.

15.3. The EC will consider applications, as found eligible by the PMA, for approval under the Scheme.

15.4. The EC will consider claims, as examined and recommended by the PMA, for disbursement as per the laid down procedure and guidelines.

15.5. The EC will conduct a periodic review of the projects of the selected applicants with respect to their investments, employment generation and production under the Scheme.

15.6. The EC will also be authorized to carry out any amendments in the Scheme and the guidelines except revising the incentive rates, ceilings or eligible products.

15.7. Detailed constitution, functioning and responsibilities of the EC will be elaborated in the Scheme guidelines.

16. The detailed guidelines of the scheme will be uploaded on the website of the Department.

17. This Notification supersedes the earlier Notification of Department of Pharmaceuticals issued on this subject vide Notification No 31026/16/2020-Policy dated 2nd June, 2020.

NAVDEEP RINWA, Jt. Secy.

**Annexure A**

**List of identified products**

| S. No. | Name of the product | S. No. | Name of the product |
|---|---|---|---|
| 1. | Amoxicillin | 28. | Ciprofloxacin |
| 2. | Azithromycin | 29. | Losartan |
| 3. | Erythromycin Stearate/ Estolate | 30. | Telmisartan |
| 4. | Ceftriaxone | 31. | Artesunate |
| 5. | Cefoperazone | 32. | Norfloxacin |
| 6. | Cefixime | 33. | Ofloxacin |
| 7. | Cephalexin | 34. | Metronidazole |
| 8. | Piperacillin Tazobactam | 35. | Sulfadiazine |
| 9. | Sulbactam | 36. | Levofloxacin |
| 10. | Dexamethasone | 37. | Meropenem |
| 11. | Prednisolone | 38. | Paracetamol |
| 12. | Metformin | 39. | Tinidazole |
| 13. | Gabapentin | 40. | Ornidazole |
| 14. | Rifampicin | 41. | Ritonavir |
| 15. | Vitamin B1 | 42. | Diclofenac Sodium |
| 16. | Vitamin B6 | 43. | Aspirin |
| 17. | Clindamycin Phosphate | 44. | Levetiracetam |
| 18. | Clindamycin HCL | 45. | Carbidopa |
| 19. | Streptomycin | 46. | Levodopa |
| 20. | Neomycin | 47. | Carbamazepine |
| 21. | Gentamycin | 48. | Oxcarbazepine |
| 22. | Doxycycline | 49. | Valsartan |
| 23. | Potassium Clavulanate | 50. | Olmesartan |
| 24. | Oxytetracycline | 51. | Atorvastatin |
| 25. | Tetracycline | 52. | Acyclovir |
| 26. | Clarithromycin | 53. | Lopinavir |
| 27. | Betamethasone | | |

**Annexure B**

**Target Segments**

**I. Fermentation based KSMs/Drug Intermediates**

1. Penicillin G
2. 7-ACA
3. Erythromycin Thiocynate (TIOC)
4. Clavulanic Acid

**II. Fermentation based niche KSMs/Drug Intermediates/APIs**

5. Neomycin
6. Gentamycin

7. Betamethasone
8. Dexamethasone
9. Prednisolone
10. Rifampicin
11. Vitamin B1
12. Clindamycin Base
13. Streptomycin
14. Tetracycline

**III. Key Chemical Synthesis based KSMs/Drug Intermediates**

15. 1,1 Cyclohexane Diacetic Acid (CDA)
16. 2-Methyl-5Nitro-Imidazole (2-MNI)
17. Dicyandiamide (DCDA)
18. Para amino phenol

**IV. Other Chemical Synthesis based KSMs/Drug Intermediates/APIs**

19. Meropenem
20. Atorvastatin
21. Olmesartan
22. Valsartan
23. Losartan
24. Levofloxacin
25. Sulfadiazine
26. Ciprofloxacin
27. Ofloxacin
28. Norfloxacin
29. Artesunate
30. Telmisartan
31. Aspirin
32. Diclofenac Sodium
33. Levetiracetam
34. Carbidopa
35. Ritonavir
36. Lopinavir
37. Acyclovir
38. Carbamazepine
39. Oxcarbazepine
40. Vitamin B6
41. Levodopa

**Annexure C**

**Eligibility Threshold Criteria**

| S. No. | Segment | Threshold Investment |
|---|---|---|
| 1 | Fermentation based 04 KSMs /Drug Intermediates | Rs. 400 crore |
| 2 | Fermentation based 10 niche KSMs / Drug Intermediates / APIs | Rs. 50 crore |
| 3 | Key Chemical Synthesis based 04 KSMs /Drug Intermediates | Rs. 50 crore |
| 4 | Other 23 Chemical Synthesis based KSMs / Drug Intermediates / APIs | Rs. 20 crore |

**अधिसूचना**

नई दिल्ली, 21 जुलाई, 2020

**विषयः- बल्क औषधि पार्कों के संवर्धन के लिए योजना।**

**सं. 31026/16/2020-पॉलिसी.—1. पृष्ठभूमि**

1.1. देश में स्वास्थ्य सेवा प्रदान करने में दवाइयां एक मुख्य भूमिका निभाती हैं। नागरिकों को वहनीय स्वास्थ्य सेवा प्रदान करना सुनिश्चित करने के लिए दवाइयों की निरन्तर आपूर्ति आवश्यक है। दवाइयों की आपूर्ति में कोई व्यवधान देश की औषध सुरक्षा पर महत्वपूर्ण प्रतिकूल प्रभाव डाल सकता है।

1.2. भारतीय दवा उद्योग मात्रा के हिसाब से दुनिया में तीसरा और मूल्य के मामले में 14वां सबसे बड़ा उद्योग है। भारत वैश्विक स्तर पर निर्यात की जाने वाली कुल ड्रग्स और दवाइयों का 3.5 प्रतिशत योगदान देता है। तथापि, इन उपलब्धियों के बावजूद, भारत कुछ बुनियादी कच्चे माल, अर्थात् बल्क दवाइयों के आयात पर बहुत हद तक निर्भर है, जिनका उपयोग तैयार खुराक फॉर्मूलेशनों के विनिर्माण में किया जाता है। भारत आर्थिक दृष्टि से बड़े पैमाने पर बल्क दवाइयां आयात करता है। वित्तीय वर्ष 2018-2019 के दौरान देश में कुल औषधीय आयातों में से 63 प्रतिशत बल्क दवाइयां हैं।

1.3. गुणवत्तायुक्त बल्क औषधियों की अबाधित आपूर्ति सुनिश्चित करने और आपातकालीन स्थितियों के दौरान अपनी विनिर्माण क्षमता को अपग्रेड करने की हमारी क्षमता पर भी औषध क्षेत्र की भावी वृद्धि निर्भर करती है। इसलिए, बल्क औषधियों के विनिर्माण में आत्मनिर्भरता बहुत आवश्यक है।

1.4. बल्क ड्रग्स की विनिर्माण लागत में उल्लेखनीय रूप से कमी लाने के लिए और इस तरह मानक परीक्षण और अवसंरचनात्मक सुविधाओं तक आसान पहुँच प्रदान करके घरेलू बल्क औषधि उद्योग की प्रतिस्पर्धात्मकता को बढ़ावा देने के उद्देश्य से भारत सरकार द्वारा 20 मार्च 2020 को "बल्क औषधि पार्कों का संवर्धन" नामक एक योजना को मंजूरी दी गई है।

**2. उद्देश्य:**

2.1 बल्क औषधियों की विनिर्माण लागत को उल्लेखनीय रूप से कम करने और इसके द्वारा घरेलू बल्क औषधि उद्योग की प्रतिस्पर्धा में वृद्धि करके बल्क औषधियों में भारत को आत्मनिर्भर बनाने के उद्देश्य से, ऐसे पार्कों में स्थित बल्क औषधि इकाइयों को विश्व स्तरीय साझी अवसंरचनात्मक सुविधाओं तक सरल पहुंच प्रदान करने के लिए देश में बल्क औषधि पार्कों की स्थापना को बढ़ावा देना।

2.2 साझी अपशिष्ट प्रबंधन प्रणाली के नवीन पद्धतियों के माध्यम से कम लागत पर पर्यावरण के मानकों की आवश्यकताओं को पूरा करने के लिए उद्योग की सहायता करना।

2.3 संसाधनों के अनुकूलन और बड़े पैमाने की किफायतों के कारण मिलने वाले लाभों का उपयोग करना।

**3. व्यापकता:** राज्य सरकारों द्वारा प्रस्तावित और इस योजना के अन्तर्गत चयनित तीन बल्क औषधि पार्कों में साझी बुनियादी सुविधाओं के सृजन के लिए इस योजना के तहत वित्तीय सहायता प्रदान की जाएगी।

4. **वित्तीय सहायता:** चयनित बल्क औषधि पार्क के लिए वित्तीय सहायता साझी बुनियादी सुविधाओं की परियोजना लागत की 70% होगी। पूर्वोत्तर राज्यों और पहाड़ी राज्यों (हिमाचल प्रदेश, उत्तराखंड, जम्मू और कश्मीर केंद्र शासित प्रदेश और लद्दाख केंद्र शासित प्रदेश) के मामले में यह वित्तीय सहायता परियोजना लागत की 90% होगी। एक बल्क औषधि पार्क के लिए योजना के तहत अधिकतम सहायता 1000 करोड़ रुपये तक सीमित होगी।

5. **साझी अवसंरचनात्मक सुविधाएं:** बल्क औषधि पार्क में अलग-अलग बल्क औषधि इकाइयों को सैंट्रल एफ्लुएंट ट्रीटमेंट प्लांट, सोल्वेंट रिकवरी एवं डिस्टिलेशन प्लांट, स्टीम जेनरेशन एवं डिस्ट्रीब्यूशन प्रणाली, कॉमन कूलिंग सिस्टम एवं डिस्ट्रीब्यूशन नेटवर्क, कॉमन लॉजिस्टिक सुविधाएं, एड्वांस्ड लेबोरेटरी टेस्टिंग सैंटर, एमरजैंसी रेस्पोंस सैंटर, सैंटर फॉर एक्सीलेंस आदि जैसी साझी सुविधाएं प्रदान की जानी हैं।

6. **वित्तीय परिव्यय:** इस योजना का कुल वित्तीय परिव्यय 3,000 करोड़ रुपए है।

7. **योजना की अवधि:** इस योजना की अवधि वर्ष 2020-21 से 2024-25 तक की होगी।

8. **राज्य कार्यान्वयन एजेंसी:**

8.1 इस योजना के अन्तर्गत चयनित एक बल्क औषधि पार्क परियोजना को राज्य कार्यान्वयन एजेन्सी (एसआईए) द्वारा कार्यान्वित किया जाएगा।

8.2 एसआईए बल्क औषधि पार्क परियोजना के कार्यान्वयन के प्रयोजन के लिए संबंधित राज्य सरकार द्वारा गठित एक कानूनी एजेन्सी होगी।

9. **योजना संचालन समिति**

9.1 इस योजना के अन्तर्गत प्रस्तावों को औषध विभाग द्वारा गठित योजना संचालन समिति (एसएससी) द्वारा मंजूरी प्रदान की जाएगी।

9.2 एसएससी की संरचना इस प्रकार होगी:

| | |
|---|---|
| सचिव, औषध विभाग | - अध्यक्ष |
| वित्तीय सलाहकार, औषध विभाग | - सदस्य |
| संयुक्त सचिव, पर्यावरण, वन और जलवायु परिवर्तन | - सदस्य |
| संयुक्त सचिव, उद्योग संवर्धन विभाग और आंतरिक व्यापार | - सदस्य |
| संयुक्त सचिव, स्वास्थ्य और परिवार कल्याण विभाग | - सदस्य |
| डीसीजीआई, केन्द्रीय औषधि मानक नियंत्रण संगठन | - सदस्य |
| संयुक्त सचिव (नीति), औषध विभाग | - संयोजक |

एसएससी, समय-समय पर यथावश्यक रूप से उद्योग संघों, आरएंडडी संस्थानों और अन्य सरकारी / निजी क्षेत्र के विशेषज्ञ संगठनों के प्रतिनिधियों को विशेष रूप से आमंत्रित कर सकती है।

9.3 एसएससी योजना के सफल कार्यान्वयन के लिए संशोधन सहित, यदि कोई हो, आवश्यक सभी निर्णय लेगा।

10. योजना के विस्तृत दिशानिर्देश विभाग की वेबसाइट पर अपलोड किए जाएंगे।

11. यह अधिसूचना इस विषय पर औषध विभाग की दिनांक 2 जून, 2020 की पूर्ववर्ती अधिसूचना संख्या 31026/16/2020-पॉलिसी का अधिक्रमण करती है।

नवदीप रिनवा, संयुक्त सचिव

**NOTIFICATION**

New Delhi, the 21st July, 2020

**Subject:- Scheme for Promotion of Bulk Drug Parks.**

**No. 31026/16/2020-Policy.—1. Background**

1.1. Drugs play a vital role in healthcare delivery in the country. Continuous supply of drugs is necessary to ensure delivery of affordable healthcare to the citizens. Any disruption in supply of drugs can have significant adverse impact on drug security of the country.

1.2. Indian pharmaceutical industry is the 3rd largest in the world by volume and 14th largest in terms of value. India contributes 3.5% of total drugs and medicines exported globally. However, despite these achievements, India is significantly dependent on import of some of the basic raw materials, viz., bulk drugs that are used to produce the finished dosage formulations. India imports bulk drugs largely for economic considerations. Bulk drugs accounted for 63% of the total pharmaceutical imports in the country during 2018-19.

1.3. Future growth of pharmaceutical sector is contingent upon our ability to ensure un-interrupted supply of quality bulk drugs and our capacity to upscale their manufacturing during emergency situations. Self-reliance in manufacturing of bulk drugs is, therefore, highly desirable.

1.4. With a view to significantly bring down the manufacturing cost of bulk drugs and thereby increase the competitiveness of the domestic bulk drug industry by providing easy access to standard testing & infrastructure facilities, a scheme called "Promotion of Bulk Drug Parks" has been approved by the Government of India on 20th March 2020.

**2. Objective**

2.1. To promote setting up of bulk drug parks in the country for providing easy access to world class common infrastructure facilities to bulk drug units located in the parks in order to significantly bring down the manufacturing cost of bulk drugs and thereby make India self-reliant in bulk drugs by increasing the competitiveness of the domestic bulk drug industry.

2.2. To help industry meet the standards of environment at a reduced cost through innovative methods of common waste management system.

2.3. To exploit the benefits arising due to optimization of resources and economies of scale.

**3. Scope:** Financial assistance under the Scheme will be provided for creation of common infrastructure facilities in three Bulk Drug Parks proposed by State Governments and selected under the scheme.

**4. Financial Assistance:** Financial assistance to a selected Bulk Drug Park would be 70% of the project cost of common infrastructure facilities. In case of North Eastern States and Hilly States (Himachal Pradesh, Uttarakhand, Union Territory of Jammu & Kashmir and Union Territory of Ladakh) financial assistance would be 90% of the project cost. Maximum assistance under the scheme for one Bulk Drug Park would be limited to Rs. 1000 crore.

**5. Common Infrastructure Facilities:** The common facilities provided to individual bulk drug units in the Bulk Drug Park such as central effluent treatment plant, solvent recovery and distillation plant, steam generation and distribution system, common cooling system and distribution network, common logistics facilities, advance laboratory testing centre, emergency response centre, centre of excellence etc.

**6. Financial outlay:** The total financial outlay of the Scheme is Rs. 3,000 crore.

**7. Tenure of the Scheme:** The tenure of the Scheme is from FY 2020-2021 to FY 2024-2025.

**8. State Implementing Agency**

8.1. A Bulk Drug Park project selected under the Scheme will be implemented by a State Implementing Agency (SIA).

8.2. SIA shall be a legal entity set up by the concerned State government for the purpose of implementing the Bulk Drug Park project.

**9. Scheme Steering Committee**

9.1. The proposals under the scheme will be approved by the Scheme Steering Committee (SSC) constituted by Department of Pharmaceuticals (DoP).

9.2. The composition of the SSC is as follows:

| | | |
|---|---|---|
| Secretary, DoP | - | Chairperson |
| Financial Adviser, DoP | - | Member |
| Joint Secretary, Ministry of Environment, Forest and Climate Change | - | Member |
| Joint Secretary, Department for Promotion of Industry and Internal Trade | - | Member |
| Joint Secretary, Department of Health and Family Welfare | - | Member |
| DCGI, Central Drugs Standard Control Organisation | - | Member |
| Joint Secretary (Policy), DoP | - | Convenor |

The SSC may invite representatives of Industry Associations, R&D Institutions and other Government / Private sector expert organizations as special invitees as may be necessary from time to time.

9.3. The SSC shall take all decisions required for successful implementation of the scheme, including any modifications if required.

**10.** The detailed guidelines of the scheme will be uploaded on the website of the Department.

**11.** This Notification supersedes the earlier Notification of the Department of Pharmaceuticals issued on this subject vide no 31026/16/2020-Policy dated 2nd June, 2020.

NAVDEEP RINWA, Jt. Secy.

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**File No. 31026/54/2020-Policy**
**Government of India**
**Ministry of Chemicals and Fertilizers**
**Department of Pharmaceuticals**

Dated: 27th July, 2020

# Guidelines of the Scheme "Promotion of Bulk Drug Parks"

## 1. Background

1.1. Drugs play a vital role in healthcare delivery in the country. Continuous supply of drugs is necessary to ensure delivery of affordable healthcare to the citizens. Any disruption in supply of drugs can have significant adverse impact on drug security of the country.

1.2. Indian pharmaceutical industry is the 3rd largest in the world by volume and 14th largest in terms of value. India contributes 3.5% of total drugs and medicines exported globally. However, despite these achievements, India is significantly dependent on import of some of the critical basic raw materials, viz., bulk drugs that are used to produce the finished dosage formulations. India imports bulk drugs largely for economic considerations. Bulk drugs accounted for 63% of the total pharmaceutical imports in the country during 2018-19.

1.3. Future growth of pharmaceutical sector is contingent upon our ability to ensure un-interrupted supply of quality bulk drugs and our capacity to upscale their manufacturing during emergency situations. Self-reliance in manufacturing of bulk drugs is, therefore, highly desirable.

1.4. With a view to significantly bring down the manufacturing cost of bulk drugs and thereby increase the competitiveness of the domestic bulk drug industry by providing easy access to standard testing & infrastructure facilities, a Scheme called "Promotion of Bulk Drug Parks" has been approved by the Government of India on 20th March 2020.

1.5. The Scheme has been notified vide Gazette notification no. - 31026/16/2020-Policy, dated - 21/07/2020.

## 2. Objective

2.1. To promote setting up of bulk drug parks in the country for providing easy access to world class Common Infrastructure Facilities (CIF) to bulk drug units located in the park in order to significantly bring down the manufacturing cost of bulk drugs and thereby make India self-reliant in bulk drugs by increasing the competitiveness of the domestic bulk drug industry.

2.2. To help industry meet the standards of environment at a reduced cost through innovative methods of common waste management system.

2.3. To exploit the benefits arising due to optimization of resources and economies of scale.

3. **Definitions**

3.1. **Active Pharmaceutical Ingredient (API):** Any substance or mixture of substances intended to be used in the manufacture of a drug (medicinal) product and that, when used in the production of a drug, becomes an active ingredient of the drug product. Such substances are intended to furnish pharmacological activity or other direct effect in the diagnosis, cure, mitigation, treatment, or prevention of disease or to affect the structure or function of the body.

3.2. **Bulk Drug Park**: For the purpose of this Scheme, a bulk drug park means a designated contiguous area of land with common infrastructure facilities for the exclusive manufacture of APIs or DIs or KSMs.

3.3. **Common Infrastructure Facility (CIF):** The Common facility with capacity commensurate with the expected number of manufacturing units in the bulk drug park, provided by the State Implementing Agency (SIA). Common facilities include:

i. Central Effluent Treatment Plant(s) (CETP)
ii. Solid waste management
iii. Storm water drains network
iv. Common Solvent Storage System, Solvent recovery and distillation plant
v. Common Warehouse
vi. Dedicated power sub-station and distribution system with the necessary transformers at factory gate
vii. Raw, Potable and Demineralised Water
viii. Steam generation and distribution system
ix. Common cooling system and distribution network
x. Internal road network, Compound Wall
**Note:** The cost of these components (mentioned at serial no. x) shall not exceed 15% of the total project cost.
xi. Common logistics (Clearing and Forwarding, Insurance, Transportation, Customs, Weighbridges, etc.)
xii. Advanced laboratory testing Centre, suitable for even complex testing/ research needs of APIs, including microbiology laboratory and stability chambers
xiii. Emergency Response Centre
xiv. Safety/ Hazardous operations audits centre
xv. Centre of Excellence:
a) Regulatory awareness facilitation Centre
b) Technology business incubator

c) Intellectual Property Rights management services
d) Process/ technology development laboratory/ Research Laboratory/ with pilot plants run by eminent scientists with track record of such competitive technology development for import substitution
e) Industry Academia linkage Centre
f) Training centre

3.4. **Drug Intermediate (DI):** A material produced during intermediate steps in the synthesis of an API that must undergo further molecular change or processing before it becomes an API.

3.5. **Key Starting Material (KSM):** A raw material, intermediate or an API that is used in the production of an API and that is incorporated as a significant structural fragment into the structure of the API. KSM can be an article of commerce, a material purchased from one or more suppliers under contract or commercial agreement, or produced in-house. KSMs are normally of defined chemical properties and structure.

3.6. **Preferred Products:** The preferred products are those APIs/DIs/KSMs for which the country is majorly dependent on imports. A list of such products is provided in **Appendix 2.**

3.7. **Proposer:** The proposer for the purpose of the Scheme shall be a State Government.

3.8. **Project cost**: The cost of establishing CIF in the bulk drug park.

3.9. **State**: State or Union Territory of Republic of India

4. **Scope of the Scheme**

4.1. This is a Central Sector Scheme.

4.2. Total financial outlay of the Scheme is Rs. 3000 Crore.

4.3. Three bulk drug parks will be supported under the Scheme.

4.4. Maximum grant-in-aid for one bulk drug park will be limited to Rs 1000 crore.

4.5. The duration of the Scheme is from FY 2020-2021 to FY 2024-2025.

4.6. Under the scheme, a one-time grant-in-aid will be provided for creation of common infrastructure facilities in selected Bulk Drug Park proposed by a State Government.

4.7. The scheme will be implemented through a State Implementing Agency (SIA), a legal entity, set up by the concerned State Government.

4.8. The grant-in-aid will be 70% of the project cost of the common infrastructure facilities (CIF). In case of North Eastern States and Hilly States (i.e Himachal

Pradesh, Uttarakhand, UT of Jammu & Kashmir and UT of Ladakh), the grant-in-aid will be 90% of the common infrastructure facilities.

4.9. The Formulation units shall not be permitted in the Park.

5. **Project Management Agency (PMA)**

5.1. A Project Management Agency (PMA) will be nominated by Department of Pharmaceuticals (hereinafter referred as DoP) for providing secretarial, managerial and implementation support to DoP for effective implementation of the Scheme.

5.2. The PMA would be responsible for:

i) Preliminary examination of the proposals received from states and seeking additional information including documents from states, if required for completeness of the proposals.

ii) Appraisal of proposals and making appropriate recommendations to the Scheme Steering Committee (SSC) for approval of proposals under the Scheme.

iii) Appraisal of DPRs including financial viability, commercial sustainability and socio-economic impact of the projects.

iv) Assisting DoP in periodic monitoring of the projects and timely disbursement and utilisation of the funds.

v) Monitoring Bulk Drug Park implementation schedule based on Program Evaluation and Review Technique (PERT), Critical Path Method (CPM) and Gantt Chart and periodic submission of the report to SSC.

vi) Monitoring event report at every stage, an ex-post activity chart with complete breakdown of activities, the original expected dates and actual dates along with the flow of fund requirements.

vii) Periodic physical inspection of the Bulk Drug Parks.

viii) Any other matter pertaining to the Scheme assigned by DoP or SSC.

6. **Technical Committee (TC)**

6.1. A Technical Committee, constituted by the DoP will assist SSC in discharging its functions. TC will provide comments on any technical matter referred to by the DoP/ SSC.

6.2. Technical committee shall comprise of three experts having knowledge and experience in regulations, process development and R&D of bulk drugs. Out of three, one expert having experience in implementation of infrastructure projects related to development of industrial park/ zone.

7. **State Implementing Agency (SIA)**

7.1. State Implementing Agency (SIA) shall be a legal entity (with minimum 51% equity shareholding of State Government in the paid-up capital of SIA) set up by the State Government for the purpose of implementing the Bulk Drug Park Project.

7.2. SIA shall be responsible for day to day management of Bulk Drug Park.

7.3. The SIA shall be responsible for:

i) Preparing the Detailed Project Report (DPR) covering the technical, financial, institutional and operational aspects of the CIF project of the Bulk Drug Park.

ii) Ensuring and making available balance amount of the Project Cost.

iii) Obtaining all statutory approvals / clearances including all environmental clearances.

iv) Providing single window system for various approvals and testing certificates.

v) Recruiting suitable professionals in order to ensure that the project is executed smoothly.

vi) Implementing various interventions as outlined and approved in DPR.

vii) Preparing event report at every stage, an ex-post activity chart with complete breakdown of activities, the original expected dates and actual dates along with the flow of fund requirements as specified in DPR.

viii) Furnishing regular progress reports of the project to DoP / PMA.

7.4. SIA shall allot land only on long term lease basis.

7.5. SIA shall keep a provision for cancellation of allotment of the land, if the commercial production is not started by the allottee within a period of two years from the date of allotment order unless it extends the time period by one year on valid reasons.

7.6. SIA shall submit any report sought by DoP, from time to time.

8. **Role of State Government**

8.1. State Government shall be responsible for:

i) Submission of Project Report.

ii) Land: State Government will be responsible for providing encumbrances free land for the development of the Bulk Drug Park.

iii) Ensuring and making available balance amount of the Project Cost through budgetary and / or other sources.

iv) Obtaining all statutory approvals / clearances including all environmental clearances.

v) Providing single window system for various approvals and testing certificates.

vi) Providing necessary infrastructure such as access road, power, water supply, etc. up to the park.

vii) Providing all project related clearances expeditiously.

viii) Providing all clearances required by individual bulk drug units expeditiously.

ix) Promoting the Bulk Drug Park at National & International level.

x) Provide necessary electricity supply lines and water supply lines with the necessary infrastructure, upto the project site.

9. **Scheme Steering Committee (SSC)**

9.1. The proposals under the Scheme will be approved by the Scheme Steering Committee (SSC) constituted by DoP.

9.2. The composition of the SSC is as follows:

i) Secretary, DoP - Chairperson
ii) Financial Adviser, DoP - Member
iii) Joint Secretary, Ministry of Environment, Forest and Climate Change - Member
iv) Joint Secretary, Department for Promotion of Industry and Internal Trade - Member
v) Joint Secretary, Ministry of Health and Family Welfare – Member
vi) DCGI, Central Drug Standard Control Organisation - Member
vii) Joint Secretary(Policy), DoP - Convenor

The SSC may invite representatives of Industry Associations, R&D Institutions and other Government / Private sector expert organizations as special invitees as may be necessary from time to time.

9.3. The SSC shall take all decisions required for successful implementation of the Scheme, including any modifications if required.

9.4. The SSC will be assisted by the Project Management Agency (PMA).

9.5. The SSC will meet as often as necessary to ensure timely consideration of proposals and release of instalments of grant-in-aid and to review progress of

the projects under the Scheme. However, it shall hold meeting at least once in 6 months.

10. **Proposer**

10.1 A State Government can make only one proposal of Bulk Drug Park under this Scheme.

10.2 The proposed park shall not be less than 1000 acres in area. For North Eastern States and Hilly States (i.e Himachal Pradesh, Uttarakhand, UT of Jammu & Kashmir and UT of Ladakh), the area of proposed park shall not be less than 700 acres.

10.3 At least 50% of the total area of the Bulk Drug Park shall be made available for allotment to individual bulk drug units.

10.4 The proposer shall have to be in full possession of the land free of all encumbrances proposed for establishing the bulk drug park on the date of submission of proposal.

10.5 The proposer shall submit a Project Report (PR) including the proposed cost of establishing the bulk drug park including cost of CIF.

10.6 The project report shall cover feasibility study establishing viability of the bulk drug park at the identified location. The feasibility study shall cover assessment of environmental risk and associated health risk, business risk and management risk.

10.7 Project cost shall not include the following:

I. Cost of Land,
II. Pre-operative expenses like preparation of Project Report,
III. Administrative and management support expenses.

10.8 The proposer shall give full details of the location of the proposed bulk drug park including land area (in acres), location map and area map.

10.9 The proposer shall provide an undertaking for establishing a single window for all necessary clearances required for the bulk drug units located in the park.

10.10 The proposer shall submit an undertaking to establish a Research and Development facility as a Centre of Excellence in the park. Such facility may be operated by an institution or by a society. Such centre of excellence shall employ competent scientists with suitable experience and promote industry academia linkage. The State Government shall provide sufficient financial and other support for such centre.

10.11 The proposer shall submit an undertaking to ensure availability of funds.

10.12 The proposer may be required to make a presentation on the proposal before SSC.

11. **Proposal**

11.1 The State Government should identify a suitable location for establishment of bulk drug park keeping in mind various factors viz. environmental pollution, assured availability of power, assured availability of water, transport connectivity with railways, national highway, port, airport, etc. The identified location should be well away from eco-sensitive zone of protected areas.

11.2 The proposer State shall submit an undertaking that it shall not increase the land lease rent and utility charges, as declared in the proposal, beyond 5% per annum, for the next 10 years.

11.3 The proposal under the Scheme shall be made within 60 days of issuance of these guidelines, in the format provided at **Annexure 1.**

12. **Selection of Proposal**

12.1 The evaluation criteria provided in **Appendix 1** shall be used for selection of States. The States obtaining top three ranks will be considered for selection under the Scheme.

12.2 In case, the selected State fails to submit the DPR in time or fails to implement the project as per the timelines stated in the DPR, the in-principle approval may be cancelled by the SSC. In such case, State in the ranking may be selected for the purpose of the Scheme.

13. **In-principle approval under the Scheme**

13.1 PMA will evaluate the proposals and give its recommendations to DoP.

13.2 The recommendations of the PMA will be placed before SSC for its consideration.

13.3 After receiving in-principle approval from the SSC, DoP will issue a letter of in-principle approval to the selected States.

14. **Detailed Project Report (DPR)**

14.1 A Detailed Project Report (DPR) shall be prepared and submitted to DoP along with the details as per the format given in **Annexure 2** of these guidelines by the selected State Government within 180 days of date of issuance of in- principle approval letter.

14.2 The DPR shall include, among other things, the following details:

a) Location of the proposed Bulk Drug Park

b) Total land area of the park

c) Total land area of the park available for allotment to units

d) Detailed breakup of the utilisation of the remaining land (Green belt, landscape, CIF, etc.)

e) Project cost

f) Number of projected bulk drug units

g) Proposed time period for obtaining clearances from Central and State Government for establishing the bulk drug park.

- The time period for completing the CIF
- The date at which the plots will be allocated to the bulk drug units

h) Details such as brief description of the CIF, estimated capacity of CIF, justification for arriving at the capacity, cost of CIF, technology used, approximate time to establish the CIF, approval required from different agencies, projected time lines for obtaining approval, for each component of CIF based on the projected number of manufacturing facilities.

i) Detailed viability of the project along with the operational cost and proposed user charges.

j) Provide an analysis of occupational hazards in the park

k) Indicative charges (not higher than those committed in the proposal) to be collected from the bulk drug manufacturing units:

- Land lease rate per square meter
- Utilities charges
  - Power
  - Effluent treatment
  - Water
  - Steam
  - Solid waste treatment
  - Warehouse charges
  - Park maintenance charges
- Quality control testing charges
- Solvent recovery charges

l) Details of all the business processes of the bulk drug park to identify impediments and bottlenecks and to draw action plan for enhancing competitiveness of the units to be set up in the bulk drug park.

m) Mode of funding and phasing of expenditure i.e. contribution of various stakeholders (GoI, State Govt. and others)

n) Financial viability to the extent available i.e. Internal Rate of Return, % occupancy to achieve viability etc.

o) Provide a bulk drug park implementation schedule based on Program Evaluation and Review Technique (PERT), Critical Path Method (CPM) and Gantt Chart.

14.3 Ceiling on the eligible cost of the project

i. Assistance for Administrative and other management support of SIA for the project implementation period shall not exceed 5 % of the grant-in-aid.

ii. Assistance for engaging engineers and other experts for execution of civil works shall not exceed 5 % of the grant-in-aid.

iii. The cost of internal roads and compound wall shall not exceed 15% of the grant-in-aid.

iv. No grant-in-aid shall be given towards construction of buildings. However, as far as various scientific facilities/ centres are concerned, 30% of the estimated cost of respective facility/ centre will be allowed from grant-in-aid towards construction of the building.

15. **Final approval under the Scheme**

15.1 PMA will appraise the DPR and submit its recommendations to the SSC for its consideration.

15.2 After receiving final approval from the SSC, DoP will issue letter of final approval to the selected State.

16. **Post Approval**

16.1. The project shall be completed within two years from the date of release of the first instalment of the grant-in-aid, unless the period is extended by the SSC.

16.2. SIA shall furnish a quarterly progress report on the development of the park.

16.3. PMA shall assess the progress of the project from time to time and submit the report to the SSC.

17. **Release of funds**

17.1. Where bank finance is involved, written commitment of the bank concerned to release proportionate funds shall also be necessary before release of Central Government assistance.

17.2. Grant-in-aid will be released in four instalments in the following manner:

| Instalment | Percentage of Funds | Remarks/ Pre-requisite |
|---|---|---|
| 1st | 30 | • On final approval of the project by the SSC and after deposit of 30 percent of SIA's share in the project cost in the Trust and Retention Account (TRA) or Escrow or No Lien Account as the case may be, subject to the condition that all relevant environment clearances are in place. |
| 2nd | 30 | • 60% utilisation of the 1st instalment and after proportionate expenditure has been incurred by the SIA with proportionate physical progress of the bulk drug park as per the DPR<br>• Against the production of Bills |
| 3rd | 30 | • 100% utilisation of 1st instalment and at least 60% utilization of 2ndinstalment and after proportionate expenditure has been incurred by the SIA with proportionate physical progress of the bulk drug park as per the DPR<br>• Against the production of Bills |
| 4th | 10 | • 100% utilisation of 2nd and 3rd instalments<br>• SIA has mobilized and spent its entire share in proportion to the grant and completed the project in all respects. |

17.3. The SIA shall open a Trust and Retention Account (TRA) or Escrow or No Lien Account as may be decided by the SSC for the purpose of parking the funds received as grant-in-aid from the Central Government under the Scheme and also the State Government share.

17.4. The SIA shall submit the Utilisation Certificate (UC) for the amounts utilized as per the format prescribed in GFR.

17.5. Accounts of SIA shall be subject to audit by the Comptroller & Auditor General of India.

18. **Maintenance /Ownership of Assets**

18.1. SIA shall be responsible for Operation and Management of assets created under the Scheme.

18.2. The assets acquired by the SIA out of Central government assistance shall not be disposed, encumbered or utilized for the purposes other than for which the funds have been released.

18.3. A register of permanent and semi-permanent assets acquired wholly or mainly out of the funds provided by Central government should be maintained as per GFR.

18.4. If, for any reasons, SIA is liquidated, Government of India will have the first right to recover the grant-in-aid released for the project in case any surplus is left in the process of liquidation.

18.5. Escalation in the cost of project, due to any reason, shall be borne by the State government/ SIA. The Central government shall not be responsible for any financial liability arising out of operation of any CIF.

18.6. For successful implementation and operation of the Bulk Drug park, agreements shall be entered into between Government of India (GoI) and the State Government on one hand and between State Government and SIA on the other hand. The draft agreements will be circulated along with the letter of final approval.

18.7. In addition to the CIF, the SIA and the State shall actively facilitate common services/utilities required for smooth running of businesses such as petrol pumps, banks, cafeteria, business centre, parking for trucks, convenience stores, medical service centre etc.

18.8. SIA, while allocating the land, shall give priority to applicants proposing to manufacture preferred products listed in **Appendix 2** of these guidelines.

18.9. SIA shall constitute a management committee comprising of the representatives of the State Government, SIA, two representatives nominated from among the manufacturing units situated in the park and State Drugs Controller, for monitoring operation and maintenance of the park after completion of the project.

**(Navdeep Rinwa)**
**Joint Secretary to the Government of India**
**Tel No. 011-23385131**
**Email:** js.pharma@nic.in

**New Delhi, Dated:27th July, 2020**

Copy to:

1. All concerned Ministries / Departments of Government of India
2. All States / Union Territories
3. Cabinet Secretariat
4. PMO
5. NITI Aayog
6. Comptroller and Auditor General of India
7. AS&FA, Department of Pharmaceuticals
8. Industry Associations
9. Internal Circulation

**(Navdeep Rinwa)**
**Joint Secretary to the Government of India**
**Tel No. 011-23385131**
**Email: js.pharma@nic.in**

Appendix 1

# Evaluation Criteria for Selection

| S. No. | Parameter | Maximum Marks |
|---|---|---|
| 1 | Utility charges (rates) as per proposal submitted by State Govt. (the State quoting the lowest rate will be awarded full marks and others will be rated pro-rata):<br>i. Power (10)<br>ii. Effluent treatment (7)<br>iii. Water (3)<br>iv. Steam (3)<br>v. Solid waste treatment (3)<br>vi. Warehouse charges (2)<br>vii. Park maintenance charges (2) | 30 |
| 2 | Total area of the proposed park<br>1. The hilly States, as defined in the guidelines, shall get 2.5 marks for every additional 175 acres over and above 700 acres minimum stipulated land<br>2. Other States shall get 2.5 marks for every additional 250 acres of land over and above 1,000 acres minimum stipulated land | 10 |
| 3 | Land lease rate to be offered to individual units of bulk-drugs to be set up in the park - the lease rent shall be compared based on the NPV of the upfront lease payment and/or periodic lease/ maintenance charges per sq. meter, discounted at SBI 1 Year MCLR applicable on the date of evaluation (the State quoting the lowest lease rent per sq. meter on NPV basis, shall be awarded full marks and others will be rated pro-rata). | 10 |
| 4 | Uninterrupted 24*7 availability, with committed source and necessary infrastructure, of (Yes/ No):<br>i. Power (5)<br>ii. Water supply (5) | 10 |
| 5 | Suitability of location of the park from environmental angle.<br>• Near the coast (within 20 Km of coastline) or zero liquid discharge effluent treatment plant* (5)<br>• Outside the municipal limits (5)<br>* The cost of such zero liquid effluent plant shall not form part of project cost and shall be financed by the State separately. | 10 |

| | | |
|---|---|---|
| 6 | Policy incentives of State government applicable for Bulk Drug industry<br>i. Interest Subvention Scheme (5) – (the State quoting highest percentage of interest subvention for a period of 10 years from the date of operation of the park, shall be awarded highest marks and others shall be rated pro-rata)<br>ii. GST reimbursement, subsidy, incentive etc. against investment (5) - (the State quoting highest percentage of the reimbursement of investment, for a period of 10 years from the date of operation of the park, shall be awarded highest marks and others shall be rated pro-rata). | 10 |
| 7 | Connectivity of the Park<br>i. National Highway within 25 km from site (2)<br>ii. Air Cargo / Airport within 50 km from site (2)<br>iii. Sea Port / In-land waterway/ Dry port within 100 km from site (2) | 6 |
| 8 | Full exemption of Stamp Duty and Registration charges (Yes/No) | 5 |
| 9 | Latest Ease of Doing Business Ranking of the State – The marks shall be awarded based on the slabs of ranking:<br>• Rank 1 to 5 = 5 Marks<br>• Rank 6 to 10 = 4 Marks<br>• Rank 11 to 15 = 3 Marks<br>• Rank 16 to 20 = 2 Marks<br>• Rank 21 to 25 = 1 Mark<br>• Rank below 25 = 0 Mark | 5 |
| 10 | Availability of Technical Manpower in the State<br>i. No. of specialised research institutes in Pharmaceutical sector ≥ 1 (1)<br>ii. No. of Medical, Bio-Technology and Pharmacy colleges ≥ 30 (1) | 2 |
| 11 | Number of Pharma and chemical clusters in the State<br>i. Pharma Clusters ≥ 01 (1)<br>ii. Auxiliary units chemicals used in Pharma ≥ 02 (1) | 2 |
| | **Total** | **100** |

**Appendix 2**

**Preferred Products**

| Sr. No. | Name of API | Sr. No. | Name of API |
|---|---|---|---|
| 1. | 5-Fluorouracil | 2. | Acyclovir |
| 3. | Abiraterone Acetate | 4. | Amoxicillin |
| 5. | Acarbose | 6. | Amphotericin B |
| 7. | Acetazolamide | 8. | Alfacalcidol |
| 9. | Ampicillin | 10. | Sulbactum Sodium |
| 11. | Amprolium HCl | 12. | Alpha Lipoic Acid |
| 13. | Alcaftadine | 14. | Antipyrine HCl |
| 15. | Aspirin | 16. | Arbekacin Sulfate |
| 17. | Atorvastatin | 18. | Artemether |
| 19. | Alprazolam | 20. | Artemisinin |
| 21. | Alfuzosin Hydrochloride | 22. | Asparaginase |
| 23. | Amantadine HCl | 24. | Amiodarone hydrochloride |
| 25. | Atracurium besylate | 26. | Atropine Sulfate |
| 27. | Amikacin Sulphate | 28. | Azithromycin |
| 29. | Artesunate | 30. | Aztreonam |
| 31. | Potassium Clavulanate | 32. | Atoshban Acetate |
| 33. | Bedaquline Fumarate | 34. | Baclofen |
| 35. | Benzathine Benzylpenicillin | 36. | Beclomethasone |
| 37. | Bacitracin | 38. | Betaxolol HCl |
| 39. | Betahistine Dihydrochloride | 40. | Bromocriptine mesylate |
| 41. | Betamethasone | 42. | Budesonide |
| 43. | Bifonazole | 44. | Buspirone Hydrochloride |
| 45. | Bimatoprost | 46. | Butaphosphan |
| 47. | Bisoprolol fumarate | 48. | Butorphanol tartrate |
| 49. | Bleomycin Sufate | 50. | Carboplatin |
| 51. | Cabergoline | 52. | Carboprost tromethamine |
| 53. | Caffeine | 54. | Cefadroxil |
| 55. | Calcitriol | 56. | Cefalexin |
| 57. | Calcium D-Pantothenate | 58. | Cefatazidime |
| 59. | Calcium folinate | 60. | Cefazolin |
| 61. | Calcium Gluconate | 62. | Cefepime |
| 63. | Calcium Lactate Pentahydrate | 64. | Cefoperazone |
| 65. | Calcium Levulinate | 66. | Ceftiofur Soduim Sterile |
| 67. | Capreomycin sulphate | 68. | Ceftizoxime sodium |
| 69. | Captopril | 70. | Ceftriazone Sodium |
| 71. | Carbamazepine | 72. | Ceftriaxone Sodium |
| 73. | Carbidopa | 74. | Ceftriazidine |

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| Sr. No. | Name of API | Sr. No. | Name of API |
|---|---|---|---|
| 75. | Carbocisteine | 76. | Citric Acid |
| 77. | Cefixime | 78. | Ciprofloxacin |
| 79. | Celecoxib | 80. | Cisatracurium Besylate |
| 81. | Cephalexin | 82. | Cisplatin |
| 83. | Cerebroprotein Hydrosalate | 84. | Citicoline |
| 85. | Cetiofur Sodium | 86. | Clarithromycin |
| 87. | Cetoperazone Sodium | 88. | Clavulanate Potassium |
| 89. | Chloramphenicol | 90. | Clemastine fumarate |
| 91. | Chlordiazepoxide Hydrochloride | 92. | Clindamycin |
| 93. | Chlorpromazine HCL | 94. | Clobazam |
| 95. | Chlortetracycline Hydrochloride | 96. | Clopidol |
| 97. | Cefuroxime | 98. | Cloprostenol Sodium |
| 99. | Chondroitin Sulfate Sodium | 100. | Clorpromazine Hcl |
| 101. | Chorionic Gonadotrophin (HCG) | 102. | Clotrimazole |
| 103. | Ciclopirox Olamine | 104. | Clozapine |
| 105. | Cimetidine | 106. | Colesevelam Hydrochloride |
| 107. | Cinchonidine | 108. | Colistimet Sodium |
| 109. | Codeine Phosphate | 110. | Cyclamic Acid |
| 111. | Colistin Sulphate | 112. | Cyclizine Hcl |
| 113. | Cortisone Acetate Micronised | 114. | Cycloserine |
| 115. | Cyacloserine | 116. | D- Penicillamine |
| 117. | Cyproterone Aceate | 118. | Dimenhyrinate |
| 119. | Cystamine Hcl | 120. | Dinoprostone (Prostaglandin E2) |
| 121. | Dactinomycin | 122. | Diosmin |
| 123. | Daidzein | 124. | Diphenhydramine |
| 125. | Dapagliflozin | 126. | Divalproex Sodium |
| 127. | Daptomycin | 128. | Dihydroergotamine Mesylate |
| 129. | D-A-Tocopheryl Acetate | 130. | Docetaxel |
| 131. | D-Biotin | 132. | Dopamine HCl |
| 133. | Desogestrel | 134. | Doramectin |
| 135. | Desonide Micronized | 136. | Doxorubin |
| 137. | Dexamethasone | 138. | Doxycycline |
| 139. | Dexmedetomidine | 140. | Doxylamine |
| 141. | Diatriazoic Acid | 142. | D-Panthenol |
| 143. | Diazepam | 144. | Dried Aluminium Hhydroxide Gel |
| 145. | Dicloxacillin Sodium | 146. | Drospirenone Micronised |
| 147. | Dienogest Micronized | 148. | Docusate Sodium |
| 149. | Difluprednate | 150. | Dofetilide |
| 151. | Dabigatran Etrxilate Mesylate | 152. | Domperidone |

| Sr. No. | Name of API | Sr. No. | Name of API |
|---|---|---|---|
| 153. | Dextran | 154. | Diclofenac |
| 155. | Dextrose | 156. | Estradiol Hemihydrate |
| 157. | Dydrogesterone | 158. | Eszopiclone |
| 159. | Efavirenz | 160. | Ethambutol Hydrochloride |
| 161. | EHG Capsules | 162. | Ethinylestradiol |
| 163. | Eloctate | 164. | Ethionamide |
| 165. | Enalapril Maleate | 166. | Ethosuximide |
| 167. | Enoxaparin sodium | 168. | Etomidate |
| 169. | Enrofloxacin | 170. | Etoposide |
| 171. | Enzogenol | 172. | Evogliptin Tartrate |
| 173. | Ephedrine Sulfate | 174. | Exemestane |
| 175. | Epirubicin Hydrochloride | 176. | Escitalopram |
| 177. | Epopresional sodium | 178. | Esculin (Esculoside) |
| 179. | Ergocalciferol | 180. | Esmolol Hydrochloride |
| 181. | Ergometrine | 182. | Estradiol |
| 183. | Erythromycin | 184. | Famciclovir |
| 185. | Erythylsuccinate, Erythromycin Ethylsuccinate | 186. | Famotidine |
| 187. | Flucinolone Acetonide | 188. | Faropenem Sodium |
| 189. | Flucloxacillin Sodium | 190. | Fegfilgrastem |
| 191. | Flunixin Megulmine | 192. | Ferrous Fumarate |
| 193. | Fluocinolone acetonide | 194. | Filgotinib |
| 195. | Fluoromethalone | 196. | Finasteride |
| 197. | Fluoxetine HCL | 198. | Fosfomycin |
| 199. | Fluphenazine Deconate | 200. | Framycetin Sulfate |
| 201. | Flurometholone | 202. | Furosemide |
| 203. | Fluticasone propionate | 204. | Fusidic Acid |
| 205. | Folic acid | 206. | Gliclazide |
| 207. | Gabapentine | 208. | Glimepiride |
| 209. | Galantamine | 210. | Glipizide |
| 211. | Gallic Acid | 212. | Gramicidin |
| 213. | Gentamicin | 214. | Glucosamine Sulfate |
| 215. | Griseofulvin | 216. | Hydrochlorothiazide |
| 217. | Guanidine Hydrochloride | 218. | Hydrocortisone |
| 219. | Halobetasol Propionate | 220. | Hydroxy Ethyl Starch |
| 221. | Heparin | 222. | Hydroxypropyl Methylcellulose |
| 223. | Hesperidin | 224. | Hydroxyzine HCl |
| 225. | Himatoprost | 226. | Ibuprofen |
| 227. | Hyoscine butyl bromide | 228. | Idebenone |

| Sr. No. | Name of API | Sr. No. | Name of API |
|---|---|---|---|
| 229. | Indapamide | 230. | Ifosfmide |
| 231. | Indomethacine | 232. | Isoflurane |
| 233. | Inositol | 234. | Isoniazid |
| 235. | Iodixanol | 236. | Isopropanol |
| 237. | Iodomethyl Sulbactam | 238. | Isotretinoin |
| 239. | Iohexol | 240. | Itraconazole |
| 241. | Iopamidol | 242. | Ivermectin |
| 243. | Ipratropium bromide | 244. | Kanamycin |
| 245. | Irbesartan | 246. | Lactulose |
| 247. | Lactic Acid | 248. | Lamivudine |
| 249. | Lactitol Monohydrate | 250. | Levamisole HCL |
| 251. | Latanoprost | 252. | Levodopa |
| 253. | Lenvatinib | 254. | Levofloxacin |
| 255. | Leuprorelin acetate | 256. | Lincomycin HCl |
| 257. | Levonogestrel | 258. | Lithium carbonate |
| 259. | Ethinyl Estradiol | 260. | Loperamid |
| 261. | Levothyroxine Sodium | 262. | Loratadine |
| 263. | Lumefantrine | 264. | L-Ornithine monohydrochloride |
| 265. | Losartan | 266. | Lopinavir |
| 267. | Lyophillisate | 268. | Levetiracetam |
| 269. | Mannitol | 270. | L-Ornithine-L-Aspartate |
| 271. | Mebevarine HCl | 272. | Meprobamate |
| 273. | Methylcobalamine | 274. | Meropenam |
| 275. | Medroxoyprogesterone acetate | 276. | Mesalamin |
| 277. | Mefenamic Acid | 278. | Mesna |
| 279. | Meglumine | 280. | Metamizole sodium |
| 281. | Methyl Prednisolone | 282. | Metformin |
| 283. | Methyl Salicylate | 284. | Methionine |
| 285. | Methylcobalamin | 286. | Methotrexate |
| 287. | Metoprolol Tartarate | 288. | Methyldopa |
| 289. | Metronidazole | 290. | Methylergometrine maleate |
| 291. | Mexiletine Hydrochloride | 292. | Methylprednisolone |
| 293. | Mitomycin | 294. | Midazolam |
| 295. | Mometasone Fuorate | 296. | Mifepristone |
| 297. | Mycophenolate Mofetil | 298. | Miglitol |
| 299. | Mycophenolic Acid | 300. | Miltefosine |
| 301. | Mupricocin | 302. | Minocycline Hydrochloride |
| 303. | Naloxone Hydrochloride | 304. | Misopristol |
| 305. | Neomycin | 306. | Nevirapin |

| Sr. No. | Name of API | Sr. No. | Name of API |
|---|---|---|---|
| 307. | Netilimycin | 308. | Niacin |
| 309. | Netilmiin | 310. | Nicergoline |
| 311. | Nifuroxazide | 312. | Norgestrel |
| 313. | Nilotinib | 314. | Nortriptyline HCL |
| 315. | Nitrofurantoin | 316. | Nothindrone |
| 317. | Nizatidine | 318. | Norethindrone Acetate |
| 319. | Nor-Adrenaline Bitartrate | 320. | Norethisterone |
| 321. | Ofloxacin | 322. | Norfloxacin |
| 323. | Olmesartan | 324. | Nystatin |
| 325. | Orpendrine citrate | 326. | Ornidazole |
| 327. | Oxcarbazepine | 328. | Otilonium Bromide |
| 329. | Paclitaxel | 330. | Oxaliplatin |
| 331. | Pancuronium bromide | 332. | Oxytetracycline |
| 333. | Paracetamol | 334. | Phenytoin Sodium |
| 335. | Paricalcitol | 336. | Pholcodine |
| 337. | Paroxetine HCL | 338. | Phthalimide Potassium |
| 339. | Pegfilgrastim | 340. | Piperacillin Sodium |
| 341. | Praziquantel | 342. | Pilocarpine |
| 343. | Prednisolone | 344. | Pimavanserin Tartate |
| 345. | Prednisone | 346. | Perindopril Erbumine |
| 347. | Pregabalin | 348. | Prochlorperazine |
| 349. | Premarin | 350. | Prochlorperazine Malete |
| 351. | Piracetam | 352. | Progesterone |
| 353. | Piribedil | 354. | Propofol |
| 355. | Polymyxin B Sulfate | 356. | Protaglandin E1 |
| 357. | Ranitidine Hcl | 358. | Pseudoephedrine |
| 359. | Rebamipide | 360. | PVP IODINE |
| 361. | Ribaviren | 362. | Pyridostigmine bromide |
| 363. | Riboflavine | 364. | Pyridoxine HCl |
| 365. | Ritonavir | 366. | Quinine Sulfate |
| 367. | Rifampicin | 368. | Rosuvastatin Calcium |
| 369. | salicylic acid | 370. | Roxithromycin |
| 371. | Secnidazole | 372. | Rocuronium Br |
| 373. | Sevoflurane | 374. | Simvastatin |
| 375. | Sodium fusidate | 376. | Sirolimus |
| 377. | Sodium Hyaluronate | 378. | Sodium Gluconate |
| 379. | Sodium Valproate | 380. | Sodium Alginate |
| 381. | Solifenacin Succinate | 382. | Sodium ascorbate |
| 383. | Sorafenib | 384. | Sodium Bicarbinate |

| Sr. No. | Name of API | Sr. No. | Name of API |
|---|---|---|---|
| 385. | Sotalol HCL | 386. | Sodium Cromoglycate |
| 387. | Spectinomycin | 388. | Streptomycin |
| 389. | Spiramycin | 390. | Sucralfate |
| 391. | Spironolactone | 392. | Sulbutamine |
| 393. | Sulfadiazine | 394. | Sulfaoamide |
| 395. | Sulfadimidine | 396. | Sulfachloropyrazine sodium |
| 397. | Sulfaquinoxaline Sodium | 398. | Sulphaclozine |
| 399. | Sulphachloropyridazine Sodium | 400. | Sulphadoxine |
| 401. | Tamoxifen Citrate | 402. | Sulpiride |
| 403. | Taurine | 404. | Teicoplanin |
| 405. | Tazobactum Sodium | 406. | Telmisartan |
| 407. | Tofisopam | 408. | Terbinafine HCl |
| 409. | Thiamine HCL | 410. | Tetracycline |
| 411. | Thiocolchicoside | 412. | Theophylline Anhydrous |
| 413. | Tiamulin fumarate | 414. | Toltrazuril |
| 415. | Tianeptine sodium | 416. | Topiramate |
| 417. | Tibolone | 418. | Topotecan HCL |
| 419. | Ticarcillin sodium | 420. | Tramadol HCl |
| 421. | Tilmicosin Phosphate | 422. | Tranexamic Acid |
| 423. | Tinidazole | 424. | Travaprost |
| 425. | Tobramycin | 426. | Tretinoin |
| 427. | Tricoplanin | 428. | Triamcinolone |
| 429. | Trihexylphenidyl HCL | 430. | Trimethoprime |
| 431. | Trimetazidine | 432. | Tryptophan |
| 433. | Tyrosine | 434. | Tylosin Tartrate |
| 435. | Ulipristal Acetate | 436. | Ursodeoxychlolic Acid |
| 437. | Valsartan | 438. | Valiolamine |
| 439. | Verapamil | 440. | Vancomycin HCl |
| 441. | Vinblastine sulfate | 442. | Vardenafil |
| 443. | Vinorelbine | 444. | Various Amino Acids |
| 445. | Various Vitamins | 446. | Vasopressin |
| 447. | Zidovudine | 448. | Xaluprine |
| 449. | Zinc Bacitracin | 450. | Zolpidem Tartrate |
| 451. | Zopiclone | 452. | Any other API/KSM/DI |

| Sr. No. | Name of KSM/DI | Sr. No. | Name of KSM/DI |
|---|---|---|---|
| 1. | OTBN | 2. | Artemisinin |
| 3. | Sabam HCl | 4. | 2-MNI (2-methyl-5-Nitro-Imidazole) |
| 5. | MICA ester | 6. | ATS-8 |
| 7. | Non Sterile Ceftriaxone Sodium | 8. | 2-Keto-Gluconic Acid |
| 9. | Tazo Acid, | 10. | BCFI |
| 11. | Piperacilline Acid | 12. | Diacetyl acyclovir |
| 13. | Meropenem Crude | 14. | 10-MISB |
| 15. | LEVO ACID | 16. | Heparin (Crude) |
| 17. | Cipro Acid | 18. | Salicylic Acid |
| 19. | O-Acid | 20. | Para amino phenol |
| 21. | Cyclopropylamine | 22. | 2,6-Dichlorophenol |
| 23. | 1,1 cyclohexane Diacetic Acid (CDA) | 24. | Dicyandiamide (DCDA) |

**Annexure 1**

## Proposal Form

**1. Instructions**

**1.1.** The proposal shall be duly signed by the authorized signatory.

**1.2.** Proposers are advised to go through the guidelines carefully before submitting the proposal.

**1.3.** Proposers shall follow the format provided in this proposal form for submitting the proposals. Proposers shall provide information and enclose all the supporting documents as detailed.

**1.4.** All proposals will be submitted to the DoP in physical form and soft copy (pen drive/ CD) in a sealed envelope, addressed to Dr Sumit Garg, Deputy Secretary (Policy), Department of Pharmaceuticals, Ministry of Chemical & Fertilizers, Room No. 228, A-Wing, Shastri Bhawan, New Delhi – 110001.

**1.5.** Proposal has following two sections:

I. Proposer Details

II. Details of the Proposal

**2. Section I – Proposer Details**

2.1 Name of the State

2.2 Authorised Signatory Details – Name, Designation, Contact No. (Mobile and Office Landline No.), Email and complete office address.

**3. Section II - Details of the Proposal**

**3.1 Cost of Development of the Park & tentative source of funds (Rs. in crore):**

i. Cost of Development of the Park (estimated)
ii. Central Government Share (Grant-in-Aid)
iii. State Government /Union Territory share with source of funds for share of State Govt./ Union Territory

**3.2 Details of Land:** Total land area (in acres) of the proposed park and estimate of area available for allotment to bulk drug manufacturing units (which shall be not less than 50% of the total land area).

The State is required to furnish the details on the following specific points (in case, any of the following is applicable to the land, including part of the land, proposed for the park):

a) Location of the land on google map, mapping of the land and land survey report

b) Status of ownership, possession and mutation of the land in the revenue records

c) Status of any encroachment, unauthorised possession or habitation on the land (including part of the land) proposed for the park

d) Whether the land (including part of the land) is subject to any rehabilitation requirement etc. The status, procedure and timelines of the same should be clearly mentioned

e) Whether there is any compensation related issue which is pending for the land (including part of the land)

f) Whether there is any legal dispute or claim, pending in any court of law with any party for the land (including part of the land). If yes, detail about nature of dispute, forum where pending and any timelines for closure to be furnished.

g) Any other known encumbrance, restriction or relevant information which may have an impact on timely completion of development of the Park, please furnish the details.

### 3.3 Land Lease Rate

Please specify the land lease rate *(annual rent per square meter in Rs.)* to be offered to bulk drug manufacturing units to be set up in the park. The state is required to clearly mention the upfront fee payable by the manufacturing unit and all subsequent payment with the periodicity and duration of payment.

The lease rent referred to above shall be a comprehensive levy for allotment of land.

### 3.4 Commitment to provide 24*7 availability of power and water supply

The State is required to give a commitment with broad details for sourcing continuous power and water supply, which shall be considered for the evaluation of the proposal. However, the selected States will be required to provide detailed justification and feasibility for sourcing continuous power and water supply in the Detailed Project Report.

### 3.5 Location of the park vis-à-vis connectivity

The State should specify the distance (in km) of proposed Park from the following:

**a)** Nearest National Highway
**b)** Nearest Air Cargo/ Airport
**c)** Nearest Sea Port / In-land waterway/ Dry Port

Please specify the location and name the National Highway, Air Cargo and Nearest Sea Port/ In-land waterways and Dry Port.

**3.6 Location of the park vis-à-vis eco-sensitive zone of protected area**

Whether the land is in proximity to any of the eco sensitive zone of protected area. The state is required to furnish the detail of distance (in km) of proposed park from nearest such zone.

**3.7 Location of the park vis-à-vis environmental aspects**

**a)** Please specify the distance (in km) of the proposed park from the nearest coast

**b)** Whether State proposes to install Zero Liquid Discharge effluent treatment plant.

**c)** Whether the proposed park is outside the municipal limits. Please specify the distance (in km) of the proposed park from the nearest municipal limits.

**3.8 Policy incentives given/proposed by the State government for Bulk Drug industry**

**a)** **Interest subvention scheme:** Whether the State has/proposes any interest subvention scheme on the loan availed by the Bulk Drug manufacturing units. State is required to provide the detail of percentage of interest rate subvention for a period of 10 years from the date of operation of the park.

**b)** **Incentive in the form of GST reimbursement, subsidy etc. against investment:** The State is required to submit detail of all incentives by way of GST reimbursement/ subsidy or any other form of incentive, as a % of the total investment made by Bulk Drug manufacturing unit. State is also required to submit the calculation of such % of incentive against investment.

**c)** Whether State commits to exempt the Stamp Duty and Registration Charges for bulk drug manufacturing units (Yes/ No).

*Please submit the relevant supporting documents.*

**3.9 Utility Charges**

State is required to submit the following utility charges to be charged from Bulk Drug manufacturing units. The said charges will have to be committed by the State and undertaking in this regard shall be submitted as appended in this Proposal Form.

| Utility | Units (for specifying the charges) |
|---|---|
| Power | kWh |
| Effluent treatment | Per kilo litre |
| Water | Per kilo litre |
| Steam | Per Tonne |
| Solid waste treatment | Per Tonne |
| Warehouse | Monthly charges per square meter |
| Park maintenance charges | Annual charges per square meter |

**3.10 Availability of technical manpower**

a) Specialised research institutes in Pharmaceutical sector- Number, Name, Address and recognition status

b) Medical, Bio-Technology and Pharmacy colleges- Number, Name, Address and recognition status

Institute recognised by concerned State or Central body only shall be considered.

**3.11 Number of Pharmaceutical and Auxiliary clusters in the State**

a) Pharmaceutical Clusters – Name and location of each cluster in the State

b) Auxiliary units of chemicals used in pharmaceutical sector – Name and location of approved units engaged in the manufacturing of pharmaceutical sector

**3.12 Latest Ease of Doing Business Ranking of the State**

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## Undertaking

In connection with our application for development of a Bulk Drug Park as notified vide notification no. - 31026/16/2020-Policy, dated - 21/07/2020 and guidelines thereunder, the State of ..... acting through authorised signatory Sh..... do hereby undertake unconditionally and irrevocably that the State of ..... shall ensure to:

i) adhere to the roles and responsibilities of the State as outlined under these guidelines and fulfil all the commitments made in the proposal.

ii) set up a State Implementing Agency (SIA) with the roles and responsibilities, as outlined in the Guidelines of the Scheme "Promotion of Bulk Drug Parks".

iii) make available balance amount of Project Cost without any delay, as may be required for completion of development of Bulk Drug Park, through budgetary and/or other sources, as may be necessary.

iv) not increase the land lease rent and utility charges, as declared in the proposal, beyond 5% per annum, for the next 10 years.

v) establish a Research and Development facility as a Centre of Excellence in the park to be operated by an institution or by a society. Such centre of excellence shall employ competent scientists with suitable experience and promote industry academia linkage. The State Government shall provide sufficient financial and other support for such centre.

vi) adhere to the responsibilities as specified in these guidelines and also the SIA, as appointed, and implementing agency, if any, as appointed, shall also adhere to the roles and responsibilities specified in these guidelines.

To be signed by the Authorised Signatory

Mention name and designation

**Annexure 2**

**Detailed Project Report (DPR)**

1. The DPR should include the following information among other details.

2. **Proposed State Implementing Agency (SIA) -** Type of organisation, legal status, shareholding pattern (give detail of any private participation such as PPP agreement, MoU etc. with model terms and structure), functions and responsibilities, budgetary allocation (if any), administrative dept. of the State for SIA.

   a. **Governing Body:** Constitution of governing body of the SIA.

   b. **Key Personnel Details:** Contact details of three senior officials of the proposer. Details would include Name, Designation, Address, phone, email

   c. **Contact Details of Authorized Representative:** Details would include Name, Designation, Address, phone, email

   *Documents to be furnished: all applicable documents.*

3. **Description of the Park:**

   a. Details of area of land allocated for Park, address and location

   b. Land Acquisition details with Survey nos.

   c. Any change in the status of encumbrance, pending legal dispute etc. submitted earlier in the proposal form

   d. Connectivity and linkage (distance from the nearest National Highway, Airport, Sea Port, Railway Station, residential area, etc.)

   e. Strength of the project location, description of the terrain, natural water resources available, type of land (Forest, agriculture, etc.) and other relevant detail, if any.

   f. Specify the useable land (Industrial Plots and plotting pattern based on number and size of plots), number of projected manufacturing facilities, internal roads, green buffer, open space, social infrastructure, support facilities and CIF.

   ***Document to be furnished:*** *Layout of the proposed bulk drug park and Geotagging details*

4. **Cost estimation & source of funds:**

   a. Furnish detailed head-wise cost of:

- **Development of the Park:** Provide breakup of cost into land development, green belt, internal roads, sewage, culverts, RCC drains, compound wall, street lighting, support facilities & misc. Provide cost of each building proposed in the Park with purpose of such building.
- **Development of CIF:** Provide break-up of cost of every project/ facility covered under common infrastructure facility.

b. Give Source of funds under the following broad heads:

- Share of Central Govt. (grant-in-aid)
- Share of State Govt. (Please specify details of Budgetary Allocation, Equity, Loan or any Other form of funding)
- Other Source of funds – (Please specify the source as bank loans, public bonds, private participation etc.)

c. Specify whether external funds, if any, shall be raised by the State of SIA and proposed model of fund raising.

d. Give phase-wise disbursement schedule of funds from all the sources till completion of the Park.

5. **Source of Revenue:** Furnish the detailed sources of revenue, with estimated annual revenue from each source.

a. Budgetary Allocation from the State
b. Land lease
c. Utility Charges
d. Any other source of revenue envisaged

| Revenue Head | Charge per unit | Annual Revenue (Rs. In crore) |
|---|---|---|
| Land Lease | per sq. meter | |
| Power | kWh | |
| Effluent treatment | Per kilo litre | |
| Water | Per kilo litre | |
| Steam | Per Tonne | |
| Solid waste treatment | Per Tonne | |
| Warehouse | Monthly charges per square meter | |
| Park maintenance | Annual charges per square meter | |
| Any other | Specify nature and unit | |

6. **Development of Common Infrastructure Facility (CIF):** The State is required to submit the detail for individual project item/ facility under CIF, as defined in the guidelines.

   a. Brief description the project item/ facility,
   b. Estimated capacity with detailed justification for arriving at such capacity considering area of the Park, proposed number of manufacturing units etc.
   c. Cost of each project item/ facility
   d. Comment on the technology applied with technical feasibility
   e. Timelines for starting the construction and completion of individual project item/ facility
   f. Phasing of individual project item/ facility, based on the estimated allotment of land to manufacturing facilities

7. **Infrastructure Support by the State:** The DPR should contain the following for support infrastructure to be provided by the State with timelines of completion:

   a. **Power & Water:** Detailed plan for committed source of water and power supply with capacity and adequacy to support the size of park and projected number of manufacturing units. Provide details of any necessary infrastructure to be created by the State like sub-station, transmission line, dedicated water reservoir and pipe-line etc. with timelines.

   b. **Ancillary Infrastructure:** All ancillary infrastructure like road, sewage, sanitation and social infrastructure to be developed by the State. Give size and scale of such ancillary infrastructure and proposed timelines of completion.

8. **Schedule for completion of the Park**

   a. Provide the Park implementation schedule based on Program Evaluation and Review Technique (PERT), Critical Path Method (CPM) and Gantt Chart including financial expenditure plan for each activity with proposed starting and completion date.

   b. Provide the "Schedule Date of Commercial Operations of the Park".

9. **Single Window Mechanism:**

   a. Provide details of single window mechanism proposed to be set-up in the park for giving clearance to the manufacturing units.

   b. Mention if any clearance under the proposed single window mechanism is to be given by Central Govt.

c. Provide details, if any clearance is not proposed to be kept under the single window mechanism and the reason for the same.

10. **Financial viability of the Park**:

a. Provide detailed market survey with respect to existing status of pharmaceutical sector in the State, strategic and locational advantage of the Park for new investment, policies of the State Govt. to attract FDI/ Domestic investment in the Sector, any MoU/ commitment from the interested investors to set-up units in the proposed Park etc.

b. Provide financial projection taking into account projected revenue, budgetary allocation, estimated occupancy, operational expenses, interest expense (if any) and other relevant factors.

c. Provide projected P&L, Balance Sheet, Cash Flow projection with detailed assumption and key ratio such as IRR, NPV, minimum occupancy for Break Even etc.

**11. Regulatory Approvals:**

Provide detail of all regulatory approvals and clearances required from State Govt. and Central Govt. with timelines, procedure and also whether the proposed Park and construction plan as per DPR is in compliance with the applicable regulations and standards.

Annexure R3



**No: Ind/U/Dev/BDP/-** 1751
**Office of the Joint Director (Industries),**
**District Industries Centre, Una, H.P.**
**Dated: Una, the** 28/8/2025

**To**

**The Director of Industries,**
**Himachal Pradesh,**
**Shimla-171002.**

**Subject:** **Submission of Joint Inspection Report.**

**Sir,**

Kindly find enclosed herewith Joint inspection Report of the joint inspection conducted on **28-08-2025** at the notified Bulk Drug Park site located at Village Polian Beet, Malluwal, Tibbiyan, Jodiyan, Kuthar Beet, Janani, Tehsil Haroli, District Una H.P. for kind perusal and necessary action please.

**Encl:** Joint Inspection Report

**Yours faithfully,**

**Joint Director (Industries)**
**District Industries Centre,**
**Una, District Una H.P.**

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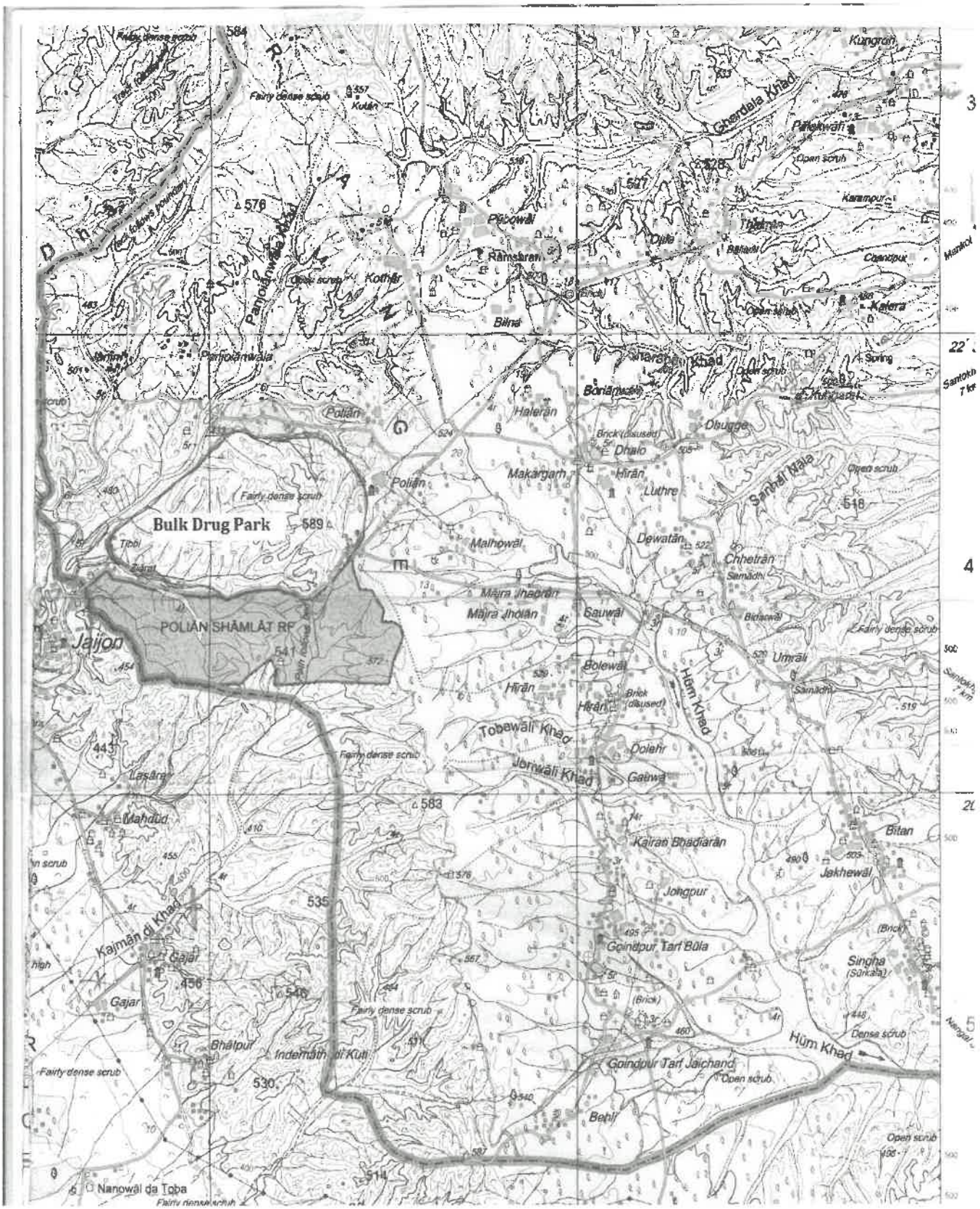
# Joint Inspection Report

In reference to O.A No. 148 of 2025 titled Rohit Singh V/s Ministry of Environment, Forest and Climate Change & Ors, a joint inspection of the notified Bulk Drug Park site at Village Polian Beet, Malluwal, Tibbiyan, Jodiyan, Kuthar Beet, Janani, Tehsil Haroli, District Una H.P site was conducted on 28-08-2025 .

During the inspection, it was found that photographs of the built-up structures shown in Annexure A/4 at page no. 186,187 (Village Polian), page no. 189 (Village Dharmpur) and page no. 190 (Village Dulehar ) are not situated within the Bulk Drug Park site for which EC is awaited. Besides this, It was also found that no development work or construction activity has been started by any department within the notified Bulk Drug Park site as the final approval of Environment Clearance is awaited from Ministry of Environment, Forest and Climate Change.

| | | | |
|---|---|---|---|
| SE, Jal Shakti Vibhag, Una District Una H.P | Assistant Engineer, HPSIDC, Mehatpur District Una H.P | RO,HPPCB Una, District Una, H.P. | Joint Director Industries, Distirct Industries Centre, Una H.P |

# GROUND WATER IMPACT ASSESSMENTREPORT
# BULK DRUG PARK, BEET AREA
# TEHSIL-HAROLI, DISTT -UNA (HP)




INVESTIGATION CONDUCTED BY
B S ENTERPRISES
PLOT NO. C-101, INDUSTRIAL AREA, PHASE-VII,SECTOR 73, S.A.S. NAGAR (MOHALI) PUNJAB,
09417210081, dssaini81@yahoo.in

## PROJECT AT A GLANCE

| S.No | Particulars | Details |
|---|---|---|
| 1 | Name of the Project | **Bulk Drug Park** |
| 2 | Type of Industries to be set up | Pharmaceutical |
| 3 | Address of Industrial units to be set up | Bulk Drug Park<br>Tehsil-Haroli, District- Una. H.P. |
| 4 | No. of working days of the industries | 350Days |
| 5 | Total water requirement | 2210 $m^3$/day |
| 6 | Fresh water from Ground Water | 1500 m3/day |
| 7 | Recycled water from Industries | 710 m3/day |
| 8 | Panchayat falling in the Beet Area | 15 Numbers<br>Gondpur Jaichand, Gondpur Bulla, Bhadiyara, Dulehar, Heeran Nagar, Polian, Heera Thara, Singha, Beetan, Chettran, HaleraBilna, Kuthar Beet, Pubowal, Kungrat, Balliwal |
| 9 | Area of Bulk Drug Park | 5.68 Sq. kms |
| 10 | Total Beet Area | 78 sq kms, out of which<br>Hum Khad, Area is 29 sq.kms |
| 11 | Number of Tube-wells Installed for the project, in the channel of Hum Khad, Beet Area | 15 (13 installed, two yet to be installed) |
| 12 | Latitude & Longitude of the project | 31.367028 :76.165552 |
| 13 | Total number of Tubewells installed in the Beet Area (including Tubewells drilled for Bulk Drug Project) | 37 |
| 14 | No. of existing Ponds in Beet Area | 41 |
| 15 | Proposed Number of Ponds in Hum Khad Valley | 10 numbers |
| 16 | Proposed Capacity of ETP to be installed in Bulk Drug Park | 5 MLD<br>(3.50MLD, LTDS (for Low TDS water) and 1.50 MLD MEE (HTDS) (MEE for High TDS Water) |

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## PREAMBLE

The Bulk Drug Park is proposed to be established at villages Kuthar Beet, Pollian Beet, Tibbian, Jodian, Jamani and Mulluwal, tehsil Haroli, District Una, Himachal Pradesh. The fresh water requirement for the Bulk Drug Park is 1500 KLD which is proposed to be met for short time through ground water till the surface water supply is commissioned and will be kept later on as standby for the exigencies. For the purpose of Ground Water Management and Development, the Himachal Pradesh, Jal Shakti Vibagh, Una assigned the job to M/S B. S. Enterprise for preparation of **"Report on Ground Water Impact Assessment and Groundwater Modelling of Beet Area** .The gist of Ground water Impact Assessment report is to characterize ground water resources at Beet Area and to assess the potential Ground Water impacts as a result of industrial operations and pumping of water from Beet Area. As a part of Ground water study a literature review and field studies were conducted during the month of May, 2025.

## PURPOSE

The main aim of the present study is to understand the change in hydrogeological regime in the area proposed for development of groundwater in Beet Area due to withdrawl of 15 MLD (15,00 $m^3$/day) water. To study the details of present status of Ground Water development, depth of present aquifer system, static and pumping water levels in tube wells and variations in yield and quality. The changes in Ground Water development status and the present Ground Water development for domestic, agriculture and other needs to be investigated for the present study. The main purpose is to study the impact of pumping of ground water for water supply to Bulk Drug Park on existing tubewells in Beet Area

## 1.0 INTRODUCTION

Impact Assessment report of a project is carried out to predict the potential future impacts on the environment due to the water withdrawal, both beneficial and adverse and propose contingency and mitigation measures that will be implemented in the event that unforeseen unacceptable impacts occur. In the Bulk Drug Park industries will be setup for the manufacture of Bulk drugs, also known as Active Pharmaceutical Ingredients (APIs), are the key chemical or biological substances in a pharmaceutical product that provide the therapeutic effect. They are the core component of a drug and are often produced in large quantities for use in the manufacturing of various drug formulations like tablets, capsules, and syrups.

The Bulk Drug Project area is located in Janani Khad catchment having location coordinate N 31$^0$ 23' 00", E76$^0$ 10' 45" and is at a distance of around 13-15 kilometer from the location of the ground water abstracting structures in Hum Khad catchment from where the water supply is to be provided to Bulk Drug Park. The tubewells are located between N 31$^0$ 20' 32", E76$^0$ 13' 11" and N 31$^0$ 18' 38", E76$^0$ 14' 19" A comprehensive study of the Hum Khad catchment was carried out to ascertain environment Impacts and evaluate the impacts and their mitigation measures so as to ensure that potential problems are assessed and addressed at an early stage.

The investigation has been conducted by Gurinder Paul Singh, Scientist "D" (Retd.) & have Central Ground Water Authority (C.G.W.A) Accreditation for carrying out hydrogeological investigations for preparation of Ground Water Impact Assessment Reports. The field data has been analysed by D.S.Saini, Superintending Hydrogeologist(Director Retd.), Central Ground Water Board. The Curriculum Vitae of D.S.Saini&Gurinder Paul Singh appended as annexure – 1& 1A.The accreditation list is also attached as annexure 2.

### 1.1 The Project

The proposal is for the development of "Bulk Drug Park" over an area of 5.68 Sq. kms(568.75 Ha) at Villages Kuthar Beet, Pollian Beet, Tibbian, Jodian, Janani and Malluwal, Teh. Haroli, Distt. Una, Himachal Pradesh by M/s Himachal Pradesh Bulk Drug Park Infrastructure Ltd.

D.S. Saini
Superintending Hydrogeologist (Director Retd.)
Central Ground Water Board
Ministry of Water Resources
Govt. of India

Gurinder Paul Singh
Scientist "D" (Retd.)
Central Ground Water Authority
Ministry of Jal Shakti
C.G.W.A. Accreditation No. 23

### 1.2 Water requirement

Total water requirement for the proposed project is 22.1 MLD; out of which 15 MLD is freshwater demand which would be met from ground water and 7.1 MLD will be recycled water which will be met from treated water. The breakup of the total water demand is given below:-

| Description | Water Demand (MLD) | Source |
|---|---|---|
| Freshwater Demand (Potable & Process water) | 15 (2.2 + 12.8) | Groundwater |
| Flushing water demand | 1.15 | Treated water |
| AC Cooling demand | 2.00 | Treated water |
| Horticulture water demand | 3.95 | Treated water |
| **Total Water Demand** | **22.10 MLD** | **Groundwater and Treated water** |

### 1.3 Scope of Work

1. The investigation aim to study the effect of additional withdrawal of ground water, to know the present scenario of ground water regime in the area and sustainability of the aquifer system. The scope also include: -

**a.** Brief about the proposed project

**b.** Computation of annual withdrawal of ground water and its impact on existing tubewells in the Beet Area.

**c.** Geology and Hydrogeology of the area

**d.** To study the long-term change in water level & to know the impact of pumping on water level in the study area.

**e.** To work out In-storage (static) ground water resources.

**f.** To study the sub surface geology to know the aquifer system.

**g.** To prepare 3D diagram of Aquifer System in the study area.

**h.** To work out the ground water potential of the Beet Area.

**i.** To study the existing & proposed Plan of Rain water conservation

**j.** Geomorphology and drainage.

**k.** Present Ground water situation in the Beet Area.

**l.** Ground water modelling

**m.** Comprehensive assessment of the impacts on the ground water regime in the Beet Area.

n. The source of recharge is to be defined.

o. Fixing of surface level of the tubewell sites w.r.t mean Sea level in Beet Area.

p. Significant environmental issues.

q. Impact on surface water sources.

r. Socio-Economic Aspects.

s. Any other details pertaining to the project.

### 1.4 Methodology

Following methodology has been adopted for hydro-geological investigation in the area:

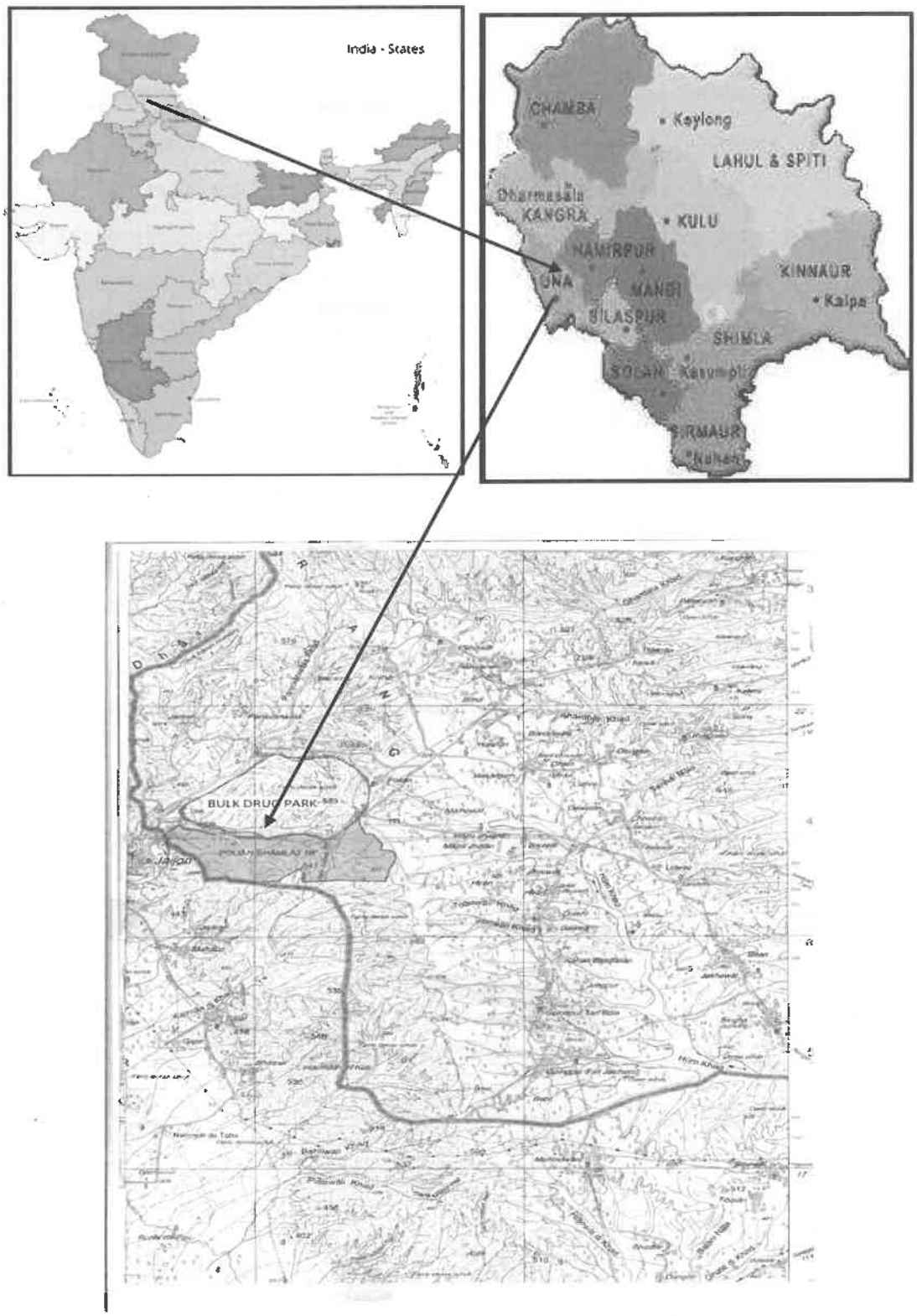
1. Detailed hydro geological Survey in Beet Area Collecting primary data on groundwater level, groundwater quality, water abstraction structures and their discharge, major irrigation sources and their potential etc.
2. Secondary data collection i.e. climate and rainfall, topography, geology, drainage etc. for interpretation.
3. Groundwater resources evaluation.
4. Evaluation of present groundwater scenario as well as future course of action for protecting the natural environment.
5. Chemical quality data analysis of existing deep tubwells.
6. Adoption of village ponds for rain-water conservation and recharge.

### 1.5 Location

Bulk Drug Park is located at Villages Kuthar Beet, Pollian Beet, Tibbian, Jodian, Janani and Malluwal, Teh. Haroli, Distt. Una, Himachal Pradesh& is being developed by M/s Himachal Pradesh Bulk Drug Park Infrastructure Ltd. Location map showing Bulk Drug Park attached in Fig-1

**LOCATION MAP** **Fig-1**

**BULK DRUG PARK**



### 1.6 Rainfall and Climate

Climate of the area is tropical to temperate in nature as the terrain varies from plains to hills. Temperature varies from minimum of 4°C in winter to the maximum of 46°C in summer. The winter starts from Mid. November and continues till the middle of March. Thereafter the mercury continues rising till the set of monsoons which starts from the last week of June and continues till the middle of September. After the end of February temperature increases gradually till June, which is the hottest month of the year. With the onset of the monsoon by about the end of June there is decrease in temperature. During the summer maximum temperature ranges between 40°C and 44°C and during winter, the maximum and minimum temperatures are 16°C and 4°C respectively.

The area receives rainfall during monsoon period extending from July to September and non-monsoon period (winter). The annual average rainfall in the area is about 1040 mm.

After the withdrawal of the monsoon by about the middle of the September temperatures decrease gradually at first and fairly rapidly after November. January is generally the coldest month in association with cold waves in the wake of western disturbances that affect the area

The average annual rainfall, monsoon rainfall and non monsoon rainfall for the last ten years is given in Table.

| Year | Annual Rainfall (mm) | Monsoon Rainfall | Non Monsoon Rainfall |
|---|---|---|---|
| 2015 | 1622.1 | 1171.7 | 450.4 |
| 2016 | 1035.1 | 819.3 | 215.8 |
| 2017 | 1270.2 | 1019.3 | 250.9 |
| 2018 | 1491.7 | 1368.5 | 123.2 |
| 2019 | 1329.2 | 893.5 | 435.7 |
| 2020 | 1128.9 | 739.4 | 389.5 |
| 2021 | 905.8 | 709.4 | 196.4 |
| 2022 | 994.8 | 745 | 249.8 |
| 2023 | 1284.5 | 996.4 | 288.1 |
| 2024 | 877.1 | 670 | 207.1 |

Source IMD

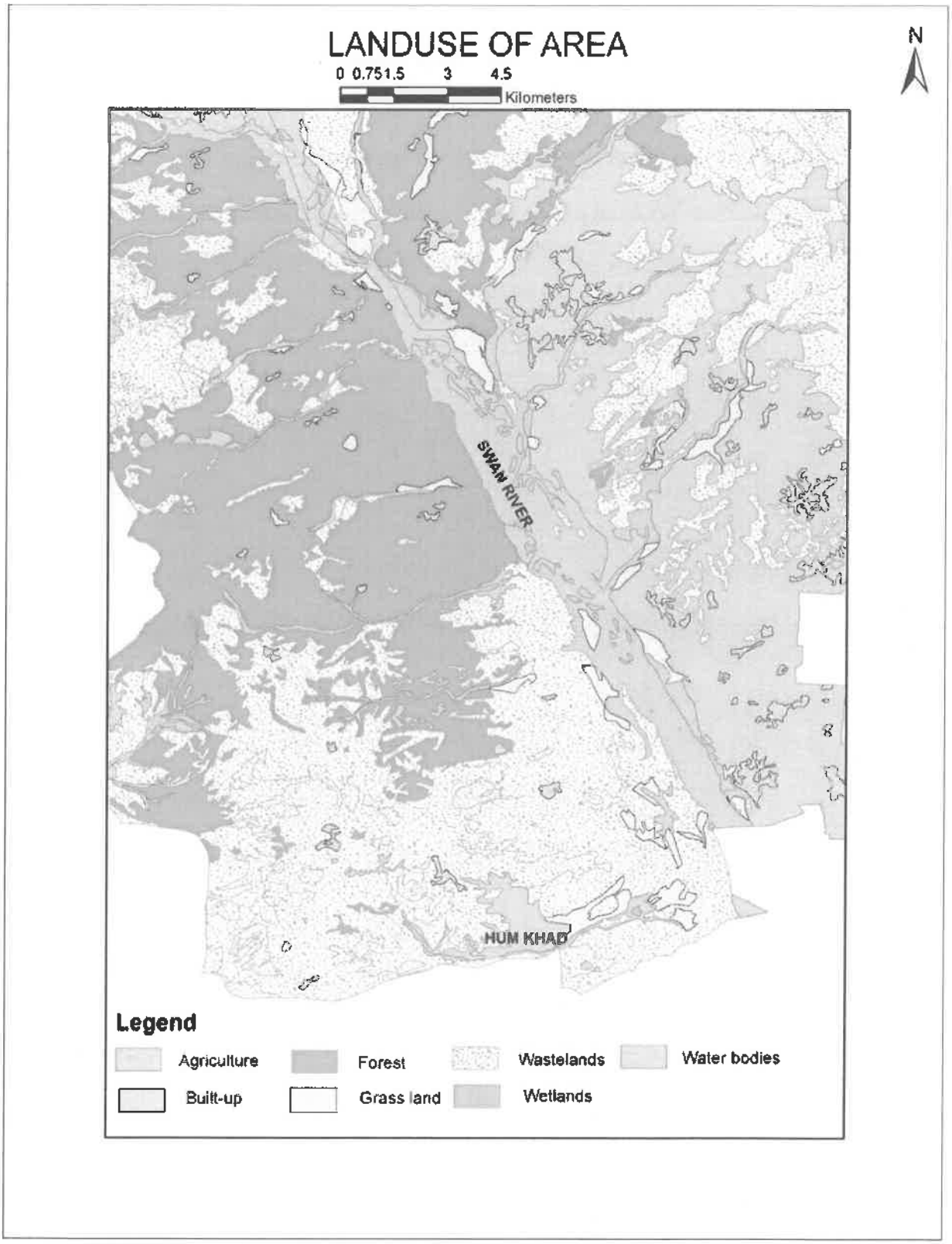
**Humidity**

In the southwest monsoon season, the humidity is high. In the post-monsoon, winter and the early part of the summer the humidity is generally low and by June the humidity begins to increase.

### 1.7 Land Use Land Cover of the Surrounding Area

The land use map has been prepared showing agriculture area, Built up , Forest cover , grass land, Wastelands, Wetlands and water bodies the map is attached as fig.2

Fig.- 2


LANDUSE OF AREA
0 0.751.5 3 4.5
Kilometers
N
SWAN RIVER
HUM KHAD
Legend
Agriculture
Forest
Wastelands
Water bodies
Built-up
Grass land
Wetlands

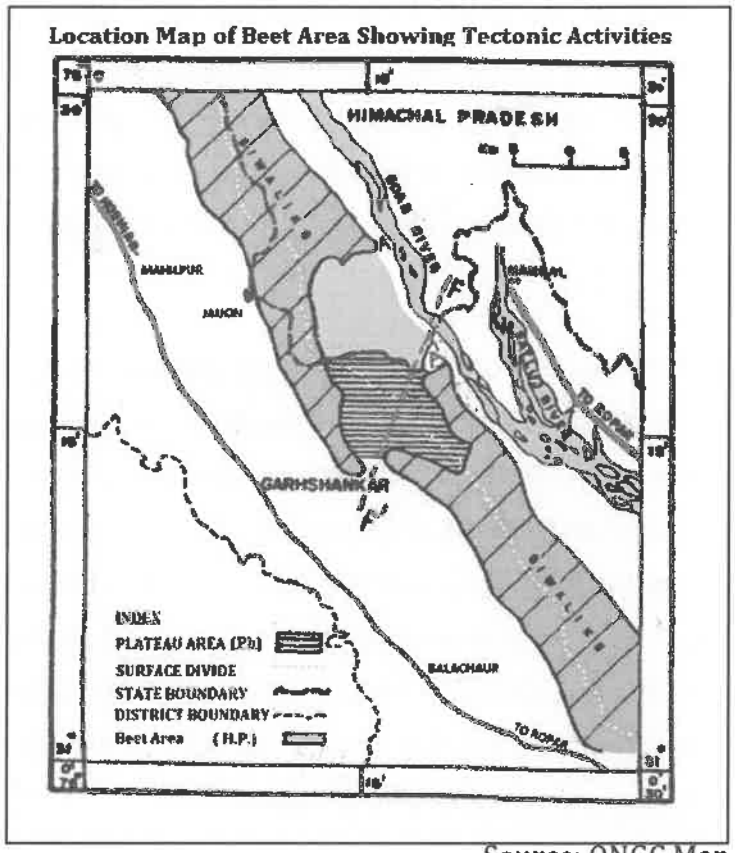
## 2.0 GEOMORPHOLOGY

The Beet Area forms almost gently undulating elongated shape upland or plateau area in the south west of district Una within upper Siwaliks aligned to the general strike direction of upper Siwaliks & the Himalayas. Its total area is 150 sq.kms, out of which about 72 sq .kms. falls in Punjab State and 78 sq. kms. lies in Una district of Himachal Pradesh. The total length of Beet Area falling in H.P. is 10.5 kms and width in South-East part is 5 kms, middle portion 4 kms and 2 kms in North-Western area.

The Beet Area comprises of highly dissected denudational hills of Upper Siwalik formations of Plio-Pleistocene to Middle Miocene age and piedmont alluvium deposits of Quartnery age. The maximum elevation of Beet area is 516 m amsl and lower elevation is 448 m amsl, the 68 m difference in elevation makes Hum Khad to flow from higher elevation to lower elevation. The elevation on both sides of the Hum Khad increases towards the hills. The Southern part of Hum Khad falls in Punjab State with the surface elevation ranges from 507-508 m amsl, whereas in H.P area the elevation of ground surface is 448 & 460 m amsl. This indicates that Beet area in H.P lies at much lower elevation than the Beet area of Punjab. This is apparently because of lineament along the Hum khad due to which its course changes from west to east direction.

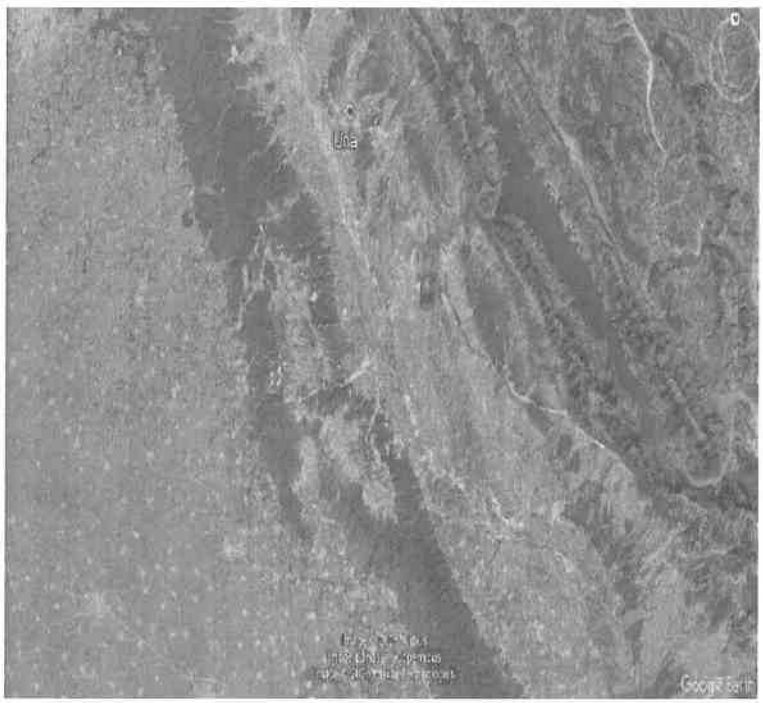
A slip fault running NNE-SSW direction across the Beet area and is marked as F F'. In the area the upper Siwalik hills have moved towards SSW which is clearly evident in figure 3 & Google Map Fig. 4.

**Fig-3**



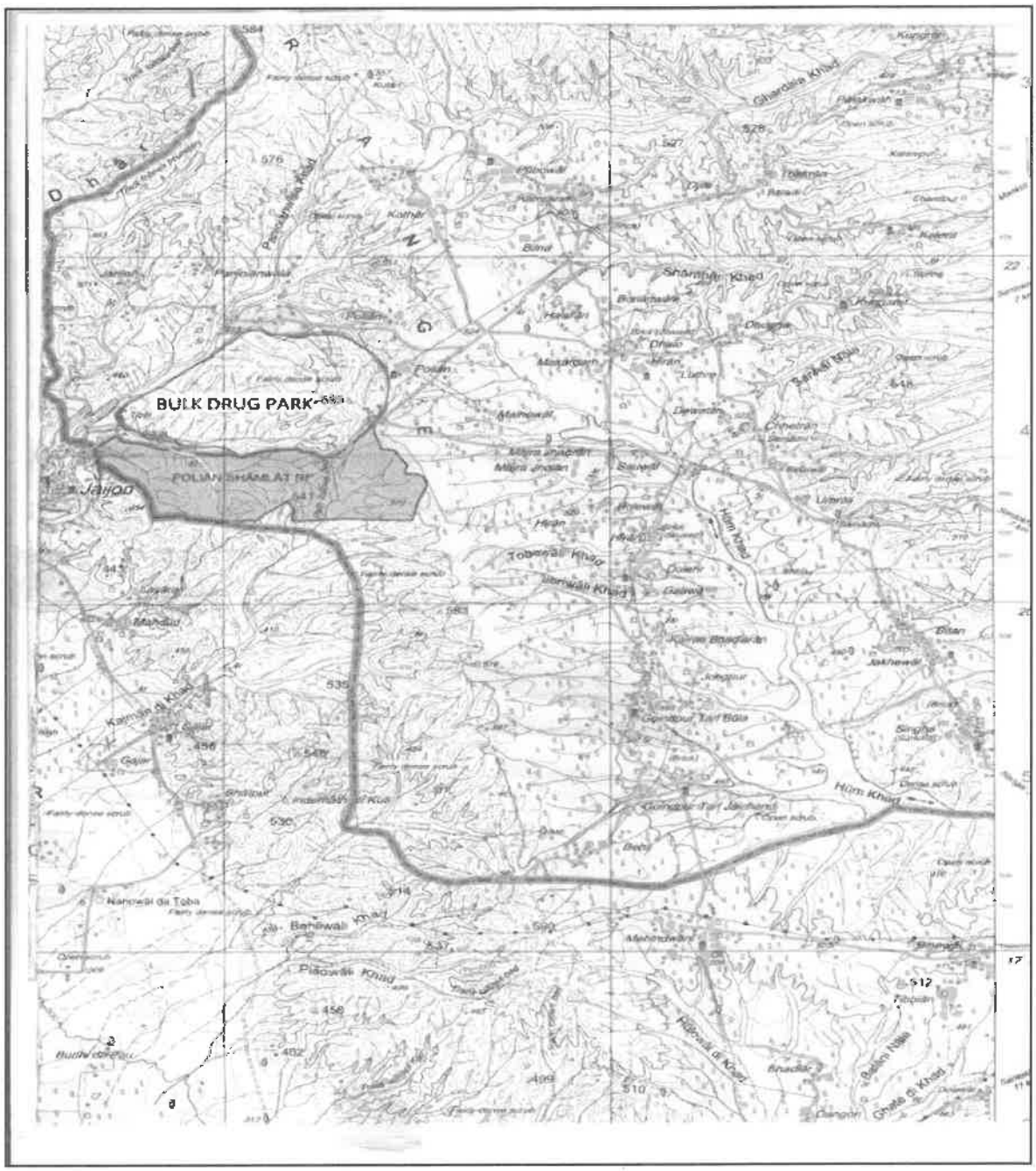

Source: ONGC Map

**Fig-4**



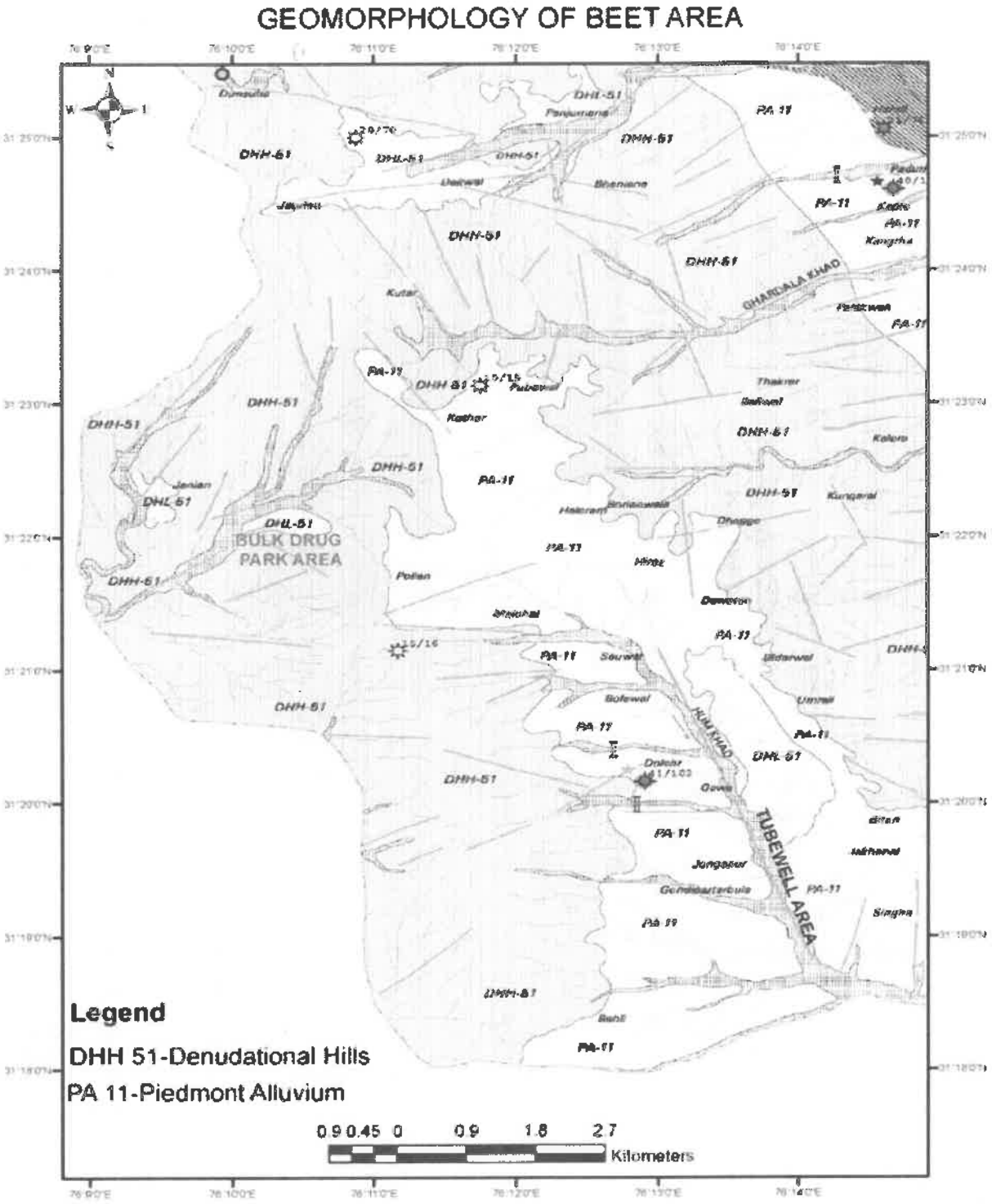
The upper Siwaliks are not exposed in about 10 kms length in North-Eastern part of the area marked A-A' in the figure 2. In South-Western side of Beet area, the hills are tear apart due to slip fault, there is gap of about 2kms between the hills. The Northern part of Beet Area is almost flat. The Topographical map is given as Fig-5

**Fig-5**



The findings of presence of fault given in figs 7 & 7A are corroborated by a research paper titled "Geomorphic Signatures of Active Tectonics in Bist Doab Inter fluvial Tract of Punjab, NW India" published in the Journal of the Indian Society of Remote Sensing in December 2008, authored by Sh. C.M. Bhatt of NRSA Hyderabad and Sh. P.K. Litoria .and Sh. P.K. Sharma of Punjab Remote Sensing Centre Ludhiana. In the paper a map of Bist Doab Tract including Tertiary area of Himachal Pradesh. The Bist Doab tract form triangular area bounded by hills & valley extending in NW-SE and it follows the strike direction of Himalayas. North-western side of the triangle is bounded by the Beas river and along the Southern side the Sulej river flows in westerly direction. Both the rivers meet at Harike Pattan, thus making a triangular closed sub-basin of main Sindh Basin. In the figs 7 & 8 it is clear that in upper Siwaliks there are three weaker zones, fault F1-F1 is marked at the emergence point of Beas river, at Talwara F2-F2 cut across the Beet area (Table land) and F3-F3 is at the emergence of Sutlej river at Ropar. It is evident that at F1-F1 & F3-F3 faults the rivers emerge-out of the upper Siwaliks. However at F2-F2 fault at present no river flows cutting across the Beet area (Table land) the Satluj river which used to flow in this area has shifted at the time of last upheaval of Siwaliks. At the location of all the three faults, the rivers have tear off the Siwalik hills and this shift of the hills is clear in the fig.7 & 7A. The portion of Beet area including upper Shiwaliks, Soan river valley and Sutlej river has been enlarged to get clear picture of fault F2,F2 cutting across the Beet Area and is shown in fig.7A. It is evident from the fig 7A that the Soan & Sutlej rivers water enters through the weaker zone i.e. fault F2-F2 and the subsurface flow of both the rivers maintains its continuity with the ground water storage of Kandi zone existing North-Eastern part of Gharhshankar area. It is advocated that through Beet Area antecedent Sutlej River used to flow before upheaval of upper Siwaliks and the deposits of the river have also been uplifted at the time of tectonic activities. The geomorphological map is given in Fig.6.

Fig-6


GEOMORPHOLOGY OF BEET AREA
DHH-51
PA 11
GHARIALA KHAD
BULK DRUG PARK AREA
TUBEWELL AREA
KUMI KHAD
Legend
DHH 51-Denudational Hills
PA 11-Piedmont Alluvium
0 9 0.45 0 0.9 1.8 2.7
Kilometers

The active tectonics in Bist Doab interfluvial tract of Punjab is given as Fig-7&7A

Fig-7

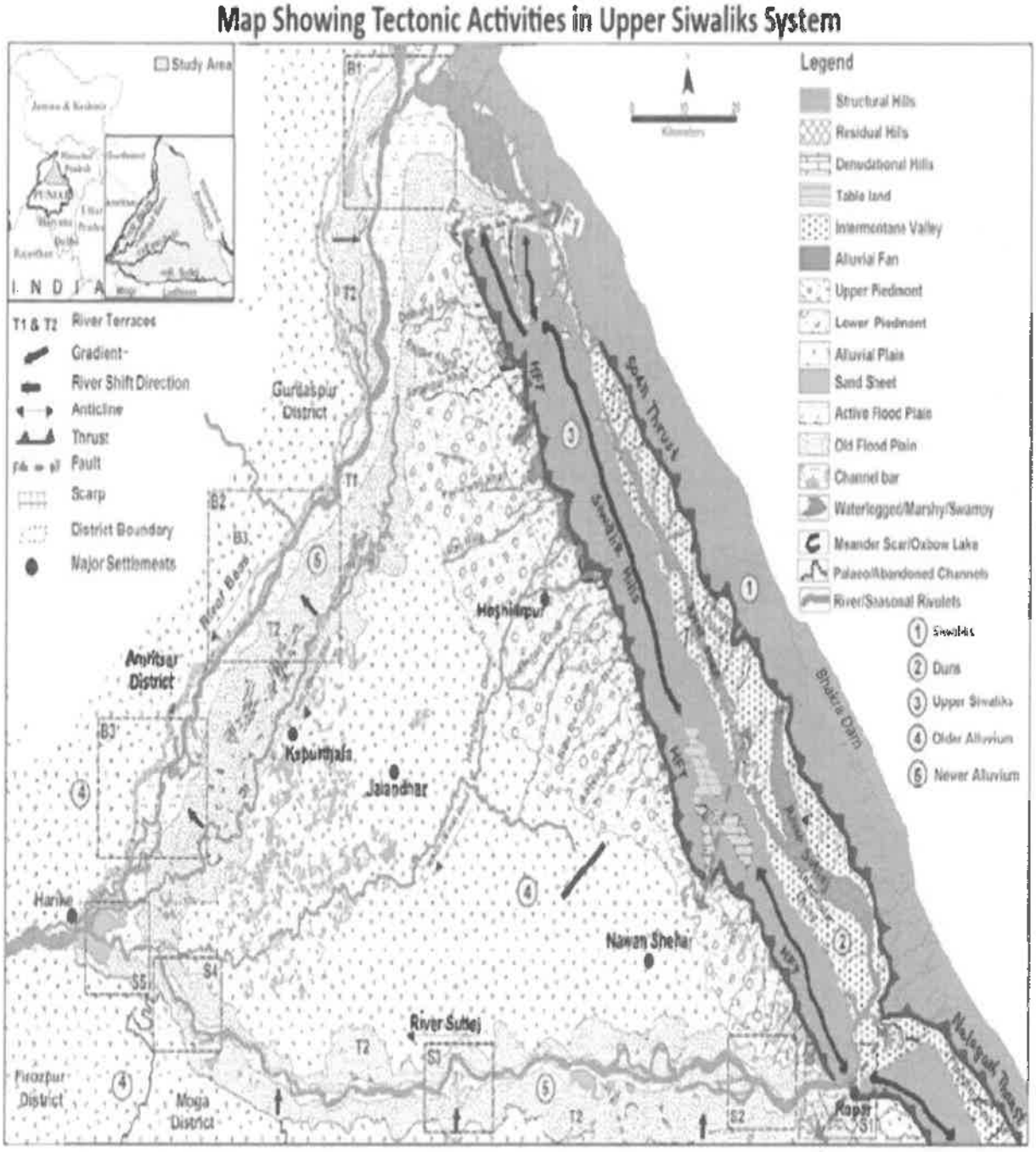
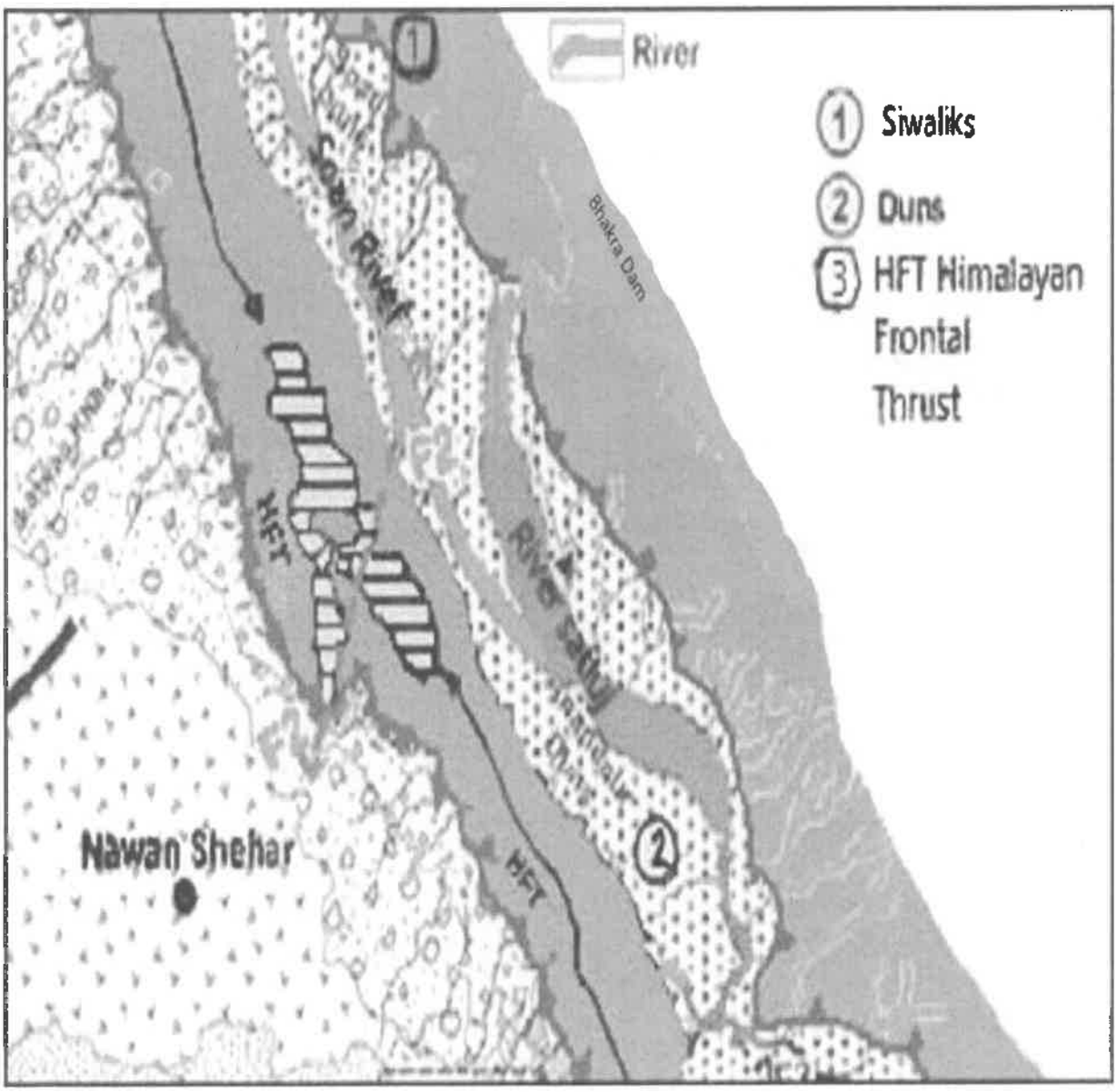


Fig-7A

**Tectonic Activities in Beet Area**




Source: Research paper titled "Geomorphic Signatures of Active Tectonics in Bist Doab Inter fluvial Tract of Punjab, NW India

Surface elevation map has been prepared to identify the topographic variations on the ground so that it can give the synoptic picture of gradient variations. The ground surface elevation values (Table-1)were plotted to prepare the elevation contour map and is depicted in fig-8

**Fig-8**

**Surface Elevation Contour Map**

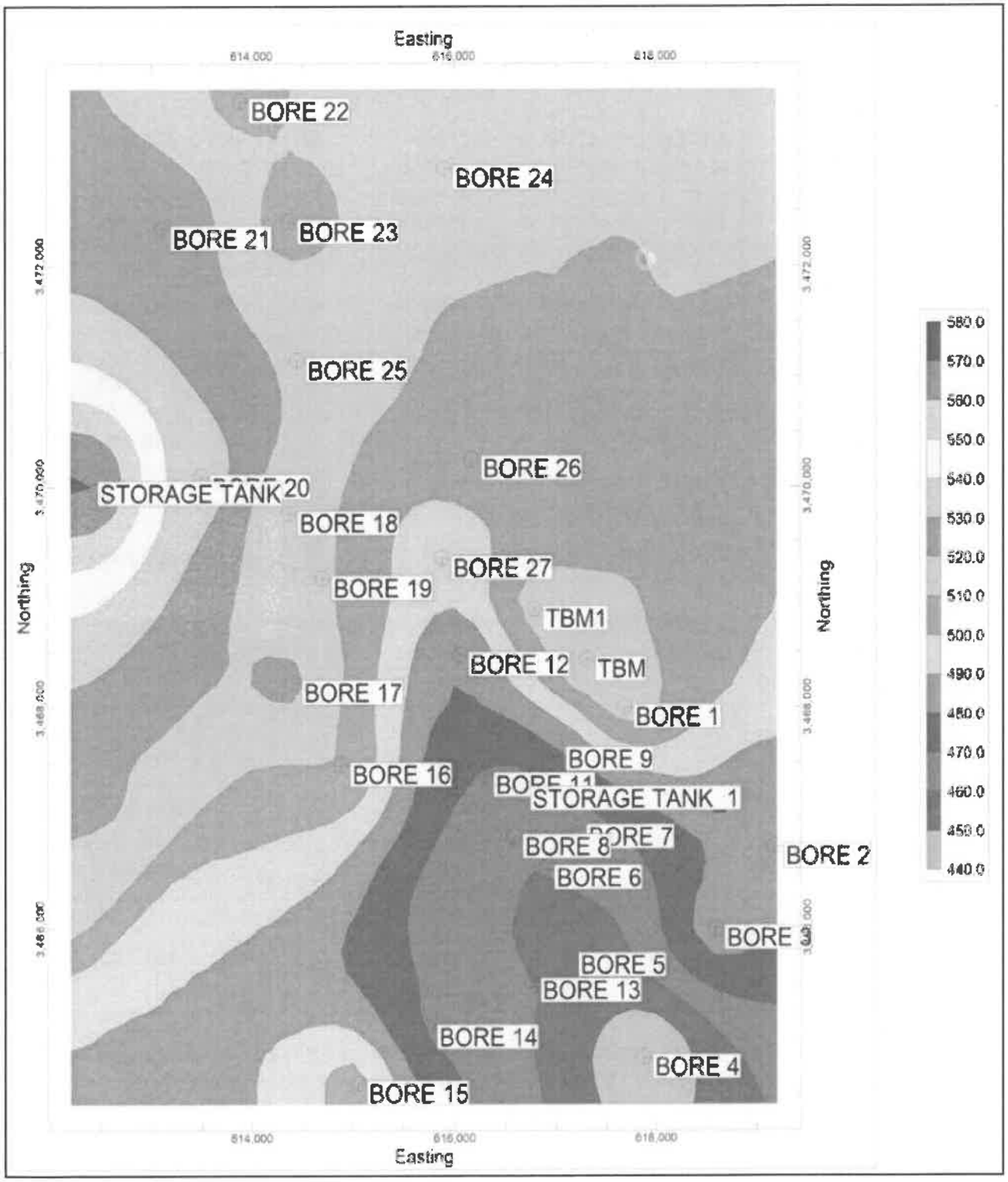


**Table-1**

**Location of Tubewells in Beet Area and Surface Elevation**

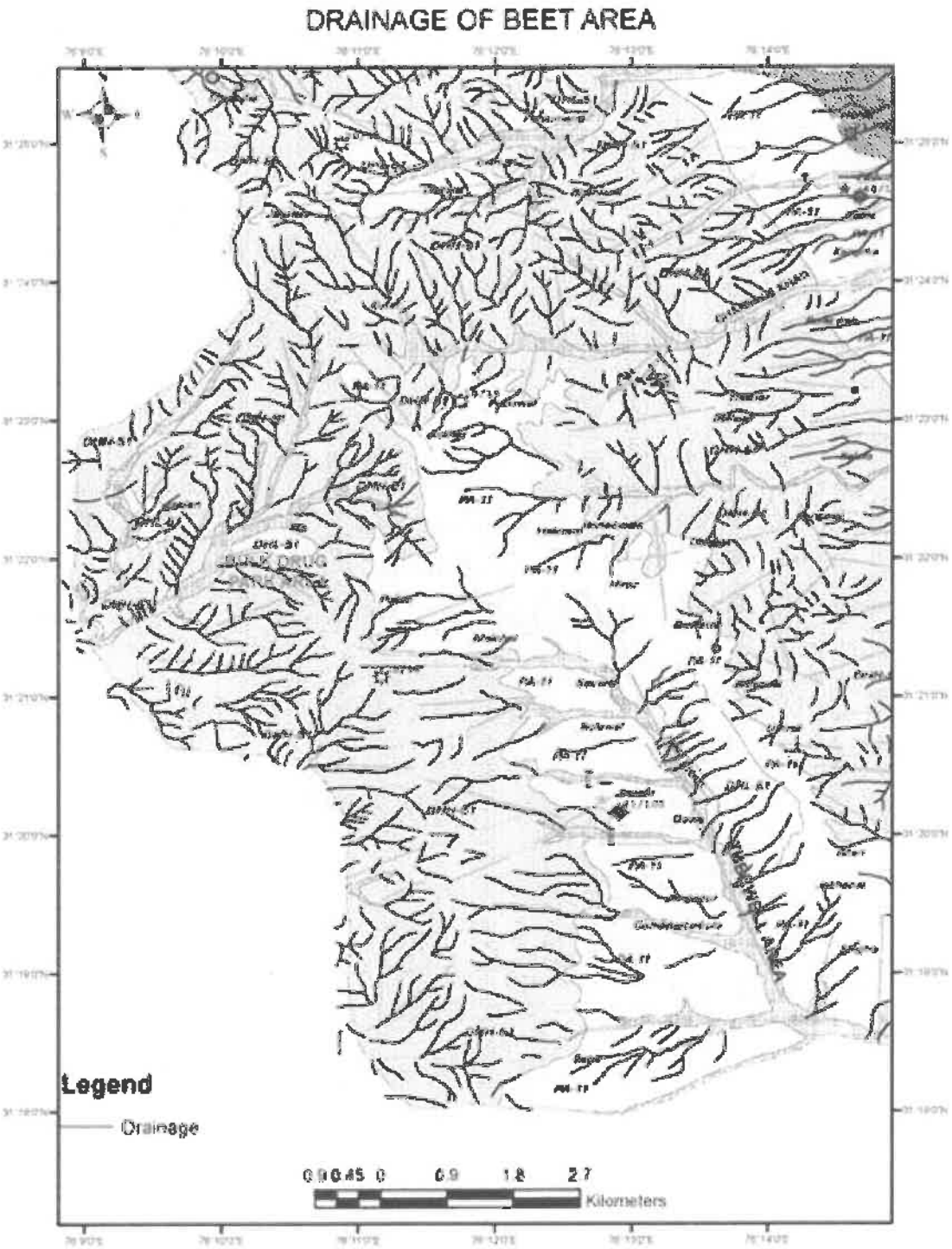
| S.NO | TUBEWELLNAME | VILLAGE NAME | Easting | Northing | Degree Minute Second | | BORE TOP LEVEL | GROUND LEVEL |
|---|---|---|---|---|---|---|---|---|
| | | | | | Latitude | Longitude | | |
| 1 | Tubewell 1 | BEETAN NEAR COLLEGE | 617664.532 | 3467709.177 | 31°20' 26.0587"N | 76°14' 13.4783"E | 520.080 | 520.219 |
| 2 | Tubewell 2 | JAKEWAL NEAR GAUSHALA | 619157.742 | 3466447.562 | 31°19' 44.5365"N | 76°15' 9.4404"E | 481.714 | 481.765 |
| 3 | Tubewell 3 | SINGAN PIZA METER | 618573.582 | 3465704.15 | 31°19' 20.6075"N | 76°14' 47.0196"E | 486.425 | 486.337 |
| 4 | Tubewell 4 | BULK DRUG PARK | 617856.842 | 3464535.898 | 31°18' 42.9279"N | 76°14' 19.4056"E | 437.761 | 437.832 |
| 5 | Tubewell 5 | BULK DRUG PARK | 617115.406 | 3465458.941 | 31°19' 13.176"N | 76°13' 51.7471"E | 450.489 | 450.595 |
| 6 | Tubewell 6 | BULK DRUG PARK | 616876.937 | 3466251.561 | 31°19' 39.005"N | 76°13' 43.0593"E | 457.430 | 457.145 |
| 7 | Tubewell 7 | BULK DRUG PARK | 617195.4 | 3466620.365 | 31°19' 50.8674"N | 76°13' 55.2648"E | 467.815 | 467.181 |
| 8 | Tubewell 8 | GONDPUR BULLA NICHLA | 616565.326 | 3466533.04 | 31°19' 48.2595"N | 76°13' 31.3875"E | 460.901 | 460.227 |
| 9 | Tubewell 9 | BULK DRUG PARK | 616990.562 | 3467323.32 | 31°20' 13.7721"N | 76°13' 47.8112"E | 482.471 | 481.973 |
| 10 | Tubewell 10 | BULK DRUG PARK | 616737.541 | 3466970.2 | 31°20' 2.3952"N | 76°13' 38.088"E | 464.538 | 464.405 |
| 11 | Tubewell 11 | BULK DRUG PARK | 616277.881 | 3467091.066 | 31°20' 6.4867"N | 76°13' 20.7456"E | 471.370 | 470.686 |
| 12 | Tubewell 12 | BULK DRUG PARK | 616032.412 | 3468184.153 | 31°20' 42.0761"N | 76°13' 11.9153"E | 477.797 | 477.411 |
| 13 | Tubewell 13 | GONDPUR JAICHAND NEAR POND | 616740.211 | 3465230.103 | 31°19' 5.8798"N | 76°13' 37.4557"E | 461.599 | 461.670 |
| 14 | Tubewell 14 | WSS GONDPUR JAICHAND | 615716.783 | 3464804.794 | 31°18' 52.4351"N | 76°12' 58.559"E | 482.818 | - |
| 15 | Tubewell 15 | GONDPUR JAICHAND NEAR SHAMSHAN GHAT | 615031.113 | 3464296.812 | 31°18' 36.1818"N | 76°12' 32.4084"E | 506.828 | 506.651 |
| 16 | Tubewel | WSS | 61486 | 346718 | 31°20' | 76°12' | 511.681 | 512.05 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | l 16 | DULHER | 2.604 | 4.557 | 10.03"N | 27.2309"E | | 3 |
| 17 | Tubewel l 17 | LIS HEERA NAGAR | 61438 4.532 | 346793 0.841 | 31°20' 34.4377"N | 76°12' 9.4489"E | 524.419 | 524.57 5 |
| 18 | Tubewel l 18 | WSS POLIAN AT MALUWAL | 61434 4.474 | 346946 2.894 | 31°21' 24.2098"N | 76°12' 8.5661"E | 511.700 | 511.79 3 |
| 19 | Tubewel l 19 | JHOLMAJRA AT POLIAN | 61467 8.165 | 346887 5.492 | 31°21' 5.0137"N | 76°12' 20.9523"E | 510.036 | 511.19 0 |
| 20 | Tubewel l 20 | LIS MALUWAL AT POLIAN | 61347 3.031 | 346979 0.698 | 31°21' 35.1642"N | 76°11' 35.7178"E | 536.225 | 536.55 5 |
| 21 | Tubewel l 21 | KUTHAR BEAT NEAR PANCHAYA T GHAR | 61308 7.13 | 347204 0.305 | 31°22' 48.3626"N | 76°11' 22.0318"E | 528.986 | 528.27 5 |
| 22 | Tubewel l 22 | WSS PUBOWAL( ADB) | 61386 4.199 | 347319 5.463 | 31°23' 25.6058"N | 76°11' 51.9262"E | 508.222 | 507.95 2 |
| 23 | Tubewel l 23 | LIS BILNA | 61434 3.761 | 347209 8.066 | 31°22' 49.7948"N | 76°12' 9.629"E | 505.562 | 505.74 9 |
| 24 | Tubewel l 24 | LIS OJLE PUBOWAL | 61588 0.49 | 347258 7.972 | 31°23' 5.1565"N | 76°13' 8.0117"E | 514.446 | 514.20 1 |
| 25 | Tubewel l 25 | WSS HELARAN | 61442 9.41 | 347084 8.598 | 31°22' 9.1844"N | 76°12' 12.3542"E | 519.209 | 519.57 0 |
| 26 | Tubewel l 26 | LIS DEETAN | 61615 3.331 | 346996 0.784 | 31°21' 39.7334"N | 76°13' 17.2372"E | 505.423 | 505.28 0 |
| 27 | Tubewel l 27 | WSS LALUWAL | 61585 8.457 | 346905 7.325 | 31°21' 10.4973"N | 76°13' 5.6979"E | 488.951 | 489.18 7 |
| 28 | STORAG E TANK | STORAGE TANK POLIAN | 61236 0.935 | 346973 2.992 | 31°21' 33.6796"N | 76°10' 53.6016"E | - | 574.34 5 |
| 29 | STORAG E TANK | STORAGE TANK HUM KHAD | 61663 9.089 | 346696 6.744 | 31°20' 2.3186"N | 76°13' 34.3612"E | - | 465.70 2 |

## 2.1 Drainage

The Hum Khad forms the major drainage system of the Beet Area. The width and depth of the Khad is limited in its upper course and the khad is seasonal in nature. Initially it flows in NW-SE direction and later its course is controlled by structural lineaments, hence it takes turn towards East and joins the Soan River. The Hum Khad has a stream length of 14.50 kms originating at 589 m and the elevation at its confluence with Soan river is at 338 m. In North-East side, the Soan river flows (parallel to Beet Area) in an inter mountain valley at an elevation of 338 mts above mean sea level. It flows parallel to the Siwalik range i.e. North-West, South-East direction. The Soan river is main tributary of Sutlej River and it forms the main drainage system in the district Una. The nalas shows dendritic pattern & drainage map is given as Fig-9

**Fig.9**


DRAINAGE OF BEET AREA
Legend
Drainage
0 0.045 0 0.9 1.8 2.7
Kilometers

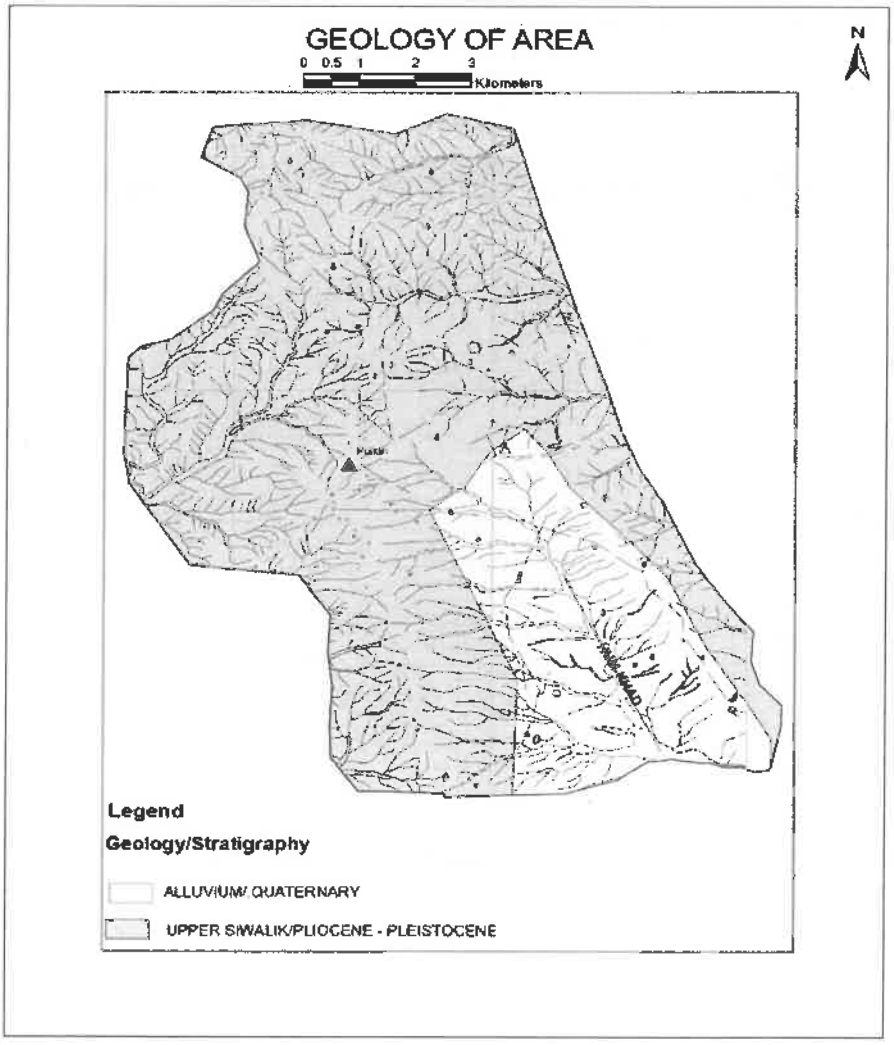
In the Beet area all the major nalas join the Hum Khad from western side and small nalas join it from NE direction. The Northern part of the Beet area is drained by Sanhal Nala, Sharahan Khad and Ghardala Khad..

## 3.0 HYDROGEOLOGICAL INVESTIGATION

### 3.1 Geology

The Beet Area comprises of boulders, conglomerates of Upper Siwalik formations overlain by piedmont alluvium deposits of Quarterly age. The boulders, pebbles, gravel, and sand lie unconformably over the Upper Siwaliks. This is due to the result of erosional, transportation and depositional activity of major Himalayan River i.e. Sutlej, during the last phase of Himalayan upheavals. These boulders are, therefore, definitely younger than the Upper Siwalik Formations and form the post Siwalik deposition within the Upper Siwaliks. The Geological map is given in Fig-10

**Fig.10**



The boulders, pebbles, gravel, and sand were apparently deposited by a major Sutlej river at its emerging site before the rise of upper Siwaliks. The river continued to flow along South-western course for considerable time when the gradual accumulation of the boulder, pebbles, gravel, and sand deposits got blocked due to the impact of the latest Himalayan uplift which resulted in changing the course of this river towards the South. Further due to structural constraints, it permanently diverted to follow a subsequent course to enter the upper Siwaliks along another weaker zone at Ropar (Punjab). Sutlej is the only major antecedent river flowing in the vicinity of the Beet Area (Table land) along its eastern flank.

It is important to mention that all major rivers form wide fans at the point of its emergence from the hills. In this case Sutlej River fan is not seen, anywhere in the area, hence it is evident that piedmont deposit in Beet area is remnant of lower portion of bigger fan deposit, comprised of sand, gravel, pebble, boulder and overlies the friable sandstones of Siwalik group having very high permeability. The Sutlej River fan is also visible in the area falling between Soan River & Sutlej River. In the bed of Soan river the upper portion of the fan is not seen, however it exists underneath its bed. The weathering of Siwaliks has been going on at an extraordinary rapid rate since their deposition. These processes along with the last phase of Himalayan uplift and its impact on the Siwalik sediments resulted in the development of weaker zones (the present-day major lineaments like faults and tears) along which the major Himalayan rivers actually pierced the Siwaliks group, which is friable, and its permeability is very high.

### 3.2 Hydrogeology

Bulk Drug Park is located west of Beet area for which Ground Water is being developed for water supply to the upcoming project. For the proposed project thirteen (13) tubewells have been constructed in the Hum Khad bed. These tubewells have been constructed down to a depth varying from 235 to 300 meters below ground level with discharge varying from 90,000-97,200 liters per hour (25-27 LPS). The drawdown in the Beet area wells varies between 10.67 m to 21.5 mts. The location of the tubewell, its depth, non-pumping water level, drawdown in the well, pump setting & discharge of each tubewell is given in the table 2.

**Table-2**

| Sr. No. | Location | Depth of Tube well(m) | Non Pumpingwater level(m) | Drawdown(m) | Pump Setting(m) | Discharge(LPS) | Discharge liters per hour |
|---|---|---|---|---|---|---|---|
| 1 | Beetan Nr Collage | 307 | 158 | 16.77 | 185 | 19.93 | 71748 |
| 2 | Jakhewal Nr. Gaushala | 316 | 137.19 | 12.2 | 160 | 24.8 | 89280 |
| 3 | TwellNo.13Bulk Drug Park | 254 | 90.54 | 14.02 | 110 | 27 | 97200 |
| 4 | TwellNo.3BulkDrugPark | 235 | 94.5 | 18.29 | 116 | 26 | 93600 |
| 5 | TwellNo.8BulkDrugPark | 290 | 103 | 13.71 | 134 | 25 | 90000 |
| 6 | TwellNo.4BulkDrugPark | 291 | 116 | 19.81 | 143.29 | 25 | 90000 |
| 7 | Gondpur Bulla Nichla | 299 | 105 | 14.02 | 130 | 23.46 | 84456 |
| 8 | TwellNo.12 BulkDrugPark | 297 | 132 | 12.19 | 150 | 25.36 | 91296 |
| 9 | TwellNo.9BulkDrugPark | 297 | 107 | 19.81 | 134 | 26 | 93600 |
| 10 | TwellNo.11BulkDrugPark | 298 | 116 | 12.8 | 140 | 25 | 90000 |
| 11 | TwellNo.1BulkDrugPark | 287 | 121 | 18.29 | 140 | 27 | 97200 |
| 12 | Gondpur Jaichand near Pond | 284 | 107 | 20.82 | 165 | 20.76 | 74736 |
| 13 | WSS Gondpur Jaichand | 292 | 129.57 | 21.34 | 162 | 25 | 90000 |
| 14 | GondpurJaichand near Shamshanghat | 292.5 | 165 | 15.24 | 190 | 22.76 | 81936 |
| 15 | WSS Dulehar | 269 | 161 | 21.34 | 183 | 18 | 64800 |
| 16 | LIS Hiranagar | 287.5 | 162 | 13.71 | 180 | 18.48 | 66528 |
| 17 | WSS Polianat Maluwal | 288 | 155 | 10.67 | 185 | 23.46 | 84456 |
| 18 | Sajowal (JholianMajra) | 277.5 | 155 | 21.34 | 180 | 23 | 82800 |
| 19 | LWSS Maluwal (Polian) | 277 | 179 | 12.45 | 190 | 20.6 | 74160 |
| 20 | Kuthar Beet near Panchayat Ghar | 286 | 177 | 15.25 | 200 | 22.08 | 79488 |
| 21 | WSS pubowal | 246 | 152 | 20.8 | 198 | 18 | 64800 |
| 22 | LIS Bilna | 272 | 155 | 21.5 | 180 | 23 | 82800 |
| 23 | Aujle | 285 | 165 | 15.64 | 190 | 20.68 | 74448 |
| 24 | Bade walat Halehran | 296 | 159 | 15.25 | 190 | 18.48 | 66528 |
| 25 | Deetan | 288 | 155 | 18.29 | 180 | 18.48 | 66528 |
| 26 | WSS Laluwal | 247 | 137 | 16.1 | 160 | 25.98 | 93528 |

The Transmissivity value has been calculated by conducting pumping test on tubewell for which the average value (based on pumping and recovery test) obtained of the order of 3866 $m^2$/day, it indicates that the aquifer has a high capacity to transmit groundwater. Transmissivity reflects the ability of the entire saturated thickness of the aquifers to transmit water, and a value of this magnitude suggests that the aquifer materials are composed of high permeable formations such as coarse sands, gravels, pebbles, cobbles and boulders. Such formations allow substantial amounts of water to move through them, making the aquifer suitable for high-yield wells commonly used for irrigation, domestic, or industrial water supply. Storativity value taken as $3.0x10^{-4}$which shows that ground water exists under confined conditions. The pumping test was conducted on tubewell number 13,draw down to the tune of 14 m was created in the
well and water level was recovered in 25 seconds, indicating that the formations in the area are highly permeable and there is enormous recharge area which makes the recovery of water level very fast. Borewell no, site , Ground Level, Water level and water level elevation is given in table-3.

**Table-3 : Water Table Elevation**

| S.NO | BOREWELL NO | SITE | GROUND LEVEL (m.a.m.s.l) | WATER LEVEL ( m.b.g.l) | WATER LEVEL ELEVATION m.a.m.s.l |
|---|---|---|---|---|---|
| 1 | BORE 1 | BEETAN NEAR COLLEGE | 520.219 | 158 | 362.2 |
| 2 | BORE 2 | JAKEWAL NEAR GAUSHALA | 481.765 | 137.19 | 344.6 |
| 3 | BORE 3 | SINGAN PIZA METER | 486.337 | 127.5 | 358.8 |
| 4 | BORE 4 | BULK DRUG PARK | 437.832 | 90.54 | 347.3 |
| 5 | BORE 5 | BULK DRUG PARK | 450.595 | 94.5 | 356.1 |
| 6 | BORE 6 | BULK DRUG PARK | 457.145 | 103 | 354.1 |
| 7 | BORE 7 | BULK DRUG PARK | 467.181 | 116 | 351.2 |
| 8 | BORE 8 | GONDPUR BULLA NICHLA | 460.227 | 105 | 355.2 |
| 9 | BORE 9 | BULK DRUG PARK | 481.973 | 132 | 350.0 |
| 10 | BORE 10 | BULK DRUG PARK | 464.405 | 107 | 357.4 |
| 11 | BORE 11 | BULK DRUG PARK | 470.686 | 116 | 354.7 |
| 12 | BORE 12 | BULK DRUG PARK | 477.411 | 121 | 356.4 |
| 13 | BORE 13 | GONDPUR JAICHAND NEAR POND | 461.67 | 107 | 354.7 |
| 14 | BORE 14 | WSS GONDPUR JAICHAND | 482.81 | 129.57 | 353.24 |
| 15 | BORE 15 | GONDPUR JAICHAND NEAR SHAMSHAN GHAT | 506.651 | 165 | 341.7 |
| 16 | BORE 16 | WSS DULHER | 512.053 | 162 | 350.1 |
| 17 | BORE 17 | LIS HEERA NAGAR | 524.575 | 162 | 362.6 |
| 18 | BORE 18 | WSS POLIAN AT MALUWAL | 511.793 | 155 | 356.8 |
| 19 | BORE 19 | JHOLMAJRA AT POLIAN | 511.19 | 155 | 356.2 |
| 20 | BORE 20 | LIS MALUWAL AT POLIAN | 536.555 | 179 | 357.6 |
| 21 | BORE 21 | KUTHAR BEAT NEAR PANCHAYAT GHAR | 528.275 | 177 | 351.3 |
| 22 | BORE 22 | WSS PUBOWAL(ADB) | 507.952 | 152 | 356.0 |
| 23 | BORE 23 | LIS BILNA | 505.749 | 155 | 350.7 |
| 24 | BORE 24 | LIS OJLE PUBOWAL | 514.201 | 165 | 349.2 |
| 25 | BORE 25 | WSS HELARAN | 519.57 | 159 | 360.6 |
| 26 | BORE 26 | LIS DEETAN | 505.28 | 155 | 350.3 |
| 27 | BORE 27 | WSS LALUWAL | 489.187 | 137 | 352.2 |

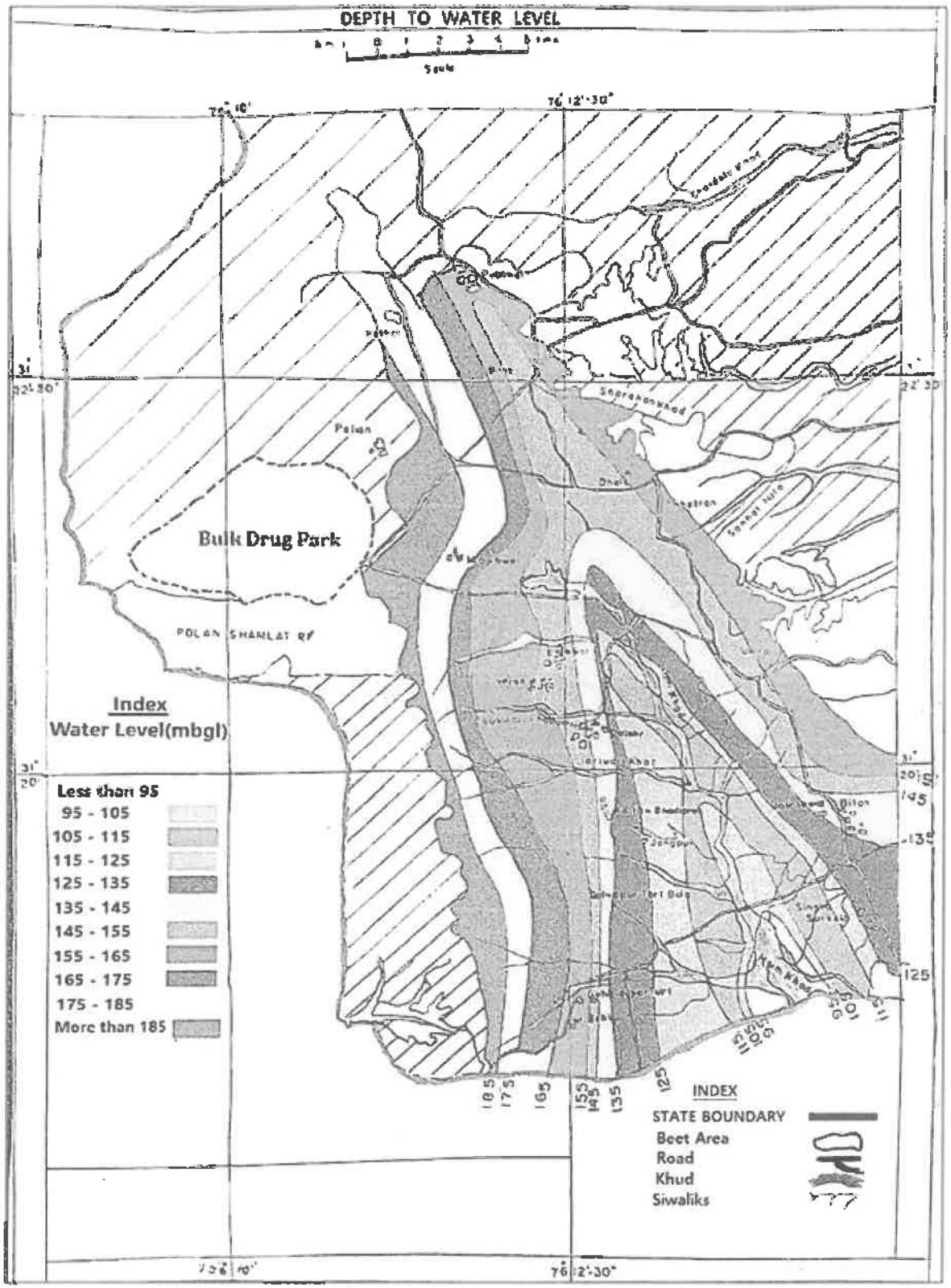
Hydraulic conductivity in the study area is calculated by taking values of Transmissivity divided by total saturated thickness of the Aquifers which comes around 77 m/day, it indicates that the aquifer material allows water to move through it quite easily. Hydraulic conductivity (K) value of 77 m/day is considered high. This suggests that the aquifer is highly permeable and is composed of materials such as coarse sand, gravel, pebble, cobble, and boulders, which have relatively large and well-connected pores.

### 3.2.1 Depth to Water Level

The depth of non-pumping water level in the Beet area varies from 94.5 m to 179 m and the same is given in table 3. Based on the tabular data, the depth to water map fig. 5 was prepared. The map indicates that the minimum water level less than 95 m is in the extreme south-eastern part of the Beet area and maximum 175-185 m is in the north-western portion of the area. The depth to water increases from the center part (Hum Khad) towards hills on both sides. Due to the increase in water levels away from the Hum Khad, inverted 'V' is formed which is vivid in the fig. 11.

The water levels along the western part of the Beet area are very deep along the hills and it is in the range of 165 m to more than 185 m. In the central part of Beet area, the water level is between115 m and 125 m. The water level follows the topography i.e. where the altitude is high, the water levels are deep, and it is less in the lower elevations of the area.

Fig.11


DEPTH TO WATER LEVEL
Bulk Drug Park
POLAN SHANLAT RF
Index
Water Level(mbgl)
Less than 95
95 - 105
105 - 115
115 - 125
125 - 135
135 - 145
145 - 155
155 - 165
165 - 175
175 - 185
More than 185
INDEX
STATE BOUNDARY
Beet Area
Road
Khud
Siwaliks

### 3.2.2 Water Table Elevation

In order to prepare water table elevation map, the altitude of ground surface of all the tubewells with respect to mean sea level were acquired with the help of Total Level Survey points instrument. The water level elevation values were computed, by subtracting the water level from the ground elevation with respect to mean sea level. The borewell number, name of site, ground level elevation (m amsl), water level (m bmsl) and water level elevation (m amsl) are given in the table 3. With the help of data of water level elevation, the attempt was made to prepare the water table contour map, to find out the gradient and mark ground water flow directions,but the same could not be finalized due to wrong ground water flow direction. The reason being that in Beet area ground water is recharged by the Soan and Sutlej rivers, through slip fault marked in fig.3, 7 and 7A

## 4.0 SUB-SURFACE GEOLOGY

In order to supply water to the Bulk Drug Park, 13 boreholes were drilled to convert the same into tubewells. In order to know the sub-surface geology, lithological logs of boreholes drilled were used. The lithology of the existing tubewells was compiled and the tubewells are marked in the Google map which is given in Fig.12 and the lithology of area is incorporated in Fig. 13. The map showing lithology of area in given as fig-14

Fig.12

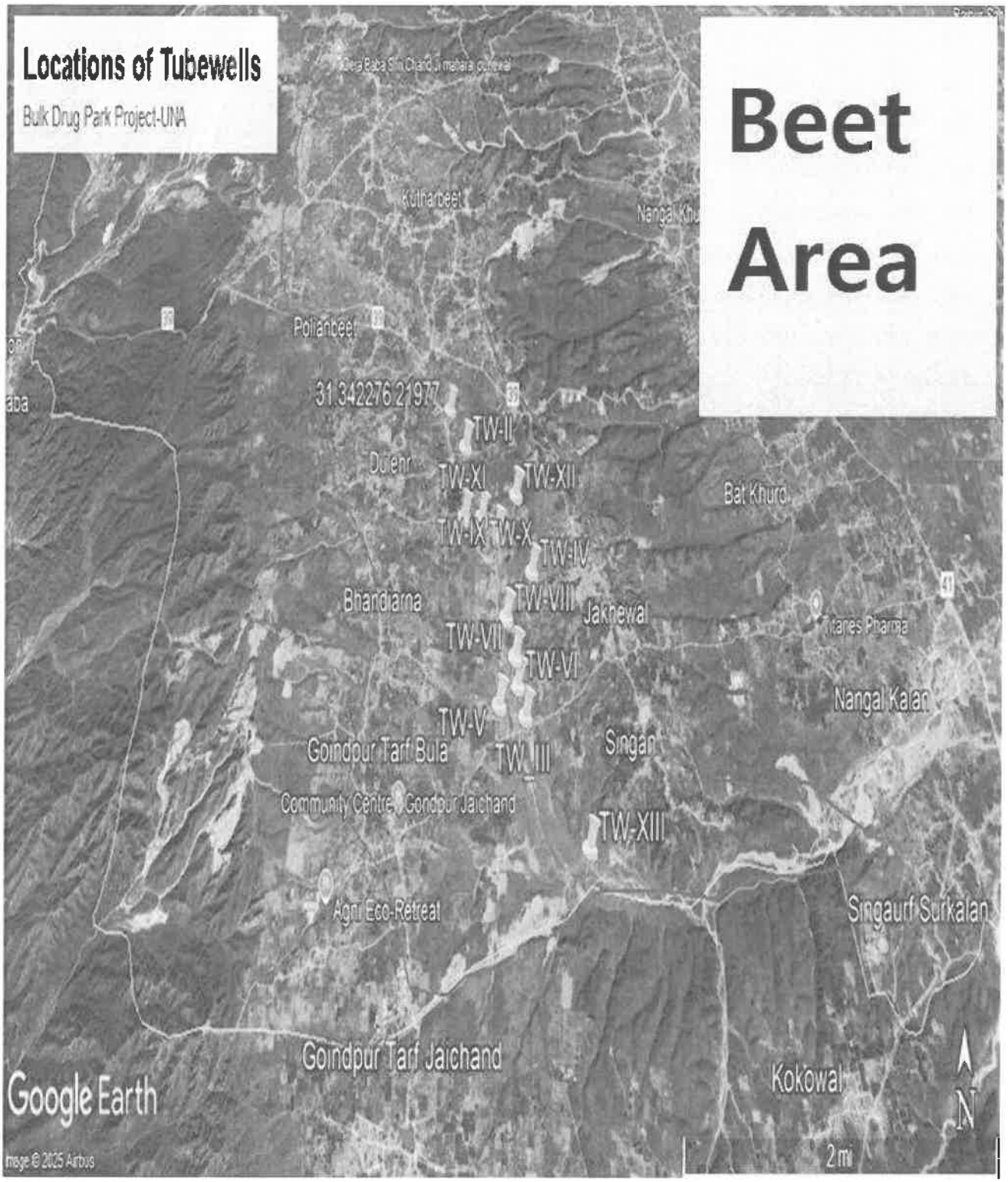

Locations of Tubewells
Bulk Drug Park Project-UNA
Beet Area
Kutha beet
Nangal Khu
Polianbeet
31.342276,21977
TW-II
Dulehn
TW-XI
TW-XII
Bat Khuro
TW-IX
TW-X
TW-IV
Bhandiarna
TW-VIII
Jakhewal
Tiares Pharma
TW-VII
TW-VI
Nangal Kalan
TW-V
Goindpur Tarf Bula
TW_III
Singan
Community Centre, Gondpur Jaichand
TW-XIII
Agni Eco-Retreat
Singaurf Surkalan
Goindpur Tarf Jaichand
Kokowal
N
Google Earth
Image © 2025 Airbus
2 mi

Fig-13

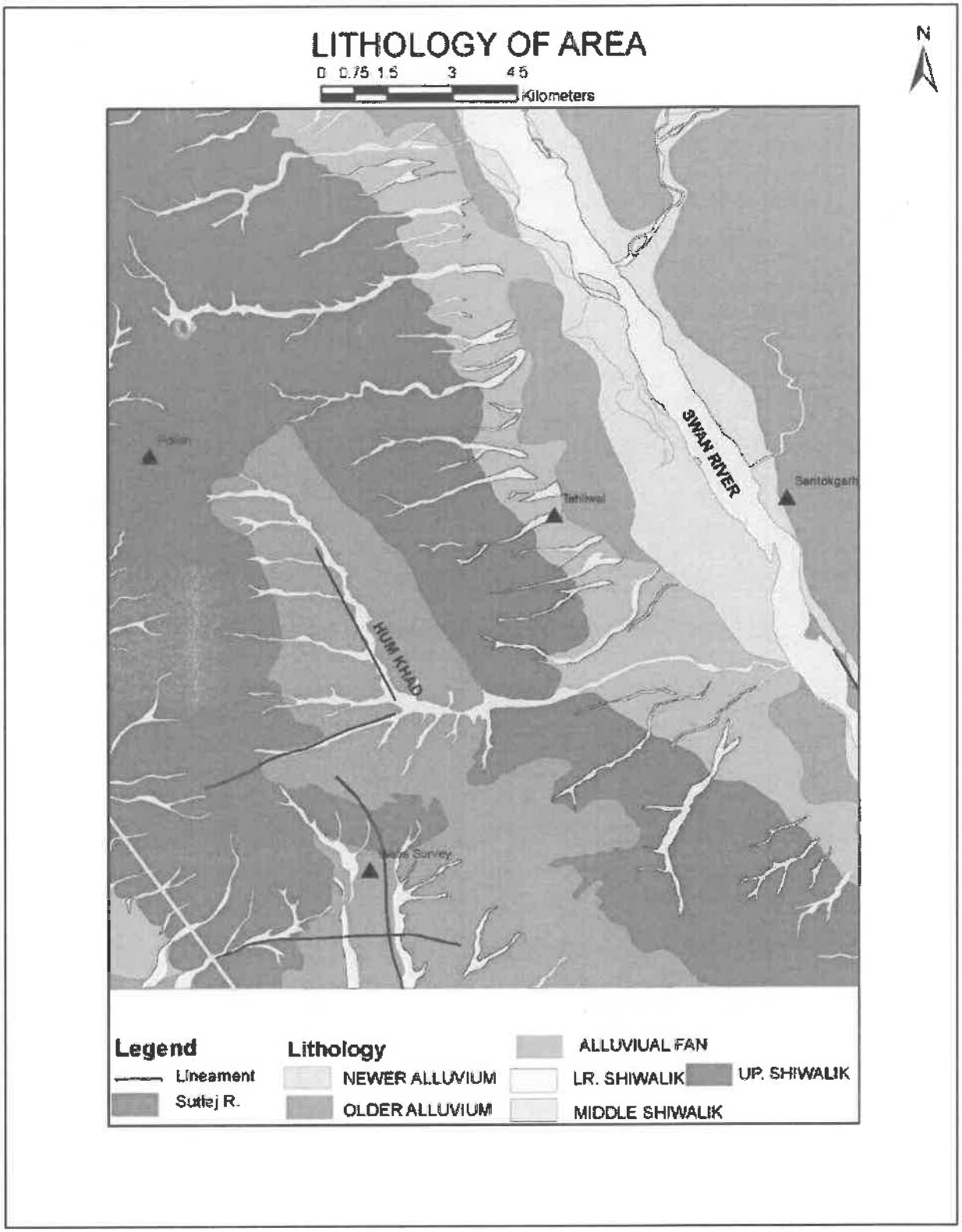
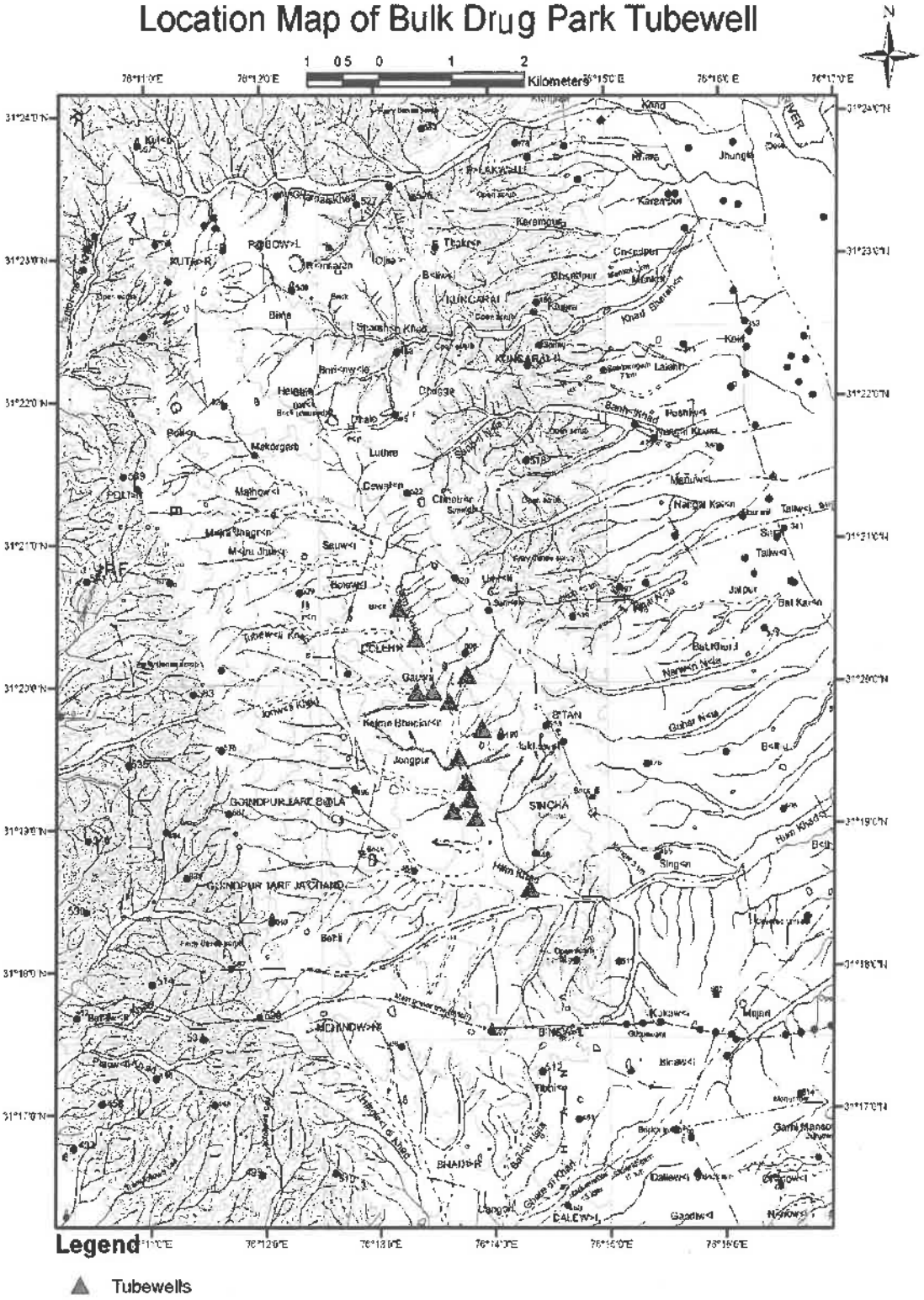

LITHOLOGY OF AREA
0 0.75 1.5 3 4.5
Kilometers
N
SWAN RIVER
HUM KHAD
Tahliwal
Santokgarh
Legend
Lineament
Sutlej R.
Lithology
NEWER ALLUVIUM
OLDER ALLUVIUM
ALLUVIUAL FAN
LR. SHIWALIK
UP. SHIWALIK
MIDDLE SHIWALIK

**Fig-14**




Lithology plays a crucial role in understanding the subsurface conditions that control groundwater occurrence and movement. The grain size, porosity, permeability, and thickness of

each layer indicated in the litholog helps to determine the water-bearing capacity and transmissivity of the subsurface materials. Overall, they provide essential data for groundwater exploration, well design, aquifer testing, and sustainable water resource management. The detailed lithological logs of Borehole drilled within the channel of Hum Khad for Bulk Drug Park in Beet Area, are tabulated below: -

Litholog of Tubewell-I,

| Depth Range (m) | | Thickness (m) | Strata | Saturation Granular Zones |
|---|---|---|---|---|
| 0 | 3 | 3 | Clay | |
| 3 | 15 | 12 | Sand, Gravel, Boulder | |
| 15 | 27 | 12 | Clay, Boulder | |
| 27 | 38 | 11 | Sand, Gravel, Boulder | |
| 38 | 40 | 2 | Clay, Boulder | |
| 40 | 105 | 65 | Sand, Gravel, Boulder | |
| 105 | 129 | 24 | Clay, Boulder | |
| 129 | 152 | **23** | **Sand, Gravel, Boulder** | **129.00 - 152.00** |
| 152 | 158 | 6 | Clay, Boulder | |
| 158 | 165 | 7 | Clay | |
| 165 | 169 | **4** | **Sand, Gravel, Boulder** | **165.00 - 169.00** |
| 169 | 173 | 4 | Clay, Boulder | |
| 173 | 180 | **7** | **Sand, Gravel, Boulder** | **173.00 - 180.00** |
| 180 | 186 | 6 | Clay, Gravel, Sand | |
| 186 | 197 | 11 | Clay | |
| 197 | 202 | **5** | **Sand** | **197.00 - 202.00** |
| 202 | 206 | 4 | Clay | |
| 206 | 214 | **8** | **Sand, Gravel, Boulder** | **206.00 - 214.00** |

| | | | | |
|---|---|---|---|---|
| 214 | 236 | 22 | Clay, Gravel, Sand | |
| 236 | 241 | 5 | Clay | |
| 241 | 248 | **7** | **Sand** | **241.00 - 248.00** |
| 248 | 268 | 20 | Clay | |
| 268 | 282 | **14** | **Sand** | **268.00 - 282.00** |
| 282 | 284 | 2 | Clay | |
| 284 | 295 | 11 | Clay, Gravel, Sand | |

Discharge : 97,200Liters per hour

Water Level : 108.50mbgl

**Cumulative thickness of Saturated Granular zones:** -68 m

Litholog of Tubewell-II,

| **Depth Range (m)** | | **Thickness (m)** | **Strata** | **Saturation Granular Zones** |
|---|---|---|---|---|
| 0 | 3 | 3 | Clay | |
| 3 | 15 | 12 | Sand, Gravel, Boulder | |
| 15 | 30 | 15 | Clay, Boulder | |
| 30 | 37 | 7 | Sand, Gravel, Boulder | |
| 37 | 41 | 4 | Clay, Boulder | |
| 41 | 73 | 32 | Sand, Gravel, Boulder | |
| 73 | 86 | 13 | Clay, Boulder | |
| 86 | 105 | 19 | Sand, Gravel, Boulder | **129.00 - 152.00** |
| 105 | 134 | 29 | Clay, Boulder | |
| 134 | 153 | **19** | **Sand, Gravel, Boulder** | **134.00 - 153.00** |
| 153 | 164 | 11 | Clay, Boulder | |
| 164 | 176 | **12** | **Sand, Gravel, Boulder** | **164.00 - 176.00** |
| 176 | 183 | 7 | Clay | |

| | | | | |
|---|---|---|---|---|
| 183 | 185 | **2** | **Sand** | **183.00 - 185.00** |
| 185 | 192 | 7 | Clay | |
| 192 | 205 | 13 | Clay, Boulder | |
| 205 | 220 | **15** | **Sand, Gravel, Boulder** | **205.00 - 220.00** |
| 220 | 231 | 11 | Clay, Gravel, Sand | |
| 231 | 239 | **8** | **Sand** | **231.00 - 239.00** |
| 239 | 243 | 4 | Clay, Gravel, Sand | |
| 243 | 254 | **11** | **Sand** | **243.00 - 254.00** |
| 254 | 258 | 4 | Clay | |
| 258 | 262 | **4** | **Sand** | **268.00 - 282.00** |
| 262 | 268 | 6 | Clay | |
| 268 | 280 | 12 | Clay, Gravel, Sand | |

Discharge : 93,600Litres per hour

Water Level : 108.50mbgl

**Cumulative thickness of Saturated Granular zones:** -71 m

Litholog of Tubewell-III,

| Depth Range (m) | | Thickness (m) | Strata | Saturation Granular Zones |
|---|---|---|---|---|
| 0 | 3 | 3 | Clay | |
| 3 | 30 | 27 | Sand, Gravel, Boulder | |
| 30 | 33 | 3 | Clay, Boulder | |
| 33 | 41 | 8 | Sand, Gravel, Boulder | |
| 41 | 43 | 2 | Clay, Boulder | |
| 43 | 52 | 9 | Sand, Gravel, Boulder | |
| 52 | 54 | 2 | Clay, Boulder | |
| 54 | 79 | 25 | Sand, Gravel, Boulder | |
| 79 | 86 | 7 | Clay | |
| 86 | 117 | 31 | Sand, Gravel, Boulder | |
| 117 | 120 | 3 | Clay | |
| 120 | 129 | **9** | **Sand** | **120.00 - 129.00** |
| 129 | 135 | 6 | Clay | |
| 135 | 159 | **24** | **Sand, Gravel, Boulder** | **135.00 - 159.00** |
| 159 | 163 | 4 | Clay | |
| 163 | 169 | **6** | **Sand** | **163.00 - 169.00** |
| 169 | 173 | 4 | Clay | |
| 173 | 184 | **11** | **Sand** | **173.00 - 184.00** |
| 184 | 195 | 11 | Clay | |
| 195 | 205 | **10** | **Sand** | **195.00 - 205.00** |
| 205 | 207 | 2 | Clay, Gravel, Sand | |
| 207 | 215 | **8** | **Sand, Gravel, Boulder** | **207.00 - 215.00** |
| 215 | 219 | 4 | Clay | |

| | | | | |
|---|---|---|---|---|
| 219 | 230 | **11** | **Sand, Gravel, Boulder** | **219.00 - 230.00** |
| 230 | 240 | 10 | Clay, Gravel, Sand | |

Discharge : 93,600 litres per hour

Water Level : 94.51mbgl

**Cumulative thickness of Saturated Granular zones:** -79 m

Litholog of Tubewell-IV,

| **Depth Range (m)** | | **Thickness (m)** | **Strata** | **Saturation Granular Zones** |
|---|---|---|---|---|
| 0 | 3 | 3 | Clay | |
| 3 | 23 | 20 | Sand, Gravel, Boulder | |
| 23 | 41 | 18 | Clay, Boulder | |
| 41 | 76 | 35 | Sand, Gravel, Boulder | |
| 76 | 83 | 7 | Clay | |
| 83 | 102 | 19 | Sand, Gravel, Boulder | |
| 102 | 110 | 8 | Clay, Boulder | |
| 110 | 114 | 4 | Sand, Gravel, Boulder | **129.00 - 152.00** |
| 114 | 118 | 4 | Clay, Boulder | |
| 118 | 129 | **11** | **Sand** | **118.00 - 129.00** |
| 129 | 132 | 3 | Clay, Gravel, Sand | |
| 132 | 154 | **22** | **Sand, Gravel, Boulder** | **132.00 - 154.00** |
| 154 | 160 | 6 | Clay | |
| 160 | 169 | **9** | **Sand, Gravel, Boulder** | **160.00 - 169.00** |
| 169 | 177 | 8 | Clay | |
| 177 | 195 | **18** | **Sand** | **177.00 - 195.00** |

| | | | | |
|---|---|---|---|---|
| 195 | 197 | 2 | Clay | |
| 197 | 204 | 7 | **Sand** | **197.00 - 204.00** |
| 204 | 206 | 2 | Clay | |

Discharge : 90,000litres per hour

Water Level : 115.85mbgl

**Cumulative thickness of Saturated Granular zones: -** 67m

Litholog of Tubewell-V

| **Depth Range (m)** | | **Thickness (m)** | **Strata** | **Saturation Granular Zones** |
|---|---|---|---|---|
| 0 | 3 | 3 | Clay | |
| 3 | 17 | 14 | Clay, Boulder | |
| 17 | 39 | 22 | Sand, Gravel, Boulder | |
| 39 | 42 | 3 | Clay | |
| 42 | 49 | 7 | Sand, Gravel, Boulder | |
| 49 | 54 | 5 | Clay | |
| 54 | 88 | 34 | Sand, Gravel, Boulder | |
| 88 | 95 | 7 | Clay | **129.00 - 152.00** |
| 95 | 125 | 30 | Sand, Gravel, Boulder | |
| 125 | 130 | 5 | Clay, Gravel, Sand | |
| 130 | 141 | 11 | Sand | **165.00 - 169.00** |
| 141 | 145 | 4 | Clay, Gravel, Sand | |
| 145 | 161 | 16 | Sand, Gravel, Boulder | **173.00 - 180.00** |
| 161 | 174 | 13 | Clay, Boulder | |
| 174 | 177 | 3 | Sand, Gravel, Boulder | |
| 177 | 185 | 8 | Clay | **197.00 - 202.00** |

| | | | | |
|---|---|---|---|---|
| 185 | 191 | 6 | Sand, Gravel, Boulder | |
| 191 | 216 | 25 | Clay, Boulder | **206.00 - 214.00** |
| 216 | 225 | 9 | Sand, Gravel, Boulder | |
| 225 | 229 | 4 | Clay | |
| 229 | 236 | 7 | Sand, Gravel, Boulder | **241.00 - 248.00** |
| 236 | 242 | 6 | Clay | |
| 242 | 271 | 29 | Sand, Gravel, Boulder | **268.00 - 282.00** |
| 271 | 281 | 10 | Clay | |
| 281 | 284 | 3 | Sand | |
| 284 | 288 | 4 | Clay | |
| 288 | 292 | 4 | Sand | |
| 292 | 300 | 8 | Clay | |

Discharge : 90,000 litres per hour

Water Level : 105.18mbgl

**Cumulative thickness of Saturated Granular zones: -** 68 m

Litholog of Tubewell-VI

| Depth Range (m) | | Thickness (m) | Strata | Saturation Granular Zones |
|---|---|---|---|---|
| 0 | 3 | 3 | Clay | |
| 3 | 15 | 12 | Sand, Gravel, Boulder | |
| 15 | 35 | 20 | Clay | |
| 35 | 40 | 5 | Sand, Gravel, Boulder | |
| 40 | 58 | 18 | Clay | |
| 58 | 85 | 27 | Sand, Gravel, Boulder | |
| 85 | 89 | 4 | Clay | |
| 89 | 123 | 34 | Sand, Gravel, Boulder | |
| 123 | 125 | 2 | Clay | |
| 125 | 135 | **10** | **Sand, Gravel, Boulder** | **125.00 - 135.00** |
| 135 | 139 | 4 | Clay, Gravel, Sand | |
| 139 | 158 | **19** | **Sand, Gravel, Boulder** | **139.00 - 158.00** |
| 158 | 166 | 8 | Clay | |
| 166 | 173 | **7** | **Sand, Gravel, Boulder** | **166.00 - 173.00** |
| 173 | 179 | 6 | Clay | |
| 179 | 188 | **9** | **Sand, Gravel, Boulder** | **179.00 - 188.00** |
| 188 | 207 | 19 | Clay, Boulder | |
| 207 | 218 | **11** | **Sand, Gravel, Boulder** | **207.00 - 218.00** |
| 218 | 225 | 7 | Clay | |
| 225 | 232 | **7** | **Sand, Gravel, Boulder** | **225.00 - 232.00** |
| 232 | 236 | 4 | Clay | |
| 236 | 239 | **3** | **Sand, Gravel, Boulder** | **236.00 - 239.00** |
| 239 | 255 | 16 | Clay | |

| | | | | |
|---|---|---|---|---|
| 255 | 261 | **6** | **Sand, Gravel, Boulder** | **255.00 - 261.00** |
| 261 | 263 | 2 | Clay | |
| 263 | 273 | **10** | **Sand, Gravel, Boulder** | **263.00 - 273.00** |
| 273 | 276 | 3 | Clay | |
| 276 | 280 | **4** | **Sand, Gravel, Boulder** | **276.00 - 280.00** |
| 280 | 283 | 3 | Clay | |
| 283 | 292 | **9** | **Sand** | **283.00 - 292.00** |
| 292 | 300 | 8 | Clay | |

Discharge : 92,700litres per hour

Water Level : 92.99mbgl

**Cumulative thickness of Saturated Granular zones:** -95 m

Litholog of Tubewell-VII

| **Depth Range (m)** | | **Thickness (m)** | **Strata** | **Saturation Granular Zones** |
|---|---|---|---|---|
| 0 | 3 | 3 | Clay | |
| 3 | 18 | 15 | Clay, Boulder | |
| 18 | 30 | 12 | Sand, Gravel, Boulder | |
| 30 | 38 | 8 | Clay, Boulder | |
| 38 | 45 | 7 | Sand, Gravel, Boulder | |
| 45 | 50 | 5 | Clay, Boulder | |
| 50 | 56 | 6 | Sand, Gravel, Boulder | |
| 56 | 60 | 4 | Clay, Boulder | |
| 60 | 85 | 25 | Sand, Gravel, Boulder | |
| 85 | 102 | 17 | Clay, Boulder | |
| 102 | 111 | 9 | Sand, Gravel, Boulder | |
| 111 | 120 | 9 | Clay, Boulder | |

| | | | | |
|---|---|---|---|---|
| 120 | 138 | **18** | **Sand** | **120.00 - 138.00** |
| 138 | 142 | 4 | Clay | |
| 142 | 149 | **7** | **Sand, Gravel, Boulder** | **142.00 - 149.00** |
| 149 | 153 | 4 | Clay, Boulder | |
| 153 | 159 | **6** | **Sand, Gravel, Boulder** | **153.00 - 159.00** |
| 159 | 169 | 10 | Clay, Boulder | |
| 169 | 177 | **8** | **Sand, Gravel, Boulder** | **169.00 - 177.00** |
| 177 | 183 | 6 | Clay | |
| 183 | 187 | **4** | **Sand** | **183.00 - 187.00** |
| 187 | 215 | 28 | Clay | |
| 215 | 223 | **8** | **Sand, Gravel, Boulder** | **215.00 - 223.00** |
| 223 | 230 | 7 | Clay | |
| 230 | 258 | **28** | **Sand** | **230.00 - 258.00** |
| 258 | 267 | 9 | Clay | |
| 267 | 277 | **10** | **Sand** | **267.00 - 277.00** |
| 277 | 280 | 3 | Clay | |
| 280 | 285 | **5** | **Sand, Gravel, Boulder** | **280.00 - 285.00** |
| 285 | 288 | 3 | Clay | |
| 288 | 293 | **5** | **Sand** | **288.00 - 293.00** |
| 293 | 300 | 7 | Clay | |

Discharge : 93,500 litres per hour

Water Level : 102.10mbgl

**Cumulative thickness of Saturated Granular zones:** -99 m

Litholog of Tubewell-VIII

| Depth Range (m) | | Thickness (m) | Strata | Saturation Granular Zones |
|---|---|---|---|---|
| 0 | 3 | 3 | Clay | |
| 3 | 15 | 12 | Sand, Gravel, Boulder | |
| 15 | 18 | 3 | Clay, Boulder | |
| 18 | 32 | 14 | Sand, Gravel, Boulder | |
| 32 | 38 | 6 | Clay | |
| 38 | 45 | 7 | Sand, Gravel, Boulder | |
| 45 | 50 | 5 | Clay | |
| 50 | 84 | 34 | Sand, Gravel, Boulder | |
| 84 | 92 | 8 | Clay | |
| 92 | 108 | 16 | Sand, Gravel, Boulder | |
| 108 | 151 | 43 | Clay | |
| 151 | 156 | **5** | **Sand, Gravel, Boulder** | **151.00 - 156.00** |
| 156 | 159 | 3 | Clay, Boulder | |
| 159 | 163 | **4** | **Sand, Gravel, Boulder** | **159.00 - 163.00** |
| 163 | 169 | 6 | Clay | |
| 169 | 179 | **10** | **Sand, Gravel, Boulder** | **169.00 - 179.00** |
| 179 | 185 | 6 | Clay | |
| 185 | 189 | **4** | **Sand** | **185.00 - 189.00** |
| 189 | 214 | 25 | Clay | |
| 214 | 223 | **9** | **Sand, Gravel, Boulder** | **214.00 - 223.00** |
| 223 | 227 | 4 | Clay | |
| 227 | 234 | **7** | **Sand** | **227.00 - 234.00** |
| 234 | 238 | 4 | Clay | |

| | | | | |
|---|---|---|---|---|
| 238 | 256 | **18** | **Sand** | **238.00 - 256.00** |
| 256 | 266 | 10 | Clay | |
| 266 | 277 | **11** | **Sand** | **266.00 - 277.00** |
| 277 | 281 | 4 | Clay | |
| 281 | 285 | **4** | **Sand** | **281.00 - 285.00** |
| 285 | 290 | 5 | Clay | |

Discharge : 90,000 litres per hour

Water Level : 107.60mbgl

**Cumulative thickness of Saturated Granular zones:** - 65 m

Litholog of Tubewell-IX

| **Depth Range (m)** | | **Thickness (m)** | **Strata** | **Saturation Granular Zones** |
|---|---|---|---|---|
| 0 | 3 | 3 | Clay | |
| 3 | 13 | 10 | Clay, Boulder | |
| 13 | 30 | 17 | Sand, Gravel, Boulder | |
| 30 | 33 | 3 | Clay, Boulder | |
| 33 | 70 | 37 | Sand, Gravel, Boulder | |
| 70 | 88 | 18 | Clay, Boulder | |
| 88 | 107 | 19 | Sand, Gravel, Boulder | |
| 107 | 109 | 2 | Clay, Boulder | |
| 109 | 120 | 11 | Sand, Gravel, Boulder | |
| 120 | 125 | 5 | Clay, Boulder | |
| 125 | 153 | **28** | **Sand, Gravel, Boulder** | **125.00 - 153.00** |
| 153 | 156 | 3 | Clay, Boulder | |
| 156 | 160 | **4** | **Sand, Gravel, Boulder** | **156.00 - 160.00** |

| | | | | |
|---|---|---|---|---|
| 160 | 168 | 8 | Clay | |
| 168 | 176 | **8** | **Sand, Gravel, Boulder** | **168.00 - 176.00** |
| 176 | 183 | 7 | Clay | |
| 183 | 190 | **7** | **Sand, Gravel, Boulder** | **183.00 - 190.00** |
| 190 | 212 | 22 | Clay | |
| 212 | 221 | **9** | **Sand, Gravel, Boulder** | **212.00 - 221.00** |
| 221 | 241 | 20 | Sand | **221.00 - 241.00** |
| 241 | 248 | 7 | Clay | |
| 248 | 258 | **10** | **Sand** | **248.00 - 258.00** |
| 258 | 267 | 9 | Clay | |
| 267 | 278 | **11** | **Sand** | **267.00 - 278.00** |
| 278 | 281 | 3 | Clay | |
| 281 | 284 | **3** | **Sand** | **281.00 - 284.00** |
| 284 | 286 | 2 | Clay | |
| 286 | 292 | **6** | **Sand** | **286.00 - 292.00** |
| 292 | 300 | 8 | Clay | |

Discharge : 93,600Liters per hour

Water Level : 106.70 m

**Cumulative thickness of Saturated Granular zones:** -86m

Litholog of Tubewell-X

| Depth Range (m) | | Thickness (m) | Strata | Saturation Granular Zones |
|---|---|---|---|---|
| 0 | 3 | 3 | Clay | |
| 3 | 19 | 16 | Sand, Gravel, Boulder | |
| 19 | 21 | 2 | Clay, Boulder | |
| 21 | 32 | 11 | Sand, Gravel, Boulder | |
| 32 | 36 | 4 | Clay, Boulder | |
| 36 | 85 | 49 | Sand, Gravel, Boulder | |
| 85 | 90 | 5 | Clay | |
| 90 | 113 | 23 | Sand, Gravel, Boulder | |
| 113 | 115 | 2 | Clay | |
| 115 | 121 | **6** | **Sand, Gravel, Boulder** | **115.00 - 121.00** |
| 121 | 124 | 3 | Clay | |
| 124 | 146 | **22** | **Sand, Gravel, Boulder** | **124.00 - 146.00** |
| 146 | 151 | 5 | Clay, Boulder | |
| 151 | 157 | **6** | **Sand, Gravel, Boulder** | **151.00 - 157.00** |
| 157 | 170 | 13 | Clay | |
| 170 | 176 | **6** | **Sand, Gravel, Boulder** | **170.00 - 176.00** |
| 176 | 214 | 38 | Clay | |
| 214 | 222 | **8** | **Sand, Gravel, Boulder** | **214.00 - 222.00** |
| 222 | 227 | 5 | Clay | |
| 227 | 234 | **7** | **Sand** | **227.00 - 234.00** |
| 234 | 238 | 4 | Clay | |
| 238 | 241 | **3** | **Sand** | **238.00 - 241.00** |
| 241 | 250 | 9 | Clay | |

| | | | | |
|---|---|---|---|---|
| 250 | 257 | **7** | **Sand** | **250.00 - 257.00** |
| 257 | 268 | 11 | Clay | |
| 268 | 281 | **13** | **Sand, Gravel, Boulder** | **268.00 - 281.00** |
| 281 | 283 | 2 | Clay | |
| 283 | 288 | **5** | **Sand** | **283.00 - 288.00** |
| 288 | 290 | 2 | Clay | |
| 290 | 295 | **5** | **Sand** | **290.00 - 295.00** |
| 295 | 300 | 5 | Clay | |

Discharge : 93,600Liters per hour

Water Level : 102.13mbgl

**Cumulative thickness of Saturated Granular zones:** -88 m

Litholog of Tubewell-XI

| **Depth Range (m)** | | **Thickness (m)** | **Strata** | **Saturation Granular Zones** |
|---|---|---|---|---|
| 0 | 3 | 3 | Clay | |
| 3 | 17 | 14 | Sand, Gravel, Boulder | |
| 17 | 19 | 2 | Clay, Boulder | |
| 19 | 36 | 17 | Sand, Gravel, Boulder | |
| 36 | 41 | 5 | Clay | |
| 41 | 45 | 4 | Sand, Gravel, Boulder | |
| 45 | 50 | 5 | Clay | |
| 50 | 57 | 7 | Sand, Gravel, Boulder | |
| 57 | 63 | 6 | Clay | |
| 63 | 76 | 13 | Sand, Gravel, Boulder | |
| 76 | 97 | 21 | Clay, Boulder | |
| 97 | 107 | 10 | Sand, Gravel, Boulder | |

| | | | | |
|---|---|---|---|---|
| 107 | 109 | 2 | Clay, Boulder | |
| 109 | 115 | 6 | Sand, Gravel, Boulder | |
| 115 | 145 | 30 | Clay | |
| 145 | 150 | **5** | **Sand, Gravel, Boulder** | **145.00 - 150.00** |
| 150 | 154 | 4 | Clay | |
| 154 | 163 | **9** | **Sand, Gravel, Boulder** | **154.00 - 163.00** |
| 163 | 168 | 5 | Clay, Boulder | |
| 168 | 177 | 9 | Clay | |
| 177 | 184 | **7** | **Sand, Gravel, Boulder** | **177.00 - 184.00** |
| 184 | 194 | 10 | Clay | |
| 194 | 200 | **6** | **Sand** | **194.00 - 200.00** |
| 200 | 218 | 18 | Clay | |
| 218 | 230 | **12** | **Sand, Gravel, Boulder** | **218.00 - 230.00** |
| 230 | 253 | 23 | Clay | |
| 253 | 262 | **9** | **Sand** | **253.00 - 262.00** |
| 262 | 272 | 10 | Clay | |
| 272 | 276 | **4** | **Sand** | **272.00 - 276.00** |
| 276 | 278 | 2 | Clay | |
| 278 | 294 | **16** | **Sand** | **278.00 - 294.00** |
| 294 | 300 | 6 | Clay | |

Discharge : 90,000Liters per hour

Water Level : 116.46 mbgl

**Cumulative thickness of Saturated Granular zones:** - 67 m

Litholog of Tubewell-XII

| Depth Range (m) | | Thickness (m) | Strata | Saturation Granular Zones |
|---|---|---|---|---|
| 0 | 3 | 3 | Clay | |
| 3 | 17 | 14 | Sand, Gravel, Boulder | |
| 17 | 19 | 2 | Clay, Boulder | |
| 19 | 67 | 48 | Sand, Gravel, Boulder | |
| 67 | 73 | 6 | Clay | |
| 73 | 92 | 19 | Sand, Gravel, Boulder | |
| 92 | 95 | 3 | Clay, Boulder | |
| 95 | 106 | 11 | Sand, Gravel, Boulder | |
| 106 | 109 | 3 | Clay, Boulder | |
| 109 | 118 | 9 | Sand, Gravel, Boulder | |
| 118 | 125 | 7 | Clay | |
| 125 | 146 | 21 | Sand, Gravel, Boulder | |
| 146 | 151 | 5 | Clay | |
| 151 | 163 | **12** | **Sand, Gravel, Boulder** | **151.00 - 163.00** |
| 163 | 168 | 5 | Clay | |
| 168 | 175 | **7** | **Sand, Gravel, Boulder** | **168.00 - 175.00** |
| 175 | 197 | 22 | Clay | |
| 197 | 210 | **13** | **Sand, Gravel, Boulder** | **197.00 - 210.00** |
| 210 | 223 | 13 | Clay | |
| 223 | 228 | **5** | **Sand** | **223.00 - 228.00** |
| 228 | 232 | 4 | Clay | |
| 232 | 237 | **5** | **Sand** | **232.00 - 237.00** |
| 237 | 241 | 4 | Clay | |

| | | | | |
|---|---|---|---|---|
| 241 | 244 | **3** | **Sand** | **241.00 - 244.00** |
| 244 | 251 | 7 | Clay | |
| 251 | 257 | **6** | **Sand** | **251.00 - 257.00** |
| 257 | 261 | 4 | Clay | |
| 261 | 272 | **11** | **Sand** | **261.00 - 272.00** |
| 272 | 285 | 13 | Clay | |
| 285 | 291 | **6** | **Sand** | **285.00 - 291.00** |
| 291 | 300 | 9 | Clay | |

Discharge : 91,300Liters per hour

Water Level : 132.60 m

**Cumulative thickness of Saturated Granular zones:** - 68 m

Litholog of Tubewell-XIII

| **Depth Range (m)** | | **Thickness (m)** | **Strata** | **Saturation Granular Zones** |
|---|---|---|---|---|
| 0 | 3 | 3 | Clay | |
| 3 | 20 | 17 | Sand, Gravel, Boulder | |
| 20 | 23 | 3 | Clay, Boulder | |
| 23 | 48 | 25 | Sand, Gravel, Boulder | |
| 48 | 53 | 5 | Clay, Boulder | |
| 53 | 90 | 37 | Sand, Gravel, Boulder | |
| 90 | 94 | 4 | Clay | |
| 94 | 101 | 7 | Sand | |
| 101 | 104 | 3 | Clay | |
| 104 | 123 | 19 | Sand, Gravel, Boulder | |
| 123 | 129 | 6 | Clay | |

| | | | | |
|---|---|---|---|---|
| 129 | 134 | **5** | **Sand** | **129.00 - 134.00** |
| 134 | 140 | 6 | Clay | |
| 140 | 165 | **25** | **Sand** | **140.00 - 165.00** |
| 165 | 167 | 2 | Clay | |
| 167 | 171 | **4** | **Sand, Gravel, Boulder** | **167.00 - 171.00** |
| 171 | 175 | 4 | Clay | |
| 175 | 183 | **8** | **Sand, Gravel, Boulder** | **175.00 - 183.00** |
| 183 | 189 | 6 | Clay | |
| 189 | 197 | **8** | **Sand, Gravel, Boulder** | **189.00 - 197.00** |
| 197 | 210 | 13 | Clay | |
| 210 | 222 | **12** | **Sand, Gravel, Boulder** | **210.00 - 222.00** |
| 222 | 225 | 3 | Clay, Boulder | |
| 225 | 235 | **10** | **Sand, Gravel, Boulder** | **225.00 - 235.00** |
| 235 | 237 | 2 | Clay, Boulder | |
| 237 | 249 | **12** | **Sand, Gravel, Boulder** | **237.00 - 249.00** |
| 249 | 265 | 16 | Clay | |

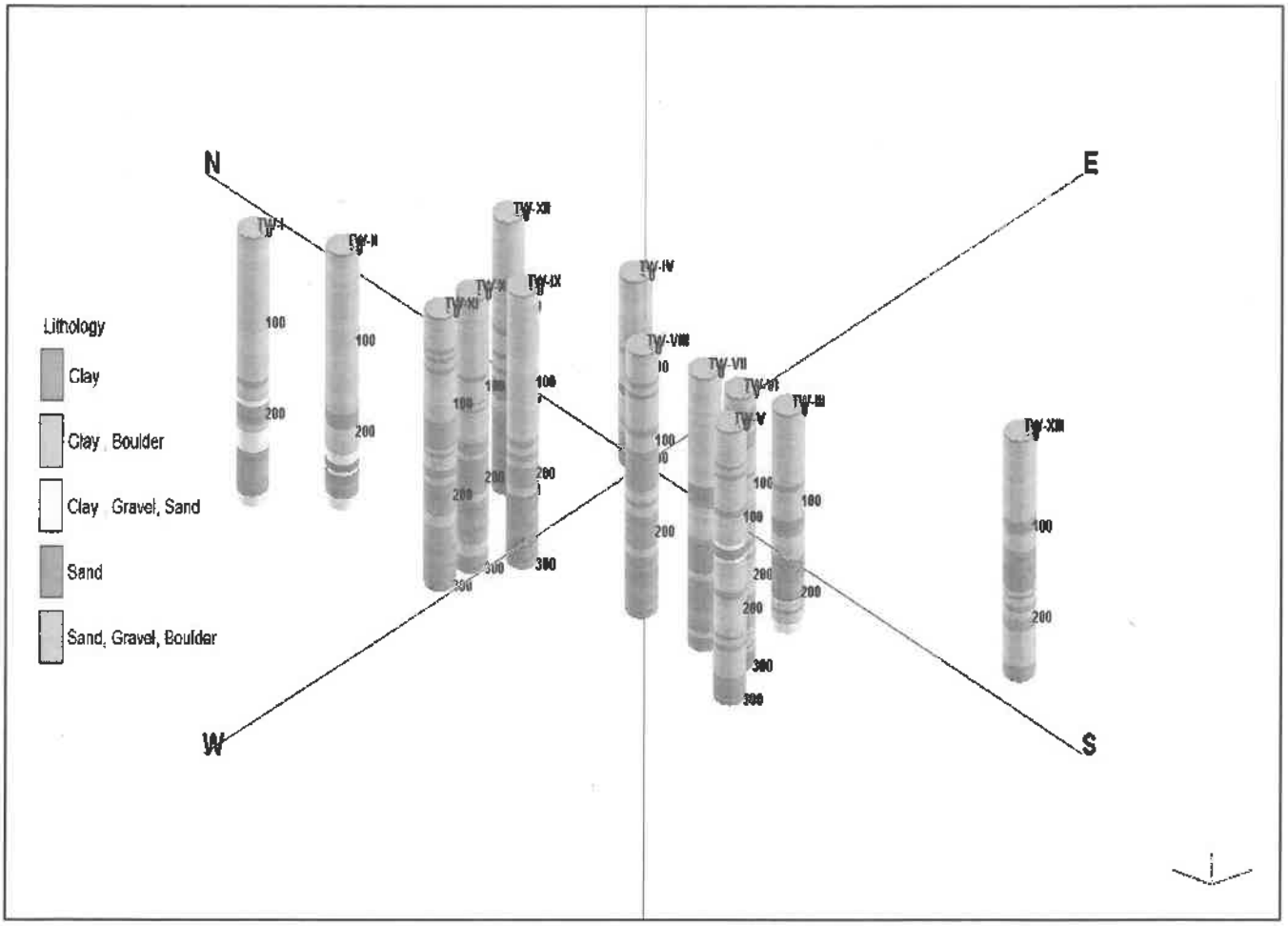
Discharge : 90,000 litres per hour

Water Level : 112.80 m

**Cumulative thickness of Saturated Granular zones:** -84 m

On the basis of Lithological data of Boreholes drilled for construction of tubewells Beet area, it is revealed that the sub-surface geology of the area mainly composed of boulders, cobbles, pebbles, gravels, sand with clay deposits deposited down to a depth of 206 meters to 300 meters depth. The ground water development has been carried out in Beet Area to supply water to Bulk Drug Park which has fresh water aquifers down to a drilled depth of around 310 meters with deep water levels. The Aquifer geometry of the area has been studied in detail. The Lithological section of the boreholes is shown in fig. 15

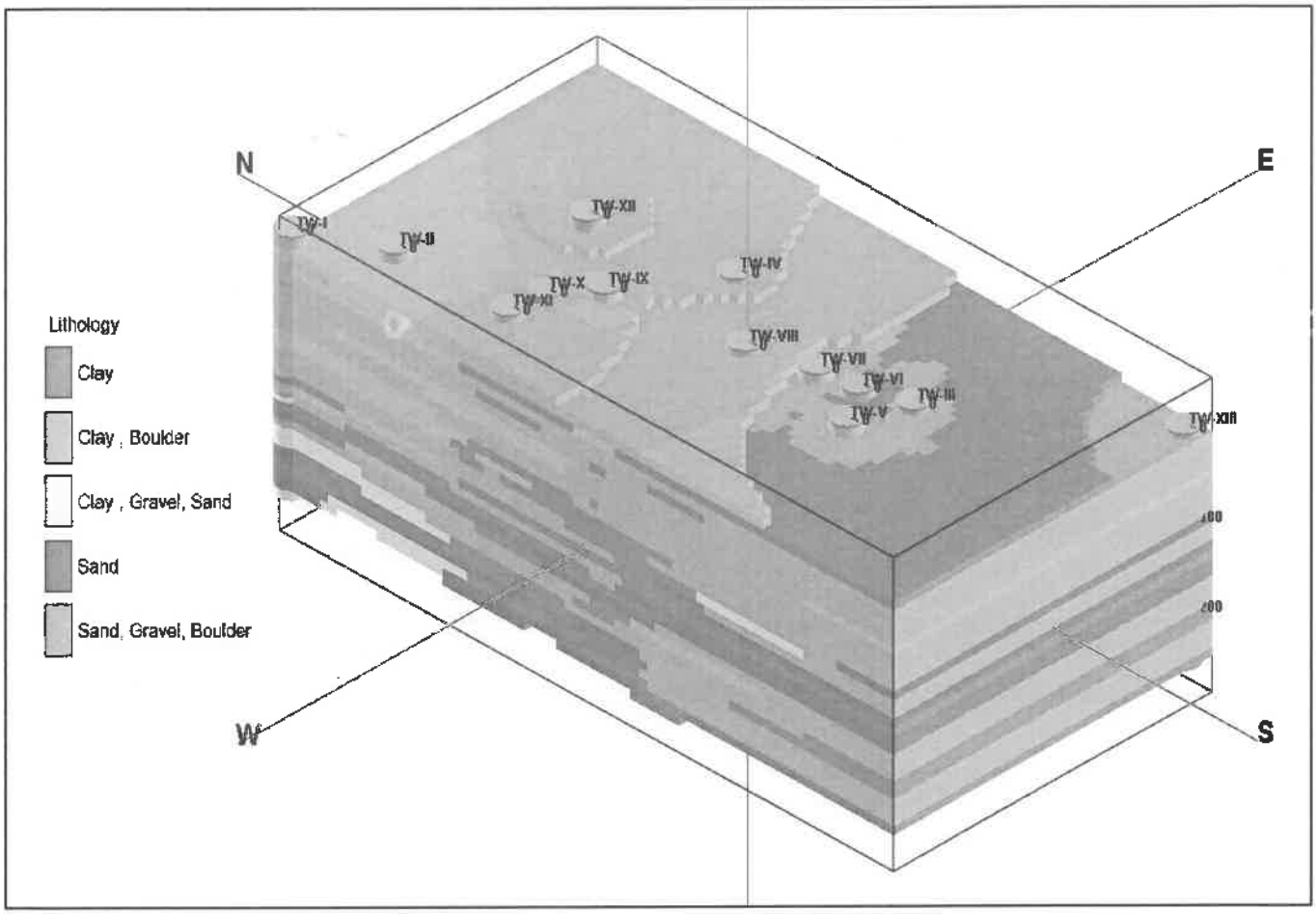
Fig.15




It is vivid from the fig.15 that in the area Aquifers exist down to a depth of 300 (mbgl) meters below ground level.

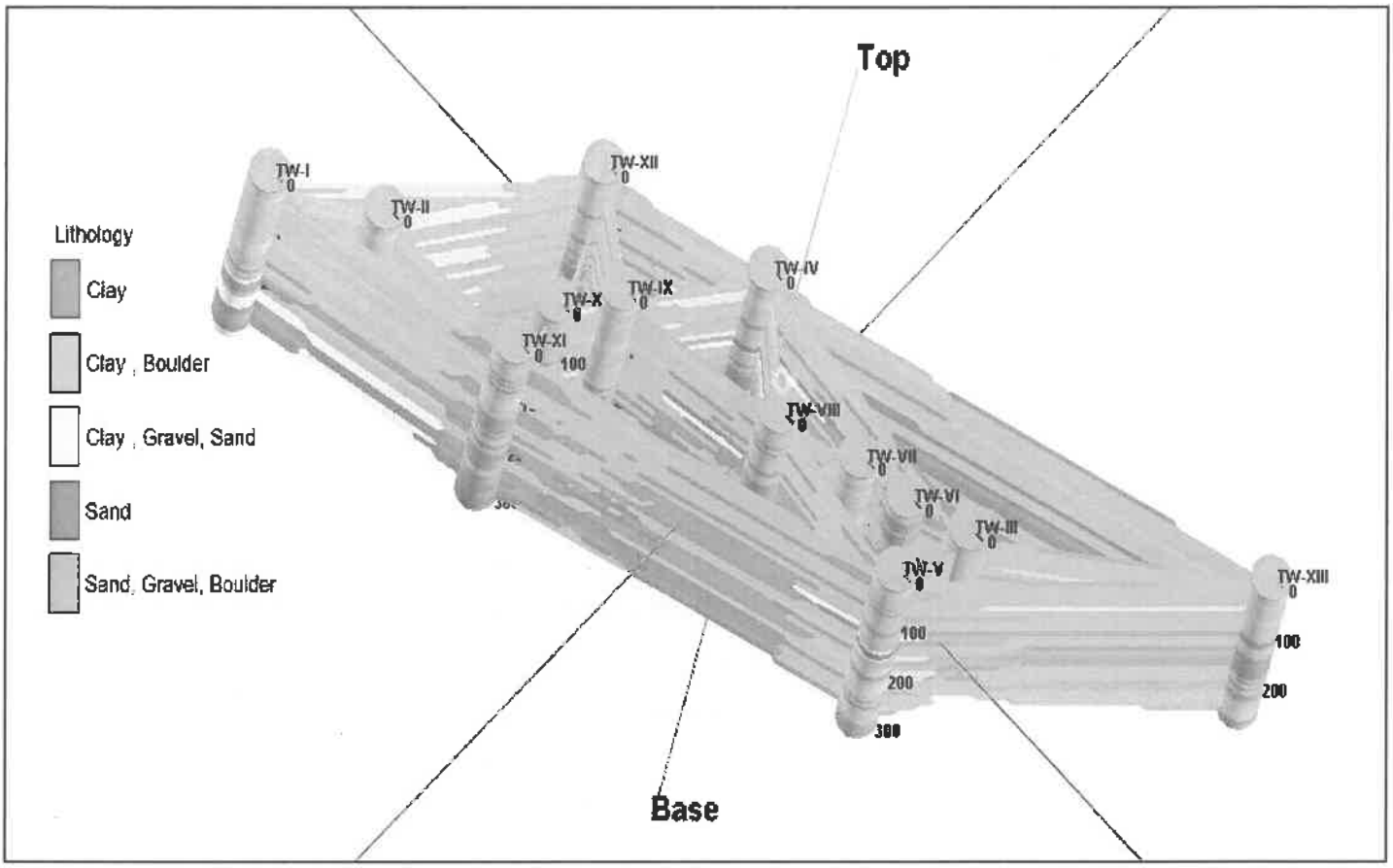
The Hum Khad is situated in the central part of Beet area of Una district; the deposits are mainly composed of granular saturated zones with alternate boulders, pebbles, gravels, sand with thin clay beds. The Lithological data of boreholes drilled in the Beet sites was analysed to know the disposition of the Lithology.

**Fig.16**




The Bulk Drug Park is situated west of Beet area the deposits are mainly composed of granular saturated zones, with alternate boulders, pebbles, gravels, sand & thin clay beds. The Lithological data of boreholes drilled in the Beet area was analysed to know the disposition of the Lithology. 3-D lithological model indicates that the aquifers are quite thick beyond water level in all the drilled sites down to a depth of 300mbgl. 3-Dimensional Lithological model of the area was prepared & shown below in fig.16

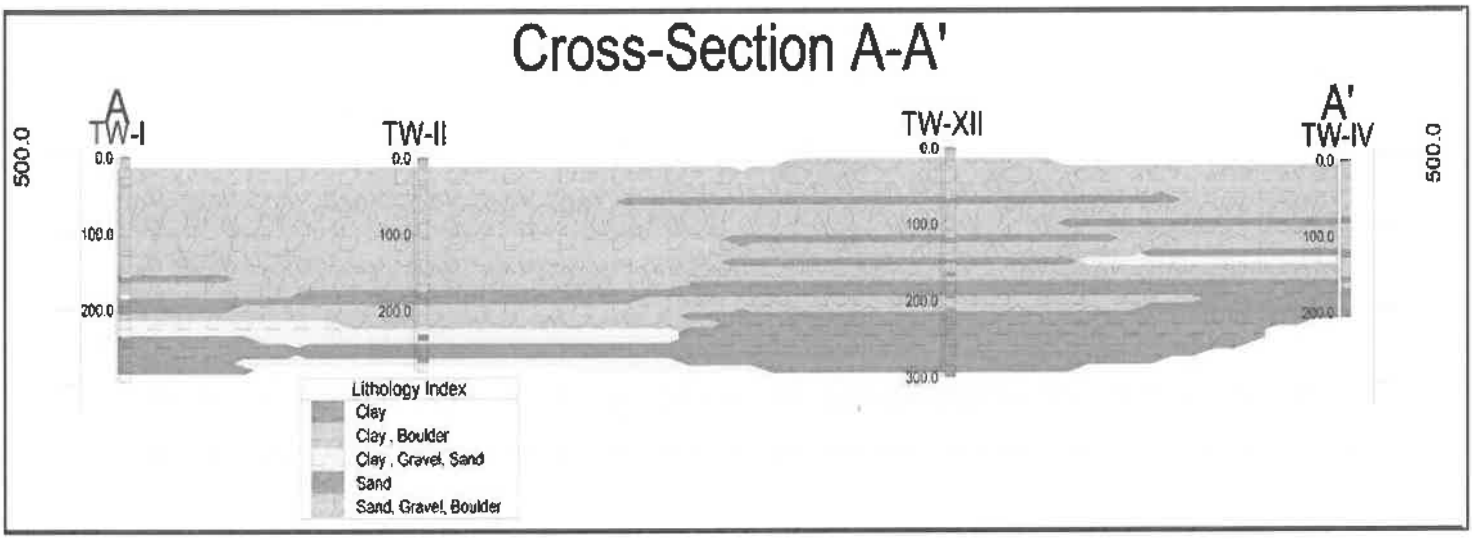
**Fig-17**

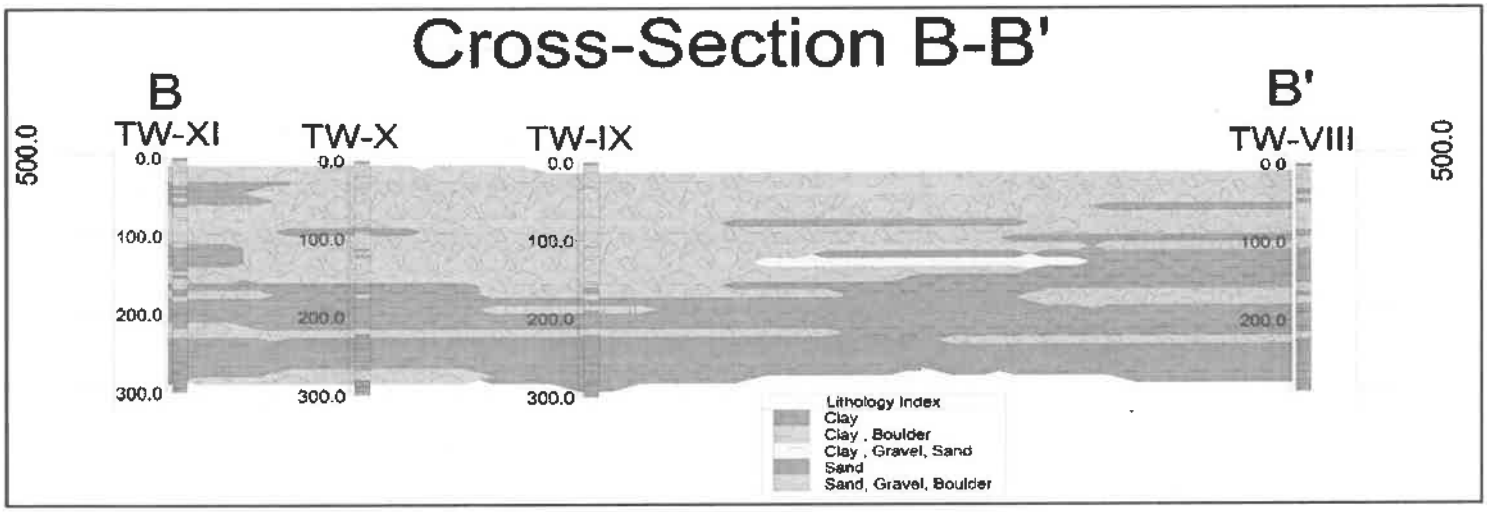


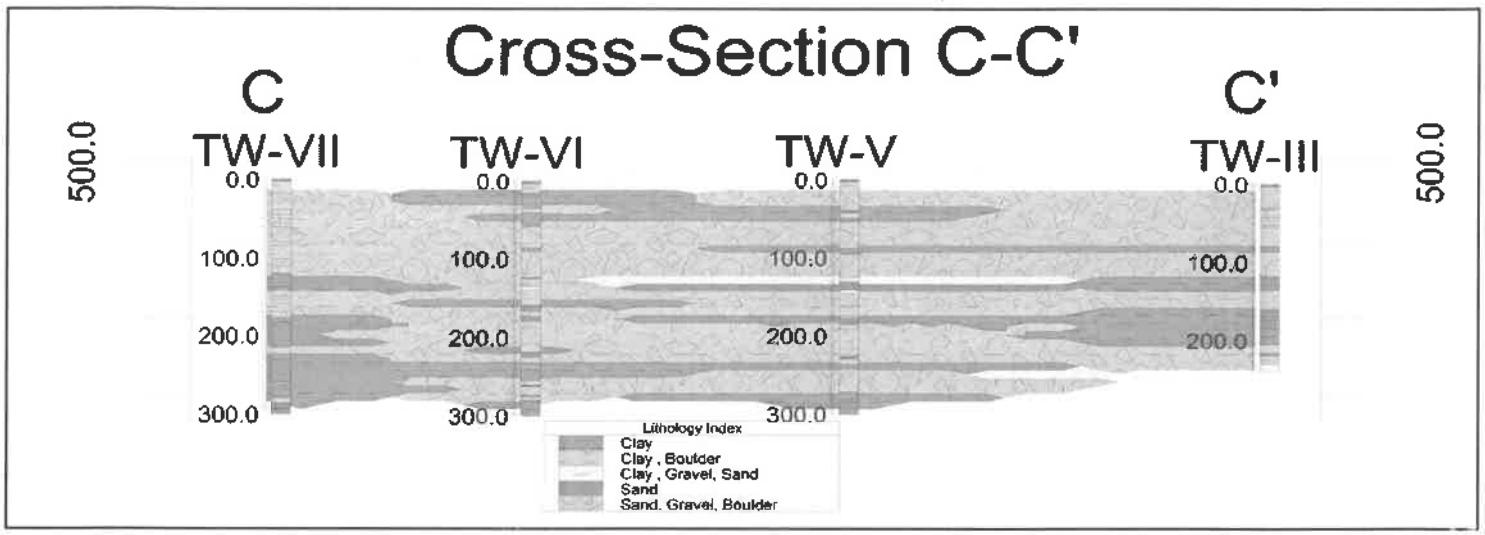

Fence diagram of the various section of the Aquifer was prepared to know the inter-relationship of granular zones, geometry and extension of Aquifers. The Aquifers are separated with alternate beds of clay and boulders, pebbles, gravels and sand. The 3-dimensional fence diagram shows thick bands of saturated fresh water granular zones down to drilled depths as shown in Fig.17

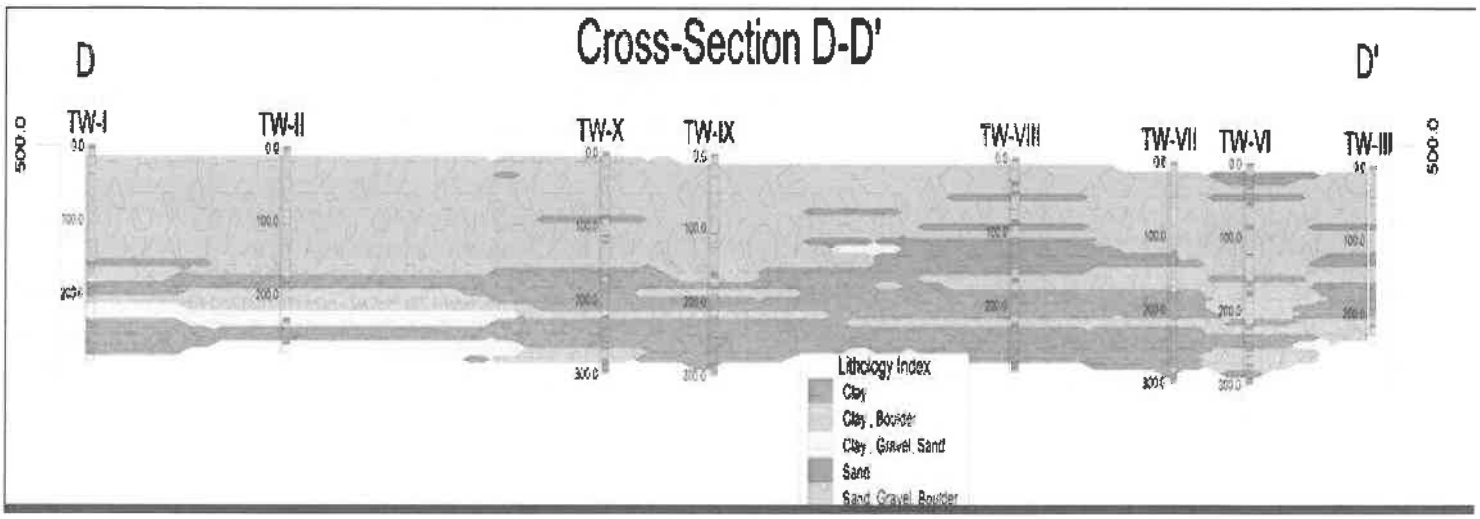
Cross- section of 2-dimensional Lithology as per the Lithological data of the existing tubewells was prepared to know the extension of the Aquifers in broad way. Four sections A-A', B-B', C-C'and D-D' were prepared with the available data of Beet Area were taken to decipher the thickness of Aquifers, depicted in Fig. 18

**Fig-18**






## 5.0 WATER LEVEL BEHAVIOUR

In order to know the water level fluctuation during monsoon and non-monsoon period 2 piezometric wells were constructed at village Singha and Pubowal. On both the Piezometric wells Digital Water Level Recorders have been fitted to record continuous water level fluctuation. The depth of piezometric well, water level, casing dia. and slotted pipe position are given in the table below.

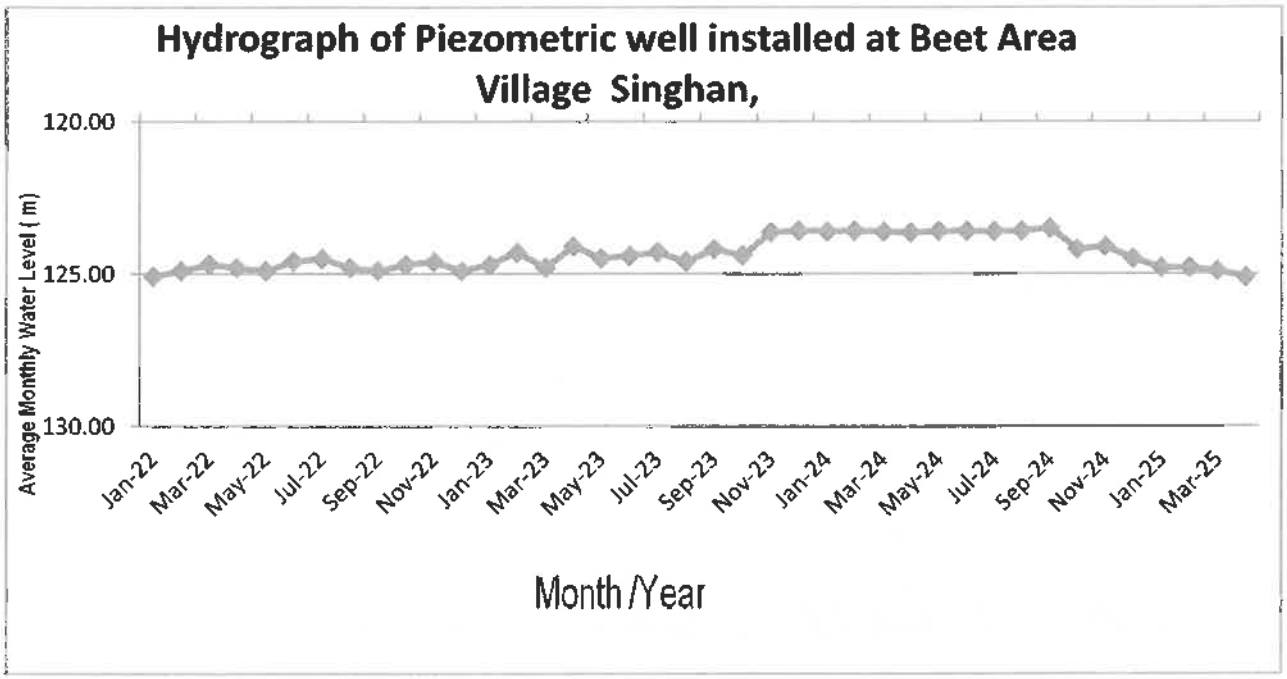
| Sr. No. | Location of piezometer | Depth of Piezometer (m) | Water level(m) | Casing Dia.(mm) | Slotted Position |
|---|---|---|---|---|---|
| 1 | Singha | 180 | 127.50 | 125 | i) 162to165<br>ii)171to174 |
| 2 | Pubowal | 201.5 | 149.40 | 125 | i) 162.50to 165.50<br>ii) 192.50to 195.50 |

Year wise average monthly water level data are tabulated below

**Piezometric Well, Singhan**

| Month /Year | DWLR Reading (m) |
|---|---|
| Jan-22 | 125.10 |
| Feb-22 | 124.90 |
| Mar-22 | 124.70 |
| Apr-22 | 124.80 |
| May-22 | 124.90 |
| Jun-22 | 124.60 |
| Jul-22 | 124.50 |
| Aug-22 | 124.80 |
| Sep-22 | 124.90 |
| Oct-22 | 124.70 |
| Nov-22 | 124.60 |
| Dec-22 | 124.90 |
| Jan-23 | 124.70 |
| Feb-23 | 124.30 |
| Mar-23 | 124.80 |
| Apr-23 | 124.10 |
| May-23 | 124.50 |
| Jun-23 | 124.40 |
| Jul-23 | 124.30 |
| Aug-23 | 124.60 |
| Sep-23 | 124.20 |
| Oct-23 | 124.40 |
| Nov-23 | 123.65 |
| Dec-23 | 123.58 |
| Jan-24 | 123.61 |
| Feb-24 | 123.59 |
| Mar-24 | 123.62 |
| Apr-24 | 123.65 |
| May-24 | 123.61 |
| Jun-24 | 123.59 |
| Jul-24 | 123.62 |
| Aug-24 | 123.6 |
| Sep-24 | 123.5 |
| Oct-24 | 124.2 |
| Nov-24 | 124.1 |
| Dec-24 | 124.5 |
| Jan-25 | 124.8 |
| Feb-25 | 124.8 |
| Mar-25 | 124.9 |
| Apr-25 | 125.1 |

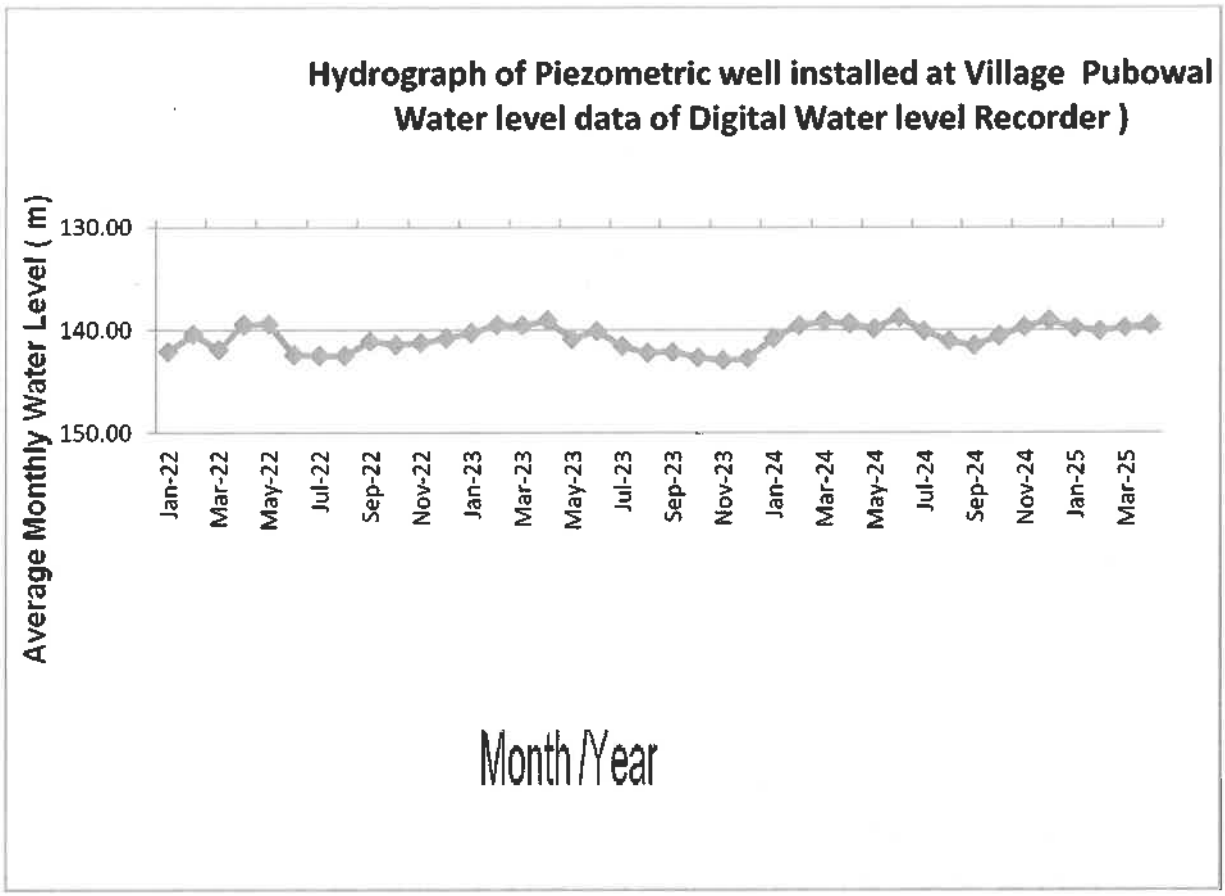
To interpret the data of the DWLR, the average monthly water level, month /year Vs water level data plotted to study the fluctuation in water level.




**Piezometric Well Pubowal**

| Month /Year | DWLR Reading (m) |
|---|---|
| Jan-22 | 142.10 |
| Feb-22 | 140.40 |
| Mar-22 | 141.90 |
| Apr-22 | 139.50 |
| May-22 | 139.40 |
| Jun-22 | 142.40 |
| Jul-22 | 142.50 |
| Aug-22 | 142.50 |
| Sep-22 | 141.10 |
| Oct-22 | 141.40 |
| Nov-22 | 141.30 |
| Dec-22 | 140.80 |
| Jan-23 | 140.30 |
| Feb-23 | 139.50 |
| Mar-23 | 139.60 |

| | |
|---|---|
| Apr-23 | 139.10 |
| May-23 | 140.90 |
| Jun-23 | 140.10 |
| Jul-23 | 141.60 |
| Aug-23 | 142.20 |
| Sep-23 | 142.10 |
| Oct-23 | 142.65 |
| Nov-23 | 142.95 |
| Dec-23 | 142.80 |
| Jan-24 | 140.80 |
| Feb-24 | 139.60 |
| Mar-24 | 139.20 |
| Apr-24 | 139.40 |
| May-24 | 139.90 |
| Jun-24 | 138.80 |
| Jul-24 | 140.10 |
| Aug-24 | 141.10 |
| Sep-24 | 141.50 |
| Oct-24 | 140.60 |
| Nov-24 | 139.70 |
| Dec-24 | 139.10 |
| Jan-25 | 139.80 |
| Feb-25 | 140.10 |
| Mar-25 | 139.80 |
| Apr-25 | 139.50 |




At Singhan the water level varies 123.50 & 125.10 m (average 124m)& at Pubowal the water level fluctuates between 138.80 to143.00m (average 140.70m).Both the Hydrographs shows that neither there is declining nor rising trend, which indicates that in spite of withdrawal of ground water in Beet Area for the last 25 years the water levels have not decline. The fluctuation in water level is due to increase & decrease in surface level of Soan & Sutlej rivers flowing North East of Beet Area. The output from the Aquifer regime balances with input from the rivers.

## 6.0 GROUND WATER RESOURCES

### 6.1 Dynamic Resources

As per the report of Dynamic ground water resources 2024 the annual ground water recharge available in the area is 744 hectare meter and the annual extractable ground water resource is 669 hectare meter. The long term average monsoon rainfall is 752 mm and the long term average non-monsoon rainfall is 248 mm. The water levels are deep seated and there is no rise/fall in water level during pre-monsoon and post-monsoon.

### 6.2 Static ( In-Storage) Resources

For calculating static ground water resources, 78 square kilometres of Beet Area has been taken into consideration. Average thickness of fresh water saturated zones below water level & down to a depth of 300 metres of existing tubewells has been considered. The average thickness of saturation zones below water level is about 70 metres.

Total thickness of saturated fresh water zones= 70 meters
Total area taken into consideration= 78,00,00,00sqm. (78 sq. kms)
Specific yield of formations= 12% (ref. Ground Water & wells)
Total recoverable water from the fresh water zone

= 78,00,00,00 $m^2$ x 70m x 0.12 = 65,52,00,000 $m^3$ (655.2 MCM)

The above calculations of ground water resources shows that (655 million cubic meters) water is available for use in the Beet Area . The total requirement of additional fresh groundwater for the Bulk Drug Park is 0.52mcm/annum. Hence it is safely concluded that against the total availability of 655 MCM of available water which is replenishable from the recharge of Soan and Sutlej rivers through fault, only 0.08% water is to be used by Bulk Drug Park leaving 99.92% of water for other uses in the Beet Area.

## 7.0 WELL HYDRAULICS

To know the Aquifer parameters and well characteristics, pumping test was conducted on existing tubewell in Beet Area using submersible pump. Aquifer Performance test at controlled discharge was carried out to estimate hydraulic properties of aquifer system such as Transmissivity & Storativity.

### 7.1 Aquifer Performance Test:

Aquifer Performance test was conducted at Tubewell no. 4 constructed in Beet Area for the duration of 480 minutes to determine Aquifer parameters. The Time V/s Drawdown data and residual draw down data are given in table 4 & 5.

The results of test are given below:

**Parameters Observation**
Static Water Level 90.54 m bmp (top of M.S. pipe)
Duration of Test 480 Minutes
Discharge (Q) 1555 $m^3$/day (18 LPS)

**Table -4: AQUIFER PERFORMANCE TEST**

| Time since pumping started, t (minutes) | Drawdown, s (m) |
|---|---|
| 1 | 7.54 |
| 2 | 7.68 |
| 3 | 7.94 |
| 4 | 8.12 |
| 6 | 8.19 |
| 8 | 8.27 |
| 10 | 8.39 |
| 12 | 8.46 |
| 14 | 8.63 |
| 16 | 8.73 |
| 18 | 8.79 |
| 20 | 8.92 |
| 25 | 8.96 |
| 30 | 9.04 |
| 35 | 9.09 |
| 40 | 9.18 |
| 45 | 9.32 |
| 50 | 9.37 |
| 60 | 9.48 |
| 70 | 9.56 |
| 80 | 9.63 |
| 100 | 9.68 |
| 120 | 9.79 |

| | |
|---|---|
| 140 | 9.82 |
| 160 | 9.9 |
| 180 | 10.17 |
| 210 | 10.19 |
| 240 | 10.26 |
| 270 | 10.37 |
| 300 | 10.44 |
| 330 | 10.55 |
| 360 | 10.61 |
| 390 | 10.66 |
| 420 | 10.7 |
| 450 | 10.78 |
| 480 | 10.8 |

**TABLE -5 : AQUIFER PERFORMANCE TEST**

**RECOVERY DATA (TIME-RESIDUAL DRAWDOWN DATA)**

| Time since pumping | | t/t' | Depth to Water Level (mbmp) | Residual Drawdown, s' (m) |
|---|---|---|---|---|
| started, t (min) | stopped, t' (min) | | | |
| 481 | 1 | 481 | 98.64 | 6.2 |
| 482 | 2 | 241 | 94.58 | 3.08 |
| 482 | 3 | 161 | 92.38 | 1.84 |
| 483 | 4 | 121 | 92.21 | 1.67 |
| 484 | 5 | 97 | 91.84 | 1.3 |
| 485 | 7 | 69 | 91.86 | 1.32 |
| 486 | 6 | 81 | 91.64 | 1.1 |
| 487 | 7 | 70 | 91.58 | 0.9 |
| 488 | 8 | 61 | 91.42 | 0.63 |
| 490 | 10 | 49 | 91.26 | 0.39 |
| 500 | 20 | 25 | 90.69 | 0.15 |
| 510 | 30 | 17 | 90.61 | 0.07 |
| 520 | 40 | 13 | 90.58 | 0.04 |
| 530 | 50 | 11 | 90.55 | 0.01 |
| 540 | 60 | 9 | 90.51 | -0.03 |

**Summarized results of Aquifer Performance Test**

| Parameter | Test Well | Remarks |
|---|---|---|
| **Drawdown (m)** | 10.80 m | |
| **Sp. Capacity (lpm/m)** | 100 lpm/m of D.D. | Q=1080 lpm |
| **SWL** | 90.54mbmp | |
| **Discharge** | 1555 lpm | APT |
| **Transmissivity (T)** | $T_1$= 3796 $m^2$/day<br>$T_2$= 3936 $m^2$/day (Theis Recovery Method) | Average: - 3866 $m^2$/day |

### 7.2 Computation of Transmissivity

The Transmissivity of aquifer was computed using Jacob's Method. The pumping test has been conducted on the Tubewell of 300m depth by tapping deeper aquifer; it is assumed that water bearing zones make multiple aquifer system and it is homogenous and isotropic in nature.

Thus, applying the formula

Transmissivity (T) = 2.303*Q/4πΔs

Where Q is discharge in $m^3$/day

Δs change in drawdown over a log cycle, thus

**Jacob's straight-line method (Pumping well)**

Discharge (Q) = 1555 $m^3$/day

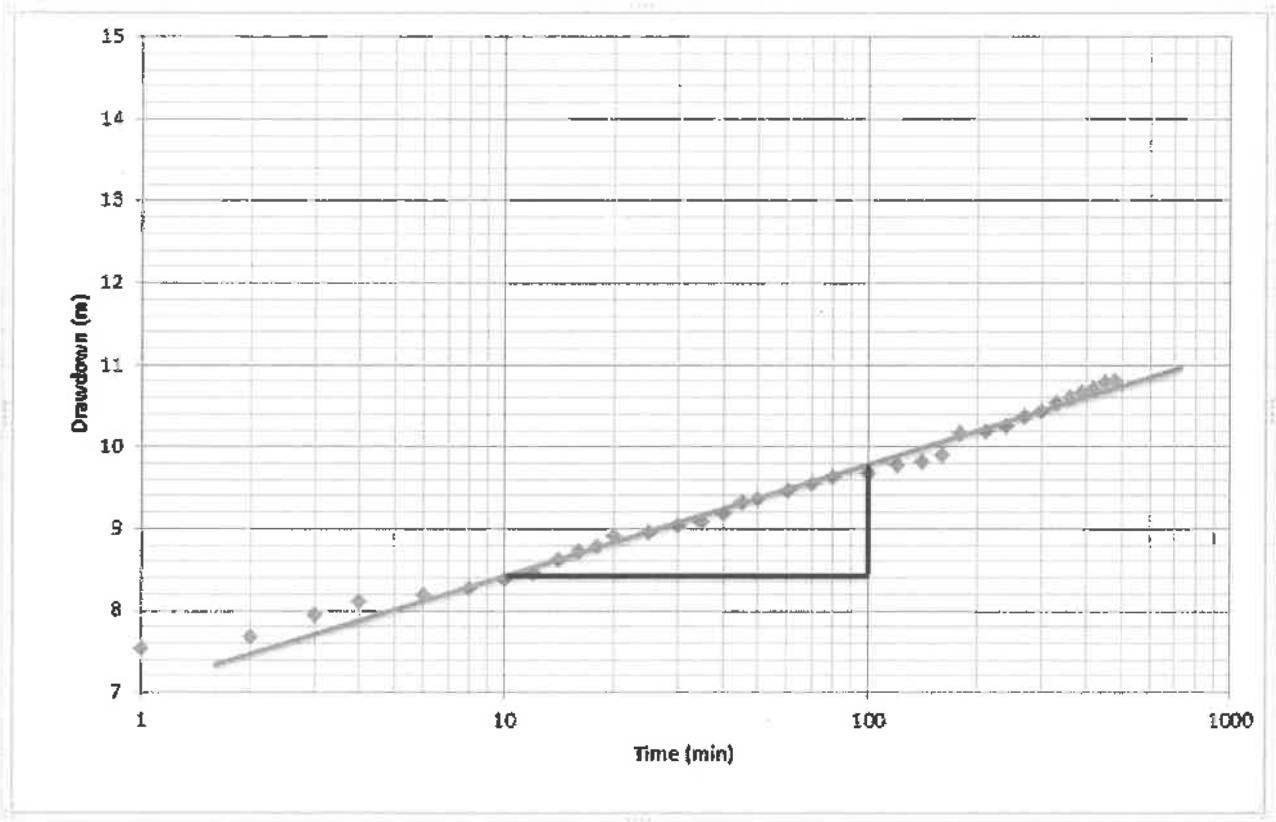
Δs = 1.40 m

$T_1$ = 2.303 *Q/4πΔs

= 3796 $m^2$/day

## AQUIFER PERFORMANCE TEST

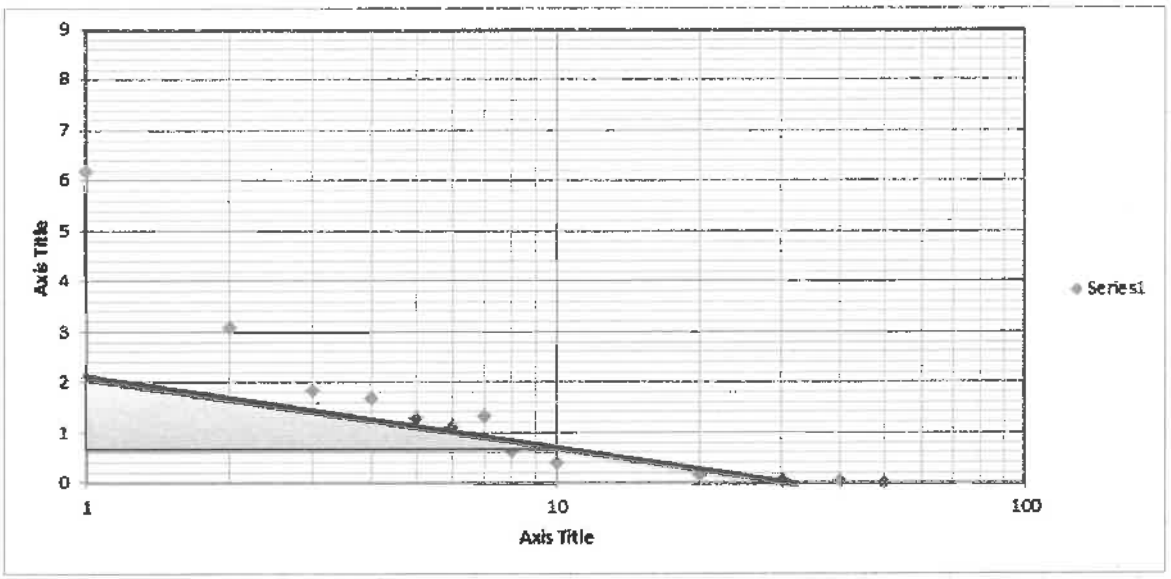
### TUBEWELL-4, Beet Area
### TIME V/S DRAWDOWN PLOT
(Jacob's Method)



**AQUIFER PERFORMANCE TEST**

**RESIDUAL DRAWDOWN Vs t/t' PLOT**

(Theis's Recovery Method)




**Theis recovery method (Pumping well)**

Discharge (Q) = 1555 $m^3$/day

$\Delta s'$ = 1.40 m

$T_2 = 2.303 * Q/4\pi\Delta s$

= 3936 $m^2$/day

## 8.0 GROUND WATER MODELLING

Ground water withdrawal for the upcoming Industries at Bulk Drug Park will be entirely through tubewells tapping the confined aquifers at deeper depths and hence a simplified method of unsteady ground water flow to a pumping well in a confined aquifer has been adopted to estimate the drawdown at a perspective distance of 250 m, 500 m, 1000 m and 2000 m. In a confined aquifer, the Piezometric surface is the elevation of the water surface in an observation well drilled into the confined aquifer. Drawdown 'S' is the difference between the elevation of the Piezometric surface prior to pumping Z (r, t=0) and the elevation of the Piezometric surface during pumping Z (r, t>0).

The goal here is to solve for drawdown as a function of radial distance r from the pumping well at time 't' since pumping started. The solution is commonly called the Theis solution, after Charles Theis and further modifications by Jacobs. The simplified equation for computation of 'U' and corresponding well function W(u) & drawdown (s) are given below. All the parameters shown in the notation are in SI metric units. **When r is taken as 500m**

**$U = r^2s/4Tt$ $[(500)^{2*}$ 0.0003]/4*3866*175**

**= 75/2706200 = $2.7^{-05}$**

**W(u) corresponding to U = 10.20 7.30**

**S=Q*W(u)/4ΠT = 1555*10.20/4*3.14*3866**

**=15861/48557 = 0.32m**

**Q = Steady pumping rate ($m^3$/day)**

**R = Radial distance from centre line of pumping well (m)**

**S = Confined aquifer storage coefficient**

**t = Time since pumping begins (days)**

**T = confined aquifer Transmissivity ($m^2$/days)**

**u is the argument for well function W(u), and it represents a combination of time, distance, storage, and Transmissivity.**

**W = Theis well function**

**When r is taken as 1000m**

**$U = r^2s/4Tt$ $[(1000)^{2*}$ 0.0003]/4*3866*175**

**= 300/2706200 = $1.1^{-04}$**

**W(u) corresponding to U = 8.02**

**S=Q*W(u)/4pieT = 1555*8.02/4*3.14*3866**

**=12471/48557 = 0.25m**

The cooper-Jacob equation is an analytical solution that is used for estimating the drawdown. The aquifer parameters have been taken from the literature (source: CGWB) entered as shown below

considering two tubewells are in operation at a rate of 1555 $m^3$/day for 8 hours to determine the drawdown at specified time at a distance of 250, 500/1000/2000 meters from the well.

| | | | | | |
|---|---|---|---|---|---|
| 1 | Transmissivity (T) | 3866 $m^2$/day (Averaged) | | | |
| 2 | Storage Coefficient (S) | 0.0003 | | | |
| 3 | Pumping rate (Q) | 1555 $m^3$/day | | | |
| 4 | No. of hours of pumping (t) | 12 hours in a day | | | |
| 5 | No. of days pumping in a year | 350 | | | |
| 6 | Distance (r) | 250 m | 500 m | 1000 m | 2000 m |
| 7 | Calculated drawdown | 0.35 m | 0.32 | 0.25 m | 0.23 m |

**8.1 Results and observations of analytical modelling:**

In line with the objectives of the study, analytical modelling has been attempted to understand the impact of ground water withdrawal by the firms in Bulk Drug Park on the overall ground water regime of the Beet area. A tube-well operates at a cumulative rate of 1555 m3/day, as per the water requirement of ground water for Bulk Drug Park, the tubewells will operate for 12 hours a day. Accordingly, the parameters have been set up in the automated estimation through analytical solution. As per the requirement, the drawdown has been estimated at 500 m in the principal conductivity direction at specified 12 hours of pumping with constant discharge. The drawdown dissipates to about 0.20 m at 2000 m.

The results obtained indicate that there is an insignificant drawdown of about 0.20m at a distance of 2000 m from the tubewell, after 12 hours of continuous pumping for 300 days with constant discharge. Hence, it may be concluded that the withdrawal for the Bulk Drug Park will not have any significant adverse impact on the overall ground water regime of the area.

**9.0 GROUND WATER QUALITY**

Groundwater is a vital resource for drinking, agriculture, and industrial use, and its quality is directly influenced by both natural and anthropogenic factors. Three samples from the Beet area were collected and the same were analyzed for physical and chemical parameters in NABL accredited Environ Tech Laboratories, Mohali. The results of physical and chemical analysis is attached as Annexures 1,2 and 3.

The analysis covers pH, Electrical Conductivity (EC), Total Alkalinity ($CaCO_3$), chloride ($Cl^-$), sulphate ($SO_4^{2-}$), nitrate ($NO_3^-$), Total hardness ($CaCO_3$), calcium ($Ca^{2+}$), magnesium ($Mg^{2+}$), sodium ($Na^+$), potassium ($K^+$), fluoride ($F^-$), total dissolved solids (TDS).

**Table 6: Ground water Quality of the study area**

| Parameters | | PH | TDS (mg/l) | Calcium as Ca (mg/l) | Chloride as Cl (mg/l) | Fluoride as F (mg/l) | Magnesium as Mg (mg/l) | Nitrate as NO3 (mg/l) | Sulphate as SO4 (mg/l) | Alkalinity as CaCO3 (mg/l) | Total hardness as CaCO3 (mg/l) | Sodium as Na (mg/l) | Potassium as K (mg/l) | EC in micro mhos/Cm at 25°C |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Village Singha(Tube well No. - 123)** | June -25 | 7.22 | 410 | 80 | 13.9 | 0.22 | 25.5 | 5.2 | 3.9 | 341 | 305 | 23 | 1.25 | 618 |
| **Village Beetan (Tubewell No. - 33)** | June -25 | 7.22 | 468 | 80 | 13.9 | 0.37 | 33.1 | 0.3 | 5.9 | 374 | 336 | 26 | 1.6 | 705 |
| **Village GondpurJaichand (Tubewell No. - 110)** | June -25 | 7.2 | 514 | 88 | 23.8 | 0.48 | 43.3 | 9.7 | 4.9 | 385 | 399 | 12 | 2.2 | 787 |

### 9.1 pH Levels

The pH of groundwater is an essential parameter influencing chemical stability and biological processes. The samples from the study area exhibit pH values ranging from7.20to7.22 indicating neutral water. These values fall within the acceptable range for drinking and irrigation and industrial purposes, ensuring suitability for various uses.

### 9.2 Total Dissolved Solids(TDS)

The Total Dissolved Solids (TDS) in the groundwater range from 410 mg/L to 514 mg/L, indicating low mineralization, which suggests the water is suitable for drinking, irrigation and Industrial purposes.

### 9.3 Total Hardness (TH),Calcium($Ca^{2+}$), and Magnesium ($Mg^{2+}$)

The total hardness (TH) of groundwater in the study area ranges from 304.5 mg/l to 399 mg/l, indicating that the water falls within the moderately hard category. Calcium($Ca^{2+}$) concentrations vary between 80mg/l and 88mg/l, while magnesium($Mg^{2+}$)levels range from 25.5mg/l to 43.30 mg/l. These values indicate that the groundwater quality is suitable for domestic and industrial use without significant scaling issues.

### 9.4 The Chloride (Cl)

Chloride is a key indicator of groundwater contamination, particularly from industrial waste, sewage intrusion, or agricultural runoff. The chloride levels in the study area range from 13.9 mg/l to 23.8 mg/l. The Chloride concentration in the study area lies within permissible limit and suitable for drinking water as per BIS standard.

### 9.5 Fluoride(Fl)

Fluoride is an essential micro nutrient for dental health, but excessive levels can cause fluorosis. In the study area, fluoride concentrations range from 0.22 mg/l to 0.48 mg/l, which are well within the WHO recommended limit of 1.5mg/l. The low fluoride content suggests minimal fluoride-bearing mineral dissolution and no immediate risk of fluorosis.

### 9.6 Nitrate ($NO_3$)

Nitrate contamination in groundwater is a significant environmental concern, primarily resulting from agricultural activities, industrial discharges, and improper waste disposal. The Nitrate contamination in the study area varies between 0.3-9.7mg/l. The nitrate contamination in the entire study area lies within the permissible limit as per regulatory standards, indicating minimal risk to groundwater quality and human health. Since the nitrate levels remain controlled, there is no significant adverse impact on groundwater resources.

### 9.7 Sulphate($SO_4^{2-}$)

Sulphate concentration in ground water is an important parameter that influences water quality, taste, and potential health effects. In natural conditions, sulphate levels vary depending on geological formations, anthropogenic activities, and water-rock interactions. Excessive sulphate levels can cause a laxative effect and contribute to scaling in pipes. In the study area, sulphate

concentrations range from 3.9 mg/L to 5.9 mg/L, indicating minimal sulphate presence. The sulphate content falls within the limits prescribed by the BIS.

### 9.8 Electrical Conductivity (EC)

The Electrical Conductivity values ranges from 618 to 787 micro mhos/Cm at 25°C. In the study area, it demonstrates good water quality, as the EC values remain within the permissible limits set by BIS standards

## 10: IMPACT ASSESSMENT

The impact of ground water extraction on the ground water regime can be assessed by analysing the behaviour of ground water levels, water quality and the status of ground water resources availability over a period of time. In the present context, the project is being set up outside the Beet Area. However, the Ground water will be pumped from Beet Area & for this purpose 13 tubewells have been constructed in the bed of Hum Khad. The impact of ground water extraction on ground water regime can be assessed by looking at the changes in ground water levels in response to the ground water extraction for industrial purpose as well as the current stage of ground water extraction in respect of total demand of ground water by the Bulk Drug Park i.e. 15 MLD & existing demand of ground water in the assessment unit (Beet Area) for various other uses.

### 10.1 Impact on Ground Water Regime:

Quantitative assessment of ground water availability in space and time is one of the vital components and prerequisites for planning ground water development in an area. As far as Dynamic ground water resources are concerned, the annual ground water recharge available in the area is 744 hectare meter and the annual extractable ground water resource is 669 hectare meter. The long term average monsoon rainfall is 752 mm and the long term average non-monsoon rainfall is 248 mm.

In addition to the above dynamic available ground water resources, static (in-storage) resources to the tune of 655 MCM recoverable water are also available in the Beet Area.

### 10.2 Impact on Surface Water Sources:

Ground water and surface water interact directly in many hydrological systems. Ground water is source of recharge to many streams where it is inflow in nature and at places water is discharged

from the reservoirs in outflow area, lakes and wetlands. Reduced ground water level affects surface water bodies in terms of reduced stream flow, quality and availability of water. The existing Ground Water scenario in the study area is recharged through Soan & Sutlej Rivers. Hence there will be no negative impact on Hydrological system as due to inflow of water from the rivers. There are no surface water bodies or river flowing nearby, the only drainage in the area is Hum Khad which drains the Beet Area and is seasonal in nature. Due care will be taken by the industries for disposal of effluent generated after treatment in the Effluent Treatment Plant, hence no adverse impact on surface water sources in the study area is expected. The area where Bulk Drug Park is being set up falls in different catchment area to the area from where water supply is to be carried out and hence it is assumed there will be no impact on surface water in the area.

### 10.3 Impact on Ground Water Quality

With rapid increase of human population, growth of industries and intensive Irrigation activities, ground water quality can be endangered by chemicals used for agricultural activities, indiscriminate disposal of household waste generated in Beet Area. Hence, in water management, assessment of ground water quality is as important aspect.

In order to know the variation in the concentration of major chemical constituents in ground water of the Beet Area with the passage of time as well as with pumping, three number of ground water samples were collected from existing deep tubewells in the area namely tubewell at village Singa (Tubewell No. – 123), Village Hum Khad Beetan (Tubewell No.– 33) and Village Gondpur Jaichand (Tubewell No.– 110). These samples were subjected to chemical analysis in M/s Envrion Tech Laboratories, Mohali. The analysis results so obtained are given in the table along with the chemical analysis. Results of these samples which were collected during June 2023 & June 2025 for comparison of chemical quality to ascertain whether there is any change in groundwater quality with time. The results reveals that there is insignificant change in ground water quality.

| Table: Change in Chemical Quality with time | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Parameters | | PH | TDS (mg/l) | Calcium as Ca (mg/l) | Chloride as Cl (mg/l) | Fluoride as F (mg/l) | Magnesium as Mg (mg/l) | Nitrate as NO3 (mg/l) | Sulphate as SO4 (mg/l) | Alkalinity as CaCO3 (mg/l) | Total hardness as CaCO3 (mg/l) | Sodium as Na (mg/l) | Potassium as K (mg/l) | EC in micromhos/Cm at 25°C |
| Village Singha(Tubewell No. - 123) | Jun-23 | 7.1 | 392 | 77 | 7.5 | 0.54 | 29.1 | 10 | 8.5 | 320 | 312 | 21.4 | 2.6 | 590 |
| | Jun-25 | 7.22 | 410 | 79.95 | 13.9 | 0.22 | 25.5 | 5.2 | 3.9 | 341 | 305 | 23 | 1.25 | 618 |
| Village Beetan (Tubewell No. - 33) | Jun-23 | 7.51 | 464 | 84.2 | 10 | 0.57 | 31.5 | BDL | 6.9 | 360 | 340 | 23.4 | 2.4 | 698 |
| | Jun-25 | 7.22 | 468 | 80 | 13.9 | 0.37 | 33.1 | 0.3 | 5.9 | 374 | 336 | 26 | 1.6 | 705 |
| Village Gondpurjaichand (Tubewell No. - 110) | Jun-23 | 7.2 | 498 | 94 | 17 | 0.58 | 37.4 | 9.8 | 8.8 | 367.5 | 388.5 | 15.5 | 1.89 | 752 |
| | Jun-25 | 7.2 | 514 | 88.4 | 23.8 | 0.48 | 43.3 | 9.7 | 4.9 | 385 | 399 | 12 | 2.2 | 787 |

### 10.4 Impact on Existing Ground Water Uses

Most important groundwater structures in the area are deep tube-wells. Drinking water, irrigation and industrial use of water is based on Ground Water. Domestic water supply is maintained by deep Tubewells. The huge recharge to ground water is from Soan and Sutlej rivers flowing at much lower elevation. So, there will be no negative impact on ground water uses of the area.

### 10.5 Impact on Ground Water Draft

For Bulk Drug Park 1500 $m^3$/day or 5,25,000$m^3$/year (**0.52 mcm**) fresh water is required. For this purpose fifteen (15) additional structures for abstraction of ground water have been constructed. The annual pumping of ground water will be 5,25,000 $m^3$/year (**0.52 mcm**) in addition to existing extraction of water which is under.

1) Domestic Use : 10,39,400 m3/year or 1.04 mcm
2) Industrial Use : 92,100 m3/year or 0.09 mcm
3) Irrigation Use : 30,24,500 m3/year or 3.02mcm

**Total 4.15 mcm**

The existing ground water draft in Beet area is of the order of 4.15 mcm /year and due to pumping of additional ground water for Bulk Drug Park, draft will be to the tune of 0.52 mcm/year. Hence total draft comes out to be 4.67mcm/year. Total recharge is much more than the draft hence there will be no decline of water levels in the area and impact on functioning of existing abstraction structures would be nil.

Dependency on ground water for irrigation purposes can be reduced to some extent by using water from ponds in which rain water will be conserved during rainy period.

### 10.6 Socio Economic Impacts

The water levels in the area under study are deep and vary between 93 m to 132m. In the Beet Area there will be no negative impact on agriculture and domestic uses as recharge to ground water is from the rivers through fault and lineaments (weak zones).On the Soan River side, Siwalik hills in about 10 kms length are not exposed through which water enters in the Beet area and forms part of ground water.

### 10.7 Social Impacts

The people of all communities are living in harmony in the Beet Area. With industrialization near to the area under study there will be social up-liftment. Road infrastructure, communication system, health care facilities and education facilities will be increased. The number of employment opportunities will also be created in the area. It is expected that there will be, no communal clash in the area as people will get employed in the upcoming Industries and will remain busy in their works.

## 11.0 REDUCE DEPENDENCY ON GROUND WATER

The industries would take several steps to minimize the dependence on fresh water and industries will use 710 $m^3$/day recycle water. The latest technological advancement will help the industries to conserve and save water by increasing the reusability of the water. Minimum steam losses will be allowed to escape to the atmosphere. ZLD policy will be adopted by the industries. Most of the irrigation needs of the plantation will be met with treated wastewater

## 12.0 WATER CONSERVATION

In the Beet area, no perennial surface water sources are available for recharge to groundwater. Hence the only source available for recharging and water conservation is utilising rain water. In

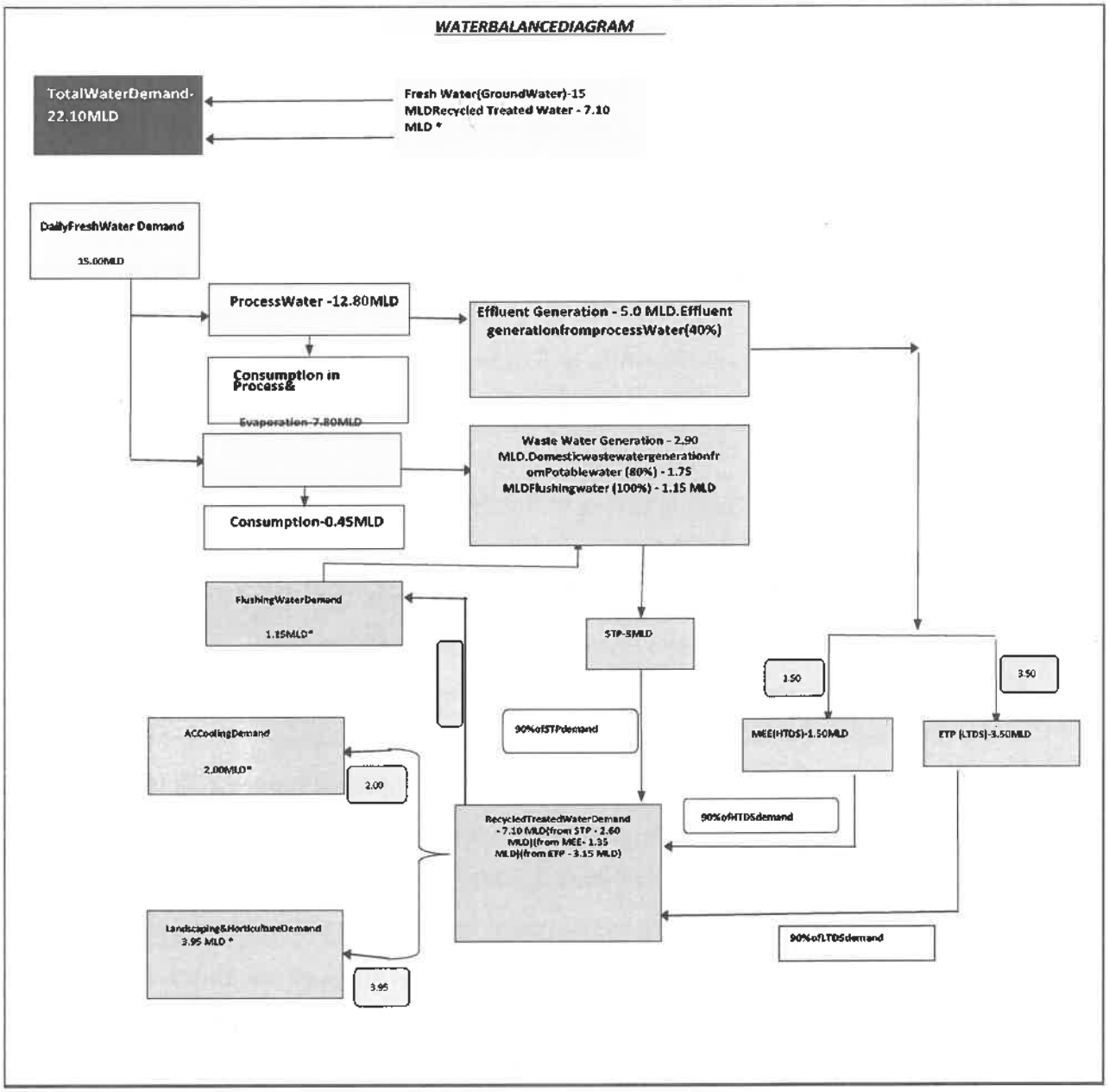
view of the above it is suggested that run off generated from surface catchments and roof tops may be collected in ponds. It is further suggested that as number of ponds exist in Beet area, hence theses existing ponds may be repaired and cleaned. The rain water collected in these ponds can be used for irrigation purposes.

Four existing ponds in Pubowal, Delhar, Gondpur, Heeran having area of 53,200m$^2$ are being repaired ,renovated and restored. Other ponds having smaller area may also be repaired and restored. The ponds will act as recharge and water conservation measures

**13.0 WATER BALANCE**

Total water requirement of the project is 22.10 MLD, out of which 15 MLD freshwater will be pumped from ground water in Beet area and 7.10 MLD recycled. Treated water would be used to meet the demand of AC cooling, landscaping, horticulture and flushing purposes. Daily freshwater demand for processed water is to the tune of 12.50 MLD. The utilization of freshwater and recycled treated water is shown in the fig.19

**Fig.19**


WATERBALANCEDIAGRAM
TotalWaterDemand-22.10MLD
Fresh Water(GroundWater)-15 MLDRecycled Treated Water - 7.10 MLD *
DailyFreshWater Demand
15.00MLD
ProcessWater -12.80MLD
Effluent Generation - 5.0 MLD.Effluent generationfromprocessWater(40%)
Consumption in Process&
Evaporation-7.80MLD
Waste Water Generation - 2.90 MLD.Domesticwastewatergenerationfr omPotablewater (80%) - 1.75 MLDFlushingwater (100%) - 1.15 MLD
Consumption-0.45MLD
FlushingWaterDemand
1.15MLD*
STP-5MLD
1.50
3.50
ACCoolingDemand
2.00MLD*
2.00
90%ofSTPdemand
MEE(HTDS)-1.50MLD
ETP (LTDS)-3.50MLD
RecycledTreatedWaterDemand - 7.10 MLD(from STP - 2.60 MLD)(from MEE- 1.35 MLD)(from ETP - 3.15 MLD)
90%ofHTDSdemand
LandscapingS&HorticultureDemand 3.95 MLD *
3.95
90%ofLTDSdemand

## 14.0 CONCLUSIONS

1. Total land area of the Bulk Drug Park is 5.68 Sq. kms. & it lies between 31°36'70.28":76°16'55.52". Requirement of freshwater is 1500 $m^3$/day (**5,25,000 $m^3$/annum i.e0.52 MCM**). To meet the water needs of the upcoming industries, 13 deep tubewells have been constructed in the bed of Hum Khad (Beet Area) and 2 tubewells are yet to be installed.
2. Topographically the Beet Area lies within the hills (upper siwaliks) and comprising a long, irregular shaped low land track. The study area ( Beet Area) has geographical area of 78 sq. kms and has a maximum elevation of 516 m amsl in NW part. Minimum elevation is 448 m amsl in extreme SE part of the area. Average elevation is 502 m amsl based on Topographical map.
3. The Hum Khad is the main drainage of the Beet area and it traverse the central & lower part of the area. It is seasonal Khad and carries water only during rainy period. The Hum Khad joins the perennial river Soan and ultimately it meets the major drainage system i.e. Sutlej river which flows at lower elevation in Eastern part of Beet Area.
4. Geologically, the formations occupy the Beet Area is younger than upper Siwaliks and form the post upper Siwaliks. The formations in the study area are part of Sutlej major fan formed at the mouth of the river and lifted during the upheaval of upper Siwaliks. The deposits are comprised of Boulder, cobble, pebble, gravel, sand. The Sutlej river used to flow in SW direction through the Beet Area before uplift of the upper Siwaliks.
5. Hydrogeologically the area has huge ground water reservoir and in the near vicinity there is no recharge area. There is major slip fault which cut through the Sutlej river, Soan river and Beet Area. The water of these rivers enter through the weak zone (Fault & Lineaments) in large quantity. As these rivers flow at much lower elevation, hence water levels are deep in the Beet Area. The slip fault is clear in fig.3, which has resulted the Siwaliks hills to move apart(Google map fig.4) In about 10 kms area the hills area is not exposed towards Soan& Sutlej river side and 2 kms Kandi zone area (Punjab). The water enters through the 10 kms wide zone (area falls both in Punjab &H.P.) and it leaves through 2 kms wide area and forms part of ground water regime of Kandi zone in Punjab.
6. In the study area down to 300m depth, there are 6 to 8 saturated granular zones comprised of sand gravel, pebble , cobble ,boulder alternate with clay or Clay–Boulder beds. Strata chart (Lithological logs) shows that cumulative saturated average thickness of 77 meter. Boulder and sand formations exists down to drilled depth. From ground level

300m depth, the cumulative thickness of total coarser material is 52% to 63%.The upper strata consist of sand, gravel ,pebble, boulder zones with clay beds whereas deeper zones are comprised of alternate beds of sand & clay. The presence of sand beds at deeper levels indicates that the fan deposits consisting of sand ,gravel, pebble boulder overlies the sandstone group of upper Siwaliks .The sandstones are very soft and friable in nature, hence yield good amount of water.

7. The water level is deep in the Beet Area. It ranges from less than 95mb.g.l in SE part and more than 185m m.b.g.l. in western part. In the North-Western potion it is between 145m b.g.l to 185mb.g.l. The water level elevation is maximum at Heera Nagar; it is 362.60 m a.m.s.l .It is minimum at Gondpur Jaichand and is 341.70 m a.m.s.l. The water table in the area follows the topography, An attempt was made to find out the gradient of water table and flow direction of ground water in the Beet Area by plotting water level elevations of 27 boreholes but water table contours could not be plotted due to haphazard contours and abnormal ground water flow directions.
8. To study the water level behaviour during pre and post monsoon period ,hydrographs of 2 Nos. piezometeric wells were plotted . It does not indicate declining or rising trend but the water level shows almost straight behaviour with slight upward & downward movement due to rise / fall in surface water level in the Soan river. It indicates that recharge to ground water in Beet Area is very huge.
9. Ground water resources calculated for 78 sq. Kms of Beet area shows that 655 million cubic meter Static ground water reservoir are available for use in the area. The total requirement of fresh water for the Bulk Drug Park is 5,25,000 $m^3$/year (0.52 MCM). It is safely concluded that against the total availability of 655 MCM of recoverable water only 0.07% will be withdrawn by the industries to be setup in Bulk Drug Park, leaving 99.93% of ground water for other uses in the Beet Area.
10. The slip fault shown in figures 3&4 has tear apart the upper Siwaliks and it passes through the Beet Area, Soan river & reservoir of Sutlej river at head works Nangal. The huge amount of water enters the Beet Area through the fault and it is the only source of recharge in the area.

11. The aquifer formations are highly transmissive and lateral hydraulic conductivity (permeability) is quite high, The value of transmissivity is of the order of 3866 $m^2$/day and

permeability has been computed 77 m/day which is considered to be very high .These values are generally found in riverin tracts or deposits formed at the mouth of major rivers which occur in the form of huge fans comprised of coarser material like medium to coarse sand , gravels, pebble , cobble & boulder.

12. Analytical modelling has been attempted to understand the impact of ground water withdrawal on the overall ground water regime of the area. The drawdown has been estimated at 500 m in the principal conductivity direction at specified 12 hours of pumping with constant discharge. The drawdown dissipates to about 0.30 m at 500 m. Hence, it may be concluded that the withdrawal of ground water for the Bulk Drug Park will not have any significant adverse impact on the overall ground water regime of the Beet Area.

13. Present ground water draft in Beet Area due to irrigation ,Domestic& industrial uses comes out 4.15 MCM and for water supply to the Bulk Drug Park would be of the order of 0.52 MCM. Hence total draft will be to the tune of 4.67 MCM/Year. In view of the above it is concluded that the additional draft will be almost negligible as compared to the recharge in the area which is 655 MCM.

14. All the industries to be set up In the Bulk Drug Park will have common treatment plant (ETP) and will generate treated water to the tune of 710 $m^3$/day (2,48,500$m^3$/year) 0.24 MCM/annually and will be used for cooling towers and for the irrigation of green belt.

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D.S. Saini
Superintending Hydrogeologist (Director Retd.)
Central Ground Water Board
Ministry of Water Resources
Govt. of India

Gurinder Paul Singh
Scientist 'D' (Retd.)
Central Ground Water Authority
Ministry of Jal Shakti
C.G.W.A. Accreditation No. 23

## CURRICULUMVITAE

Annexure-1

**D.S.Saini: M.Sc.(Hons.)Geology**

I had completed my Post graduation M.Sc. (Hons.) in Geology from Punjab University Chandigarh in 1968. I served for 36 years in various capacities in Central Ground Water Board, Deptt. of Water Resources, Jal Shakti, Mantralaya, Govt. of India. I retired on 31$^{st}$March, 2005 as Superintending Hydrogeologist (Director) from Central Ground Water Board. I remained on deputation for 5 years (1982-1987) with Punjab State Tubewell Corporation, now named as Punjab Water Resources Management & Development Corporation. I had also served in the Deptt. of Agriculture Punjab &Deptt. of Industries, Punjab.

During my service I developed specialization in the field of Hydrogeology, Geo Chemistry, hydro-chemistry and exploratory drilling, Impact Assessment on ground water studies, rain water Harvesting, preparation of comprehensive hydrogeological reports. After retiring from service, I have been undertaking expertise services in ground water investigations, drilling & development of Tubewells, Pollution studies, preparation of Rain water Harvesting schemes Genesis report for Natural Mineral Water Source, Geo physical investigations for pinpointing of Tubewells and percolation well sites, revival of bacteriological contaminated Tubewells for the last 19 years. I take up jobs in the state of Punjab, Haryana, Chandigarh (U.T.), Uttar Pradesh, Rajasthan, Madhya Pradesh, J. & K., Uttarakhand, Himachal Pradesh and Delhi. I have to my credit number of research papers & reports related to Hydrogeology &Geo-Chemistry.

D S Saini

(Daljit Singh Saini)

**MobileNo.9417210081**

## CURRICULUM VITAE

Annexure-1A

**Gurinder Paul Singh**
**M.Sc.(Hons.) Geology**

I did M.Sc. (Hons.) from Panjab University Chandigarh, I served for 35 years in various capacities in Central Ground Water Board, Deptt. Of Water Resources, Ministry of Jal Shakti, Govt. of India. I retired on 31st October,2016 as Scientist 'D' from Central Ground Water Board. I served in Punjab Water Resources Management & Development Corporation for 6 years on regular & deputation basis.

During my service I worked in the field of Hydrogeology, exploratory drilling, Ground water studies in different terrains, rain water Harvesting, preparation of hydrogeological reports. After retirement for the last more than 7 years I take up expertise services in Ground water investigations, drilling & development of tubewells, Rainwater Harvesting. I worked In the states of Punjab, Haryana, Himachal Pradesh and Delhi. I have to my credit number of reports related to the field of Hydrogeology.

(Gurinder Paul Singh)

## Annexure-2

**Result of the Interaction held between the Accreditation Board and Individuals / Institutions**
**(Accreditation Validity Period 15/2/2021 to 14/2/2026)**

**Accredited Individual**

| S.No | Name | Qualified for Impact Assessment Report | Qualified for Modelling Studies | Qualified for Hydrogeological Report for min projects |
|---|---|---|---|---|
| 1 | Dr.Narendra Kumar Rana | Yes | NO | NO |
| 2 | Dr. Arijit Dey | Yes | NO | NO |
| 3 | Upendra Shrivastava | Yes | Yes | NO |
| 4 | Y.B.Kaushik | Yes | NO | NO |
| 5 | Sunil Kumar Saigal | yes | NO | NO |
| 6 | T.Rajendran | Yes | NO | NO |
| 7 | Dr. Nallathambi Varadara | Yes | Yes | Yes |
| 8 | Awani Kumar Budhauliya | Yes | NO | NO |
| 9 | Diwaspati Jamloki | Yes | NO | NO |
| 10 | Mohammed Khaja Rafiuddin | Yes | NO | NO |
| 11 | Shreeram Paranjpe | Yes | NO | NO |
| 12 | V. Pugazhendi | Yes | NO | NO |
| 13 | Ganji Sudarshan | Yes | NO | Yes |
| 14 | Durga Pada Pati | Yes | NO | NO |
| 15 | Tapan talukdar | Yes | Yes | NO |
| 16 | Gulab Prasad | Yes | NO | NO |
| 17 | Nawal Kishore Prasad | Yes | NO | Yes |
| 18 | Asis Kumar Chattopadhyay | Yes | NO | NO |
| 19 | Saddela Jaya Kumar | Yes | Yes | Yes |
| 20 | K.Balakrishnan | Yes | NO | NO |
| 21 | Vinod Sharma | Yes | NO | NO |
| 22 | Shailendra Nath Sinha | Yes | NO | NO |
| 23 | Gurinder Paul Singh | Yes | NO | NO |
| 24 | Dr.Dilip Singh Chundawat | Yes | NO | NO |
| 25 | Dr. Muhammad Ali Farooqi | Yes | NO | NO |
| 26 | Dr. Muhammad Najeeb.K | Yes | NO | NO |
| 27 | Prakash Ramchandra Gupte | Yes | NO | NO |
| 28 | M.C Reddy | Yes | Yes | Yes |
| 29 | C.P.Srivastava | Yes | NO | NO |
| 30 | R. Chakrapani | Yes | NO | NO |
| 31 | Alaparthi Sreenivas | Yes | NO | NO |
| 32 | Raj Pal Singh | Yes | Yes | No |
| 33 | K.Kumaresan | Yes | NO | NO |
| 34 | Gyanchand Bohra | Yes | NO | NO |
| 35 | Vijay Rajkumar Yadav | Yes | NO | NO |
| 37 | Dr. M. Sriman Narayana | Yes | NO | NO |
| 38 | Mukesh Surolya | Yes | NO | NO |

**Accredited Institution**

| S.No | Name | Qualified for Impact Assessment Report | Qualified for Modelling Studies | Qualified for Hydrogeological Report for min projects |
|---|---|---|---|---|
| 1 | Environ Techno Consultants | YES | YES | YES |
| 2 | NEER | YES | NO | YES |
| 3 | Vardan Environet | YES | NO | YES |
| 4 | Vimta Labs Limited | YES | NO | YES |
| 5 | Geoclimate Risk solutions | YES | YES | YES |
| 6 | S R K Mining Services (India) | YES | NO | YES |
| 7 | Ground Water & Mineral Investigation Consultancy centre | YES | NO | NO |
| 8 | Thrust geoconsultants Private Limited | YES | NO | NO |
| 9 | Hydrominviron Consultancy Pvt. Ltd. | Yes | NO | YES |
| 10 | Associate Engineers & Consultants | YES | YES | YES |
| 11 | Water Solutions | YES | No | YES |
| 12 | Royal Environment Auditing & Consultancy Services | NO | NO | YES |
| 13 | Central Mine Planning and Design Institute Limited (CMPDIL) | NO | NO | YES |

**Following have been Accredited for 5 years as mentioned above. However, they will be able to use the accreditation for CGWA purposes after they quit/completion of the present assignment.**

| | |
|---|---|
| 1 | Sh A.K.Bhatia |
| 2 | Dr. Anil Kumar Jain |
| 3 | Dr Ratan Chand Jain |
| 4 | Dr. K.R.Sooryanarayana |
| 5 | Dr Pradeep Kumar Parchure |
| 6 | Dr. P.N.Rao |
| 7 | Sh Nirad Chandra Nayak |

ANNEX - A

# Environ Tech Laboratories

CPCB Recognized under EPA, 1986; ISO 9001:2015; OHSAS ISO 45001:2018

Plot No. C-101, Industrial Area, Phase -VII, Sector-73, Mohali, Punjab- 160059
Mob. 9464000081, 9417220081, 9417210081, (O) 94630-00081, 0172-4630081
GSTIN : 03BPEPS9693P1ZV, PAN No. BPEPS9693P

TC-5879

## TEST REPORT

**BS Enterprises**
Plot No.C-101 Industrial Area Phase 7,Sector-73,Mohali

| | | | |
|---|---|---|---|
| Customer Ref. Number | Not Mentioned | Report No. | ETL/21062025/2077 |
| Sample Code given by Customer | Not Mentioned | Report Date. | 21.06.2025 |
| Type of Sample | Ground Water | ULR No. | Not Applicable |
| Sampling Condition | Satisfactory | Sample Reg No. | ETL/W/07062025/2077 |
| Quantity | 5.00 LTR | Date of Sampling | Not Applicable |
| Sampling Location | Vill.Singa Tubewell-128 Beet Area,Himachal Pradesh | Date of Sample Receipt | 07.06.2025 |
| Sample Collected By | By Party | Date of Test Performance | 07.06.2025 - 21.06.2025 |
| Sampling Procedure | Not Applicable | Packing Mode | Plastic Can |

**Discipline: Chemical** **Group: Water**

**Sample Description: Clear and Colourless Liquid**

**PART A**

| S.No. | Parameters | Results | Limits of IS: 10500 - 2012 | | Test method |
|---|---|---|---|---|---|
| | | | Requirement (Acceptable limit) | Permissible limit in absence of alternate source | |
| 1 | pH @ 25°C | 7.22 | 6.5 - 8.5 | No relaxation | IS 3025 ( P-11) : 2022; APHA 24th Edition : 2023, 4500 H+ B |
| 2 | Total Dissolved Solids (mg/l) | 410 | Max 500 | Max 2000 | IS 3025 (P-16) 2023 ; APHA 24th Edition:2540 C 2023 |
| 3 | Calcium (as Ca) (mg/l) | 79.95 | Max 75 | Max 200 | IS 3025(P-40) ; APHA 24th Edition 3500Ca B 2023 |
| 4 | Chloride as Cl (mg/l) | 33.9 | Max 250 | Max 1000 | IS 3025 ( P-32 Sec. 2 ) : 2019 ; APHA 24th Edition : 2023, 4500Cl-B |
| 5 | Fluoride as F (mg/l) | 0.22 | Max 1.0 | Max 1.5 | APHA 24th Edition:4500 F-D 2023 |
| 6 | Magnesium (as Mg) (mg/l) | 25.5 | Max 30 | Max 100 | IS 3025 ( P-46 Sec.5 ):2023 APHA 24th Edition : 2023, 3500Mg-B |
| 7 | Nitrate (as NO3) (mg/l) | BDL (DL - 0.10) | Max 45 | No relaxation | IS 3025 ( P-34 Sec. 6.4) :2023; APHA 24th Edition : 2023, 4500 NO3-B |
| 8 | Sulphate (as SO4) (mg/l) | 3.9 | Max 200 | Max 400 | IS 3025 ( P-24 Sec. 5): 2022; APHA 24th Edition : 2023, 4500 SO4- E |
| 9 | Total Alkalinity (as CaCO3) (mg/l) | 341 | Max 200 | Max 600 | IS 3025 ( P-23) : 2023 ; APHA 24th Edition : 2023, 2320-B |
| 10 | Total Hardnesstas CaCO3) (mg/l) | 304.5 | Max 200 | Max 600 | IS 3025 ( P-21, Sec.5 ):2023 ;APHA 24th Edition:2023, 2340 C |
| 11 | Sodium (as Na) (mg/l) | 23.0 | -- | -- | IS 3025 ( P-45, Sec.5 ) : 2024, APHA 24th Edition : 2023, 3500 Na-B |
| 12 | Potassium (as K) (mg/l) | 1.25 | -- | -- | IS 3025 ( P-45, Sec.5 ) : 2024, APHA 24th Edition:2023, 3500 K-B |

Checked By:-

Authorized Signatory:-
Technical Manager-I
Environ Tech Laboratories

Page 1 of 2

Note: BDL: Denotes Below Detection Limit DL: Denotes Detection Limit
1. The test report relates only to tested sample and applicable parameters.
2. Test report can neither be used as evidence in the court of law nor can it be used in part or full in any media without prior permission.
3. The sample will be destroyed after fifteen days from the date of issue of test report unless otherwise specified.

ANNEX - B


# Environ Tech Laboratories

CPCB Recognized under EPA, 1986; ISO 9001:2015; OHSAS ISO 45001:2018

Plot No. C-107, Industrial Area, Phase -VII, Sector-73, Mohali, Punjab- 160059
Mob. 9464000081, 9417220081, 9417210081, (O) 94630-00081, 0172-4630081
GSTIN : 03BPEPS9693P1ZV, PAN No. BPEPS9693R

IC-5879


## TEST REPORT

**BS Enterprises**
Plot No.C-101 Industrial Area Phase 7,Sector-73,Mohali

| | | | |
|---|---|---|---|
| Customer Ref. Number | Not Mentioned | Report No. | ETL/21062025/2078 |
| Sample Code given by Customer | Not Mentioned | Report Date. | 21.06.2025 |
| Type of Sample | Ground Water for Drinking | ULR No. | Not Applicable |
| Sampling Condition | Satisfactory | Sample Reg No. | ETL/W/07062025/2078 |
| Quantity | 5.00 LTR | Date of Sampling | Not Applicable |
| Sampling Location | Vill.Gondpur Jaichand Tubewell-110 Beet Area,Himachal Pradesh | Date of Sample Receipt | 07.06.2025 |
| Sample Collected By | By Party | Date of Test Performance | 07.06.2025 - 21.06.2025 |
| Sampling Procedure | Not Applicable | Packing Mode | Plastic Can |

**Discipline: Chemical** **Group: Water**

**Sample Description: Clear and colourless liquid**

**PART A**

| S.No. | Parameters | Results | Limits of IS: 10500 - 2012 | | Test method |
|---|---|---|---|---|---|
| | | | Requirement (Acceptable limit) | Permissible limit in absence of alternate source | |
| 1 | pH @ 25°C | 7.20 | 6.5 – 8.5 | No relaxation | IS 3025 ( P-11) : 2022; APHA 24th Edition : 2023, 4500 H+ B |
| 2 | Total Dissolved Solids (mg/l) | 514 | Max 500 | Max 2000 | IS 3025 (P-16) 2023 ; APHA 24th Edition:2540 C 2023 |
| 3 | Calcium (as Ca) (mg/l) | 109.4 | Max 75 | Max 200 | IS 3025(P-40) ; APHA 24th Edition 3500Ca B 2023 |
| 4 | Chloride as Cl (mg/l) | 23.8 | Max 250 | Max 1000 | IS 3025 ( P-32 Sec. 2 ) : 2019 ; APHA 24th Edition : 2023, 4500Cl-B |
| 5 | Fluoride as F (mg/l) | 0.34 | Max 1.0 | Max 1.5 | APHA 24th Edition:4500 F-D 2023 |
| 6 | Magnesium (as Mg) (mg/l) | 30.6 | Max 30 | Max 100 | IS 3025 ( P-46 Sec.5 ):2023 APHA 24th Edition : 2023, 3500Mg- B |
| 7 | Nitrate (as NO3) (mg/l) | 24.3 | Max 45 | No relaxation | IS 3025 ( P-34 Sec. 6.4) :2023; APHA 24th Edition : 2023, 4500 NO3-B |
| 8 | Sulphate (as SO4) (mg/l) | 4.9 | Max 200 | Max 400 | IS 3025 ( P-24 Sec. 5). 2022; APHA 24th Edition : 2023, 4500 SO4- E |
| 9 | Total Alkalinity (as CaCO3) (mg/l) | 385 | Max 200 | Max 600 | IS 3025 ( P-23) : 2023 ; APHA 24th Edition : 2023, 2320-B |
| 10 | Total Hardness(as CaCO3) (mg/l) | 399 | Max 200 | Max 600 | IS 3025 ( P-21, Sec.5 ):2023; ;APHA 24th Edition:2023, 2340 C |
| 11 | Sodium (as Na) (mg/l) | 12.0 | -- | -- | IS 3025 ( P-45, Sec.5 ) : 2024; APHA 24th Edition : 2023, 3500 Na-B |
| 12 | Potassium (as K) (mg/l) | 2.2 | -- | -- | IS 3025 ( P-45, Sec.5 ) : 2024; APHA 24th Edition:2023, 3500 K-B |

Checked By:-

Authorized Signatory:-
Technical Manager
Environ Tech Laboratories

Note: BDL: Denotes Detection Limit
1. The test report refers only to tested sample and applicable parameters
2. This report can neither be used as evidence in the court of law nor it be used as part or full in any media without prior permission.
3. The sample will be destroyed after fifteen days from the date of issue of test report unless otherwise specified.



Email : environtechlab72@yahoo.com | Website : www.environtechlab.com

NOT VALID FOR LEGAL PURPOSE

ANNEX - C

# Environ Tech Laboratories

CPCB Recognized under EPA, 1986; ISO 9001:2015; OHSAS ISO 45001:2018

Plot No. C-101, Industrial Area, Phase -VII, Sector-73, Mohali, Punjab- 160059
Mob. 9464000081, 9417220081, 9417210081, (O) 94630-00081, 0172-4630081
GSTIN : 03BPEPS9693P1ZV, PAN No. BPEPS9693P

TC-5879

## TEST REPORT

**BS Enterprises**
Plot No.C-101 Industrial Area Phase 7,Sector-73,Mohali

| | | | |
|---|---|---|---|
| Customer Ref. Number | Not Mentioned | Report No. | ETL/21062025/2079 |
| Sample Code given by Customer | Not Mentioned | Report Date | 21.06.2025 |
| Type of Sample | Ground Water | ULR No. | Not Applicable |
| Sampling Condition | Satisfactory | Sample Reg No. | ETL/W/07062025/2079 |
| Quantity | 5.00 LTR | Date of Sampling | Not Applicable |
| Sampling Location | Vill.Hum Khad Beetan Tubewell-33 Beet Area,Himachal Pradesh | Date of Sample Receipt | 07.06.2025 |
| Sample Collected By | By Party | Date of Test Performance | 07.06.2025 - 21.06.2025 |
| Sampling Procedure | Not Applicable | Packing Mode | Plastic Can |

**Discipline: Chemical** — **Group: Water**

**Sample Description: Clear and colourless liquid**

**PART A**

| S.No. | Parameters | Results | Limits of IS: 10500 - 2012 | | Test method |
|---|---|---|---|---|---|
| | | | Requirement (Acceptable limit) | Permissible limit in absence of alternate source | |
| 1 | pH @ 25°C | 7.22 | 6.5 – 8.5 | No relaxation | IS 3025 ( P-11) : 2022; APHA 24th Edition : 2023, 4500 H+ B |
| 2 | Total Dissolved Solids (mg/l) | 448 | Max 500 | Max 2000 | IS 3025 (P-16) 2023 ; APHA 24th Edition:2540 C 2023 |
| 3 | Calcium (as Ca) (mg/l) | 80 | Max 75 | Max 200 | IS 3025(P-40) ; APHA 24th Edition 3500Ca B 2023 |
| 4 | Chloride as Cl (mg/l) | 13.9 | Max 250 | Max 1000 | IS 3025 ( P-32 Sec. 2 ) : 2019 , APHA 24th Edition : 2023, 4500Cl-B |
| 5 | Fluoride as F (mg/l) | 0.17 | Max 1.0 | Max 1.5 | APHA 24th Edition:4500 F-D 2023 |
| 6 | Magnesium (as Mg) (mg/l) | 33.1 | Max 30 | Max 100 | IS 3025 ( P-46 Sec.5 ):2023 APHA 24th Edition : 2023, 3500Mg–B |
| 7 | Nitrate (as NO3) (mg/l) | 0.3 | Max 45 | No relaxation | IS 3025 ( P-34 Sec. 6.4) :2023; APHA 24th Edition : 2023, 4500 NO3-B |
| 8 | Sulphate (as SO4) (mg/l) | 5.9 | Max 200 | Max 400 | IS 3025 ( P-24 Sec. 5): 2022; APHA 24th Edition : 2023, 4500 SO4- E |
| 9 | Total Alkalinity (as CaCO3) (mg/l) | 374 | Max 200 | Max 600 | IS 3025 ( P-23) : 2023 ; APHA 24th Edition : 2023, 2320-B |
| 10 | Total Hardness(as CaCO3) (mg/l) | 336 | Max 200 | Max 600 | IS 3025 ( P-21, Sec.5 ):2023; APHA 24th Edition:2023, 2340 C |
| 11 | Sodium (as Na) (mg/l) | 26 | -- | -- | IS 3025 ( P-45, Sec.5 ) : 2024; APHA 24th Edition : 2023, 3500 Na-B |
| 12 | Potassium (as K) (mg/l) | 1.6 | -- | -- | IS 3025 ( P-45, Sec.5 ) : 2024; APHA 24th Edition:2023, 3500 K-B |

Checked By:-

Authorized Signatory:-
Technical Manager-I
Environ Tech Laboratories

Note: DL= Detection Detection Limit
1. The test report refers only to tested sample and applicable parameters
2. This report can neither be used as evidence in the court of law nor can it be used in part or full in any media without prior permission
3. The sample will be disposed after fifteen days from the date of issue of the report unless otherwise specified



Email : environtechlab72@yahoo.com | Website : www.environtechlab.com

NOT VALID FOR LEGAL PURPOSE

## CATEGORIZATION OF BLOCKS/ MANDALS/ TALUKAS IN INDIA (2022)

| S.No. | State/Union Territories | Total No. of Assessed Units | Safe | | Semi-Critical | | Critical | | Over-Exploited | | Saline | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | States | | Nos. | % | Nos. | % | Nos. | % | Nos. | % | Nos. | % |
| 1 | Andhra Pradesh | 687 | 598 | 89.7 | 19 | 2.8 | 5 | 0.7 | 6 | 0.9 | 39 | 5.85 |
| 2 | Arunachal Pradesh | 11 | 11 | 100.00 | | | | | | | | |
| 3 | Assam | 28 | 27 | 96.43 | 1 | 3.57 | | | | | | |
| 4 | Bihar | 535 | 409 | 87.86 | 46 | 8.60 | 12 | 2.24 | 8 | 1.50 | | |
| 5 | Chhattisgarh | 146 | 116 | 79.45 | 24 | 16.44 | 6 | 4.11 | | | | |
| 6 | Delhi | 34 | 4 | 11.76 | 8 | 23.53 | 7 | 20.59 | 15 | 44.12 | | |
| 7 | Goa | 12 | 12 | 100.00 | | | | | | | | |
| 8 | Gujarat | 252 | 189 | 75.00 | 20 | 7.94 | 7 | 2.78 | 23 | 9.13 | 13 | 5.16 |
| 9 | Haryana | 143 | 36 | 25.17 | 9 | 6.29 | 10 | 6.99 | 88 | 61.54 | | |
| 10 | Himachal Pradesh | 10 | 10 | 100.00 | | | | | | | | |
| 11 | Jharkhand | 263 | 241 | 91.63 | 11 | 4.18 | 6 | 2.28 | 5 | 1.90 | | |
| 12 | Karnataka | 234 | 139 | 59.40 | 35 | 14.96 | 11 | 4.70 | 49 | 20.94 | | |
| 13 | Kerala | 152 | 122 | 80.26 | 27 | 17.76 | 3 | 1.97 | | | | |
| 14 | Madhya Pradesh | 317 | 226 | 71.29 | 60 | 18.93 | 5 | 1.58 | 26 | 8.20 | | |
| 15 | Maharashtra | 353 | 272 | 77.05 | 62 | 17.56 | 7 | 1.98 | 11 | 3.12 | 1 | 0.28 |
| 16 | Manipur | 9 | 9 | 100.00 | | | | | | | | |
| 17 | Meghalaya | 12 | 12 | 100.00 | | | | | | | | |
| 18 | Mizoram | 26 | 26 | 100.00 | | | | | | | | |
| 19 | Nagaland | 11 | 11 | 100.00 | | | | | | | | |
| 20 | Odisha | 314 | 300 | 95.54 | 8 | 2.55 | | | | | 6 | 1.91 |
| 21 | Punjab | 153 | 17 | 11.11 | 15 | 9.80 | 4 | 2.61 | 117 | 76.47 | | |
| 22 | Rajasthan | 302 | 38 | 12.58 | 20 | 6.62 | 22 | 7.28 | 219 | 72.52 | 3 | 0.99 |
| 23 | Sikkim | 6 | 6 | 100.00 | | | | | | | | |
| 24 | Tamil Nadu | 1166 | 463 | 39.71 | 231 | 19.81 | 78 | 6.69 | 360 | 30.87 | 34 | 2.92 |
| 25 | Telangana | 594 | 494 | 83.00 | 80 | 13.60 | 7 | 1.20 | 13 | 2.20 | | |
| 26 | Tripura | 59 | 59 | 100.00 | | | | | | | | |
| 27 | Uttar Pradesh | 836 | 557 | 66.63 | 169 | 20.22 | 47 | 5.62 | 63 | 7.54 | | |
| 28 | Uttarakhand | 18 | 14 | 77.78 | 4 | 22.22 | | | | | | |
| 29 | West Bengal | 345 | 232 | 67.25 | 31 | 8.99 | 22 | 6.38 | | | 60 | 17.39 |
| 30 | Andaman and Nicobar | 36 | 35 | 97.22 | | | | | | | 1 | 2.78 |
| 31 | Chandigarh | 1 | | | 1 | 100.00 | | | | | | |
| 32 | Dadra & Nagar Haveli | 1 | | | | | | | 1 | 100.00 | | |
| | Daman & Diu | 2 | | | | | | | 2 | 100.00 | | |
| 33 | Jammu and Kashmir | 20 | 19 | 95.00 | 1 | 5.00 | | | | | | |
| 34 | Ladakh | 8 | 7 | 87.50 | 1 | 12.50 | | | | | | |
| 35 | Lakshadweep | 9 | 7 | 77.78 | 2 | 22.22 | | | | | | |
| 36 | Puducherry | 4 | 2 | 50.00 | | | 1 | 25.00 | | | 1 | 25.00 |
| | Grand Total | 7089 | 4780 | 67.43 | 885 | 12.48 | 260 | 3.67 | 1006 | 14.19 | 156 | 2.23 |

Note-

Blocks- Bihar, Chhatisgarh, Haryana, Jharkhand, Kerala, Madhya Pradesh, Manipur, Mizoram, Odisha, Punjab, Rajasthan, Tripura, Uttar Pradesh, Uttarakhand, West Bengal

Taluks- Goa, Gujarat, Karnataka, Maharashtra

Mandals- Andhra Pradesh, Telangana

District- Arunachal Pradesh, Assam, Meghalaya, Nagaland, Sikkim, Dadra & Nagar Haveli, Daman & Diu, Jammu & Kashmir

Valley- Himachal Pradesh, Ladakh

Islands- Andaman & Nicobar, Lakshadweep

Firka- Tamil Nadu

Region- Puducherry

UT- Chandigarh

Tehsil- Delhi

## CATEGORIZATION OF BLOCKS/ MANDALS/ TALUKAS IN INDIA (2023)

| S.No. | State/Union Territories | Total No. of Assessed Units | Safe | | Semi-Critical | | Critical | | Over-Exploited | | Saline | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | States | | Nos. | % | Nos. | % | Nos. | % | Nos. | % | Nos. | % |
| 1 | Andhra Pradesh | 667 | 597 | 89.6 | 18 | 2.7 | 3 | 0.5 | 10 | 1.5 | 39 | 5.85 |
| 2 | Arunachal Pradesh | 42 | 42 | 100 | | | | | | | | |
| 3 | Assam | 245 | 244 | 99.59 | 1 | 0.41 | | | | | | |
| 4 | Bihar | 535 | 467 | 87.29 | 53 | 9.91 | 7 | 1.31 | 8 | 1.5 | | |
| 5 | Chhattisgarh | 146 | 119 | 81.51 | 22 | 15.07 | 5 | 3.42 | | | | |
| 6 | Delhi | 34 | 5 | 14.71 | 4 | 11.76 | 12 | 35.29 | 13 | 38.24 | | |
| 7 | Goa | 12 | 12 | 100 | | | | | | | | |
| 8 | Gujarat | 252 | 189 | 75 | 20 | 7.94 | 8 | 3.17 | 23 | 9.13 | 12 | 4.76 |
| 9 | Haryana | 143 | 35 | 24.48 | 9 | 6.29 | 11 | 7.69 | 88 | 61.54 | | |
| 10 | Himachal Pradesh | 10 | 10 | 100 | | | | | | | | |
| 11 | Jharkhand | 263 | 241 | 91.63 | 11 | 4.18 | 6 | 2.28 | 5 | 1.9 | | |
| 12 | Karnataka | 234 | 146 | 62.39 | 32 | 13.68 | 12 | 5.13 | 44 | 16.8 | | |
| 13 | Kerala | 152 | 119 | 78.29 | 30 | 19.74 | 3 | 1.97 | | | | |
| 14 | Madhya Pradesh | 317 | 226 | 71.29 | 60 | 18.93 | 5 | 1.58 | 26 | 8.2 | | |
| 15 | Maharashtra | 353 | 277 | 78.47 | 57 | 16.15 | 9 | 2.55 | 9 | 2.55 | 1 | 0.28 |
| 16 | Manipur | 9 | 9 | 100.00 | | | | | | | | |
| 17 | Meghalaya | 39 | 39 | 100 | | | | | | | | |
| 18 | Mizoram | 26 | 26 | 100 | | | | | | | | |
| 19 | Nagaland | 52 | 52 | 100 | | | | | | | | |
| 20 | Odisha | 314 | 299 | 95.22 | 9 | 2.87 | | | | | 6 | 1.91 |
| 21 | Punjab | 153 | 20 | 13.07 | 13 | 8.5 | 3 | 1.96 | 117 | 76.47 | | |
| 22 | Rajasthan | 302 | 38 | 12.58 | 22 | 7.28 | 23 | 7.62 | 216 | 71.52 | 3 | 0.99 |
| 23 | Sikkim | 6 | 6 | 100 | | | | | | | | |
| 24 | Tamil Nadu | 313 | 125 | 39.94 | 56 | 17.89 | 27 | 8.63 | 100 | 31.95 | 5 | 1.60 |
| 25 | Telangana | 612 | 530 | 86.60 | 61 | 9.97 | 10 | 1.63 | 11 | 1.80 | | |
| 26 | Tripura | 59 | 59 | 100 | | | | | | | | |
| 27 | Uttar Pradesh | 836 | 559 | 66.87 | 172 | 20.57 | 43 | 5.14 | 62 | 7.42 | | |
| 28 | Uttarakhand | 18 | 14 | 77.78 | 4 | 22.22 | | | | | | |
| 29 | West Bengal | 345 | 241 | 69.86 | 32 | 9.28 | 12 | 3.48 | | | 60 | 17.39 |
| 30 | Andaman And Nicobar | 9 | 9 | 100 | | | | | | | | |
| 31 | Chandigarh | 1 | | | 1 | 100 | | | | | | |
| 32 | Dadra & Nagar Haveli | 1 | | | | | | | 1 | 100 | | |
| | Daman & Diu | 2 | | | | | | | 2 | 100 | | |
| 33 | Jammu And Kashmir | 20 | 19 | 95 | 1 | 5 | | | | | | |
| 34 | Ladakh | 18 | 12 | 66.67 | 6 | 33.33 | | | | | | |
| 35 | Lakshadweep | 5 | 4 | 80 | 1 | 20 | | | | | | |
| 36 | Puducherry | 8 | 3 | 37.50 | 3 | 37.50 | | | 1 | 12.50 | 1 | 12.50 |
| | Grand Total | 6553 | 4793 | 73.14 | 698 | 10.65 | 199 | 3.04 | 736 | 11.23 | 127 | 1.94 |

Note-

Blocks- Arunachal Pradesh, Assam,Bihar, Chhatisgarh, Haryana, Jharkhand, Kerala, Madhya Pradesh, Manipur, Meghalaya, Mizoram,Nagaland, Odisha, Punjab, Rajasthan, Tripura, Uttar Pradesh, Uttarakhand, West Bengal,Andaman & Nicobar Island, Ladakh,Lakshadweep

Taluks- Goa, Gujarat, Karnataka, Maharashtra,Tamil Nadu, Puducherry

Mandals- Andhra Pradesh, Telangana

District- Sikkim, Dadra & Nagar Haveli, Daman & Diu, Jammu & Kashmir

Valley- Himachal Pradesh

UT- Chandigarh

Tehsil- Delhi

Senior Hydrogeologist
Ground Water Organisation
Jal Shakti Vibhag Una (H.P.)-174303

## CATEGORIZATION OF BLOCKS/ MANDALS/ TALUKAS IN INDIA (2024)

| S.No. | State/Union Territories | Total No. of Assessed Units | Safe | | Semi-Critical | | Critical | | Over-Exploited | | Saline | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | States | | Nos. | % | Nos. | % | Nos. | % | Nos. | % | Nos. | % |
| 1 | Andhra Pradesh | 679 | 591 | 87.0 | 38 | 5.6 | 2 | 0.3 | 9 | 1.3 | 39 | 5.74 |
| 2 | Arunachal Pradesh | 42 | 42 | 100 | | | | | | | | |
| 3 | Assam | 245 | 244 | 99.59 | 1 | 0.41 | | | | | | |
| 4 | Bihar | 535 | 473 | 88.41 | 49 | 9.16 | 9 | 1.68 | 4 | 0.75 | | |
| 5 | Chhattisgarh | 146 | 120 | 82.19 | 21 | 14.38 | 5 | 3.42 | | | | |
| 6 | Goa | 12 | 12 | 100 | | | | | | | | |
| 7 | Gujarat | 252 | 184 | 73.02 | 24 | 9.52 | 10 | 3.97 | 22 | 8.73 | 12 | 4.76 |
| 8 | Haryana | 143 | 36 | 25.17 | 8 | 5.59 | 11 | 7.69 | 88 | 61.54 | | |
| 9 | Himachal Pradesh | 10 | 10 | 100 | | | | | | | | |
| 10 | Jharkhand | 263 | 240 | 91.25 | 12 | 4.56 | 6 | 2.28 | 5 | 1.9 | | |
| 11 | Karnataka | 237 | 144 | 60.76 | 33 | 13.92 | 15 | 6.33 | 45 | 18.99 | | |
| 12 | Kerala | 152 | 120 | 78.95 | 29 | 19.08 | 3 | 1.97 | | | | |
| 13 | Madhya Pradesh | 317 | 225 | 70.98 | 61 | 19.24 | 5 | 1.58 | 26 | 8.2 | | |
| 14 | Maharashtra | 359 | 302 | 84.12 | 41 | 11.42 | 7 | 1.95 | 8 | 2.23 | 1 | 0.28 |
| 15 | Manipur | 9 | 9 | 100 | | | | | | | | |
| 16 | Meghalaya | 40 | 40 | 100 | | | | | | | | |
| 17 | Mizoram | 26 | 26 | 100 | | | | | | | | |
| 18 | Nagaland | 52 | 52 | 100 | | | | | | | | |
| 19 | Odisha | 314 | 299 | 95.22 | 9 | 2.87 | | | | | 6 | 1.91 |
| 20 | Punjab | 153 | 22 | 14.38 | 12 | 7.84 | 4 | 2.61 | 115 | 75.16 | | |
| 21 | Rajasthan | 302 | 37 | 12.25 | 21 | 6.95 | 27 | 8.94 | 214 | 70.86 | 3 | 0.99 |
| 22 | Sikkim | 38 | 38 | 100 | | | | | | | | |
| 23 | Tamil Nadu | 313 | 127 | 40.58 | 55 | 17.57 | 20 | 6.39 | 106 | 33.87 | 5 | 1.60 |
| 24 | Telangana | 620 | 490 | 79.03 | 85 | 13.71 | 13 | 2.10 | 32 | 5.16 | | |
| 25 | Tripura | 59 | 59 | 100 | | | | | | | | |
| 26 | Uttar Pradesh | 836 | 566 | 67.7 | 165 | 19.74 | 46 | 5.5 | 59 | 7.06 | | |
| 27 | Uttarakhand | 20 | 16 | 80 | 4 | 20 | | | | | | |
| 28 | West Bengal | 345 | 239 | 69.28 | 36 | 10.43 | 10 | 2.9 | | | 60 | 17.39 |
| 29 | Andaman And Nicobar | 9 | 9 | 100 | | | | | | | | |
| 30 | Chandigarh | 1 | 1 | 100 | | | | | | | | |
| 31 | Dadra and Nagar Haveli and Daman and Diu | 3 | | | | | | | 3 | 100 | | |
| 32 | Delhi | 34 | 5 | 14.71 | 2 | 5.88 | 13 | 38.24 | 14 | 41.18 | | |
| 33 | Jammu And Kashmir | 149 | 149 | 100 | | | | | | | | |
| 34 | Ladakh | 18 | 17 | 94.44 | 1 | 5.56 | | | | | | |
| 35 | Lakshadweep | 5 | 4 | 80 | 1 | 20 | | | | | | |
| 36 | Puducherry | 8 | 3 | 37.50 | 3 | 37.50 | | | 1 | 12.50 | 1 | 12.50 |
| | Grand Total | 6746 | 4951 | 73.39 | 711 | 10.54 | 206 | 3.05 | 751 | 11.13 | 127 | 1.88 |

Note-

Blocks- Arunachal Pradesh, Assam,Bihar, Chhatisgarh, Haryana, Jharkhand, Kerala, Madhya Pradesh, Manipur, Meghalaya, Mizoram,Nagaland, Odisha, Punjab, Rajasthan, Sikkim, Tripura, Uttar Pradesh, Uttarakhand, West Bengal,Andaman & Nicobar Island,Jammu & Kashmir, Ladakh,Lakshadweep

Taluks- Goa, Gujarat, Karnataka, Maharashtra,Tamil Nadu, Puducherry

Mandals- Andhra Pradesh, Telangana

District- Dadra & Nagar Haveli, Daman & Diu

Valley- Himachal Pradesh

UT- Chandigarh

Tehsil- Delhi

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Annexure R8.

Annex R-1

Himachal Pradesh
Jal Shakti Vibhag

No..JSV.GWO/E-32/2024-25 490 - 91 Dated: 14-07-2025

To,

The Deputy Commisioner,
Una, District Una,
Himachal Pradesh

Subject: O.A.No.148/2025 titled as Rohit Vs. Ministry of Enviornment Forest and Climate Change & Ors..

Sir,

It is with reference to your office letter No. 366-374/DRO/DRA dated 07/07/2025 regarding subject cited above. In this regard the parawise comments are enclosed for your kind perusal and further necessary action please.

Senior Hydrogeologist,
Ground Water Organisation,
Jal Shakti Vibhag, Una (H.P)

Copy to the Superintending Engineer Jal Shakti Circle Una,District Una (H.P.) for kind information please.

Senior Hydrogeologist,
Ground Water Organisation,
Jal Shakti Vibhag, Una (H.P)

DRO/DRA
15/7/25

2044/5005
15/07/25

437
16/7/25

# BEFORE THE HON'BLE NATIONAL GREEN TRIBUNAL, PRINCIPAL BENCH AT NEW DELHI.
## Original Application No.148/2025

Reply of the Para related to this office are as under :

Para No. 1: Does not pertain to this office.

Para No. 2:

That the contents of the para No 2 are not true and as per the National Compilation of Ground Water Resources of India by Central Ground Water Board, Department of Water Resources, River Development and Ganga Rejuvenation, Ministry of Jal Shakti, Govt of India report for 2022, 2023, 2024 no assessment unit in Himachal Pradesh including Una and Hum valley have depleted resource. All assessment units have been categorized under 'Safe Category'.

Groundwater management in the State is being implemented on the basis of the periodical estimation of the Ground Water Resources Assessment jointly carried out by State Ground Water Organisation, Jal Shakti Vibhag, Una (HP) and Central Ground Water Board under the guidance of the respective State Level Committee on Ground Water Assessment at State Level and also under the overall supervision of the Central Level Expert Group.

The assessment units are categorized based on Stage of Groundwater Extraction, which are then validated with long-term water level trends. The 'Stage of Ground Water Extraction' is computed as the ratio of' Annual Ground Water Extraction' with respect to 'Annual Extractable Ground Water Resource' and is usually expressed in percentage. The categories are:-

| Stage of Groundwater Extraction Category | |
|---|---|
| Safe | ≤ 70% |
| Semi Critical | > 70% and ≤ 90% |
| Critical | >90% and ≤ 100% |
| Over - Exploited | >100% |

## Categorization of Ground Water Resources, Himachal Pradesh March 2022, 2023 & 2024 Reports

| Category | March 2022 | March 2023 | March 2024 |
|---|---|---|---|
| Over Exploited Assessment units | 0 | 0 | 0 |
| Critical Assessment units | 0 | 0 | 0 |
| Semi - Critical Assessment units | 0 | 0 | 0 |
| Safe Assessment units | 10 | 10 | 10 |
| Total Number of Assessment units | 10 | 10 | 10 |

Annexure - A,B,C

Para No 3:

Yes, ground water has been proposed as a short term measure for bulk drug project for meeting the water requirement of Bulk Drug Park and use of surface water from river Sutlej has been proposed as long term measure. Ground water source will be kept as standby in case of exigency. The Beet Area forms almost gently undulating elongated shape land within upper Siwaliks having NW-SE strike direction parallel to the general strike direction of Upper Siwaliks & Himalayas. Its total area is 150 sq.kms, out of which about 72 sq .kms. falls in Punjab State and 78 sq. kms. lies in Una district of Himachal Pradesh. A lineament exists along the Hum khad due to which its course changes from west to east direction. The Beet area plateau geologically comprises of boulders, pebbles, gravel, sand, clay and lies unconformably over the Upper Siwaliks. These boulder formations originated in the area are mainly the deposits of Satluj river which changed its course due to the Himalayan upliftment. The area is still recharged by Soan river and Satluj river flowing in the north and north-east direction of the area. These formations are highly transmissive and provide copius amount of water. Exploration of groundwater in the area is being carried out since 1998 and till date no significant decline has been observed in the water level in the tubewells. Two number of piezometers exist in village Singha and Pubowal

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and the water level at Singhan varies between 123.50-125.1 metre below ground level and at Pubowal between 138.8- 142.95 metre below ground level. (Annexure I- Image of Beet area) Ground water recharge and conservation plan is also being executed in the area. The average annual rainfall in the area is 1110 mm and ponds having area of 53300 sq m are being repaired, renovated and restored for water conservation and ground water recharge.

(Annexure II,III, IV: Photograph of ponds work)

Para No. 4: Does not pertain to this office.

Para No 5:

The facts regarding water level in village Bathri are not true. Three number piezometers have been constructed in Bathu- Bathri area having location co-ordinates as:

1. N31.32941,E76.29208 at Gurplah School.
2. N 31.32597,E76.29283 at Gurplah Nr. Complex of Govt Twell No 61.
3. N31.32494,E76.30027 near DJ Biotech Bela Bathri.

The average monthly water level at piezometer Gurplah School from Oct 2022 to April 2025 ranges between 8.4 m to 11.85 m below ground level; at piezometer Gurplah Near Govt Tubewell No 61 from January 2022 to June 2025 ranges between 10.30 m to 16.70 m below ground level and at piezometer Bela Bathri near D.J. Boitech from August 2019 to June 2025 ranges between 5.55 m to 10.15 m below ground level. Hydrograph for all the stations are attached as Annexure- V,VI,VII

The water level in Beet area / Hum Khad area ranges between 90-179 m bgl. The water level depends upon the surface elevation of the village from Soan river and changes with topography. Piezometers have been constructed at village Singhan having location coordinate N 31.31966667, E 76.24619444 and at village Pubowal having location coordinate N 31.38233333, E 76.204250 and the average monthly water level at piezometer village Singhan from Jan 2022 to April 2025 ranges between 123.5 m to 125.1 m below ground level whereas the average monthly water level at piezometer village Pubowal from Jan 2022 to April 2025 ranges between 138.8 m to 142.95 m below ground level. Hydrograph for both the stations are attached as Annexure- VIII,IX

The ground water abstraction in the Beet area is as per the hydrogeology and recharging conditions of the area. The aquifer formations are highly transmissive and lateral hydraulic conductivity (permeability) is quite high as found in fluvial deposits. The water levels are deep due to the tectonic activities raising the bed of the alluvial material which are being recharged from the river Satluj and its tributary river Soan through the fault zone and the aquifers are encountered at the depth at which the river Satluj / Soan flows and then the water level rise as

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per the topography of the area. It is submitted that keeping in view of the above the area has huge hydrogeological reserve and there will be no significant impact from the drawl of the water supply requirement for the bulk drug area.

Para No 6: Does not pertain to this office.

Para No 7: Does not pertain to this office.

Para No 8: Does not pertain to this office.

Para No 9: Does not pertain to this office.

Senior Hydrogeologist,
Ground Water Organisation,
Jal Shakti Vibhag, Una (H.P.)

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Annexure 'A'

National Compilation on Dynamic Ground Water Resources of India, 2024

CATEGORIZATION OF BLOCKS/ MANDALS/ TALUKAS IN INDIA (2024)

| S.No. | State/Union Territories | Total No. of Assessed Units | Safe | | Semi-Critical | | Critical | | Over-Exploited | | Saline | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Nos. | % | Nos. | % | Nos. | % | Nos. | % | Nos. | % |
| 1 | States | | | | | | | | | | | |
| 2 | Andhra Pradesh | 679 | 591 | 87.0 | 38 | 5.6 | 2 | 0.3 | 9 | 1.3 | 39 | 5.74 |
| 3 | Arunachal Pradesh | 42 | 42 | 100 | | | | | | | | |
| 4 | Assam | 245 | 244 | 99.59 | 1 | 0.41 | | | | | | |
| 5 | Chhattisgarh | 535 | 473 | 88.41 | 49 | 9.16 | 9 | 1.68 | 4 | 0.75 | | |
| 6 | Goa | 146 | 120 | 82.19 | 21 | 14.38 | 5 | 3.42 | | | | |
| 7 | Gujarat | 12 | 12 | 100 | | | | | | | | |
| 8 | Haryana | 252 | 184 | 73.02 | 24 | 9.52 | 10 | 3.97 | 22 | 8.73 | 12 | 4.76 |
| 9 | Himachal Pradesh | 143 | 36 | 25.17 | 8 | 5.59 | 11 | 7.69 | 88 | 61.54 | | |
| 10 | Jharkhand | 10 | 10 | 100 | | | | | | | | |
| 11 | Karnataka | 263 | 240 | 91.25 | 12 | 4.56 | 6 | 2.28 | 5 | 1.9 | | |
| 12 | Kerala | 237 | 144 | 60.76 | 33 | 13.92 | 15 | 6.33 | 45 | 18.99 | | |
| 13 | Madhya Pradesh | 152 | 120 | 78.95 | 29 | 19.08 | 3 | 1.97 | | | | |
| 14 | Maharashtra | 317 | 225 | 70.98 | 61 | 19.24 | 5 | 1.58 | 26 | 8.2 | | |
| 15 | Manipur | 359 | 302 | 84.12 | 41 | 11.42 | 7 | 1.95 | 8 | 2.23 | 1 | 0.28 |
| 16 | Meghalaya | 9 | 9 | 100 | | | | | | | | |
| 17 | Mizoram | 40 | 40 | 100 | | | | | | | | |
| 18 | Nagaland | 26 | 26 | 100 | | | | | | | | |
| 19 | Odisha | 52 | 52 | 100 | | | | | | | | |
| 20 | Punjab | 314 | 299 | 95.22 | 9 | 2.87 | | | | | 6 | 1.91 |
| 21 | Rajasthan | 153 | 22 | 14.38 | 12 | 7.84 | 4 | 2.61 | 115 | 75.16 | | |
| 22 | Sikkim | 302 | 37 | 12.25 | 21 | 6.95 | 27 | 8.94 | 214 | 70.86 | 3 | 0.99 |
| 23 | Tamil Nadu | 38 | 38 | 100 | | | | | | | | |
| 24 | Telangana | 313 | 127 | 40.58 | 55 | 17.57 | 20 | 6.39 | 106 | 33.87 | 5 | 1.60 |
| 25 | Tripura | 820 | 490 | 79.03 | 85 | 13.71 | 13 | 2.10 | 32 | 5.16 | | |
| 26 | Uttar Pradesh | 59 | 59 | 100 | | | | | | | | |
| 27 | Uttarakhand | 836 | 566 | 67.7 | 165 | 19.74 | 46 | 5.5 | 59 | 7.06 | | |
| 28 | West Bengal | 20 | 16 | 80 | 4 | 20 | | | | | | |
| 29 | Andaman And Nicobar | 345 | 239 | 69.28 | 36 | 10.43 | 10 | 2.9 | | | 60 | 17.39 |
| 30 | Chandigarh | 9 | 9 | 100 | | | | | | | | |
| 31 | Dadra and Nagar Haveli and Daman and Diu | 1 | 1 | 100 | | | | | | | | |
| 32 | Delhi | 3 | | | | | | | 3 | 100 | | |
| 33 | Jammu And Kashmir | 34 | 5 | 14.71 | 2 | 5.88 | 13 | 38.24 | 14 | 41.18 | | |
| 34 | Ladakh | 149 | 149 | 100 | | | | | | | | |
| 35 | Lakshadweep | 18 | 17 | 94.44 | 1 | 5.56 | | | | | | |
| 36 | Puducherry | 5 | 4 | 80 | 1 | 20 | | | | | | |
| | Grand Total | 8 | 3 | 37.50 | 3 | 37.50 | | | 1 | 12.50 | 1 | 12.50 |
| | | 6745 | 4951 | 73.39 | 711 | 10.54 | 206 | 3.05 | 751 | 11.13 | 127 | 1.88 |

Note-

Blocks- Arunachal Pradesh, Assam,Bihar, Chhatisgarh, Haryana, Jharkhand, Kerala, Madhya Pradesh, Manipur, Meghalaya, Mizoram,Nagaland, Odisha, Punjab, Rajasthan, Sikkim, Tripura, Uttar Pradesh, Uttarakhand, West Bengal,Andaman & Nicobar Island,Jammu & Kashmir, Ladakh,Lakshadweep

Taluks- Goa, Gujarat, Karnataka, Maharashtra,Tamil Nadu, Puducherry

Mandals- Andhra Pradesh, Telangana

District- Dadra & Nagar Haveli, Daman & Diu

Valley- Himachal Pradesh

UT- Chandigarh

Tehsil- Delhi

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Annexure 'B'

## CATEGORIZATION OF BLOCKS/ MANDALS/ TALUKAS IN INDIA (2023)

| S.No. | State/Union Territories | Total No. of Assessed Units | Safe | | Semi-Critical | | Critical | | Over-Exploited | | Saline | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | States | | Nos. | % | Nos. | % | Nos. | % | Nos. | % | Nos. | % |
| 1 | Andhra Pradesh | 687 | 397 | 69.5 | 10 | 2.7 | 3 | 0.5 | 10 | 1.5 | 39 | 5.85 |
| 2 | Arunachal Pradesh | 42 | 42 | 100 | | | | | | | | |
| 3 | Assam | 245 | 244 | 99.59 | 1 | 0.41 | | | | | | |
| 4 | Bihar | 535 | 467 | 87.29 | 53 | 9.91 | 7 | 1.31 | 8 | 1.5 | | |
| 5 | Chhattisgarh | 146 | 119 | 81.51 | 22 | 15.07 | 5 | 3.42 | | | | |
| 6 | Delhi | 34 | 5 | 14.71 | 4 | 11.76 | 12 | 35.29 | 13 | 38.24 | | |
| 7 | Goa | 12 | 12 | 100 | | | | | | | | |
| 8 | Gujarat | 252 | 189 | 75 | 20 | 7.94 | 8 | 3.17 | 23 | 9.13 | 12 | 4.75 |
| 9 | Haryana | 143 | 35 | 24.48 | 9 | 6.29 | 11 | 7.69 | 88 | 61.54 | | |
| 10 | Himachal Pradesh | 10 | 10 | 100 | | | | | | | | |
| 11 | Jharkhand | 263 | 241 | 91.63 | 11 | 4.18 | 6 | 2.28 | 5 | 1.9 | | |
| 12 | Karnataka | 234 | 146 | 62.39 | 32 | 13.68 | 12 | 5.13 | 44 | 18.8 | | |
| 13 | Kerala | 152 | 119 | 78.29 | 30 | 19.74 | 3 | 1.97 | | | | |
| 14 | Madhya Pradesh | 317 | 226 | 71.29 | 60 | 18.93 | 5 | 1.58 | 26 | 8.2 | | |
| 15 | Maharashtra | 353 | 277 | 78.47 | 57 | 16.15 | 9 | 2.55 | 9 | 2.55 | 1 | 0.28 |
| 16 | Manipur | 9 | 9 | 100.00 | | | | | | | | |
| 17 | Meghalaya | 39 | 39 | 100 | | | | | | | | |
| 18 | Mizoram | 26 | 26 | 100 | | | | | | | | |
| 19 | Nagaland | 52 | 52 | 100 | | | | | | | 6 | 1.91 |
| 20 | Odisha | 314 | 299 | 95.22 | 9 | 2.87 | | | | | | |
| 21 | Punjab | 153 | 20 | 13.07 | 13 | 8.5 | 3 | 1.96 | 117 | 76.47 | | |
| 22 | Rajasthan | 302 | 38 | 12.58 | 22 | 7.28 | 23 | 7.62 | 216 | 71.52 | 3 | 0.99 |
| 23 | Sikkim | 6 | 6 | 100 | | | | | | | | |
| 24 | Tamil Nadu | 313 | 125 | 39.94 | 56 | 17.89 | 27 | 8.63 | 100 | 31.95 | 5 | 1.60 |
| 25 | Telangana | 612 | 530 | 86.60 | 61 | 9.97 | 10 | 1.63 | 11 | 1.80 | | |
| 26 | Tripura | 59 | 59 | 100 | | | | | | | | |
| 27 | Uttar Pradesh | 836 | 559 | 66.87 | 172 | 20.57 | 43 | 5.14 | 62 | 7.42 | | |
| 28 | Uttarakhand | 18 | 14 | 77.78 | 4 | 22.22 | | | | | | |
| 29 | West Bengal | 345 | 241 | 69.86 | 32 | 9.28 | 12 | 3.48 | | | 60 | 17.39 |
| 30 | Andaman And Nicobar | 9 | 9 | 100 | | | | | | | | |
| 31 | Chandigarh | 1 | | | 1 | 100 | | | | | | |
| 32 | Dadra & Nagar Haveli | 1 | | | | | | | 1 | 100 | | |
| | Daman & Diu | 2 | | | | | | | 2 | 100 | | |
| 33 | Jammu And Kashmir | 20 | 19 | 95 | 1 | 5 | | | | | | |
| 34 | Ladakh | 18 | 12 | 66.67 | 6 | 33.33 | | | | | | |
| 35 | Lakshadweep | 5 | 4 | 80 | 1 | 20 | | | | | | |
| 36 | Puducherry | 8 | 3 | 37.50 | 3 | 37.50 | | | 1 | 12.50 | 1 | 12.50 |
| | Grand Total | 6553 | 4793 | 73.14 | 698 | 10.65 | 199 | 3.04 | 738 | 11.23 | 127 | 1.94 |

Note-

Blocks- Arunachal Pradesh, Assam,Bihar, Chhatisgarh, Haryana, Jharkhand, Kerala, Madhya Pradesh, Manipur, Meghalaya, Mizoram,Nagaland, Odisha, Punjab, Rajasthan, Tripura, Uttar Pradesh, Uttarakhand, West Bengal,Andaman & Nicobar Island, Ladakh,Lakshadweep

Taluks- Goa, Gujarat, Karnataka, Maharashtra,Tamil Nadu, Puducherry

Mandals- Andhra Pradesh, Telangana

District- Sikkim, Dadra & Nagar Haveli, Daman & Diu, Jammu & Kashmir

Valley- Himachal Pradesh

UT- Chandigarh

Tehsil- Delhi

Senior Hydrogeologist
Ground Water Organisation
Jal Shakti Vibhag Una (H.P)-174303

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Annexure 'C'

## CATEGORIZATION OF BLOCKS/ MANDALS/ TALUKAS IN INDIA (2022)

| S.No. | State/Union Territories | Total No. of Assessed Units | Safe | | Semi-Critical | | Critical | | Over-Exploited | | Saline | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | States | | Nos. | % | Nos. | % | Nos. | % | Nos. | % | Nos. | % |
| 1 | Andhra Pradesh | 807 | 560 | 69.7 | 19 | 2.0 | 5 | 0.7 | 6 | 0.9 | 39 | 5.65 |
| 2 | Arunachal Pradesh | 11 | 11 | 100.00 | | | | | | | | |
| 3 | Assam | 29 | 27 | 98.43 | 1 | 3.57 | | | | | | |
| 4 | Bihar | 535 | 409 | 87.60 | 48 | 8.60 | 12 | 2.24 | 8 | 1.50 | | |
| 5 | Chhattisgarh | 146 | 116 | 79.45 | 24 | 16.44 | 6 | 4.11 | | | | |
| 6 | Delhi | 34 | 4 | 11.76 | 8 | 23.53 | 7 | 20.59 | 15 | 44.12 | | |
| 7 | Goa | 12 | 12 | 100.00 | | | | | | | | |
| 8 | Gujarat | 262 | 169 | 75.00 | 20 | 7.84 | 7 | 2.76 | 23 | 9.13 | 13 | 5.16 |
| 9 | Haryana | 143 | 36 | 25.17 | 9 | 6.29 | 10 | 6.99 | 88 | 61.54 | | |
| 10 | Himachal Pradesh | 10 | 10 | 100.00 | | | | | | | | |
| 11 | Jharkhand | 269 | 241 | 91.63 | 11 | 4.18 | 6 | 2.28 | 5 | 1.90 | | |
| 12 | Karnataka | 234 | 139 | 59.40 | 35 | 14.96 | 11 | 4.70 | 49 | 20.94 | | |
| 13 | Kerala | 152 | 122 | 80.26 | 27 | 17.76 | 3 | 1.97 | | | | |
| 14 | Madhya Pradesh | 317 | 226 | 71.29 | 60 | 18.93 | 5 | 1.58 | 26 | 8.20 | | |
| 15 | Maharashtra | 383 | 273 | 77.05 | 62 | 17.58 | 7 | 1.98 | 11 | 3.12 | 1 | 0.28 |
| 16 | Manipur | 9 | 9 | 100.00 | | | | | | | | |
| 17 | Meghalaya | 12 | 12 | 100.00 | | | | | | | | |
| 18 | Mizoram | 26 | 26 | 100.00 | | | | | | | | |
| 19 | Nagaland | 11 | 11 | 100.00 | | | | | | | 6 | 1.91 |
| 20 | Odisha | 314 | 300 | 95.54 | 8 | 2.55 | | | | | | |
| 21 | Punjab | 150 | 17 | 11.11 | 15 | 9.80 | 4 | 2.61 | 117 | 76.47 | 3 | 0.99 |
| 22 | Rajasthan | 302 | 38 | 12.58 | 20 | 6.62 | 22 | 7.28 | 219 | 72.52 | | |
| 23 | Sikkim | 6 | 6 | 100.00 | | | | | | | | |
| 24 | Tamil Nadu | 1166 | 463 | 39.71 | 231 | 19.81 | 78 | 6.69 | 360 | 30.87 | 34 | 2.92 |
| 25 | Telangana | 594 | 494 | 83.00 | 80 | 13.60 | 7 | 1.20 | 13 | 2.20 | | |
| 26 | Tripura | 59 | 59 | 100.00 | | | | | | | | |
| 27 | Uttar Pradesh | 836 | 557 | 66.63 | 169 | 20.22 | 47 | 5.62 | 63 | 7.54 | | |
| 28 | Uttarakhand | 18 | 14 | 77.78 | 4 | 22.22 | | | | | 60 | 17.39 |
| 29 | West Bengal | 345 | 232 | 67.25 | 91 | 8.99 | 22 | 6.38 | | | 1 | 2.78 |
| 30 | Andaman and Nicobar | 36 | 35 | 97.22 | | | | | | | | |
| 31 | Chandigarh | 1 | | | 1 | 100.00 | | | | | | |
| 32 | Dadra & Nagar Haveli | 1 | | | | | | | 1 | 100.00 | | |
| | Daman & Diu | 2 | | | | | | | 2 | 100.00 | | |
| 33 | Jammu and Kashmir | 20 | 19 | 95.00 | 1 | 5.00 | | | | | | |
| 34 | Ladakh | 8 | 7 | 87.50 | 1 | 12.50 | | | | | | |
| 35 | Lakshadweep | 9 | 7 | 77.78 | 2 | 22.22 | | | | | 1 | 25.00 |
| 36 | Puducherry | 4 | 2 | 50.00 | | | 1 | 25.00 | | | 1 | 25.00 |
| | Grand Total | 7089 | 4780 | 67.43 | 835 | 11.48 | 260 | 3.57 | 1006 | 14.19 | 158 | 2.23 |

Note:-
Blocks- Bihar, Chhattisgarh, Haryana, Jharkhand, Kerala, Madhya Pradesh, Manipur, Mizoram, Odisha, Punjab, Rajasthan, Tripura, Uttar Pradesh, Uttarakhand, West Bengal
Taluks- Goa, Gujarat, Karnataka, Maharashtra
Mandals- Andhra Pradesh, Telangana
District- Arunachal Pradesh, Assam, Meghalaya, Nagaland, Sikkim, Dadra & Nagar Haveli, Daman & Diu, Jammu & Kashmir
Valley- Himachal Pradesh, Ladakh
Islands- Andaman & Nicobar, Lakshadweep
Firka- Tamil Nadu
Region- Puducherry
UT- Chandigarh
Tehsil- Delhi

Annexure R9

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No. Ind.Dev.F(16) Sanctions/BDP/2023/- 154-162
Government of Himachal Pradesh
"Directorate of Industries"
*****
Dated: Shimla-171002; the 27/09/2024

**OFFICE ORDER**

Consequent upon approval accorded by the High Powered Committee of State Implementing Agency (SIA) of Bulk Drug Park (BDP) in its third Meeting held on 03.11.2023 under the Chairmanship of the Hon'ble Industries Minister, H.P., administrative approval amounting to Rs. 11,75,00,000/- (Rupees Eleven crore seventy five lakhs) only and Exp. sanction amounting to Rs.3,52,50,000/- (Rupees Three Crore fifty two lakhs fifty thousand) only as 1st installment i.e. equivalent to 30% of the estimated amount is hereby accorded to defray the expenses for the execution of the work as detailed below, subject to the condition that all codal formalities will be completed in this behalf:-

| Sr. No. | Name of Work | Admin. Approval | Exp. Sanction | Executing Agency |
|---|---|---|---|---|
| 1. | Providing recharge structures at the source for water sustainability Bulk Drug Project area Una. | 11,75,00,000/- | 3,52,50,000/- | Jal Shakti Vibhag |

This sanction is accorded in view of the delegation of powers of State Government contained in Finance Departments instructions vide No. Fin-9(A)-(11)-11/20024 dated 3.6.2014. This is the prior approval al of the competent authority.

Managing Director-Cum-CEO,
SIA, H.P. Bulk Drug Park.

Endst. No. Ind.Dev.F(16) Sanctions/BDP/2023/- Dated: 27/09/2024

Copy for information and necessary action to:-

1. The Principal Secretary (Industries) to the Government of Himachal Pradesh, Shimla-2.
2. The Secretary (JSV) to the Government of Himachal Pradesh, Shimla-2.
3. The Joint Secretary, Government of India, Department of Pharmaceuticals, Ministry of Chemical & Fertilizers, Shastri Bhawan, New Delhi-110001.
4. The Engineer-In-Chief, Jal Shakti Vibhag, Jal Shakti Bhawan, Tutikandi, Shimla-5 with the request to get the work executed at the earliest.
5. The Superintending Engineer, Jal Shakti Circle, Una, Distt. Una, H.P. with the request to get the work executed at the earliest.
6. The Executive Engineer, Jal Shakti Division, Una, Distt. Una, H.P. with the request to get the work executed at the earliest.

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(111)

7. The Branch Manager, Punjab National Bank, The Mall, Shimla with the request to remit Rs. 3,52,50,000/- (Rupees Three Crore fifty two lakhs fifty thousand) to the Executive Engineer, Jal Shakti Division, Una into Account No.924010008124287,Axis Bank, Una, IFSC Code UTIB0000857 from the account of the State Implementing Agency (SIA) namely Himachal Pradesh Bulk Drug-Park Infrastructure Ltd. (HPBDPIL) bearing Saving Account No. 4193000100088031.
8. The Joint Director of Industries, District Industries Centre, Una, Distt. Una, H.P. He is requested to keep proper follow-up of the work, get the work executed at the earliest and send periodical progress reports to this office.
9. Guard File.

Managing Director-Cum-CEO,
SIA, H.P. Bulk Drug Park.

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Email: ID:- seiphcircleuna@gmail.com Annexure R10

Himachal Pradesh
Jal Shakti Vibhag

No.SE-JSCU-WS-WA-II/ DPR/2023-24- 4925-27 Dated:- 30-05-2023

To,

The Chief Engineer (H/Z),
Jal Shakti Vibhag, Hamirpur.

**Subject: -** **Providing Alternate Arrangements of 50 MLD Water Supply for Drug Park Una connecting Beetan-Tahliwal- Pajoiyan-Polian Beet (12.5 MLD for each location) in Tehsil Haroli District Una (H.P).**

Kindly find enclosed herewith the subject cited Detailed Project Report (in triplicate) amounting to ₹17075.96 lakhs only duly checked for approval.

The urgency and importance of the work has fully been explained in the history sheet of the Detailed Project Report. The scheme is proposed to be funded under Deposit Head.

It is, therefore, requested that the necessary approval of the above Detailed Project Report may kindly be arranged from the competent authority and approval conveyed to this office at the earliest please.

**DA:-DPRs (In Triplicate).**

**(Er. Naresh Dhiman),**
Superintending Engineer,
Jal Shakti Circle, Una (H.P)

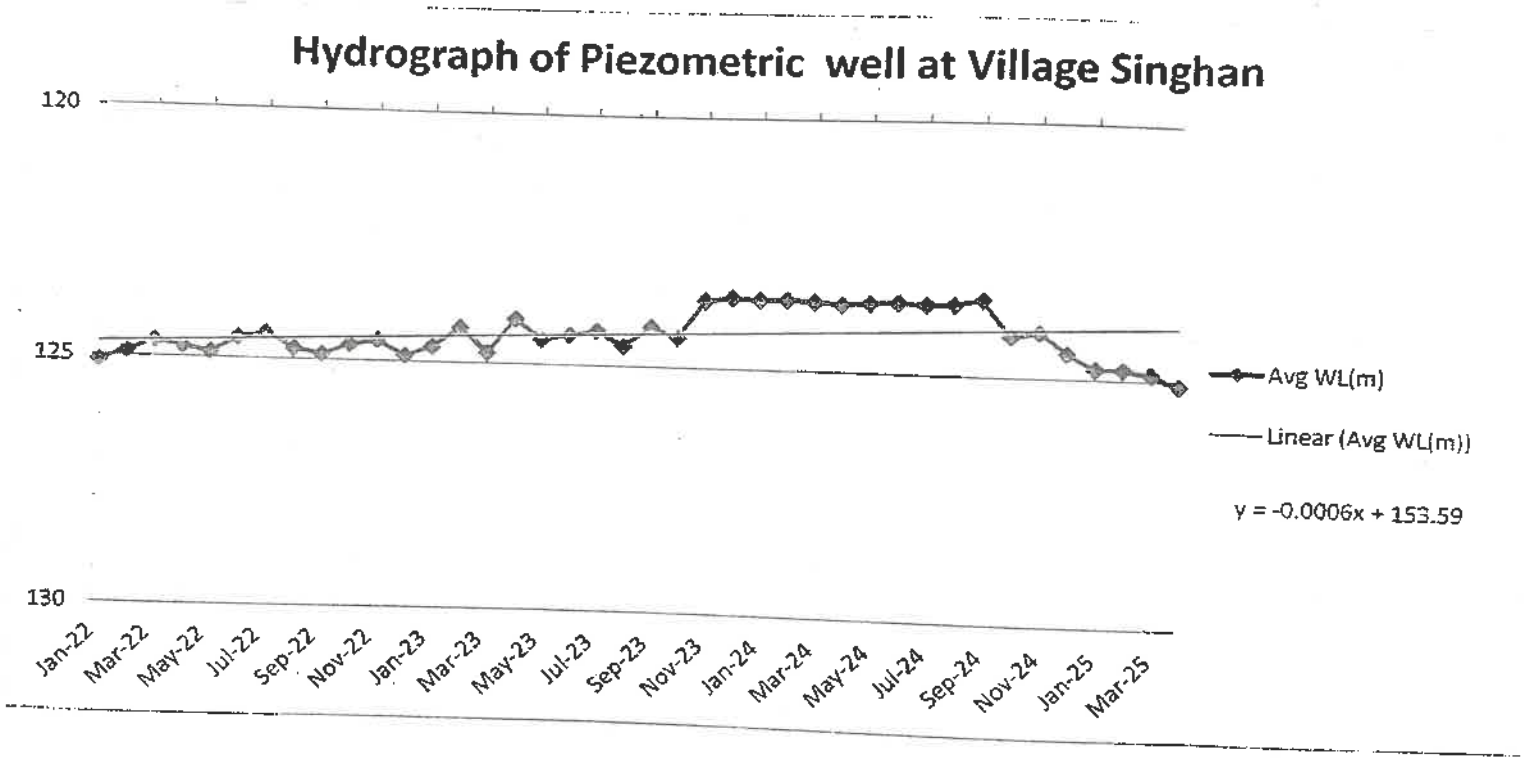
Copy to the Executive Engineer, Jal Shakti Division No. I Una w.r.t. his office letter No. 5208 dated 30.05.2023 for information.

Copy to CHD of this office for information.

Superintending Engineer,
Jal Shakti Circle, Una (H.P)

Scanned with OKEN Scanner

Annexure-VIII

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Annexure - 11

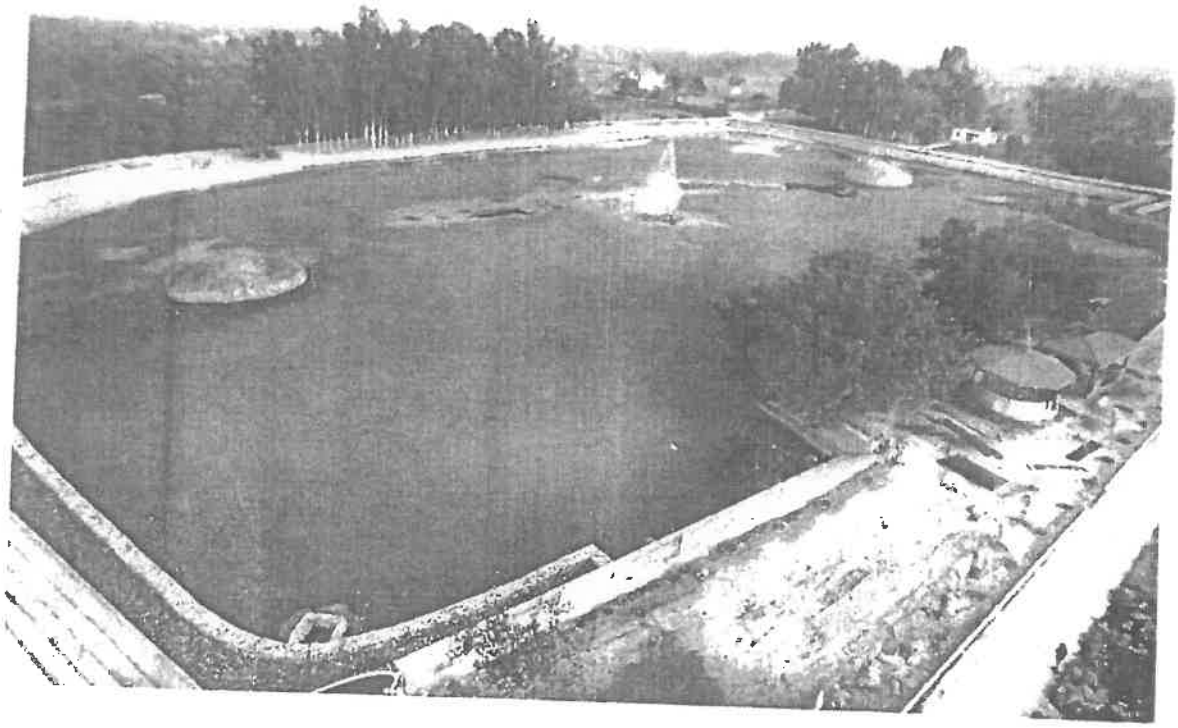
Annexure-IX




Senior Hydrogeologist
Ground Water Organisation
Jal Shakti Vibhag Una (H.P)-174303

Annexure-II

Picture Pubowal Pond



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Ground Water Organisation
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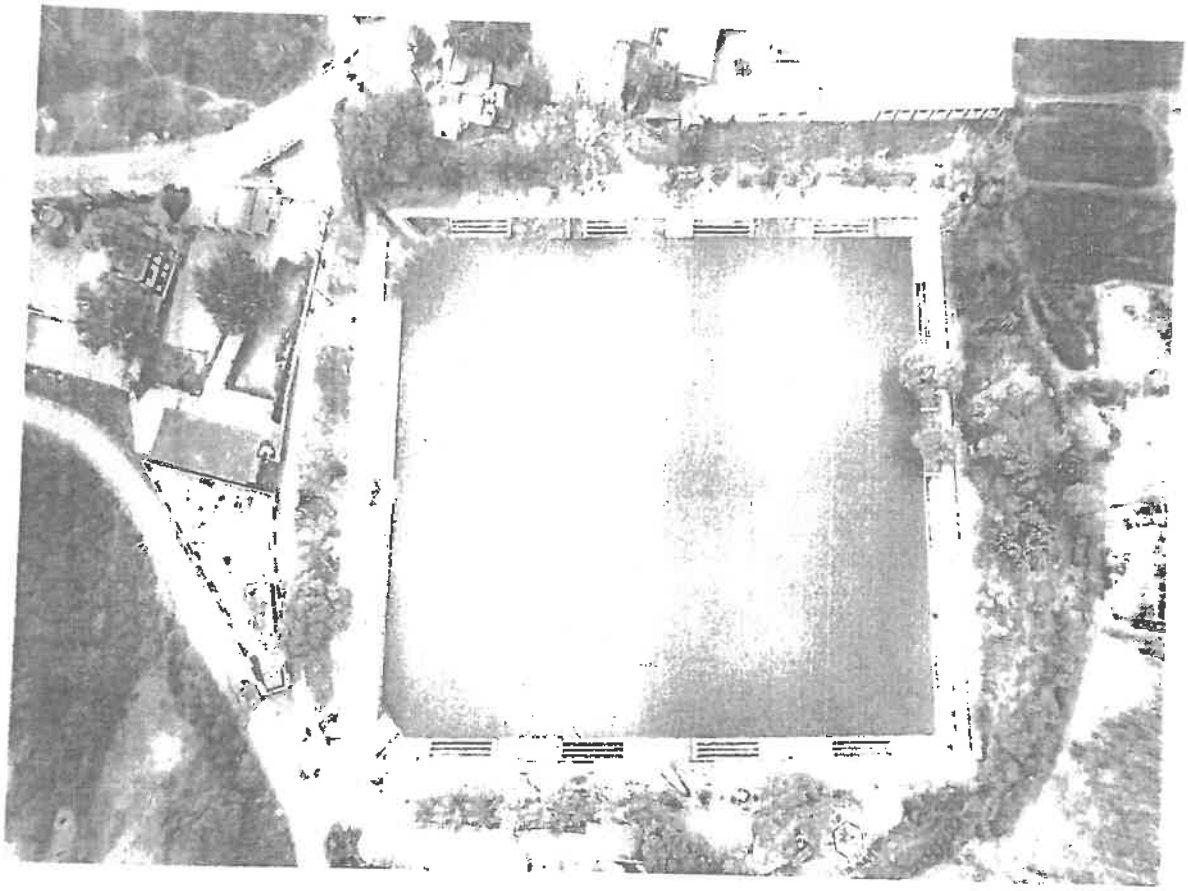
Annexure -III

Picture Gondpur Jaichand Pond



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Ground Water Organisation
Jal Shakti Vibhag Una (H.P.)-174303

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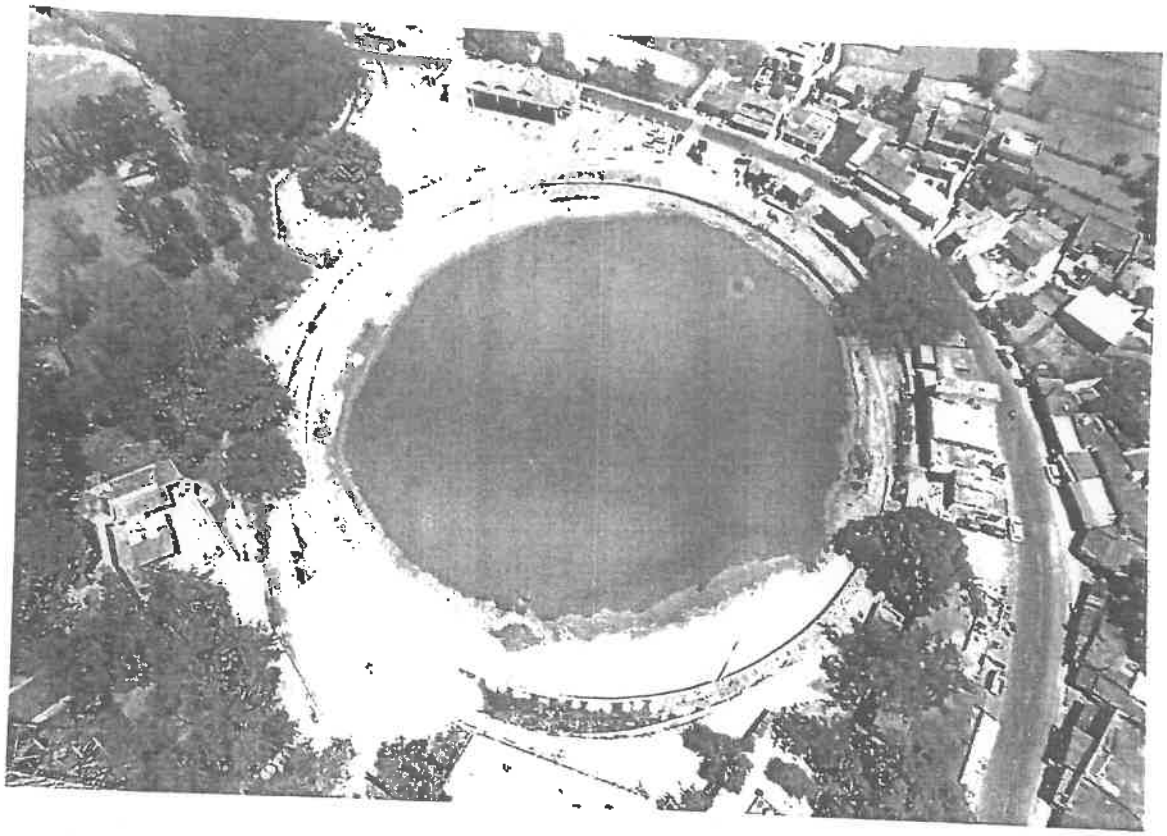
Annexure-IV

Picture Dulehar Pond



Senior Hydrogeologist
Ground Water Organisation
Jal Shakti Vibhag Una (H.P.)-174303

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Annexure R13

# Detailed Project Report
## of
# Bulk Drug Park
## at
## Village Pollian Beet, Tehsil Haroli
## District Una, Himachal Pradesh

**Submitted to**
**Department of Pharmaceuticals**
**Ministry of Chemical & Fertilizers**
**Government of India**

**By**
**Department of Industries, Government of Himachal Pradesh**

***Updated 1.4***

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# 1 Introduction

## 1.1 Background

Drugs play a vital role in healthcare delivery in the country. A continuous supply of drugs is necessary to ensure affordable healthcare delivery to the citizens. Any disruption in the supply of drugs can significantly adversely impact the country's drug security. Indian pharmaceutical industry is the 3rd largest in the world by volume and 14th largest in terms of value. India contributes 3.5% of total drugs and medicines exported globally. However, despite these achievements, India is significantly dependent on the import of some of the basic raw materials, viz., bulk drugs that are used to produce the finished dosage formulations. India imports bulk drugs largely for economic considerations. Future growth of the pharmaceutical sector is contingent upon our ability to ensure an uninterrupted supply of quality bulk drugs and our capacity to upscale their manufacturing during emergency situations. Self-reliance in the manufacturing of bulk drugs is, therefore, highly desirable

The Department of Pharmaceuticals (DoP), Ministry of Chemical and Fertilizer, Government of India (GoI) has notified Guideline of the Scheme "Promotion of Bulk Drug Parks" in March 2020. Under the scheme, a one- time grant-in-aid subject to a maximum limit of Rs. 1000 Cr or 90% of the project cost in case of Hilly States will be given for the development of common infrastructure facilities. The objective of the scheme is to significantly bring down the manufacturing cost of bulk drugs and thereby increase the competitiveness of the domestic bulk drug industry by providing easy access to standards testing & infrastructure facilities. A total of 3 Bulk Drug Parks were to be selected across the country under the scheme. It is indeed a step in the right direction towards reducing imports on Bulk Drug products from foreign countries thereby encouraging import substitution and giving impetus to export promotion.

## 1.2 Objectives of the Bulk Drug Park

- To provide easy access to world class common infrastructure facilities to bulk drug units located in the parks in order to significantly bring down the manufacturing cost of bulk drugs and thereby make India self-reliant in bulk drugs by increasing the competitiveness of the domestic bulk drug industry.
- To help the industry meet the standards of the environment at a reduced cost through innovative methods of a common waste management system.
- To exploit the benefits arising due to optimization of resources and economies of scale.

## 1.3 Indian Pharma Industry Landscape

The Indian pharmaceutical industry has come a long way, achieving significant growth in both domestic and global markets during the past five decades. The pharma industry is witnessing steep growth, with lots of innovations and employment generations. Currently, in terms of volume Indian Pharma sector

ranks 3rd in pharmaceutical production, whereas India holds 14th position globally in terms of value. The Indian pharmaceutical sector has grown steadily in the last nine years, witnessing a CAGR growth of 9.43%. This has been backed by an increase in the size of both the market -export and domestic. The pharma sector has been contributing significantly to India's economic growth as one of the top 10 sectors in reducing the trade deficit and attracting foreign direct investment (FDI). Indian pharma companies offer products in segments such as generic drugs, Over the Counter (OTC) medicines, active pharmaceutical ingredients (APIs), vaccines, contract research and manufacturing, and biosimilar and biologics. India has the maximum no. of US FDA-approved manufacturing sites outside the US, and India holds 18% of global manufacturing sites catering to US markets. India supplies almost 29% of its total pharma exports to the USA. As of March 2022, India has 4573 Market authorizations granted by USFDA manufactured in India-based units and another 1678 authorizations granted to India subsidiaries with overseas units.[1]
The pharmaceutical sector and Indian drugs sector have received cumulative FDIs worth Rs 1,09,559.61 cr. between April 2000 till March 2022. FDI in the pharmaceutical sector accounts for approx. 3.3. % of the total FDI inflow in the country. Till December 2021, the Department of Pharmaceuticals (DoP) has approved 10 FDI project proposals with a proposed investment of Rs. 7,860 cr inflow under brownfield pharmaceutical projects during 2020-21.
Indian companies now have an exceptional prospect to partner with international companies across a wide range of activities, from contract built-up and licensing arrangements to the franchise and joint venture opportunities. Global Pharma leaders are already well aware of India's importance. Many of them have been importing products from Indian manufacturers for some years but have now started setting up their own production facilities in India.

## 1.4 Export Market in Pharma Sector

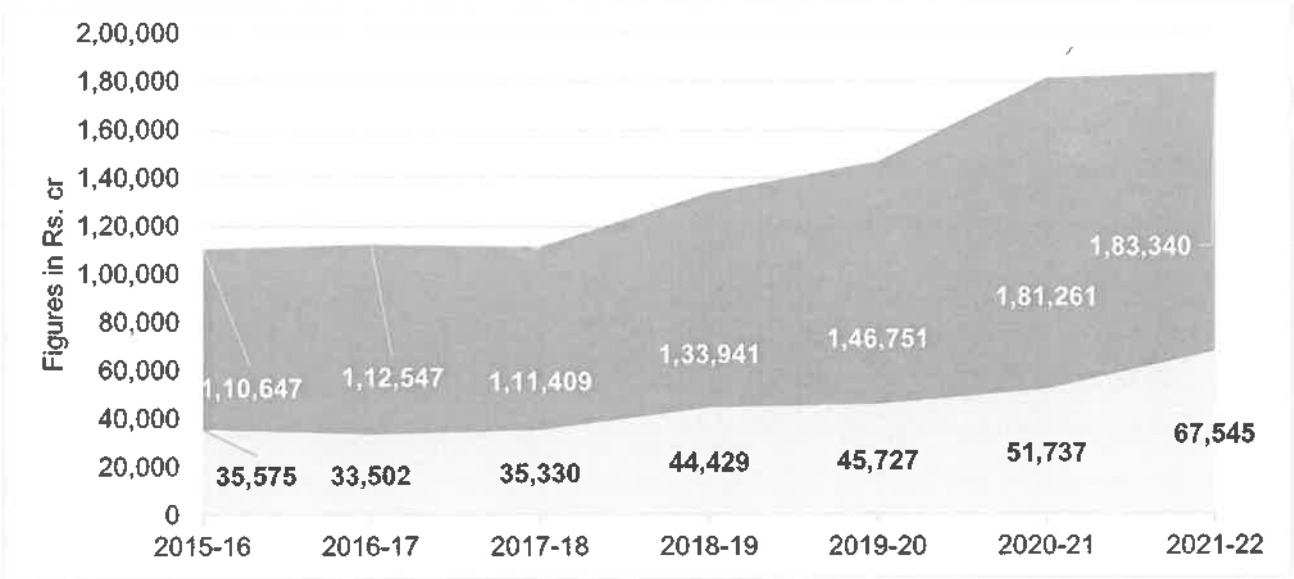
Growth in the domestic pharma market is expected to be driven by the increase in the penetration of health insurance, improving access to healthcare facilities, rising prevalence of chronic diseases and rising per capita income. The export growth is expected to be led by increasing generic penetration in the regulated markets on the back of enhanced focus on the niche and complex product segments, patent expiries, medicine patent pool announcing licensing agreements with pharmaceutical companies and growing demand from semi-regulated pharma markets. In the long term, growth in the export market will be sustained by emerging markets such as Russia, Brazil, South Africa, etc.

Export from the Indian pharma sector witnessed a growth of 103% since 2013; it has increased from Rs. 90,415 cr in FY - 14 to Rs. 1,83,430 cr in FY - 22. Generic drugs, OTC medicines, bulk drugs, vaccines, contract research & manufacturing, biosimilars and biologics are some of the key segments of the

[1] *Source: Pharmaceuticals Export Promotion Council of India, Ministry of Commerce & Industry, Govt. of India, Handbook 2022*

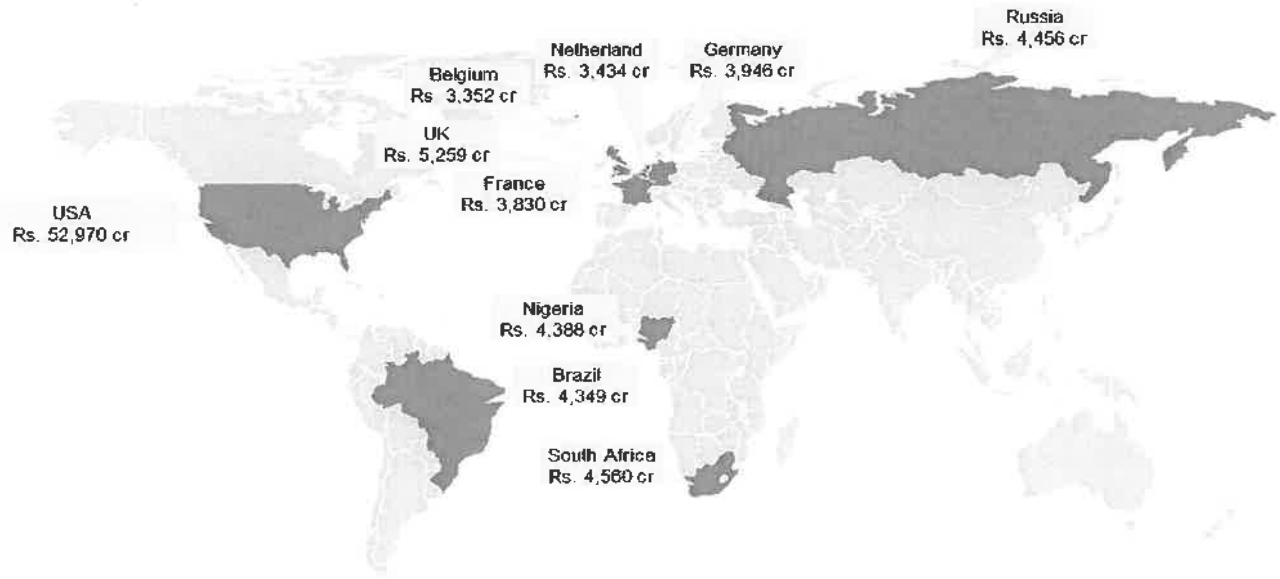
Pharmaceutical Industry. India's Pharma sector export reached Rs. 1,83,430 cr[2] with one-year growth of 1.1% from the previous year. The pharmaceutical sector grew at a CAGR of 7.5% between FY- 16 to FY - 22. It was largely driven by the export of generic drugs to more than 200 countries which, includes both developed and developing markets.

*Figure 1 India's Import and Export Details*




India has achieved phenomenal growth in export despite disruption in the global supply chain, lockdown and subdued manufacturing. The USA holds the position as the top importer of Indian pharmaceutical products, while other regulated markets account for more than half of India's medicinal exports. India's pharma export to the USA in value grew at a CAGR of 6.0% over the last six years. Additionally, for

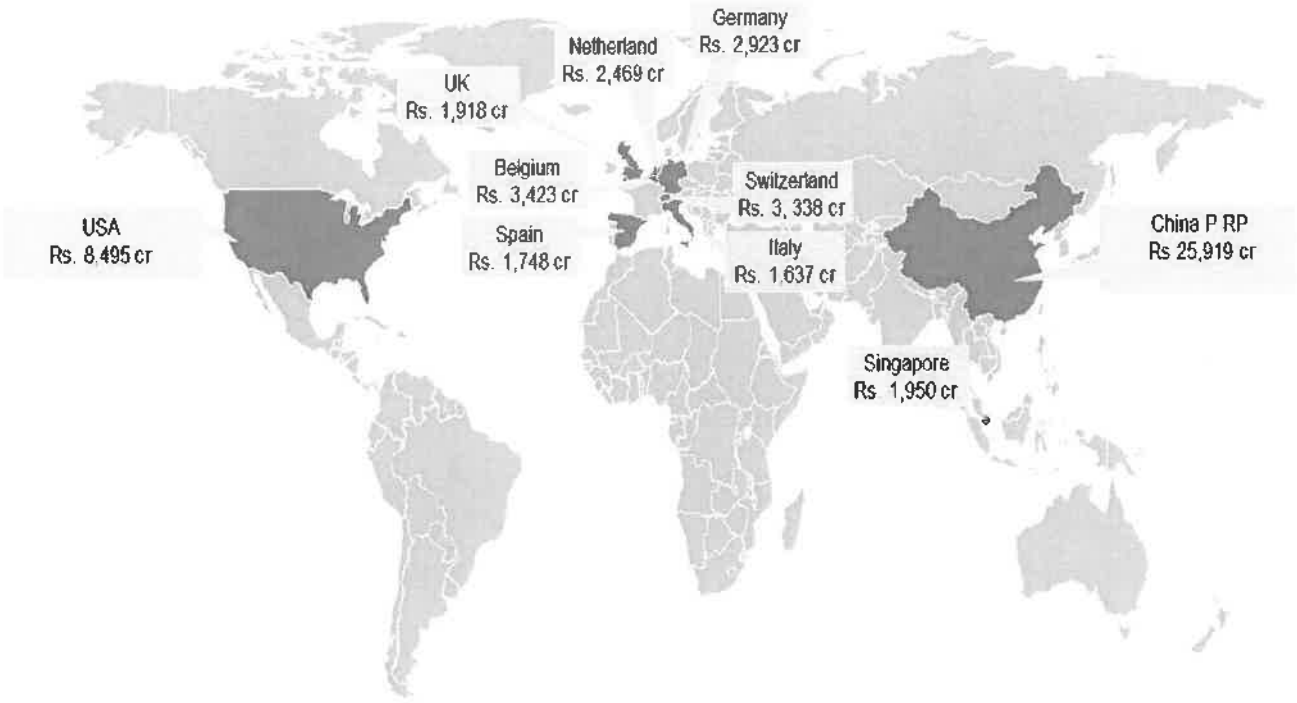
*Figure 2 India's Import to other countries*




[2] *Source: https://dashboard.commerce.gov.in/commercedashboard.aspx*

South Africa and UK, it grew at a CAGR of 5.8% and 6.1%, respectively, over the same period. However, Japan, Australia, ASEAN countries, the Middle East region, Latin America and other Africa countries are still untapped markets. Some of the factors impacting lower penetration of these regions are relatively slower-paced entry strategy, long negotiation cycles, regulations emphasizing local manufacturing etc.

*Figure 3 India's export to other countries*




## 1.5 Import Market in Pharma Sector

The import of the pharmaceutical sector has grown from Rs. 35,575 cr in 2015-16 to Rs. 67,545 cr in FY-22[3]. China PRP, USA and, Belgium, Switzerland, Germany were the top five importer countries during FY - 22. China PRP is the leading importer of pharmaceutical products from India, constituting nearly 50% share in FY - 22. The high share of China in total imports is major because of its significant contribution to the import of bulk drugs and drug intermediates, also known as APIs. The other significant importer of pharma products from India were USA and Belgium with 16% and 6%, respectively. India's pharma import from China PRP in value grew at a CAGR of 11.4% over the last six years. During 2020-21, pharma imports grew by a sharp rise of 30.6%, mainly due to the higher import of bulk drugs, and drug intermediates grew by 23.6% during FY - 22. The decline in the share of bulk drugs and drug intermediates is also caused by an increase in the import of surgical.

[3] *Source: https://dashboard.commerce.gov.in/commercedashboard.aspx*

## 1.6 Segment wise Pharma Exports and Imports

Indian pharmaceutical exports reach 200 plus countries, and the product spectrum includes bulk drugs, intermediates, drug formulations, biologicals, Ayush & herbal products and surgical. Among various export commodities in the pharmaceutical sector, drug formulations constitute the majority share, accounting for 77%, followed by bulk drugs & drugs intermediates with 18% share respectively, during FY - 22. Exports of drug formulations and biologicals to the USA witnessed 10.1% of de-growth primarily due to price erosion in the USA. In terms of import, bulk drug and drug intermediates remain the largest segment in pharma import with a share of 52.2%, followed by drug formulation with a share of 36.7% respectively, during FY - 22. The other two segments, Surgical and Ayush & Herbal products account for a relatively smaller share of 9.8% and 1.2%, respectively, during the period.

*Figure 5 Segment wise Export details*

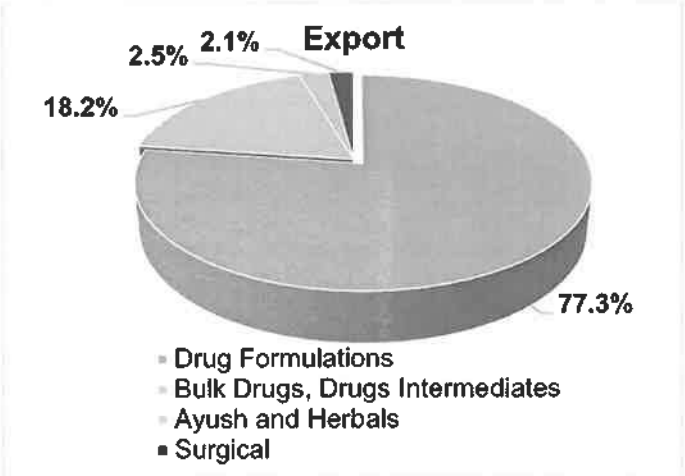
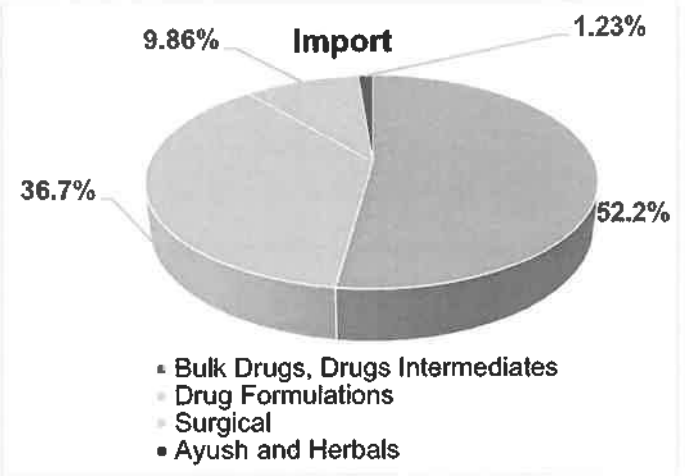



*Figure 4 Segment Wise Import Details*




## 1.7 Market Drivers for Indian Pharmaceutical

To attend self-sufficiency, India needs to refocus on the next set of avenues to propel growth in this industry which is of strategic as well as economic significance. Indian pharma industry caters to more than 60% of the global demand for different vaccines as well as ARV drug supplies. Additionally, India also contributes nearly 57% of APIs and 69% of finished pharma products to the WHOs pre-qualified list. The Indian Drug industry plays an important role in the Indian economy in terms of significant contribution to industrial production, export and employment. The industry has high growth potential given its inherent strengths, such as abundant raw materials, low labour cost and a thriving domestic and global market. The various factors driving the demand for the Indian Pharmaceutical sector in the country.

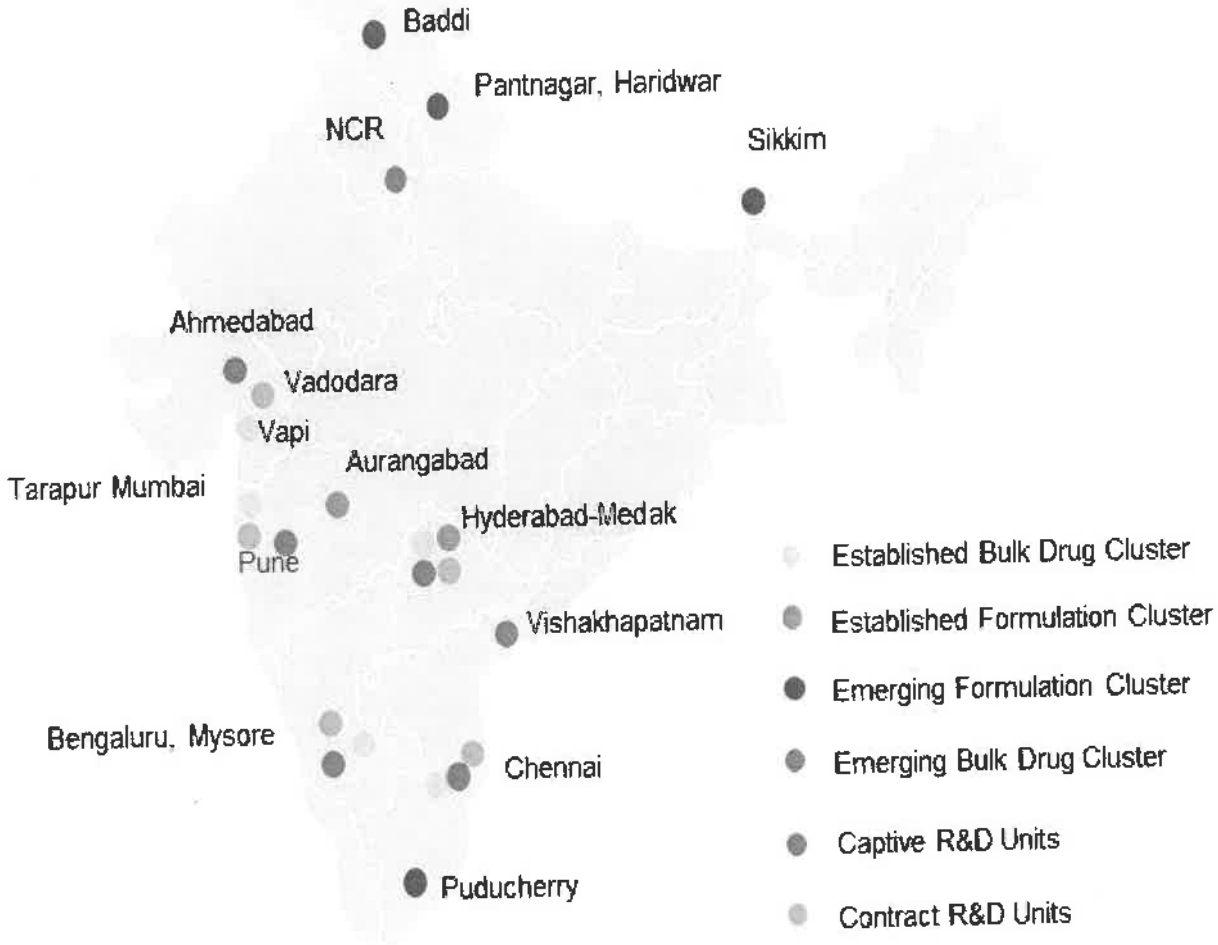
- **The growing population** and ageing of the population will drive the demand for healthcare services, and this, in turn, will drive the demand for pharmaceutical products.
- **Increasing health insurance penetration:** The government of India, as part of the National Health Policy 2017, in order to achieve the vision of Universal Health Coverage (UHC), has initiated Ayushman Bharat is National Health Protection Scheme which will cover over 10 Cr. poor and vulnerable families (approximately 50 Cr. beneficiaries) providing coverage up to 5 lakhs rupees per family per year for secondary and tertiary care hospitalization, also due to covid there is promising 30-40% uptake in health insurance adoption across industry players.
- The export of drugs from India has been steadily increasing over the last decades and took pace under the Make in India scheme, a Government of India Initiative.
- **The growing market for Generic Drugs**: India is the largest supplier of generic medicines with a 20% share in global supply by manufacturing 60,000 different generic brands across 60 therapeutic categories. India caters to about 60% of the global vaccination demand. Indian drug market provides low-cost generics, vaccines, and affordable medicines to the rest of the work. In addition, India is the largest producer of low-cost drugs in terms of value and volume.
- Indigenous availability of raw material, accent on value-added products, internationally benchmarked productivity, quality, and timely delivery are emerging as the key ingredient for success in the international drug market.
- **Government of India's Initiatives**: In 2020, the Union cabinet approved the Production Linked Incentives (PLI) scheme, which covers the promotion of domestic manufacturing of KSMs, Drug Intermediates and APIs. Under the scheme, fiscal incentives will be given to the qualifying manufacturers of identified 41 eligible products covering 53 APIs for six years. Besides this, Government has increased the FDI limit and formulation a new intellectual property rights strategy to push innovation.
- **Digitization**: In the recent past, digitization has also emerged as a key driver for the pharmaceutical industry, helping to deliver top-quality and hyper-personalized customer experience and also improving business resilience and performance.
- **Invention of New Generation of APIs**: Indian pharma industry is in need of new scientific advances that would yield innovation and effective drugs and therapies.
- **Large pool of qualified personnel**: India has a large, growing, trained and skilled workforce to support the establishment of largescale pharmaceutical manufacturing projects.

## 1.8 Pharmaceutical clusters in India

Over the years, various pharmaceutical cluster have emerged across the country. Some of the key States housing Indian and Multinational Pharma players. The Bulk Drug clusters are located are located

primarily in Ahmedabad, Vadodara, Mumbai, Aurangabad, Pune, Hyderabad, Chennai, Mysore, Bengaluru, and Visakhapatnam.

*Figure 6 Pharmaceutical Cluster in India*



## 1.9 Industrial Scenario in Himachal Pradesh

Himachal Pradesh, geographically located in the northern part of the country, is surrounded by states, namely Uttarakhand, Uttar Pradesh, Punjab, Haryana, Ladakh, Jammu & Kashmir. Over the last decade, Himachal Pradesh has remarkably transitioned from an agrarian to an industry and service-led economy. Industrialization in Himachal Pradesh, where there are severe topographical, geographical, and socio-economic constraints, largely depends on infrastructure development. With the gradual increase in investment in infrastructural facilities, Himachal Pradesh is acknowledged as one of the preferred investment destinations in the country, offering immense investment opportunities across sectors

Industrial renaissance began in 2003 when the then Prime Minister announced an industrial package for Himachal Pradesh, which brought major industries to the districts of Solan, Sirmour and Una, significantly altering the State's industrial landscape forever. Himachal Pradesh received a sustained inflow of investments, paving the way for the States growth and prosperity on account of the industrial package, infrastructure development and a pro-industry policy shift.

*Figure 8 Sector Composition of State during 1990-91*

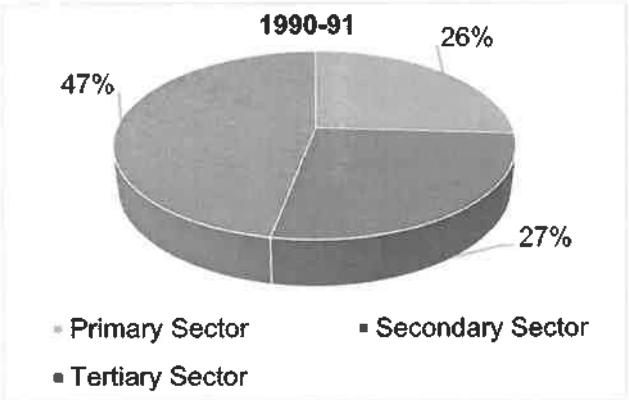
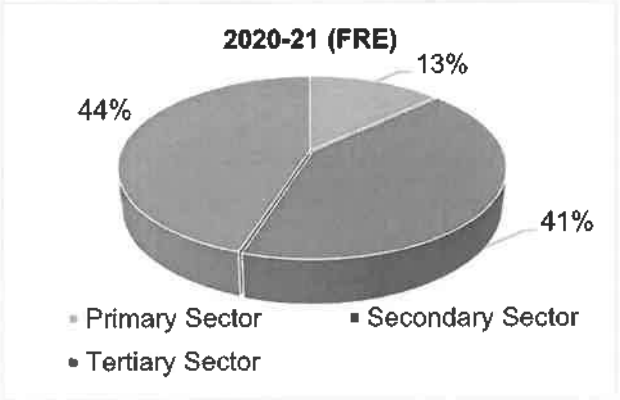



*Figure 7 Sector Composition of State during 2020-21*




The State Government is consistently focused on accelerating the momentum of Industrial growth as industrial progress will enhance employment opportunities for the youth and further improve the socio-economic status of the people of the State. The State has taken the lead in manufacturing across various sectors such as Pharmaceuticals, Food Processing, Cement, Textile etc. This has been possible by pressing the right socio-economic levels with significant direct spill-over benefits in terms of employment generation, improved quality of livelihood & empowerment, resulting in inclusive growth in the State. As per the revised estimates, Gross State Domestic Product (GSDP) is estimated at Rs. 1,56,675 Cr. (FRE) during 2020-21[4]. The State Government has developed 70 Industrial areas and estates for industrial

[4] *Source: Economic Survey, Govt of Himachal Pradesh 2021-22*

development. The State has more than 29,000 units with total projects cost of more than Rs. 63,000 Cr and generates employment of approximately 2,37,000. Solan, Sirmour, Kangra and Una are the leading districts in terms of investment attracted in the State. The State Government offers liberal incentives for MSMEs and large units under Himachal Pradesh Industrial Investment Policy 2019. The Industrial policies in the last decade accelerated industrial growth, and the contribution of the Manufacturing sector has risen to 30% of State Gross Domestic Products (SGDP). Industrial sector performance in terms of its contribution to Gross State Value Added (GSVA) has increased in FY - 22 over FY - 21 by 1.54%. Himachal Pradesh is a power surplus State and offers quality power at an affordable cost, which provides an added advantage to manufacturers.

State Government has emphasized improving the Ease of Doing Business in the State; as a result, Himachal Pradesh has been acknowledged as an 'Achiever' State in EoDB ranking 2020 released by DPIIT this year (2022). Inspired by the "Pragati Portal" launched by the Hon'ble Prime Minister, the State Government developed "HimPragti", an online portal through which the Chief Minister's office tracks and monitors new projects for speedy facilitation of investors. The online Single Window System for the issuance of mandatory approvals and clearances provides a hassle-free, transparent, and expedited system for an entrepreneur.

The impact of the State's Industrial investment policy change brought global players such as ACC, Birla Textile, Indo Rama, Dabur, Godrej, Wipro, Unilever, Mondlez, Cipla etc., to the State. Also, export has seen steady growth in FY - 03; the total exports from the State were at Rs. 550 Cr. and in FY - 22, it reached Rs. 16,009 Cr. with a global footprint in 60 plus countries. It is worth noting that during the Covid period, State has achieved double digital growth in exports

## 1.10 Pharmaceutical Sector in Himachal Pradesh

Himachal Pradesh referred to as 'Asia's second largest Pharmaceutical Hub', feels privileged to avail of this opportunity of setting up a Bulk Drug Park. Himachal Pradesh has the presence of more than 600 Pharma manufacturing facilities with an investment of about Rs. 10,000 Cr. over the last decade. Due to the rise of the pharmaceutical industry, Baddi-Barotiwala-Nalagarh Industrial belt is globally known for the production of formulation drugs. Dr. Reddy Sun Pharma, Zydus Cadila, Mankind, Torrent Pharma, Cipla, Abott etc., are some of the key Global pharma companies that have their manufacturing facilities in the State. Besides this, 6 pharma cluster has been setup across the State, and details of those clusters are mentioned below:

- Baddi – Barotiwala - Nalagarh industrial corridor (District Solan) – 400+ units
- Kala Amb Pharma Cluster (District Sirmaur) – 45+ units
- Parwanoo Pharma Cluster (District Solan) – 21 units
- Paonta Sahib Pharma Cluster (District Sirmaur) – 47 Units

- Sansarpur Terrace Pharma Cluster (District Kangra) – 27 Units
- Solan Pharma Cluster (Distt Solan) – 41 units

*Figure 9 Locational Map of Bulk Drug Park in the State*

Himachal Pradesh is meeting Asia's 35% of medicine demand. The share of the Pharma sector in the State's Gross Domestic Product (SGDP) is 6.05%. The annual API demand in the State stands around Rs. 35,000 Cr. and annual pharma export from the State has increased to 60%, which accounts for approximately Rs. 10,000 Cr. It reflects the State's support policies as well as the significance of the pharmaceutical sector in the State economy. Also, in the Northern region, State's contribution to Pharma export is about 45%. In order to ensure a high-quality standard of medicines, State has extended facilitation to 243 Pharma units for obtaining WHO certifications over the period, which is the highest in Northern India. With this Pharma background, State feels privileged for availing this opportunity of setting up a Bulk Drug Park, thereby contributing to making India "Atmanirbhar". As bulk drug manufacturing is a power-intensive and water-consuming industry, Himachal Pradesh is appropriately positioned for the Bulk Drug Park as it is a power & water surplus State with one of the most affordable power & water tariffs in India.

*Figure 10 Presence of Key Pharma Companies in Himachal Pradesh*

# 2 Details of Proposed State Implementing Agency (SIA)

## 2.1 State Implementing Agency

As per the clause 7 of the Bulk Drug Park scheme, the State Government has decided to set up dedicated SIA named the **"Himachal Pradesh Bulk Drug Park Infrastructure Ltd. (HPBDPIL)"** which will be **formed under section 8 of the Company Act, 2013,** which will be **govt own agency under the aegis of Department of Industries, Govt of Himachal Pradesh**. SIA will form a management committee for monitoring, operation and maintenance of the park after the completion of the park.

Governing Body: **Himachal Pradesh Bulk Drug Park Infrastructure Ltd.** is under formulation.

## 2.2 Key personals details

**Name** : Shri R.D. Nazeem, IAS
**Designation** : Principal Secretary, Industries
**Address** : State Secretariat, Armsdale Building, Shimla - 171003
**Email** : indussecy-hp@nic.in

**Name** : Shri Rakesh Kumar Prajapati, IAS
**Designation** : Director Industries
**Address** : Udyog Bhawan, Bemloi, Shimla - 171003
**Phone** : +91 9418069168
**Email** : dirindus-hp@nic.in

**Name** : Shri Tilak Raj Sharma
**Designation** : Additional Director of Industries
**Address** : Udyog Bhawan, Bemloi, Shimla - 171003
**Phone** : +91 7018244299
**Email** : trsharma4@gmail.com

## 2.3 Contact details of Authorized Representative

**Name** : Shri Rakesh Kumar Prajapati, IAS
**Designation** : Director Industries
**Address** : Udyog Bhawan, Bemloi, Shimla - 171003
**Phone** : +91 9418069168
**Email** : dirindus-hp@nic.in

# 3 Description of Bulk Drug Park

A Government land measuring 1405-41 acre have been transferred in the name of Industries Department for setting up the upcoming Bulk Drug Park allocated for developing a Bulk Drug Park with all the supporting infrastructure and amenities. To study the existing situation and to propose a relevant and appropriate layout, an organized process was followed.

*Figure 2.1: Approach & Methodology of Planning*

## 3.1 Details of area of Land allocated for Park

The first step in any planning and development project is the delineation of the site. Once the site boundary is finalized, all studies and analyses can be undertaken under one single frame, and development can be envisaged. For the project of Bulk Drug Park, a land parcel of 1405-41 acres is allocated for the park in the Una district of Himachal Pradesh.

The district Una shares its border with Hoshiarpur & Ropar districts of Punjab and Kangra, Hamirpur and Bilaspur districts of Himachal Pradesh.

Total Land Area: **1405-41 acres**

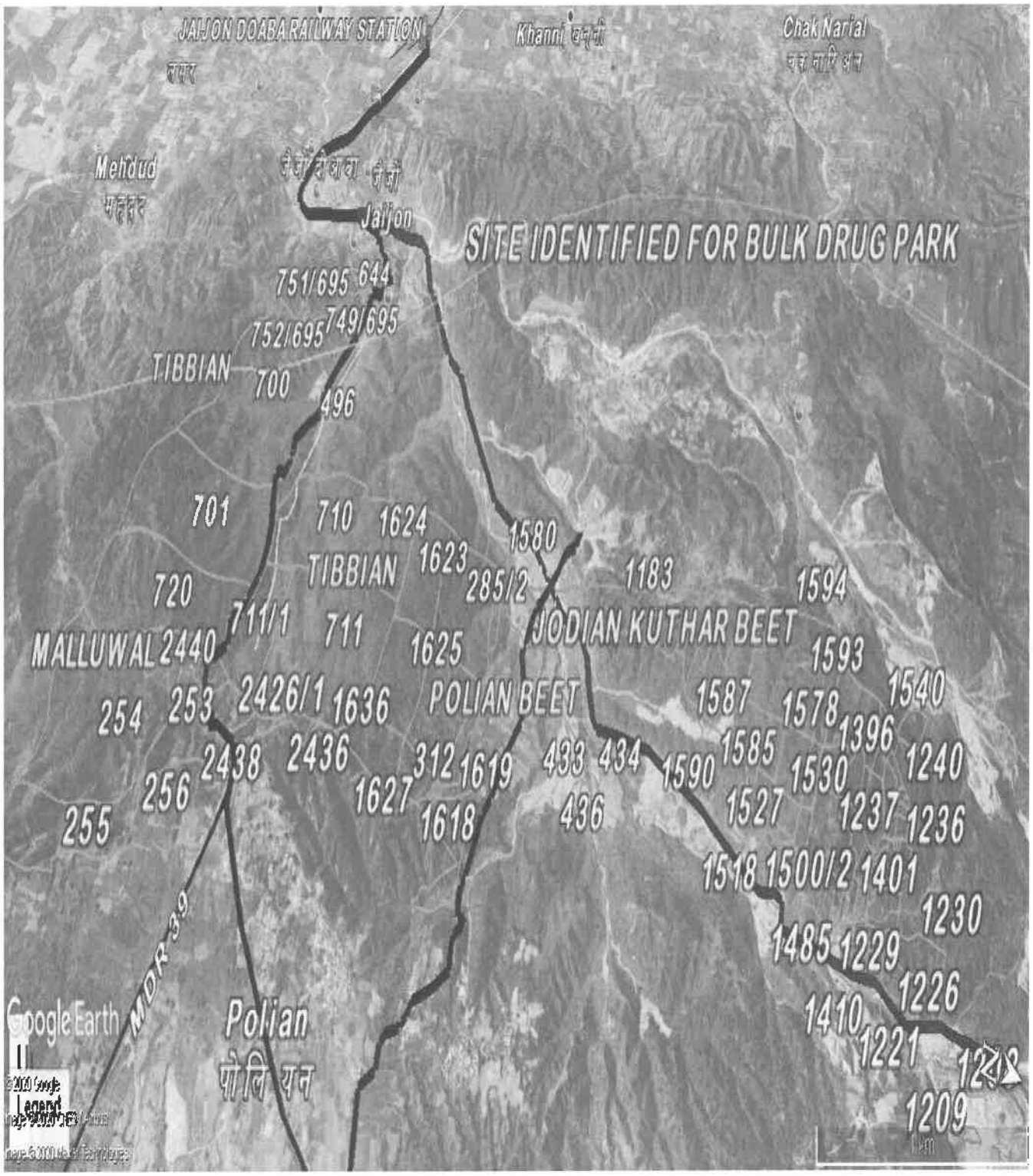
Area (in acres) for allotment to bulk drug manufacturing units – 894.64 Acres (More than 60% of the Bulk Drug Park).

Table 1 Details of Land area allocated for the Bulk Drug Park

| Sl No. | Land | Area (in Acres) |
|---|---|---|
| 1 | Government land already transferred in the name of the Department | 1365 -77 |
| 2 | Private Land is purchased and transferred to the Govt | 39 -64 |
| | **Total Land** | **1405-41** |

**Project Location**: Bulk Drug Park comprise of revenue villages named Kuthar Beet, Pollian Beet, Tibbian, Jodian, Janani and Malluwal in Haroli Tehsil, District Una, Himachal Pradesh

***Figure 11 Location of Bulk Drug Park***

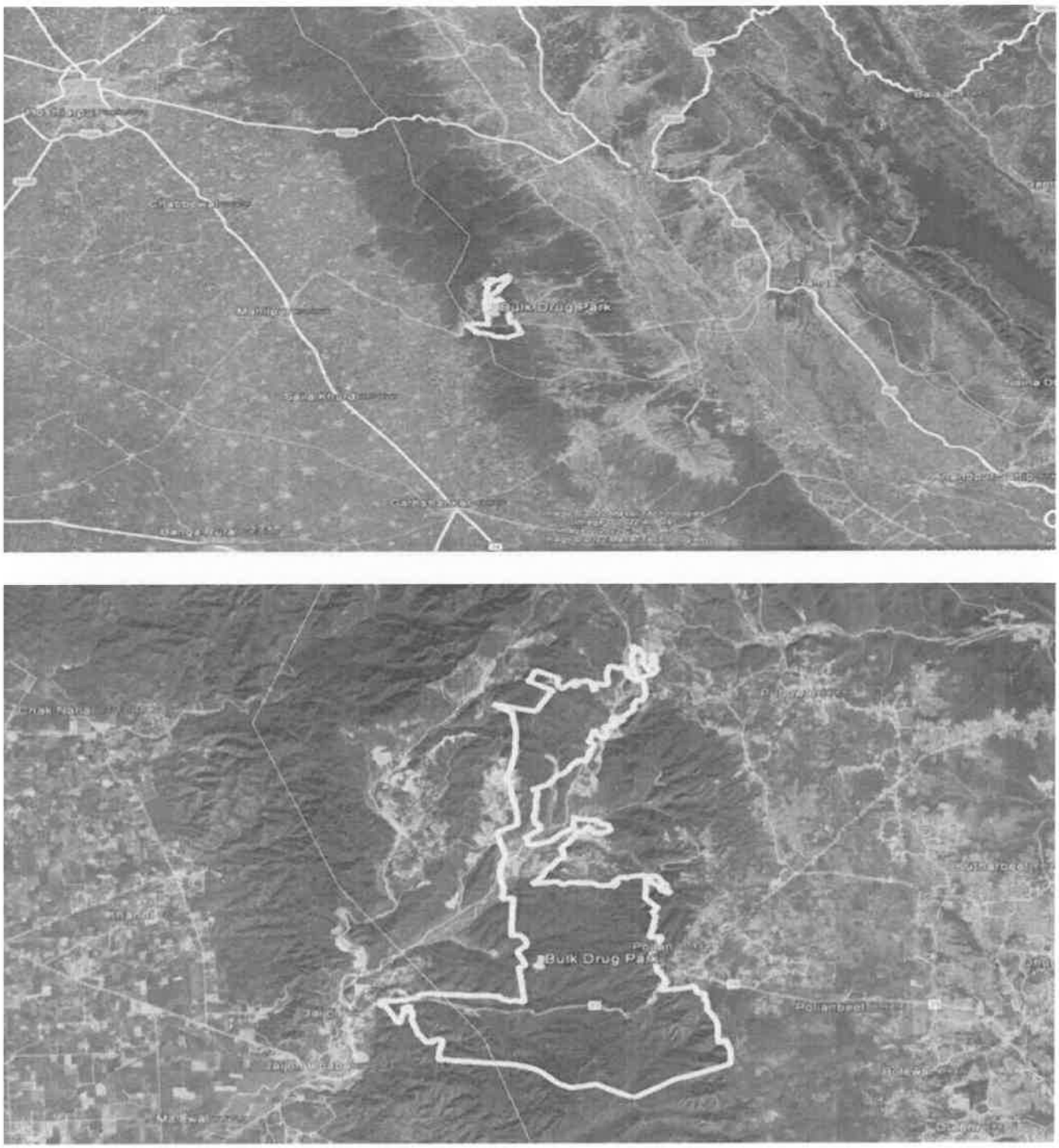


## 3.2 Land Acquisition Details with Survey Nos.

### 3.2.1 Existing Revenue Survey No Details

The map shown below depicts the Revenue survey no details of the Bulk Drug Park area, which is a part of revenue villages Kuthar Beet, Pollian Beet, Tibbian, Jodian, Janani and Malluwal in Haroli Tehsil, District Una, Himachal Pradesh

*Figure 12 Google Image of the Site*



### 3.2.2 Jamabandi Details of the Project Site

*Table 2 Details of Govt land -Bulk Drug Park*

| Sl. No | Mohal /Mauza | Khata/ Khatoni | Khasra. No. | Area. | Govt./ Private | Present Status |
|---|---|---|---|---|---|---|
| 1. | Malluwal/ Pollian Beet | 544/665 min | 254,255,256,257,257kitta 4 | 77-64-97 | Govt. | Already Transferred |
| 2. | Pollian Beet | 428/503 min and 505 min | 305,32,618,619,1627,1635,2426,2427, 2438,2439,2440,2442,1620,1621,1622, 1623,1624,1625,626 kitta 19 | 226-65-61 | Govt. | Already Transferred |
| 3. | Tibbiyan/ Pollian Beet | 130/156 min and 158 min | 330,377,496,644,749/695, 750/695,752/695, 697, 700,702, 704, 720,710, 711, 711/1 kitta 15 | 226-65-61 | Govt. | Already Transferred |
| 4. | Jodian/ Kuthar Beet | 315/380 min | 1513,1514,1518,1524,1525,1528,1529,1604/1530,1579,1580, 1585, 1587, 1588, 1589, 1590, 1591, 1592, 1593, 594, 1595, 1596, 1597, 1600, 1601 kitta 24 | 69-06-64 | Govt. | Already Transferred |
| 5. | Kuthar Beet | 653/ 635 | 1180, 1183 kitta 2 | 04-71-79 | Govt. | Already Transferred |
| 6. | Tibbiyan | 130/130 | 701 | 38-94-38 | Govt. | Already Transferred |
| 7. | Jodian Kuthar Beet | 315 min/ 380 min | 1157, 1208, 1221, 1222, 1228, 1230, 1397, 1402, 1602/ 1404, 1405, 1406, 1407, 1408, 1410, 1485, 1494, 1497, 1498, 1500, 1509, 1520 kitta 21 | 17-17-71 | Govt. | Already Transferred |

| Sl. No | Mohal /Mauza | Khata/ Khatoni | Khasra. No. | Area. | Govt./ Private | Present Status |
|---|---|---|---|---|---|---|
| 8. | Janani | 247/ 285 min | 1580 | 8-23-64 | Govt. | Already Transferred |
| 9. | Pollian Beet | 428/404 508 min and 483 | 285/2 | 0-99-98 | Govt. | Already Transferred |
| 10. | Pollian Beet | 428/503 min | 01, 432, 433, 434, 435 | 14-53-98 | Govt. | Already Transferred |
| **Total** | | | | **552-72-95 hectare or 1365-77 acre** | | |

Details of private land purchased from landowners for making a compact block and where agreements to sell have been executed with a full share of landowners/ co-shares in Mohal Jodian Kuthar Beet, Sub-tehsil Dulehar, tehsil Haroli Dist. Una. H.P.

*Table 3 Details of Private Land-Bulk Drug Park*

| SL. No | Mohal /Mauza | Owner of the Land | Khata/ Khatoni | Khasra. No. | Share of Agreement in Ha | Total Area in ha | Present Status |
|---|---|---|---|---|---|---|---|
| 1. | Jodian Kuthar Beet | Ashok Kumar MohalLal Alias Rakshpal (Son) and Sanyogita Devi (Daughter) | 22/24 min | 1486 | 00-04-26 | 00-11-14 | Already purchased |
| | | | | 1487 | 00-06-08 | | |
| | | | | 1488 | 00-06-30 | | |
| 2. | Jodian Kuthar Beet | Param Jeet Singh, Satnam Singh S/o Tarsem Lal | 224/264 | 1496 | 00-06-30 | 00-06-30 | Already purchased |
| 3. | Jodian Kuthar Beet | Harish Chand Satish Chand and Susheel Kumar S/o Bachitar Singh | 93/109 min | 1541 | 00-33-48 | 02-25-88 | Already purchased |
| | | | | 1537 | 00-20-17 | | |
| | | | | 1396 | 00-31-58 | | |
| | | | | 1536 | 00-27-70 | | |
| | | | | 1543 | 01-12-95 | | |

| SL. No | Mohal /Mauza | Owner of the Land | Khata/ Khatoni | Khasra. No. | Share of Agreement in Ha | Total Area in ha | Present Status |
|---|---|---|---|---|---|---|---|
| 4. | Jodian Kuthar Beet | Onkar Singh, Ompal, Subhash Chand, Mohinder Singh, S/o of Jai Singh, Ashok Kumar S/o Renu Kumari and Meena Kumari Daughters of Hoshiar Singh, Ravi Kumar Sachin Kumar (Sons), Shalini Knawar Daughter, Kmala Devi W/o Kewal Singh S/o Jai Singh and Ajaj Sumit, Akash (Son) and Raj Rani W/o Madan Singh S/o Jai SIngh | 92/108 min | 1542 | 02-77-90 | 02-77-90 | Already purchased |
| 5. | Jodian Kuthar Beet | Rajinder Kumar (Son) Sonia Rani and Sapna (Daughter) and veena Rani W/o Roshan lal and Sh. Ram Lubhaya S/o SH. Amin Chand | 189/224 | 1237<br>1238<br>1240 | 00-05-28<br>00-31-20<br>00-09-27 | 00-45-75 | Already purchased |
| 6. | Jodian Kuthar Beet | Rajat Kumar, Shubham (Sons) Shivani (Daughter) and Suman W/o Sh. SomNath. Anita Devi D/oK ishoriLal | 182/ 217 min | 1241 | 00-07-41 | 00-07-41 | Already purchased |
| 7. | Jodian Kuthar Beet | Balram S/o Sh. Tirath Ram | 190/225 | 1504 | 00-18-46 | 00-18-46 | Already purchased |

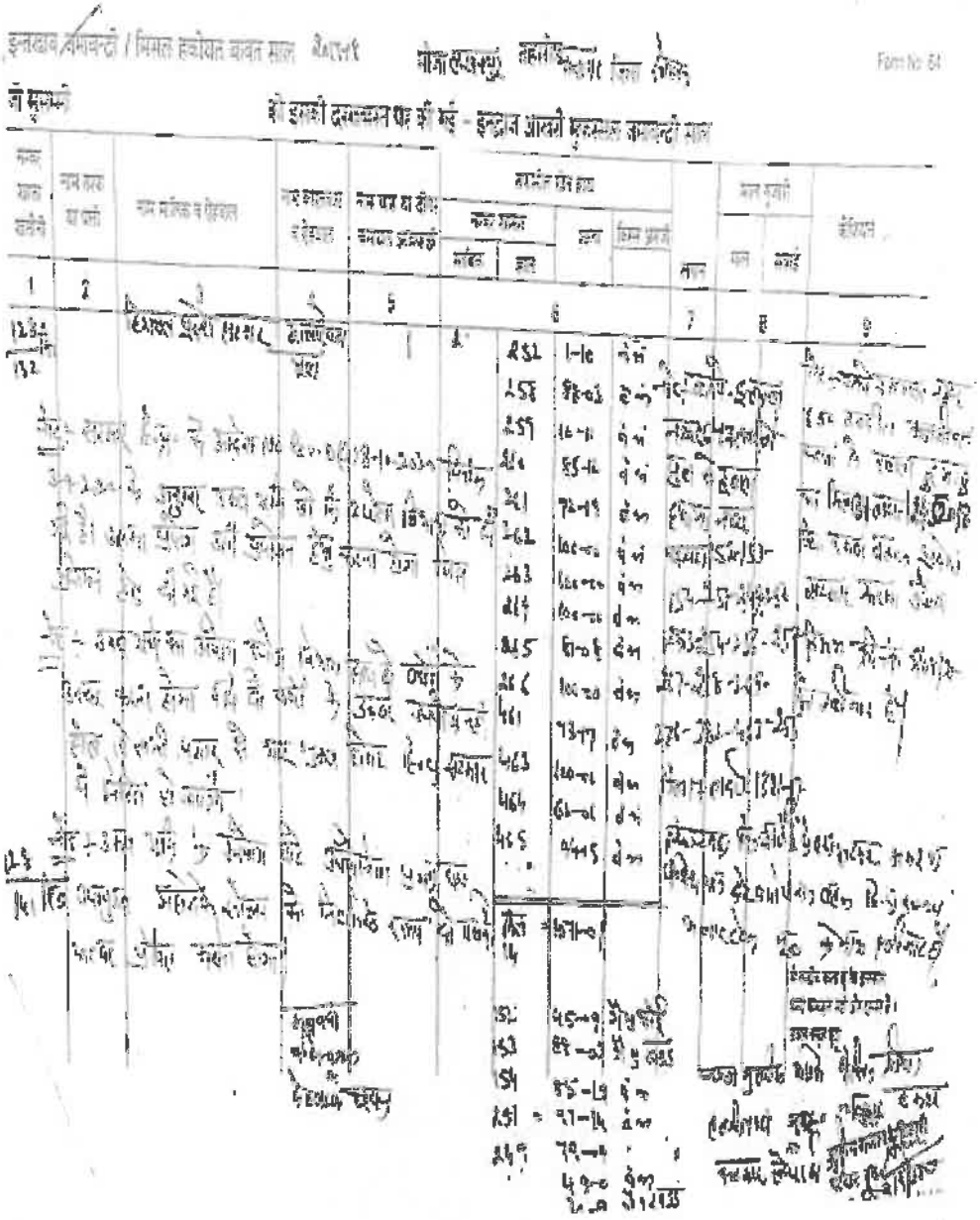
| SL. No | Mohal /Mauza | Owner of the Land | Khata/ Khatoni | Khasra. No. | Share of Agreement in Ha | Total Area in ha | Present Status |
|---|---|---|---|---|---|---|---|
| 8. | Jodian Kuthar Beet | Satpal Alias Saty Pal Agnihotri Through GPA Holder Smt. Nirmala Devi W/o Dharampal, Sonu(daughter) and Smt. Nirmala Devi W/o Sh. Dharmpal | 188/223 | 1236 | 00-48-12 | 00-48-12 | Already purchased |
| 9. | Jodian Kuthar Beet | OnkarNath S/o Sh. Bishamber | 186/ 221 | 1400 | 00-14-91 | 00-14-91 | Already purchased |
| 10. | Jodian Kuthar Beet | Parmod Singh S/o Jagdish Singh and Hoshiar Singh 73 S/o Gonda | 73/ 78 | 1401 | 01-42-29 | 01-42-29 | Already purchased |
| 11. | Jodian Kuthar Beet | Tilak Raj and Sh. Avtar Singh S/o Hakam Singh | 76/81 min | 1227<br>1226<br>1206/1 | 00-11-73<br>01-51-50<br>00-94-49 | 03-09-38 | Already purchased |
| 12. | Jodian Kuthar Beet | Subhash Chand S/o ChiranjiLal, Shiv Kumar (son) Smt. KusumLata(daughter) and smt Kamla Devi W/o Chiranji, Smt. Usha Sharma Wo Suresh and Sunil Kumar, Sanjeev Kumar, Virender Sharma (all sons) S/o HariKrishanSharma Smt. Shakuntla Devi Through GPA Sh. Sanjeev Kumar | 235/244 min | 1209 | 00-24-52 | 00-24-52 | Already purchased |

| SL. No | Mohal /Mauza | Owner of the Land | Khata/ Khatoni | Khasra. No. | Share of Agreement in Ha | Total Area in ha | Present Status |
|---|---|---|---|---|---|---|---|
| 13. | Jodian Kuthar Beet | Harmesh Chand SohanLal S/o Mansa Ram | 239/279 | 1229 | 01-20-47 | 01-20-47 | Already purchased |
| 14. | Jodian Kuthar Beet | Gurmeet Singh (Son) and Smt. Chindo Devi D/o Sh.Lachman | 277/ 317 | 1500/1 | 00-40-72 | 00-40-72 | Already purchased |
| 15. | Jodian Kuthar Beet | Som Chand S/o Ram Asra | 233/273 | 1500/2 | 00-39-76 | 00-39-76 | Already purchased |
| 16. | Jodian Kuthar Beet | Parkash Chand S/o Rakha | 286/ 236 | 1513/1 | 00-40-25 | 00-40-25 | Already purchased |
| 17. | Jodian Kuthar Beet | Smt. Vidya Devi W/o Das S/o Charnu also GPA Holder of Sh. Gurbaksh (Son) and Usha Devi D/o Das | 285/ 325 min | 1598 | 00-40-50 | 00-40-50 | Already purchased |
| 18. | Jodian Kuthar Beet | Chotu Ram S/o Rulda | 261/ 321 min | 1510 | 00-40-55 | 00-40-55 | Already purchased |
| 19. | Jodian Kuthar Beet | Ram Kishan S/o Munsi | 281/ 321 min | 1510 | 00-40-92 | 00-40-92 | Already purchased |
| 20. | Jodian Kuthar Beet | Darshan Chand, ArjanLal and Smt. Giano Devi D/o Sh. Nandu Ram and ShSukhdev Ramesh Chand | 287/ 327 | 1603/ 1404 | 00-40-55 | 00-40-55 | Already purchased |

| SL. No | Mohal /Mauza | Owner of the Land | Khata/ Khatoni | Khasra. No. | Share of Agreement in Ha | Total Area in ha | Present Status |
|---|---|---|---|---|---|---|---|
| 21. | Jodian Kuthar Beet | Sh. Gurdyal, Dharam Pal, Mohan Lal S/o Sh. Mehanga Ram | 274/ 314 | 1513/2 | 00-40-74 | 00-40-74 | Already purchased |
| 22. | Jodian Kuthar Beet | Rajinder Pal and Malkiat, Chand (Sons), Usha Devi, Shakutla Devi (daughters) and Savitari Devi | 276/ 316 | 1499/1 | 00-39-68 | 00-39-68 | Already purchased |
| 23. | Jodian Kuthar Beet | Rajinder Singh, Nirmal Singh, Rajinder Kumar, Mehar Chand (sons), Asha Devi (Daughter) and Jamna Devi W/o Parkash Chand | 257/ 297 | 1499 | 00-40-00 | 00-40-00 | Already Purchase |
| **Total** | | | | | | **16-04-17 or 39.64 acre** | |

*Figure 13 Scanned image of Jamabandi*

**Revenue records of Mutation**



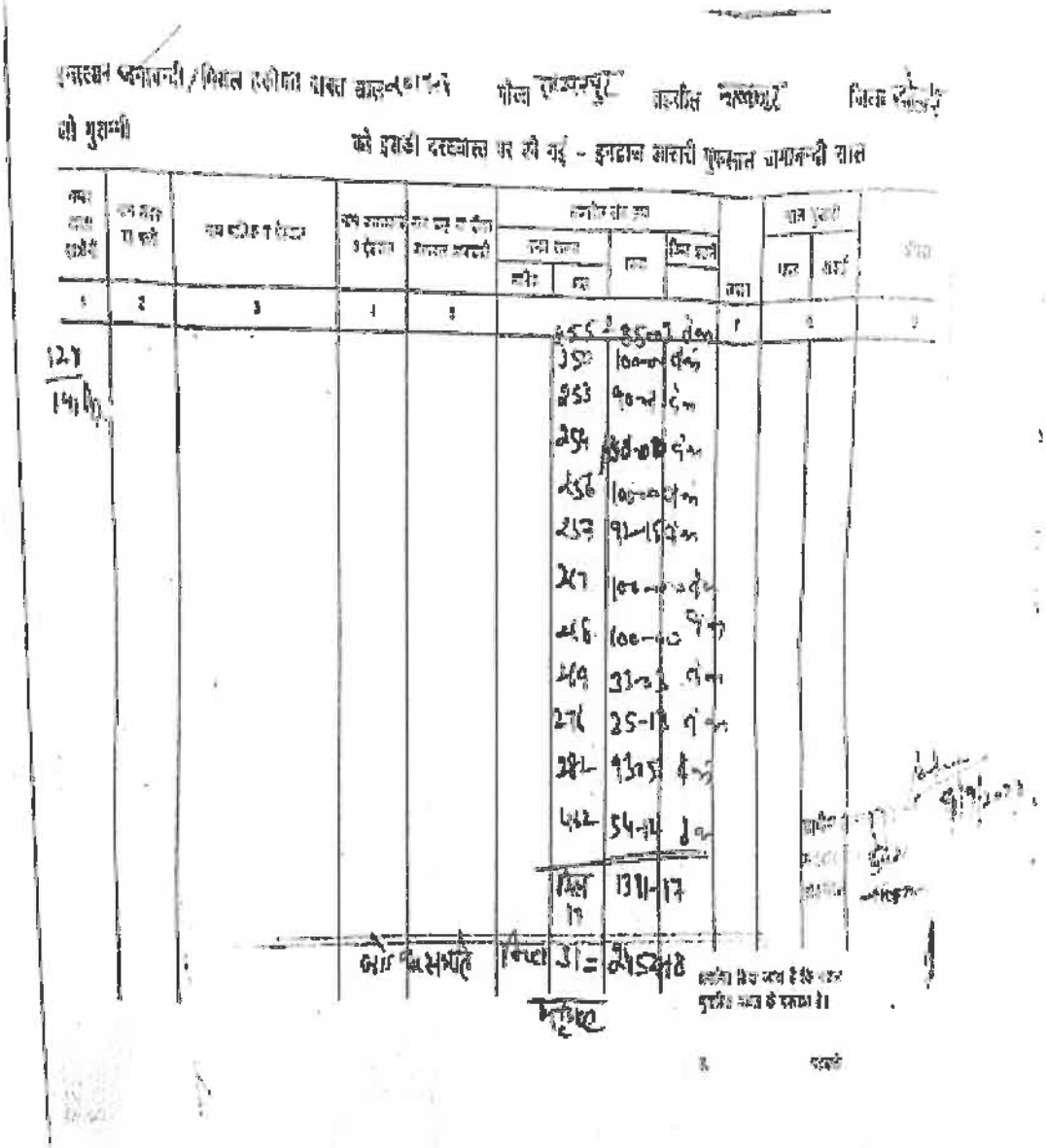
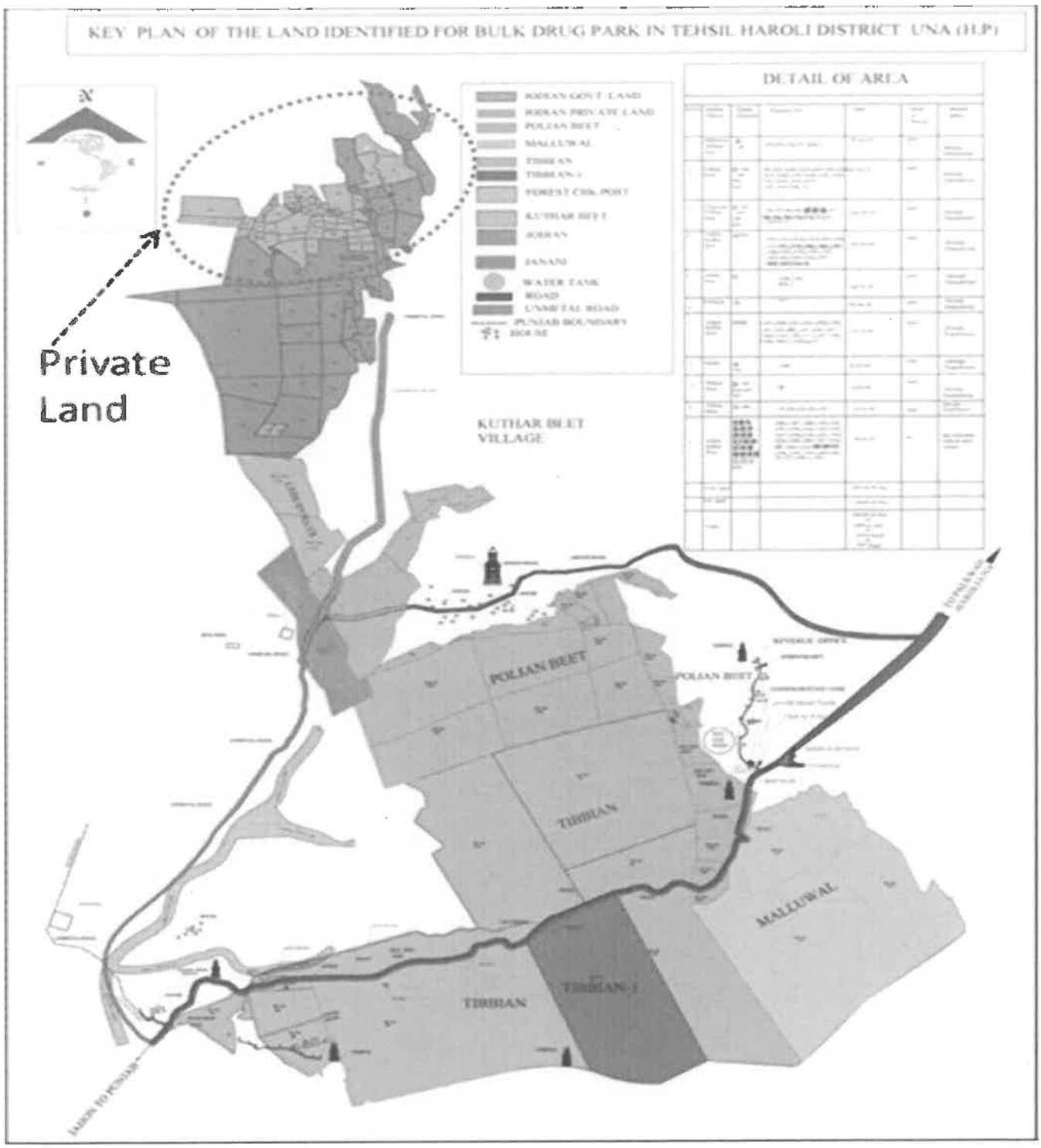


*Figure 14 Khasara Map of the Site*



## 3.3 Change in the status of encumbrance, pending legal dispute etc. submitted earlier in the Proposal.

The Undertaking from the Director Industries, Himachal Pradesh is given below that there is no legal dispute or pending case in any court of law and is free from any known encumbrances.

**Non-Encumbrance Certificate**

**DIRECTOR OF INDUSTRIES,**
GOVERNMENT OF HIMACHAL PRADESH.
SHIMLA-171 001 (INDIA)
Tel. : Office: 0177-2813414

**"Non-Encumbrance Certificate"**

**(To Whom So Ever It May Concern)**

It is to certify that land measuring 1405-41 acres in revenue Villages Malluwal/Pollian Beet, Pollian Beet, Tibbian/Pollian Beet, Jodian/Kutharbeet, Tibbian, Jodian Kuthar Beet and Janani, Sub-Tehsil Dulehar, Teshil-Haroli, District Una, Himachal Pradesh, comprised in Khasra Nos. (List above) proposed for setting up a Bulk Drug Park is under absolute possession of the Department of Industries, Govt. of H.P.

It is also certified: -

1. That the land ownership, possession, and mutation are in the name of the Department of Industries, Govt. of HP earmarked for Bulk Drug Park.
2. That this specific land proposed for the Park or any of its part does not have any encroachment, unauthorized possession, or habitation.
3. That this specific land proposed for the Park or any of its part is not subject to any rehabilitation or any such encumbrances.
4. That there is no pending compensation related issue to the specified land proposed for the Park or any of its part.
5. That there is no legal dispute or claim, pending in any court of law with any party for this specific land proposed for the Park or any of its part.
6. That this specific land proposed for the Park or any of its part is free from any other known encumbrances.

Rakesh Kumar Prajapati (IAS)
Director of Industries, Himachal Pradesh

## 3.4 Connectivity and Linkages

The proposed site for Bulk Drug Park comprises of revenue villages Kuthar Beet, Pollian Beet, Tibbian, Jodian, Janani and Malluwal in Haroli Tehsil, District Una, Himachal Pradesh. The site has access by rail, road and air links and has a distinct locational advantage of being equidistant from centers, i.e., from Ludhiana, Jalandhar, and one of India's largest Pharma Clusters, Baddi.

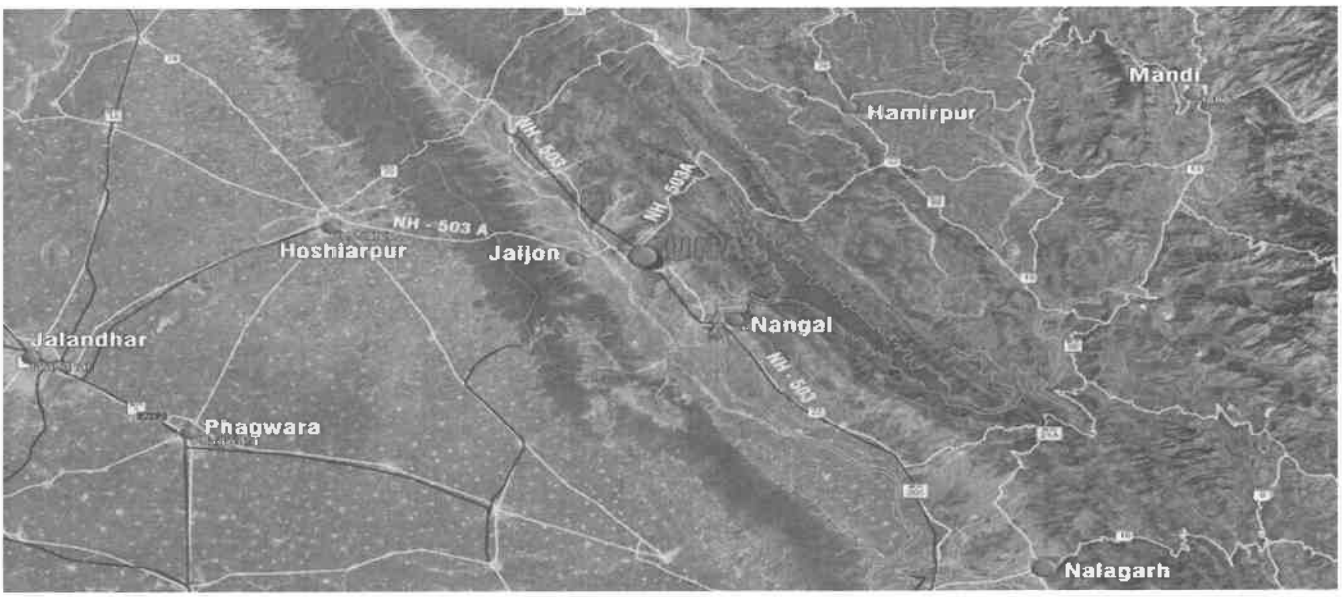
*Table 4 Details of connectivity and linkages*

| Connectivity Highlights | | |
|---|---|---|
| **Sr. No** | **Parameters** | **Details** |
| 1. | Distance from the nearest National Highway | The site is in proximity to NH-503, which is approximately 15 Km from Bulk Drug Park Site. This National Highway connects Chandigarh to Dharmshala. |
| 2. | Distance from the nearest Airport | The BDP site is located 49.8 Km from Adampur Airport and 122 Km form Chandigarh Airport. |
| 3. | Distance from the nearest Inland Container Depot (Dry Port) | Inland Container Depot (ICD) in Himachal Pradesh (CONCOR's Baddi ICD) is situated within 90 km from the proposed Bulk Drug Park at Una. |
| 4. | Distance from the nearest Railway Station | The proposed Site is situated 9 kms from Jaijon Railway Station. |
| 5. | Nearest Residential Area | The Residential towns are Nangal, Tahiwal, Una City, and Garhshankar. Jalandhar is a major city located at 87 Km from BDP Site. |
| 6. | Nearest Sea Port | Kandla Port in Gujarat is 1423 Km appx. and 1770 Km approx. from Una. |

### 3.4.1 Distance from the nearest National Highway

The nearest National Highway from the site is NH-503 which passed through the BDP Site. The State Government will augment the existing approach to provide smooth traffic flow to and fro from the Bulk Drug Park.

*Figure 15 Satellite Image of the location of Bulk Drug Park, Una*




### 3.4.2 Distance from Nearest Airport

The Bulk Drug Park Site is located at 49.8 km from Adampur Airport, Jalandhar (Punjab). The airport is already catering to the local business community of Una region. The airport has direct connectivity to all the major domestic destinations. The site is also connected with Chandigarh International Airport located at a distance of 122 Km.

### 3.4.3 Inland Container Depot (Dry Port)

The nearest Inland Container Depot (Dry Port) is located about 90 Km from the Bulk Drug Park at village Sheetalpur, in Baddi and is Operated and Managed by Container Corporation of India. BDP site is also nearest to ICD, Ludhiana with 86 Km.

### 3.4.4 Railway Station

The nearest Railway station to the Bulk Drug Park Site is Jaijon located at a distance of 5 kilometers and the other nearest major station is Una at a distance of 10 kilometers.

### 3.4.5 Existing Nearby Settlements

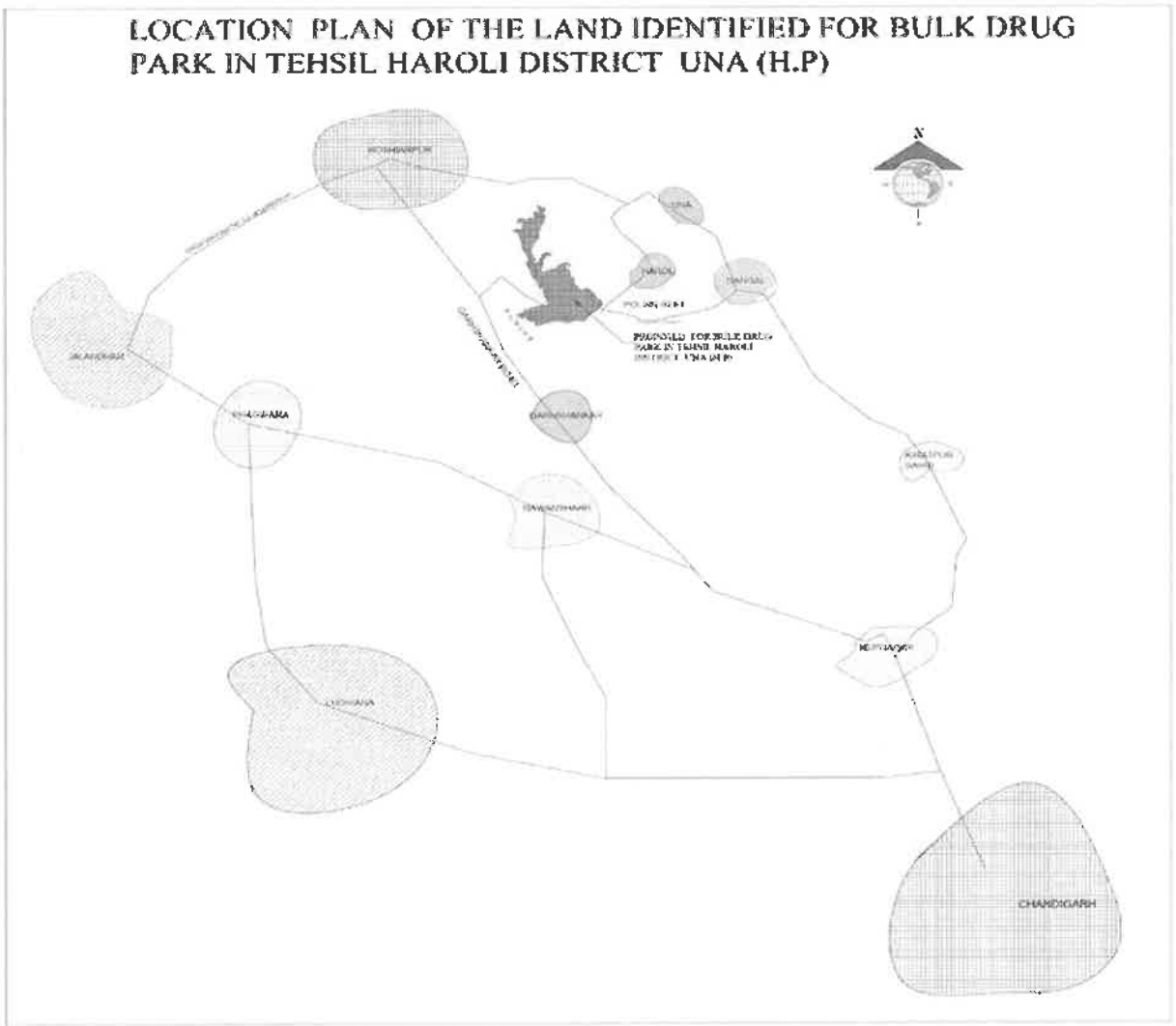
Bulk Drug Park is located in the vicinity of the following major residential areas. Following are the nearest residential areas accessible through the site area. The most populated center is Una followed by Nangal.

*Table 5 Details of settlements near Bulk Drug Park Site*

| Sr.No | City Town Name | Population in Nos |
|---|---|---|
| 1 | Badehra | 5000 |
| 2 | Nangal | 48000 |
| 3 | Una City | 19,000 |
| 4 | Lalehri | 4,242 |

## 3.5 Strength of the Project Location, description of the terrain, natural water resources available, type of land

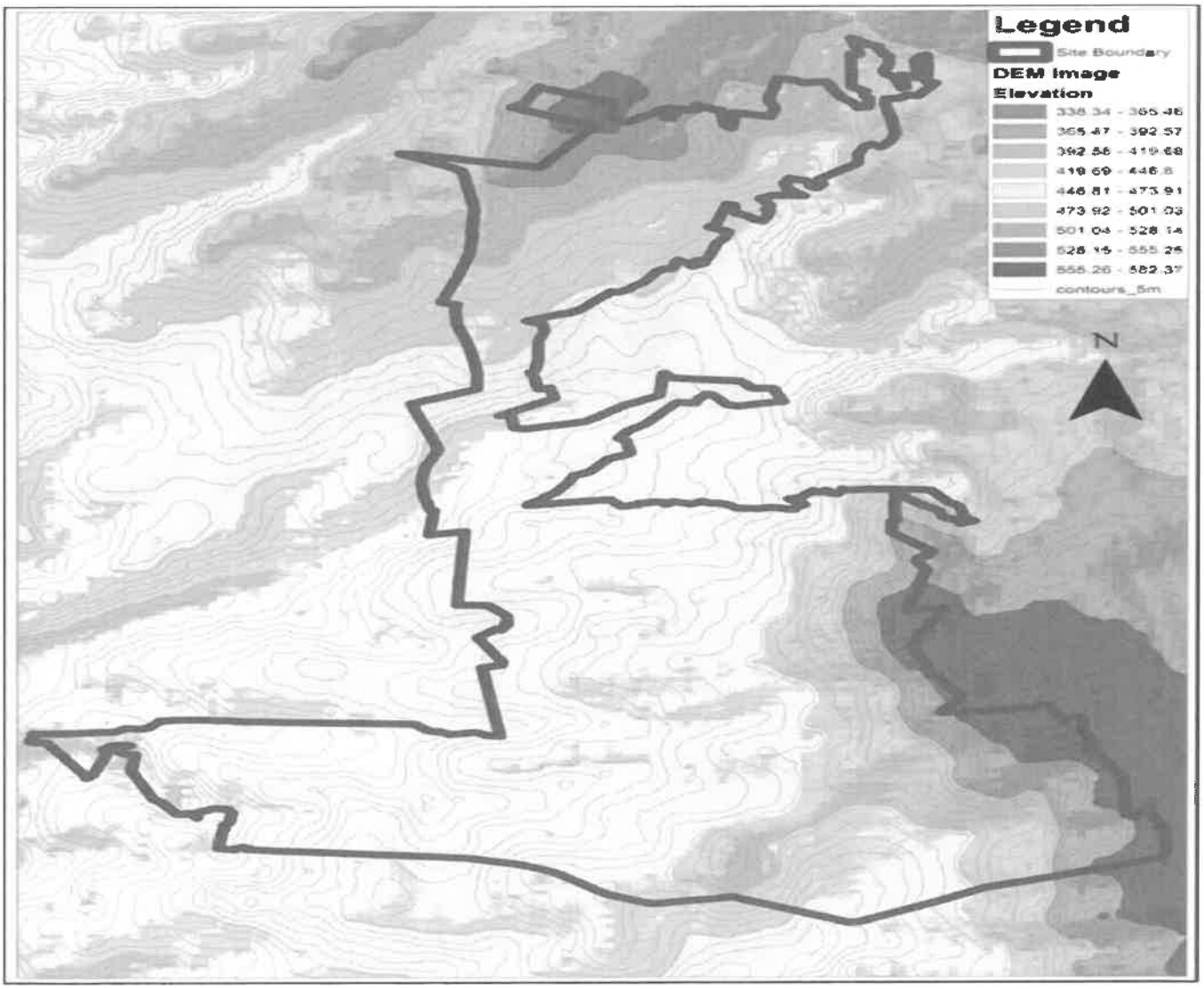
*Figure 16 Location of Bulk Drug Parks*



### 3.5.1 Topography and Terrain

The area proposed for meeting the water requirement of Bulk Drug Park at Pollian Beet in District Una. Himachal Pradesh falls under Survey of India Toposheet number 53A/3. In the area ground water resource is available in the Hum valley. The terrain is flat to undulating and the elevations in the proposed area for tube wells ranges from 421-493 m above sea level. The area is drained by Hum khad a tributary of Swan khad which originates near village Pollian Beet. The area comprises of recent alluvium deposits underlain by boulder conglomerates of Upper Siwalik formation.

*Figure 17 Digital elevation Model of Site*

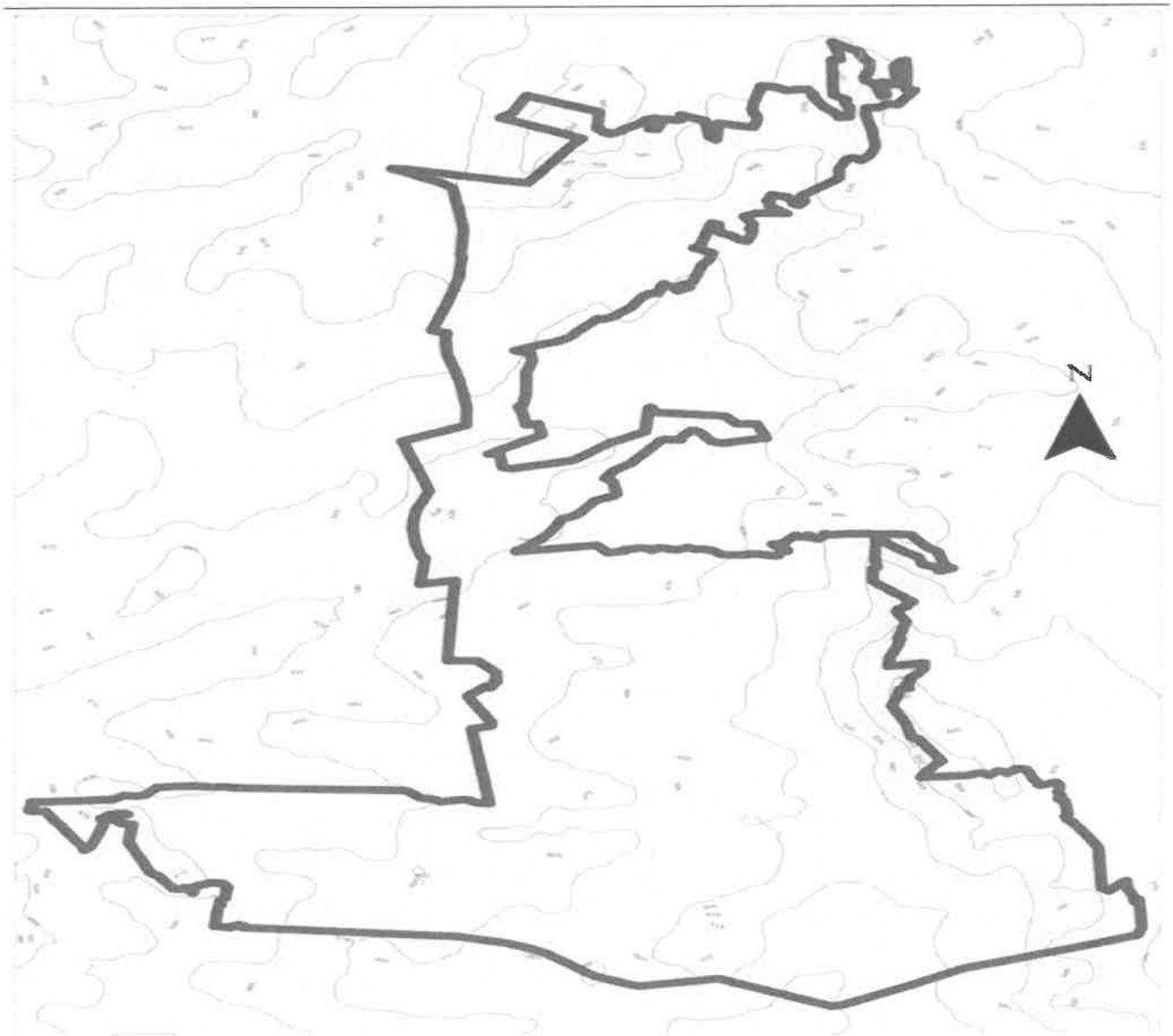



In terms of slope distribution, as depicted in the map, the overall trend contours are dipping towards the East. The maximum slope is experienced adjoining the site boundary in the south-west. The overall condition demonstrates that the majority part of the site falls under an acceptable elevation i.e., less than

5 %. Therefore, it can be considered a developable area for any type of activities, infrastructure, and facilities. The figure below shows the slope analysis of the site.

The Site is sloping and undulating and would involve cutting and filling for land development. As per the report from Jal Shakti Vibhag of HP, there is sufficient ground water availability to meet the demand within the park. HP State Electricity Board (HPSEB)- shall supply the requisite power through Hydro Power Generation available in the state.

*Figure 18 Contour Map of the Site*



### 3.5.2 Existing Onsite Features

- General Topography: Terrain of the proposed site is gently sloping and hilly.
- Proposed land parcel has vegetation like shrubs and 90% of the land is usable in terms of setting up an Industrial Park.

### 3.5.3 Climate & Meteorological Conditions

Climate of Bulk Drug Park site is very similar to the nearest town of Una. Climate of the area is tropical to temperate in nature, as the terrain varies from plains to high hills. Temperature varies from minimum of 4°C in winter to maximum of 46°C in summer. The area receives rainfall during monsoon period, extending from June to September and also non-monsoon period (winter). The annual average rainfall in the area is about 1040 mm, with about 55 average rainy days. The winter season starts from November and continues till the middle of March. Thereafter, the mercury continues rising till the onset of Monsoon which starts from the last week of June and continues till the middle of September.

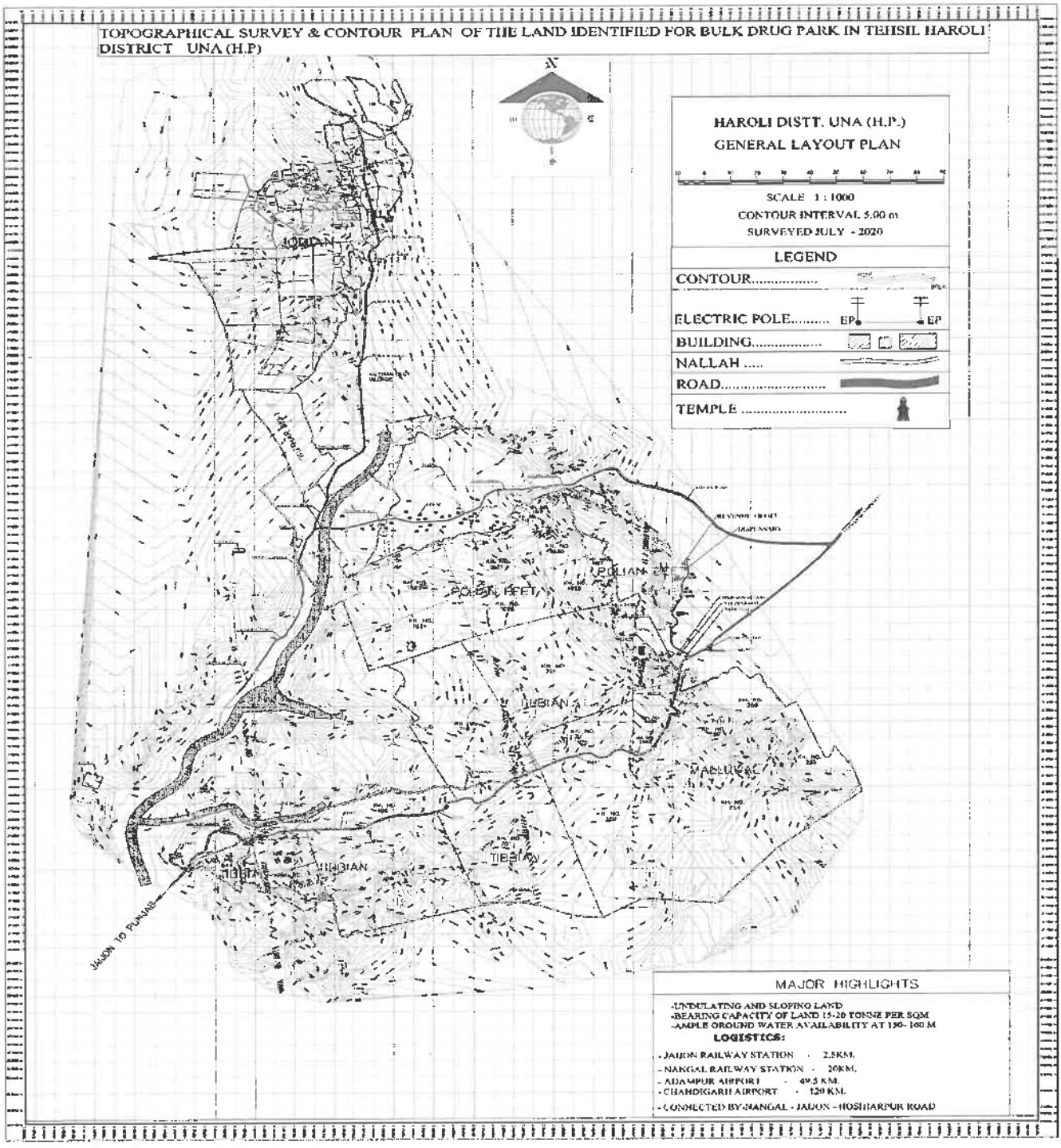
### 3.5.4 Geomorphology and Soils

Una district nestles between Siwalik ranges and forms part of the lesser Himalayas. It has a diverse landscape made 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 from 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. Number of local streams (about 73 khads) joins the river within the district. During monsoon Soan river gets flooded due to shallow bank heights and large area on both sides get affected. Govt. of HP has initiated riverbank protection cum flood control measures and the work is in progress. In Bangana area, another stream (Khad), flowing parallel to Soan river, is Lunkhar khad, which debouches in Govind Sagar lake. Also, in the extreme northwestern part of the district small area forms

the catchments of a tributary of Beas River basin. Two types of soils are observed in the district viz., alluvial soil and non-calcic brown 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.

*Figure 19 Topographic Survey of the Site (Contour Plan)*



## 3.6 Existing overview of Industrialization in and around the upcoming Bulk Drug Park

District Una is emerging as industrial hub of State. Over the years, Una has become favoured destination of the Industrialists due to better connectivity through road and rail network, availability of suitable flat land, 24X7 power availability and proximity to neighboring States. After declaration of package of incentives by Government of India in the year, 2003, the pace of industrialization picked up in the area.

Major industrialization in the district has taken place in two corridors i.e., Gondpur-Bathri-Tahliwala industrial corridor and Amb-Gagret-Jeetpur industrial corridor. Gondpur-Bathri-Tahliwal corridor is spread over an area of 25 sq. kms. This area has the highest concentration of industries. This area has more than 450 industrial units and Amb-Gagret area has approximately 250 industrial units. **It's worth to mentioned here that the upcoming Bulk Drug Park is located Gondpur-Bathri-Tahliwal corridorn where allied infrastructure in terms of road connectivity, power availability, skill development centre, tool room, social infrastructure etc. is well strengthen.**

There is strong presence of reputed industrial houses in these two industrial corridor of District Una which includes **Nestle India, Cremica Foods, Nayasa Plastics, Sukhjit Agro Industries, Pritika Autocast, Sonalika Industries, Luminous Industries, Salson Steel, Crest Steel, Advance Valves, Supermax Industries, TigakshaMetallics, MBD Printography, Lectrix Motors, Him Cylinders, Coslight Industries, H.N. Steels, S.R. Industries etc.**Apart from it, State`s first **mega food park** with the project cost of Rs. 100 crores is also being set up at village Singhan in this region.
**Tahliwala Industrial belt is the first Industrial Corridor in the State which has been connected with GAIL natural Gas Pipeline**. Industrial units like Nestle India, Cremica Foods, Pritika Auto have already entered into an agreement with GAIL. A Textile Park with an investment of Rs. 100 cr has also been set-up at village Thathal in the district.

**Detail Of Industrial Units in District Una**

*Table 6 Details of Industrial Units in Una*

| Category | Number of units | Investment (Rs in Cr) | Employment |
|---|---|---|---|
| Micro & Small industries | 1458 | 366 | 16,850 |
| Medium & Large industries | 23 | 966.46 | 7,805 |

| Category | Number of units | Investment (Rs in Cr) | Employment |
|---|---|---|---|
| **Total** | **1481** | **1332.46** | **24,655** |

## Detail of Developed Industrial Areas/ Estates in The District

*Table 7 Detail of Developed Industrial Areas/ Estates in The District*

| S. No | Name of industrial area/estate | Area (kanals) | Total plots | Sheds | Shops | Plots allotted | Sheds allotted | Shops allotted |
|---|---|---|---|---|---|---|---|---|
| 1 | Mehatpur | 1090 | 159 | 26 | 13 | 156 to 150 units | 26 | 13 |
| 2 | Tahliwala | 726 | 184 | 10 | 6 | 177 to 141 units | 10 | -- |
| 3 | Gagret | 1107 | 111 | -- | 4 | 110 to 70 units | -- | 2 |
| 4 | Amb | 1059 | 32 | - | - | 32 to 27 units | -- | -- |
| 5 | Basal | 440 | 45 | -- | -- | 45 to 34 units | -- | -- |
| 6 | Jitpur Bheri | 235 | 58 | -- | -- | 57 plots to 32 units | -- | -- |
| 7 | Pandoga | 790 | 72 | -- | -- | 67 to 63 units | -- | -- |
| 8 | Chak | 114 | 7 | - | - | 5 to 5 Units | - | - |
| 9. | Thathal | 191.6 | 1 | - | - | 1 to 1 units | - | - |

## Upcoming Industrial Areas in District Una

*Table 8 Details of Upcoming Industrial Areas in District Una*

| S.No | Name of Area | Location | Total Area (Acre) | Present Status |
|---|---|---|---|---|
| 1 | Punjwana | Approx. 20 Km from Una | 144.75 | Land Transferred in the name of Dept. |
| 2 | Saluri | Approx. 10 Km from Una | 73.69 | Land transfer under Progress. Process of conversion of pool from reserved to allottable under process. |
| 3 | Gagret (Ambota) | Approx. 40 Km from Una | 189.77 | Land transfer under process. Case for conversion of pool of land forwarded from DC Una to SDM Gagret. |

| S.No | Name of Area | Location | Total Area (Acre) | Present Status |
|---|---|---|---|---|
| 4 | Bangarh | Approx. 20 Km from Una. | 86.58 | FCA case complete in all respects submitted to Forest Department on date 7-12-2020. Currently pending at the level of Regional Office. |

Apart from above, it is also worth to share that, countries first Green Ammonia production plant with the proposed investment of Rs. 915 cr is also coming up in the district Una which would also attract respective size of ancillarisation in and around. Similarly, HPCLS mega project of ethanol with the capacity of 200 kl is also being set up in the industrial area Gagret which would also boost socio economic activities in the district. Hence, **in view of upcoming mega projects, availability of huge land bank and availability of requisite infrastructure as well as amenities in the district, it is expected that district Una would be on the world map for the pace of industrialization. And surrounding ecosystem would definitely enhance the operational efficiency of Bulk Drug manufacturers in a big way.**

*Figure 20 Image of Plant in Una*

## 3.7 Master Plan and land use details of the Park

### 3.7.1 Aims & Objective of Master Plan

Bulk Drug Park industry has a huge potential to grow at a rapid pace, largely due to growing global demand, and increasing affluence and changing demographics in India. Given its employment potential, contribution to exports and also domestic demand, it is essential to revive manufacturing in the country and develop Bulk Drug Park with the provision of specialized infrastructure and facilities for industry. For systematic growth of the industry all the aspects need to consider, the challenges identified, met, and the growth drivers exploited and nurtured. Coordinated efforts would give the necessary boost to the industry, lead industry through to a new growth path and take the industry into a new phase in the international markets.

The development of Bulk Drug Park, Himachal is envisaged with a view to provide an internationally competitive and a hassle-free environment for Pharmaceutical Industry in well planned zones with all common infrastructural facilities and amenities of international standards. It shall focus on development of medium and large-scale industries. Also, it will ensure sustainable development of medium and large-scale industries and service activities with sufficient provision for future growth and expansion.

Bulk Drug Park will broadly range from industrial unit to logistics and warehousing hub to commercial plot. Emphasis will be placed on creating a functional and high visual urban environment within the park with proper landscaping by ensuring least amount of cutting and filling without disturbing the natural hilly terrain much. Hence the Aim & Vision of the development of Bulk Drug Park in HP is:

*"to provide an internationally competitive and a hassle-free environment for the Pharmaceutical Industry, in well planned manner, with delivery of all common infrastructural facilities and amenities, including a range of activities from logistics and warehousing hub"*

The vision perceived is further enumerated in the following specific development objectives:
To create a world class Bulk Drug Park in HP.

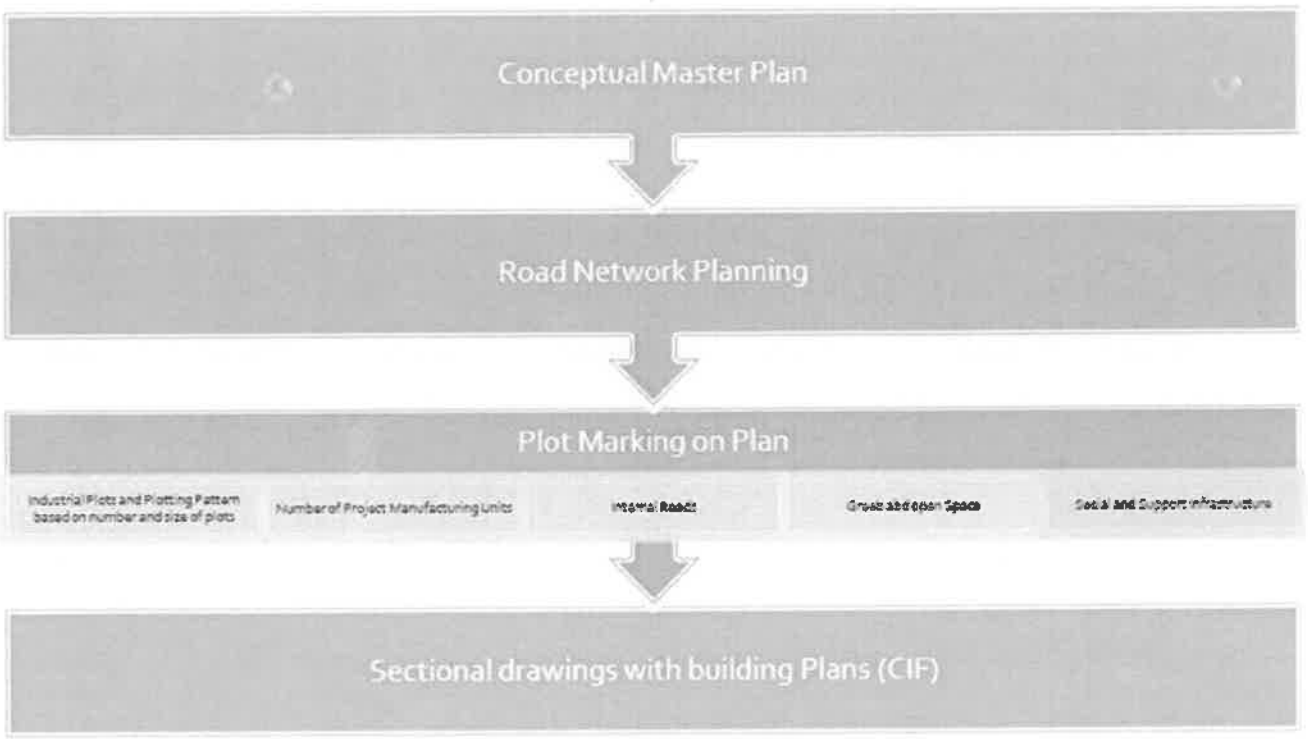
- To enable private developers/ investors/Bulk Drug manufacturers-industrialists to participate in the Bulk Drug Park
- To provide world class infrastructure and facilities.
- Provide an efficient and effective industrial hub for export-oriented companies thereby helping increase foreign exchange earnings.

- Create local employment opportunities.

### 3.7.2 Master Plan Approach and Methodology

A typical 4 step process is carried for any master plan formation. It starts with the conceptual road network formation followed by plotting of small and large sizes as per the road network. Further, building plan and layout is formed considering the building guidelines.

*Figure 21 Master Plan Approach and Methodology*




### 3.7.3 Planning Principals for Bulk Drug Parks

The Master Plan Layout is prepared in such a way that it resembles an appropriate sense of dignity and decorum, accommodate both short- and long-term space needs, and contribute to the effective administration of justice by providing physical facilities that are appropriate for current practices, as well as being able to accommodate changes in procedures, operations, and policies. The Master Plan for Bulk Drug Park has evolved from a comprehensive understanding of the existing situation, market trends, infrastructure availability, best practices & success factors, existing Building guidelines and Development Control Regulations, scale of development with project development phasing strategy.

Keeping the same approach and planning principals in mind, the layout design and concept of the Bulk Drug Park was visualised with basic primary guiding factors. Conceptual plan for the park was designed

on the basis of the program brief, with a view to implement the desired design principles and to test the workability and feasibility of achieving the project objectives.

Development of layout plan at conceptual level helped envisage physical manifestations of the vision and program brief proposed for the Project Area. In order to arrive at the most suitable layout plan, various options were prepared and compared to see the most relevant option of development in terms of road network and other uses. Different widths of roads were proposed throughout the process of the mapping.

However, the core concept of the development is giving accessibility inside the site area as well as to connect the surrounding area to the site. For this, in the Final Master Plan layout, a well thought road network is proposed considering the contours and the slope degree. A 45 m wide road is proposed in a loop giving access to the entire site area. This also acts as a spine to the whole layout. The Proposed Road network in shown in figure below:

*Figure 22 Proposed Internal Road and Circulation*

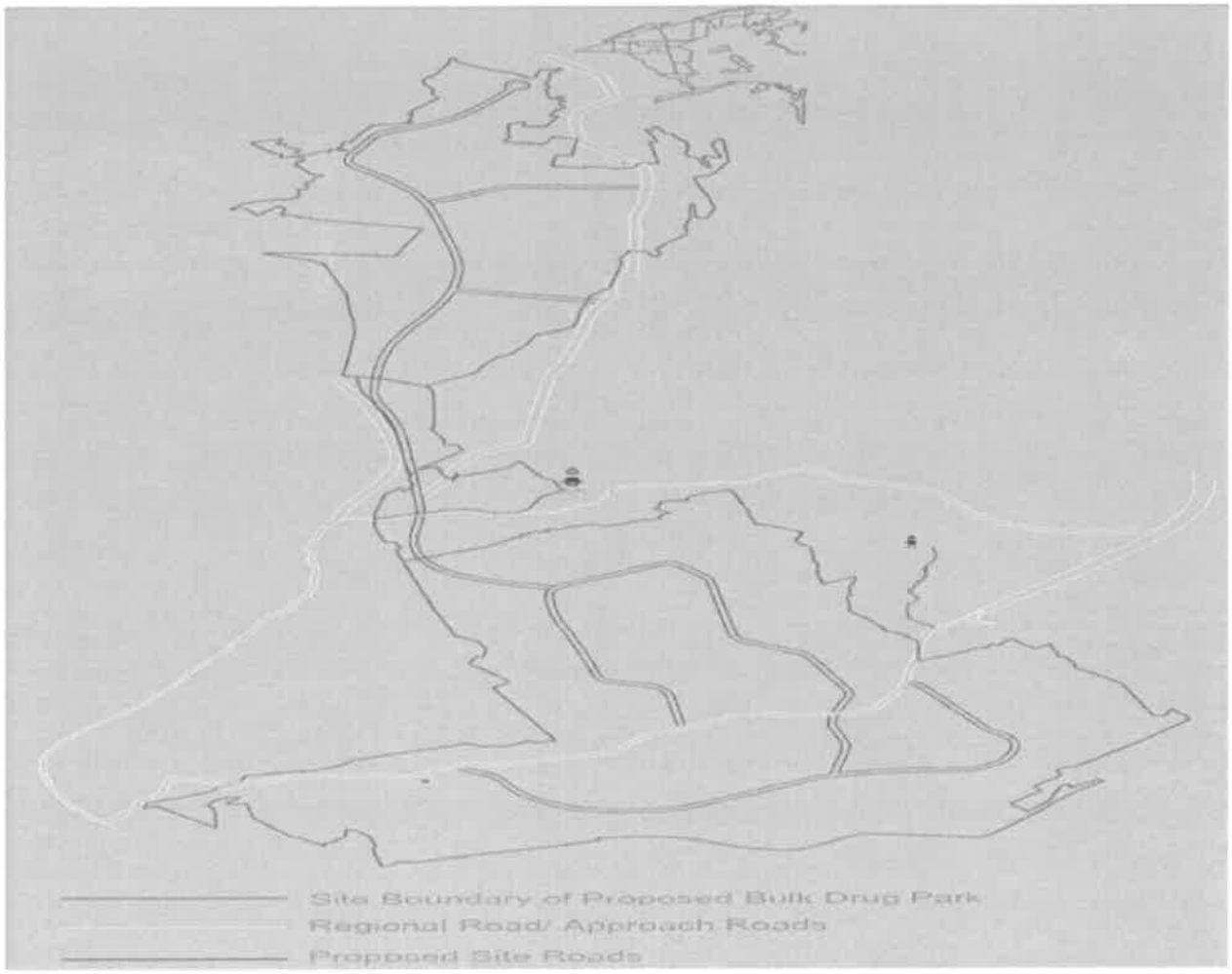
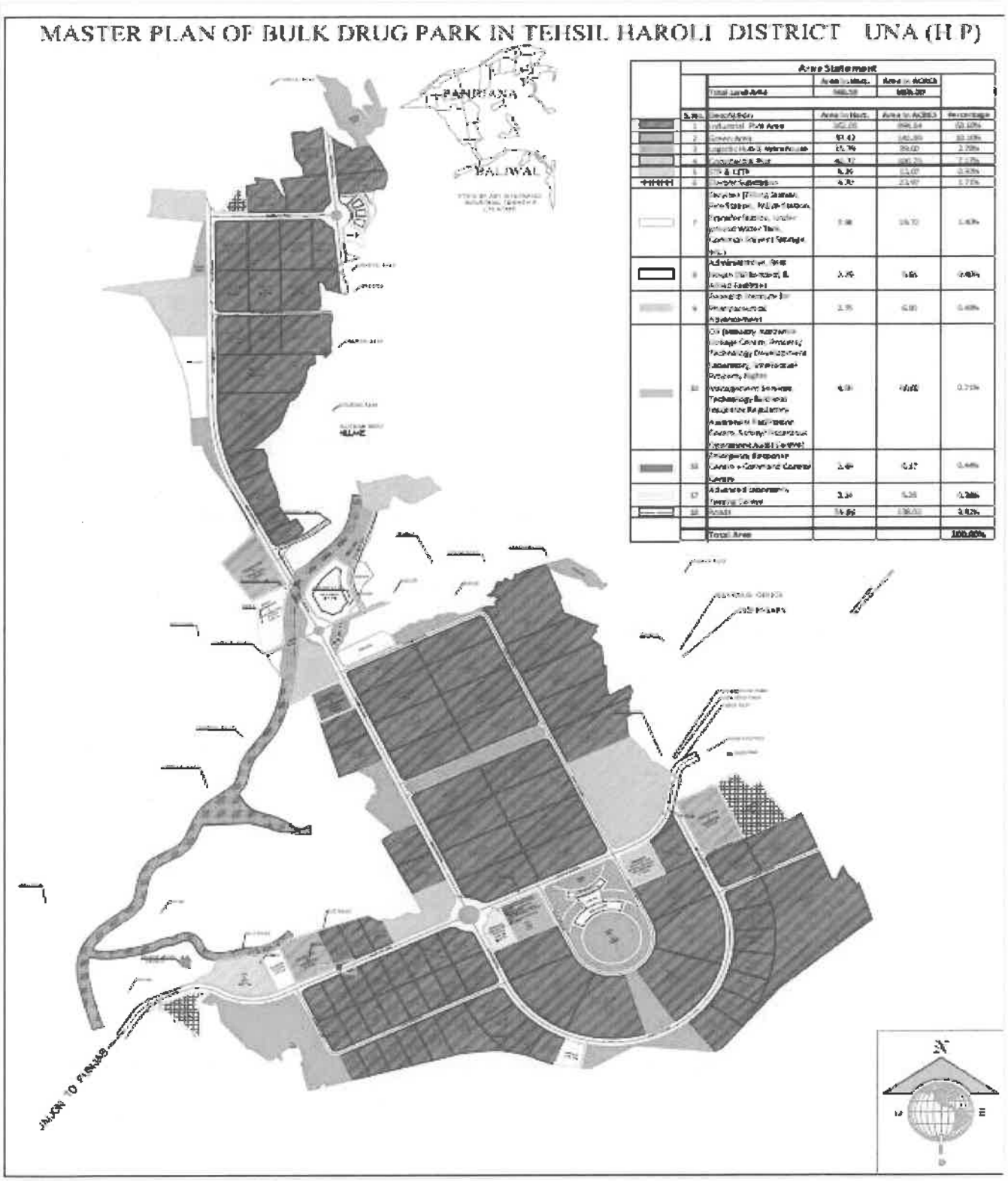


*Figure 23 Proposed Master Plan of Bulk Drug Park*



Green Belt of 20 m wide on the periphery to mitigate the various types of pollutionLarge open spaces for maintaining the green cover

- Large open spaces for maintaining the green cover
- Small Quality green spaces for recreation
- Linear plantations to provide relief during movement
- Small aesthetic greens for forming vistas etc.

The design brief specifies the provision of all plots with supporting physical and common infrastructure. Various infrastructure components planned in the park are presented in the table below:

*Table 9 Details of Common Infrastructure Details*

| Sr. No. | Infrastructure | Components |
|---|---|---|
| 1 | Common Infrastructure Facilities | • Central Effluent Treatment Plant (CETP) with Zero Liquid Discharge (ZLD)<br>• Solid Waste Management (SWM) (50000 Tonne per Annum)<br>• Storm Water Drains Networks<br>• Common Solvent Storage System<br>• Common Warehouse<br>• Power<br>• Raw Portable and Demineralised Water<br>• Steam Generation and Distribution<br>• Internal Road and Compound Wall<br>• Advanced Laboratory Testing Centre<br>• Emergency Response Centre<br>• Safety/ Hazardous Operations Audit Centre<br>• Centre of Excellence |
| 2 | Other Infrastructure | • Administrative Block<br>• Rain shelter/bus stop<br>• Canteen Block<br>• Fire Station<br>• Guest House<br>• Duct for Cable/Wire<br>• Pedestrian Path<br>• Green Cover |

| Sr. No. | Infrastructure | Components |
|---|---|---|
| | | • Helipad<br>• Site Development Works |

### 3.7.4 Land Use Area Statement

The land use plan places a strong emphasis on open and green spaces and hence limits the area under industrial use to less than 65% of the aggregate area. The proposed Common Infrastructure & Facilities, land use distribution pattern and its Percentages are presented in the table below:

*Table 10 Land Use details of Bulk Drug Park*

| Description | Area in Acre | Percentage |
|---|---|---|
| Industrial Plot Area | 894.64 | 63.67% |
| Green Area | 141.89 | 10.10% |
| Logistic Hub & Warehouse | 39.02 | 2.78% |
| Commercial Plot | 100.75 | 7.17% |
| Electric Substation | 23.97 | 1.71% |
| Services (Filling Station, Fire Station, Police Station, Transfer Station, Under Ground Water Tank, Common Solvent Storage, etc.) | 19.72 | 1.40% |
| Administrative, Rest House (50 beded) & allied activities | 5.66 | 0.40% |
| Research Institute for Pharmaceutical Advancement | 6.80 | 0.48% |
| CIF (Center of Excellence + Steam Generation, Solid Waste Management, CETP, Steam Generation) | 10.02 | 0.71% |
| STP & CETP | 13.07 | 0.93% |
| Emergency Response Center, Command Control Center | 6.17 | 0.44% |
| Advance Laboratory Testing Center | 5.28 | 0.38% |
| Roads | 138.02 | 9.82% |
| **Total** | **1405.01** | **100.00%** |

The Master Plan consists of 63 % of industrial plots; the larger plots are placed along the main spine, while the medium size plots are on the secondary road networks. Special emphasis has been given in terms of green area, which constitutes 10% of the total area. The Green spaces are proposed where the contours are steeper. The Common facilities are placed around the Green Space

- The utilities are strategically placed as per the site topography.
- The main entry of the site is proposed at the north end of the site where the State Highway is around 4 km far from this location. The Green Buffer of 20 m is provided along the fencing of the boundary of the site

### 3.7.5 Design Criteria

a. The location of the social infrastructure and common facilities would be primarily guided by the Scheme "Promotion of Bulk Drug Parks". The Common facility with capacity commensurate with the expected number of manufacturing units in the bulk drug park provided by the State Implementing Agency (SIA).
b. The area proposed to be earmarked for each of the common facilities has been worked out on the following basis, and appropriate corrections would be made to arrive at the final figures
    - Norms suggested in National Building Code and UDPFI guidelines
    - Envisaged area requirements, current and future, by the end user/developer of the park
    - Experience with other Bulk Drug Projects
    - The parameter for referring to the above guidelines would be the employment generated and the total number of expected end users

c. The location of the proposed Common Infrastructure Facility (CIF) has been planned in line with the Guideline of the Scheme.
d. The activities would be grouped on the basis of the nature of end users, operating hours, functionality and their inter-dependency. For example, maximum CIFs are proposed in the central area of the park for ease of access for all users. Centre of Excellence (COE) is proposed in such a way that all the buildings can be accessed easily.

# 4 Cost Estimation & Source of funds

In this Chapter, cost estimation and Means of Finance have been undertaken for developing a Bulk Drug Park in compliance with the guidelines issued by the Department of Pharmaceuticals under the Ministry of Chemicals and Fertilizers.

## 4.1 Cost Estimation of Bulk Drug Park

The total cost of the project is estimated at Rs.1,923 Cr. (Including GST) and is broadly divided into costs that are eligible for grant-in-aid and otherwise. A detailed capital cost is tabulated below:

- Total cost includes the development of the park and the development of CIF.

*Table 11 Details of Cost Estimates for Bulk Drug Park*

| S No | Descriptions | Total estimated cost (Rs in Cr.) |
|---|---|---|
| A | **Common Infrastructure Facility** | |
| 1 | Common Effluent Treatment Plant (CETP) with ZLD 5 MLD (including 18% GST) | 244.43 |
| 2 | **Solid Waste Management (50000 Tonnes per Annum)** | |
| i | Incinerator Cost | 18 |
| ii | Cost of Collection & Landfill site for initial for 5 years | 37 |
| 3 | **Storm Water Drains Network** | |
| i | Construction of Drains Network | 86.71 |
| 4 | Common Solvent Storage System, Solvent recovery, and distillation plant | 30 |
| 5 | **Common Warehouse** | |
| i | Construction of 5 nos. of warehouses (Area: 12,800 sqm) | 60.71 |
| 6 | **Dedicated Power Sub-station and distribution system with the necessary transformers at factory gate (100-200 MW)** | |
| i | Distribution Network within the park | 65 |
| ii | External Power Infrastructure | 275 |
| 7 | **Raw, Potable and Demineralized Water** | |
| i | Water Infrastructure (15 MLD) with Storage Tanks | 49.95 |

| S No | Descriptions | Total estimated cost (Rs in Cr.) |
|---|---|---|
| ii | Water Recharge Structure for Tube well | 10 |
| iii | Pond (Reservoir) | 62 |
| iv | RO Treatment | 20 |
| 8 | **Steam Generation and Distribution System (Capacity - 300 TPH) (including 18% GST)** | 312.30 |
| 9 | **Internal Road Network, Compound Wall** | |
| i | Construction of Internal Road | 150.88 |
| ii | Fencing Work | 14.44 |
| iii | Construction of 30 m span Bridge | 13.74 |
| iv | Widening and Strengthening of Approach Road | 20.68 |
| 10 | **Advanced Laboratory testing center** | |
| i | Construction of Building Suitable for Even Complex testing/ research needs of APIs, including microbiology laboratory and stability Chamber | 22.73 |
| 11 | **Emergency Response Center** | 20.17 |
| 12 | **Safety Hazardous Operations Audit Center** | 14.43 |
| 13 | **Center of Excellence (Regulatory Awareness Facilitation Center, Technology Business Incubator, Intellectual Property Right, Process Technology Development Center, Industry Academia Linkage, Training Center)** | 110.29 |
| | **Total cost of CIF (A)** | **1,638.46** |
| **B** | Other Cost of Infrastructure | |
| 1 | Construction of Administrative Block | 5.34 |
| 2 | Construction of 15 Nos. rain shelter/ bus stop | 2.54 |
| 3 | Construction of Canteen block | 1.65 |
| 4 | Construction of Fire Station | 5.49 |
| 5 | Construction of Guest House | 3.31 |
| 6 | Construction of Pedestrian path | 19.68 |
| 7 | Green Cover | 2.8 |

| S No | Descriptions | Total estimated cost (Rs in Cr.) |
|---|---|---|
| 8 | Construction of Helipad | 1.97 |
| 9 | Construction of Duct for Cable /Wire | 35.94 |
| 10 | Site Development Works | 205.82 |
| | **Total Cost of Other Infrastructure (B)** | **284.54** |
| | **Grand Total (A+B)** | **1,923** |

## 4.2 Development of the Park

The cost of each building proposed in the park with purpose of such building is mentioned in the above table.

## 4.3 Development of Common Infrastructure Facilities

The Government of Himachal Pradesh has proposed to develop a 1405.01-acre land parcel as Bulk Drug Park. To promote investment in this sector the Government of India is providing a Grant-in-Aid of Rs.1000 cr. to the State for development of common infrastructure facility in Bulk Drug Park. The Government of Himachal Pradesh, through various stakeholder consultation and inputs from eminent experts, has identified common infrastructure facilities for Bulk Drug Park which is mentioned in the detailed chapter of development of common infrastructure facilities.

## 4.4 Source of Funds of Bulk Drug Park

The total cost of the project is estimated to be Rs 1,923 Cr which include Rs 1,638.46 Cr for Common Infrastructure Facilities and Rs. 284.54 Cr. for other Infrastructure Development Works.

The Government of India under the Bulk Drug Park scheme is providing Rs 1000 Cr. for development of Common Infrastructure Facility (CIF). Under the scheme the Government of India will fund maximum of 90% of the total CIF facility proposed.

As per the financial analysis the SIA is expected to receive a Grant of Rs 1,000 Cr. for development of Common Infrastructure Facilities and remaining Rs 923 Cr. will be provided by Government of Himachal Pradesh SIA for development of other infrastructure development work and power infrastructure.

Below mention is the proposed means of finance for the project.

*Table 12 Means of Finance*

| Source of Funds | Amount (Rs in Cr.) |
|---|---|
| Central Govt Grant | 1,000 |
| State Govt Contribution | 923.00 |
| **Total Cost of Project** | **1,923** |

**Undertaking enclosed as annexure**

# 5 Sources of Revenue

## 5.1 Budgetary Allocation from the State

The State Government will be providing funds to the tune of Rs. 923 Cr, that includes State Equity for CIF, cost of external infrastructure for approach road and power.

## 5.2 Land lease

To promote investment in the Bulk Drug Park, the State has committed plot allotment rate on lease @Rs.1 per square meter per annum to the API manufacturers. The lease period of industrial plots will be 33 years to begin with and is extendable upto 95 years. It is expected that allotment of industrial plots will be completed in first 2 years. By leasing the 3,620,483 sqm of land, SIA will generate a revenue of Rs. 0.36 cr.

### 5.2.1 Area Statement of Land

*Table 13 Proposed Allocation of Land Area*

| Description | Area in Acre | Percentage | Area in Sqm |
|---|---|---|---|
| Industrial Plot Area | 894.64 | 63.67% | 3,620,483 |
| Green Area | 141.89 | 10.10% | 574,209 |
| Logistic Hub & Warehouse | 39.02 | 2.78% | 157,908.5 |
| Commercial Plot | 100.75 | 7.17% | 407,721.1 |
| Electric Substation | 23.97 | 1.71% | 97,003.23 |
| Services (Filling Station, Fire Station, Police Station, Transfer Station, Under Ground Water Tank, Common Solvent Storage, etc.) | 19.72 | 1.40% | 79,804.08 |
| Administrative, Rest House (50 beded) & allied activities | 5.66 | 0.40% | 22,905.23 |
| Research Institute for Pharmaceutical Advancement | 6.8 | 0.48% | 27,518.65 |
| CIF (Center of Excellence + Steam Generation, Solid Waste Management, CETP, Steam Generation) | 10.02 | 0.71% | 40,549.54 |

| Description | Area in Acre | Percentage | Area in Sqm |
|---|---|---|---|
| STP & CETP | 13.07 | 0.93% | 52,892.46 |
| Emergency Response Center, Command Control Center | 6.17 | 0.44% | 24,969.13 |
| Advance Laboratory Testing Center | 5.28 | 0.38% | 21,367.42 |
| Roads | 138.02 | 9.82% | 55,8547.6 |
| **Total** | **1405.01** | **100%** | 5,685,879 |

### 5.2.2 Land Lease premium

i) Lease Premium from Leasing of Industrial plots

- To promote the units the State has committed the rate of Rs. 1 per square meter per annum to the API manufacturers in the bulk drug park.

ii) Lease Premium from Leasing Commercial Plot

- Commercial Plot will be auctioned at the base rate of Rs. 5,000 per square meter with an increment of 5% on a year-on-year basis.

### 5.2.3 Summary of Annual Revenue from Land Leasing

*Table 14 Summary of Annual Revenue from land leasing*

| Land use category | Saleable area (in sqm) | Lease payment mode | Lease rent (in INR/sqm) | Annual Lease rent (Rs in Cr) |
|---|---|---|---|---|
| Industrial Plots | 3,620,483 | Annual | 1.0 | 0.36 |
| **Total** | | | | **0.36** |

**Total annual estimated revenue** from the land leasing to the State Implementing Agency (SIA): Rs. **0.36 Cr.**

## 5.3 Utility Charges

The State Government has committed for following utility rates for the various utilities.

*Table 15 Source of Revenue*

| Revenue Head | Charge per unit | Rates in Rs | Annual Revenue (Rs. In Cr) |
|---|---|---|---|
| Land Lease | per sq. meter | 1 | 0.36 |
| Power | kWh | 3 | 150 |
| Effluent treatment | Per kilo liter | 299 | 50.83 |
| Water | Per kilo liter | 0 | 0 |
| Steam | Per Tonne | 900 | 213.8 |
| Solid waste treatment | Per Tonne | 700 | 3.50 |
| Warehouse | Monthly charges per square | 0 | 0 |
| Park maintenance | Annual charges per square | 0 | 0 |
| Any other* | Specify nature and unit | | 88.05 |
| | | **Total** | **506.54** |

Estimated annual revenue from utilities is **Rs. 506.54 Cr.**

**Other source of revenue to the SIA**

** This will include application fee, map approval fee, sewerage charges, ecological cess, property tax and power generation from Steam. The revenue breakup is given below:*

*Table 16 Details of Revenue Break up under any other charges*

| Particulars | Amount (Rs in Cr) | Amount (Rs. In Cr.) in 12 years |
|---|---|---|
| **Sewage Charges** @ 5 per sqm/month (@5% annual increase) | 21.72 | 273.19 |
| **Ecological Cess @** 10 per sqm/annum (@5% annual increase) | 3.62 | 45.52 |
| **Property Tax** @ 7.5 per sqm/annum (@5% annual increase) | 2.71 | 34.08 |
| Power generation from Steam per annum | 60.00 | 600 |
| **Total** | **88.05** | **952.79** |

**One time revenue for SIA through other means (not quoted in the bid):**

| Particulars | Amount (Rs in Cr) |
|---|---|
| Application Fee (one time) | 0.16 |
| Map approval fee @ Rs. 100 per sqm (one-time) | 36.20 |
| ***Total*** | **36.36** |

**Sources of revenue for the SIA apart from one time/annual for the first 10 years of its operation:**

*Table 17 Details of sources of revenue for the SIA apart from one time/annual for the first 10 years of its operation*

| Particulars | Amount (Rs in Cr) |
|---|---|
| **Proceeds from Sale of Commercial Plot**<br><br>Total Area = 100.75 Acres<br>= 4,07,720 sqm<br>Rate = 5,000 per sqm (base rate for auction)<br>Amount = 203.86 Cr.<br>***Note: (Annual escalation of base price 5%)***<br>***Amount=242.15*** | 242.15 |
| **Proceeds from State of Art Integrated Industrial Township**<br>Total Area = 175 Acres<br>= 7,08,190 sqm<br>Rate = 2,000 per sqm. (Undeveloped)<br>Amount = 7,08,190 x 2000 = 141.64 Cr.<br><br>***Note:*** *The present circle rate is Rs. 268 per sqm and the present prevailing market rate is around Rs. 500 per sqm* | 141.64 |
| **Total** | **383.79** |

| Particulars | Amount (Rs in Cr) |
|---|---|
| **Income to SIA through Security Deposit on account of non-utilization of plots**<br>**Assumptions**<br>• Security deposit/charges @Rs.1000 sq. mtr.<br>• 50% plots would be allotted in the first year<br>• 50% plots would be allotted in the second year<br>• Security deposit would be refunded after 5 years from the date of commencement of production duly certified by Department of Industries<br>• 10% of allotted area/allottee would be cancelled and security deposit would be forfeited<br>• 40% of plot allotted would get 1st year extension<br>• 10% of the allottee, who got 1st year extension would also seek 2nd year extension.<br>**Timelines for refund**<br>1. Total Proceeds = Rs. 362.05 Cr.<br>**2. Security Deposit for forfeited = Rs. 36.20 Cr.**<br>3. Amount to be refunded in 7th year = Rs. 117.30 Cr<br>4. Amount to be refunded in 8th year = Rs. 148.58 Cr.<br>5. Amount to be refunded in 9th year = Rs. 54.74 Cr.<br>6. Amount to be refunded in 10th year = Rs. 5.21 Cr. | 36.20 |
| **Income to SIA through Extension Fee**<br>**Assumption:**<br>• Fee for 1st Year @Rs.250/sq.mtr-40% of the allottable area (1303370 Sqm) =Rs.32.58 Cr. | 60.27 |

| Particulars | | Amount (Rs in Cr) |
|---|---|---|
| • Fee for 2nd Year @Rs.500/sq.mtr- 25% of the allotted area (upon which extension of 1st year extension was granted (325842.5 Sqm.) =Rs.16.29 Cr.<br>• Fee for 3rd Year @Rs.700/sq.mtr- 50% of the allotted area (upon which extension of 2nd year extension was granted (162921.3 Sqm.) = Rs.11.40 Cr.<br><br>**Proceeds:**<br>1. 1st Year of extension = Rs.32.58 Cr.<br>2. 2nd Year of extension = Rs.16.29 Cr.<br>3. 3rd Year of Extension = Rs.11.40 Cr.<br><br>**Total** **Rs.60.27 Cr.** | | |
| **Total** | | **96.47** |

Gross Proceeds to SIA from other Sources= Rs. 1469.41 Cr.

| One Time | Annual | Long Term (10 years) | Total (Rs. In Cr.) |
|---|---|---|---|
| 36.36 | (952.79+60.27) =1013.06 | (383.79+36.20) =419.99 | **1469.41** |

# 6 Development of Common Infrastructure Facility (CIF)

Common Infrastructure Facility (CIF): The Common facility with capacity commensurate with the expected number of manufacturing units in the bulk drug park provided by the State Implementing Agency (SIA).

*Table 18 Cost estimation of common infrastructure facility*

| S No | Descriptions | Total estimated cost (Rs in Cr.) |
|---|---|---|
| 1 | Common Effluent Treatment Plant (CETP) with ZLD 5 MLD (including 18% GST) | 244.43 |
| 2 | Solid Waste Management (50000 Tonnes per Annum) | |
| i | Incinerator Cost | 18 |
| ii | Cost of Collection & Landfill site for initial for 5 years | 37 |
| 3 | Storm Water Drains Network | |
| i | Construction of Drains Network | 86.71 |
| 4 | Common Solvent Storage System, Solvent recovery, and distillation plant | 30 |
| 5 | Common Warehouse | |
| i | Construction of 5 nos of warehouses (Area: 12,800 sqm) | 60.71 |
| 6 | Dedicated Power Sub-station and distribution system with the necessary transformers at factory gate (100-200 MW) | |
| i | Distribution Network within the park | 65 |
| ii | External Power Infrastructure | 275 |
| 7 | Raw, Potable and Demineralized Water | |
| i | Water Infrastructure (15 MLD) with Storage Tanks | 49.95 |
| ii | Water Recharge Structure for Tube well | 10 |
| iii | Pond (Reservoir) | 62 |
| iv | RO Treatment | 20 |
| 8 | Steam Generation and Distribution System (Capacity - 300 TPH) (including 18% GST) | 312.30 |
| 9 | Internal Road Network, Compound Wall | |
| i | Construction of Internal Road | 150.88 |

| S No | Descriptions | Total estimated cost (Rs in Cr.) |
|---|---|---|
| ii | Fencing Work | 14.44 |
| iii | Construction of 30 m span Bridge | 13.74 |
| iv | Widening and Strengthening of Approach Road | 20.68 |
| 10 | Advanced Laboratory testing center | |
| i | Construction of Building Suitable for Even Complex testing/ research needs of APIs, including microbiology laboratory and stability Chamber | 22.73 |
| 11 | Emergency Response Center | 20.17 |
| 12 | Safety Hazardous Operations Audit Center | 14.43 |
| 13 | Center of Excellence (Regulatory Awareness Facilitation Center, Technology Business Incubator, Intellectual Property Right, Process Technology Development Center, Industry Academia Linkage, Training Center) | 110.29 |
| | **Total cost of CIF (A)** | **1,638.46** |

## 6.1 Central Effluent Treatment Plant (CETP)

### 6.1.1 Brief Description of CETP

Common Effluent Treatment Plant is used for treating combined effluents generated from a co-operative group of small industries. Effluent treatment plants need land for construction, capital cost, power and specialized manpower for their operation and maintenance. Due to these limitations, small-scale enterprises are unable to afford to build their own effluent treatment facilities, and therefore, combined effluent from all units is to be brought to a centralized place for treatment. The units from the proposed bulk drug park shall discharge primary treated effluent into the effluent drainage system, conforming to the inlet criteria will be carried out by instrumentation medicated control

**Design parameter of CETP:**

**A) Inlet parameters for Low TDS & Low COD Stream**

*Table 19 Details of Inlet parameters for Low TDS & Low COD Stream*

| Sr. No. | Description | Unit | Value |
|---|---|---|---|
| 1 | Flow | M3/Day | 1500 |
| 2 | pH | | 6.5-8.5 |
| 3 | TSS | Mg/ltr. | 400-500 |
| 4 | TDS | Mg/ltr. | 12,000 |
| 5 | COD | Mg/ltr. | 8,000 |
| 6 | BOD | Mg/ltr. | 3,000 |
| 7 | NH4-N | Mg/ltr. | 200 |
| 8 | O&G | Mg/ltr. | <50 |
| 9 | Heavy Metals | Mg/ltr. | <50 |
| 10 | Other Salts | Mg/ltr. | 2,000-5,000 |

**B) Inlet parameters for High TDS & Low COD Stream:**

*Table 20 Details of Inlet parameters for High TDS & Low COD Stream*

| Sr. No | Description | Unit | Value |
|---|---|---|---|
| 1. | Flow | M3 | 1500 |
| 2. | pH | | 6.5- 8.5 |
| 3. | TSS | Mg/lit | 400-500 |
| 4. | TDS | Mg/lit | 50,000- 80,000 |
| 5. | COD | Mg/lit | 50,000 |
| 6. | BOD | Mg/lit | 25,000 |
| 7. | NH4-N | Mg/lit | 200 |
| 8. | O&G | Mg/lit | <50 |
| 9. | Heavy Metals | Mg/lit | <50 |
| 10. | Solvents | Mg/lit | 30,000 |
| 11. | Other Salts | Mg/lit | 2,000-5,000 |

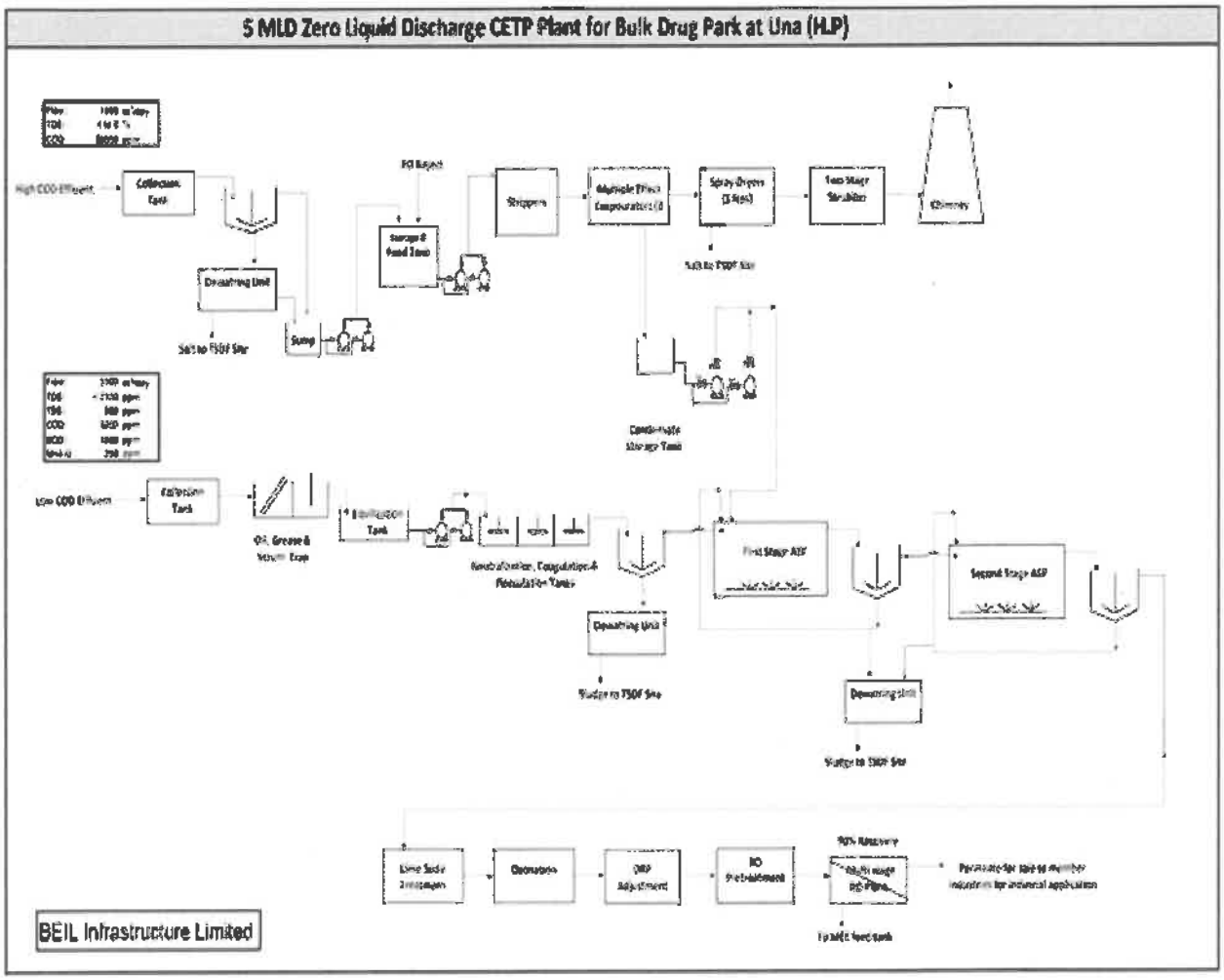
**C) For Low TDS & Low COD stream treatment:** Primary, Secondary, Tertiary, RO- Pre-treatment and 3-4 stage RO is considered. Collection sump is considered for collection of effluent through Pipelines.

**D) High TDS & High COD stream treatment**: Solid Multifuel Boiler, DM Plant, 4 Stage MEE with stripper storage tanks, Spray dryer, cooling tower, etc. Agitated Thin Film Dryer (ATFD) is not considered.

**(E) Misc.**: Transformer, Circuit breakers, PCC, MCC, Road, ADM/Lab Building, TOC Meters, require process control instrumentation.

**(F) Space requirement** will be 225m x 225m minimum, turbine cost is not included.

*Figure 24 Flow Diagram for CETP Plant*



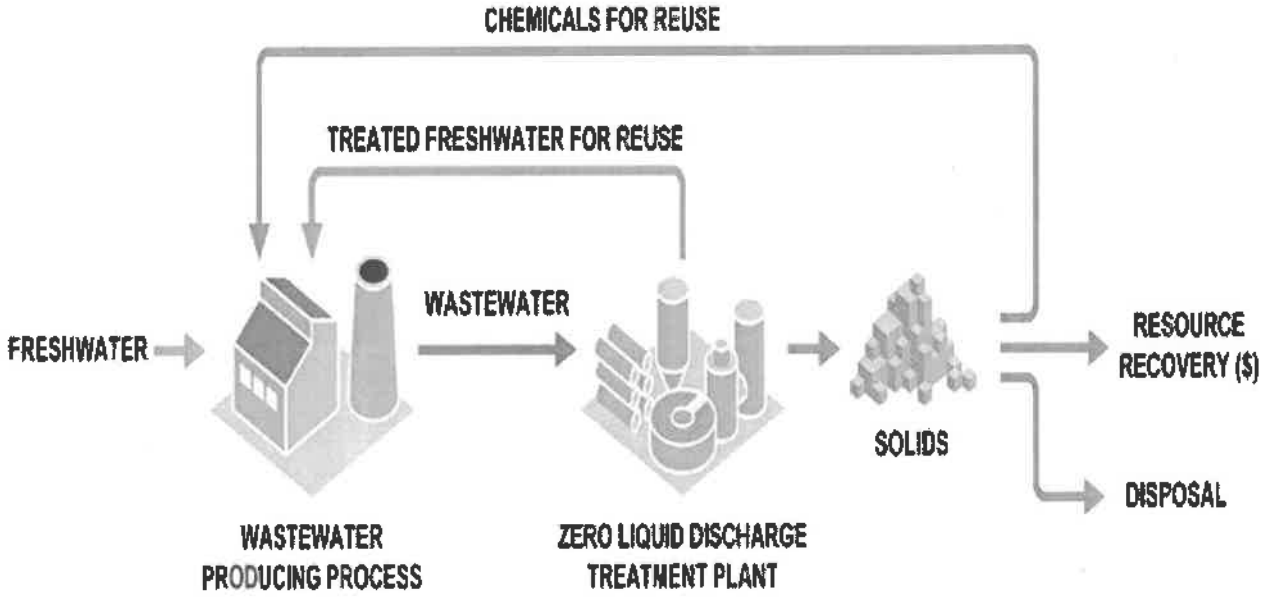

## 6.1.2 Description about Zero Liquid Discharge (ZLD)

Zero-liquid discharge (ZLD) is a water treatment process in which all wastewater is purified and recycled, therefore, leaving zero discharge at the end of the treatment cycle. Zero liquid discharge is an advanced wastewater treatment method that includes ultrafiltration, reverse osmosis, evaporation/crystallization,

and fractional electrode ionization. It is an engineering approach to water treatment where all water is recovered, and contaminants are reduced to solid waste.

While many water treatment processes attempt to maximize the recovery of freshwater and minimize waste, ZLD is the most demanding target since the cost and challenges of recovery increase as the wastewater gets more concentrated. Salinity, scaling compounds, and organics all increase in concentration, which adds costs associated with managing these increases. ZLD is achieved by stringing together water treatment technology that can treat wastewater as the contaminants are concentrated

*Figure 25 Process Flow for ZLD*




**a) Benefits**

- Lowered waste volumes decrease the cost associated with waste management.
- Recycle water on site, lowering water acquisition costs and risk. Recycling on-site can also result in fewer treatment needs versus treating to meet stringent environmental discharge standards.
- Reduce trucks associated with off-site wastewater disposal and their associated greenhouse gas impact and community road incident risk.
- Improved environmental performance and regulatory risk profile for future permitting.
- Some processes may recover valuable resources, for example, ammonium sulfate fertilizer or sodium chloride salt for ice melting.

**b) Importance**

- In a world where freshwater is an increasingly valuable resource, industrial processes threaten its availability on two fronts unless the water is treated. Many industrial processes require water

and then reduce the availability of water for the environment or other processes, or alternately contaminate and release water that damages the local environment. ZLD ensures a safe water supply for the future by protecting lakes and rivers from contamination

- Zero liquid discharge has the potential for recovering resources that are present in wastewater. ZLD is targeted for their waste because they can sell the solids that are produced or reuse them as a part of their industrial process.
- Achieving ZLD demonstrates good economics, corporate responsibility, and environmental stewardship

### 6.1.3 Estimated Capacity of CETP with ZLD

The total installed capacity of CETP with ZLD is 5 million Liter per Day (MLD).

### 6.1.4 Cost Estimates

The total cost of & Effluent Collection System including CETP with ZLD requirements is estimated at **Rs 244.43 Cr.**

*Table 21 Cost Estimates for CETP with ZLD*

| S. No | Description of Components | Amount (Rs in Cr.) |
|---|---|---|
| 1 | CETP 5 MLD @ 10 Cr per MLD | 42.14 |
| 2 | ZLD @ 52.5 Cr per MLD | 165 |
| | **Total cost including GST @18%** | **244.43** |

### 6.1.5 Risk Management

**a) Occupational Hazards in CETP**

Common Effluent Treatment Plant (CETP) is the process of collecting, conveying, treating, and disposing of effluents from industrial estates. The effluent includes industrial wastewater and domestic sewage generated from an industrial plant.

**b) Chemical Hazards**

Chemical hazards are a major occupational health and safety (OHS) issue in the Pharma industry. Management of chemical hazards requires the combined efforts of OHS specialists, including generalist OHS professionals, occupational hygienists, and occupational health practitioners. There are hundreds of hazardous chemicals, including immune agents, dermatologic agents, carcinogens, neurotoxins, and reproductive toxins. Asthmagens, sensitizers, and systemic toxins are also hazardous chemicals.

Preventing exposure to toxic chemicals is a primary concern at hazardous waste sites. Most sites contain a variety of chemical substances in gaseous, liquid, or solid form. These substances can enter the

unprotected body by inhalation, skin absorption, ingestion, or through a puncture wound (injection). Emphasis is placed on the importance of working with a range of OHS specialists to ensure a range of skills is directed at preventing fatality, injury, disease, and ill health arising from this complex area of OHS.

Chemicals are used to make virtually every man-made product and play an important role in everyday life of people around the world. The chemical industry is the third largest industrial sector in the world. It is also a major economic force. Worldwide, it employs some

10 million people and generates billions of euros in shareholder value and tax revenue for governments. The pharmaceutical industry has been described as dynamic and growing in terms of sales, the number of employees, and gross domestic product (GDP). It is an industry in which companies, government regulators and researchers focus on the "safety" of the products and their effects on end users and the environment.

Chemical hazards produce by chemical synthesis or manufacturing, processing, and transportation affect human and environmental conditions. A chemical hazard is a type of occupational hazard caused by exposure to chemicals in the workplace. Exposure to chemicals in the workplace can cause acute or long-term detrimental health effects. There are many types of hazardous chemicals, including neurotoxins, immune agents, dermatologic agents, carcinogens, reproductive toxins, systemic toxins, asthma genes, pneumoconiosis agents, and sensitizers.

Chemical hazards are toxic, corrosive, irritant, carcinogenic, flammable, and mutagenic. According to workplace hazardous materials information, chemical hazards are classified as:

**Class A**

- Compressed gas.
- Dissolved gas or liquid gas.

**Class B**

- Flammable gases.
- Flammable and combustible liquids.
- Flammable solid.
- Flammable aerosols.
- Reactive flammable material.

**Class C**

- Oxidizing materials - oxidizer and organic peroxide.
- Oxidizer: Chlorates, nitric oxide, peroxides, permanganates, perchlorates, nitrites, nitrates, and easily oxidize metal powder.
- Organic peroxide: Tetra hydro furan, diethyl ether,
- dioxane, and methyl isobutyl ether.

**Class D**

- Poisonous and infectious materials. e.g.: Cyanides, tea salts, and asbestos.

**Class E**

- Corrosive materials. e.g.: Inorganic acids and bases, hydrogen fluoride.

**Class F**

- Dangerous reactive materials. e.g.: Ethylene dioxide, organic azides, Na, Li, Ca.
- Pyrophosphoric materials. e.g.: White phosphorous, diethyl aluminium chloride, and lithium

*Figure 26 Pictogram used in Chemical Hazards*

**c) Sources of hazards in pharma**

- Handling and storage of huge quantity hazardous chemicals.
- Transferring, loading and unloading of solvents and chemicals to reaction vessels.
- Human errors while handling hazardous chemicals.
- Emission of hazardous air pollutants from reaction vessels due to overloading or under designed reaction vessels.
- Volatile organic compounds (VOCs) releases from uncontained (or not connected to scrubbers).
- Reaction vessels and most common VOCs include methanol, dichloromethane, toluene, ethylene glycol, N-dimethyl formamide, and acetonitrile.

- Leaks of effluents from wastewater treatment plants or from effluent collection sumps from process area

**d) Hazard Prevention and Control Measures**

Effective controls protect workers from workplace hazards; help avoid injuries, illnesses, and incidents; minimize or eliminate safety and health risks; and help employers provide workers with safe and healthful working conditions.

To effectively control and prevent hazards, employers should:

- Involve workers who often have the best understanding of the conditions that create hazards and insights into how they can be controlled.
- Identify and evaluate options for controlling hazards using a "hierarchy of controls."
- Use a hazard control plan to guide the selection and implementation of controls and implement controls according to the plan.
- Develop plans with measures to protect workers during emergencies and nonroutine activities.
- Evaluate the effectiveness of existing controls to determine whether they continue to provide protection or whether different controls may be more effective. Review new technologies for their potential to be more protective, more reliable, or less costly

**e) Develop and update a hazard control plan**

A hazard control plan describes how the selected controls will be implemented. An effective plan will address serious hazards first. Interim controls may be necessary, but the overall goal is to ensure effective long-term control of hazards. It is important to track progress toward completing the control plan and periodically (at least annually and when conditions, processes or equipment change) verify that controls remain effective.

- Lis List the hazards needing control in order of priority.
- Assign responsibility for installing or implementing the controls to a specific person or persons with the power or ability to implement the controls.
- Establish a target completion date.
- Plan how you will track progress toward completion.
- Plan how you will verify the effectiveness of controls after they are installed or implemented.

**f) Identify the risks at your workplace**

The first thing is checking the workplace for potential hazards. This includes thoroughly and carefully checking all the electrical appliances, electrical wires and machinery within the CETP premises. See if any equipment needs repairs and get it repaired as soon as possible. If any component is too old and has the potential to cause an accident, then try to replace it.

**g) Try to Reduce Environmental Stress**

The working environment plays an important role in the overall productivity of any employee. If employees are exposed to severe working conditions, then their physical as well as physiological well-being, is affected adversely. If the nature of your work demands your employees to work under fluctuating temperature conditions and if they are frequently exposed to poisonous chemicals, then you need to ensure that your workers wear protective gear at all times. It is also advisable to give them proper safety gear and train them to use it effectively.

**h) Conduct Regular Checks and Mock Drills**

It is essential to conduct regular checks and mock drills every 3 months or so. Maintaining your machinery well is the most elementary part of ensuring safety at the workplace. So, there would be required to check these at regular intervals. The concerned authority also considers getting PAT testing done. PAT testing is a simple procedure and will help you maintain electrical safety at the workplace. Mock drills, on the other hand, will help employees deal with an emergency in a calm and collected manner to make sure to conduct mock fire drills at the workplace at least once per 6 months.

## 6.2 Solid Waste Management

### 6.2.1 Description

Solid waste management includes the process of collecting, treating, and disposing of solid waste; it involves planning administrative, financial, engineering and other environmental consideration. The proposed Bulk Drug Park will house API manufacturing industries, and it includes both chemical synthesis and fermentation. The waste generated from these activities of industrial units will be treated/ disposed of and managed by the units themselves. However, so to keep the site and the surroundings clean, liveable and pollution-free, a solid waste treatment facility will be required for domestic solid waste management. The primary objective of solid waste management is to reduce and eliminate the adverse impact of waste materials on the environment as well as human health. An integrated Treatment, Storage and Disposal Facilities (TSDF) which comprises the secured landfill and a solid-liquid feed incinerator is proposed inside the Bulk Drug Park to cater for the demand of industrial units.

**Strategy of Design**

The Pharma Industry, households, shops establishments, markets etc., generate solid waste on a day-to-day basis. The waste should normally be stored at the source of waste generation till collected for disposal. The primary objective of solid waste management is the minimization of waste to be sent to the landfill. This is achieved by a system of efficient segregation starting at the consumer level, utilization of bio-degradable waste for composting or energy generation, and recycling of non-biodegradable and industrial waste.

### 6.2.2 Capacity of Waste Management Plant

During the preliminary stage, the proposed bulk drug park waste can be divided into 4 major categories as follows: Hazardous and non-hazardous industrial waste from the drug plant. The total solid waste management quantity generated from plots in bulk drug park is divided into three categories, and the quantity of waste is expected as follows:

I. Sludge from CETP = 10 Ton/day
II. Solid Waste from Process units = 30 Ton/day
III. Sludge from MEE = 180 Ton/day
IV. Other Miscellaneous waste = 30 Ton/day

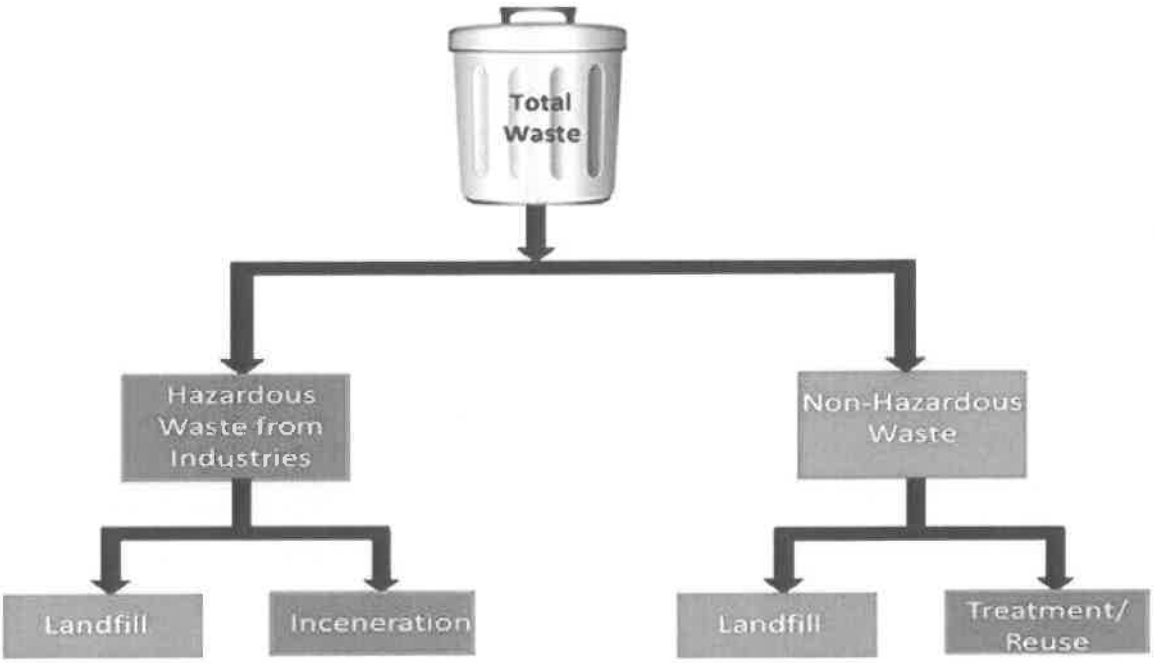
**Total Sludge = 250 Tones/day**

**Waste Management**

The composition of waste is a very important aspect and determines to a large extent of, handling, treatment, and disposal options. The solid waste is to be collected daily basis and transported to the treatment facilities for further treatment. The waste generated from the plots can be categorized as follows:

I. Hazardous
II. Non-Hazardous
III. Bio-degradable
IV. Non- Biodegradable
V. Inert Waste

*Figure 27 Flow chart showing was Management*



### 6.2.3 Cost Estimates

The total cost of Solid Waste Management system is estimated at **Rs. 55 Cr.**

*Table 22 Details of Cost estimates for Solid Waste Management*

| Sr. No | Description of Components | Amount (Rs in Cr.) |
|---|---|---|
| | Solid Waste Management | |
| 1 | Incinerator Cost (inclusive of GST) | 18 |
| 2 | Cost of Collection & Land fill site for initial 5 year (inclusive of GST) | 37 |
| | Total Cost | **55** |

### 6.2.4 Risk Management

**a) Occupational Hazard – Solid Waste Management**

- The Government has revamped the Municipal Solid Wastes (Management and Handling) Rules 2000 and notified the new Solid Waste Management Rules, 2016, on April 8, 2016. The salient features of the SWM Rules, 2016 are as under
- Areas Cover: These rules are applicable to.
  - Every urban local body (Mega city to Panchayat level),
  - outgrowths in urban agglomerations,
  - census towns as declared by the Registrar General and Census Commissioner of India, notified areas,
  - notified industrial townships,
  - areas under the control of Indian Railways,
  - airports/ airbases,
  - Ports and harbours,
  - Defence establishments,
  - special economic zones,
  - State and Central government organizations,
  - places of pilgrims,
  - religious and historical importance as may be notified by respective State government from time to time and
  - every domestic, institutional, commercial and any other non-residential solid waste generator situated in the areas.

The management and disposal of the waste produced in a pharmaceutical manufacturing firm have always been a matter of concern. The waste includes but is not limited to in-process wastes, expired products, returned material, manufacturing spillages etc. There has been a lot of hue and cry regarding effective management and disposal of pharma waste as it can act as a possible pollutant. Indiscriminate disposal of drugs may cause pollution of water and soil. The management and disposal of pharmaceutical products have become a concern of prime importance across the globe.

All the drugs available with retailers, chemists, doctors, hospitals, NGOs, wholesalers etc., which have expired or are near expiry, shall be returned to the manufacturer as they are better equipped to manage the disposal of such products. All drug products which are subject to disposal shall be disposed of in accordance with the applicable laws. Manufacturers should also assess the waste and segregate it based on its nature of the waste. Hazardous waste shall be handled and disposed of by the professional agencies licensed to dispose of such type of waste.

The pharmaceutical industry generates a lot of waste during the manufacturing and testing of drugs. It is important to ensure that this waste is appropriately treated to prevent it from polluting the environment

According to the provisions of GMP under Schedule M of the Drugs & Cosmetics Act.

1. Sewage and effluents from a pharmaceutical manufacturing unit must conform to the regulations of the Environment Pollution Control Board.
2. All bio-medical waste destruction should proceed in keeping with the provisions of the Bio-Medical Waste (Management and Handling) Rules, 1996.
3. Rejected drugs must be stored and disposed of with extra care to prevent them from getting mixed up with stock meant for distribution.
4. Waste disposal records shall be maintained.
5. Materials awaiting disposal must be stored in a safe way to avoid their misuse and also to prevent any cross-contamination or mix-ups.

**b) Types of Pharmaceutical Waste**

Waste in the pharmaceutical industry may be of different types, and it generally falls into the following categories:

1. Hazardous wastes
2. Non-hazardous wastes
3. Inert substances
4. Biomedical wastes

**c) Disposal of Pharmaceutical Waste**

I. **Incineration or thermal treatment:** In this method, solid organic waste materials are incinerated or burnt to convert them into gaseous products and a solid residue in the form of ash. This is one

of the most effective methods and can be used for the disposal of solid, liquid as well as gaseous wastes. While there are mixed opinions on its dangers, such as the emission of polluting gases, it is certainly one of the best ways to dispose of hazardous wastes such as biomedical waste.

II. **Incineration or thermal treatment**: In this method, solid organic waste materials are incinerated or burnt to convert them into gaseous products and a solid residue in the form of ash. This is one of the most effective methods and can be used for the disposal of solid, liquid as well as gaseous wastes. While there are mixed opinions on its dangers, such as the emission of polluting gases, it is certainly one of the best ways to dispose of hazardous wastes such as biomedical waste.

III. This method is unsuitable for wastes that are highly reactive chemicals containing halogens, halogenated plastics, mercury, pressurized gases, and radiographic waste. The ash produced after incineration must be disposed of in a secure landfill. There must be arrangements to prevent gases produced during the combustion process from causing air pollution.

IV. **Chemical disinfection:** This method involves treating waste materials with some chemicals that will inactivate the chemicals or biological materials that may be present in liquid waste. The effectiveness of the process depends on the type of chemical used, its concentration, and the nature of contact between the disinfectant material and the waste.

V. **Microwaving:** Microwaving involves the use of microwave radiation and can destroy the infectious materials in biomedical waste. It is advantageous because the electricity requirement is less; steam is not needed either. However, it is not very suitable for pharmaceutical waste. Also, waste must be shredded before microwaving to allow the radiation to meet the waste material.

VI. **Autoclaving**: Here, saturated steam is passed through the waste in the autoclave for a duration and at a temperature sufficient to destroy pathogens. This is most used for biomedical waste disposal and waste generated from the microbiological testing laboratory. The waste produced after autoclaving must be disposed of by landfilling. Autoclaving is not the best method for chemical or pharmaceutical waste.

VII. **Secure landfilling:** Here, the wastes are disposed of by burying them in a landfill that has been designed to contain hazardous wastes. Unless properly designed and operated, the landfill may lead to liquid leaching into the groundwater, attraction of vermin, and other such problems. It is also important to have gas extraction systems in the landfills to remove the carbon dioxide and methane that get produced by the anaerobic breakdown of waste.

VIII. **Deep burial:** In this method, waste is buried in deep pits or trenches that are at least 2 meters deep. One must ensure the soil is impermeable in these areas and that there are no shallow wells in the area to avoid the risk of water contamination. Half the pit is covered with biomedical waste, and the rest is filled with lime, stopping 50 cm below the ground surface. The final layer of the pit

is made up of soil to cover the waste. Such burial should be done only in areas that are not prone to flooding.

IX. **Waste encapsulation – immobilization:** Encapsulation of waste involves making waste immobile in the form of a solid block contained within a steel or plastic drum. Clean drums are filled to 75% of their capacity with waste; the remaining space is filled with either cement or lime-cement mix or bituminous sand or plastic foam. The drum is then sealed and placed at the bottom of a landfill, and fresh solid waste is covered on top of it.

X. **Waste immobilization – Inertization** involves grinding pharmaceutical products after removing them from the packing materials. The ground product is mixed with cement, water, and lime and made into a paste. This paste is transported to a landfill and poured into normal waste, where it sets as a solid mass.

XI. **Sewer treatment:** Liquid drug products can be largely diluted by mixing with water and flushed down the sewer very slowly in small quantities. Small quantities of very diluted medicines may be flushed down fast-flowing water bodies too.

## 6.3 Storm Water Drains Network

**Description:**

The site has been analysed in the context of pre- and post-development of land with respect to hydrological characteristics to achieve effective storm water management of rainwater. The aim of storm water management and all designed elements will be the protection of the area from flooding during the monsoon period, conservation of the natural water courses and nallahs from erosion and pollution, reduction of pollutant loads and enhancement of the ecology and environment of the industrial area.

**a) Design Basis**

The drainage catchment of the site area has been studied in detail with respect to pre and post-development (as per the topography of the land layout and Final Master Plan). Outfall location has been done by taking into consideration the storm water flow direction based on the topography, contours and existing water bodies. Outfalls are given at suitable locations, viz., local valleys, natural streams and water bodies in the respective catchment. As the site comprises a number of catchments with several ridges and valleys, the network system has resulted in a number of outfalls. The drainage design has taken into consideration the following factors:

Storm water drains are aligned to the carriageways following the proposed road gradients, draining into the water bodies.

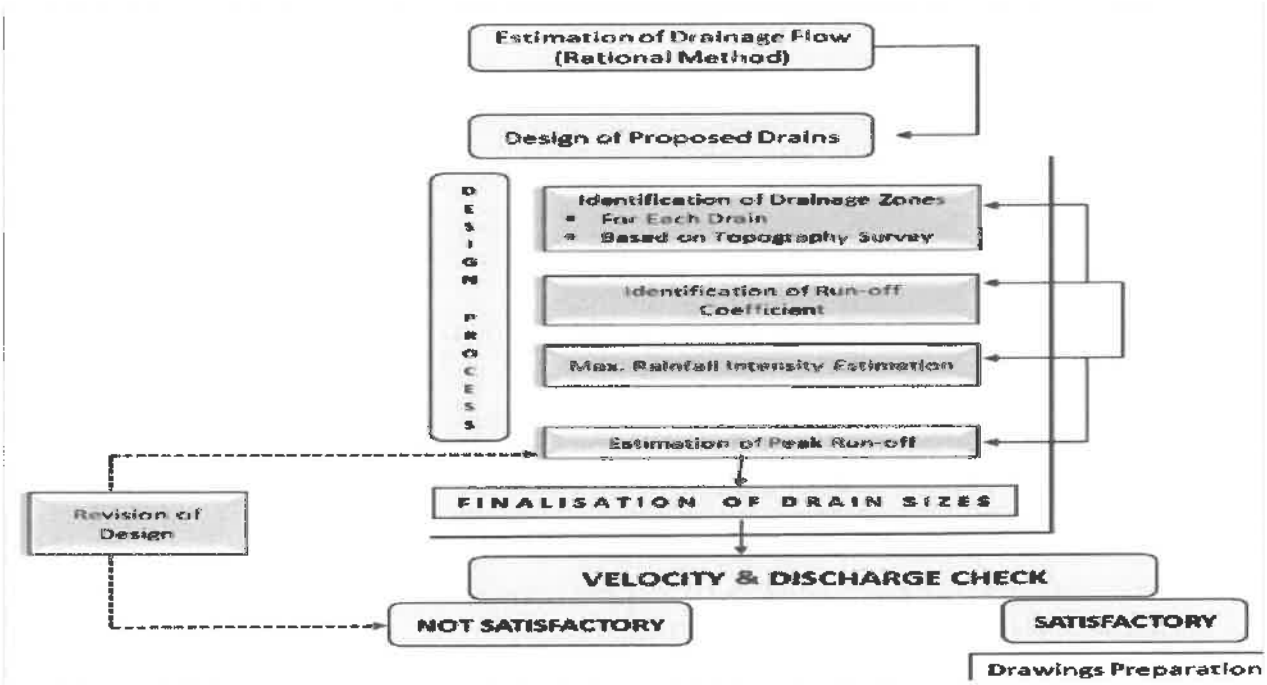
Proposed plot grading and direction of plot outfall have been considered in estimating the runoff generation in a particular road stretch.

The main criteria followed in the design of a drainage system are:

- Safe disposal of storm water that is collected from the roads, pavements, medians, plots and other open/green areas
- Maintaining self-cleansing velocity within the drains so that there is no stagnant water or silting
- Maximum flow of water with minimum cross sections.
- Rainwater Harvesting Proposals

The figure gives a schematic diagram of the process of Storm Water network design followed

*Figure 28 Process of Storm Water network design*



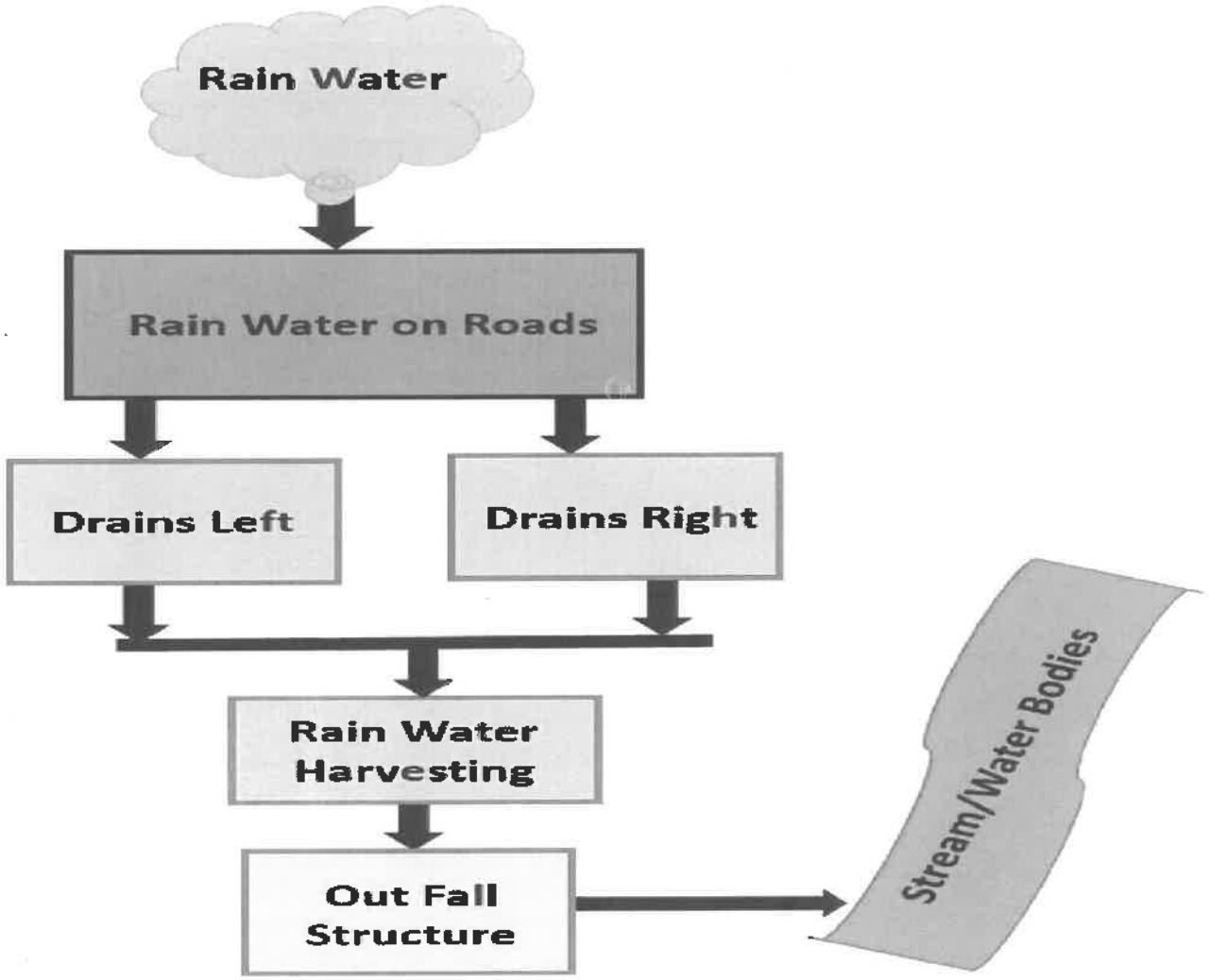

**b) Analysis of Rainfall Proposed System**

The rainfall considered for the present design is 157 mm for a period of 24 hrs which is recorded as the highest storm in the project area as per the data from Indian Meteorological Department (IMD).

**Design of Drain Network**

The drains shall be located near the carriageway along either side of all the roads for ROW Taking benefit of road camber and embankments, the runoff from road shall be carried towards the drains. It is recommended to provide the kerb channel within the carriageway for carrying the storm runoff into the drains. Storm water from industrial units/ plots shall be connected to adjacent drain by a pipe through catch basins, the detailed flow schematic sketch furnished below:

*Figure 29 Schematic Diagram of Storm Water Network*




Therefore, the design of the storm water drain sections has been based on the catchment area, discharge and available width in ROW. In the entire network, the drain sections have been used based on the extent of contributing catchment area. The designed sections have been given a suitable gradient to achieve self-cleansing.

The total network length of roads is 15.00 km with 4 lane configurations, for the entire network in bulk drug park the drains are designed for both sides. The proposed storm water drains network is on both side of the roads and for length of 35 km, R.C.C drains are proposed.

The existing water course/Natural Nallah are proposed to keep as original shape and size with minor modifications. Rainwater harvesting is proposed to ensure proper ground water recharge within the project area. The entire network is divided in to three catchments as per topography. Outfalls are proposed to discharge the storm water collected from the project site to the nearest natural water course

### 6.3.1 Estimated capacity of Drain Network

The drains shall be located near the carriageway along either side of all the roads for ROW. Taking benefit of road camber and embankments, the runoff from the road shall be carried towards the drains. It is recommended to provide the kerb channel within the carriageway for carrying the storm runoff into the drains. Storm water from industrial units/ plots shall be connected to an adjacent drain by a pipe through catch basins. Therefore, the design of the storm water drain sections has been based on the catchment area, discharge and available width in ROW. In the entire network, the drain sections have been used based on the extent of contributing catchment area. The designed sections have been given a suitable gradient to achieve self-cleansing. The total network length of roads is 15.00 km with 4 lanes configurations for the entire network in bulk drug park; the drains are designed for both sides. The proposed stormwater drains network is on both sides of the roads, and for the length of 35 km, R.C.C drains are proposed. The existing water course/Natural Nallah is proposed to keep as original shape and size with minor modifications. Rainwater harvesting is proposed to ensure proper ground water recharge within the project area. The entire network is divided into three catchments as per topography. Outfalls are proposed to discharge the storm water collected from the project site to the nearest natural water course.

**a) Outfall Structure**

Outfall structures are proposed at the end of Storm water drains that discharge runoff to the river or other receiving water bodies for safe disposal, as indicated in the figure above. The Outfall structure is proposed with RCC, apron and wing walls. A cut-off wall is proposed at the end of the outfall apron to prevent the undermining of the structure, avoiding the possibility of erosion. The flow of storm water from the drain into the water body will be a free flow as the invert of the drain is above the normal water level of the water body to avoid possible back flow.

### 6.3.2 Cost Estimate

The total cost of the storm water drainage system is estimated at **Rs. 86.71 Cr.**

*Table 23 Details of cost estimation of Storm Water Drainage*

| S. No | Description of Components | Amount (Rs in Cr.) |
|---|---|---|
| 1 | Construction of Storm water Drains Networks (inclusive of GST) | 86.71 |

## 6.4 Common Solvent Storage System, Solvent recovery, and distillation plant

### 6.4.1 Description:

Solvents are a type of organic chemical that evaporate readily at room temperature, releasing harmful emissions into the atmosphere. Many Lifesaving Drugs & businesses use solvents in their day-to-day operations. The 35% volatile organic compound (VOC) which enters the atmosphere is from solvents. The emission of VOC is very dangerous to the environment.

There are various ways in which these harmful emissions into the atmosphere due to solvents can be avoided. The main strategy is to recapture & recycle this harmful emission for areas or industries where the solvents are used in large amounts in production.

Hydrocarbon-based Solvents can be reused as fuel for cement manufacture as they are cheapest & have high calorific values. It can also be reused as a support fuel for the incinerator, but as it leaves the reside, the incinerator needs to have equipped scrubbing facility.

Following are the reasons why solvents need to recapture & recycle

- They are not usable in their present state.
- Mixture with air: recovery from the air can be difficult
- Mixture with Water: it is very common to find that the solvent is mixed with water
- Mixture with solute

By following methods solvents can be recovered from dilute solutions:

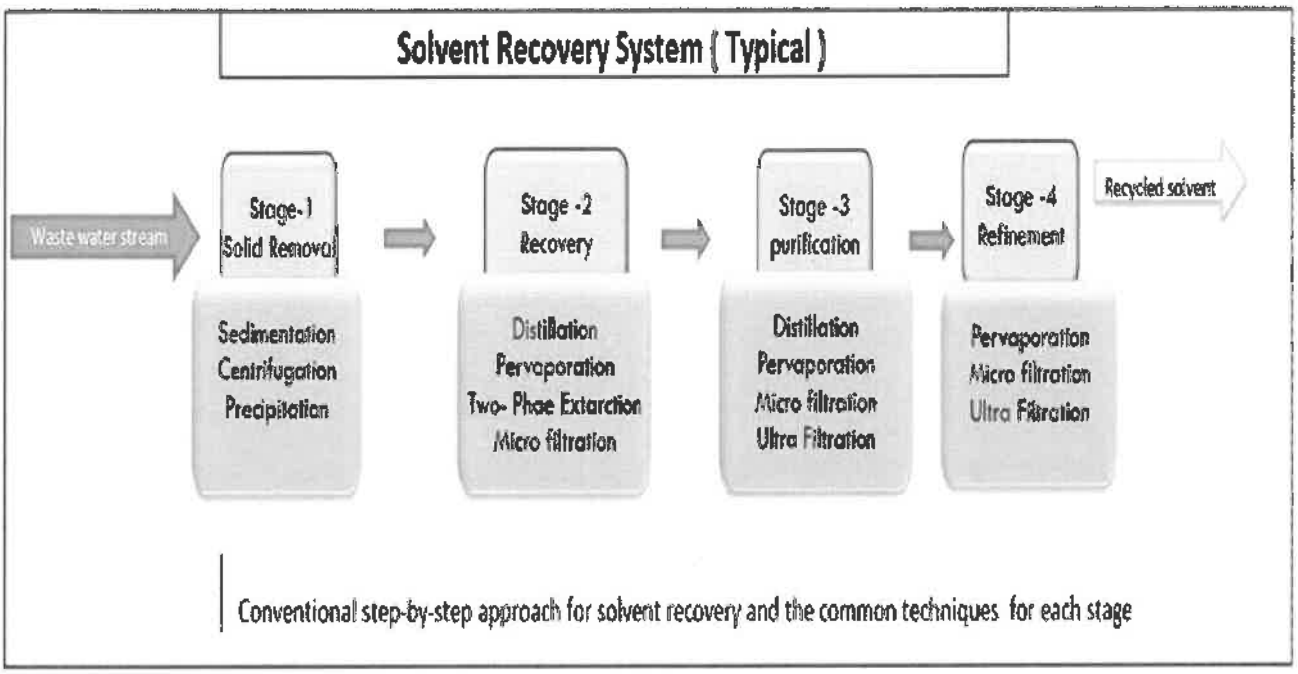
- Decanting
- Solvents Extraction
- Absorption
- Air Stripping
- Steam stripping
- Fractional distillation
- Heating system to evaporate the solvent
- Condensers & coolers

The benefits of solvent recovery & reuse:

- Reduces Ra material & solvents costs as we can reuse the recovered solvents
- Increases manufacturing efficiency

- Environmentally safer

*Figure 30 Indicative Diagram for Solvent*




### 6.4.2 Cost Estimates of Solvent recovery system

The amount of solvents that need to be recovered and how demanding the operating conditions and other factors affecting its cost. Smaller standard solvent recovery units are available, while larger set up may require customized design. A customized system is determined by the scale & complexity of process design.

When choosing a solvent distillation system, a number of economic factors need to be taken into account, such as the amount of solvent use, the amount of waste solvent produced, the cost of disposing of waste products etc.

Most companies have reported recovery efficiencies of 75-80%, but higher efficiencies are possible. For safety reasons, the Common Solvent Storage & Distillation facility in Bulk Drug Park is planned and located far from the majority of the industrial plots & close to the open area for safety purposes. For Common Solvent Storage, recovery and distillation plant, INR 30 Cr has been estimated for the Bulk Drug Park, Una.

Estimate cost of one lot of solvent extraction plant: **Rs. 6.75 Cr.**

*Table 24 Cost Estimates for Solvent Recovery System*

| Details | Qty | Amt (In Cr.) |
|---|---|---|
| Column -SS with Packings and structure | 1 lot | 1.5 |
| Storage tanks | 1 lot | 1 |
| Pumps | 1 lot | 0.5 |
| Pipping and Fittings | 1 lot | 0.5 |
| Instrumentation | 1 lot | 0.5 |
| Electrical | 1 lot | 0.5 |
| Utilities | 1 lot | 1 |
| Miscellaneous | 1 lot | 0.75 |
| Civil | 1 lot | 0.5 |
| **Total -capex** | | **6.75** |

p

Total no. of solvent extraction plant: 4 (four) and cost of four plants considering common column -SS with Packings and structure and separate other elements of the plant is Rs.30 Cr.

*Table 25 Details of Common Solvent Storage System, Solvent recovery and distillation Plant*

| S. No | Description of Components | Amount (Rs in Cr.) |
|---|---|---|
| Common Solvent Storage System, Solvent recovery and distillation Plant | | |
| 1 | Construction of Common Solvent Storage System, Solvent recovery and distillation Plant (inclusive of GST) | 30 |

## 6.5 Common Warehouse

### 6.5.1 Description of role of warehouse in Pharmaceuticals Manufacturing

Warehouse storage is usually of either the bulk or rack variety, where bulk storage pallets are typically just stored on a floor and where rack storage pallets are stacked on racks to make use of higher ceiling space. Typical rack warehouse storage equipment includes pallet racks and wire decking, heavy-duty shelving, cantilevered racks, reel racks, and, sometimes, high-density storage systems such as drive-in racking, push-back racking, and pallet flow racking. High-density systems are sometimes able to increase the usage of existing space enough that the need for building additional storage facilities can be avoided.

The quality of a pharmaceutical product is defined as one that is pure, correctly identified, effective and safe to use. Customers and patients have an ethical (and legal) right to expect quality pharmaceutical products. The warehouse plays a pivotal role in manufacturing quality products, as it is responsible for all incoming goods (including labelling and packaging) and for releasing finished products. If the warehousing conditions

are not optimum, then the Product can be affected by poor warehouse storage conditions or rough handling on transport.

Biopharmaceutical products often have temperature-sensitive active ingredients that break down or degrade if exposed to heat or light, thus becoming ineffective. Hence it needs to store under optimal conditions.

A pharmaceutical warehouse must be expertly managed and run-in compliance in order for the company to protect and distribute a quality product. These compliant practices include control over receiving goods, quality control, storing materials, components and products, fulfilling picking requests and shipping the product to the marketplace.

These compliant practices include control over receiving goods, quality control, storing materials, components, and products, fulfilling picking requests and shipping the product to the marketplace.

An idea warehouse used for pharmaceutical products should:

- Protect medicines from damage during storage and transport
- Prevent degradation of the product by exposure to adverse temperature conditions
- Avoid mix-ups and contamination by other materials
- Maintain product identity and traceability
- Prevent time-expired or damaged material or product from being used

There can be various types of Hazards in the bulk drug industry for e.g. Fire and Explosion, Toxic Gas release, Static electricity, Runaway Reaction, Dust explosion Hazard, Storage and Handling of non-compatible materials

To avoid these situations Control Measures can be taken specific to storage areas, such as;

- Closed Operation and Inverting the reactors/Vessels
- Adequate Ventilation system to avoid formation of vapor cloud Flameproof Electrical Fittings
- Earthling and Bonding.
- Adequate storing facility with defined inventory Norms.

- Storing hazardous chemicals in suitable compatible mode.
- Adequate Scrubbing system with the suitable scrubbing solution
- Secondary Containment facility for chemical storage Tanks
- Complete Safety inbuilt Warehousing is required to have safe environment in Drug Park.

### 6.5.2 Cost Estimates

The common warehousing facilities in Bulk Drug Park is around 12,800 sq. mtr. at three different locations to cater for the need for a storage facility for API units.

Cost Estimate for construction of 5 Nos. (Built-up area: 12800 Sq. mtr) of Common Warehouse is **Rs. 60.71 Cr.**

*Table 26 Details of cost estimates for Common Warehouse*

| S. No | Description of Components | Amount (Rs in Cr.) |
|---|---|---|
| | Common Warehouse | |
| 1 | Construction of 5 nos. of warehouses (Area: 12,800 sqm) (inclusive of GST) | 60.71 |

## 6.6 Power Infrastructure

### 6.6.1 Dedicated Power Substation and distribution System

Electrical system and supply are one of the most important infra services and plays an important role in attracting prime developers. This sectiont deals with the requirements of electrical power transmission and distribution within the Bulk Drug Park at Una.

#### a) Study of the Existing Power System around the Project Area

The existing Electrical distribution network is available near the project area. The Construction/Temporary power supply is proposed to feed from the available existing distribution line near the project area. 220kV EHV line from Bhakra Jamalpur Substation is also available for power supply and located approx. 35km. from the project site.

#### b) Design Assumptions

The total electrical load of the project area or capacity of the Zonal Substation (ZSS) is to be finalized on the basis of the sanctioned load of the individual plot holders. But in the present scenario, the sanctioned load of individual plot holders is unavailable; therefore, to arrive at the load norm, the plot-wise load has been derived according to their land-use/ production for Industries Facility, Utility etc. The designs assumptions for several different types of unit's area tabulated in brief hereunder

*Table 27 Details of Power requirement by Industries*

| S. No | Description of Components | Power Requirement |
|---|---|---|
| A | Industries | |
| 1 | Industrial Plots | 100-125 KVA/Acre |

For the Other Development Area, the following load norms are considered to get the total power demand of the development area.

- The total load of the project area is 125 MVA.
- The total maximum demand load of 125 MVA is to be fed from the Main Receiving substation (MRSS) of 132/33kV voltage level with 6Nos. 33/11kV Substation, proposed to be constructed inside the project area.
- All industrial plots will be fed by the 33kV & 11kV Overhead Distribution network.
- Stepping down to L.T supply for Utility pockets/commercial/facility/Road Lighting use will be made available by 11/0.415kV Distribution Transformer near the load Centre of suitable ratings as required
- Energy-efficient LED lighting will be considered for the Entire Park, and all outdoor lighting systems shall be connected to automatic controls. Automatic controls can be either time-based or photo sensor based

**c) Power Demand**

Before the design work may move forward, it is always necessary to assess the power requirement. Based on load norms, the plot-wise load is calculated. Accordingly, the connected and maximum load demand is worked out for the substation. The summary of load calculations and the resultant maximum demand for the entire project area are detailed below:

For proper distribution and working of the electrical system, the Site is being divided into 6 zones.

Each zone has its own Zonal Substation (ZSS).

**d) System Voltage Level**

As per prevailing norms, to meet the net demand of 126 MVA at MRSS, supply at 132 or 220kV system voltage is required with 33 kV feeders for each Zonal Substation. 220kV, 132kV, 33 kV, 11kV, and 415 volts are the established system voltages in the area.

Power Supply prevailing norms of Himachal Pradesh Electricity Regulatory Commission are below:

*Table 28 Details of Power Supply Norms*

| Different Voltage Levels (in kV) | Himachal Pradesh Electricity Supply Code | Adopted Voltage Level for Design |
|---|---|---|
| LV | Up to 50 kW | Up to 50 kW |
| 11 | >51kW to <2MW | >51kW to <5 MWA |
| 33 | >2.1MW to <10MW | >5 MWA to <20MWA |
| 132 | above 10 MW | above 20 MWA |

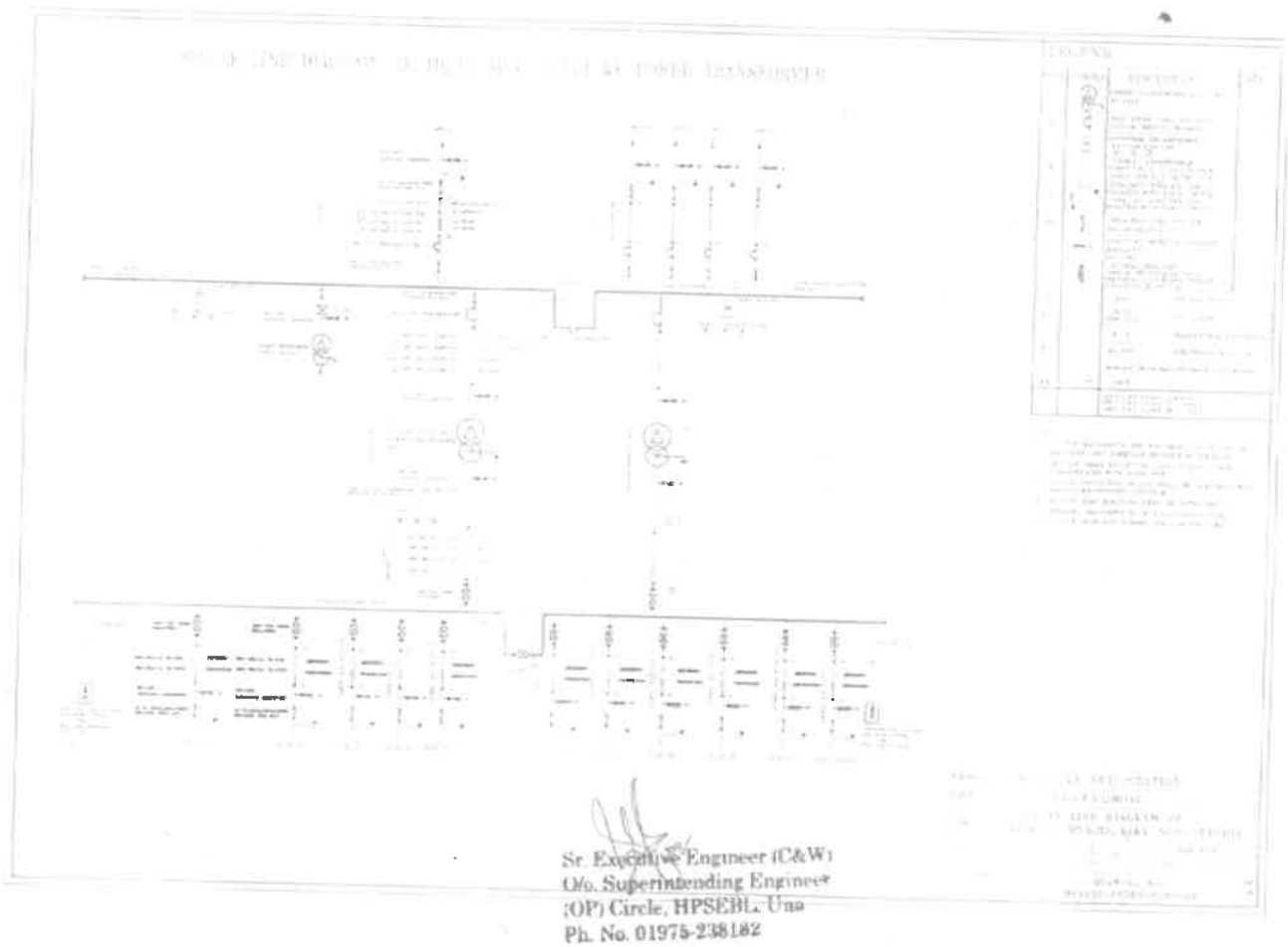
### e) Recommendations

Load demand of 126MVA for the API Bulk Drug Park can be meet with the following alternatives:

a. To provide Captive Power Plant.
b. Construct the 132/33/11kV main receiving Sub-station (MRSS), including 5 Nos. 33/11kV Zonal substation is the proposed area.

Technical experts have recommended to construct the 132/33 main receiving Sub-station (MRSS).

*Figure 31 Single Line Diagram of Power Transformer*



Sr. Executive Engineer (C&W)
O/o. Superintending Engineer
(OP) Circle, HPSEBL, Una
Ph. No. 01975-238182

### 6.6.2 Power Supply Distribution Network

Himachal Pradesh is a leader in generating green and clean hydel energy. As the Bulk Drug Park manufacturing is a power-intensive industry, Himachal Pradesh is appropriately positioned for the Bulk Drug Park as it is a power surplus State with one of the most affordable power tariffs in India. The State Government recognizes the role of Power in industrial development and assures adequate and affordable power for industries. The estimated annual power demand for the Bulk Drug Park is 100-125 MW. The State Government commits to provide 24*7 availability of power supply for the proposed Drug Park. 2 Nos. of 33/11 KV, 2X10 manned substations with 10 Nos. 11 KV outgoing feeders from each substation for SOP to Bulk Drug Park with controlled room building is proposed for power distribution within the park.

### 6.6.3 Cost Estimate of Power distribution

The total cost of the Power Substation and Distribution system is estimated at **Rs. 340 Cr.**

*Table 29 Details of Cost estimates for Power Distribution*

| Sl No | Description | Amount (Rs in Cr.) |
|---|---|---|
| Power Capacity | | |
| 1 | Distribution Network within the park (inclusive of GST) | 65 |
| 2 | External Power Infrastructure (inclusive of GST) | 275 |
| | **Total Cost** | **340** |

## 6.7 Raw, Potable and Demineralized Water

### 6.7.1 Brief Description

Himachal Pradesh is a mountainous state encompassing the transition zones from the plains to the high Himalayas and the trans-Himalayan region, crossing to the Tibet plateau. The population of the state is estimated at 68,64,602 (2011 Census), and its area is 55,673 sq. km.

The proposed Bulk Drug Park at Pollian Bheet is situated in Hum valley of Una District. To ensure water supply is in sufficient quantity and of good quality, a dedicated separate water supply scheme is required to be constructed for this ambitious and prestigious project of the state and central government. To provide a separate water supply to this ensuing project, a detailed survey and investigation have been carried out to arrive at the preliminary cost of the project. Design & Scope: The project is designed for a water requirement of 15 MLD or 1,500,000 litres per day. Once the project comes into its existence, a lot of commercial and industrial activities will come up.

The following provision has been made in this preliminary estimate.

### a) Source

To develop the source in the first instance, it is proposed to drill & develop 16 Nos. Tube wells which will be drilled and developed having sufficient discharge to meet the requirement of water.

**Pump House**: The provision for construction for 10 Nos. pump houses have been taken in the estimate.

**Rising main**: The provision for PDG, laying, and jointing of GMSERW pipe 250mm dia in Rising main in a length of 12300 m has been made.

**Pumping machinery**: Submersible pumping set 20 Nos. of 75 HP each and centrifugal set 20 Nos. of 90 HP each (No. act as stand by) has been taken.

**Collection Tank**: - Provision for construction of Collection Tank 1000 KL capacity has been made in the Instant estimate.

**OHSR**: - Provision for construction of Overhead Water Storage Reservoir (OHSR) of 4000 KL capacity has been made. Automation and SOP: Provision for automation and SOP for tube wells, pumping machinery and storage tanks has been made, keeping in view the urgency and necessity of the work as explained above, this estimate has been prepared and is being submitted for obtaining the necessary funds from the competent authority

### b) Potable Water Supply System

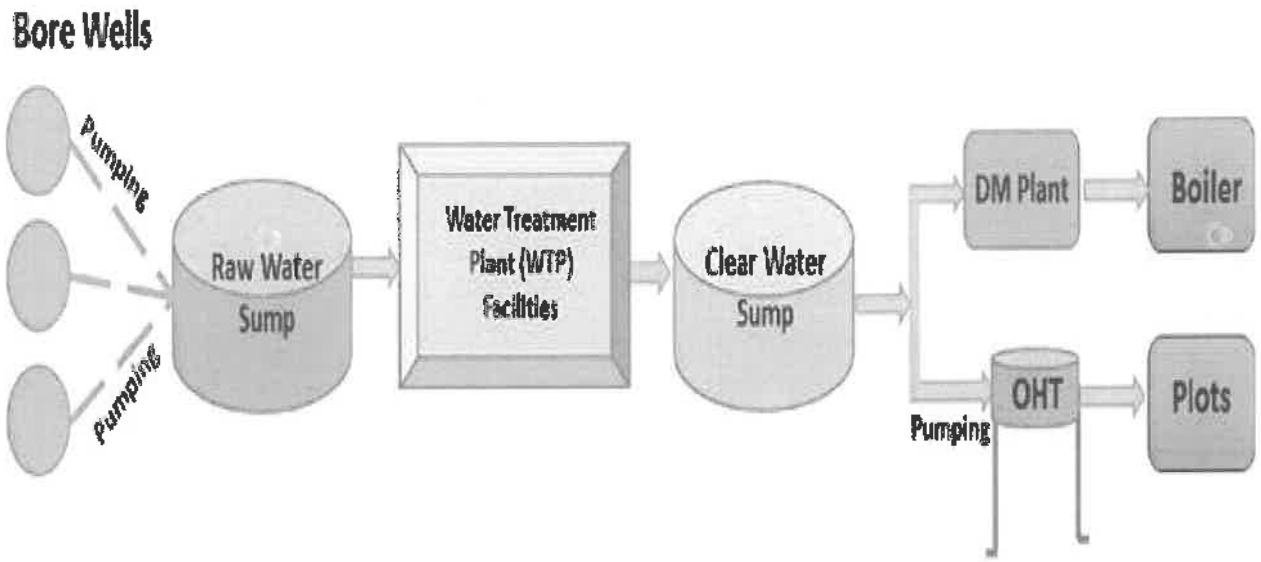
The design of the potable water supply will be based on Central Public Health & Environmental Engineering Organisation (CPHEEO) manual, and the following design parameters will be considered for the design

Water demand for Bulk Drug Park at Una is estimated based on proposed land use, built-up area and the population considered in the Master Plan. The estimated water demand includes all forms of water use such as potable, residential, industrial, commercial, Steam generation, cooling Towers, etc. Following assumptions for calculating water demand has been adopted.

The state ground water authority has confirmed the sufficient ground water availability within the project area. The collected raw water will be treated to the required standards for various usages within the park, potable purpose, steam generation, process requirement, gardening, etc. The treated water is then collected in a clear water sump of capacity 3150 KL designed for a detention time of 5 hours. The clear water is pumped to 1 number overhead service reservoirs of capacity 1250 KL using 2 no. (1 W + 1S).

The clear water is then distributed from OHSR's to individual users through HDPE pipes of various diameters. The detailed water flow schematic sketch is furnished below

*Figure 32 Schematic Flow diagram for Portable water supply*




Assumptions for Calculation of Water Demands:

- Water requirement for Bulk drug park of Una site is 15 MLD.
- Areas were considered based on the proposed master plan
- The industrial unit demands, steam and CT water requirements are obtained as per prevailing standards
- The industrial unit demands, steam and CT water requirements are obtained as per prevailing standards.

### 6.7.2 Estimated Capacity of Water Infrastructure:

The estimated capacity of water infrastructure is 15 million Liter per day (MLD)

### 6.7.3 Cost Estimates

The total cost estimate for water infrastructure is **Rs. 141.95 Cr**

*Table 30 Cost Estimates of Water Infrastructure*

| S. No | Description of Components | Amount (Rs in Cr.) |
|---|---|---|
| 1 | Water Infrastructure (15 MLD) with Storage Tanks (inclusive of GST) | 49.95 |

| S. No | Description of Components | Amount (Rs in Cr.) |
|---|---|---|
| 2 | Water Recharge Structure for Tube well (inclusive of GST) | 10 |
| 3 | Pond (Reservoir) (inclusive of GST) | 62 |
| 4 | RO Treatment (inclusive of GST) | 20 |
| | **Total Cost (INR in Crore)** | **141.95** |

## 6.8 Steam Generation and Distribution System

### 6.8.1 Brief Description:

Himachal Pradesh is rich in forest resources, and with the view of keeping and giving some incentive to the villagers, the Steam Boiler is specially designed for keeping many fuel options and some percentage of PNG gas, making the boiler of a Hybrid kind.

50 TPH AFBC (2 nos.) with 50 TPH RG boilers (4 nos.) will be making High-Pressure steam and shall generate 36 Mw power of its own.

### 6.8.2 Estimated capacity

*Table 31 Estimated capacity of Boiler*

| Sr. No. | Type and Capacity of Boiler | Qty. | Total capacity (in TPH) |
|---|---|---|---|
| 1 | 50 TPH AFBC With price fuel (husk/ coal) and add on fuels (forest waste), Single Drum Boiler, 67 kg/cm^2 Rice Husk | 2 | 100 |
| 2 | 50 TPH Reciprocating/Dumping, With Prime Fuel (Forest waste, Parali, Husk, Baggase), Grate, Single Drum, 67 Kg/cm^2 | 4 | 200 |
| | **Total** | | **300** |

- **50 TPH AFBC** With price fuel (husk/ coal) and add on fuels (forest waste), Single Drum Boiler, 67 kg/cm^2 Rice Husk- 2 nos.

The FBC system provides the best combustion conditions for fuels like Coal, Rice Husk and multi-fuel combination of biomass. The boiler is a Bi -Drum design. A substantial water-cooled membrane panel furnace forming the radiation zone is provided with sufficient height to provide adequate residence time for complete combustion of volatile and fines and to reduce the carry-over.

Since the boiler is designed for Power plants to super heat the steam, the boiler is provided with an integral Super heater in two stages, radiation and convection, at the furnace flue gas exit point to achieve the required delivery of superheat. The range of Superheat temperature control is 70 to 100% of MCR.

An integral forced flow economiser section is provided to heat up the feed water, and a counter flow Air Pre-Heater section is provided to heat up the air going to the furnace, which ultimately traps the precious energy generated by burning expensive fuels and improves the efficiency of the boiler.

In the furnace, a fluidised bed combustor is provided on which the fuel, e.g., Rice Husk and Coal, are burnt completely to extract maximum energy. The air through primary air nozzles perforates into the media, i.e., sand or refractory granules, which once retain heat, provide the ignition temperature to the fuel.

The injection of the fuel with a screw feeder into the furnace and even distribution throughout the fluid-like bed state immediately burns the fuel and produces instant heat, which in turn is absorbed by the boiler pressure parts to generate steam.

The secondary air system further provides the necessary oxygen and turbulence at the required height for complete combustion of the fines. The furnace is operated slightly below atmospheric pressure, i.e., 2 to - 5 mm WC. The air pollution control system, i.e., ESP, shall be provided.

**Design Features:**

Longer life of Bed Coil

- SS-304 Studs are provided to reduce the erosion in the Bed Coil.
- Maintaining proper angle in the Bed Coil for better heat absorption.
- Wider pitches are maintained in the Bed Coil to minimize the erosion.

Specially Designed Bed Air Nozzle

- 2011Providing varying pressure drop across air nozzles as per fuel & Load requirement
- Precisely designed Hole orientation to avoid back shifting of bed material
- High chrome alloy material used to sustain high temp and abrasive environment
- Threaded design for easy replacement

Minimum bends in fuel feeding pipes to prevent

- Fuel chokage & uniform distribution of fuel in each bed section
- Better efficiency
- Easy maintenance.
- Surge hopper at feeder inlet to
- Ensure proper fuel flow
- Avoid direct coal column load on feeder.
- Double casing concept for Economizer to protect bends
- Economizer Headers are kept outside the flue gas path to protect them from erosion.

Air thru Tube Design in place of Gas thru Tube design –

- Air heater flue gas side choking eliminated.
- Back-end temperature close to predicted.

- Improved heat transfer coefficient.
- Higher Air heater metal temperature increases tube life.
- Corten steel tubes with inner sleeves to be provided on Cold end side

Wide pitching of super-heater – up to 300 mm for Radiant Superheater

- Minimize bridging / fouling
- Better Radiation penetration in Superheater

Over fire air to

- Ensure combustion of fines in the free board
- Minimum fuel carry over.

| Boiler Parameters | | AFBC boiler |
|---|---|---|
| Superheated steam flow at Boiler main steam stops valve outlet | TPH | 2 x 50 |
| Superheated steam pressure at Boiler main steam stops valve outlet | $kg/cm^2(g)$ | 67 |
| Superheated steam temperature at Boiler main steam stop valve outlet | $^0C$ | 480±5 |
| Feed water temperature at deaerator inlet | $^0C$ | 80 |
| Feed water temperature at deaerator outlet | $^0C$ | 105 |
| Feed water temperature at economizer inlet | $^0C$ | 105 |
| Superheated steam temperature control range | % BMCR | 60 – 100 |

| Boiler Configuration | |
|---|---|
| Type of boilers | AFBC Boiler |
| Drum | Bi drum |
| Circulation type | Natural circulation |
| Draft type | Balanced draft |
| Supporting arrangement | Top Supported |
| Location | Outdoor |
| Feeding system | Front wall feeding |

| **Fuel Firing** | | |
|---|---|---|
| Performance Guarantee Fuel | 100% Indian Coal | |
| Other load carrying fuels | 100% Rice Husk (70% Under Bed + 30% Over Bed) | |
| Fuel Analysis (% by weight, as received basis) | | |
| Ultimate Analysis | Indian Coal | Rice Husk |
| Carbon | 39.90 | 36.14 |
| Hydrogen | 2.29 | 3.70 |
| Nitrogen | 0.67 | 0.46 |
| Sulphur | 0.38 | 0.08 |
| Oxygen | 6.76 | 29.34 |
| Moisture | 8.00 | 8.92 |
| Ash | 42.0 | 21.36 |
| GCV (kcal/kg) | 3800 | 3200 |
| Chlorine | Nil | 0.01 |

| **Fuel Firing** | |
|---|---|
| Performance Guarantee Fuel | 100% Indian Coal |
| Other load carrying fuels | 100% Rice Husk (70% Under Bed and 30% Over bed) |
| Performance Guarantee | |
| Efficiency | 84.5± 1% (100% Indian Coal)<br>82.0 ± 1% (100% Rice Husk) |
| Power consumption | 390 KW (100% Indian Coal)<br>415 KW (100% Rice Husk) |

- **50 TPH Reciprocating/Dumping**, With Prime Fuel (Forest waste, Parali, Husk, Baggase), Grate, Single Drum, 67 Kg/cm^2- 4 nos.

**Introduction (RG Boiler):**

Fuel and ash properties play a vital role in the selection of most appropriate combustion technology and feeding system.

Parameters influencing selection of firing system to ensure efficient and sustained combustion include:

Characteristics of Biomass – Volatile content, Moisture, Bulk density, Ash content.

- Alkali content in ash (Sodium & Potassium Oxide).
- Chlorine content in Fuel, Chlorides in ash.
- Initial deformation temperature of ash.
- Particle size of fuel.

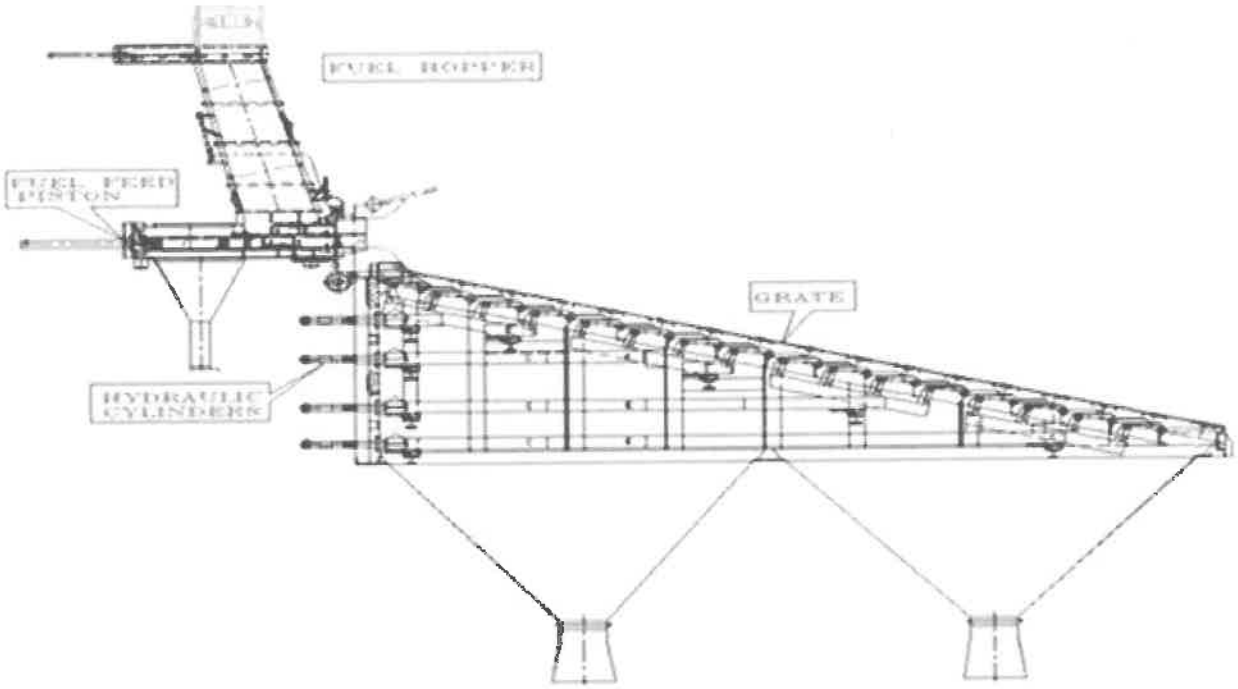
**Effects of Fuel properties on combustion:**

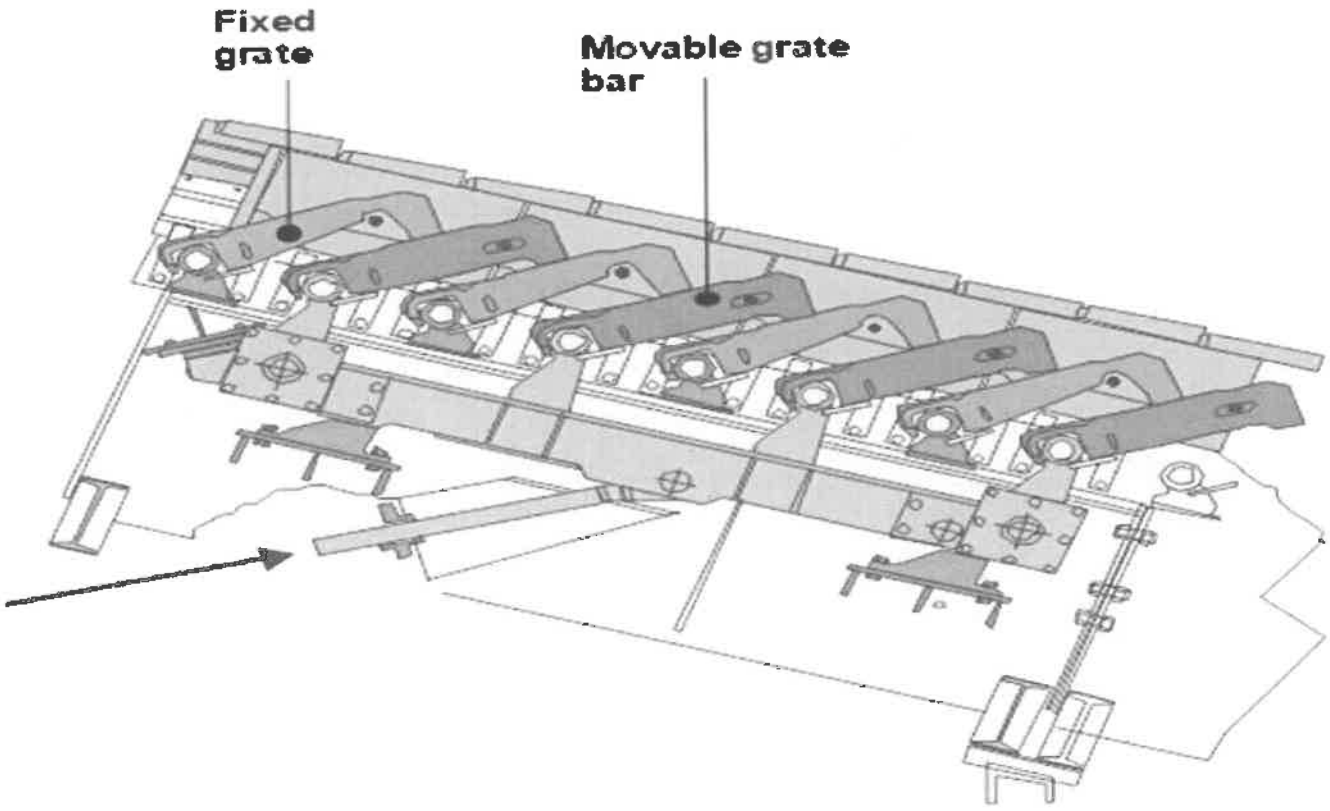
- Alkalies in fuel ash cause sintering, agglomeration in furnace and back pass.
- Chlorine in fuel causes high temperature corrosion especially superheaters.
- High Moisture in fuel will cause instability in combustion and also cause clinkers.
- Uneven particle size will cause problems in fuel feeding and distribution.

**Combustion Technology for Biomass Fuels:**

- Travelling Grate.
- Reciprocating Grate.
- Fluidised Bed.
- Travelling Grate is successful and proven for conventional biomass fuels such as Bagasse, Rice Husk, Wood Chips and Biomass fuels (having regular size)
- Reciprocating Grate is successful and proven for biomass fuels such as Coconut Husk, Paddy Straw, Forest Wastes and Residues, Empty Fruit Bunch, Demolition Wood, Municipal Solid Waste
- Fluidized Bed Boilers (Bubbling Bed / Circulating Fluidized Bed) have mainly been developed and have been proven successful for solid fuels (Coal / Lignite / Washery Rejects / Petcoke), having low volatiles, high ash, high Sulphur, low heating value. Biomass fuels in limited quantities can be fired in these boilers.

Figure 33 Flow Chart Diagram of Boiler



**Advantages of Reciprocating Grate Boilers:**

- The combustion pattern of fuel in a Reciprocating Grate makes it ideally suitable for burning biomass fuels such as biomass having high moisture, high alkalies as well as high chlorides in ash.
- In the Reciprocating Grate, the fuel moves continuously along the grate during the combustion process as compared to the Travelling Grate, where the fuel is stationery, and the grate moves.
- If the fuel is stationery, the presence of high alkalies (Na2O + K2O) and the low initial deformation temperature of ash will make the ash fuse and stick to the grate. This will block the air holes making air distribution non-uniform and resulting in clinker formation and in-efficient combustion.
- The continuous movement of fuel over the Reciprocating Grate will eliminate ash fusion and blocking of the air holes. This will make combustion more stable, air distribution more uniform and also avoid clinker formation.

**Design Features:**

| Boiler Parameters | | RG Boiler |
|---|---|---|
| Superheated steam flow at Boiler main steam stop valve outlet | TPH | 4 x 50 |
| Superheated steam pressure at Boiler main steam stop valve outlet | $kg/cm^2(g)$ | 67 |
| Superheated steam temperature at Boiler main steam stops valve outlet | $^0C$ | 480±5 |
| Feed water temperature at deaerator inlet | $^0C$ | 80 |
| Feed water temperature at deaerator outlet | $^0C$ | 105 |
| Feed water temperature at economizer inlet | $^0C$ | 105 |
| Superheated steam temperature control range | % BMCR | 60 – 100 |

| Boiler Configuration | |
|---|---|
| Type of boilers | Reciprocating Grate Type Boiler |
| Drum | Bi drum |
| Circulation type | Natural circulation |
| Draft type | Balanced draft |
| Supporting arrangement | Top Supported |
| Location | Outdoor |
| Feeding system | Front wall feeding |

| **Fuel Firing** | |
|---|---|
| Performance Guarantee Fuel | 100% Bagasse |
| Other load carrying fuels | 100% Bagasse<br>100% Wood Chips<br>100% Rice Husk<br>100% Mustard Husk<br>100% Coal<br>30%Patta Kutti+ 70% Bagasse |

| **Fuel Analysis (% by weight, as received basis)** | | | | | | |
|---|---|---|---|---|---|---|
| **Sl. No** | **Ultimate Analysis** | **Bagasse** | **Wood Chips** | **Rice Husk** | **Patta Kutti** | **Musted Husk** |
| 1. | Carbon | 23.5 | 24.64 | 36.8 | 27.21 | 40.6 |
| 2. | Hydrogen | 3.25 | 3.14 | 4.57 | 3.21 | 5.74 |
| 3. | Oxygen | 21.75 | 22.0 | 32.88 | 19.48 | 38.59 |
| 4. | Sulphur | 0.00 | 0.02 | 0.18 | 0.02 | 0.07 |
| 5. | Nitrogen | 0.00 | 0.10 | 1.25 | 0.54 | 0.27 |
| 6. | Ash | 1.50 | 0.10 | 15.01 | 3.17 | 4.80 |
| 7. | Moisture | 50.0 | 50.0 | 9.44 | 46.36 | 9.92 |
| 8. | GCV (kcal/kg) | 2272 | 2126 | 3275 | 2459 | 3683 |
| 9. | Chlorine | Nil | 0.05 | Nil | 0.05 | Nil |

### 6.8.3 Cost Estimates for Steam Generation and captive Power generation

The total cost estimate for Steam generation with captive power generation is approximately **Rs.312.30 Cr.**

*Table 32 Details of Cost Estimates for Steam generation*

| Cost Addition | Amount (Rs in Cr.) |
|---|---|
| 50 TPH AFBC Single Drum Boiler, 67 kh/cm^2 (Risk Husk 02 nos.) | 44.84 |
| 50 TPH Reciprocating/Dumping, Grate, Single Drum, 67 Kg/cm^2 (Biomass 04 nos.) | 105.32 |
| TG set with accessories (Turbine 3 nos.) | 72.00 |
| Steam Distribution | 7.5 |
| Power Distribution & Panel (Considering 11 KVA Substation) | 5.0 |
| Civil works for Boilers | 30.00 |
| **Total Cost in Cr (including 18% GST)** | **312.30** |

### 6.8.4 Revenue Generation Model

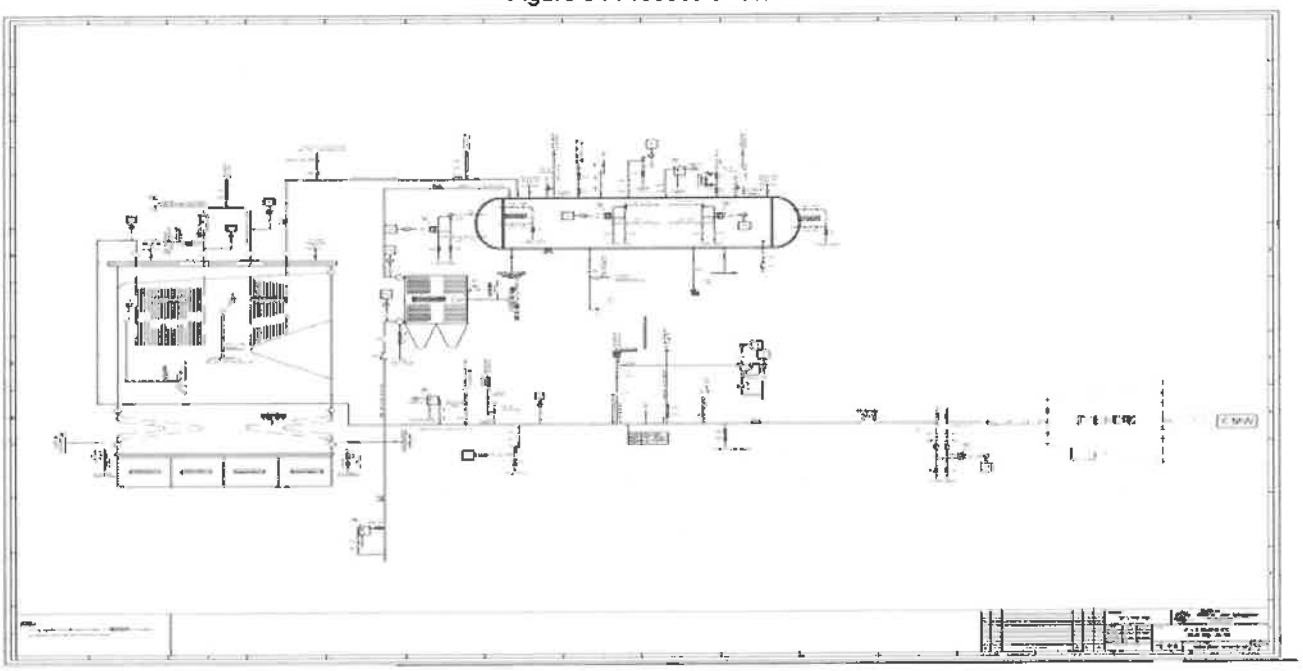
With the view of self-revenue generation model, Steam turbine with High Pressure Boiler specially designed for the fuel availability at Una and its surroundings. One Unit can make 6 MW power.

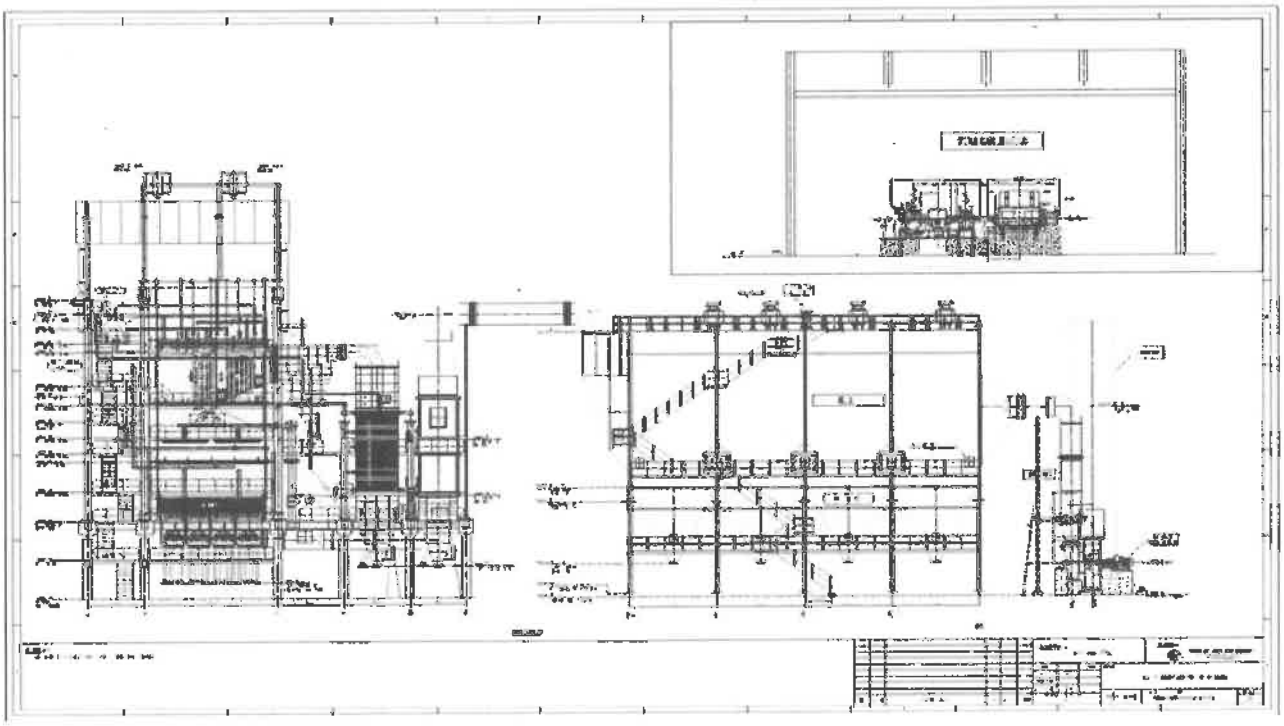
The Power Plant will be in line with DCS automation and cloud computing.

Assumptions Made

- Average Fuel cost taken @ 4000/- per Ton.
- Average GCV considered @ 3250 Kcal/kg.
- Power unit Rate considered @ 5 per unit.

*Figure 34 Process of Steam flow*





### 6.8.5 Risk Management

#### a) Occupational Hazards – Steam Generation and Boilers

The Boilers Act, 1923 should be complied for establishment and operation of Boilers.

- Boilers work at a high heat adjacent to pressurized vessels, which puts their operators at risk of burns and explosions.
- Burning of fuel used in boilers may lead to fires, carbon monoxide poisoning, etc.
- Boiler operators meet various substances used in boilers (fuel, water additives, etc.) which may lead to eye and skin disorders.
- Boiler operators work in a noisy, hot and humid environment that may cause tiredness and general ill-feeling.

#### b) Hazards related to Steam Generation and Boilers

*Table 33 Details of Hazards related to Steam Generations and Boilers*

| Type of Hazard | Description of Hazard |
|---|---|
| Accident hazards | Falls from ladders, stairs and elevated platforms |
| | Slips and falls on the level, particularly on floors made slippery by water, fuel, oils, etc. |
| | Mechanical accidents when operating pulveriser and stoker in coal-fired boilers |
| | Burns from hot surfaces, hot water and escaping steam |
| | Electrocution or electric shocks |
| | Poisoning by carbon monoxide or by other combustion products in the air, particularly in the case of faulty ventilation or inadequate air supply to burners (acute carbon monoxide poisoning may cause headache, dizziness, nausea, unconsciousness, coma and death |
| | Asphyxia due to breathing of oxygen-depleted air |
| | Splashes of hydrazine and its derivatives on the skin may cause penetrating burns and severe dermatitis |
| | Splashes into the eyes of chemicals used in the regeneration of ion exchange columns, in derusting and descaling; particularly, splashes of hydrazine and its derivatives may cause permanent corneal lesions |
| | Fires and explosions (particularly from fuel leaks) and from rags soaked with fuel; fires of soot; explosions of gas-air mixtures within the boiler |

| Type of Hazard | Description of Hazard |
|---|---|
| | Bursting of boilers (because of overheating and overpressure, failure of structural components due to metal fatigue, etc.) with possible fires, and injury by the explosion wave, by flying fragments, flames, steam, excessive noise, etc. |
| | Excessive continuous noise levels - as high as 94 dBA |
| Physical hazards | Heat stress caused by prolonged work at high temperatures and relative humidity's |
| | Irritation of eyes, respiratory tract and skin as a result of exposure to hydrazine and its derivatives, used as additives to boiler water; severe exposure may cause temporary blindness |
| Chemical Hazard | Pneumoconioses from exposure to vanadium-containing dust, and to asbestos from the insulation, particularly during maintenance and repair work, and from exposure to respirable fly ash |
| | Dermatoses from exposure to fuels and to corrosion inhibitors (various organic or metalorganic compounds) and other water additives |
| | Asbestos may cause cancer; smoking strongly increases the risk |
| Biological hazards | Development of fungi and growth of bacteria in the boiler room, due to the elevated temperature and humidity |
| | Presence of rodents and insects may result in bites and infectious diseases |
| Ergonomic, psychosocial, and organizational factors | General tiredness as a result of physical work in a noisy, warm and humid environment; |
| | Cumulative trauma disorders as a result of continuous repetitive movements or over strenuous efforts |
| | Back pains and other musculoskeletal problems (including lesions of intervertebral discs) resulting from overexertion and wrong postures, during lifting and moving of sacks and heavy loads |
| | Psychological stress due to dissatisfaction at work, as a result of boredom, monotony, low salary, problematic personal relations with peers and/or superiors, etc. |

**c) Preventive Measures**

1. Wear safety shoes with non-skid soles
2. Periodically check and adjust burners operation to prevent carbon monoxide generation

3. Install effective exhaust ventilation to prevent air contamination; add local exhaust ventilation if necessary
4. Wear long-sleeve shirts and protect hands with chemical-resistant gloves; if impractical, use a barrier cream
5. Wear appropriate eye protection; consult a safety supervisor or a supplier
6. Arrange a periodic inspection of boilers to detect the failure of components, metal cracking, etc.
7. Wear hearing protection appropriate for the noise levels and type of noise - consult the supplier or an expert
8. Replace hydrazine with less-hazardous substitutes
9. Wear respiratory protection during maintenance or other work in which dust may be released into the atmosphere
10. Wear respiratory protection during maintenance or other work in which dust may be released into the atmosphere

**d) Precautions to be carried out at Start in Steam Boilers**

- Hydraulic should be carried out at a defined pressure before the start of a boiler.
- Check if the pump inlets are open at the start of a boiler.
- Install an automatic ash removal system such as rotary valves in a boiler so as to prevent the accumulation of ash in a furnace or other equipment. The accumulation may result in the blockage or excessive heating of boiler parts resulting in its failure.
- Pump priming must be done at the start of the boiler.
- All loose and wrong connections must be checked, and make sure to rectify the connections before starting your boiler.
- A trained and technical boiler operator must be hired to operate your boiler.

**e) Precautions to be carried out Regularly**

- Never operate the boiler above the design pressure and check for the safe operation of Safety valves as well as fusible plugs.
- Regular cleaning of the perforated line is necessary
- Stainer must be installed before the pump & check for its proper functioning to remove dirt particles from boiler feed water as this prevents the blockage of a feed line.
- Water must be treated before feeding it to the boiler to prevent the accumulation of dirt in a Boiler shell.
- Regular inspection and maintenance of the boiler, including its accessories and valves, to check for possible failures and cracks are necessary.
- Make sure that the boiler vents are not restricted by any kind of obstruction such as cloth etc.

- Always check for the leakages of steam, water, air and flue gases from any suspicious place.
- Follow the boiler manual for safe and efficient working of your boiler.
- The panel should be cleaned regularly and should be kept in a cool and isolated place away from your boiler.
- Check if all the hot parts of the boiler are insulated, do not touch the parts with bare hands where the insulation is not provided.
- Maintenance of both FD Fan and ID Fan is important and regularly check for greasing in all the movable parts for ease of operation.
- Regular cleaning of movable mechanical parts is necessary.
- Do not increase the frequency of a drive above 50 Hz for the safe operation of motors.
- Pressure switch, Mobrey and Pressure Gauge should be checked for their proper

**f) Precautions to be carried out Occasionally:**

- Occasionally clean the boiler tubes to prevent any ash deposition or to scale inside or outside the tubes. Failure to do so will affect the boiler efficiency and will eventually overheat the tubes leading to tube leakage problems.
- The ratio of primary and secondary air must be maintained in accordance with fuel feeding.
- Periodically check burner operation back pressure and line pressure to prevent any thermal hazards.

## 6.9 Internal Road Network, Compound Wall

### 6.9.1 Construction of Internal Road Network

The circulation for the site has been planned according to the topography of the site. The right of way will also incorporate the special requirement of all proposed infrastructure services like water, sewage, power, telecom, gas etc. Considering the future goods and passenger traffic, the external connectivity road is basically the existing Una – Jaijon Road, which ply within the boundary of the proposed Bulk Drug Park. It starts from the junction with MDR 39 and ends near the boundary of the park. It will be developed as a 4-Lane with 24m ROW to allow a smooth and continuous movement of traffic. The proposed roads inside the Bulk Drug Park have been proposed as 2-Lane Road with 30m ROW.

**a. Right of Way (RoW)**

Along with the finalization of the road network, it is important to allocate land for the utility corridor, which by theory and common practice runs parallel to the carriageway. The utility corridor demands a width varying to accommodate all services in stages of hierarchy including green belt, networks for water supply, effluent conveyance, power supply, storm water drains, telecom, gas and any other industry-

specific service. The ROW in the industrial estate has been planned considering all these aspects. The road list & length summary is presented in the following table.

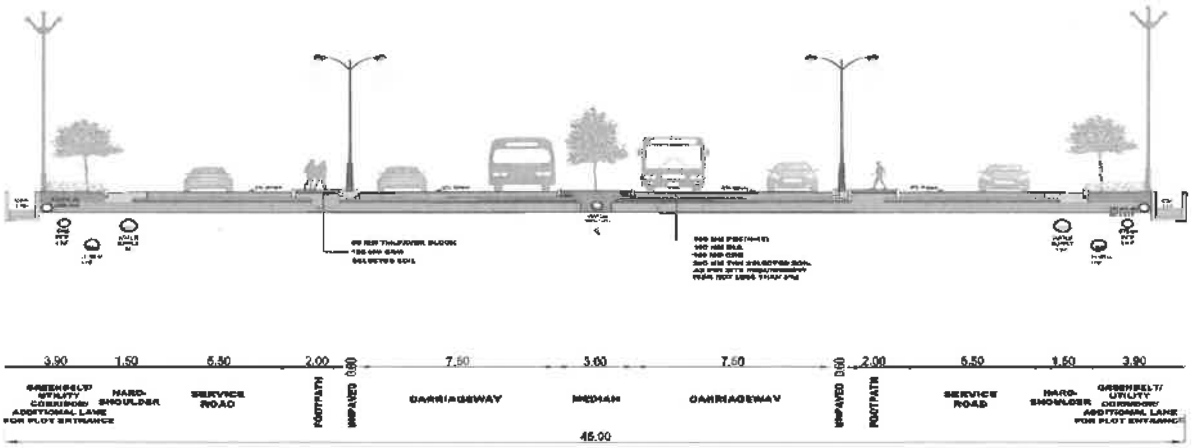
*Table 34 Details of Right of Way (RoW)*

| Road Name | Width of Road | Total Length in Meters |
|---|---|---|
| Internal Roads | 18m | 1887 |
| | 24m | 1426 |
| | 30m | 3161 |
| | 45m | 11,677 |
| **Total** | | **18,151** |

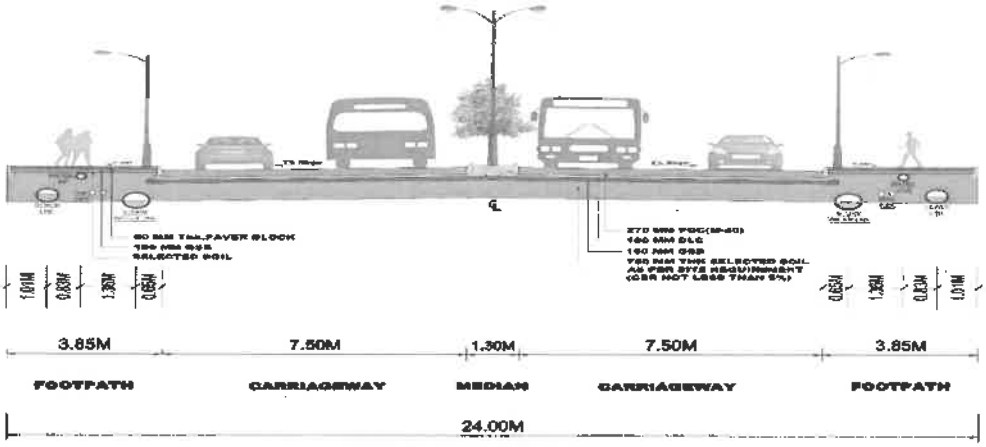
**b. Cross Sectional Element**

Cross-sectional elements were developed based on design standards and specifications set for the different project links. The camber is provided to drain off the surface water, and for the mentioned roads is proposed to be 2.5%. Details of road cross section elements are given below

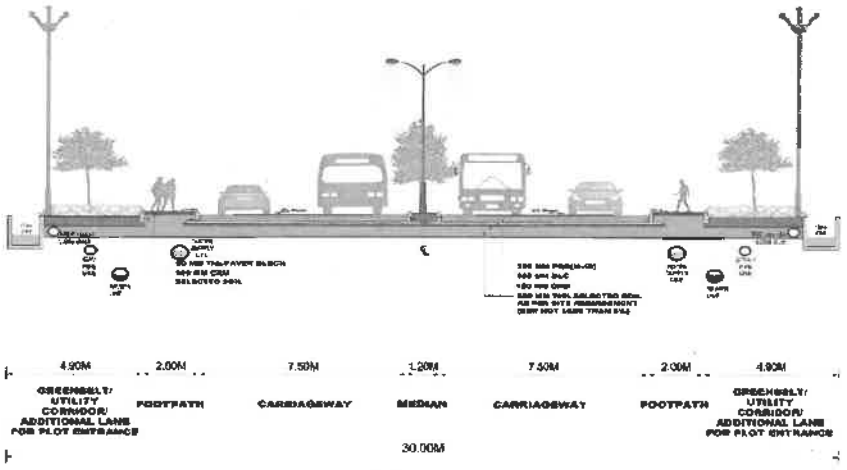
*Figure 35 Details of Road Cross Section*



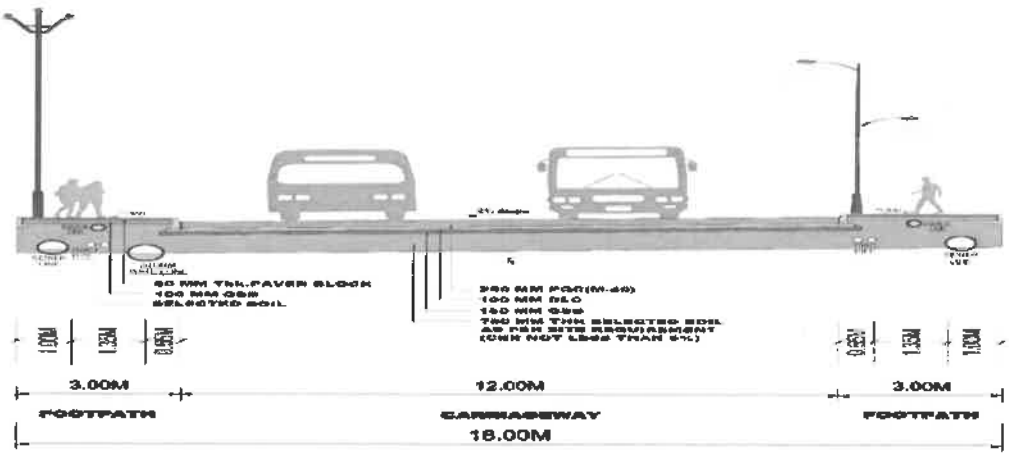

45M WIDE ROAD CROSS SECTION




24M WIDE ROAD CROSS SECTION




30M WIDE ROAD CROSS SECTION




18M WIDE ROAD CROSS SECTION

**c. Pavement Design**

Flexible pavement is proposed for all the roads in the project. The pavement is designed based on the assumed traffic of 30 MSA. Considering a minimum 8% CBR value, the pavement composition is stated as follows:

*Table 35 Details of Pavement Design*

| Pavement Layers | Thickness | |
|---|---|---|
| Road | External | Internal |
| BC | 40 mm | 40 mm |
| DBM | 95 mm | 95 mm |
| WMM | 250 mm | 250 mm |
| GSB | 200 mm | 20 mm |
| Subgrade | 500 mm | 50 mm |

**d. Bridge**

One 30m span bridge is proposed inside the Bulk Drug Park. For external connectivity, road protection work is considered as per terrain. Stone Masonry or RCC Retaining wall is considered on the valley side, and Stone Masonry Breast wall is considered on the hillside.

**e. Widening and Strengthening of Approach Road**

**a)** Rate Analysis

Himachal Pradesh PWD Schedule of Rates 2020 has been considered with an escalation of 15%. For some non-SOR items, prevailing market rates have been considered.

A preliminary cost estimate has been prepared for the external and internal roads separately. The road work will be constructed in 2 stages. In the initial stage, a 2-lane road will be constructed, which will be developed into a 4-lane road in Stage 2.

### 6.9.1 Compound Wall / Fencing of Boundary

G.I Chain link fencing is proposed for the boundary of the project site. The length of boundary fencing is approx. 26 Km. The scope of work includes clearing existing jungle, excavation of foundation, and steel and concrete works.

**6.9.2** Construction of 30 m span bridge

**6.9.3** Widening and strengthen of approach road

### 6.9.4 Estimated Cost of Internal Roads, Compound wall (Levelling & cutting, bridge, approach road)

The total cost of internal road, fencing work, construction of 30m span bridge and widening and strengthening of approach road is **Rs. 199.74 Cr.**

*Table 36 Details of cost estimates of internal roads, compound wall & site development*

| S. No | Description of Components | Amount (Rs in Cr.) |
|---|---|---|
| 1. | Construction of Internal Road (inclusive of GST) | 150.88 |
| 2. | Fencing Work (inclusive of GST) | 14.44 |
| 3. | Construction of 30 m span Bridge (inclusive of GST) | 13.74 |
| 4. | Widening and Strengthening of Approach Road (inclusive of GST) | 20.68 |
| | **Total** | **199.74** |

## 6.10 Advance Laboratory Testing Center

### 6.10.1 Description for Advance Laboratory Testing Center

The Government of Himachal Pradesh, through the Directorate of Industries, intends to transform the MSME sector of the state and put it on a growth trajectory. Towards this, the state aims to strengthen the technology infrastructure as well as enhance the productivity and competitiveness of various MSME clusters across the state. The Indian Pharmaceutical industry is an integral component of the country's economy. It also enjoys a bright spot as a strong and emerging global market, accounting for over 8% of the total manufactured pharmaceuticals in the world.

**Proposed Advance Laboratory Testing Centre will facilitate:**

- Value added modern testing center
- NABL Testing Lab for raw material & finished products
- Practical training center
- API testing

### 6.10.2 Estimated Cost

The advance laboratory testing center, suitable for even complex testing/ research needs of APIs, including microbiology laboratory and stability chambers is proposed with an estimated cost of **Rs. 22.73 Cr**

*Table 37 Estimated Cost of Advance Laboratory Testing Center*

| S. No | Description of Components | Amount (Rs. in Cr.) |
|---|---|---|
| 1 | Construction of Building Suitable for Even Complex testing/ research needs of APIs, including microbiology laboratory and stability Chamber (inclusive of GST) | 22.73 |
| | **Total Cost** | **22.73** |

### 6.10.3 Risk Management

**a) Hazardous and their Control in Drugs and Pharmaceuticals Testing Laboratory**

In the pharmaceutical industry, maintaining basic safety in the laboratory is mandatory. The Occupational Safety and Health Administration (OSHA) have comprehensive guidelines regarding how to practice lab safety. Ensure all your employees are aware of the primary health and safety practices and take preventive measures when working in a hazard-prone environment.

Based on OSHA guidelines, the following key steps can be taken to maintain health and safety at the laboratory:

- Practice frequent cleaning, particularly when the employees are exposed to chemical hazards or particles
- Double-check Hazardous Material Storage and Handling Equipment: Make sure you have the equipment in place to deal with these materials. For example, deploy secondary containment measures and spill decks to prevent large-scale contamination in the event of a spill.
- Wash hands regularly and properly to inhibit the spread of bacteria, viruses or hazardous chemicals
- Never eat, drink or smoke inside the laboratory
- Make wearing suitable Personal Protective Equipment mandatory inside the laboratory – coveralls, eye gear, protective helmet, shoe covers, etc.
- Label the containers appropriately
- Regularly check that all equipment is working properly and safe to use
- Wear a head cap to prevent contamination through hair
- Keep the corridors clean and sanitized
- Perform risk evaluations every day

## 6.11 Emergency Response Center (ERC)

### 6.11.1 Description of Emergency Response Center

ERC is also referred to as Command Control Center. They are workplaces for emergency preparedness and crisis management teams.

ERC act as the central hub for emergency response managers (such as police, fire departments, or the

National Guard). From these command centres, decision makers and response teams gather critical information. They use this data to coordinate response activities and manage emergency personnel.

An ERC may be a modern mission control facility or an outdated conference room. Regardless, it must serve as the central coordination point for the following: Coordinating manufacturers, government institutions, aid, and volunteer organizations.

Emergency Respond Center will cater to the following:

1. Disaster Preparedness
2. Early warning mechanism
3. Trigger Mechanism
4. Quick Reaction Team Support
5. Emergency Helpline and relief
6. Coordination with State Authority, local bodies and support agencies
7. First Aid, Evacuation Plan
8. Training of personnel

### 6.11.2 Estimated Cost

The estimated cost of Emergency Respond Center is **Rs. 20.17 crore.**

*Table 38 Estimated Cost of Emergency Response Center*

| S. No | Description of Components | Amount (Rs. in Cr.) |
|---|---|---|
| 1 | Construction of Building for Emergency Response Center (inclusive of GST) | 20.17 |
| | **Total Cost** | **20.17** |

## 6.12 Safety / Hazardous Audit Center

### 6.12.1 Description of Safety/Hazardous Audit Center

A quality hazardous chemicals audit covering safe handling, storage, labelling and disposal of hazardous chemicals helps create a safe and reliable workplace environment. Routine assessment and assurance of a hazardous chemical management program or system are critical for businesses which inherently purchase, use, dispose of and store hazardous chemicals. The main challenge is for clients to interpret and incorporate the complex framework of International and Australian Standards into the business's safety management system.

**Some of the audit list is mentioned below:**

- Audits based on national or state Hazardous Chemical Regulations and Codes of Practice

- Australian Standards audit – tailored to those applicable to the site in question
- Holistic Hazardous Chemicals Audit
- Hazardous Chemicals Audit – Procurement Process
- Hazardous Chemicals Audit – Storage
- Hazardous Chemicals Audit – Inventory
- Hazardous Chemicals Audit – Use and Handling
- Hazardous Chemicals Audit – Disposal
- Hazardous Chemicals Register / Manifest Audit and Update

**Hazardous Area Audit**

A hazardous area audit is an essential service for any business that handles flammable materials. It is a review of the

- Facilities and installations
- Management systems and associated policies
- Processes and procedures

**The safety audits** will monitor all activities performed on site, and in particular:

- The basic safety policy and organization of the company.
- Management commitment and example on safety matters.
- Administration and safety activity.
- Accident reporting and investigation.
- Opportunity of injury – and record of every injury.
- Safety committees.
- Working rules and practices for each company location, including visitors and contractors.
- Compliance with statutory regulations and company standards.
- Behavior and unsafe acts of personnel and their relationship to compliance with safety rules.
- Activity related certification of employees.
- First Aid certified employees.
- Training needs and activities.
- Hazard's review of process equipment for either new or existing facilities.
- Operating procedures.
- Safety work permits.
- Emergency procedures

### 6.12.2 Estimated Cost

The Estimated Cost of Safety / Hazardous Audit Center is **14.43 Cr.**

*Table 39 Estimated Cost of Safety / Hazardous Audit Center*

| S. No | Description of Components | Amount (Rs. in Cr.) |
|---|---|---|
| 1 | Construction of Building for Audit Center (inclusive of GST) | 14.43 |
| | **Total Cost** | **14.43** |

## 6.13 Center of Excellence

### 6.13.1 Description of Parks

**a) Regulatory Awareness Facilitation Center (RAFC)**

The RAFC plans to achieve the objective by providing information in an entrepreneur-friendly manner, providing access to experts and regulators, providing access to practical insights from other entrepreneurs, providing services and organizing relevant and useful events.

**I. Key activities planned:**

- Services to innovators and entrepreneurs
- Information resources: A informative wiki and a physical collection
- Events: Workshops, Annual Conference, Base Camp focused on Regulatory Approvals

**II. Scope of activities by industry sectors:**

- API products
- KSM/DI

**III. Scope of activities by nature of assistance:**

- Planning the regulatory pathway for scope, actions, timelines and resource requirements. This is to help entrepreneurs bring greater detailing in their plans and fundraising goals.
- Opinions and reports
- Information bank on laws, rules, guidelines, service providers etc
- Networks and referrals
- Document preparation advisory
- Forums to access regulators, regulatory experts, industry experts and peers with experience.

**b) Technology Business Incubator (TBI)**

A technology business incubator (or TBI) is a type of business incubator focused on organizations that help startup companies and individual entrepreneurs who use modern technologies as the

primary means of innovation to develop their businesses by providing a range of services, including training, brokering, and financing.

TBI will be institutional organizations such as IITs, IIMs, NIITs and other private institutions which will be help entrepreneurs in capacity building and technology upgradation.

**c) Intellectual Property Rights Management Service**

MMSME plays a vital role in the development of any country, and it is the growth engine of the large-scale Industries in India. Therefore, it is important to protect the Intellectual Properties generated by Micro, Small and Medium industries. To create awareness of Intellectual Property Rights (IPRs) and to facilitate the IPR registration for MSMEs, Intellectual Property Rights Management Center is planned to propose.

**d) Process/Technology Development Laboratory/Research Laboratory**

- A research and development laboratory is proposed with the primary purpose of conducting research and development into new processes and products, including academic and technological research and development, provided that such a facility is operated under the close supervision of technically trained personnel.
- It shall be treated as a facility or a specially designated area used primarily for research, development, and testing activity and not primarily involved in the production of goods for commercial sale, in which hazardous substances are used by, or under, the direct supervision of a technically qualified person.

**e) Industry-Academia linkage Centre**

- Creating conditions that improve the interactions between industry, academia, research labs and students, as well as skill upgrading.
- Creating mechanisms that will increase the level of structured innovation and entrepreneurship so that more students from becoming job-creators rather than jobseekers, especially in the API sector where the state has a comparative advantage.
- Using the fast-moving technology of education in ways that can make it feasible to update students with the latest course

**f) Training centre**

- It will centre places for all the knowledge partners, technology partners and other institutions, which will act as a centre for capacity building and skill development.
- Training Programs in coordination with State and GoI will be conducted to enhance the capabilities of MSMEs in the State.
- A designated place to develop technical capabilities, we may engage NIPER (Mohali), IIT Mandi, NIT Hamirpur, the Department of Pharmaceuticals Sciences & Engineering, and Panjab University (Chandigarh) as technical Partners.

### 6.13.2 Cost Estimate of Centre of Excellence

The Estimated Cost of Centre of Excellence is **Rs. 110.29 Cr.**

*Table 40 Details of Cost Estimate for Center of Excellence*

| S. No | Description of Components | Amount (Rs. in Cr.) |
|---|---|---|
| 1 | Regulatory Awareness Facilitation Center, Technology Business Incubator, Intellectual Property Right, Process Technology Development Center, Industry Academia Linkage, Training Center (inclusive of GST) | 110.29 |
| | **Total Cost** | **110.29** |

# 7 Infrastructure Support by the State

## 7.1 Power & Water

Support infrastructure to be provided by the State is as below:

**Power**

Himachal Pradesh is a leader in generating green and clean hydel energy. The State is a net exporter of Power with surplus power. Many more medium, small, and micro hydel projects on the five river basins are coming up, which would further supplement the power energy in the State. The state government recognizes the role of Power in industrial development and assures adequate and affordable power for industries.

- The estimated annual Power demand for the proposed Bulk Drug Park is 100-120 MW
- Source of Power – "220/132 kV Substation Nehrian near Amb, District Una
- Government of Himachal Pradesh will provide 24*7 supply as committed earlier

**Water**

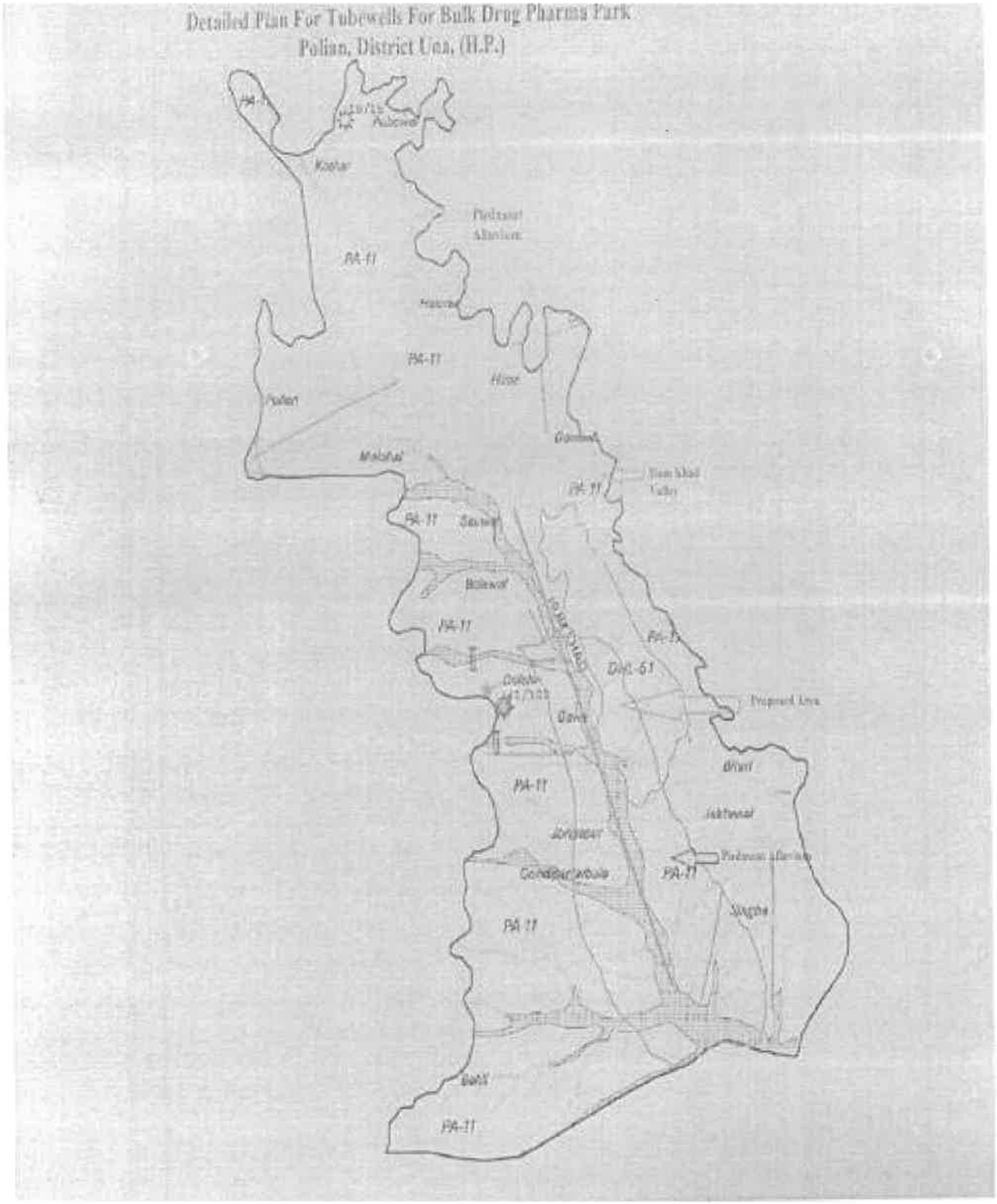
The Jal Shakti Vibhag of the Government of Himachal Pradesh has carried out extensive hydro-geological studies and groundwater exploration in the park. It also ensures 24*7 water availability by extracting ground water through borewells.

- The estimated annual demand of raw water for the Bulk Drug Park is 15 MLD
- Source of Water – Underground water (Bore well)
- 24*7 supply

The existing water infrastructure at project site is named as lift water supply scheme Tahiwal (LWSS Tahiwal). The depth to ground water level in the area ranges from 120 m to 167 m below ground level. The average yields of tube wells existing in the area is around 20-25 litres per second at around 15-20 m draw down. The average depth of tube well in the area ranges between 275 to 325 m BGL. The area falls in Hum Valley assessment unit and falls under the Safe category as per Dynamic Ground Water Resource Assessment.

It is proposed to construct a reservoir or water body inside the park with approximate area of 5.33 ha.

***Figure 36 Map Showing Detailed Plan for Tube wells***



### 7.1.1 Knowledge and Technical Partner

Government of Himanchal signed MoU with the National Institute of Pharmaceutical Education and Research (NIPER), Mohali as a Knowledge Partner to support the State Government and SIA in technological and Knowledge driven aspects of Bulk Drug Park which include research and development, technology transfer, skill development, incubation, quality management, audit, etc.

## 7.2 Ancillary Infrastructure

### 7.2.1 Description about Administration Block

Administration department is the backbone of any organization. Effective administrators are assets to an organization. They are the link between an organization's various departments and ensures the smooth flow of information from one part to the other. Admin Block is the building from which professional and smooth running of organization is ensured.

**Key Activities in the Administrative Block of a pharmaceutical park**

- Developing pricing and marketing strategies to ensure market leadership
- Building out distribution networks and engaging in customer relations work with major pharmacy chains and hospitals
- Securing deals for precursor chemicals and equipment to produce pharmaceuticals
- Overseeing scientists and technicians developing and testing new drugs for market
- Ensuring stringent regulatory compliance with Food and Drug Administration (FDA) rules for manufacturing, testing, and distributing controlled substances

**Key considerations while planning an Administrative Block**

- Location of the building
- Floor plan and design for ease of accessibility to visitors
- Interior design to provide an effective working environment to people
- Size of the construction to efficiently include all components

### 7.2.2 Cost Estimates for Administrative Block

The total cost of building Administrative Block is **Rs. 5.34 Cr**

*Table 41 Cost Estimates of Administrative Block*

| S. No | Description of Components | Amount (Rs in Cr.) |
|---|---|---|
| 1 | Construction of Administrative Block (inclusive of GST) | 5.34 |
| | **Total** | 5.34 |

Green building (also known as green construction or sustainable building) refers to both a structure and the application of processes that are environmentally responsible and resource-efficient throughout a building's life cycle: from planning to design, construction, operation, maintenance, renovation, and demolition.

## IGBC Green Factory Buildings

Indian Green Building Council (IGBC) Green Factory Buildings is the first rating programme developed in India, exclusively for the industrial sector. It is based on accepted energy and environmental principles and strikes a balance between known established practices and emerging concepts. The system is designed to be comprehensive in scope, yet simple in operation. This rating system would address the factory buildings and not the processes. It would be applicable to all sectors of industry and for all climatic zones of India.

### Features

IGBC Green Factory Building Rating System is a voluntary and consensus-based programme. The rating system has been developed based on materials and technologies that are currently available. This rating system would facilitate the development of energy efficient, water efficient, healthy, more productive, environmentally friendly factories

The rating system evaluates certain credit points using a prescriptive approach and other credits on a performance-based approach. The rating system is evolved so as to be comprehensive and at the same time user-friendly. The programme is fundamentally designed to address national priorities and quality of life for factory workmen.

The rating programme uses well accepted national standards and wherever local or national standards are not available, appropriate international benchmarks have been considered.

### Benefits

Green Existing Buildings can have tremendous benefits, both tangible and intangible.

### Tangible benefits

- Energy savings: 30 - 40%
- Water savings: 20 - 30%

### Intangible benefits

- Enhanced indoor air quality
- Good day lighting
- Health & wellbeing of the occupants
- Safety of the workmen.

### Overview

- The project team can evaluate all the possible points to apply under the rating system using a suitable checklist. The project can apply for IGBC Factory Buildings certification if it can meet all mandatory requirements and achieve the minimum required points.

- IGBC Green Factory Buildings rating system addresses green features under the following categories:
- Site Selection and Planning
- Water Conservation
- Energy Conservation
- Materials Conservation
- Indoor Environmental Quality and Occupational Health
- Innovation & Design Process

**Scope**

IGBC Green Factory Building Rating System addresses both new and existing factory buildings. This rating system would address the factory buildings and not the processes. It would be applicable to all sectors of industry and for all climatic zones of India.

**Certification Levels**

Different levels of green building certification are awarded based on the total credits earned. However, every Green Existing Building should meet certain mandatory requirements, which are non-negotiable. The threshold criteria for certification/provisional levels are as under.

**Validity of Certification**

IGBC Green Factory Buildings rating is valid for a period of 3 years from the date of issue of the certification. mandatory requirements, which are non-negotiable

For recertification, the projects must show compliance to the latest version of IGBC Green Factory Buildings rating prevailing at the time of recertification.

### 7.2.3 Description of Rain Shelter / Bus Stops

The establishment of Pharma units within Bulk Drug Park in Himachal Pradesh will attract a number of skilled as well as unskilled workers. The expected direct employment potential is about 15,000-20,000 persons. To encourage more and more of these workers to choose bus transport, it is vital to provide the best facilities for individuals.

**Need of Rain Shelter / Bus Stops**

The basic purpose of the bus shelter is to safeguard the passengers from wind and rain, but an extra effort like bettor designs and attractive colours can enhance the overall experience of the passengers waiting for the bus.

Bus riders are always at risk of getting caught in the rain or dealing with blistering heat and freezing cold. A well-designed shelter makes a huge difference when you are waiting on a bus for 10-15 minutes or more.

The bus is, initially, the first contact point between the passenger and the bus service. The space, the location, the design, and the operation of bus stops significantly influence transit system performance, customer satisfaction and customer safety.

Bus shelters are available either open or fully enclosed. However, a bus shelter with a single side fully open allows better access and can be user-friendly but does not offer complete safeguarding from the weather.

Since more and more individuals from the pharma units will opt for these public transport responding to the environmental and fuel cost concerns, it is mandatory to make their everyday conveyance a pleasant experience as this will encourage more people to join them, thus making a long-term positive impact on the overall system.

### 7.2.4 Cost Estimates of Rain Shelters/ Bus Stops

The total cost for construction of Rain shelters/Bus stops (15 No) is estimated at **Rs. 2. 54 Cr.**

*Table 42 Cost Estimates of Rain Shelters/ Bus Stop*

| Sr. No | Description of Components | Amount (Rs in Cr.) |
|---|---|---|
| 1 | Construction of 15 No. Rain shelters/Bus stops having plinth area 15x12.50x 4.50 =843.75 Sqm. (Inclusive of GST) | 2.54 |
| | **Total** | **2.54** |

### 7.2.5 Description of Canteen Block

Pharma units require large number of skilled as well as unskilled workers. It is but natural that these workers need to be fed properly and sumptuously. This requires the establishment of the catering unit on the premises of the industrial unit. As per the regulatory requirements for pharmaceutical plants, it is obligatory for industrial units having more than 250 employees to provide a canteen facility. Though it is optional for them, many units having less than 250 employees in their workforce provide the canteen facility on their premises for the convenience of their workforce.

### a) Need and Justification of Industrial Canteen

In Bulk Drug Park, there will be many pharma units that will operate round the clock to make their production units to full capacity. The workforce has to report at least an hour before the commencement of the shift. They start from the place of their residence at least an hour or more before the reporting time. The same procedure is followed when they finish their work. Their working schedule lasts for about nine hours. Add to this time required before reporting and after the end of the work-shift. The total time required for transport and work in the shift is of about eleven to twelve hours. It is but natural that these workers need to be fed properly and sumptuously. This requires the establishment of the catering unit on the premises of the industrial unit. The provision of wholesome food needs to be made for the workforce that is required to put in their hard physical labour in the industrial unit. It is essential to maintain a balanced diet of sufficient nutritional values to be served in such industrial canteens. The need for the provision of a canteen facility for workers is thus universally acknowledged in respect of the industrial units with more or less than 250 employees in the workforce.

*Figure 37 Indicative Picture depicting Canteen Block*

The need to establish such catering units is the main ground of its justification. The physical necessity of the establishment of an industrial canteen justifies its existence. It is a welfare facility to be provided to the workers in an establishment. It is a humanitarian gesture on the part of the employers. The welfare facilities that are provided to the employees in a unit are part and parcel of the expenditure an employer is required compulsorily to incur. It is now a privilege of the workforce to demand this facility. The provision of an industrial canteen is thus an obligation for the management of the industrial establishments. The need and justification of running an industrial canteen in an industrial unit that is run satisfactorily need not be exaggerated as the facility are acceptable to both the parties concerned, that is, the employers and the employees working in those units.

**b) Industrial Canteen as a Welfare Facility**

The goal of every industrial organization is to gain maximum at minimum costs through a loyal and cooperative workforce. In order to achieve this goal, it is necessary to provide a work environment that is comfortable, convenient and pleasant for its workforce. The establishment is obliged to fulfil the needs of the employees if they are to give their best to achieve organizational goals. Employers ought to provide certain facilities and benefits to their employees to gain maximum at minimum costs. These facilities and benefits are often referred to as "Staff Welfare Provisions". These provisions are classified under the heads of physical needs and socio-psychological needs.

Physical needs are those which are required for comfort at work. The welfare activities of this category are the provision of proper lighting, temperature and humidity control, fresh air free from fumes and gases, low noise levels, a clean environment, clean uniforms for staff, toilet and hand washing facilities, waste disposal equipment, proper drainage and sanitation facilities, safety procedures and devices and appropriately designed equipment and furniture. Soundproof ceilings, fitting exhaust fans, provision of sinks and sitting and resting facilities are required in industrial establishments and particularly in the canteens.

The socio-psychological needs cover the needs for security through adequate wage payments, provision for housing, infant creches for working mothers, transport, social working hours, leisure, and holidays, leave for sickness, maternity, and counselling services for stress at work in addition to the wages, subsidies on meals, housing and others help to enhance wages indirectly.

Physiological needs are the needs of all people. The provision of safe drinking water, canteen facilities, rest periods and rooms, clean toilet facilities and medical facilities are included in the physiological needs. canteen facilities are a statutory requirement. Irrespective of this, it is a moral obligation on employers of catering staff to provide them with fully or partly subsidized meals. Health facilities generally include regular medical check-ups, treatment for ailments or injuries, preventive medical care, health education and health insurance. Money is an important motivator of people's behaviour as far as it can help to satisfy basic physiological needs. After that, it is the non-financial incentives that take care of psychological and social needs. The employee welfare measures include (a) work environment facilities related to the maintenance of temperature, humidity, clean air, noise level and safety, and (b) hygiene and sanitation such as toilets, change rooms, restrooms, waste disposal, drainage protective clothing, and footwear (c) welfare amenities such as canteen services, safe drinking water, health facilities and medical checks, (d) housing facilities such as HRA free accommodation and loans for housing (e) recreation as sports, games, reading room, library and films and (f) training such as job development, individual development, language training communications, craft training and lectures etc. The provision of canteen facilities thus satisfies the physiological needs of the worker, and thus running a canteen in an industrial unit is a labour welfare facility.

### 7.2.6 Cost Estimates for Canteen Block

The total cost for construction of canteen block is estimated at **Rs. 1.65 Cr.**

*Table 43 Cost Estimates of Canteen Block*

| S. No | Description of Components | Amount (Rs in Cr.) |
|---|---|---|
| 1 | Construction of Canteen Block (Inclusive of GST) | 1.65 |
| | Total | 1.65 |

### 7.2.7 Description of Construction of Duct for Cable/Wire

A wire duct is a long hollow structure meant to carry one or more cables inside. They are usually made of metal or plastic and can vary widely in a cross-sectional area depending on the volume requirement of the application. The ducts serve as both an organizational tool for multiple wires travelling in the same direction and as a protective shield around them.

Ducts are products for organizing wiring to save space. With the general product, wiring is assembled by mating base parts and cover parts. For products with slits on the side, wiring can be pulled out at any position between the slits, and some products can easily break off the slits. The material used is PVC, which has a high heat resistance and water resistance and is suitable for outdoor use. In some cases, it can be cut and used at any length. In addition, there are products made of highly flexible polypropylene and halogen-free resins that do not emit toxic gas during combustion, with some made of aluminium or stainless steel. The cross-sectional size of the main unit, the slit interval, the overall length of the duct, etc., vary depending on the product.

**a) Application of Duct for Cable/Wire**

- From a protective standpoint, ducts can be useful in many aspects. They prevent the wires and cables from incurring any physical damage from mechanical trauma or wear. This can include foot traffic, tool damage or any other situation where physical damage can take place. Some ducts are completely sealed off from the environment, so the internal core is protected from any negative environmental factors such as heat, moisture, solar radiation, and dust.
- Organizationally, ducts can provide a common path for a grouping of wires, much like the task a cable assembly performs. Wires can be grouped by purpose, need, destination or any other effective way. They also allow wires to be routed easily in any location, be it the ground, wall, or ceiling, without the need for additional support or cable clamps. Slotted wire ducts allow for numerous breakouts if needed.

**b) Configuration**

Wiring ducts are generally available in two configurations: slotted (the wiring duct has slots or fingers for easy customization and breakout) and slotless (solid wiring ducts that do not have any fingers or slots). Configuration is generally determined by the duct's intended application. For example, standard slotted ducts provide easy re-routing of terminated wires and provide ample cable support, while unslotted ducts provide overall cable protection in panels where breakouts are not required, and cables are infrequently accessed. Thin slotted ducts allow easier cable access but offer less support than standard types. Slotted ducts often feature multiple upper and/or lower score lines, which allow the fingers to break away permanently in various places. This attribute allows the customization of the wire slot size in order to break out thicker cables or groups of cables. Slotted wiring ducts require decisions on slot pitch (the distance from one slot space centre to the adjacent slot space centre) and finger width (the measured width of wire duct fingers).

c) **Standards**

The manufacture and use of wiring ducts may be governed by various standards, codes, and certifications. Because wire ducts may contain electrical power wires, improper use or faulty production methods can cause wires to stretch or break during or after installation, leading to future failure or fires. Common standards and codes which apply to wiring ducts are listed below. These are largely based on the international IEC 60364 standard for low-voltage wiring

- NFPA 70 - 2013 National Electric Code (United States)
- BS 7671 - IET Wiring Regulations (Great Britain and some former territories)
- CSA C22.1 - Canadian Electrical Code - Part I Safety Standard for Electrical Installations

### 7.2.8 Cost estimates for Construction of Duct for Cable/Wire

The total cost for the construction of Duct for Cable/Wire is **Rs. 35.94 Cr**

*Table 44 Cost Estimates for Construction of Duct for Cable/Wire*

| S. No | Description of Components | Amount (Rs in Cr.) |
|---|---|---|
| 1 | Construction of Duct for Cable/Wire (Inclusive of GST) | 35.94 |
| | Total | 35.94 Cr |

### 7.2.9 Description for Fire Station

A fire station (also called a fire house, fire hall, firemen's hall, or engine house) is a structure or other area for storing firefighting apparatuses such as fire engines and related vehicles, personal protective equipment, fire hoses and other specialized equipment. Fire stations frequently contain working and living spaces for the firefighters and support staff.

**a) Facilities**

- A fire station will, at a minimum, have a garage for housing at least one fire engine. There will also be storage space for equipment, though the most important equipment is stored in the vehicle itself. The approaches to a fire station are often posted with warning signs, and there may be a traffic signal to stop or warn traffic when apparatus are leaving or returning to the station.
- Fire stations have often been built with a tower for purposes that have changed with time. A drill tower is used for practising high-rise rescue, while a hose tower is used for hanging hoses to dry to prevent rot. Historically, towers were lookouts for spotting fires.
- Activities at a fire station include regular inspection and cleaning of the apparatus and equipment and training drills in which the firefighters practice their skills. Some fire companies also host public activities at the fire station during events such as a "fire prevention week", and the facility may also be used for fund-raising by the "firemen's association", "fire buffs", or "fire auxiliary".

**b) Location Determinant**

Several factors determine the most appropriate and cost-effective location for a Fire Station.

- **Access/Response Time**: The most critical determinant for the location of a Fire Station is response time. In addition to response time, consider access to the station by delivery vehicles, staff, and visitors. Consider that direct access and response time may conflict with tightening antiterrorism (AT) criteria—ensure that trucks will not have to cross access control points to reach a target structure or flight line. The facility site should be prominent and easily visible from the target areas (structures or flight lines).
- **Size**: Ensure adequate site space is available to accommodate the firefighting vehicular turning radii, personnel parking, visitor parking, storage requirements, and reserve vehicles (if applicable).
- **Sustainable Design**: The location of a facility can have a significant impact on achieving sustainable design rating points. Consider issues such as brownfield redevelopment, access to public transportation, and reuse of existing paving and hardscape when selecting a site.

**c) Equipment at Fire Station**

The primary categories of equipment used by fire stations include:

- Apparatus: A fire apparatus is a vehicle specially designed for the firefighters' needs. There are several categories of fire apparatuses, including the fire engine, that are designed to pump water: a fire truck, which fights fires but does not contain onboard water; a ladder truck, which allows access above fires or to high-rise structures; a snorkel truck, which raises hoses high above fires; a floodlight truck, which provides illumination for night-time emergencies; a search-and-rescue

truck; a paramedic (medical) truck; a command vehicle; a hazardous material response truck; a mobile laboratory; and an equipment (mostly hoses) transport vehicle.

- Firefighting equipment: In addition to the apparatus, firefighters depend on a full range of equipment to suppress fires. This equipment includes extinguishers, axes, hooks, ladders, chemical suppressants, breathing apparatus, emergency alarms, and illumination.
- Personal protective equipment (PPE): Firefighters must regularly enter very hazardous environments. Several types of PPE have been developed to protect them. They can be used to protect against extreme temperatures (high and low); a lack of oxygen; smoke; chemical, biological, and radiological hazards; noise; and caustic liquids.
- Rescue equipment: A major part of most firefighters' duties includes rescue from vehicles, structures, water, and other wilderness and outdoor locations. Rescue equipment includes cutting tools, spreading tools, impact tools, ladders, ropes, harnesses, shoring equipment, and illumination.

### 7.2.10 Cost Estimates for Fire Station

The total cost for the construction of Fire Station is **Rs. 5.49 Cr**

*Table 45 Cost Estimates for Construction of Fire Station*

| S. No | Description of Components | Amount (Rs in Cr.) |
|---|---|---|
| 1 | Construction of Fire Station (Inclusive of GST) | 5.49 |
| | Total | 5.49 |

### 7.2.11 Description for Green Cover

The Himachal Pradesh government has taken various initiatives to increase its green cover and ensure environmental conservation. The total area of Himachal Pradesh is 55,673 sq. km. out of this, 66.43% of the area of the state is legally defined as forest land. As per National Forest Policy, the forest cover in hilly areas should be 66%, whereas the actual forest cover is only 22.49% in Himachal Pradesh. Therefore, a massive afforestation programme is needed to achieve the same.

The objective of providing green cover in the bulk drug park is to develop sustainable development approaches, which will consider the special features of green cover within the Industrial Area as per the guidelines of the Department of Environment, Science and Technology Himachal Pradesh and National pollution control board

**a) Need of Green Cover in Bulk Drug Park**

- At least one tree for every 80 square meters of land needs to be planted within construction sites for both residential and commercial buildings, ensuring 10 per cent green cover for every plot as per the draft notification of the Building Construction Environment Management Regulations,

2022,

- All the industrial units have been mandated to publicly disclose their pollution status, which can be reduced through afforestation in the area
- Incentivizing units within Bulk Drug Park to adopt cleaner technologies and increase the green coverage area
- Social inclusion and sustainable development of the designated area

**b) Action Plan for compliance**

- Create effective policy and regulatory processes to support the planning, development and implementation of green coverage and associated practices (e.g., park management, spatial planning and zoning, park level infrastructures and utility services
- A mandatory green code is required for all factories and industries within the designated area of the bulk drug park.
- Ensuring compliance with the green code for each unit in Bulk drug park to compulsorily provide a minimum of 15 per cent of their total area for vegetation.
- Designated bulk drug as an eco-industrial park to promote resource efficiency and circular economy practices, which helps to bridge the gap between cities and industries by making a significant contribution to sustainable cities
- The industries would also be required to adopt green energy sources such as solar and wind power
- Raise stakeholder awareness of the benefits of Eco-Industrial Park
- Air Quality Monitoring Stations need to be installed in UNA industrial area.
- Technological Interventions - The identification of proper technology can only be made after proper technical studies for the identification of sources of emissions.
- Individual units should have adequate air pollution control devices (APCDs) as per the guidelines issued by Central Pollution Control Board from time to time and as mentioned in Schedule-I of Environment Protection Rules, 1986.

### 7.2.12 Cost Estimates for Green Cover

The total cost of green cover is estimated at **Rs. 2.8 Cr.**

*Table 46 Cost Estimates for Green Cover*

| S. No | Description of Components | Amount (Rs in Cr.) |
|---|---|---|
| 1 | Cost for Green Cover (inclusive of GST) | 2.8 |
| | Total | 2.8 |

### 7.2.13 Construction of Helipad

A helipad is a helicopter landing pad or platform that designates a safe, identified landing area that is on an appropriate surface, and while helicopters are able to operate on a variety of relatively flat surfaces, a fabricated helipad provides a clearly marked hard surface free from obstacles. Usually constructed out of concrete, the landing site of the helipad shall be marked out with a large circle with a letter H in the centre to make it easier to be spotted from the air. However, it is sometimes constructed out of timbers to receive supplies in remote areas and often, when on buildings, it has a number that indicates the maximum take-off weight of a helicopter in units of thousands of pounds. Larger helipads, intended for use by helicopters and other vertical take-off and landing aircraft, may be called vertiports.

The world's highest helipad built by India is located on the Siachen Glacier at the height of 21,000 feet (6400m) above sea level at a latitude of 35,500 1596, a longitude of 77,0001698. Meanwhile, the world's largest heliport containing 46 helipads is in Morgan City, Louisiana, and it is mostly used to support offshore oil platforms in the Gulf of Mexico.

Helipads can be of the following types based on the industry they are used for:

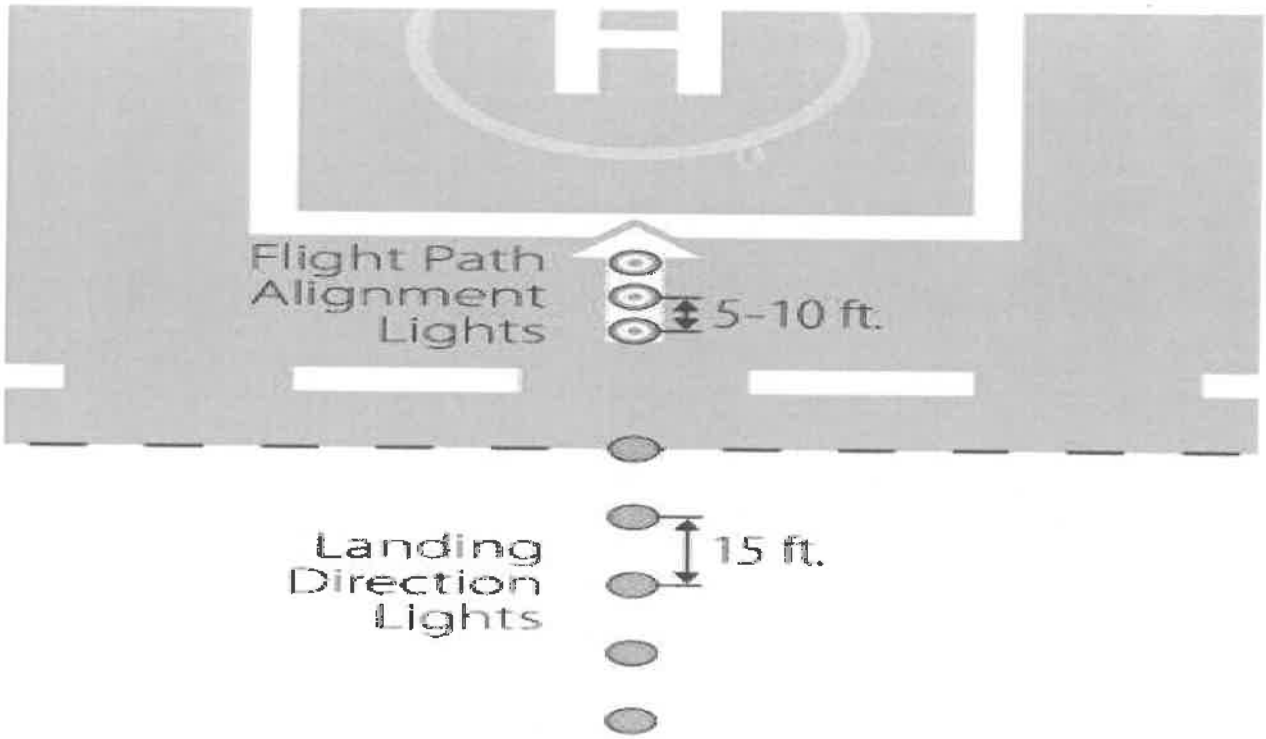
- General aviation heliports
- Transport heliports
- Hospital heliports
- Airport heliports

**Construction Features of Helipads**

- Final Approach and Takeoff Area (FATO), Touchdown and Liftoff Area (TLOF), safety area, and wind cone.
- FATO is an area over which the pilot completes the final phase of the approach to land or from where the departure is made. The touchdown and Liftoff area (TLOF) is load-bearing and paved area normally centred in FATO, on which a helicopter performs a touchdown or liftoff.
- The TLOF size is a function of helicopter type and rotor diameter (RD). TLOF can be square, rectangular or circular.
- Every helipad will have at least one TLOF. A TLOF can be located within or outside FATO.
- Helipads are usually constructed using concrete and are marked with the letter 'H' or a circle to make them visible from the air.
- Ground helipads are usually made of Portland cement concrete with at least 6 inches of thickness.
- Each helipad is marked according to its purpose. For example, for hospitals, 'H' is painted in red with a cross outlined in the background. For all other heliports, 'H' is painted in white.
- Each helipad has the maximum gross weight it can support painted on it. It must also mention the maximum dimensions of the helicopter allowed to land.

- The dimension of helipads should not be less than 40 x 40 feet. In addition, the safety area around the heliport must be free of obstacles, and it must be at least twice the area of the helipad.
- Helipads are designed to have a non-slippery surface.
- Wind cones are located to provide pilots with the wind direction and speed information near the helipad. Wind cones are located on the approach path such that it is seen by the pilot when the helicopter is 150 meters from the TLOF.

*Figure 38 Diagram depicting Helipad*




### 7.2.14 Cost Estimates for Helipad

The total cost of Helipad is estimated at **INR. 1.97 Cr.**

*Table 47 Cost Estimates for Helipad*

| S. No | Description of Components | Amount (Rs in Cr.) |
|---|---|---|
| 1 | Construction of Helipad (inclusive of GST) | 1.97 |
| | Total | 1.97 |

### 7.2.15 Construction of Guest House

A guest house is typically a form of accommodation with a lower-priced inn of sorts that offers basic, shared accommodations. Typically, a guest house features a large room with separate beds, a shared bathroom, and a communal kitchen. Some guest houses have private rooms, but the lower-cost ones generally offer sharing beds

**a) Facilities at Guest House**

- Luxurious beds
- Social common rooms
- Roof terraces
- Hammocks
- Laundry facilities
- Amazing food and drink
- Communal kitchens
- Free Wi-Fi
- Security

**b) Types of Guest house Room Layout Drawing**

Various types of drawings are generated by an architect based on the details and complexity of the project for ease of understanding and proper functioning of the building process.

Below, some of the different sorts of drawings in further detail.

- Site plan: A hostel site plan is a detailed design of the hostel that depicts the whole layout of the property (in this case, the rooms). It depicts the site's borders/boundaries and access points, as well as surrounding structures that are significant to the design. The site plan for a hostel construction project must also indicate all utility connections, such as drainages, water supply, electrical cables, and lighting.
- Floor plan: The most basic architectural diagram for a hostel room is a floor plan, which is a perspective from above that shows the layout of spaces in a structure in the very same manner as a map does, but at a specific level of the building.
- Cross Section: A cross-section is a geometric projection of a property's horizontal orthographic projection onto a vertical plane cutting across the building.
- A cross-section is a section of a building that reveals the dimensions and thickness of each component. It also depicts a structure's lintel height, sill height, floor height, as well as other minor features.
- Elevation: An elevation drawing is a projection drawing that illustrates one side of the hostel in orthographic projection. An elevation drawing's function is to display the final appearance of a certain side of the home as well as provide vertical height proportions.
- Landscape Plan: Beautiful design increases the attractiveness or aesthetic appeal of the hostel. Landscape drawings help whomever it concerns to get a clearer vision of what the finished product will look like.

**c) Loads**

The various loads acting on the structure which need consideration in building design are as follows:

- Dead loads.
- Live loads.
- Wind loads.
- Seismic loads.

### 7.2.16 Cost Estimates for Guest House

The total cost of Guest House is estimated at **Rs. 3.31 Cr.**

*Table 48 Cost Estimates for Guest House*

| S. No | Description of Components | Amount (Rs in Cr.) |
|---|---|---|
| 1 | Construction of Guest House (inclusive of GST) | 3.31 |
| | Total | 3.31 |

### 7.2.17 Pedestrian Path

Pharma units include a lot of movement of both vehicular and labour during peak hours. To facilitate the ease of accessibility, there is a requirement for a defined pedestrian path within the industrial park. Pedestrians often referred to as vulnerable road users or commuters, are very susceptible to serious injury and death when involved in accidents due to higher vehicle speeds and less efficient emergency services within the factory outlet.

**a) Design of Pedestrian Path**

As per the OSHA guidelines Safety begins with the proper design of pedestrian pathway at your facility.

- Loads: OSHA requires businesses to create walkways that can support the weight of both workers and equipment.
- Accessibility and egress: Businesses must ensure that every walkway is safe for workers to use. They must also ensure that workers use only these areas to get from place to place in the building and leave the job site easily and quickly.
- Inspection, repair, and maintenance: Employers must have walkways inspected regularly and immediately fix whatever inspectors deem hazardous. While an employer fixes a walking-working area, workers must use alternate walkways. The employer must pick a qualified person to make a walkway safe and usable

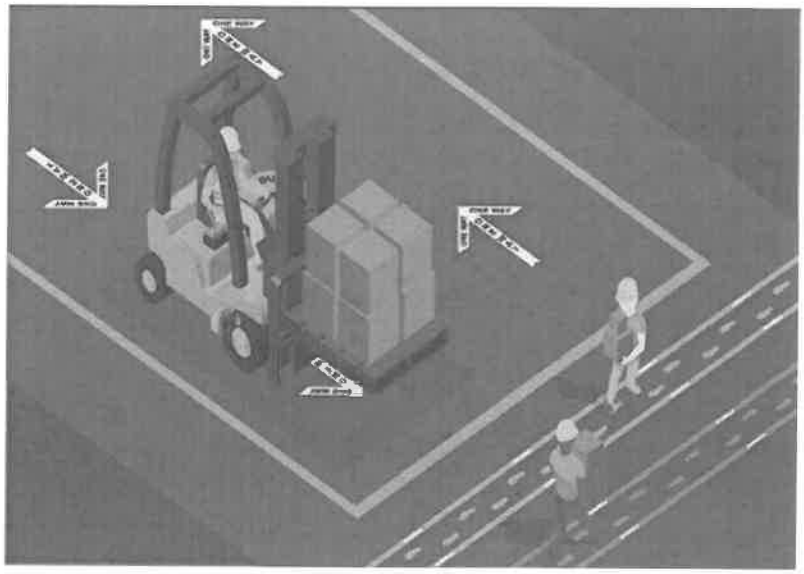
**b) Designated Walking Areas and Pedestrian Crosswas**

- OSHA requires separate walkways for pedestrians and lift traffic. Clearly marked lanes meet this requirement, but a physical barrier to separate traffic is a safety solution that exceeds the specifications.
- Railings or other boundaries keep pedestrians out of dangerous areas, are a physical reminder

to avoid dangerous shortcuts, and limit access to restricted areas or forklift lanes.

- Designate foot traffic locations in forklift and vehicle zones, and indicate crossing areas to limit where foot and vehicle traffic cross.
- Consider traffic patterns, blind spots, and corners when assigning specific crossing zones and walkways.
- Crosswalks should be placed in convenient areas, so pedestrians are more likely to use them. Ensure crosswalk and walkway locations are installed where views are unobstructed: They should not be obscured by shelving or stacks of pallets, so pedestrians and drivers have a clear view.

*Figure 39 Indicative Image for Pedestrian Pathway*



- Parking lots require pedestrian crosswalks, too. Reflective crosswalk pavement marking tape installs easily in parking lots. Improve crosswalk visibility when you pair floor or pavement markings with vertical barricades. Elevated crossways keep vehicles and foot traffic entirely separate.

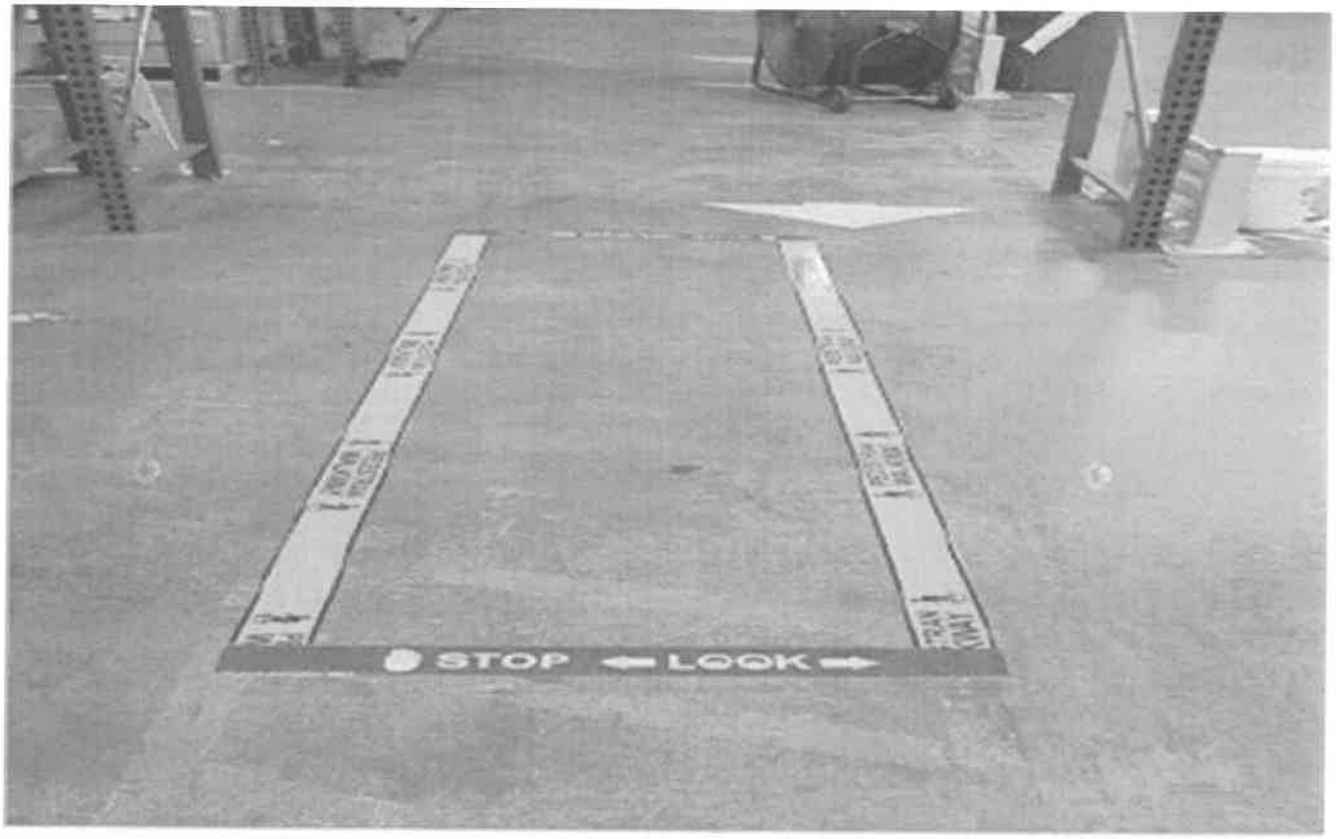
**c) Floor Markings and Aisle Width**

OSHA requires businesses to have aisles at least 3 feet wider than their largest pieces of equipment or be at least 4 feet wide.

Corridors in rooms where employers store flammable and combustible liquids should be a minimum of 3 feet wide, with an emergency exit at least 28 inches wide.

In places where the use of mechanical equipment occurs, OSHA requires what it calls "sufficient safe clearances." This width depends on how workers use the aisle. For example, someone driving a forklift will need more room than someone walking. The average width for an aisle in this instance is about 4 feet.

*Figure 40 Indicative Image for Parking*



### 7.2.18 Cost Estimates for Pedestrian Path

The total cost for pedestrian path is estimated at **Rs. 19.68 Cr.**

*Table 49 Cost Estimates for Pedestrian Path*

| S. No | Description of Components | Amount (Rs in Cr.) |
|---|---|---|
| 1 | Cost for construction of Pedestrian Path (inclusive of GST) | 19.68 |
| | Total | 19.68 |

**Recommended Practices**

OSHA requires that permanent aisles and passageways be free from obstructions and appropriately marked where mechanical handling equipment is used

- Yield right of way to pedestrians.
- When a person or group of people walks across your planned route:
  - Stop.
  - Wait until the pedestrians pass by.
  - Proceed cautiously through any congested area.
  - If an area is cluttered, walk the route first to spot problems.
- Consider separating pedestrians from lift trucks by providing:
  - Pedestrian walkways,
  - Permanent railings or other protective barriers,
  - Adequate walking space at least on one side, if pedestrians must use equipment aisles,
  - Pedestrian walkway striping on the floor if barriers cannot be used.
  - Install convex mirrors at blind aisle intersections.
  - Post traffic control signs.
  - Post plant speed limits.
  - Warn pedestrians of your approach by horn, hand signal, or warning light.
- Maintain a safe clearance from co-workers.
- Employees should stay out of the potential path where a load can fall.

### 7.2.19 Site Development Works, Levelling

Site development refers to the improvements done to prepare a site for construction. It is the first and most crucial step toward a successful commercial construction project. Initiating a construction project without proper site development may interfere with the project's plan midway, hinder the approval of building permits, and poses significant financial and even legal risks for the project developers and

investors.

**a) Activities involved in Site Development process**

- Site Surveying: A survey needs to be done to determine the correct site and line where the project should be built. A survey also enables the contractors to verify the appropriate horizontal and vertical location of the proposed structure
- Soil Testing: Soil testing is one of the most critical steps in the construction site development process. It involves the assessment of the composition and the condition of the soil on site. The test is done to evaluate the soil's structural integrity and determine whether it can hold the weight of the proposed building, its water drainage capability, and how well it can withstand harsh climatic conditions in the future. Soil testing is a legal and inescapable step in site development.
- Site Clearing: Before construction begins, the ground needs to be clear and completely levelled. This means clearing any trees that may be on it and any underground utilities that may hinder the construction process. Sometimes, the site may even have buildings in good condition. These need to be demolished and cleared from the site.
- Site Investigation: Site investigation is like soil testing only that this time, the geotechnical investigators do it to evaluate rock composition and groundwater conditions on the site to determine how the foundation of the proposed project should be built.
- Site Plan Design: After surveying, soil testing, site clearing, and site investigation, the project contractors and architects must create a site plan. Also known as the plot plan or the blueprint, the site plan is a drawing that shows where what will be. It shows what exists on the site and what will be on it after the proposed project is complete.

**Levelling**

Levelling is a high priority task which has a major effect on the success of a project and could potentially prevent future issues in the design, structure, and safety of the build. Levelling is done to ensure

- Proper Drainage
- Uniform Settlement
- Efficient Utility Mapping
- Safety and Accident Prevention
- Smooth Landscaping
- Easy Access

### 7.2.20 Cost Estimates for Site development and land levelling

The total cost for construction of site development work is estimated at **Rs. 205.82 Cr.**

*Table 50 Details of cost estimates for site development*

| S. No | Description of Components | Amount (Rs in Cr.) |
|---|---|---|
| 1 | Cost for construction of Site Development works (inclusive of GST) | 205.82 |
| | Total | 205.82 |

### 7.2.21 Availability of technical manpower

Himachal Pradesh leads in the literacy rate at 82.80 % which is better than the national average at 74.0% (as per 2011 census)

**a) List of Pharmacy, Medical and Biotechnology Colleges in the state**

The State has a presence of 38 pharmaceutical units across the States and details are mentioned below:

*Table 51 Details of Pharmacy, Medical and Biotechnology Colleges in the States*

| S No | Name and Address | Status of Recognition |
|---|---|---|
| 1 | Govt. College of Pharmacy, Rohru, District Shimla (HP) | AICTE, Pharmacy Council of India |
| 2 | Govt College of Pharmacy, Nagrota Bagwan, District Kangra HP | AICTE, Pharmacy Council of India |
| 3 | HPTU Off Campus Govt. Pharmacy College Seraj, VPO, Bagsaid. Thunag. Distt Mandi | Pharmacy Council of India |
| 4 | HPTU Off Campus Govt. Pharmacy College Rakkar, Camp at Pharmacy College Kangra at Nagrota Bagwan, Distt. Kangra, HP | Pharmacy Council of India |
| 5 | Abhilashi College of Pharmacy Nerchowk, Distt. Mandi (HP) 175008 | AICTE, Pharmacy Council of India |
| 6 | DDM College of Pharmacy, Gondpur Banehra Upper, Tehsil Amb, District-Una (HP) | AICTE, Pharmacy Council of India |
| 7 | Dreamz College of Pharmacy, Village Khilra, P.O. Meramasit, Tehsil Sundernagar, District Mandi (HP). | AICTE, Pharmacy Council of India |
| 8 | Himachal Institute of Pharmaceutical Education & Research (HIPER), V.PO & Tehsil Nadaun, District Hamirpur (HP). | AICTE, Pharmacy Council of India |
| 9 | Himachal Institute of Pharmacy, Paonta Sahib, District Sirmour (HP) | AICTE, Pharmacy Council of India |
| 10 | Himachal Pharmacy College, Vill. Maganpura, Tehsil Nalagarh, District. Solan | AICTE, Pharmacy Council of India |
| 11 | Himalayan Institute of Pharmacy, Kala Amb District Sirmour (H.P). | AICTE, Pharmacy Council of India |
| 12 | K.C. Institute of Pharmaceutical Sciences, VPO Pandoga Uparta, District Una (HP) | AICTE, Pharmacy Council of India |
| 13 | Laureate Institute of Pharmacy. VPO Kathog, Tehsil Dehra, District. Kangra, (H.P). | AICTE, Pharmacy Council of India |
| 14 | LR. Institute of Pharmacy, Village-Jabli-Kyar, P.O-Oachghat, Rajgarh Road, Solan (HP) | AICTE, Pharmacy Council of India |

| S No | Name and Address | Status of Recognition |
|---|---|---|
| 15 | Shiva Institute of B. Pharmacy, Vill-Luhnoo Kanatain, PO Chandpur, Tehsil-Sadar District Bilaspur (HP). | AICTE, Pharmacy Council of India |
| 16 | Vinayaka College of Pharmacy. Village-Bahoguna, PO-Garsa, District Kullu (H.P). | AICTE, Pharmacy Council of India |
| 17 | Gautam Collage of Pharmacy, Hamirpur, (HP | AICTE, Pharmacy Council of India |
| 18 | Minerva College of Pharmacy, Village Changrara, P.O, Bhapoo, Tehsil Indora, Distt. Kangra, H.P. | AICTE, Pharmacy Council of India |
| 19 | Shanti Niketan College of Pharmacy.Vill. MaltherTehsil, Bath, Distt. Mandi (H.P.) | Pharmacy Council of India |
| 20 | Aakash Institute of Medical Sciences, Nalagarh, Distt. Solan | Pharmacy Council of India |
| 21 | College of Ayurvedic Pharmaceutical Sciences, Jogindernagar, Distt. Mandi. | HPTU Approved |
| 22 | Sri Sai University, Palampur, Distt. Kangra HP-176061. | UGC Approved, Pharmacy Council of India |
| 23 | Abhilashi University, Chailchowk, Tehsil chachiot, Mandi, H.P. | UGC Approved, Pharmacy Council of India |
| 24 | Baddi University of Emerging Science and Technology, Baddi, Solan, HP | UGC Approved, Pharmacy Council of India |
| 25 | Bahra University, Waknaghat, Distt. Solan HP. | UGC Approved, Pharmacy Council of India |
| 26 | Career Point University, Tikker, Bhoranj, Hamirpur. HP. | UGC Approved, Pharmacy Council of India |
| 27 | Chitkara University, Atal Shiksha Kunj, Kalujhanda, Baddi, Distt. Solan, HP. | UGC Approved, Pharmacy Council of India |
| 28 | Indus International University, Bathu, Distt. Una. HP-174507. | UGC Approved, Pharmacy Council of India |
| 29 | IEC University, Atal Shiksha Kunj, Kalujhanda, Near Nanak Pura, Nalagarh Pinjore Highway, Distt. Solan-HP 174103 | UGC Approved, Pharmacy Council of India |
| 30 | Maharaja Agrasen University, Atal Shiksha Kunj. Kalujhanda,Near Barotiwala, Distt. Solan, HP-174103 | UGC Approved, Pharmacy Council of India |

| S No | Name and Address | Status of Recognition |
|---|---|---|
| 31 | Shoolini University of Biotechnology and Management Sciences. PO Box. No. 9, Head Post Office, Solan-173212 | UGC Approved, Pharmacy Council of India |
| 32 | Indira Gandhi Medical College, Shimla | Medical Council Approved |
| 33 | Dr. Rajendra Prasad Govt. Medical College Tanda HP-176001 | Medical Council Approved |
| 34 | Sh Lal Bahadur Shastri Govt. Medical College Nerchowk, Mandi | Medical Council Approved |
| 35 | Dr. Radhkrishnan Govt. Medical College Hamirpur HP | Medical Council Approved |
| 36 | Pt. Jawahar Lal Nehru Govt. Medical College Chamba | Medical Council Approved |
| 37 | Govt. Medical College Nahan, Sirmour, HP | Medical Council Approved |
| 38 | Maharishi Markandeshwar Medical College and Hospital Solan | Medical Council Approved |

**b) List of Engineering institutes/colleges in the state**

Himachal Pradesh has a presence of more than 20 Engineering colleges across the state which would provide skilled manpower to the State and the details of institutions are mentioned below:

*Table 52 Details of Engineering Institutes/ Colleges in the State*

| S No | Name and Address | Status of Recognition |
|---|---|---|
| 1 | Jawaharlal Nehru Govt. Engineering College, Sundernagar District Mandi, (HP) | AICTE Approved |
| 2 | Atal Bihari Vajpayee Govt Institute of Engineering & Technology, Pragatinagar, District Shimla (HP) | AICTE Approved |
| 3 | Rajiv Gandhi Govt Engineering College Kangra at Nagrota Bagwan District Kangra (HP) | AICTE Approved |
| 4 | HPTU Off-Campus Mahatma Gandhi Govt. Engineering College. Kotla (Jeon), Distt-Shimla (HP) Camp at JNGEC, Sundernagar Distt Mandi (HP | HPTU Approved |
| 5 | HPTU Off-Campus Hydro Engineering College, Bandia, Blaspur Camp at RGGEC Kangra at Nagrota Bagwan | HPTU Approved |
| 6 | Govt PG College Dharamshala, Distt. Kangra, H. P. (Computer Science Engineering) | AICTE Approved |

| S No | Name and Address | Status of Recognition |
|---|---|---|
| 7 | Green Hills Engineering College Village-Gandhigram, PO Baholi, Nahan Road, Kumarhalli, Distt Solan (HP) | AICTE Approved |
| 8 | Himalayan Institute of Engineering & Technology. Sadhora Road. Kala Amb, Tehsil Nahan, District Sirmour (HP). | AICTE Approved |
| 9 | Himachal Institute of Engineering & Technology at Vidya Nagar, Tehsil Shahpur, District Kangra (HP) | AICTE Approved |
| 10 | KC. Group of Research & Professional Institutes, VPO Pandoga Uparala Tehsil & Distt Una (HP) | AICTE Approved |
| 11 | TR. Abhilashi Memorial Institute of Engineering and Technology Tanda, PO Balt (Ner-Chowk), Tehsil-Sadar District Mandi (HP) | AICTE Approved |
| 12 | Vaishno College of Engineering, Vill. Thapkour, PO-Bhadroya Tehsil Nurpur District Kangra (HP) | AICTE Approved |
| 13 | LR Engineering and Technology. Village Jabli-Kyar PO Oachghat, District-Solan (HP) | AICTE Approved |
| 14 | Abhilashi University, Chailchowk, Tehsil chachiot, Mandi, H. P | UGC, Approved |
| 15 | Baddi University of Emerging Science and Technology, Baddi Solan, HP | UGC, Approved |
| 16 | Bahra University, Waknaghat, Distt. Solan HP | UGC, Approved |
| 17 | Career Point University, Tikker, Bhoranj, Hamirpur. HP. | UGC, Approved |
| 18 | Chitkara University, Atal Shiksha Kunj Kalujhanda, Badd, Distt Solan, HP | UGC, Approved |
| 19 | Eternal University, Haru Sahib, Distt, Sirmour HP-173101 | UGC, Approved |
| 20 | Indus International University, Bathu, Distt. Una HP-174507 | UGC, Approved |
| 21 | IEC University, Atal Shiksha Kunj. Kalujhanda, Near Nanak Pura Nalagarh Pinjore Highway, Distt. Solan-HP 174103 | UGC, Approved |
| 22 | Maharaja Agrasen University. Atal Shiksha Kunj Kalujhanda Near Barotiwala, Distt Solan, H-17410X | UGC, Approved |
| 23 | Shoolini University of Biotechnology and Management Sciences PO Box. No. 9. Head Post Office, Solan-173212 | UGC, Approved |

# 8 Schedule of the Park

**Name of Work: Development of Bulk Drug Park in Dist. Una, Himachal Pradesh**

**Schedule of Activities of Land Development , Infrastructure Development & CIF Facilities**

| Sr. No | Activity | Duration in Days | Oct-22 | | | | Nov-22 | | | | Dec-22 | | | | Jan-23 | | | | Feb-23 | | | | Mar-23 | | | | Apr-23 | | | | May-23 | | | | June-23 to | Jan-24 to Jun | July - 24 to | Jan -25 to June |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | W1 | W2 | W3 | W4 | W1 | W2 | W3 | W4 | W1 | W2 | W3 | W4 | W1 | W2 | W3 | W4 | W1 | W2 | W3 | W4 | W1 | W2 | W3 | W4 | W1 | W2 | W3 | W4 | W1 | W2 | W3 | W4 | 7 months | 6 months | 6 months | 6 months |
| 1 | Topographic Survey of the proposed land | 37 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | Preperation of Layout Plan | 21 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | Preperation of Tender for Land Development Agency | 15 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | Appointment of Land Development Agency (Tender Process) | 21 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5 | Execution of Development Work by Contractor | 180 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6 | Preperation of tender for Infrastructure Works | 21 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 7 | Appointment of contractor for Infrastructure Works | 30 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 8 | Execution of Infrastructure Development Works | 450 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 9 | Preperation of Tender Document for CIF Works | 30 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 10 | Appointment of Contractor for CIF Works | 30 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 11 | Execution of CIF Works, Procurement and Installation of Equipments | 450 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |



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The Complete Construction of Park is scheduled to be completed within 24 months from the date of approval of DPR from Government of India. But the commercial production of some units may start in Financial Year 2024 and 2025.

## Gantt Chart

### CIF Units ( For Each Individual Activity)

| Sr. No | Activity | Jun-23 | Jul-23 | Aug-23 | Sep-23 | Oct-23 | Nov-23 | Dec-23 | Jan-24 | Feb-24 | Mar-24 | Apr-24 | May-24 | Jun-24 | Jul-24 | Aug-24 | Sep-24 | Oct-24 | Nov-24 | Dec-24 | Jan-25 | Feb-25 | Mar-25 | Apr-25 | May-25 | Jun-25 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Preperation of Program Brief | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | Survey of Plot as per actual site condition | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | Preliminary DPR for the facility | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | BoQ Preparation | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5 | Tendering Process | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6 | Contractor Selection | | | | | | | | | | | | | | | | | | | | | | | | | |
| 7 | Basement/ Footings | | | | | | | | | | | | | | | | | | | | | | | | | |
| 8 | Ground Floor RCC | | | | | | | | | | | | | | | | | | | | | | | | | |
| 9 | First Floor RCC | | | | | | | | | | | | | | | | | | | | | | | | | |
| 10 | Walls, Windows and Other Finishing works | | | | | | | | | | | | | | | | | | | | | | | | | |
| 11 | Interior fitouts of facility | | | | | | | | | | | | | | | | | | | | | | | | | |
| 12 | Machinery of the facility | | | | | | | | | | | | | | | | | | | | | | | | | |

## Gantt Chart

### Sewage Treatment Plant

| Sr. No | Activity | Jun-23 | Jul-23 | Aug-23 | Sep-23 | Oct-23 | Nov-23 | Dec-23 | Jan-24 | Feb-24 | Mar-24 | Apr-24 | May-24 | Jun-24 | Jul-24 | Aug-24 | Sep-24 | Oct-24 | Nov-24 | Dec-24 | Jan-25 | Feb-25 | Mar-25 | Apr-25 | May-25 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Mobilization Work | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | Fencing Work | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | Inlet Pumping Station | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | Screen Plant | | | | | | | | | | | | | | | | | | | | | | | | |
| 5 | Grit Chamber | | | | | | | | | | | | | | | | | | | | | | | | |
| 6 | Power Supply Network | | | | | | | | | | | | | | | | | | | | | | | | |
| 7 | Venturi Flume | | | | | | | | | | | | | | | | | | | | | | | | |
| 8 | Distribution Boxes | | | | | | | | | | | | | | | | | | | | | | | | |
| 9 | Aeration Tank | | | | | | | | | | | | | | | | | | | | | | | | |
| 10 | Sedimentation Tank | | | | | | | | | | | | | | | | | | | | | | | | |
| 11 | Sludge Pump Station | | | | | | | | | | | | | | | | | | | | | | | | |
| 12 | Sludge Pump Units | | | | | | | | | | | | | | | | | | | | | | | | |
| 13 | Sludge Holding Tank | | | | | | | | | | | | | | | | | | | | | | | | |
| 17 | Sludge Drainage Bed | | | | | | | | | | | | | | | | | | | | | | | | |
| 18 | Chlorinator Pumping Station | | | | | | | | | | | | | | | | | | | | | | | | |
| 19 | Nitrogen and Phosphors Removal System | | | | | | | | | | | | | | | | | | | | | | | | |
| 20 | Wash water recovery tank | | | | | | | | | | | | | | | | | | | | | | | | |
| 21 | Water Supply station | | | | | | | | | | | | | | | | | | | | | | | | |
| 22 | Electrical Panel Room | | | | | | | | | | | | | | | | | | | | | | | | |
| 23 | Control Room | | | | | | | | | | | | | | | | | | | | | | | | |



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## Gantt Chart

### Power Infrastructure

| Sr. No | Activity | Jun-23 | Jul-23 | Aug-23 | Sep-23 | Oct-23 | Nov-23 | Dec-23 | Jan-24 | Feb-24 | Mar-24 | Apr-24 | May-24 | Jun-24 | Jul-24 | Aug-24 | Sep-24 | Oct-24 | Nov-24 | Dec-24 | Jan-25 | Feb-25 | Mar-25 | Apr-25 | May-25 | Jun-25 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Detailed Contour Survey | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | Preliminary DPR for Power Works | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | Detail Design | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | BoQ Preparation | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5 | Tendering Process | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6 | External Power Line Extension | | | | | | | | | | | | | | | | | | | | | | | | | |
| 7 | Internal Power Line Network | | | | | | | | | | | | | | | | | | | | | | | | | |
| 8 | Sub Station Installation | | | | | | | | | | | | | | | | | | | | | | | | | |
| 9 | Panel Room Instalation | | | | | | | | | | | | | | | | | | | | | | | | | |
| 10 | Secondary Transformers Installation | | | | | | | | | | | | | | | | | | | | | | | | | |
| 11 | Plug and Play Connections | | | | | | | | | | | | | | | | | | | | | | | | | |

## Gantt Chart

### Water Infrastructure

| Sr. No | Activity | Duration in Days | Jun-23 | Jul-23 | Aug-23 | Sep-23 | Oct-23 | Nov-23 | Dec-23 | Jan-24 | Feb-24 | Mar-24 | Apr-24 | May-24 | Jun-24 | Jul-24 | Aug-24 | Sep-24 | Oct-24 | Nov-24 | Dec-24 | Jan-25 | Feb-25 | Mar-25 | Apr-25 | May-25 | Jun-25 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Detailed Contour Survey | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | Preliminary DPR for Power Works | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | Detail Design | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | BoQ Preparation | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5 | Tendering Process | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6 | Road side excavation, laying of pipes and filling | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 7 | Pipeline network execution | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 8 | Filling and remoulding roadside surfaces | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 9 | Water works Site development | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 10 | Tube wells execution | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 11 | Pump room and Guard Quarter | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 12 | Underground Pump | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 13 | Overhead Tank | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 14 | Other fittings and working Joinery | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 15 | Trails and Pressure checking | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 16 | Admin Room and supply system | | | | | | | | | | | | | | | | | | | | | | | | | | |



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## Gantt Chart

## Road Construction

| Sr. No | Activity | Duration in Days | Jun-23 | Jul-23 | Aug-23 | Sep-23 | Oct-23 | Nov-23 | Dec-23 | Jan-24 | Feb-24 | Mar-24 | Apr-24 | May-24 | Jun-24 | Jul-24 | Aug-24 | Sep-24 | Oct-24 | Nov-24 | Dec-24 | Jan-25 | Feb-25 | Mar-25 | Apr-25 | May-25 | Jun-25 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Detailed Contour Survey | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | Preliminary DPR for Road Works | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | Detail Design | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | BoQ Preparation | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5 | Tendering Process | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6 | Demarcation of Road on Site | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 7 | Cutting and Filling | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 8 | Levelling of Roads | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 9 | Culvert and Bridges | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 10 | Filling and Metalling | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 11 | Road carpet Construction | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 12 | Finishing and Road Side Pavement | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 13 | Signage and Street Lights | | | | | | | | | | | | | | | | | | | | | | | | | | |

# 9 Single Window Mechanism

## 9.1 Existing Single Window Mechanism for providing timebound clearances

In order to provide doorstep services to investors, Single Window Clearance System is operational since 2004 in the Department of Industries, H.P. State Single Window Clearance & Monitoring Authority under the Chairmanship of Chief Minister has been constituted for speedy clearances of all investible projects. A Unified Application Form (UAF) has been devised to facilitate the investors to apply for Pre establishment permissions, approvals, clearance and NoCs from various Government Departments/ agencies by using single platform. **Time bound approvals are mandated under the Himachal Pradesh Public Service Guarantee Act 2011 with a punitive provision to the officer concerned** for delay in service delivery. Department of Industries is the Nodal Department to receive e-application & forward the same to the Departmental Nodal Officer of the Department concerned for comments, to co-ordinate with all the Departmental Nodal Officers in accordance with the procedure prescribed to obtain required clearances and to provide all necessary assistance to the applicant(s) to set up industrial undertaking(s) in the State. All line departments regulating industrial establishments have been integrated on this portal. Single Window Portal has been integrated with National Single Window System in order to facilitate the investors to get various clearances from Ministries/ Departments of Central Government.

**Key Features:**

- Common Application Form
- Investor can see live status of their application
- Online application and document submission, tracking of application, online approvals, and download
- Integration of various departments with SWCS - Investor need not to apply/ Register at individual department's website.
- Elimination of redundancy of document submission and information submission.
- Escalation matrix implemented to ensure the time bound delivery of the services
- SMS/Email alerts
- Online fees payment
- Digitally signed approvals
- User feedback
- Grievance system

## 9.2 Pre-establishment approvals/clearance from State/Central Govt.

Following are the department-wise Pre-Establishment Approvals/ Clearances

*Table 53 Pre-Establishment Approvals/ Clearances*

| Sl No. | Department Name | Service Name |
|---|---|---|
| 1 | Industries Department | Apply for Land Allotment |
| 2 | IPH Department | Apply for Ground Water NOC from IPH |
| 3 | HPPCB | Consent to Establish under HPPCB AIR Act,1981, Water Act,1974 |
| 4 | TCP | Building Map Approval |
| 5 | Revenue Department | Property Registration |
| 6 | HPSEBL | Procedure for Issuance of Power Availability Certificate (PAC) to the consumers |

## 9.3 Pre- Operational approvals/ Clearance from State/Central Govt

*Table: Pre-Operational Approvals*

| Sl No | Department Name | Service Name |
|---|---|---|
| 1 | Fire | Apply for Fire NOC |
| 2 | Labour | Factory Building Plan Approval under Factories Act, 1948 |
| 3 | Labour | Registration of Factories under Factories Act, 1948 |
| 4 | Industries | Incentive's disbursement |
| 5 | HPPCB | Consent to operate under AIR Act,1981, WATER Act,1974 |
| 6 | Labour | Registration under Building and Other Construction Worker's Welfare (BOCW) Act, 1996 |
| 7 | Labour | Registration under Inter-State Migrant Workmen (RE & CS) Act, 1979 (Contractor / Principal Employer) |
| 8 | Industries | Completion Plan (after completion of building in all respect) |
| 9 | HPSEBL (Himachal Pradesh State Electricity Board Ltd) | Procedure for sanction and release of load to the consumer |
| 12 | Central Drugs Standard Control Organization | • Approval of new drugs and clinical trials<br>• Import Registration and Licensing |

| Sl No | Department Name | Service Name |
|---|---|---|
| | | • License approving of Blood Banks, LVPs, Vaccines, r-DNA, ETC<br>• Amendment to D &C Act and Rules<br>• Banning of drugs and cosmetics<br>• Grant of Test License, Personal License, NOCs for Export<br>• Testing of New Drugs |
| 13 | Industries | Registration of Boilers under the Boilers Act, 1923 |
| 14 | HPPCB | Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016 |
| 15 | Electrical Inspectorate | Application for Approval to energize electrical Installations |

**Clearance under Single Window Mechanism is to be given by Central Govt.**

*Table 54 Clearance under the proposed single window mechanism is to be given by Central Govt.*

| S No | Department | Service Name |
|---|---|---|
| 1 | Central Drugs Standard Control Organization | • Approval of new drugs and clinical trials<br>• Import Registration and Licensing<br>• License approving of LVPs, Vaccines, r-DNA, ETC<br>• Amendment to D &C Act and Rules<br>• Banning of drugs and cosmetics<br>• Grant of Test License, Personal License, NOCs for Export<br>• Testing of New Drugs |
| 2 | Ministry of Environment and Forest (MoEF). | • Environmental Clearance Approval |

**Approvals are required on National window portal after its integration with state widow portal**

*Table 55 Details of approvals required from National Single Window Portal*

| S No | Permission | About Approval | Ministry Involved |
|---|---|---|---|
| 1 | Permission to produce, acquire, retain or use of Toxic Chemicals or Precursors as listed in | • This approval is required for getting Permission to produce, acquire, retain or use of Toxic Chemicals or Precursors for | Ministry of Chemicals and Fertilizers, Department of |

| S No | Permission | About Approval | Ministry Involved |
|---|---|---|---|
| | Schedule 1 in the annex on Chemicals Convention for research, medical, pharmaceutical and protective purpose. | research, medical, pharmaceutical and protective purpose.<br>• 'Toxic chemical' is any chemical which through its chemical action on life processes can cause death, temporary incapacitation or permanent harm to humans or animals, which includes all such chemicals, regardless of their origin or of their method of production, and regardless of whether they are produced in facilities. | Chemicals and Petrochemicals |
| 2 | Registration of Person engaged in production, procession, acquisition, consumption, transfer, import, export or use of Toxic Chemicals Toxic Chemical or Precursor listed in any of the Schedules 1 to 3 in the Annex on Chemicals to the Convention or, engaged in the production of any Discrete Organic Chemical including Discrete Organic Chemicals containing elements of phosphorous, sulphur or fluorine | • 'Toxic chemical' is any chemical which through its chemical action on life processes can cause death, temporary incapacitation or permanent harm to humans or animals, which includes all such chemicals, regardless of their origin or of their method of production, and regardless of whether they are produced in facilities.<br>• This registration is required for the production, processing, acquisition, consumption, transfer, import, export or use of toxic chemicals or precursors listed in any of the Schedules 1 to 3 in the Annex on chemicals to the convention or for engaging in the production of any discrete | Ministry of Chemicals and Fertilizers, Department of Chemicals and Petrochemicals |

| S No | Permission | About Approval | Ministry Involved |
|---|---|---|---|
| | | organic chemical including those containing elements of phosphorous, sulphur or fluorine. | |

**Regulatory Approvals: Applicable Environmental Regulations and Standards With respect to prevention and control of environmental pollution,**

The following Acts and Rules of Ministry of Environment and Forest, Government of India are applicable to the proposed Project.

- Water (prevention and control of pollution) Act, 1974 as amended in 1978 and 1988
- Air (prevention and control of pollution) Act, 1981 as amended in 1987
- Environmental protection Act, 1986 (amended 1991)
- Environmental protection rules, 1986 (amended 2004)
- Hazardous & other wastes (management and Trans boundary Movement) rules, 1989, as amended in 2008, 2016, 2019.
- Solid waste management rules, 2016 and its amendments.
- The e-waste management rules, 2011 and as amended in 2016.
- The noise pollution (regulation & control) rules, 2000 and as amended in 2002, 2006, 2010.
- EIA notification, dated 14/09/2006 and its amendments
- The plastic waste management rules 2016 and its amendments.
- Batteries management and handling rules, 2001
- The energy conservation Act, 2001
- National green tribunal Act, 2010
- Construction and demolition waste management rules, 2016
- Energy conservation building code 2017
- The building and other construction workers (regulation of employment & conditions of
- service) Act, 1996
- Forest (Conservation) Act, 1980
- Wildlife Protection Act (subsequent amendments) 1972 & 2002
- Central Motor Vehicle Act 1988 & 1989.
- The Ancient Monuments and Archaeological Sites and Remains (Amendment and Validation) Act, 2010.

With this background and to comply the need of dedicated single window mechanism for Bulk Drug Park as mentioned in the clause 10.9 of the Scheme Guidelines, a dedicated single window mechanism/ portal for providing doorstep services and all other requisite necessary clearances/ approvals would be put in place for ensuring effective EoDB for the bulk drug units located in the park.

Hence, the following mechanism has been envisaged to achieve the objective:

- A Senior Officer from Department of Industries, not below the rank of Joint Director, will be appointed as the Nodal officer for the Bulk Drug Park, who will coordinate with all the line departments for requisite clearances/ approvals from time to time
- Pre-Establishment approvals: Present Single Window mechanism headed by Hon'ble CM would be in place for Project approvals.
- Post- Establishment approvals: A committee headed by Administrative Secretary (Ind) and consisting of other line HoDs/competent authorities would be in place for according to post establishment approvals in a time bound manner.
- Project Monitoring Committee: Headed by Hon'ble CM and along with Hon'ble Industries Minister and concerned administrative secretaries will be formed for tracking the progress of the projects.
- The dedicated Single Window Mechanism will be integrated with National Single Window Portal

The provision of escalation matrix will be made in the Single Window portal to ensure time bound clearance by the Nodal officer and ensure monitoring by the HoDs. In case he/she fails to give clearance within specified time, proposal will automatically move to his/her higher ups for necessary action.

# 10 Financial viability of the Park

The Government of Himachal Pradesh has proposed to develop a 1405.01 Acre land parcel as Bulk Drug Park. To promote investment in this sector the Government of India is providing a Grant-in-Aid of Rs. 1000 Crore to the State for development of common infrastructure facility in Bulk Drug Park.

**The total project cost of the park is Rs 1923.00 Cr out which Rs 1638.46 Cr is for CIF and Rs 284.54 Cr is for other infrastructure including site Development cost.**

To make the Himachal Pradesh globally competitive, the state is offering land and utilities at the highly subsidised rates to the investors.

## 10.1 Land Use Breakup:

The Land use breakup for 1405.01 Acre of Bulk Drug Park and additional land allocated to SIA for commercial Viability is as below:

*Table 56 Details of Land Use Breakup*

| Sr No | Description | Area In Ha. | Area in Acre | Percentage (%) |
|---|---|---|---|---|
| 1 | Industrial Plot Area | 362.05 | 894.64 | 63.68% |
| 2 | Green Area | 57.42 | 141.89 | 10.10% |
| 3 | Logistic Hub & Warehouse | 15.79 | 39.02 | 2.78% |
| 4 | Commercial Plot | 40.77 | 100.75 | 7.17% |
| 6 | Electric Substation | 9.7 | 23.97 | 1.71% |
| 7 | Services (Filling Station, Fire Station, Police Station, Transfer Station, Under Ground Water Tank, Common Solvent Storage, etc.) | 7.98 | 19.72 | 1.40% |
| 8 | Administrative, Rest House (50 bedded) & allied activities | 2.29 | 5.66 | 0.40% |
| 9 | Research Institute for Pharmaceutical Advancement | 2.75 | 6.8 | 0.48% |
| 10 | CIF (Center of Excellence + Steam Generation, Solid Waste Management, CETP, Steam Generation) | 4.06 | 10.02 | 0.71% |

| Sr No | Description | Area in Ha. | Area in Acre | Percentage (%) |
|---|---|---|---|---|
| 5 | STP & CETP | 5.29 | 13.07 | 0.93% |
| 11 | Emergency Response Center+ Command Control Center | 2.49 | 6.17 | 0.44% |
| 12 | Advance Laboratory Testing Center | 2.14 | 5.28 | 0.38% |
| 13 | Roads | 55.86 | 138.02 | 9.82% |
| | **Total** | **568.59** | **1405.01** | **100.00%** |

## 10.2 Funding Pattern

*Table 57 Details of Funding Pattern*

| Year | FY 2023-24 | FY 2024-25 |
|---|---|---|
| State Govt Equity | 93.15 | 139.73 |
| Central Govt Grant | 400 | 600 |
| State Govt Grant | 276.04 | 414.06 |
| **Total Funding** | **769.19** | **1153.79** |

- It is assumed that land development and construction will be complete in the first 2 year of the project start date (40% development in first year and rest 60% development in 2nd year)
- From the total available 1405.01 acres area land is portioned in two types of Property: Saleable/ Leasable and other common area which will not be sold/leased.
- From revenue generation perspective, it is assumed that Industrial plots will be allocated in the first 2 years from project start date, while other available areas like- Commercial Plot etc will be available from third year onwards once common infrastructure is developed.
- In addition to the grant provided by Government of India, to make the project viable the State Government will provide remaining grant for the project. In the revised financial model, in the assumptions the GoHP contribution has been stated as 85% as grant and 15% as equity. The grant would be provided by the State either as a part of own fund or through private sector participation (with maximum of 49% as private equity as per the scheme guidelines).
- Provision for Operational and Management expenses also considered
- 12% Annual depreciation is provisioned on WDV method for 33 Years.
- Income Tax and MAT also calculated with rates of 29.0% and 16.0%

## 10.3 Available Inventory for Lease & Expected Occupancy

**Available Inventory for Revenue:** Below table will help to know the available inventory for revenue generation.

*Table 58 Details of available inventory for Lease & Expected Occupancy*

| Land use Category | Area | Whether saleable | Saleable area | Lease payment mode | Lease rent | Escalation |
|---|---|---|---|---|---|---|
| | #Sqmtr | # | #Sqmtr | # | #INR/Sqmtr | % |
| Industrial plots | 36,20,768 | Yes | 36,20,768 | One time | 1.0 | 0% |
| Flatted factories | - | No | - | | | |
| Residential (Group Housing) | - | No | - | | | |
| Commercial (base rate for auction) | 4,07,678 | Yes | 4,07,678 | One time | 5,000.0 | 5% |
| Electric Sub-station | 97,229 | No | - | | | |
| Common Facility Center (CFC) | 40,370 | No | - | | | |
| SETP STP | 52,879 | No | - | | | |
| Open and Green Areas | 5,74,274 | No | - | | | |
| Roads & Parking | 5,58,353 | No | - | | | |
| Emergency Response System | 25,018 | No | - | | | |
| **Total** | **53,76,567** | | **40,28,445** | | | |

## 10.4 Estimated Occupancy

It is assumed that within 6 Years from project start date all the available inventory will be occupied as the industrial land is leased at Rs. 1 per sqm p.a. it will be leased out in quick pace.

*Table 59 Details of Estimated Occupancy*

| Lease phasing | | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
|---|---|---|---|---|---|---|---|
| Industrial plots | % | 50% | 50% | 0% | 0% | 0% | 0% |
| Flatted factories | % | 0% | 0% | 0% | 0% | 0% | 0% |
| Residential (Group Housing) | % | 0% | 0% | 0% | 0% | 0% | 0% |
| Commercial | % | 0% | 0% | 25% | 25% | 25% | 25% |

## 10.5 Operational Expenses

As explained above the complete capital expenditure of the Bulk Drug Park will be met from Grant from Central and State Government and through the State Government Investment in SIA as Equity.

**Operational expenses:** Expenses against the Power, Water, Steam, Solid waste treatment, Effluent Treatment, Warehouse maintenance, warehouse and for other operations are provisioned. It will be recovered from beneficiaries of unit's holders in the form of O&M Charges.

As the State is offering subsidies in the utility rate to the Bulk Drug units. The details of utility charges are as below.

*Table 60 Details of Utility Charges*

| Description of Utilities | Capacity (Unit) | Utility Charges (Rs) | Offered Utility Charges (Rs) |
|---|---|---|---|
| Power | 500 million units per year (KWh) | 3.70* | 3 |
| Effluent Treatment | 5 MLD (per kilo Litre) | 405 | 299 |
| Steam | 300 Tonne (Per tonne) | 1064 | 900 |
| Solid Waste Management | 50,000 Tonne (per annum) | 855 | 700 |
| Water | 15 MLD (Per KL) | 10 | 0 |
| Warehouse | 12,800 sq.m. (monthly charges per sqm) | 20 | 0 |
| Park Maintenance Charges | 36,20,473 sq.m. (annual charges per sqm) | 5 | 0 |

Note:

*State Govt has already submitted an undertaking to the fact that SIA will not increase 5% utilities charges per annum.*

*Annual escalation on revenue from utilities (5%) and annual escalation of cost (1%) has been considered in the financial model*

## Operational Expenditure:

**Rs. In Lakhs**

*Table 61 Details of Operational Expenditure*

| Total operation and maintenance | Y1 | Y2 | Y3 | Y4 | Y5 | Y6 | Y7 | Y8 | Y9 | Y10 | Y11 | Y12 | Y13 | Y14 | Y15 | Y16 | Y17 | Y18 | Y19 | Y20 | Y21 | Y22 | Y23 | Y24 | Y25 | Y26 | Y27 | Y28 | Y29 | Y30 | Y31 | Y32 | Y33 | Y34 | Y35 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Power charges | 00 | 00 | 18,500.0 | 18,685.0 | 18,871.9 | 19,060.6 | 19,251.2 | 19,443.7 | 19,638.1 | 19,834.5 | 20,032.8 | 20,233.2 | 20,435.5 | 20,639.9 | 20,846.3 | 21,054.7 | 21,265.3 | 21,477.9 | 21,692.7 | 21,909.6 | 22,128.7 | 22,350.0 | 22,573.5 | 22,799.3 | 23,027.2 | 23,257.5 | 23,490.1 | 23,725.0 | 23,962.2 | 24,201.9 | 24,443.9 | 24,688.3 | 24,935.2 | 25,184.6 | 25,436.4 |
| Water charges | 00 | 00 | 510.0 | 515.1 | 520.3 | 525.5 | 530.7 | 536.0 | 541.4 | 546.8 | 552.3 | 557.8 | 563.4 | 569.0 | 574.7 | 580.4 | 586.2 | 592.1 | 598.0 | 604.0 | 610.0 | 616.1 | 622.3 | 628.5 | 634.8 | 641.2 | 647.6 | 654.0 | 660.6 | 667.2 | 673.9 | 680.6 | 687.4 | 694.3 | 701.2 |
| Warehouse maintenance charges | 00 | 00 | 30.7 | 31.0 | 31.3 | 31.7 | 32.0 | 32.3 | 32.6 | 32.9 | 33.3 | 33.6 | 33.9 | 34.3 | 34.6 | 35.0 | 35.3 | 35.7 | 36.0 | 36.4 | 36.7 | 37.1 | 37.5 | 37.9 | 38.2 | 38.6 | 39.0 | 39.4 | 39.8 | 40.2 | 40.6 | 41.0 | 41.4 | 41.8 | 42.2 |
| Effluent treatment | 00 | 00 | 6,883.3 | 6,952.1 | 7,021.7 | 7,091.9 | 7,162.8 | 7,234.4 | 7,306.8 | 7,379.8 | 7,453.6 | 7,528.2 | 7,603.4 | 7,679.5 | 7,756.3 | 7,833.8 | 7,912.2 | 7,991.3 | 8,071.2 | 8,151.9 | 8,233.4 | 8,315.8 | 8,398.9 | 8,482.9 | 8,567.8 | 8,653.4 | 8,740.0 | 8,827.4 | 8,915.6 | 9,004.8 | 9,094.8 | 9,185.8 | 9,277.6 | 9,370.4 | 9,464.1 |
| Steam | 00 | 00 | 25,280.6 | 25,533.4 | 25,788.8 | 26,046.7 | 26,307.1 | 26,570.2 | 26,835.9 | 27,104.3 | 27,375.3 | 27,649.1 | 27,925.6 | 28,204.8 | 28,486.9 | 28,771.7 | 29,059.4 | 29,350.0 | 29,643.5 | 29,940.0 | 30,239.4 | 30,541.8 | 30,847.2 | 31,155.7 | 31,467.2 | 31,781.9 | 32,099.7 | 32,420.7 | 32,744.9 | 33,072.4 | 33,403.1 | 33,737.1 | 34,074.5 | 34,415.2 | 34,759.4 |
| Solid waste management | 00 | 00 | 427.5 | 431.8 | 436.1 | 440.5 | 444.9 | 449.3 | 453.8 | 458.3 | 462.9 | 467.6 | 472.2 | 476.9 | 481.7 | 486.5 | 491.4 | 496.3 | 501.3 | 506.3 | 511.4 | 516.5 | 521.6 | 526.8 | 532.1 | 537.4 | 542.8 | 548.2 | 553.7 | 559.3 | 564.9 | 570.5 | 576.2 | 582.0 | 587.8 |
| Park maintenance | 00 | 00 | 181.0 | 182.8 | 184.7 | 186.5 | 188.4 | 190.3 | 192.2 | 194.1 | 196.0 | 198.0 | 200.0 | 202.0 | 204.0 | 206.0 | 208.1 | 210.2 | 212.3 | 214.4 | 216.5 | 218.7 | 220.9 | 223.1 | 225.4 | 227.6 | 229.9 | 232.2 | 234.5 | 236.8 | 239.2 | 241.6 | 244.0 | 246.5 | 248.9 |
| Management Cost of SPV | 600.0 | 630.0 | 661.5 | 694.6 | 729.3 | 765.8 | 804.1 | 844.3 | 886.5 | 930.8 | 977.3 | 1,000.0 | 1,000.0 | 1,000.0 | 1,000.0 | 1,000.0 | 1,000.0 | 1,000.0 | 1,000.0 | 1,000.0 | 1,000.0 | 1,000.0 | 1,000.0 | 1,000.0 | 1,000.0 | 1,000.0 | 1,000.0 | 1,000.0 | 1,000.0 | 1,000.0 | 1,000.0 | 1,000.0 | 1,000.0 | 1,000.0 | 1,000.0 |



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655

| Total operation and maintenance | Y1 | Y2 | Y3 | Y4 | Y5 | Y6 | Y7 | Y8 | Y9 | Y10 | Y11 | Y12 | Y13 | Y14 | Y15 | Y16 | Y17 | Y18 | Y19 | Y20 | Y21 | Y22 | Y23 | Y24 | Y25 | Y26 | Y27 | Y28 | Y29 | Y30 | Y31 | Y32 | Y33 | Y34 | Y35 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Total operation and maintenance | 600.0 | 630.0 | 52,474.7 | 53,025.9 | 53,583.9 | 54,149.0 | 54,721.1 | 55,300.5 | 55,887.2 | 56,481.6 | 57,083.6 | 57,667.3 | 58,234.0 | 58,806.3 | 59,384.4 | 59,968.3 | 60,557.9 | 61,153.5 | 61,755.0 | 62,362.6 | 62,976.2 | 63,596.0 | 64,221.9 | 64,854.2 | 65,492.7 | 66,137.6 | 66,789.0 | 67,446.9 | 68,111.4 | 68,782.5 | 69,460.3 | 70,144.9 | 70,836.4 | 71,534.7 | 72,240.1 |

## Operation and Maintenance Revenue:

**Rs. In Lakhs**

*Table 62 Details of Operation and Maintenance Revenue*

| Total Operation and Maintenance Recovered | Y 1 | Y 2 | Y 3 | Y 4 | Y 5 | Y 6 | Y 7 | Y 8 | Y 9 | Y 10 | Y 11 | Y 12 | Y 13 | Y 14 | Y 15 | Y 16 | Y 17 | Y 18 | Y 19 | Y 20 | Y 21 | Y 22 | Y 23 | Y 24 | Y 25 | Y 26 | Y 27 | Y 28 | Y 29 | Y 30 | Y 31 | Y 32 | Y 33 | Y 34 | Y 35 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Power charges | 0.000 | 0.000 | 15,000.0 | 15,750.0 | 16,537.5 | 17,364.4 | 18,232.6 | 19,144.2 | 20,101.4 | 21,106.5 | 22,161.8 | 23,269.9 | 22,479.1 | 22,703.9 | 22,930.9 | 23,160.2 | 23,391.8 | 23,625.7 | 23,862.0 | 24,100.6 | 24,341.6 | 24,585.0 | 24,830.9 | 25,079.2 | 25,330.0 | 25,583.3 | 25,839.1 | 26,097.5 | 26,358.5 | 26,622.1 | 26,888.3 | 27,157.2 | 27,428.7 | 27,703.0 | 27,980.0 |
| Water charges | 0.000 | 0.000 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 667.1 | 671.9 | 678.6 | 685.4 | 694.2 | 699.2 | 706.2 | 713.2 | 722.4 | 727.6 | 734.9 | 742.2 | 751.7 | 757.1 | 764.7 | 772.3 | 782.2 | 787.9 | 795.7 | 803.7 | 814.0 | 819.9 | 828.1 |
| Warehouse maintenance charges | 0.000 | 0.000 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 37.3 | 37.7 | 38.1 | 38.5 | 38.8 | 39.2 | 39.6 | 40.0 | 40.4 | 40.8 | 41.2 | 41.6 | 42.1 | 42.5 | 42.9 | 43.3 | 43.8 | 44.2 | 44.6 | 45.1 | 45.5 | 46.0 | 46.5 |
| Effluent treatment | 0.000 | 0.000 | 5,083.0 | 5,337.2 | 5,604.0 | 5,884.2 | 6,178.4 | 6,487.3 | 6,811.7 | 7,152.3 | 7,509.9 | 7,885.4 | 8,363.8 | 8,447.4 | 8,531.9 | 8,617.2 | 8,703.4 | 8,790.4 | 8,878.3 | 8,967.1 | 9,056.8 | 9,147.4 | 9,238.8 | 9,331.2 | 9,424.5 | 9,518.8 | 9,613.9 | 9,710.1 | 9,807.2 | 9,905.3 | 10,004.3 | 10,104.4 | 10,205.4 | 10,307.5 | 10,410.5 |
| Steam | 0.000 | 0.000 | 21,384.0 | 22,453.2 | 23,575.9 | 24,754.7 | 25,992.4 | 27,292.0 | 28,656.6 | 30,089.4 | 31,593.9 | 33,173.6 | 30,718.1 | 31,025.3 | 31,335.5 | 31,648.9 | 31,965.4 | 32,285.0 | 32,607.9 | 32,934.0 | 33,263.3 | 33,595.9 | 33,931.9 | 34,271.2 | 34,613.9 | 34,960.0 | 35,309.6 | 35,662.7 | 36,019.3 | 36,379.5 | 36,743.4 | 37,110.8 | 37,481.9 | 37,856.8 | 38,235.3 |
| Solid waste management | 0.000 | 0.000 | 350.0 | 367.5 | 385.9 | 405.2 | 425.4 | 446.7 | 469.0 | 492.5 | 517.1 | 543.0 | 519.4 | 524.6 | 529.9 | 535.2 | 540.5 | 545.9 | 551.4 | 556.9 | 562.5 | 568.1 | 573.8 | 579.5 | 585.3 | 591.2 | 597.1 | 603.1 | 609.1 | 615.2 | 621.3 | 627.6 | 633.8 | 640.2 | 646.6 |
| Park maintenance | 0.000 | 0.000 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 220.0 | 222.2 | 224.4 | 226.6 | 228.9 | 231.2 | 233.5 | 235.8 | 238.2 | 240.6 | 243.0 | 245.4 | 247.9 | 250.4 | 252.9 | 255.4 | 257.9 | 260.5 | 263.1 | 265.8 | 268.4 | 271.1 | 273.8 |
| Revenue from Application Fee | 8.0 | 8.0 | - | - | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Revenue from Map Approval Fee | 1,810.0 | 1,810.0 | - | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Sewage Charges | 0.000 | 0.000 | 2,172 | 2,281 | 2,395 | 2,515 | 2,641 | 2,773 | 2,911 | 3,056 | 3,209 | 3,369 | | | | | | | | | | | | | | | | | | | | | | | |



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657

| **Total Operation and Maintenance Recovered** | **Y 1** | **Y 2** | **Y 3** | **Y 4** | **Y 5** | **Y 6** | **Y 7** | **Y 8** | **Y 9** | **Y 10** | **Y 11** | **Y 12** | **Y 13** | **Y 14** | **Y 15** | **Y 16** | **Y 17** | **Y 18** | **Y 19** | **Y 20** | **Y 21** | **Y 22** | **Y 23** | **Y 24** | **Y 25** | **Y 26** | **Y 27** | **Y 28** | **Y 29** | **Y 30** | **Y 31** | **Y 32** | **Y 33** | **Y 34** | **Y 35** |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | 2.0 | 0.6 | 4.6 | 4.4 | 0.1 | 2.1 | 0.7 | 6.2 | 9.0 | 9.5 | | | | | | | | | | | | | | | | | | | | | | | |
| Ecological Cess | 0.00 | 0.00 | 362.0 | 380.1 | 399.1 | 419.1 | 440.0 | 462.0 | 485.1 | 509.4 | 534.8 | 561.6 | | | | | | | | | | | | | | | | | | | | | | | |
| Property Tax | 0.00 | 0.00 | 271.0 | 284.6 | 298.8 | 313.7 | 329.4 | 345.9 | 363.2 | 381.3 | 400.4 | 420.4 | | | | | | | | | | | | | | | | | | | | | | | |
| Power Generation from Steam | 0.00 | 0.00 | 6,000.0 | 6,000.0 | 6,000.0 | 6,000.0 | 6,000.0 | 6,000.0 | 6,000.0 | 6,000.0 | 6,000.0 | 6,000.0 | | | | | | | | | | | | | | | | | | | | | | | |
| **Operation and maintenance recovered** | **1,818.0** | **1,818.0** | **50,622.0** | **52,853.1** | **55,195.8** | **57,655.5** | **60,238.3** | **62,950.2** | **65,797.7** | **68,787.6** | **71,927.0** | **75,223.4** | **63,004.8** | **63,633.0** | **64,269.3** | **64,912.0** | **65,563.0** | **66,216.8** | **66,878.9** | **67,547.7** | **68,225.2** | **68,909.4** | **69,594.5** | **70,290.4** | **70,995.4** | **71,703.3** | **72,420.3** | **73,144.5** | **73,878.1** | **74,614.7** | **75,360.8** | **76,114.5** | **76,877.8** | **77,644.4** | **78,420.8** |

## Viability Gap Funding

**Rs. In Lakhs**

*Table 63 Details of Viability Gap Funding (VGF)*

| Viability gap funding | Y1 | Y2 | Y3 | Y4 | Y5 | Y6 | Y7 | Y8 | Y9 | Y10 | Y11 | Y12 | Y13 | Y14 | Y15 | Y16 | Y17 | Y18 | Y19 | Y20 | Y21 | Y22 | Y23 | Y24 | Y25 | Y26 | Y27 | Y28 | Y29 | Y30 | Y31 | Y32 | Y33 | Y34 | Y35 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Shortfall in recovery of O&M expenses during subsidised period | 1,218.0 | 1,188.0 | -1,852.7 | -172.8 | 1,611.8 | 3,506.6 | 5,517.2 | 7,649.8 | 9,910.5 | 12,306.1 | 14,843.4 | 17,556.0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |



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## 10.6 Details of Internal Rate of Return (IRR)

**P&L:** We have considered three heads of collection for P&L perspective-

A. Revenue from Lease rent- Revenue from lease of property
B. O&M Charges Recovered- Charges against O&M (Water, Power, maintenance, etc.) will be applied over functional units.
C. Viability gap funding- Funding to maintain the cash outflow (shortfall) against O&M, it will be for initial 12 years, later project will be self-sustainable.

**Balance sheet:** State government will hold 100% equity in SPV, and the central government and state government will contribute as Grant to the project.

## Internal Rate of Return (IRR)

*Table 64 Details of Internal Rate of Return (IRR)*

| | | | Y1 | Y2 | Y3 | Y4 | Y5 | Y6 | Y7 | Y8 | Y9 | Y10 | Y11 | Y12 | Y13 | Y14 | Y15 | Y16 | Y17 | Y18 | Y19 | Y20 | Y21 | Y22 | Y23 | Y24 | Y25 | Y26 | Y27 | Y28 | Y29 | Y30 | Y31 | Y32 | Y33 | Y34 | Y35 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| EBITDA | INR lac | | - | - | 172.4 | 357.9 | 558.9 | 776.9 | 778.2 | 779.5 | 780.8 | 782.2 | 783.6 | 785.1 | 5,557.5 | 5,615.0 | 5,675.0 | 5,735.7 | 5,798.9 | 5,859.1 | 5,921.8 | 5,985.3 | 6,051.6 | 6,114.6 | 6,180.5 | 6,247.3 | 6,317.0 | 6,383.5 | 6,453.2 | 6,524.1 | 6,598.3 | 6,669.9 | 6,745.5 | 6,823.5 | 6,907.5 | 6,993.8 | 7,101.1 |
| Less: Capital expenditure | INR lac | | -8,261.1 | -12,391.6 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Add: Change in working capital | INR lac | | 18.1 | 18.1 | 5,482.1 | 5,577.5 | 5,671.5 | 5,763.2 | -742.0 | -743.2 | -744.6 | -746.0 | -747.4 | -748.9 | -750.5 | -752.2 | -753.9 | -755.7 | -757.6 | -759.6 | -761.7 | -764.0 | -766.4 | -769.0 | -771.8 | -774.8 | -778.1 | -781.7 | -785.7 | -790.3 | -795.4 | -801.5 | -808.7 | -817.8 | -829.8 | -847.9 | -884.1 |
| Add: Debt (additions during the year) | INR lac | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Less: Debt (repayments during the year) | INR lac | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |



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| | | | Y1 | Y2 | Y3 | Y4 | Y5 | Y6 | Y7 | Y8 | Y9 | Y10 | Y11 | Y12 | Y13 | Y14 | Y15 | Y16 | Y17 | Y18 | Y19 | Y20 | Y21 | Y22 | Y23 | Y24 | Y25 | Y26 | Y27 | Y28 | Y29 | Y30 | Y31 | Y32 | Y33 | Y34 | Y35 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Less: Interest expenses | INR lac | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Add: Terminal value | INR lac | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | -0.0 |
| **FCFE (pre-tax)** | **INR lac** | | **-8,243.0** | **-12,373.5** | **5,654.5** | **5,935.4** | **6,230.4** | **6,540.1** | **36.2** | **36.2** | **36.2** | **36.2** | **36.2** | **36.2** | **36.2** | **4,807.0** | **4,862.9** | **4,921.1** | **4,980.0** | **5,041.3** | **5,099.4** | **5,160.1** | **5,221.3** | **5,285.1** | **5,345.6** | **5,408.7** | **5,472.5** | **5,538.9** | **5,601.8** | **5,667.5** | **5,733.8** | **5,802.9** | **5,868.4** | **5,936.7** | **6,005.7** | **6,077.7** | **6,145.8** | **6,216.9** |
| Less: Tax on PBT | INR lac | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | -5.0 | -14.7 | -24.7 | -35.0 | -44.8 | -55.1 | -65.5 | -76.4 | -86.8 | -97.6 | -108.7 | -120.3 | -131.4 | -143.2 | -155.4 | -168.5 | -182.0 | -198.7 |
| **FCFE (post tax)** | **INR lac** | | **-8,243.0** | **-12,373.5** | **5,654.5** | **5,935.4** | **6,230.4** | **6,540.1** | **36.2** | **36.2** | **36.2** | **36.2** | **36.2** | **36.2** | **36.2** | **4,807.0** | **4,862.9** | **4,921.1** | **4,980.0** | **5,041.3** | **5,094.5** | **5,145.3** | **5,196.7** | **5,250.2** | **5,300.8** | **5,353.6** | **5,406.9** | **5,462.5** | **5,515.1** | **5,569.8** | **5,625.1** | **5,682.6** | **5,737.0** | **5,793.5** | **5,850.3** | **5,909.2** | **5,963.9** | **6,018.2** |
| Equity IRR (pre-tax) | % | 17.55% | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Discount rate | % | 7.00% | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| NPV (pre-tax) | INR lac | 26,096.7 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Equity IRR (pos | % | 17.53% | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |



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| | | | Y1 | Y2 | Y3 | Y4 | Y5 | Y6 | Y7 | Y8 | Y9 | Y10 | Y11 | Y12 | Y13 | Y14 | Y15 | Y16 | Y17 | Y18 | Y19 | Y20 | Y21 | Y22 | Y23 | Y24 | Y25 | Y26 | Y27 | Y28 | Y29 | Y30 | Y31 | Y32 | Y33 | Y34 | Y35 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| t tax) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Discount rate | % | 7.00% | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| NPV (post tax) | INR lac | 25,856.1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |



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## 10.7 Financial Model for funding of Bulk Drug Park

- Total Project Cost – Rs. 1,923 Cr.
- Cost of CIF is approximately Rs.1,638.46 Cr
    - Grant in aid (GoI): Rs. 1000 Cr (90% of the cost of CIF)
    - State Government Contribution: Rs. 923 Cr

## 10.8 Sensitivity Analysis

Sensitivity analysis in this financial model determines the change in Internal Rate of Return (IRR) are affected based on changes in project cost.

Change in project cost

1) +5%, +10%, +15%

2) -5%, -10%, -15%

The following variance indicates on IRR through sensitivity analysis

*Table 65 Details of Sensitivity Analysis*

| % Change in Capax | Capax in Lakhs | Equity IRR (Pre-Tax) (In %) | Equity IRR (Post Tax) (In %) |
|---|---|---|---|
| +15% | 2,21,145 | 14.43% | 14.43% |
| +10% | 2,11,530 | 15.33% | 15.33% |
| + 5% | 2,01,915 | 16.36% | 16.35% |
| Normal | 1,92,300 | 17.55% | 17.53% |
| - 5% | 1,82,685 | 18.95% | 18.90% |
| - 10% | 1,73,070 | 20.60% | 20.52% |
| - 15% | 1,63,455 | 22.61% | 22.50% |

# 11 Regulatory approvals: Applicable Environmental Regulations and Standards

*Table 66 Environmental Documentation for Operational Phase of Bulk Drug Park*

| Parameters | Details |
|---|---|
| Air Emissions (incl. Noise) | • Consent to Establish from HPPCB<br>• Consent to Operate for Air Emissions from HPPCB<br>• Operational details of DG sets and air pollution control equipment including number of hours of operation, fuel usage, etc.<br>• Ambient Air Quality and Stack Emissions Monitoring records<br>• "Type Approval Certificates" and "Conformance Labels" for the DG sets<br>• Ambient Noise Monitoring Records |
| Water Supply | • Water Quality Monitoring records<br>• Water Cess Returns |
| Wastewater Discharges | • Consent to Establish from HPPCB<br>• Consent to Operate for Wastewater Discharges from HPPCB<br>• Details of quantity of wastewater discharged from various sources and discharged from the outlet of the STP for recycling/into the sewer (if any)<br>• Operational details of STP including number of hours of operation, chemical usage, in-process wastewater quality, etc.<br>• Wastewater Quality and Quantity Monitoring records |
| Waste Management | • Permission for disposal of solid wastes from concern<br>• municipality/authority<br>• Wastes Management Inventory including details of quantity<br>• of wastes generated on-site and mode of their disposal Inventory of wastes stored on-site<br>• Records of hazardous wastes stored on-site (in Form-3) (if generated) |

| Parameters | Details |
|---|---|
| | • Annual Returns for hazardous wastes (in Form-4 and Form-13) to HPPCB<br>• Documentation related to off-site transportation and disposal of hazardous wastes (including Form-9 and Form-10) |
| Environmental Statement | • Submission of Environmental Statement to HPPCB before 30th September every year |
| Petroleum Storage | • License from Petroleum and Explosives Safety Organization (PESO) PESO for storage of HSD and other petroleum substances (based on their quantities)<br>• Inventory of petroleum substances stored on-site both at storage and usage locations<br>• Regular integrity testing/inspection reports for the storage tanks |
| License and Approval for E Beam and Gamma Irradiation Facility | • The Gamma Radiation Processing Facilities (GRAPF) are required to obtain license from AERB under Atomic Energy (Radiation Protection) Rules, 2004.<br>• This is a pre-requisite to obtain another license for processing from DAE under Atomic Energy (Radiation Processing of Food and Allied Products) Rules, 2012.<br>• GRAPF carryout plant commissioning/re-commissioning dosimetry to determine absorbed dose profile, statistical variation in absorbed dose and setting of operational parameters. This document provides guidance for developing the standard operating procedures to be followed for conducting the plant commissioning/re-commissioning dosimetry based on the design of the facility, and standard format for preparing the dosimetry report for submission. The results of plant commissioning/re-commissioning dosimetry are verified by BARC |

## EoDB Ranking -2020

Himachal Pradesh has been acknowledged as 'Achiever' State by the DPIIT and has made a quantum leap in Ease of Doing Business Ranking (EoDB) too. The proactive government initiatives have further boosted investor confidence and fostered a business-friendly climate in the State.

# 12 Investment Outreach, Campaign & Programme

It is well established fact that State has emerged as a Pharma & formulation hub in the country and its presently home to 6 pharma cluster and more than 25 global pharma corporates. All these existing pharma & formulation players of State would act as ambassador for the State. A dedicated calendar for the participation in the forthcoming pharma exhibition, fair would be put in place for showcasing State's investment opportunities in the Pharma Sector. Besides, investment roadshows and investor's meet would be organized in consultation with DPIIT & DoP, GoI for attracting fresh investment in the Bulk Drug sector.

It is pertinent to mentioned here that, the Department of Industries has already started putting dialogue with the potential investors and planned investment outreach programme at the prominent potential places of the country. Some of group like Macleods Pharmaceuticals, Mankind Pharma, Smylex, Lupin Ltd, Dr. Reddy Laboratories, Laurus Pharma, Aurobindo Pharma, Concord Pharmaceuticals, Virchow Biotech Pvt Ltd. have shown keen interest in putting up API project in the Bulk Drug Park of the State.

List of MoUs would be shared separately

As a part of strategy for attracting investment in the Bulk Drug Park, State Govt has planned to interact with the embassies of different countries and would also conduct overseas investor meet/roadshows through **Invest India** and **EY LLP** which is already working as Knowledge Partner with the industries department, Govt. of Himachal Pradesh.

# Annexures:

**Undertaking 1**

In connection with our application for the development of a Bulk Drug Park as notified vide notification no. - 31026/08/2020-MD, dated - 21/07/2020 and "**In-Principle**" approval accorded from Department of Pharmaceuticals Ministry of Chemical Fertilizer Govt of India Vide Letter No 31026/58/2020-Policy dated 30th August 2022 and guidelines thereunder, the State of Himachal Pradesh acting through authorized signatory Shri R D Nazeem, IAS , Principal Secretary Industries, do hereby undertake unconditionally and irrevocably that the State of Himachal Pradesh shall ensure to

i. adhere to the roles and responsibilities of the State as outlined under these guidelines and fulfil all the commitments made in the proposal

ii. set up a State Implementing Agency (SIA) with the roles and responsibilities, as outlined in the Guidelines of the Scheme "Promotion of Bulk Drug Parks".

iii. make available balance amount of Project Cost without any delay, as may be required for completion of development of Bulk Drug Park, through budgetary and/or other sources, as may be necessary.

iv. not increase the land lease rent and utility charges, as declared in the proposal, beyond 5% per annum, for the next 10 years

v. establish a Research and Development facility as a Centre of Excellence in the park to be operated by an institution or by a society. Such centre of excellence shall employ competent scientists with suitable experience and promote industry-academia linkage. The State Government shall provide sufficient financial and other support for such centre.

vi. adhere to the responsibilities as specified in these guidelines and also the SIA, as appointed, and implementing agency, if any, as appointed, shall also adhere to the roles and responsibilities specified in these guidelines.

Dated: 7th Oct, 2022

Shri Rakesh Kumar Prajapati, IAS
Director (Industries)
Government of Himachal Pradesh

**Undertaking 2**

In connection with our application for the development of a Bulk Drug Park as notified vide notification no. - 31026/08/2020-MD, dated - 21/07/2020 and **'In-Principle'** approval accorded from Department of Pharmaceuticals Ministry of Chemical Fertilizer, **Govt of India Vide Letter No 31026/58**/2020-Policy dated 30th August 2022 and guidelines thereunder, the State of Himachal Pradesh acting through authorized signatory Shri R D Nazeem, IAS, Principal Secretary Industries, do hereby undertake unconditionally and irrevocably that the State of Himachal Pradesh shall ensure that

Total cost of project mentioned in the DRP is **Rs.1923 Cr** and as per the guideline out of which **Rs.1000 Cr** will be funded by GoI and the balance amount **Rs 923 Cr** shall be arranged by State Govt through own budgetary resources

Dated 7th Oct, 2022.

Shri Rakesh Kumar Prajapati IAS
Director (Industries)
Government of Himachal Pradesh

## Details of Balance Sheet

**INR in Lakhs**

*Table 67 Details of Balance Sheet for 35 years*

| Sources of funds | Y1 | Y2 | Y3 | Y4 | Y5 | Y6 | Y7 | Y8 | Y9 | Y10 | Y11 | Y12 | Y13 | Y14 | Y15 | Y16 | Y17 | Y18 | Y19 | Y20 | Y21 | Y22 | Y23 | Y24 | Y25 | Y26 | Y27 | Y28 | Y29 | Y30 | Y31 | Y32 | Y33 | Y34 | Y35 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| State Govt Equity | 8,261.1 | 2067.7 | 2067.7 | 2067.7 | 2067.7 | 2067.7 | 2067.7 | 2067.7 | 2067.7 | 2067.7 | 2067.7 | 2067.7 | 2067.7 | 2067.7 | 2067.7 | 2067.7 | 2067.7 | 2067.7 | 2067.7 | 2067.7 | 2067.7 | 2067.7 | 2067.7 | 2067.7 | 2067.7 | 2067.7 | 2067.7 | 2067.7 | 2067.7 | 2067.7 | 2067.7 | 2067.7 | 2067.7 | 2067.7 | 2067.7 |
| Central Govt Grant | 5849.6 | 1,474.4 | 1,474.4 | 1,474.4 | 1,474.4 | 1,474.4 | 1,474.4 | 1,474.4 | 1,474.4 | 1,474.4 | 1,474.4 | 1,474.4 | 1,474.4 | 1,474.4 | 1,474.4 | 1,474.4 | 1,474.4 | 1,474.4 | 1,474.4 | 1,474.4 | 1,474.4 | 1,474.4 | 1,474.4 | 1,474.4 | 1,474.4 | 1,474.4 | 1,474.4 | 1,474.4 | 1,474.4 | 1,474.4 | 1,474.4 | 1,474.4 | 1,474.4 | 1,474.4 | 1,474.4 |
| State Govt Grant | 9,674.4 | 241.9 | 241.9 | 241.9 | 241.9 | 241.9 | 241.9 | 241.9 | 241.9 | 241.9 | 241.9 | 241.9 | 241.9 | 241.9 | 241.9 | 241.9 | 241.9 | 241.9 | 241.9 | 241.9 | 241.9 | 241.9 | 241.9 | 241.9 | 241.9 | 241.9 | 241.9 | 241.9 | 241.9 | 241.9 | 241.9 | 241.9 | 241.9 | 241.9 | 241.9 |
| Reserve and Surplus | - | - | -5,654.8 | -11,124.2 | -16,392.5 | -21,442.9 | -26,492.0 | -31,539.8 | -36,586.3 | -41,631.4 | -46,675.0 | -51,717.2 | -51,986.9 | -52,199.2 | -52,351.4 | -52,443.0 | -52,471.4 | -52,436.6 | -52,331.4 | -52,042.1 | -51,599.5 | -51,001.4 | -50,246.9 | -50,333.6 | -50,264.1 | -49,735.8 | -49,147.7 | -48,496.9 | -47,785.8 | -47,010.8 | -46,170.0 | -45,258.3 | -44,273.8 | -43,198.7 |
| Long term lease charges received | 18.1 | 36.2 | 5,518.3 | 11,095.8 | 16,767.3 | 22,530.4 | 21,788.5 | 21,045.2 | 20,300.7 | 19,554.7 | 18,807.3 | 18,058.3 | 17,307.8 | 16,555.6 | 15,801.8 | 15,046.1 | 14,288.5 | 13,528.9 | 12,767.1 | 12,003.1 | 11,236.7 | 10,467.7 | 9,695.9 | 8,921.1 | 8,143.0 | 7,361.3 | 6,575.6 | 5,785.3 | 4,989.9 | 4,188.4 | 3,379.7 | 2,561.9 | 1,732.1 | 884.1 | -0.0 |

| Sources of funds | Y1 | Y2 | Y3 | Y4 | Y5 | Y6 | Y7 | Y8 | Y9 | Y10 | Y11 | Y12 | Y13 | Y14 | Y15 | Y16 | Y17 | Y18 | Y19 | Y20 | Y21 | Y22 | Y23 | Y24 | Y25 | Y26 | Y27 | Y28 | Y29 | Y30 | Y31 | Y32 | Y33 | Y34 | Y35 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Total | 76,938.1 | 1,92,36.2 | 1,92,163.4 | 1,92,271.6 | 1,92,674.7 | 1,93,387.5 | 1,87,596.5 | 1,81,805.4 | 1,76,014.4 | 1,70,223.3 | 1,64,432.2 | 1,58,641.2 | 1,57,620.9 | 1,56,656.5 | 1,55,750.3 | 1,54,903.0 | 1,54,117.1 | 1,53,384.3 | 1,52,702.4 | 1,52,071.7 | 1,51,494.6 | 1,50,968.2 | 1,50,494.5 | 1,50,074.2 | 1,49,709.4 | 1,49,397.2 | 1,49,139.7 | 1,48,937.6 | 1,48,792.9 | 1,48,702.6 | 1,48,668.9 | 1,48,691.9 | 1,48,773.8 | 1,48,910.4 | 1,49,101.3 |
| Application of Funds | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Fixed assets | - | - | 1,86,472.7 | 1,80,645.5 | 1,74,818.2 | 1,68,990.9 | 1,63,163.6 | 1,57,336.4 | 1,51,509.1 | 1,45,681.8 | 1,39,854.5 | 1,34,027.3 | 1,28,200.0 | 1,22,372.7 | 1,16,545.5 | 1,10,718.2 | 1,04,890.9 | 99,063.6 | 93,236.4 | 87,409.1 | 81,581.8 | 75,754.5 | 69,927.3 | 64,100.0 | 58,272.7 | 52,445.5 | 46,618.2 | 40,790.9 | 34,963.6 | 29,136.4 | 23,309.1 | 17,481.8 | 11,654.5 | 5,827.3 | -0.0 |
| Capital WIP | 76,920.0 | 1,92,300.0 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Tax adjustment | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Cash balance | 18.1 | 36.2 | 5,690.7 | 11,626.1 | 17,856.5 | 24,396.6 | 24,432.8 | 24,469.1 | 24,505.3 | 24,541.5 | 24,577.7 | 24,613.9 | 29,420.9 | 34,283.7 | 39,204.9 | 44,184.9 | 49,226.2 | 54,320.7 | 59,466.0 | 64,662.7 | 69,912.8 | 75,213.6 | 80,567.3 | 85,974.2 | 91,436.7 | 96,951.7 | 1,02,521.6 | 1,08,146.7 | 1,13,829.3 | 1,19,566.3 | 1,25,359.8 | 1,31,210.1 | 1,37,119.2 | 1,43,083.1 | 1,49,101.3 |
| Total | 76,938.1 | 1,92,36.2 | 1,92,163.4 | 1,92,271.6 | 1,92,674.7 | 1,93,387.5 | 1,87,596.5 | 1,81,805.4 | 1,76,014.4 | 1,70,223.3 | 1,64,432.2 | 1,58,641.2 | 1,57,620.9 | 1,56,656.5 | 1,55,750.3 | 1,54,903.0 | 1,54,117.1 | 1,53,384.3 | 1,52,702.4 | 1,52,071.7 | 1,51,494.6 | 1,50,968.2 | 1,50,494.5 | 1,50,074.2 | 1,49,709.4 | 1,49,397.2 | 1,49,139.7 | 1,48,937.6 | 1,48,792.9 | 1,48,702.6 | 1,48,668.9 | 1,48,691.9 | 1,48,773.8 | 1,48,910.4 | 1,49,101.3 |

## A. Financial Statement

Financial Model for 35 years is attached separately in the mail as **"Revised Financial Model 241122"**

## B. Quotations of CIF & Other Infrastructure

Quotations of CIF and other infrastructure components are attached separately in the mail as **"Quotations of CIF and other infrastructure"**

Annexure R14

# DRAFT EIA REPORT

For

# Bulk Drug Park

Located at

Village: Kuthar Beet, Pollian Beet, Tibbian, Jodian, Janani and Malluwal in Haroli Tehsil, District Una, Himachal Pradesh.

By

**M/s Himachal Pradesh Bulk Drug Park Infrastructure Limited**

**(HPBDPIL)**

Project Schedule 7(c) - 'Industrial estates/ parks/ complexes/ areas, export processing Zones (EPZs), Special Economic Zones (SEZs), Biotech Parks, Leather Complexes'

**Category: A**

**Project Area: 568.75 Hectares (1405.41 Acres)**

**Submitted by**

**M/s Eco Paryavaran Laboratories and Consultants Private Limited**

E-207, Industrial Area, Phase-VIIIB (Sector-74), S.A.S Nagar (Mohali) Punjab

environment@ecoparyavaran.org, www.ecoparyavaran.org

(QCI NABET Accreditation No.: NABET/EIA/22-23/RA 0324 dated 17.04.2024)

(In house Lab, NABL Accreditation No. – TC-11818 dated 26.06.2023)

*(EIA Consultant to HPBDPIL)*

**UID No.** **July 2024**

# Annexure – VII

## Part A: Declaration by ACO and Experts contributing to the EIA Report

Development of "Bulk Drug Park", proposed at Village Kuthar Beet, Pollian Beet, Tibbian, Jodian, Janani and Mulluwal, Tehsil Haroli, District Una, Himachal Pradesh by M/s Himachal Pradesh Bulk Drug Park Infrastructure Limited (HPBDPIL).

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

**EIA coordinator (EC)**

**Name:** Dr, Sandeep Garg

**Signature and Date:** .....

**Period of involvement:** .....

**Contact information:** M/s Eco Paryavaran Laboratories & Consultants Pvt. Ltd.

E 207, Industrial Area, Phase-VIII-B (Sector-74), Mohali (Punjab), Ph. No. - 01724616225

**Functional area experts:**

| S. No. | Functional areas | Name of the expert/s | Involvement (period and task**) | Signature and date |
|---|---|---|---|---|
| 1 | AP | Dr Rai Singh | Period – 30.12.2021 to till date<br>Task - Air quality modeling, plotting Isopleth of GLCs, micro-meteorological data. | |
| 2 | AQ | Dr.Rai Singh | Period – 30.12.2021 to till date<br>Task - Air quality modeling, plotting Isopleth of GLCs, micro-meteorological data. | |
| 3 | WP | Ms. Jyoti Rani | Period – 30.12.2021 to till date<br>Task – selection of location for sampling, Surface water and ground water quality monitoring | |
| 4 | SC | Ms. Jyoti Rani | Period – 30.12.2021 to till date<br>Task - Formulation of soil monitoring plan, Supervising the soil sample collection and testing. Impact identification and mitigation measures suggested | |

| | | | | |
|---|---|---|---|---|
| 5 | SE | Mr. Himanshu Ahuja | | |
| 6 | EB | Ms. Reena Chadha | | |
| 7 | G | NA | | |
| 8 | HG | Dr. Sandeep Garg | | |
| 9 | SHW | Dr. Sandeep Garg | | |
| 10 | RH | Dr. Rai Singh | | |
| 11 | NV | Dr. Rai Singh | | |
| 12 | LU | Mr. Ramandeep Dhiman | | |

*One TM against each FAE may be shown

**Please attach additional sheet if required

**Part B: Declaration by the Head of the accredited consultant organization/ authorized person**

I, Dr. Sandeep Garg hereby, confirm that the above mentioned experts prepared the EIA of development of "Bulk Drug Park" proposed at Village Kuthar Beet, Pollian Beet, Tibbian, Jodian, Janani and Mulluwal, Tehsil Haroli, District Una, Himachal Pradesh by M/s Himachal Pradesh Bulk Drug Park Infrastructure Limited (HPBDPIL). I also confirm that EIA Coordinator (EC) is fully aware of the content. The consultant organization shall be fully accountable for any misleading information. It is certified that EIA Report has been analysed by the system for plagiarism check using Plagiarism Checker X software in accordance with good scientific practice. No unethical practices have been carried out and external data / text has not been used without proper acknowledgement while preparing this EIA report.

| **Certificate of Plagiarism Check** | |
|---|---|
| Title of EIA Report: | "Bulk Drug Park" proposed at Village Kuthar Beet, Pollian Beet, Tibbian, Jodian, |

| | |
|---|---|
| | Janani and Mulluwal, Tehsil Haroli, District Una, Himachal Pradesh by M/s Himachal Pradesh Bulk Drug Park Infrastructure Limited (HPBDPIL) |
| Name of Accredited Organisation: | M/s Eco Paryavaran Laboratories & Consultants Pvt. Ltd. |
| Unique Identification Number: | |
| Name of EIA Co-ordinator: | Dr. Sandeep Garg |
| Name of the Software: | Plagiarism Checker X |
| Date of Check: | |
| Time of Check: | |

*Note – The ACO may use / take help of appropriate software to detect plagiarism issues of the EIA content.

**Date and Sing of EIA Co-ordinator:**

**Name**: Dr. Sandeep Garg

**Signature**: .....

**Designation**: Managing Director

**Name of the EIA consultant organization**: M/s Eco Paryavaran Laboratories & Consultants Pvt. Ltd. Located at E207, Industrial Area, Phase-VIII-B(Sector-74), Mohali (Punjab), Ph. No. – 01724616225

**NABET Certificate No. & Issue Date**: NABET/EIA/22-23/RA 0324 dated 17.04.2024

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सत्यमेव जयते

**File No:** 10/68/2023-IA.III
**Government of India**
**Ministry of Environment, Forest and Climate Change**
**IA Division**
***

Dated **01/08/2024**

To,

Tilak Raj Sharma
HIMACHAL PRADESH BULK DRUG PARK INFRASTRUCTURE LIMITED
Himachal Pradesh Bulk Drug Park Infrastructure Limited Directorate of Industries Majitha House, Near HP Secretariat Chhota Shimla, Shimla, SHIMLA, HIMACHAL PRADESH, 171002
trsharma4@gmail.com

**Subject:** **The proposed project is for development of "Bulk Drug Park" over an area of 568.75 Ha at Villages Kuthar Beet, Pollian Beet, Tibbian, Jodian, Janani and Malluwal, Teh. Haroli, Distt. Una, Himachal Pradesh by M/s Himachal Pradesh Bulk Drug Park Infrastructure Ltd-Terms of References reg.**

**Sir/Madam,**

This is in reference to your application for Grant of Terms of Reference under the provision of the EIA Notification 2006-regarding in respect of project Proposed "Bulk Drug Park" at Villages Kuthar Beet, Pollian Beet, Tibbian, Jodian, Janani and Malluwal, Teh. Haroli, Distt. Una, Himachal Pradesh by M/s Himachal Pradesh Bulk Drug Park Infrastructure Ltd. under Department of Industries, Government of Himachal Pradesh submitted to Ministry vide proposal number IA/HP/INFRA1/450106/2023 dated 25/10/2023.

2. The particulars of the proposal are as below :

| | |
|---|---|
| **(i) TOR Identification No.** | TO23A3103HP5957087N |
| **(ii) File No.** | 10/68/2023-IA.III |
| **(iii) Clearance Type** | TOR |
| **(iv) Category** | A |
| **(v) Project/Activity Included Schedule No.** | 7(c ) Industrial estates/ parks/ complexes/ areas, export processing Zones (EPZs), Special Economic Zones ,7(h) Common Effluent Treatment Plants (CETPs) |
| **(vi) Sector** | INFRA-1 |
| **(vii) Name of Project** | Proposed "Bulk Drug Park" at Villages Kuthar Beet, Pollian Beet, Tibbian, Jodian, Janani and Malluwal, Teh. Haroli, Distt. Una, Himachal |

| | |
|---|---|
| | Pradesh by M/s Himachal Pradesh Bulk Drug Park Infrastructure Ltd. under Department of Industries, Government of Himachal Pradesh |
| **(viii) Name of Company/Organization** | HIMACHAL PRADESH BULK DRUG PARK INFRASTRUCTURE LIMITED |
| **(ix) Location of Project (District, State)** | UNA, HIMACHAL PRADESH |
| **(x) Issuing Authority** | MoEF&CC |
| **(xii) Applicability of General Conditions** | yes |
| **(xiii) Applicability of Specific Conditions** | no |

3. 3. The proposal is for proposal is for development of "Bulk Drug Park" over an area of 568.75 Ha at Villages Kuthar Beet, Pollian Beet, Tibbian, Jodian, Janani and Malluwal, Teh. Haroli, Distt. Una, Himachal Pradesh by M/s Himachal Pradesh Bulk Drug Park Infrastructure Ltd.

4. The proposed project falls under Schedule 7(c), Industrial Estates /Parks /SEZ etc and category 'A' of EIA Notification 2006, as attracts general condition due to Punjab and Himachal Pradesh Border located at a distance 100 m in West direction from project site boundary. The total cost of the project is Rs. 1,923 Crores.

6. List of industries within the proposed project site includes only for those projects which are covered under 7(c) category of EIA Notification, 2006: As per guidelines of the scheme 'Promotion of Bulk Drug Parks', manufacturing of AP is only would be allowed in this upcoming Bulk Drug Park and the State Govt. has already decided to allow chemical based APIs only in this park due to comparatively low consumption of water & power. In this Park, about 70-80 APIs manufacturing units would be set up over 125 industrial plots. Accordingly, project layout with master plan has been worked out. Details are as following.

| S.No. | Land use Description | Area in Acres | Area in ha | Percentage (%) |
|---|---|---|---|---|
| 1 | Industrial Plot area | 531.06 | 214.92 | 37.79 |
| | Green Urban Plot area | 197.79 | 80.04 | 14.07 |
| 2 | Commercial area | 93.39 | 37.79 | 6.65 |
| 3 | Electrical Utilities | 23.37 | 9.46 | 1.66 |
| 4 | Utility area | 42.22 | 17.09 | 3.00 |
| 5 | TSDF Complex | 33.80 | 13.68 | 2.41 |
| 6 | Parking area | 24.17 | 9.78 | 1.72 |
| 7 | Green area | 270.78 | 109.58 | 19.27 |
| 8 | Treatment units (STP/ETP/MEE & WTP) | 41.70 | 16.87 | 2.97 |
| 9 | Logistics hub & ware house | 18.90 | 7.65 | 1.34 |
| 10 | Roads Area | 100.79 | 40.79 | 7.17 |
| 11 | Water bodies(Existing Nallah/Khad) | 27.15 | 10.99 | 1.93 |
| 12 | Semi Public (Temple) | 0.30 | 0.12 | 0.02 |
| Total Area | | 1405.416 | 568.76 | 100 |

7. The land use pattern in and around 10km of project comprises of open scrub/jungle 50.2%, Agricultural land 36.6%barren/waste land 5.9%, Settlement 5.2%, River bed 1%, water body 0.7% and forest etc 0.4%.

8. Terrain and topographical features: The terrain of the Project area is semi hilly area and there is no major drainage or nallah except a few seasonal channel inflows and one khad along the western direction of the project. Further, the area in & around the site under reference is in the form of hill and channels formed due to the dendric pattern of drainage.

9. Details of water bodies, impact on drainage: Swan River is located at a distance of approx. 8.5 km NE from the

proposed project site.

10. Water requirements: Total water requirement for the proposed project will be 22.1 MLD; out of which 15 MLD will be fresh water demand which will be met from groundwater* and 7.1 MLD will be recycled water which will be met from treated water. For utilization ground water permission has been accorded by the Jal Shakti Department, Govt. of HP.

11. Detailed contour map and drainage map along with the elevation of the project area and overlaying the project layout has been prepared as per contour, map the elevation of the project area varies from 390m to 590m from Mean Sea Level (MSL) approximately to avoid any apprehension of slides retaining and breast walls will designed with adequate strength to avoid any apprehensions of slides. The terrain of the Project area is semi hilly area and there is no major drainage or nallah except a few seasonal channel inflows and one khad along the western direction of the project. Further, the area in & around the site under reference is in the form of hill and channels formed due to the dendric pattern of drainage.

12. Detailed hydrological studies of the area for hydrological suitability to establish the industrial park has also been worked and no area or block has been notified from ground water development point of view. In beet area (Polian Beet and Kuthar Beet), ground water level is more than 60m below land surface. Hence, the geography of the study area makes hydrological suitability for establishment Bulk Drug Park 1405.41acres.

13. Waste Management: CETP: Provide details type and quantity of effluent, effluent conveyance system from the member units to CETP with CETP's Capacity. 5 MLD CETP with ZLD. STP: Provide details of treatment and usage of treated sewage with STP's capacity. 3 MLD.

14. Details of tree cutting: the proposed project will not involve any tree cutting.

15. Diversion of Forest land: The proposed project does not involve any forest land. As per the land use map of the project area, the project area includes open srub/jungle is 91% and Barren/waste land is 9%. Also submitted the letter no.1270/HP Forest Department dated 13/6/2024 and Endst.No.1300-1301 dated 14/6/2024 from the state forest department stating that the said land has been vested to Govt. of Himachal Pradesh under HP village Common Lands Vesting and Utilization Act, 1974 and the said land was neither recorded as forest land before vesting nor it has been recorded as forest land thereafter at any point of time. During presentation the concerned DFO also confirmed the status of project land as non-forest

16. The proposed site is not located within 10 km of Protected Areas (PA) including National Parks, Sanctuaries and Tiger Reserves etc and Eco-Sensitive Zone (ESZ) or Eco-Sensitive Area (ESA) notified.

17. R& R issues involved: The proposed project does not involve R&R issues.

18. Employment potential: The proposed project will create total 44,000 people. Benefits of the project: Industrial Innovation, Manufacturing growth, Employment generation.

19. Details of Court cases: There are no court cases against the project

20. EAC, after discussion and presentation, observed the following:

a. PP has submitted the No Objection certificate from the Forest Department/ concerned DFO to the effect that the project does not involve forestland. During presentation the concerned DFO also confirmed the status of project land as non-forest. Though he suggested that attempt shall be made to protect the vegetative growths including shrubs and small tree growths.

b. Though out of the options explored the PP has opted for relatively plain area close to the existing industrial areas yet terrain of the project area is undulating and hilly. Therefore developing industrial plots would require careful industrial

plot development avoiding the undue earth cutting, obstructing the drainages/khads/nallah and planning for water and soil conservation.

21. The EAC, taking into account the submission made by the project proponent has a detailed deliberation during its 367th meeting of Expert Appraisal Committee held on 26th June, 2024 and recommended the proposal for grant of Terms of Reference (ToR) with the specific conditions, as mentioned below, in addition to all standard conditions applicable for such projects:

22. Based on the deliberations in the meeting and information provided by the proponent in support of the project, the EAC recommended the project for 'development of "Bulk Drug Park" over an area of 568.75 Ha at Villages Kuthar Beet, Pollian Beet, Tibbian, Jodian, Janani and Malluwal, Teh. Haroli, Distt. Una, Himachal Pradesh by M/s Himachal Pradesh Bulk Drug Park Infrastructure Ltd' and for preparation of EIA/EMP report with public consultations subject to compliance of all conditions as notified in the standard ToR applicable for Industrial Estate/parks and specific conditions, as mentioned below-

23. A detailed draft EIA/EMP report shall be prepared in terms of the above additional TOR and should be submitted to the State Pollution Control Board for Public Hearing. Public Hearing to be conducted for the project in accordance with the provisions of Environmental Impact Assessment Notification, 2006 and the issues raised by the public should be addressed in the Environmental Management Plan. The Public Hearing shall be conducted based on the TOR letter issued by the Ministry and not on the basis of Minutes of the Meeting available on the website.

24. The project proponent shall submit the detailed final EIA/EMP report prepared as per TOR including issues raised during Public Hearing to the Ministry for considering the proposal for environmental clearance before expiry of validity of TOR.

25. The consultants involved in preparation of EIA/EMP report after accreditation with Quality Council of India/National Accreditation Board of Education and Training (QCFNABET) would need to include a certificate in this regard in the EIA/EMP reports prepared by them and data provided by other Organization(s)/Laboratories including their status of approvals etc. vide notification of the MoEF dated 19th July, 2013.

26. The prescribed TOR would be valid for a period of four years for submission of the EIA/EMP Reports.

27. This issue with the approval of Competent Authority.

**Copy To**

1. The Member Secretary,H.P.State Pollution Control Board, 35JF+MJM Him Parivesh, Phase 3, New Shimla, Shimla, Himachal Pradesh 171009.
2. Inspector General of Forests (C), Ministry of Environment, Forest and Climate Change, Integrated Regional Office, Shimla 1st & 2nd Floor, C.G.O. Complex, Longwood, Shimla – 171001.
3. PARIVEH Portal.
4. Guard file.

**Annexure 1**

**Specific Terms of Reference for (Industrial Estates/ Parks/ Complexes/ Areas, Export Processing Zones (Epzs), Special Economic Zones)**

**1. Specific Conditions**

| S. No | Terms of Reference |
|---|---|
| 1.1 | The planning of Industrial Estate should be based on the criteria mentioned in this Ministry's |

| S. No | Terms of Reference |
|---|---|
| | Technical EIA Guidance Manual for Industrial Estate (2009) prepared by IL&FS as well as CPCB's Zoning Atlas Guidelines for siting industries. |
| 1.2 | Categorization of industries as per CPCB/SPCB norms and as per EIA notification, 2006 has to be mentioned |
| 1.3 | Detailed layout of proposed Industrial area to be submitted along with the EIA/EMP report. |
| 1.4 | In the project area all slopes above 45 degrees shall be protected. No earth cutting shall be permitted in these slopes for plot development. Even in slopes less than 45-degree attempt shall be made to avoid undue earth cutting. Slope stabilization methods viz Breast wall/retaining wall constructions/use of geo-fabrics shall be used. A soil and water Conservation plan incorporating above suggestions shall be submitted as part of EIA report. |
| 1.5 | Muck shall not be disposed of in drains/nallah/Khad/depressions and the same shall not be obstructed by the muck. A proper muck disposal plan shall be prepared and submitted as part of EIA Report. |
| 1.6 | A detailed rain water harvesting plan including the provisions for check dams across all major and minor drains/streams and water re-charge wells along the banks of these drains/nallah/khad, shall be prepared and submitted as part of EIA Report. |
| 1.7 | The project area has undulating terrain and it is important to have detailed hydrological study and its impact need to be carried out on the catchment and drainage system in core and buffer zones. |
| 1.8 | The recommendations made by the Geologist Zone-I and II, Geological Wing, Department of Industries, Himachal Pradesh, Himachal Pradesh for the establishment of the proposed drug industrial estate shall comply later in spirit and shall submit along with the EIA/EMP report. |
| 1.9 | A detailed hydro geological study on the catchment area of the drainage system within core zone and at least 5km perimeter of the project area. The recommendations made in the Hydro geological study of the area shall comply later in spirit and shall submit along with the EIA/EMP report. |
| 1.10 | As proposed by PP Provision for reservoir for water storage shall be made, and the details of the same shall be submit along with the EIA/EMP report. |
| 1.11 | Water balancing chart and its resources for obtaining the ground water shall be submitted. |
| 1.12 | Provision for Reuse/recycle of treated wastewater, wherever feasible. Explore possibilities for recycling and reusing of treated water in the unit to reduce the fresh water demand and waste disposal. A detailed water harvesting plan needs to be submitted. Provision for Zero liquid discharge whenever techno-economically feasible. Provision for Continuous monitoring of effluent quality/quantity. |
| 1.13 | Detailed air quality study for each point source to be conducted along with the Micro metallurgical data. |
| 1.14 | The industrial layout/zones shall be planned such a way that, No tree can be felled/transplant unless exigencies demand. Where absolutely necessary, tree felling shall be with prior permission from the concern Authority. Where the trees need to be cut/transplanted with prior permission from the |

| S. No | Terms of Reference |
|---|---|
| | concerned local Authority, compensatory plantation in the ratio of 1:10 (i.e. planting of 10 trees for every 1 tree that is cut/ non-survival of any transplanted tree) shall be done and maintained. Plantations to be ensured species (cut) to species (planted). All the plantation will be done by state forest department as deposit work and not by private contractors. |
| 1.15 | At least 50-meter-wide green belt shall be developed all along the major streams/ nallah/khads and in minor streams 15-meter-wide green belt shall be developed. All slopes above 45 degrees and any slope around industrial plot, not planned for development within project, shall be properly afforested in consultation with forest department. Project boundary shall have at least 15-meter-wide green belt. A detailed green belt development plan shall be submitted as part of EIA Report |
| 1.16 | Plan for afforestation should be such that it is free from pesticides with flowering plants of native species for attracting bees and insects, which in turn is beneficial to the agriculture. Farmers around the project site shall be involved in developing such an afforestation Plan. |
| 1.17 | Details of Onsite and Offsite emergency plans as per provisions of the MSIHC Rules needs to be submitted. |
| 1.18 | Activity-wise, a time bound action plan along with budgetary provision for occupational health & surveillance, environment management plan, and green belt development plan. |
| 1.19 | Assessment of carrying capacity of transportation load on roads inside the notified industrial premises shall be carried out and submitted. |
| 1.20 | In addition to above, the EIA/EMP report shall also address issues such as i) Effective fugitive emission control measures for process, transportation, packing etc. ii) use of cleaner fuels and iii) best available technology for the plant. |
| 1.21 | As per the Ministry's Office Memorandum F.No.22-65/2017-IA.III dated 30th September, 2020, the activities proposed by the project proponent, based on the commitment made in the public hearing shall be incorporated in the Environmental Management Plan along with the cost estimates and submit to the Ministry. All other activities including pollution control, environmental protection and conservation, R&R, wildlife and forest conservation/protection measures including the NPV, Compensatory Aforestation etc, envisaged by the project proponent based on the social impact assessment and R&R action plan carried out during the preparation of EIA report, shall be detailed out along with the cost estimates and become part of EMP. Focus should also be kept for local floral and fauna biodiversity. |

**Standard Terms of Reference for (Industrial estates/ parks/ complexes/ areas, export processing Zones (EPZs), Special Economic Zones)**

**1. Project Details**

| S. No | Terms of Reference |
|---|---|
| 1.1 | Reasons for selecting the site with details of alternate sites examined/rejected/selected on merit with comparative statement and reason/basis for selection. The examination should justify site suitability in terms of environmental damage, resources sustainability associated with selected site as compared to rejected sites. |

| S. No | Terms of Reference |
|---|---|
| 1.2 | The analysis should include parameters considered along with weightage criteria for shortlisting selected site. |
| 1.3 | Zoning of the area in terms of 'type of industries' coming-up in the industrial area based on the resource requirement along with likely pollutants with quantity from the various industries. |
| 1.4 | Submit Roles and responsibility of the developer etc for compliance of environmental regulations under the provisions of EP Act. |
| 1.5 | Examine the details of National Highways/State Highways/ expressways falling along the corridor and the impact of the development on them. |
| 1.6 | Submit the details of the infrastructure to be developed. |
| 1.7 | Justification of the parameters, frequency and locations shall be discussed in the EIA. |

**2. Environment Status/baseline Data Methodology**

| S. No | Terms of Reference |
|---|---|
| 2.1 | Examine baseline environmental quality along with projected incremental load due to the project taking into account of the existing developments nearby. (ii) Environmental data to be considered in relation to the project development would be (a) land, (b) groundwater, (c) surface water, (d) air, (e) bio-diversity, (f) noise and vibrations, (g) socio economic and health. |
| 2.2 | Site justification of the identified industry sectors from environmental angle and the details of the studies conducted if any. |
| 2.3 | Identify, predict and assess the environmental and sociological impacts on account of the project. |

**3. Remote Sensing/ Gis**

| S. No | Terms of Reference |
|---|---|
| 3.1 | Analysis should be made based on latest satellite imagery for land use with raw images. |
| 3.2 | Check on flood plain of any river. |

**4. Land Use, Land Acquisition, R&r**

| S. No | Terms of Reference |
|---|---|
| 4.1 | Submit the details of the land use break-up for the proposed project. Details of land use around 10 km radius of the project site. |
| 4.2 | Submit details of environmentally sensitive places, land acquisition status, rehabilitation of communities/villages and present status of such activities. |

| S. No | Terms of Reference |
|---|---|
| 4.3 | Examine the impact of proposed project on the nearest settlements. |
| 4.4 | Submit details regarding R&R involved in the project |
| 4.5 | The project boundary area and study area for which the base line data is generated should be indicated through a suitable map. |

**5. Esz, Crz Details**

| S. No | Terms of Reference |
|---|---|
| 5.1 | Details regarding project boundary passing through any eco- sensitive area and within 10 km from eco- sensitive area. |

**6. Forest And Wildlife Related Details**

| S. No | Terms of Reference |
|---|---|
| 6.1 | An overall green area of at-least 33% of the Industrial Area should be developed with native species. The green area shall be 40% in case of critically polluted area. Green buffer in the form of green belt to a width of 15 meters should be provided all along the periphery of the industrial area. |
| 6.2 | Submit the details of the trees to be felled for the project. |
| 6.3 | Submit the present land use and permission required for any conversion such as forest, agriculture etc. |

**7. Court/ Litigation Related**

| S. No | Terms of Reference |
|---|---|
| 7.1 | Submit Legal frame work for the implementation of Environmental Clearance conditions - to be clearly spelt out in the EIA report. |
| 7.2 | Details of litigation pending against the project, if any, with direction /order passed by any Court of Law against the Project should be given. |

**8. Water Environment/quality/hydrology**

| S. No | Terms of Reference |
|---|---|
| 8.1 | Ground water classification as per the Central Ground Water Authority |
| 8.2 | Submit the source of water, requirement vis-à-vis waste water to be generated along with treatment facilities, use of treated waste water along with water balance chart taking into account all forms of water use and management. |

**9. Rain Water Harvesting**

| S. No | Terms of Reference |
|---|---|
| 9.1 | Rain water harvesting proposals should be made with due safeguards for ground water quality |
| 9.2 | Maximize recycling of water and utilization of rain water. Examine details. |
| 9.3 | Examine soil characteristics and depth of ground water table for rainwater harvesting. |

**10. Waste Management, Drainage And Stps Details**

| S. No | Terms of Reference |
|---|---|
| 10.1 | Submit a copy of the contour plan with slopes, drainage pattern of the site and surrounding area, and any obstruction of the same by the project. |
| 10.2 | Examine details of solid waste generation treatment and its disposal. |

**11. Soil Environment**

| S. No | Terms of Reference |
|---|---|
| 11.1 | Examine soil characteristics and depth of ground water table for rainwater harvesting. |

**12. Energy And Resources**

| S. No | Terms of Reference |
|---|---|
| 12.1 | Examine and submit details of use of solar energy and alternative source of energy to reduce the fossil energy consumption. |

**13. Air Environment**

| S. No | Terms of Reference |
|---|---|
| 13.1 | In case DG sets are likely to be used during construction and operational phase of the project. emissions from DG sets must be taken into consideration while estimating the impacts on air environment. Examine and submit details. |

**14. Road/transport Safety And Traffic Aspects**

| S. No | Terms of Reference |
|---|---|
| 14.1 | Examine road/rail connectivity to the project site and impact on the traffic due to the proposed project. |
| 14.2 | Present and future traffic and transport facilities for the region should be analysed with measures for |

| S. No | Terms of Reference |
|---|---|
| | preventing traffic congestion and providing faster trouble free system to reach different destinations in the city. |
| 14.3 | A detailed traffic and transportation study should be made for existing and projected passenger and cargo traffic. |
| 14.4 | Examine the details of transport of materials for construction which should include source and availability. |

**15. Noise Environment**

| S. No | Terms of Reference |
|---|---|
| 15.1 | Examine noise levels - present and future with noise abatement measures. |

**16. Environmental Management Plans And Mitigative Measures**

| S. No | Terms of Reference |
|---|---|
| 16.1 | Examine separately the details for construction and operation phases both for Environmental Management Plan and Environmental Monitoring Plan with cost and parameters. |
| 16.2 | Submit details of a comprehensive Disaster Management Plan including emergency evacuation during natural and man-made disaster. |
| 16.3 | Any further clarification on carrying out the above studies including anticipated impacts due to the project and mitigative measure, project proponent can refer to the model ToR available on Ministry. |

**Additional Terms of Reference**

N/A

**Annexure 2**

**Details of Products & By-products**

| Name of the product /By-product | Product / By-product | Quantity | Unit | Mode of Transport / Transmission | Remarks (eg. CAS number) |
|---|---|---|---|---|---|
| APIs and API intermediates | APIs and API intermediates | 787500 | Tons per Annum (TPA) | Road | Approx. 80 API units are likely proposed in the Bulk Drug Park |

## COMPLIANCE OF TERMS OF REFERENCE

**(Vide Letter No. 10/68/2023-IA.III dated 01/08/2024)**

**Proposed Bulk Drug Park located at Villages Kuthar Beet, Pollian Beet, Tibbian, Jodian, Janani and Malluwal, Teh. Haroli, Distt. Una, HP by M/s Himachal Pradesh Bulk Drug Park Infrastructure Limited (HPBDPIL).**

### A. STANDARD TERMS OF REFERENCE

| S. No. | Terms of Reference | Compliance Reply |
|---|---|---|
| **1.** | **Specific Conditions** | |
| **1.1** | The planning of Industrial Estate should be based on the criteria mentioned in this Ministry's Technical EIA Guidance Manual for Industrial Estate (2009) prepared by IL&FS as well as CPCB's Zoning Atlas Guidelines for siting industries. | The planning of Bulk Drug Park in Una, Himachal Pradesh under the category "Industrial Estate" is based on the criteria mentioned in this Ministry's Technical EIA Guidance Manual for Industrial Estate (2009) prepared by IL&FS as well as CPCB's Zoning Atlas Guidelines for siting industries. |
| **1.2** | Categorization of industries as per CPCB/SPCB norms and as per EIA notification, 2006 has to be mentioned | The project (Bulk Drug Park) falls in Category 'A' under Schedule 7(c) {Industrial estates/ parks/ complexes/ areas, export processing Zones (EPZs), Special Economic Zones (SEZs), Biotech Parks, Leather Complexes'} as per EIA Notification, 2006 and its amendments thereof. The proposed common infrastructural facilities as the CETP is covered |

| | | |
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| | | under category 7(h), an integrated TSDF (comprising a secured landfill with a solid-liquid feed incinerator) under category 7(d) and the member industries (API units) covered under category 5(f) as the link projects.. |
| **1.3** | Detailed layout of proposed Industrial area to be submitted along with the EIA/EMP report. | Detailed layout of proposed Industrial area depicting industrial plots, commercial area, green area, parking space and common infrastructure and utilities is enclosed as **Annexure 1.** |
| **1.4** | In the project area all slopes above 45 degrees shall be protected. No earth cutting shall be permitted in these slopes for plot development. Even in slopes less than 45-degree attempt shall be made to avoid undue earth cutting. Slope stabilization methods viz Breast wall/retaining wall constructions/use of geo-fabrics shall be used. **A soil and water Conservation plan incorporating above suggestions shall be submitted as part of EIA report.** | No earth cutting will be done at slope areas of more than 45° and these slope areas will be protected. Undue earth cutting will be avoided at slope areas of lesser than 45°. Slope stabilization methods viz Breast wall/retaining wall constructions/use of geo-fabrics will be used.<br>Undue earth cutting will be avoided even in slopes less than 45-degree and incase of requirements of leveling the land, the slope stabilization methods as construction of breast wall/retaining walls /use of geo-fabrics will be adopted.<br>Soil and Water Conservation plan has been incorporated in Chapter 7. Although, the detailed Soil and Water Conservation plan will be submitted with Final EIA report. |
| **1.5** | Muck shall not be disposed of in drains/nallah/ Khad/depressions and the same shall not be obstructed by the muck. **A proper muck disposal plan shall be** | Muck generated due to cutting/ site preparation will be utilized in leveling of low lying areas and widening/ levelling of roads and surplus muck if any will be disposed off at designated place for further use to avoid any obstruction |

| | | |
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| | **prepared and submitted as part of EIA Report.** | of drains/nallah/Khad/depressions.<br>Detailed Muck disposal plan will be submitted with Final EIA report incorporating the cut and fill plan. |
| **1.6** | A detailed rain water harvesting plan including the provisions for check dams across all major and minor drains/streams and water re-charge wells along the banks of these drains/nallah/khad, shall be prepared and submitted as part of EIA Report. | The rain water harvesting including the provisions for check dams across all major and minor drains/streams and water re-charge wells along the banks of these drains/nallah/khad has not been considered as the area is hilly terrain and flood prone.<br>Though the rain water collection is proposed from roof tops of buildings and other pucca areas through dedicated drainage and will be collected in storage pond/ tank. After treatment of rain water, it will be re-used industrial processes.<br>Rain water harvesting has been incorporated in the EIA report in Chapter 7. Although, detailed Rain water harvesting plan will be submitted with Final EIA report. |
| **1.7** | The project area has undulating terrain and it is important to have detailed hydrological study and its impact need to be carried out on the catchment and drainage system in core and buffer zones. | Detailed hydrological study of the core and buffer zone to assess the impacts on catchment and drainage system is under investigation by HPBDPIL and same will be incorporated in final EIA report. |
| **1.8** | The recommendations made by the Geologist Zone-I and II, Geological Wing, Department of Industries, Himachal | The recommendations made by the Geologist Zone-I and II, Geological Wing, Department of Industries, Himachal Pradesh to establish Bulk |

| | | |
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| | Pradesh, Himachal Pradesh for the establishment of the proposed drug industrial estate shall comply later in spirit and shall submit along with the EIA/EMP report. | Drug Park will be considered and incorporated in final EIA/EMP report. |
| **1.9** | **A detailed hydro geological study on the catchment area of the drainage system within core zone and at least 5 km perimeter of the project area. The recommendations made in the Hydrogeological study of the area shall comply later in spirit and shall submit along with the EIA/EMP report.** | Detailed hydro geological study on the catchment area of the drainage system within the core and buffer zone to assess the impacts on drainage system is under investigation by HPBDPIL and the same will be incorporated in EIA report. |
| **1.10** | As proposed by PP Provision for reservoir for water storage shall be made, and the details of the same shall be submit along with the EIA/EMP report | The provision for reservoir for water storage is proposed as 100 ML (million liters) capacity. |
| **1.11** | Water balancing chart and its resources for obtaining the ground water shall be submitted. | **Source of water:** Groundwater through bore wells (15 Nos.)<br><br>**Water Requirement:** Total water requirement for the proposed project will be 22.1 MLD; out of which 15 MLD will be fresh water demand met from groundwater and 7.1 MLD will be recycled water met from treated water. Breakup of the total water demand is given below: |

| **Description** | **Demand (MLD)** | **Source** |
|---|---|---|

| | | | | |
|---|---|---|---|---|
| | | Freshwater Demand (Potable + Process water demand) | 15 (2.2+12.8) | Groundwater |
| | | Flushing water demand | 1.15 | Treated water |
| | | AC Cooling demand | 2.00 | Treated water |
| | | Horticulture water demand | 3.95 | Treated water |
| | | **Total Water Demand** | **22.1 MLD** | Ground & treated water |

As an alternative source of water requirement, a comprehensive scheme for the surface water supply through dedicated pipeline of approximate 15 Km length from the river Satluj to the project has already been approved by BBMB authorities. 50 MLD fresh water from the river Satluj will be stored in the tank of capacity 100 MLD. This scheme has been envisaged keeping in view the future expansions and upcoming allied industries as well as the proposed housing schemes in the vicinity.

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| **1.12** | Provision for Reuse/recycle of treated wastewater, wherever feasible. Explore possibilities for recycling and reusing of treated water in the unit to reduce the fresh water demand and waste disposal. A detailed water harvesting plan needs to be submitted. Provision for Zero liquid discharge whenever techno-economically feasible. Provision for Continuous monitoring of effluent quality/quantity. | The provision for wastewater treatment is provided by establishing CETP of 5 MLD and the reuse/recycle of treated water (from low COD – low TDS effluent) in horticulture, flushing and industrial cooling purpose. A zero liquid discharge (for high COD – high TDS effluents) is proposed as Multiple Effluent Evaporator/Spray Drier as described in **Chapter 2 of EIA report.** |
| **1.13** | Detailed air quality study for each point source to be conducted along with the Micro metallurgical data. | The detailed air quality dispersion modeling study has been carried out by considering each point source as well as mobile sources associated to the project operation along with the Micro metallurgical data to assess the project impacts on the environment **Chapter 4 of EIA report.** |
| **1.14** | The industrial layout/zones shall be planned such a way that, No tree can be felled/transplant unless exigencies demand. Where absolutely necessary, tree felling shall be with prior permission from the concern Authority. Where the trees need to be cut/transplanted with prior permission from the concerned local Authority, compensatory plantation in the ratio of 1:10 (i.e. planting of 10 trees for every 1 tree that is cut/ non-survival of any transplanted tree) shall be done and maintained. Plantations to be ensured species (cut) to species | Agreed.<br>In case of exigencies demand, tree felling will be done with prior permission from concerned authority. A compensatory plantation in ratio of 1:10 will be adopted and maintained in project area along the green belt development areas marks in master plan.<br>The tree remuneration survey has been done and the total tree will be fell down approx. 3440 Nos. (40% of total trees 8599 Nos. enumerated in common utility areas) and the compensatory afforestation of trees will be 34,400Nos. in the ratio of 1:10 (trees to be cut and the trees to be planted). |

| | | |
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| | (planted). All the plantation will be done by state forest department as deposit work and not by private contractors. | |
| **1.15** | At least 50-meter-wide green belt shall be developed all along the major streams/ nallah/khads and in minor streams 15-meter-wide green belt shall be developed. All slopes above 45 degrees and any slope around industrial plot, not planned for development within project, shall be properly afforested in consultation with forest department. Project boundary shall have at least 15-meter-wide green belt. A detailed green belt development plan shall be submitted as part of EIA Report | Agreed.<br>Green belt development plan has been provided in **Chapter 7 of EIA report.** |
| **1.16** | Plan for afforestation should be such that it is free from pesticides with flowering plants of native species for attracting bees and insects, which in turn is beneficial to the agriculture. Farmers around the project site shall be involved in developing such an afforestation Plan. | Agreed |
| **1.17** | Details of Onsite and Offsite emergency plans as per provisions of the MSIHC Rules needs to be submitted. | Details of Onsite and Offsite emergency plans including Disaster Management Plan (DMP) is elaborated in **Chapter 7 of EIA report.** |
| **1.18** | Activity-wise, a time bound action plan along with budgetary provision for occupational health & surveillance, | Action plan for occupational health & surveillance, environment management plan and green belt development plan will be 3-4 years |

| | | |
|---|---|---|
| | environment management plan, and green belt development plan. | after public hearing feedback and grant of environmental clearance for the project. |
| **1.19** | Assessment of carrying capacity of transportation load on roads inside the notified industrial premises shall be carried out and submitted. | Assessment of carrying capacity of transportation load on roads inside industrial area has been conducted and elaborated in **Chapter 4 of EIA Report.** |
| **1.20** | In addition to above, the EIA/EMP report shall also address issues such as i) Effective fugitive emission control measures for process, transportation, packing etc. ii) use of cleaner fuels and iii) best available technology for the plant. | Agreed. |
| **1.21** | As per the Ministry's Office Memorandum F.No.22-65/2017-IA.III dated 30th September, 2020, the activities proposed by the project proponent, based on the commitment made in the public hearing shall be incorporated in the Environmental Management Plan along with the cost estimates and submit to the Ministry. All other activities including pollution control, environmental protection and conservation, R&R, wildlife and forest conservation/protection measures including the NPV, Compensatory Afforestation etc, envisaged by the project proponent based on the social impact assessment and R&R action plan carried out during the preparation of EIA report, | Agreed and incorporated in EIA report. |

| | | |
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| | shall be detailed out along with the cost estimates and become part of EMP. Focus should also be kept for local flora and fauna biodiversity. | |
| | **Standard TOR (Industrial estates/ parks/ complexes/ areas, export processing Zones (EPZs), Special Economic Zones)** | |
| **1.** | **Project Details** | |
| **1.1** | Reasons for selecting the site with details of alternate sites examined/rejected/selected on merit with comparative statement and reason/basis for selection. The examination should justify site suitability in terms of environmental damage, resources sustainability associated with selected site as compared to rejected sites. | Reasons for selecting the project site among the alternate sites options were considered as topography of the area, availability of the land, environmental settings of the area, accessibility and road links of the area and availability of resources and market.<br>Detailed site selection plan has been elaborated in **Chapter 5 of EIA Report.** |
| **1.2** | The analysis should include parameters considered along with weightage criteria for shortlisting selected site. | Detailed site selection plan has been elaborated in **Chapter 5 of EIA Report.** |
| **1.3** | Zoning of the area in terms of 'type of industries' coming-up in the industrial area based on the resource requirement along with likely pollutants with quantity from the various industries. | The proposed Bulk Drug Park is notified Industrial Area declared by Dept. of Industries, Govt. of Himachal Pradesh and upcoming industries will be API Units (70-80 Nos.) |
| **1.4** | Submit Roles and responsibility of the developer etc. for compliance of environmental regulations under the | Roles and responsibility of the developer etc. for compliance of environmental regulations under the provisions of EP Act has been |

| | | |
|---|---|---|
| | provisions of EP Act. | elaborated in **Chapter 7 of EIA Report.** |
| **1.5** | Examine the details of National Highways/State Highways/ expressways falling along the corridor and the impact of the development on them | A detailed traffic and transportation study for existing and projected traffic on connecting roads/highways is under investigation and the same will be incorporated in final EIA Report. |
| **1.6** | Submit the details of the infrastructure to be developed | The details of the infrastructure to be developed have been elaborated in **Chapter 2 of EIA Report.** |
| **1.7** | Justification of the parameters, frequency and locations shall be discussed in the EIA. | Discussed in **Chapter 3 and EMP of EIA report.** |
| **2.** | **Environment Status/baseline Data Methodology** | |
| **2.1** | Examine baseline environmental quality along with projected incremental load due to the project taking into account of the existing developments nearby. (ii) Environmental data to be considered in relation to the project development would be (a) land, (b) groundwater, (c) surface water, (d) air, (e) bio-diversity, (f) noise and vibrations, (g) socio economic and health. | Agreed.<br>Baseline environmental quality has been examined in details as elaborated in **Chapter 3 4 of EIA report.**<br>Incremental load due to the proposed project has been examined and elaborated in **Chapter 4 of EIA report.** |
| **2.2** | Site justification of the identified industry sectors from environmental angle and the details of the studies conducted if any | Detailed site selection plan has been elaborated in **Chapter 5 of EIA Report.** |
| **2.3** | Identify, predict and assess the environmental and | The assessment of environmental and sociological impacts of the project |

| | | |
|---|---|---|
| | sociological impacts on account of the project. | has been conducted and elaborated in **Chapter 4 of EIA Report.** |
| **3.** | **Remote Sensing/ GIS** | |
| **3.1** | Analysis should be made based on latest satellite imagery for land use with raw images. | Agreed and latest satellite imagery of Landsat 8 and 9 for land use with raw images has been used for the year of 2023-24. |
| **3.2** | Check on flood plain of any river. | No flood plain has been identified in the project area and its vicinity. |
| **4.** | **Land Use, Land Acquisition, R&r** | |
| **4.1** | Submit the details of the land use break-up for the proposed project. Details of land use around 10 km radius of the project site. | Details of land use break-up for the proposed project land use around 10 km radius of the project site has been elaborated in **Chapter 3 of EIA Report.** |
| **4.2** | **Submit details of environmentally sensitive places, land acquisition status, rehabilitation of communities/villages and present status of such activities** | Environmentally sensitive places are depicted in **Chapter 2.**<br>Status of land acquisition elaborated in **Chapter 1 of EIA Report.**<br>No rehabilitation of communities/villages is involved in the project. |
| **4.3** | Examine the impact of proposed project on the nearest settlements. | Impacts of proposed project on the nearest settlements. have been examined and elaborated in **Chapter 4 of EIA report.** |
| **4.4** | Submit details regarding R&R involved in the project | No R&R activity is involved in the project |
| **4.5** | The project boundary area and study area for which the base line data is generated should be indicated through a suitable map. | The project boundary area and study area for which the base line data is generated are delineated in **Chapter 3 of EIA report.** |
| **5.** | **Esz, Crz Details** | |

<table>
<tr><td>5.1</td><td>Details regarding project boundary passing through any eco-sensitive area and within 10 km from eco- sensitive area</td><td>
<table>
<tr><th>S.No.</th><th>Description</th><th>Name</th><th>Aerial distance & Direction</th></tr>
<tr><td rowspan="2">1.</td><td rowspan="2">Nearest Forests</td><td>Polian Shamlat RF</td><td>Adjoining to project site</td></tr>
<tr><td>Kangar PF</td><td>Approx. 7 km NW</td></tr>
<tr><td>2.</td><td>Nearest Surface Water body</td><td>Swan River</td><td>Approx. 8.5 km NE</td></tr>
</table>
</td></tr>
<tr><td>6.</td><td>Forest And Wildlife Related Details</td><td></td></tr>
<tr><td>6.1</td><td>An overall green area of at-least 33% of the Industrial Area should be developed with native species. The green area shall be 40% in case of critically polluted area. Green buffer in the form of green belt to a width of 15 meters should be provided all along the periphery of the industrial area.</td><td>Green area of 185.72 Acre (13.21%) will be developed by Himachal Pradesh State Bulk Drug Park Infrastructure Limited (HPSBDPIL). In order to meet the statutory requirement of green area demand of 33%, the remaining green belt will be managed by individual member industries in their premises (Chapter 7 of EIA report).</td></tr>
<tr><td>6.2</td><td>Submit the details of the trees to be felled for the project.</td><td>The tree remuneration survey has been done and the total tree will be fell down approx. 3440 Nos. (40% of total trees 8599 Nos. enumerated in common utility areas) and the compensatory afforestation of trees will be 34,400Nos. in the ratio of 1:10 (trees to be cut and the trees to be planted).</td></tr>
<tr><td>6.3</td><td>Submit the present land use and permission required for any</td><td>As per the NOC obtained from the forest department there is no forest</td></tr>
</table>

| | | |
|---|---|---|
| | conversion such as forest, agriculture etc. | land is involved within the project premises. The land acquired (1405 acres) is under the ownership of Dept. of Industries, Govt. of Himachal Pradesh and per LULC plan, majority of land under project area is open scrub, hence no conversion of land is applicable. |
| **7.** | **Court/ Litigation Related** | |
| **7.1** | Submit Legal frame work for the implementation of Environmental Clearance conditions - to be clearly spelt out in the EIA report. | Mr. Tilak Raj Sharma, Additional Director of Industries, Govt. of Himachal Pradesh along with Environmental Management Cell comprising of HPBDPIL and member industries will be responsible for the implementation of Environmental Clearance conditions. The detailed legal frame work for the management and operation of the project is elaborated in **Chapter 10 of EIA report.** |
| **7.2** | Details of litigation pending against the project, if any, with direction /order passed by any Court of Law against the Project should be given. | No litigation is pending against the project. A copy of undertaking for the same is enclosed in **EIA report.** |
| **8.** | **Water Environment/quality/hydrology** | |
| **8.1** | Ground water classification as per the Central Ground Water Authority | Ground water classification and hydrological aspect of the study area in district Una is discussed in **Chapter 3 of EIA Report.** |
| **8.2** | Submit the source of water, requirement vis-à-vis waste water to be generated along with treatment facilities, use of treated waste water along with water balance chart taking | **Source of water:** Groundwater through bore wells (15 Nos.)<br><br>**Water Requirement:** Total water requirement for the proposed |



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256

| | | |
|---|---|---|
| | into account all forms of water use and management. | project will be 22.1 MLD; out of which 15 MLD will be fresh water demand met from groundwater and 7.1 MLD will be recycled water met from treated water. Breakup of the total water demand is given below: |

| **Description** | **Demand (MLD)** | **Source** |
|---|---|---|
| Freshwater Demand (Potable + Process water demand) | 15 (2.2+12.8) | Groundwater |
| Flushing water demand | 1.15 | Treated water |
| AC Cooling demand | 2.00 | Treated water |
| Horticulture water demand | 3.95 | Treated water |
| **Total Water Demand** | **22.1 MLD** | Ground & treated water |

As an alternative source of water requirement, a comprehensive scheme

| | | |
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| | | for the surface water supply through dedicated pipeline of approximate 15 Km length from the river Satluj to the project has already been approved by BBMB authorities. 50 MLD fresh water from the river Satluj will be stored in the tank of capacity 100 MLD. This scheme has been envisaged keeping in view the future expansions and upcoming allied industries as well as the proposed housing schemes in the vicinity. |
| **9.** | **Rain Water Harvesting** | |
| **9.1** | Rain water harvesting proposals should be made with due safeguards for ground water quality | Agreed |
| **9.2** | Maximize recycling of water and utilization of rain water. Examine details. | Maximize recycling and utilization of rain water is explored in **Chapter 7 of EIA report** |
| **9.3** | Examine soil characteristics and depth of ground water table for rainwater harvesting | Soil characteristics and depth of ground water table for rainwater harvesting are explored in **Chapter 3 of EIA report** |
| **10.** | **Waste Management, Drainage and STPs Details** | |
| **10.1** | Submit a copy of the contour plan with slopes, drainage pattern of the site and surrounding area, and any obstruction of the same by the project. | Agreed.<br>The contour plan with slopes, drainage pattern of the site and surrounding area is enclosed as **Annexure-8** |
| **10.2** | Examine details of solid waste generation treatment and its disposal. | Solid waste of about 8.8 TPD (0.2 kg/capita/day) will be generated. Solid waste will be duly segregated into biodegradable and non-biodegradable components. Separate area will be earmarked for segregation of solid |



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| | | |
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| | | waste. Biodegradable waste will be composted within project premises and recyclable component will be disposed off through authorized recycler vendors. The Solid Waste will be handled/disposed off as per the provision of Solid Waste Management Rules 2016 and its amendments. |
| **11.** | **Soil Environment** | |
| **11.1** | Examine soil characteristics and depth of ground water table for rainwater harvesting. | As per CGWB (2020), the Una district has two types of soils viz., alluvial soil and non-calcic brown 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 and the details are elaborated in **Point No. 3.4.5 of Chapter 3 of EIA report**. |
| **12.** | **Energy And Resources** | |
| **12.1** | Examine and submit details of use of solar energy and alternative source of energy to reduce the fossil energy consumption. | A total of 14.2 MW solar power generation is proposed on the roof tops of commercial buildings/areas, electrical utility areas and treatment units. The details on solar power system is provided in **Chapter 7.** |
| **13.** | **Air Environment** | |
| **13.1** | In case DG sets are likely to be used during construction and operational phase of the project. emissions from DG sets must be taken into consideration while estimating the impacts on air environment. Examine and submit details | DG sets have been well considered while estimating the impacts on air environment as elaborated in **Chapter 4 of EIA report**. |

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| **14.** | **Road/transport Safety And Traffic Aspects** | |
| **14.1** | Examine road/rail connectivity to the project site and impact on the traffic due to the proposed project. | The proposed site is accessible through Una-Jaijon road to NH-503 (15 km, E) and NH-103A (9.5 km, W). Nearest Railway Stations are Jaijon Doaba (2 km in W) and Una (approx. 13.2 km in NE). Nearest Airports are Adampur in Jalandhar (38 km in NW) and Shaheed Bhagat Singh Airport in Chandigarh (approx. 95 km in South).<br>A detailed traffic study for existing and projected traffic to assess the impacts is under investigation and will be included in Final EIA report. |
| **14.2** | Present and future traffic and transport facilities for the region should be analysed with measures for preventing traffic congestion and providing faster trouble free system to reach different destinations in the city. | As per the recommendations of traffic study to assess the existing and proposed traffic load, the widening of Una-Jaijon district road is proposed from 2-lane to 4-lane to avoid road congestion for smooth and continuous movement of traffic. |
| **14.3** | A detailed traffic and transportation study should be made for existing and projected passenger and cargo traffic | A detailed traffic and transportation study for existing and projected passenger and cargo traffic is under investigation and will be included in Final EIA report. |
| **14.4** | Examine the details of transport of materials for construction which should include source and availability | Constructions materials such as Cement, Aggregates, Bricks, Wood, metals, Clay, Steels and Glass etc. will be sourced from local market within 50 km radius for the ease of supplies and benefits to local peoples. Local market is easily available for construction materials as Una (approx. 15km), Haroli (approx.10kms), Tahliwal (approx. 8kms), |

| | | |
|---|---|---|
| | | Nangal (approx.10kms) in Himachal Pradesh and Garhshankar (approx. 15kms) and Hoshiarpur (approx. 30 kms) in Punjab. |
| **15.** | **Noise Environment** | |
| **15.1** | Examine noise levels - present and future with noise abatement measures | Noise levels - present and future with noise abatement measures are elaborated in **Chapter 4 of EIA report** |
| **16.** | **Environmental Management Plans And Mitigative Measures** | |
| **16.1** | Examine separately the details for construction and operation phases both for Environmental Management Plan and Environmental Monitoring Plan with cost and parameters. | The details for construction and operation phases both for Environmental Management Plan and Environmental Monitoring Plan with cost and parameters are elaborated in **Chapter 10 of EIA report** |
| **16.2** | Submit details of a comprehensive Disaster Management Plan including emergency evacuation during natural and man-made disaster. | Comprehensive Disaster Management Plan including emergency evacuation during natural and man-made disaster is described in **Chapter 7 of EIA report** |
| **16.3** | Any further clarification on carrying out the above studies including anticipated impacts due to the project and mitigative measure, project proponent can refer to the model ToR available on Ministry. | Agreed |
| | **Additional Terms of Reference** | |

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# CHAPTER 1

# INTRODUCTION

## 1.1 INTRODUCTION

Drugs play a vital role in healthcare delivery in the country. A continuous supply of drugs is necessary to ensure affordable healthcare delivery to the citizens. Any disruption in the supply of drugs can significantly adversely affects the country's drug security. Indian pharmaceutical industry is the third largest in the world by volume and 14th largest in terms of value. India contributes 3.5% of total drugs and medicines exported globally. However, despite these achievements, India is significantly dependent on the import of some of the basic raw materials, viz., bulk drugs that are used to produce the finished dosage formulations. India imports bulk drugs largely for economic considerations. Future growth of the pharmaceutical sector is contingent upon our ability to ensure an uninterrupted supply of quality bulk drugs and our capacity to upscale their manufacturing during emergencies. Self-reliance in the manufacturing of bulk drugs is, therefore, highly desirable

The Department of Pharmaceuticals (DoP), Ministry of Chemical and Fertilizer, Government of India (GoI) has notified Guideline of the Scheme "Promotion of Bulk Drug Parks" in March 2020. Under the scheme, a one- time grant-in-aid subject to a maximum limit of Rs. 1000 Cr or 90% of the project cost in case of Hilly States will be given for the development of common infrastructure facilities. The objective of the scheme is to significantly bring down the manufacturing cost of bulk drugs and thereby increase the competitiveness of the domestic bulk drug industry by providing easy access to standards testing & infrastructure facilities. A total of 3 Bulk Drug Parks were to be selected across the country under the scheme. It is indeed a step in the right direction towards reducing imports on Bulk Drug products from foreign countries thereby encouraging import substitution and giving impetus to export promotion.

## 1.2 VISION AND OBJECTIVES

The vision and objectives of a Bulk Drug Park typically revolve around promoting the domestic manufacturing of active pharmaceutical ingredients (APIs) and intermediates in order to strengthen the pharmaceutical industry and reduce dependency on imports. These parks are a part of the larger strategy to boost the Indian pharmaceutical industry and make it globally competitive. Here are the main vision and objectives of a Bulk Drug Park:

1. Self-Reliance in Drug Manufacturing: To reduce India's dependency on imports for critical APIs and intermediates and establish self-reliance in the production of essential drugs.
2. Promoting Indigenous Manufacturing: Encourage the development and growth of domestic pharmaceutical manufacturers, ensuring that they can produce high-quality, cost-effective bulk drugs and intermediates.
3. Global Competitiveness: Enhance the global competitiveness of Indian bulk drug manufacturers by providing state-of-the-art infrastructure, technology, and a supportive ecosystem.
4. Cost Reduction: Drive down the cost of API production through economies of scale, efficient processes, and shared infrastructure within the park, making medicines more affordable for the public.
5. Quality Assurance: Ensure that bulk drug manufacturers in the park adhere to high-quality standards, thereby boosting the reputation of Indian pharmaceutical products in the international market.
6. Research and Development: Facilitate research and development activities within the park to encourage innovation and the development of new drugs, processes, and technologies.
7. Environmental Sustainability: Implement eco-friendly practices and sustainable manufacturing processes to minimize the environmental impact of drug production.
8. Job Creation: Generate employment opportunities in the region, including skilled and unskilled labour, leading to socio-economic development.
9. Infrastructure Development: Build world-class infrastructure, including common utilities, testing facilities, and logistical support, to ease the establishment and operation of bulk drug manufacturing units.
10. Attract Investments: Attract both domestic and foreign investments in the pharmaceutical sector, boosting economic growth and technological advancement.
11. Regulatory Compliance: Ensure that manufacturing units in the park adhere to regulatory and quality standards, thereby reducing the likelihood of substandard or counterfeit drugs in the market.
12. Reducing Trade Imbalances: Mitigate the trade imbalances in the pharmaceutical sector by increasing domestic production, which can reduce the need for importing APIs and intermediates.

Overall, the vision and objectives of a Bulk Drug Park are geared towards bolstering the pharmaceutical industry in a country, making it self-sufficient, globally competitive, and able to produce essential drugs and APIs of high quality and at a competitive cost.

## 1.3 PURPOSE OF THE REPORT

The Environmental Impact Assessment (EIA) report serves several important purposes, and its main objective is to assess and evaluate the potential environmental, social, and economic impacts of a proposed project, plan, or development. The specific purposes of an EIA report are as follows:

- Identification and Assessment of Impacts
- Informed Decision-Making
- Mitigation and Risk Reduction
- Public Participation
- Legal and Regulatory Compliance
- Baseline Data Collection
- Sustainable Development
- Cumulative Effects Analysis
- Risk Assessment
- Feedback and Improvement

In summary, the EIA report is a comprehensive document that plays a critical role in ensuring that development projects are conducted in an environmentally, socially, and economically responsible manner. It helps decision-makers, project proponents, and the public understand the potential consequences of proposed projects and make informed decisions to minimize negative impacts and enhance sustainable development.

## 1.4 IDENTIFICATION OF THE PROJECT & PROJECT PROPONENT

### 1.4.1 IDENTIFICATIONS OF THE PROJECT

It is a proposed Bulk Drug Park to be established at Villages Kuthar Beet, Pollian Beet, Tibbian, Jodian, Janani and Mulluwal, Tehsil Haroli, District Una, Himachal Pradesh. Plot area of the project is 1,405.41 acres (or 568.75 Ha) has been allotted for establishment of the project; out of which, Govt. land of 1,365.77 acres allotted to Dept. of Industries, Govt. of HP and 39.64

acres of land purchased and transferred to Dept. of Industries, Govt. of HP for setup of the proposed industrial park. Dept. of Industries, Govt. of HP is nodal agency to coordinate and supervise the project development activities.

### 1.4.2 PROJECT PROPONENT

As per the clause 7 of the Bulk Drug Park scheme, the State Government has decided to set up dedicated State Implementing Agency (SIA) named the "Himachal Pradesh Bulk Drug Park Infrastructure Ltd. (HPBDPIL)" which is formed under section 8 of the Company Act, 2013 and a govt. own agency under the aegis of Department of Industries, Govt. of Himachal Pradesh. SIA will form a management committee for monitoring, operation and maintenance of the park after the completion of the park.

### 1.4.3 NATURE OF THE PROJECT

The proposed project comprises of 110 industrial plots in 558.28 Acre of land will be allotted to API manufacturing units involved in the production based on chemical synthesis. Apart from this, 95.02 Acres for commercial and remaining will be developed under roads, green, common facilities etc.

The proposed project falls in Category 'A' under Schedule 7(c) - 'Industrial estates/ parks/ complexes/ areas, export processing Zones (EPZs), Special Economic Zones (SEZs), Biotech Parks, Leather Complexes' as per EIA Notification, 2006 and its amendment thereof as the proposed Industrial estate has area greater than 500 hectares. Also, the project is located within 5 km of inter-State boundaries of Punjab and Himachal Pradesh, as Punjab and Himachal Pradesh Border is located at a distance of approx. 100 m from project site.

### 1.4.4 SIZE OF THE PROJECT

The plot area of the project is 1,405.41 acres (or 568.75 Ha); out of which, Govt. land of 1,365.77 acres was allotted to Dept. of Industries, Govt. of HP and 39.64 acres of land purchased and transferred to Dept. of Industries, Govt. of HP for setup of the proposed industrial park. Copy of the layout/master plan of proposed project is enclosed as Annexure 1.

### 1.4.5 LOCATION OF THE PROJECT

Bulk Drug Park site is proposed at Villages Kuthar Beet, Pollian Beet, Tibbian, Jodian, Janani and Mulluwal, Tehsil Haroli, District Una, Himachal Pradesh.

The proposed site is well connected as described in the table below:

**Table 1.1 Connectivity of the proposed project**

| | |
|---|---|
| **Nearest Highways** | The site is accessible through Una-Jaijon Road. The proposed site has easy connectivity to the National Highways; NH-503A at a distance of approx. 10 km in 'N' direction, NH-503 at a distance of 15.5 km in 'W' direction and NH-103 A at a distance of approx. 9.5 km in 'W' direction. |
| **Nearest Railway Station** | Jaijon Doaba Railway Station: Approx. 2 km, in 'W' direction. |
| **Nearest Airport** | Adhampur Airport, Jalandhar: Approx. 38 km, in WN direction |

### 1.4.6 IMPORTANCE TO THE COUNTRY

Drugs play a vital role in healthcare delivery in the country. A continuous supply of drugs is necessary to ensure affordable healthcare delivery to the citizens. Indian pharmaceutical industry is the 3rd largest in the world by volume and 14th largest in terms of value. However, despite these achievements, India is significantly dependent on the import of some of the basic raw materials, viz., bulk drugs that are used to produce the finished dosage formulations. India imports bulk drugs largely for economic considerations.

According to the vision & approach of Central Govt., the major focus is on the term of making India "Aatamnirbhar Bharat" and in this line, the Central Govt. has chalked out major industrial projects, which in turn will minimize or eliminate the need of the import from the neighbouring countries. As such, this project is also an ambitious project of the Central/State Govt.

Indian Government is promoting industrial development through various Institutions, schemes and policy re-structuring. The Department of Pharmaceuticals (DoP), Ministry of Chemical and Fertilizer, Government of India (GoI) has notified Guideline of the Scheme "Promotion of Bulk Drug Parks" in March, 2020. Under the scheme, a one-time grant-in-aid subject to a maximum limit of Rs. 1,000 Crores or 90% of the project cost in case of Hilly States will be given for the development of common infrastructure facilities with the objective to significantly bring down the manufacturing cost of bulk drugs and thereby increase the competitiveness of the domestic bulk drug industry by providing easy access to standards

testing & infrastructure facilities. A total of 3 Bulk Drug Parks were to be selected across the country under the scheme, Haroli bulk drug park is one of them. Himachal Pradesh is acknowledged as one of the preferred investment destinations in the country, offering immense investment opportunities across sectors. The State Government is consistently focused on accelerating the momentum of Industrial growth as industrial progress will enhance employment opportunities for the youth and further improve the socio-economic status of the people of the State.

The project is intended to facilitate development of:

1. A well-planned and resource-efficient industrial base
2. World-class sustainable connectivity infrastructure

Following are the benefit of establishment of the project to the region and industries:

1. Better upstream and downstream linkage
2. Faster turnaround time for product to reach the target market
3. Industrial Innovation
4. Manufacturing growth
5. Employment generation
6. Resource security to states coming within its influence region
7. Apart from the above-mentioned direct benefits, this project will also bring out numerous in-direct benefits, especially in transport and auxiliary sectors.

The availability of world-class infrastructure along BDP shall enable increased investments in manufacturing and industrial activity in Himachal Pradesh and neighbouring states and sub-regions.

## 1.5 SCOPE OF THE STUDY

This study contains information on the various Environmental factors viz-a-viz contribution of pollution by the unit after establishment. These factors include air, water, noise, health, socio economic, land use and agricultural pattern etc. It discusses the predicted impact of the plant activities on these factors. Broadly under the scope it is envisaged:

- To assess the present status of air, water, land, noise, biological & socio economic components of environment.

- To identify, quantify & evaluate positive or negative impacts of various operations on different environmental components.
- To evaluate proposed pollution control measures and to suggest additional control strategies, if any, to mitigate the adverse effects.
- To identify risk factors & suggest their mitigation including occupational health of the workers.
- To prepare Environmental Management Plan for utilization and adoption of safety measures.
- To delineate future Environmental quality monitoring programme.
- To identify the needs of the study area and suggest supportive measures under Corporate Social Responsibility

## 1.6 METHODOLOGY

Various steps involved in Environmental Impact Assessment study of the project are divided into the following phases:

- Identification of significant environmental parameters and study of the existing status of air, water, noise, soil and socio economic components of the environment.
- Study of the various activities of the proposed project during operational phase and to identify the area leading to impact/change in environmental quality.
- Identification/prediction of impacts for the identified activities and to study levels of impacts on various environmental components.
- Evaluation of final levels of various parameters after superimposing the predicted impacts over the baseline quality.
- Formulation of Environmental Management Plan for implementation in the project after establishment.

The baseline monitoring has been done from period April to June, 2023 at ten locations within 10km study area of the project including project site by NABL and MoEF&CC approved laboratory. Data is collected to determine the existing conditions of various environmental attributes.

## 1.7 COMPONENTS OF EIA

Depending on nature, location and scale of the project, EIA report contains the following components:

- Air Environment
- Noise Environment
- Water Environment
- Biological Environment
- Land Environment
- Socio-Economic and Health Environment
- Risk Assessment
- Environment Management Plan

### 1.7.1 EIA CYCLE AND PROCEDURE

EIA process as per EIA Notification, 2006 and its amendments is made up of the following phases:

- Screening
- Scoping
- Public Hearing
- Appraisal
- Monitoring the clearance conditions (post project six monthly compliances)

## 1.8 STRUCTURE OF THE REPORT

The entire EIA report is prepared based on the generic structure of EIA document given at APPENDIX III of the Notification No. S.O. 1533 dated 14th September, 2006 and its amendments. The report has been divided into twelve chapters as described below:

## 1.9 LAWS APPLICABLE TO THE PROJECT

The Acts, Notifications, Rules and Amendments applicable for establishment of Bulk Drug Park and its operation includes the following:

**Table 1.2 List of Act, Notifications, Rules and Amendments applicable to project**

| S. No. | Acts, Notifications, Rules and Amendments | Applicability |
|---|---|---|

| | | |
|---|---|---|
| 1. | The Water (Prevention & Control of Pollution) Act, 1974/ Rules, 1975 | Consent to Establish & Consent to Operate from PPCB |
| 2. | The Air (Prevention & Control of Pollution) Act, 1981/ Rules, 1982 | Consent to Establish & Consent to Operate from PPCB |
| 3. | The Environment (Protection) Act, 1986/ Rules, 1986 | Umbrella of all Environment Acts & Rules |
| 4. | The Environmental Impact Assessment (EIA) Notification, 2006 & its amendments. | Environmental Clearance from SEIAA, Punjab |
| 5. | Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016 and amendments thereof. | Agreement with authorized recycler. Hazardous Waste Authorization from PPCB |
| 6. | Plastic Waste Management Rules, 2016 and amendments thereof | Management of Plastic waste |
| 7. | Bio-Medical Waste Management Rules, 2016 | Management of Bio-medical waste |
| 8. | Solid Waste Management Rules, 2016 | Management of Solid waste within the project premises |
| 9. | E-Waste (Management) Rules, 2016 and amendment Rules, 2018 | Management of E-waste through authorized recycler |
| 10. | Construction & Demolition Waste Management Rules, 2016 | Management of Construction waste to authorized site |
| 11. | Noise Pollution (Regulation and Control) Rules, 2000 and its amendments | Monitoring of ambient noise/source noise as well as proposing suitable mitigation measures to abate noise |
| 12. | The Factory Act, 1948 (as amended till 1987) | Approval, licensing and registration of factories |
| 13. | The Public Liability Insurance Act, 1991 & Rules, 1991 | Covers health and safety of workers. |
| 14. | Punjab Groundwater Extraction and Conservation Directions, 2023 | Permission for abstraction of ground water |

| | | |
|---|---|---|
| 15. | The Forest Conservation Act, 1980 | Forest Clearance for approach road or forest land involved, if applicable |
| 16. | The Wildlife Protection Act, 1972 | Wildlife Clearance, if applicable |
| 17. | Himachal Pradesh Factory Rules, 1950 | Approval, licensing and registration of factories |

**********

# CHAPTER 2

# PROJECT DESCRIPTION

## 2.1 PROJECT DESCRIPTION

This chapter highlights the proposed features of the Bulk Drug Park, its layout and design, details of common infrastructure facilities, utilities and services, and sources of water, waste generation, their quantity, treatment and disposal of waste etc.

## 2.2 TYPE OF PROJECT AND CAPACITY

The total area of the proposed Bulk Drug Park is 1405.416 Acres (56,87,517 sq. m.) and the estimated cost of the project is 1923 Crore includes 1,638.46 Crores for Common Infrastructure Facilities (CIF) and 284.54 Crores for Development Cost. The whole project is being developed on the lines of area development projects i.e. the project is to be established in totality as an umbrella project which will have individual units to be developed by individual entities. All services, utilities, axillary, logistics, pollution abatement measures, waste management and power etc. will be provide on centralizes basis. This project will be developed on "end to end "basis and there will be no vendors or interlinked entities.

## 2.3 NEED FOR THE PROJECT

The pharma sector at present is dependent on the import sector up to the large extent, chiefly from China. It's a known fact that China is a hostile country, therefore the dependency on the said country if reduced or eliminated, better it will be, in the National interest. Further, the Indian Govt. has initiated a noble concept of **"Aatmanirbhar Bharat"** and this project will negate the need of import from the neighbouring countries to certain effects, will add to the self-sufficiency of the country. Hence, the project is the need of the hour and deserves all the encouragement and facilitation for implementation, to promote technologies and industry for Environment Management.

As such this project may be considered in true earnest and forward looking spirits.

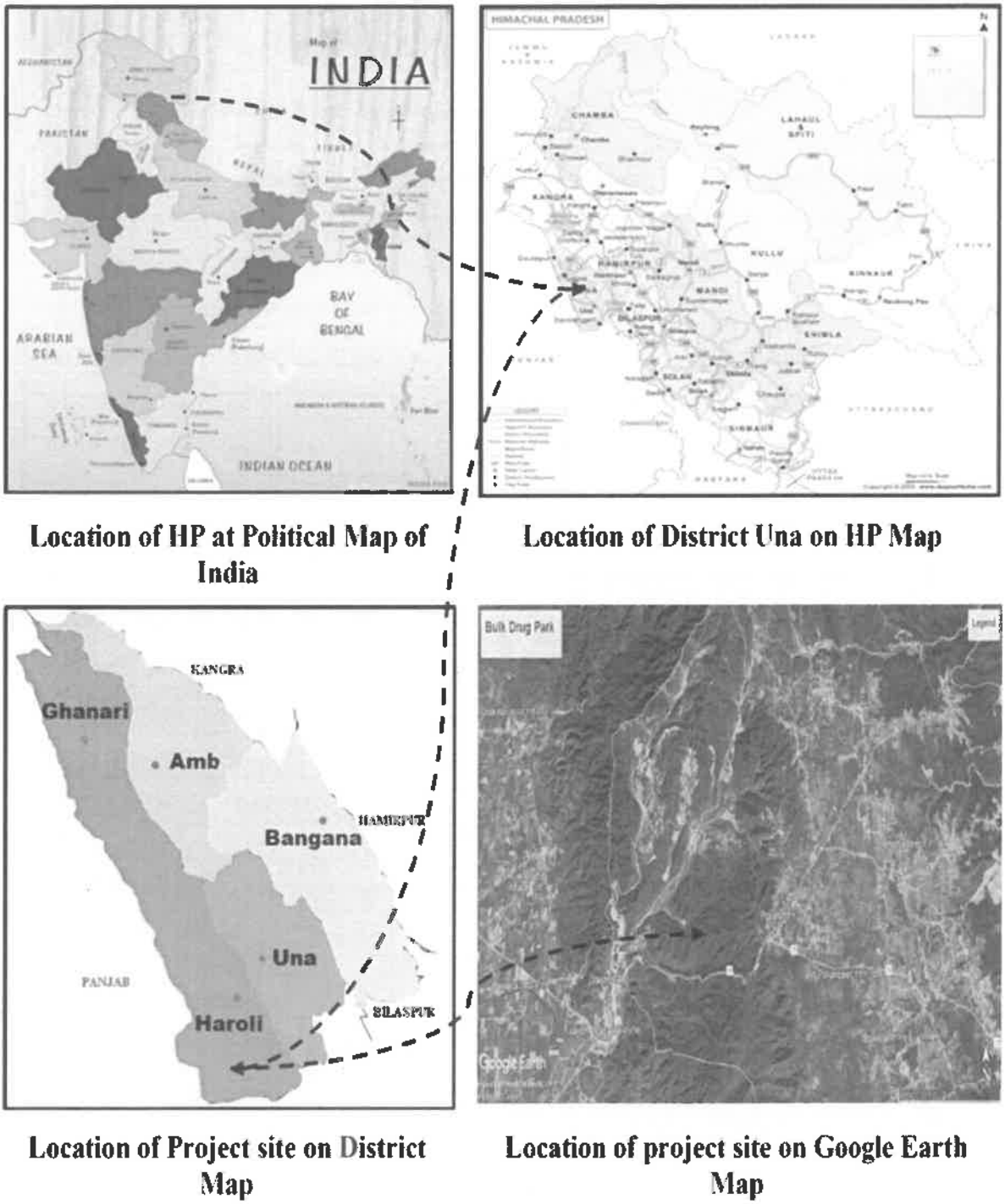
## 2.4 LOCATION OF PROJECT

Bulk Drug Park site is proposed in Villages Kuthar Beet, Pollian Beet, Tibbian, Jodian, Janani and Mulluwal, Tehsil Haroli, District Una, Himachal Pradesh. The proposed site is accessible through Una-Jaijon. Location of the project site is given below in **Fig. 2.1.** Project location

and its study area falls in the Survey of India, Toposheet No. **H43K2 & H43K6**. **Fig. 2.2** and boundary co-ordinates of the project site are given in **Table 2.1** below:

**Table 2.1. Boundary Co-ordinates of the Project**

| Corners | Latitude | Longitude | Corners | Latitude | Longitude |
|---|---|---|---|---|---|
| 1 | N31° 20' 45.24" | E76° 11' 14.64" | 22 | N31° 23' 27.96" | E76° 10' 38.64" |
| 2 | N31° 20' 38.76" | E76° 10' 40.8" | 23 | N31° 23' 19.32" | E76° 10' 48.00" |
| 3 | N31° 20' 39.84" | E76° 10' 19.56" | 24 | N31° 23' 6.36" | E76° 10' 42.24" |
| 4 | N31° 20' 48.12" | E76° 10' 6.24" | 25 | N31° 22' 58.44" | E76° 10' 35.04" |
| 5 | N31° 20' 50.64" | E76° 9' 33.48" | 26 | N31° 22' 50.52" | E76° 10' 23.16" |
| 6 | N31° 20' 56.4" | E76° 9' 30.96" | 27 | N31° 22' 42.96" | E76° 10' 21.36" |
| 7 | N31° 21' 5.76" | E76° 9' 23.76" | 28 | N31° 22' 31.8" | E76° 10' 3.00" |
| 8 | N31° 21' 1.08" | E76° 9' 18.36" | 29 | N31° 22' 13.08" | E76° 10' 1.20" |
| 9 | N31° 21' 9.72" | E76° 9' 12.24" | 30 | N31° 22' 21.36" | E76° 10' 18.48" |
| 10 | N31° 21' 12.24" | E76° 9' 26.28" | 31 | N31° 22' 15.6" | E76° 10' 31.8" |
| 11 | N31° 21' 9.36" | E76° 10' 0.84" | 32 | N31° 22' 5.88" | E76° 10' 14.88" |
| 12 | N31° 21' 35.28" | E76° 9' 55.8" | 33 | N31° 21' 55.08" | E76° 10' 3.36" |
| 13 | N31° 21' 50.04" | E76° 9' 56.52" | 34 | N31° 21' 56.52" | E76° 10' 32.52" |
| 14 | N31° 22' 15.24" | E76° 9' 50.4" | 35 | N31° 21' 52.2" | E76° 10' 53.04" |
| 15 | N31° 22' 35.4" | E76° 9' 53.64" | 36 | N31° 21' 57.96" | E76° 10' 44.04" |
| 16 | N31° 23' 4.92" | E76° 9' 48.96" | 37 | N31° 21' 46.08" | E76° 10' 48.36" |
| 17 | N31° 23' 2.4" | E76° 10' 4.44" | 38 | N31° 21' 34.92" | E76° 10' 49.8" |
| 18 | N31° 23' 18.24" | E76° 10' 4.08" | 39 | N31° 21' 27" | E76° 10' 46.2" |
| 19 | N31° 23' 14.28" | E76° 10' 18.48" | 40 | N31° 21' 14.04" | E76° 10' 49.44" |
| 20 | N31° 23' 10.32" | E76° 10' 25.68" | 41 | N31° 21' 12.96" | E76° 11' 5.28" |
| 21 | N31° 23' 20.04" | E76° 10' 30.72" | 42 | N31° 20' 54.96" | E76° 11' 13.2" |




**Location of HP at Political Map of India**

**Location of District Una on HP Map**

**Location of Project site on District Map**

**Location of project site on Google Earth Map**

**Figure 2.1. Location map of the project**

**Table2.2. Location details of the project**

| S. No. | Pariculars | Details within 10 km |
|---|---|---|
| **1.** | **Location** | |
| | Place | Village - Kuthar Beet, Pollian Beet, Tibbian, Jodian, Janani and Malluwal. |
| | Tehsil | Haroli |
| | District | Una |
| | State | Himachal Pradesh |
| **2.** | **Elevation** | Approx. elevation range of the entire project lies 390 - 590 m above measn sea level (msl) |
| **3.** | **Nearest Highway** | MDR-39: passing through project site<br>NH-103: approx. 9.5 km<br>NH-503A: approx. 10 km<br>NH-503: approx. 15.5 km |
| **4.** | **Nearest Railway Station** | Jaijon Doaba Railway Station: approx. 2 km |
| **5.** | **Nearest Airport** | Adhampur Airport: approx. 38 km |
| **6.** | **Nearest town:** | Haroli: approx 6.5 km in 'NE' direction |
| **7.** | **District Headquarters DC Office Una:** | approx. 11.25 km in 'NE' direction |
| **8.** | **Features within 10 km** | |
| | Defence installations | Nill |
| | Archeological Important Places | Nill |
| | Wild life Sancturies | Nill |
| | Reserved/Protecteed Forest | a. Polian Shamlat Reserve forest<br>b. Kangar Protective Forest |
| | Industries | |
| | Canal | Nill |
| | Hill Ranges | Shivalik Range |

| | | |
|---|---|---|
| | State Boundary | Punjab-Himachal State boundary present within 0.1 km of the proposed project |

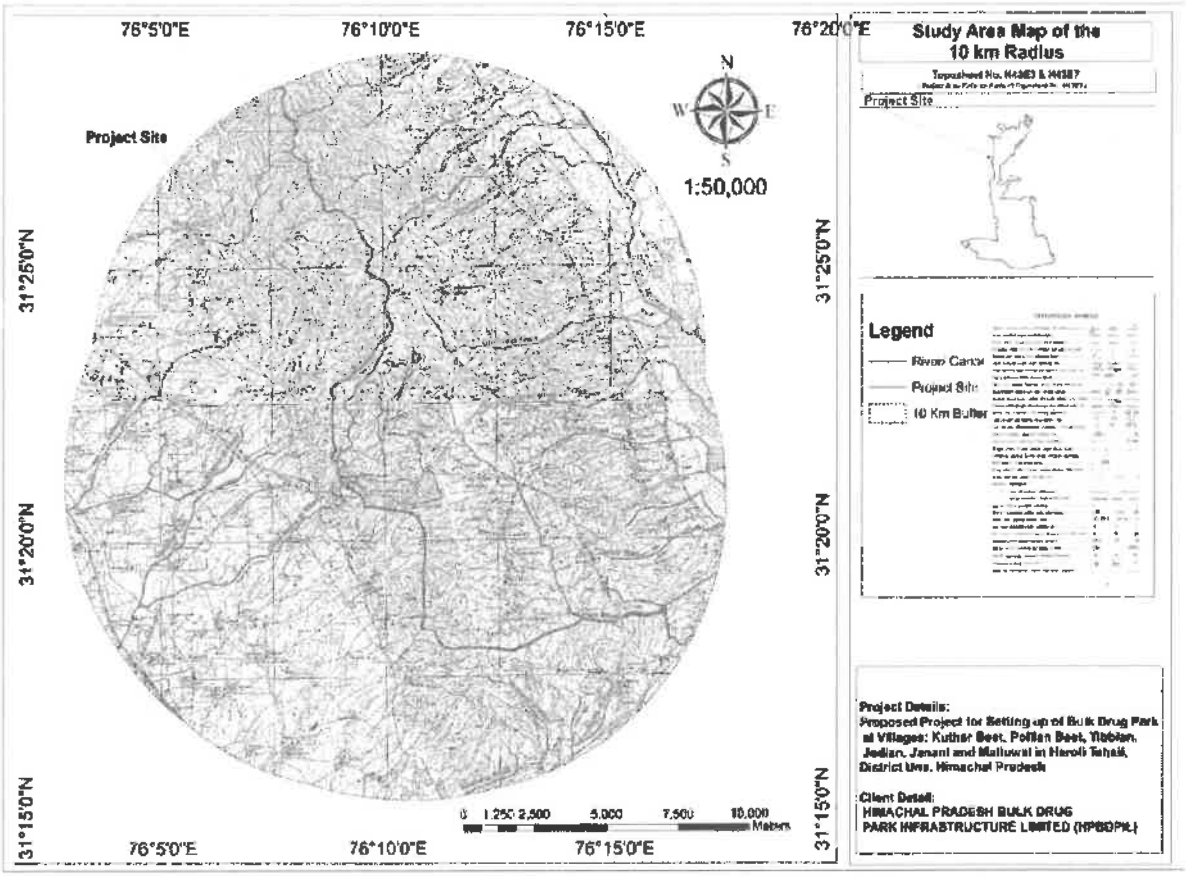



**Figure 2.2. Delineation of project site on Toposheet along with 10 km buffer**

**Table 2.2. Environmental sensitive places within study area**

| | Environmental Sensitivity | | |
|---|---|---|---|
| **S. No.** | **Areas** | **Name/ Identity** | **Aerial distance (within 10 km) Proposed project boundary** |
| 1 | Areas protected under international conventions, national or local legislation for their ecological, landscape, cultural or other related value | No such areas present within 10 km of the unit | -- |

| | | | |
|---|---|---|---|
| 2 | Areas which are important or sensitive for ecological reasons - Wetlands, watercourses or other water bodies, coastal zone, biospheres, mountains, forests | **Water Bodies**<br>Soan/Swan River<br><br>Panjoianwala Khad (Seasonal)<br>Raamsar Pond<br><br>**Forests**<br>Polian Shamlat RF<br><br>Kangar PF | <br>Approx. 8 km in NE direction<br>0 km (within project site)<br><br>Approx. 2.5 km E<br><br><br>Adjoining to the project boundary |
| 3 | Areas used by protected, important or sensitive species of flora or fauna for breeding, nesting, foraging, resting, over wintering, migration | Polian Shamlat RF<br><br>Kangar PF | Approx. 2.5 km E<br><br>Adjoining to the project boundary |
| 4 | Inland, coastal, marine or underground waters | Yes | Underground water exists. |
| 5 | State, National boundaries | Punjab-HP border | 100 m |
| 6 | Routes or facilities used by the public for access to recreation or other tourist, pilgrim areas | Una Jaijon Road (MDR 39) | Passing through the project site |
| 7 | Defense installations | No defense installation present within 10 km of the unit | -- |
| 8 | Densely populated or built-up area | Haroli<br>Una | Approx. 6 km NE<br>Approx. 12 km NE |
| 9 | Areas occupied by sensitive man-made land uses (hospitals, schools, places of worship, community facilities) | **<u>Schools:</u>**<br>Govt. Primary School, Malluwal<br>Govt. Primary School, Dulehr<br>Govt. Primary School, Haleran<br>Ajanta Public High School Laluwal<br>Dharampur Primary School<br>Kukran School<br>**<u>Colleges:</u>**<br>Degree College Khad | <br>Approx. 0.88 km E<br>Approx. 2.1 km, SE<br>Approx. 2.5 km, E<br>Approx. 2.5 km, E<br>Approx. 6.0 km, NE<br>Approx. 6.3 km, SW<br><br>Approx. 14.55 km, N |

| | | | |
|---|---|---|---|
| | | **Temples/Gurudwara:**<br>Lakh Data Peer Mandir<br>Peer Baba Temple<br>Vankhandi Mata Mandir<br>Gurudwara Singh Sahab<br>Shaheeda da Gurudwara Sahib, Mahilpur<br>Gurudwara Shri Gupalah Sahib Ji Patshahi Dasvin<br>**Hospitals:**<br>Community Health Centre, Dulehr<br>Civil Hospital, Haroli<br>Community Health Centre Bhadsali<br>Nanda Multi Specialty Hospital, Una | <br><br>Approx. 0.1 km, N<br>Approx. 6.6.km, NE<br>Approx. 8.15 km, N<br>Approx. 3.9 km, SE<br>Approx. 10 km, W<br><br>Approx. 10.5 km, EW<br>Approx. 2.4 km NE<br><br>Approx. 6.2 km NE<br>Approx. 9.85 km, N<br><br>Approx. 13.2 km, NE |
| 10 | Areas containing important, high quality or scarce resources (ground water resources, surface resources, forestry, agriculture, fisheries, tourism, minerals) | No such areas present within 10 km of the unit. | -- |
| 11 | Areas already subjected to pollution or environmental damage (those where existing legal environmental standards are exceeded) | No such areas present within 10 km of the unit. | -- |
| 12 | Areas susceptible to natural hazard which could cause the project to present environmental problems (*earthquakes, subsidence, landslides, erosion, flooding or extreme or adverse climatic conditions).* | No | The project falls under the zone IV as per the Seismic Zone Map of India.<br><br>There are no possibilities of earthquakes, subsidence, landslides, erosion, flooding or extreme or adverse climatic conditions at project location & its study area as per records available. |

***(Source: Toposheet of the 10 km study area)***

Project and its study area falls in the Survey of India, Toposheet No. **H43E3 (53A/3), H43E7 (53A/7)** and is attached along as **Drawing 1**.

## 2.5 PROJECT SIZE AND MAGNITUDE OF OPERATION

HPSBDPIL, Dept. of Industries, Govt. of HP is a nodal agency coordinating and supervising project development activities. HPBDPIL will be involved in the development of the proposed industrial estate, which will house API manufacturing industries based on the chemical synthesis only (Approx. 70-80 industrial units in the 110 industrial plots). The upcoming industries in the park will be in the pharma sector and mostly in large scale categories. The project as a whole also comes under the large scale category. Area Statement is given as table below:

**Table 2.4. Area bifurcation of the proposed Bulk Drug Park**

| Sr. No. | Description | Area in Acres | Area in Ha | Percentage (%) |
|---|---|---|---|---|
| 1. | Industrial Plot Area | 558.28 | 225.93 | 39.72 |
| 2. | Commercial Plot Area | 95.02 | 38.45 | 6.76 |
| 3. | Electric Substation | 23.37 | 9.46 | 1.66 |
| 4. | Utility Area | 41.65 | 16.86 | 2.96 |
| 5. | TSDF Area | 29.46 | 11.92 | 2.10 |
| 6. | Parking Area | 18.46 | 7.47 | 1.31 |
| 7. | Green Area and Green Area Under Industrial Plots | 465.18 | 188.25 | 33.09 |
| 8. | Waste Treatment Facilities Area (STP /ETP /MEE & WTP) | 41.08 | 16.62 | 2.92 |
| 9. | Common Logistic Area | 18.90 | 7.65 | 1.34 |
| 10. | Roads | 86.45 | 34.98 | 6.15 |
| 11. | Water Bodies | 27.28 | 11.04 | 1.94 |
| 12. | Other | 0.30 | 0.12 | 0.02% |
| | **Total Area** | **1405.41** | **568.75** | **100%** |

***(Source: Layout plan of the project)***

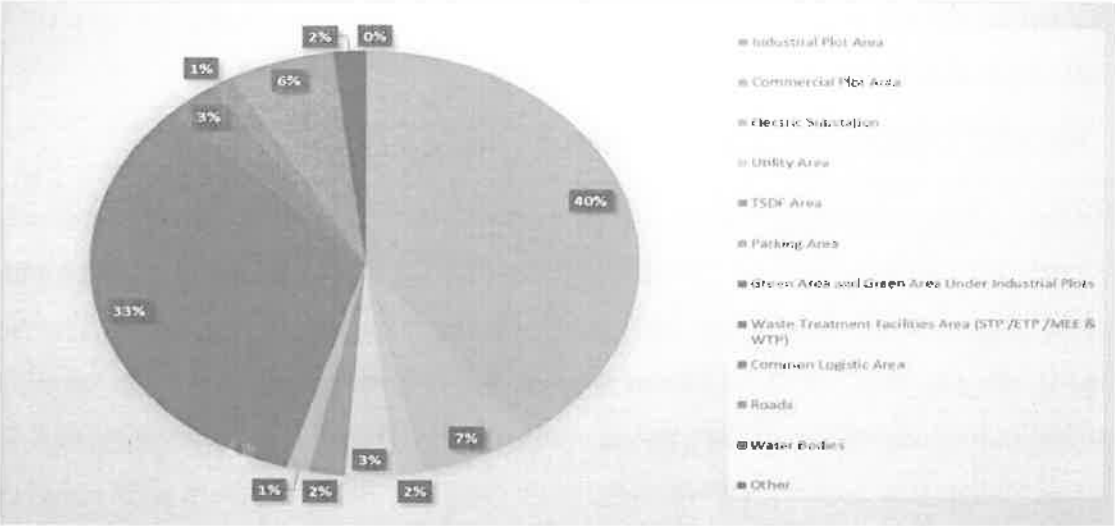



**Figure 2.3. Area statement of project**

## 2.6 PROPOSED SCHEDULE FOR APPROVAL AND IMPLEMENTATION

The project schedule is given below:

| | |
|---|---|
| Environmental Baseline Monitoring | April, 2023 to June,2023 (12 weeks) |
| Submission of Form-I/PFR for issuance of TOR's | 25th October, 2023 |
| ADS raised | 29th November, 2023 |
| ToR Granted | 1st August, 2024 |

Construction work for the project would start subsequent to receipt of Environmental Clearance (EC) from MoEF&CC and Consent to Establish (CTE) from State Pollution Control Board (HPSPCB). Tentatively, work is expected to start and likely to be commissioned within 12 months after receipt of all the clearance from different statutory authorities.

## 2.7 TECHNOLOGY AND PROCESS DESCRIPTION

The Master Plan Layout is prepared in such a way that it resembles an appropriate sense of dignity and decorum, accommodate both short- and long-term space needs, and contribute to the effective administration of justice by providing physical facilities that are appropriate for current practices, as well as being able to accommodate changes in procedures, operations, and policies. The Master Plan for Bulk Drug Park has evolved from a comprehensive understanding of the existing situation, market trends, infrastructure availability, best practices & success factors, existing Building guidelines and Development Control Regulations, scale of development with project development phasing strategy.

Keeping the same approach and planning principals in mind, the layout design and concept of the Bulk Drug Park was visualised with basic primary guiding factors. Conceptual plan for the park was designed on the basis of the program brief, with a view to implement the desired design principles and to test the workability and feasibility of achieving the project objectives.

Development of layout plan at conceptual level helped envisage physical manifestations of the vision and program brief proposed for the Project Area. In order to arrive at the most suitable layout plan, various options were prepared and compared to see the most relevant option of development in terms of road network and other uses. Different widths of roads were proposed throughout the process of the mapping.

The project will implement the proven technologies in the R&D for the cost effective & environment friendly practices.

## 2.8 AREA STATEMENT, PROJECT LAYOUTS AND COMPONENTS

Bulk Drug Park is a new project proposed at village Kuthar Beet, Pollian Beet, Tibbian, Jodian, Janani and Malluwal, Tehsil- Haroli, District Una, Himachal Pradesh by M/s Himachal Pradesh Bulk Drug Park Infrastructure limited (HPBDPIL).

The design brief specifies the provision of all plots with supporting physical and common infrastructure. Various infrastructure components planned in the park are presented in the table below:

| Sr. No. | Infrastructure | Components |
|---|---|---|
| 1 | Common Infrastructure Facilities | • Central Effluent Treatment Plant (CETP) with Zero Liquid Discharge (ZLD)<br>• Solid Waste Management (SWM) (50000 Tons per Annum)<br>• Storm Water Drains Networks<br>• Common Solvent Storage System<br>• Common Warehouse<br>• Power<br>• Raw Portable and Demineralized Water<br>• Steam Generation and Distribution |

| Sr. No. | Infrastructure | Components |
|---|---|---|
| | | • Internal Road and Compound Wall<br>• Advanced Laboratory Testing Centre<br>• Emergency Response Centre<br>• Safety/ Hazardous Operations Audit Centre<br>• Centre of Excellence |
| 2 | Other Infrastructure | • Administrative Block<br>• Rain shelter/bus stop<br>• Canteen Block<br>• Fire Station<br>• Guest House<br>• Duct for Cable/Wire<br>• Pedestrian Path<br>• Green Cover<br>• Helipad<br>• Site Development Works |

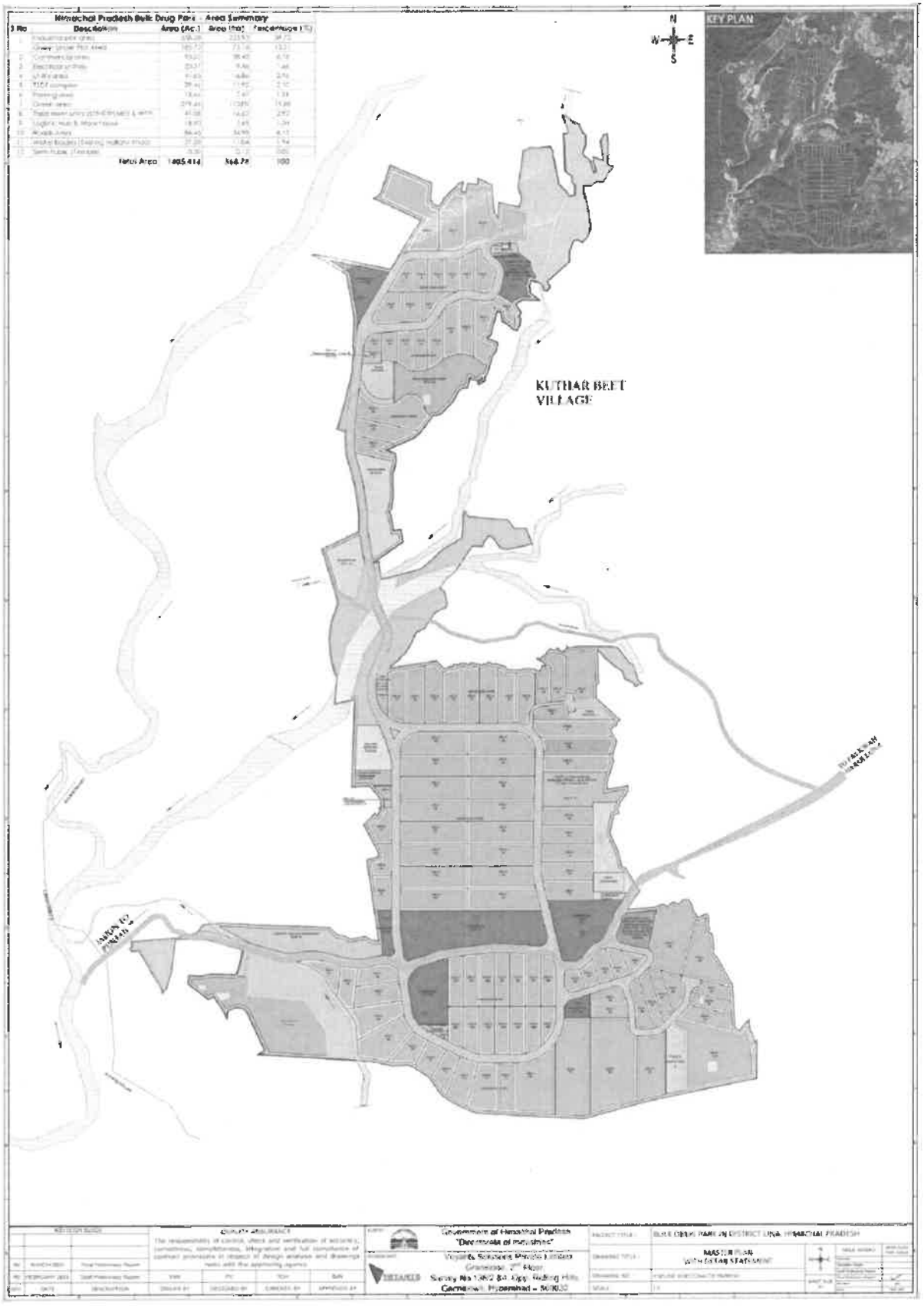



**Figure 2.4. Detailed project layout with delineation of project components**

### 2.8.1. Industries to be established in BDP

The proposed project comprises of 110 industrial plots in 558.28 Acre of land will be allotted to API manufacturing units (Approx. 70-80 industrial units) involved in the production based on chemical synthesis. The upcoming industries in the park will be in the pharma sector and mostly in large scale categories (Bulk Drug manufacturing units). The project as a whole also comes under the large scale category.

### 2.8.2. Employment assessment

A manpower of 2500 to 3000 persons will be employed during the construction phase. The proposed employment is projected for the entire bulk drug park, with a worker density of 120 employees/Ha. Out of the total area of 558.28 ha, nearly 225.93 Ha. will be occupied under the industrial and commercial activities. As such, an employment opportunity for approx. 40,000 no. of employees will be generated.

### 2.8.3. Population calculation

Apart from this direct employment, there will be numerous number of persons with indirect employment will be connected with this project. The exact number of such persons cannot be assessed at this stage; as such kind of employment/job work activities come from the informal/unorganized sectors. However, for the calculation of waste generation and other related entities/activities, a floating population of 10% of direct employees has been considered, thus arriving at the total population of 44,000 persons.

### 2.8.4. Project cost

The estimated cost of the project is Rs 1923.00 Cr out which Rs 1638.46 Cr is for Common Infrastructure Facility and Rs 284.54 Cr is for other infrastructure including site Development cost.

The Government of India under the Bulk Drug Park scheme is providing Rs 1000 Cr. for development of Common Infrastructure Facility (CIF). Under the scheme the Government of India will fund maximum of 90% of the total CIF facility proposed.

As the project is funded by the Central and State Govt. on equal and complimentary terms, therefore the project is firmly placed on the economic front. The pharma sector is an ever growing sector with huge gap in demand and supply, therefore the economic viability of the project is never in danger and cannot be doubted in any stage.

### 2.8.5. Water requirement

***Source of water:*** Groundwater through bore wells (15 Nos.)

Water Requirement: Total water requirement for the proposed project will be 22.1 MLD; out of which 15 MLD will be fresh water demand met from groundwater and 7.1 MLD will be recycled water met from treated water. Breakup of the total water demand is given below:

**Table 2.5. Water demand for the proposed Bulk Drug Park**

| Description | Demand (MLD) | Source |
|---|---|---|
| Freshwater Demand (Potable + Process water demand) | 15 (2.2+12.8) | Groundwater |
| Flushing water demand | 1.15 | Treated water |
| AC Cooling demand | 2.00 | Treated water |
| Horticulture water demand | 3.95 | Treated water |
| **Total Water Demand** | **22.1 MLD** | Ground & treated water |

*As an alternative source of water requirement, a comprehensive scheme for the surface water supply has been prepared and the same has been approved by the concerned authority (BBMB). Under this proposal, a dedicated pipeline of approximate 15 Km length will be laid which will supply surface water from the river Satluj to the project. 50 MLD fresh water from the river Satluj will be supplied and the PP has also proposed to provide a dedicated storage tank of capacity 100 MLD to receive surface water and to store the same for the exclusive use in the project. This scheme has been envisaged keeping in view the future expansions and upcoming allied industries as well as the proposed housing schemes in the vicinity.

Once, this scheme gets materialized the ground water abstraction will be ceased and will only act as standby measures. The PP has already paid the seed money to the BBMB for the initiation of this scheme.

Confirmation letter for the abstraction of ground water has also been obtained from Jal Shakti Department, Himachal Pradesh and a copy for the same is attached as **Annexure 4**. The water balance diagram is shown in the **Fig 5.** below.

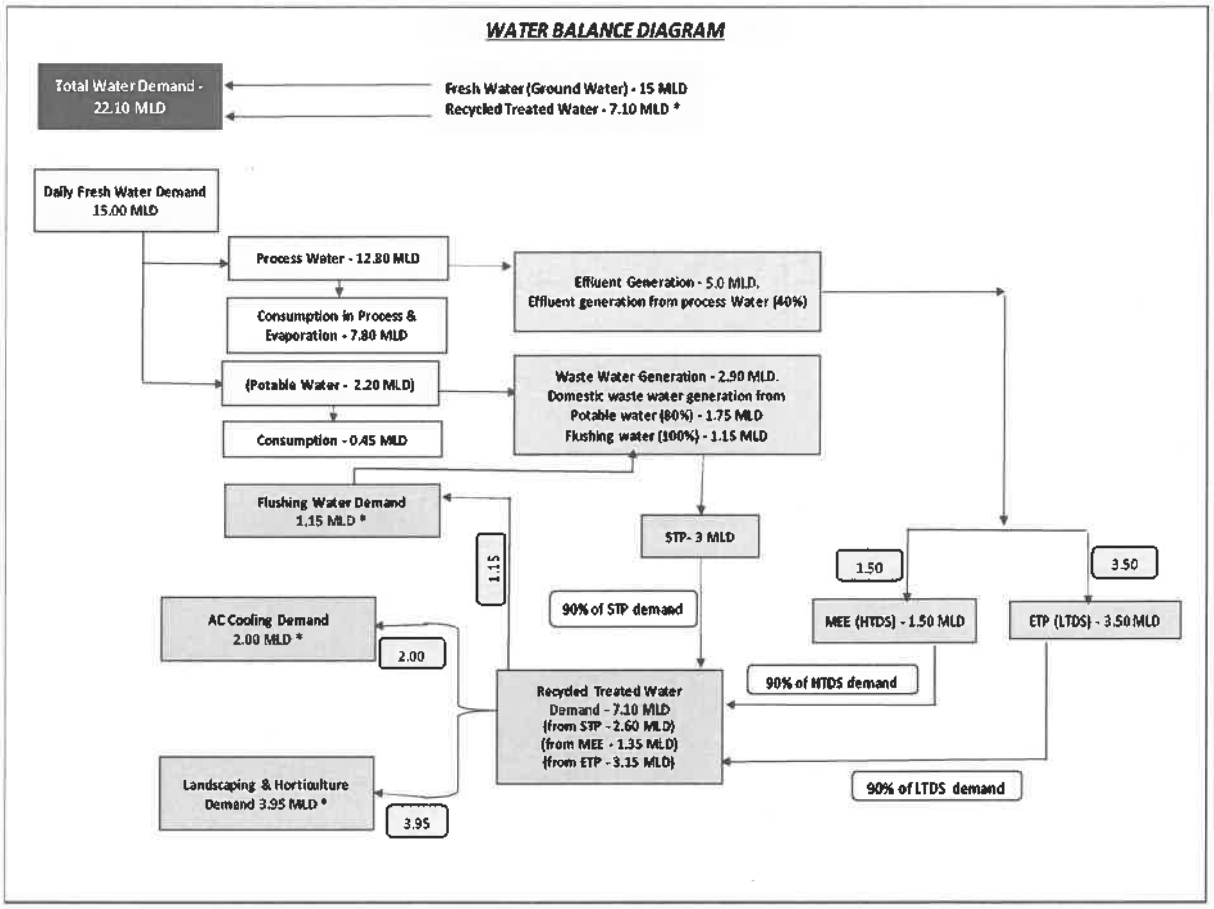



**Fig. 2.5 : Water Balance Diagram**

### 2.8.7. Sewage treatment technology (STP)

Common Sewage treatment plant (STP) of capacity 3.0 MLD will be provided within the project. The sewage water will be generated from toilets, bathrooms, canteens and floor washings etc. The sewage water requires treatment in order to meet the standard norms set by the HPSPCB.

This considers various aspects covering the parameters of sewage water (both quality and quantity), scheme & process of treatment, process units involved in the treatment, their specification with commercial terms & conditions.

### 2.8.8. Common Effluent Treatment Plant (CETP)

1 No. of Common Effluent Treatment Plant of capacity 5 MLD will be provided within the project to treat the industrial effluent to be generated from industrial processes. Treated water available after treatment in CETP is around 90% of total capacity i.e. 4.5 MLD which shall fulfil cooling, landscaping and horticulture water requirement.

### 2.8.9. Power

Electrical system and supply are one of the most important infra services and plays an important role in attracting prime developers. This section deals with the requirements of electrical power transmission and distribution within the Bulk Drug Park at Una.

***Proposed power system***

Total power demand for the proposed project will be 120 MW which will be provided by Himachal Pradesh State Electricity Board Limited (HPSEBL).

The total maximum demand load of 120 MVA is to be fed from the Main Receiving substation (MRSS) of 132/33kV voltage level with 5 Nos. 33/11kV Substation, proposed to be constructed inside the project area.

### 2.8.10. Manpower

Manpower of 2,500 to 3,000 persons will be employed during the construction phase.

Manpower of 44,000 persons will be employed during the operation phase, considering direct and indirect employment.

## 2.9 DESCRIPTION OF THE ASPECTS OF THE PROJECT LIKELY TO CAUSE ENVIRONMENTAL IMPACT

### 2.9.1. Domestic wastewater generation and its recycling from STP

The wastewater generation from domestic processes will be approx. 2.9 MLD which will be treated in STP of capacity 3 MLD. The treatment of wastewater with 90% of efficiency of STP, will generated 2.6 MLD of treated water which will be reused for flushing and gardening water requirement.

### 2.9.2. Process effluent and its recycling from CETP

The effluent generation from industrial processes will be approx. 5 MLD which will be treated in CETP/ETP/MEE of capacity 5 MLD. The treatment of wastewater with 90% of efficiency of CETP/EPT/MEE, will generated 4.5 MLD of treated water which will be reused for flushing and gardening water requirement.

### 2.9.3. Solid waste

***During construction phase***

Solid waste generation will be in the tune of @ 0.2 kg per person per day for 3000 persons during construction phase is about 0.6 TPD.

***During operation phase***

Solid waste of about 8.8 TPD (@ 0.2 kg/capita/day) will be generated. Solid waste will be duly segregated into biodegradable and non-biodegradable components. Separate area will be earmarked for segregation of solid waste. Biodegradable waste will be composted within project premises and recyclable component will be disposed off through authorized recycler vendors. The Solid Waste will be handled/disposed off as per the provision of Solid Waste Management Rules 2016 and its amendments.

### 2.9.4. Hazardous Waste

The proposed Bulk Drug Park will house API manufacturing units which involves chemical synthesis only. Generation of hazardous waste from API units depends upon type and quantity of production, nature and quantity of raw material used and process and technology to be used for API manufacturing. Generally, it is assumed that about 80 API units during full occupancy of Bulk Drug project with production capacity of 2000-2250 TPD of APIs will generate hazardous wastes in the tune of about 1/3rd of the production, thus a nearly 700-800 TPD of Hazardous Waste of different categories will be generated. Out of the total Hazardous Waste of 700-800 TPD quantum, likely to be generated in the project, nearly 10-12 TPD will be of storage able category (CETP sludge & MEE residue) and 650-800 TPD will be of incinerate-able/co-processing category. These all type of Hazardous Waste will be disposed of with the authorized entities. An integrated TSDF (comprising a secured landfill, a solid-liquid feed incinerator is proposed inside the project for which 33.6 acres of land has been proposed.

For the development of TSDF for the storage-able waste and incinerator for the incinerate-able waste, the separate detailed proposal will be prepared by PP to meet with the requisite as per the EIA Notification, 2006.

### 2.9.5. Bio-Medical Waste

The source of Bio-Medical Waste generation will be from the health care facilities/activities to be established in the project only. Biomedical waste, approx. 4-5 kg/day is likely to be generated from dispensary & Research Institute for Pharmaceutical Advancement proposed within project which includes minor first aid or medical use of disposable dressing material.

This waste will be disposed through authorized Common Bio-medical Waste Collection and Disposal Agency as per Bio-medical Waste Management Rules, 2016 and its amendments.

### 2.9.6. E-Waste and Plastic Waste

The quantum of Plastic Waste and E-Waste will be bare minimum in view of the fact that the plastic will be used as packing material only. The raw materials intake will be in the paper based cardboard with lesser involvement of plastic. Similarly, the E-Waste generation will also be on the lesser side during 1st five years as the life of electronic items is much better due to advancement of technology. The exact quantum of both these waste cannot be estimated upfront however, going by the average figures nearly 80 kg/day of Plastic Waste and 4 TPM (i.e., 130 kg/day) of E-Waste is expected to be generated. Both these wastes i.e., E-Waste and Plastic Waste will be handled/ disposed off to the authorized recyclers, strictly as per the provision of the prevailing/relevant Rules.

### 2.9.7. Effluent:

***Construction phase***

During construction phase, there will be generation of domestic effluent from workers or labourers. The management & disposal of domestic effluent will be taken care by Construction agency/contractor. It will be ensured by the PP that the executive agency will install skid mounted STP of suitable capacity for the treatment of expected domestic effluent and after treatment the same will be utilized in the construction activity as well as on the existing green belt within the premises. With nearly 3,000 persons involved during construction phase and going by the empirical formulae/prescribed norms, it is expected that 108 KLD of domestic effluent will be generated and for the treatment of the same, the proposed STP will be having a capacity of 120 KLD (2-3 modules of adequate capacity).

***Operation phase***

The project will house approx. 80 API manufacturing units, which will be of chemical synthesis based and such units consume lesser quantity of water in comparison to the fermentation based API units. On the basis of information collected from existing similar units in the State of Punjab and Himachal Pradesh as well, the average water consumption will be 160 KLD per unit including steam requirements. This figure has been taken purely on the assumption basis, however, the actual consumption may vary upto 10-15% both ways. By this virtue it is expected

that total consumption of fresh water in the process will be 12.8 MLD. Majority of the intake water with either be consumed in the process or will be lost in evaporation. As such there will be generation of wastewater approx. 62.5 KLD by the individual unit. With this analogy, Total Industrial wastewater generation will be 5 MLD which will consist of 1.5 MLD of HTDS and 3.5 MLD of LTDS streams. For the treatment of LTDS process effluents, a Common Effluent Treatment Plant (CETP) of adequate capacity of 5 MLD has been proposed. The CETP treated water will be reused in the allied activities such as cooling, flushing, & irrigation of green belts within the premises. Similarly, 1.5 MLD effluents of HTDS stream will be fed to MEE for its treatment and the recovered supernatant will be consumed in recycling/reuse chain. In the recycling/reuse of treated wastewater, three lines have been proposed e.g. cooling, flushing & irrigation of green belts. The project has sufficient area under green belt to accommodate such disposal of treated wastewater. Nearly 465.18 acres of land has been earmarked under greenbelt within the premises out of which few patches of adequate size will be developed as per K-Tech.

Apart from above a domestic effluent to the quantum of approx. 2.6 MLD will also be generated from the utilities and the human interventions. STP of capacity 3 MLD has been proposed to treat the domestic effluent. The treated wastewater in this domestic line will be utilized in the auxiliary services/activities mainly cooling and irrigation of green belts. Water balance has already been given in Fig. 5 above.

## 2.10 DESCRIPTION OF MITIGATION MEASURES INCORPORATED INTO THE PROJECT TO MEET ENVIRONMENTAL STANDARDS, ENVIRONMENTAL OPERATING CONDITIONS OR OTHER EIA REQUIREMENTS

**Table 2.6: Environmental aspects, impacts and proposed mitigation measures**

| S. No. | Aspects | Impacts | Proposed Mitigation Measures |
|---|---|---|---|
| 1. | Wastewater generation | Water Pollution | Domestic wastewater will be treated in proposed STP of capacity 3.0 MLD and treated water will be reutilized within premises.<br>Industrial effluent will be treated in proposed CETP of capacity 5 MLD. |
| 2. | • Emission of | Air Pollution | • Water sprinkling will be practiced to |

| | | | |
|---|---|---|---|
| | Gases<br>• Dust Emission | | control the dust emission.<br>• Vehicles having valid Pollution Under Control Certificate will be permitted.<br>• Individual industry will be responsible for management of emissions generated from their industries.<br>• Trucks carrying construction material are covered with tarpaulin to prevent spreading of dust during transportation. |
| 3. | Noise generation during operation of plant | Noise Pollution | • All noise generating machines will be provided at different places within the cover sheds.<br>• Plantation of more trees within the project premises to control noise pollution and along the boundary wall. |
| 4. | Use of water | Impact on Hydrogeology | Water will be recycled to the best possible extent. No effluent will be discharged directly on to the land. |

## 2.11 ASSESSMENT OF NEW & UNTESTED TECHNOLOGY FOR THE RISK OF TECHNOLOGICAL FAILURE

For the development of the project, the reliable technology of the State of the Art has been proposed which will be approved by the Himachal Pradesh Council for Science, Technology & Environment (HIMCOSTE). Thus, no untested or new technology is proposed for expansion of the unit.

**********

# CHAPTER 3
# DESCRIPTION OF THE ENVIRONMENT

## 3.1 INTRODUCTION

This chapter illustrates the description of existing environmental status of the study area with reference to the major environmental attributes. The existing environmental setting is considered to establish the baseline conditions which are described with respect to physical environment, air environment, water environment, noise environment, traffic pattern and density, land environment, biological environment and socio-economic environment.

Baseline Environmental status in and around the project depicts the existing quality of Air, Noise, Water, Soil, Ecology & Biodiversity and Socio-economic environment. Based on the baseline data, environmental impact assessment is carried out and Environmental Management Plan is prepared. This baseline environmental study reveals information on existing environmental scenario:

- Delineation of project location and study area.
- Delineation of the environmental components and methodology.
- Delineation of study period.
- Delineation of the location of the plant and description of its surroundings based on secondary data.

## 3.2 STUDY AREA & PERIOD

Baseline Environmental data collection was done for Ambient Air, Noise, Water, Soil, Ecology & Biodiversity and Socio-economic environment from a study area of 10kms comprising core zone (1405 Acres) and buffer zone of the project. Studies of various environmental parameters have been done within the study area of 10kms (core zone and buffer zone) for one season/ three months (April to June 2023). Baseline data for ambient air quality were collected on twice a week frequency and other parameters once a time basis during the study period from each identified locations within the study area of 10 kms (core zone and buffer zone).

Impact identification always commences with collection of baseline data such as Ambient Air Quality, Micro-Meteorology, Ground and Surface Water Quality, Noise levels, Soil Quality, Land use pattern, Biological Environment and Socio-economic aspects and Hydrology within the study

area.

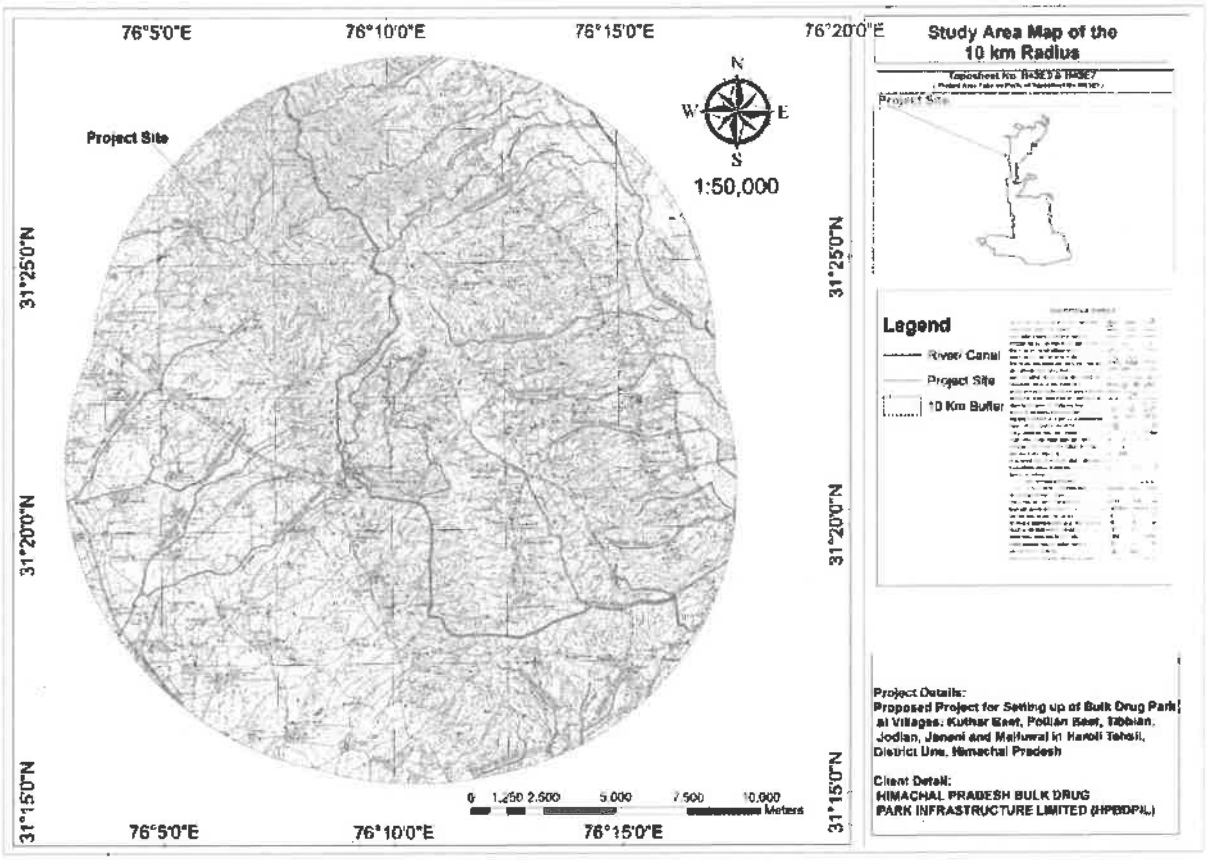



**Figure 3.1. Toposheet showing project site along with 10 km radius of study area (Marked on Toposheet No. H43E3 and H43E7; Not on scale)**

## 3.3 COMPONENTS & METHODOLOGY

The baseline data collected from both primary and secondary sources. The baseline information on micro-meteorology, ambient air quality, water quality, noise levels, soil quality and floristic descriptions are largely drawn from the data generated by M/s Eco Paryavaran Laboratories & Consultants Pvt. Ltd., NABL Accredited Lab (Certificate No. TC-11818 enclosed as **Annexure 12**) in accordance with the guidelines issued by MoEF&CC, CPCB and HPSPCB.

Climatological data of the study area of 10 kms were collected for last 10 years (2011-20) from NASA with geo referencing of project coordinates (POWER | Data Access Viewer (nasa.gov). Further, micrometeorological data at project location recorded using automatic weather station (Virtual Hydormat, AWS 10500) before two weeks and during study period. Apart from these,

secondary data collected from Census Handbook, Soil Survey and Land Use Organization, District Industries Centre, Forest Department, Central Ground Water Board (CGWB) etc.

The studies involved conducting field studies and analyzing various parameters that might be affected due to the industry and conducting socio-economic survey among the people.

During reconnaissance survey, the sampling locations identified based on:

- Existing topography and meteorological conditions
- Locations of water intake and waste disposal points
- Location of sensitive receptors (human habilitation and other sensitive areas) present in vicinity of the project
- Representative areas for baseline conditions
- Accessibility for sampling

The scoping and the extent of data were formulated based on interdisciplinary team discussions and professional judgment keeping in view of ToR issued by MoEF&CC.

The baseline studies started with reconnaissance survey and project visits in the study area for fixing the monitoring locations for collection of the primary data.

Various Government and other organizations were approached for getting information for the secondary data. The various parameters surveyed and studied for baseline study are discussed in the following components:

- Physical environment
- Air environment
- Noise environment
- Land environment
- Water environment
- Biological environment
- Socio-economic environment

Data is collected to determine the existing conditions of various environmental attributes. Environmental attributes and frequency of baseline monitoring are outlined in **Table 3.1**.

**Table 3.1. Environmental Attributes and Frequency for Baseline Monitoring**

| S. No. | Attributes | Parameters | Locations/ Frequency/ Source |
|---|---|---|---|
| 1. | Ambient Air Quality | $PM_{10}$, $PM_{2.5}$, $NO_2$, $SO_2$, CO, Ozone, $NH_3$, Benzene, BaP (PAH), VOCs and HCl | Monitoring was carried out at 10 locations at a frequency of twice a week 24 hourly sample for three months /One season from primary sources. Secondary data were also collected from EIA studies/ CPCB/ HPPCB sources and referred for a comparative evaluation of existing air quality in the region. |
| 2. | Meteorology | Wind Speed & Direction, Temperature, Relative Humidity & Rainfall | Meteorological data for last 10 years (2011-20) were collected from secondary authorized sources as NASA (POWER \| Data Access Viewer (nasa.gov) and Other EIA studies of the region.<br>Primary source of data as Automatic weather station of Eco lab installed at project site before two weeks and during period of environmental sampling (March to June 2023). |
| 3. | Water quality | Physical, Chemical & Bacteriological parameters | Water samples were collected from 5 Nos. of ground water sources and 4 Nos. of surface water sources at a frequency of once in a season |
| 4. | Ecology | Existing terrestrial and aquatic flora and fauna within 10 km radius | Data collected through field visit at Core and Buffer Zone from Primary & Secondary data at a frequency of once in a season |
| 5. | Noise levels | Noise levels in dB(A) | Noise quality was monitored at four sites (1 location at project area/ core zone and 3 locations in buffer zone within 1 km around the project area/ core zone) at a frequency of once in season for day time and night time from primary sources. |

| | | | |
|---|---|---|---|
| 6. | Soil characteristics | Parameters related to potential of land | Soil quality was monitored at five sites (1 location at project area/ core zone and 4 locations in buffer zone) at a frequency of once in season from primary sources and compared with the data of secondary sources as EIA studies conducted in the region. |
| 7. | Land use | Trend of land use change for different categories | Based on data from remote sensing studies (Satellite Imagery) and ground trothing. Data collected from Primary & Secondary sources. |
| 8. | Socio-economic aspects | Socio-Economic characteristic, labor force characteristics | Based on site survey and data from latest published district census handbooks. Data collected at Core and Buffer Zone from primary & secondary sources. |
| 9. | Geology | Geological history | Based on data collected from primary & secondary sources. |
| 10. | Hydrology | Drainage pattern, nature of streams, aquifer characteristics recharge areas | Based on data collected from primary & secondary sources. |
| 11. | Risk assessment and disaster management plan | Identify areas where disaster can occur by fire & explosions and release of toxic substances | Based on assessment. |
| 12. | Existing pollution Aspects | Identification & quantification of pollution sources with respect to air emissions, water effluent and solid waste | Based on assessment |

***(Source: Technical EIA Guidance Manual for Industrial Estates by MoEF&CC)***

## 3.4 ESTABLISHMENT OF BASELINE FOR VALUED ENVIRONMENTAL COMPONENTS, AS IDENTIFIED IN THE SCOPE

The scope of the study is as per the TOR (Terms of Reference) issued by MoEF&CC vide File No. 10/68/2023-IA.III dated 01st Aug, 2024.

### 3.4.1 PHYSICAL ENVIRONMENT

#### 3.4.1.1 Topography

Una district is a part of Siwalik range and the Siwalik Hills are located within the political boundaries of Pakistan, India, Nepal, and Bhutan, and range between 6 to 90 km in width. They gradually become steeper and narrower in relief and width respectively, from northern Pakistan to Bhutan (over 2000 km in length). The district is bounded by plains of Punjab in the West and Sola Singhi Dhar (Siwalik Range). The ranges trend in general NW-SE direction and between there is a longitudinal valley of the Soan River. The altitude varies from 300 m to over 1200 m above MSL on Sola Singhi Dhar. The width of the Jaswan Dun Valley ranges from 7 Km to 14 Km and the town of Una, which is nearly in the middle of the Dun valley (Jaswan Valley) is on the elevation of 427 m above MSL. In general, most of the district lies between 600- 900 m elevation and slope is less than 10°.

Ongoing erosion and tectonic activity has greatly affected the topography of the Siwaliks. Associated badlands features include the lack of vegetation, steep slopes, high drainage density, and rapid erosion rates. The monsoon rains temporarily supply seasonal streams (locally known as choes, khads, or nalas) located both within the Siwalik hills and the adjacent duns.

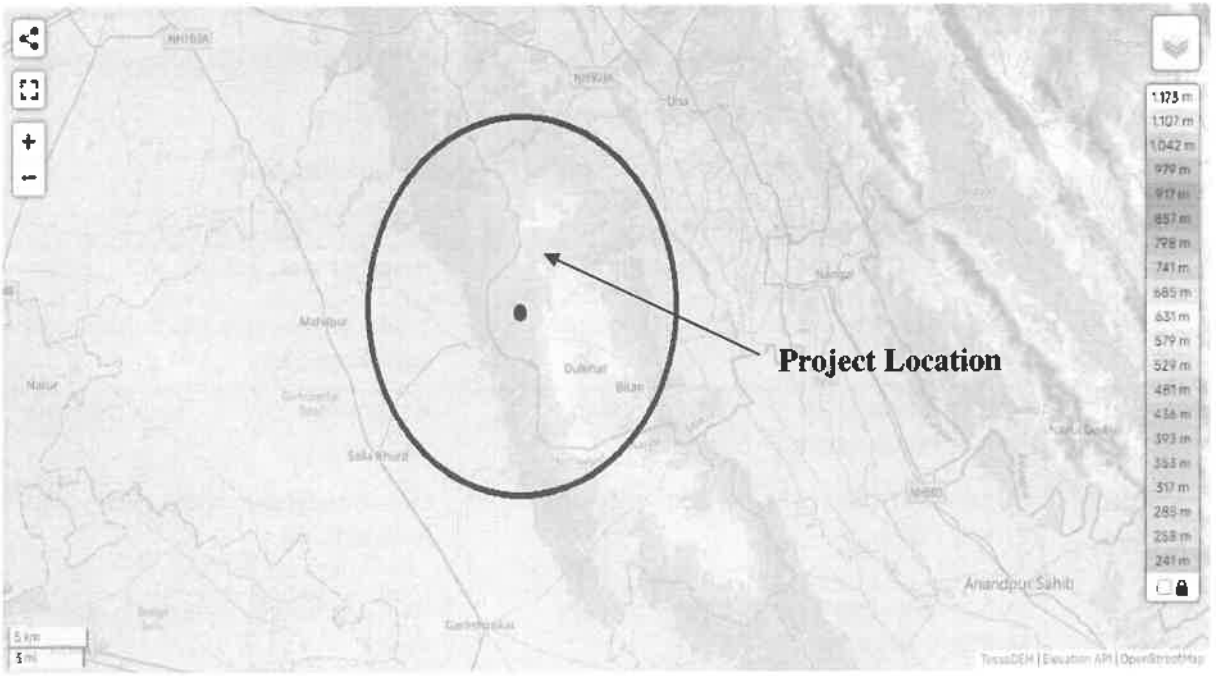



**Fig. 3.2: Topographic Elevation Map showing project location and 10 km of Study Area**

*(Source: https://en-in.topographic-map.com/places/61/India/)*

### 3.4.1.2 Geology

Two general headings can be used to characterize the region's geology. (i) The top, middle, and lower Siwalik formations are located in hilly regions. (ii) The valley's Quaternary sediment composition.

The region is primarily made up of the Tertiary Siwalik formation, which has a narrow longitudinal tectonic valley called Una valley (Fig. 3). From Daulatpur to Santokhgarh, the Una valley stretches. In the vicinity of Dun-Syncline's northern boundary lies a thrust plane known as the Soan Thrust. The remainder of the district is hilly, with the exception of Una Valley. The geological order is listed below.

The younger valley fill deposits are unconsolidated elastic sediments with granular deposits primarily found in clays and clay-boulder beds. They are Pleistocene to Recent in age. Sand, gravel, pebbles, cobbles, and boulders make up the piedmont deposits found in the sub-mountain tracts of the Siwalik Hills. Typically, coarse-grained deposits border the hills and grade into fine-grained aggregates as they approach the Una valley's centre. Clays of different thicknesses are interbedded with the granular strata. Finer elastic sediments, primarily composed of sand, silt, and clay, are primarily found in the low lying areas of the Una Valley, specifically the central portions of the valley and the streams that cross the northern portion of the valley.

**Table 3.2. Generalized stratigraphic sequence of the area**

| Group | Geological Age | Stratigraphic Units | Description |
|---|---|---|---|
| Quaternary | Recent | Alluvium | Sand, gravel, pebble and cobble |
| | Lower Pleistocene to Recent | Undifferentiated | Sand, gravel, pebble, cobble and soft sandstone |
| Tertiary | Lower Pliocene to Lower Pleistocene | Upper Siwalik Tertiary | Brownish clay, Conglomerate and shale |
| | Middle Miocene to Lower Pliocene | Middle Siwalik | Gray sandstone, shale and brownish clay |
| | Lower Miocene to Middle Miocene | Lower Siwalik | Red and purple sandstone and shale |

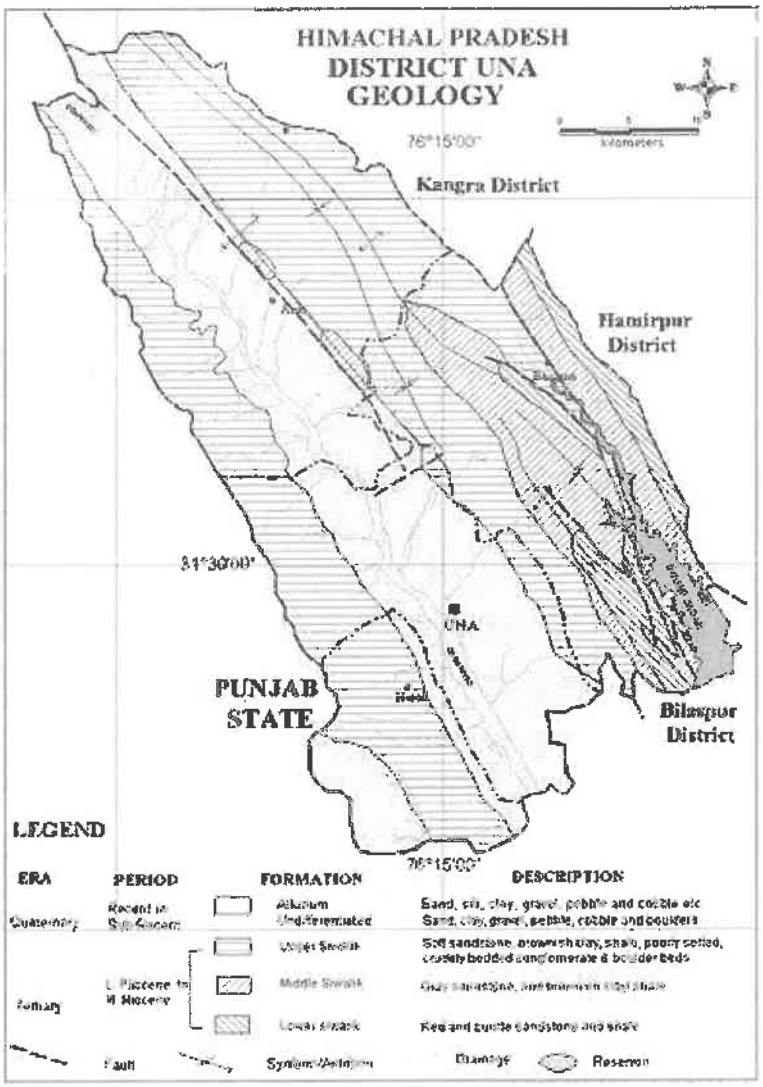



**Figure 3.2. Geological and Mineral Map of Punjab marked project location** *(Source: Geological Survey of India (GSI)*

The older valley fill deposits, or terraces, are found on the northern slopes of the valley and along the left bank of the Soan River. They are primarily made up of boulders, gravel, and pebbles that are thin clay lenses interspersed throughout. In the Una valley, the terrace formations predate the alluvium of the river. The piedmont deposits, which are made up of sand, pebbles, cobbles, and boulders, are found along the Siwalik Hills' sub. mountain tract.

The indurated sands, sandstones, silts, and brown clays that make up the upper Siwalik rocks are located to the northeast and southeast of the Una valley. Conglomerate beds are also found in some

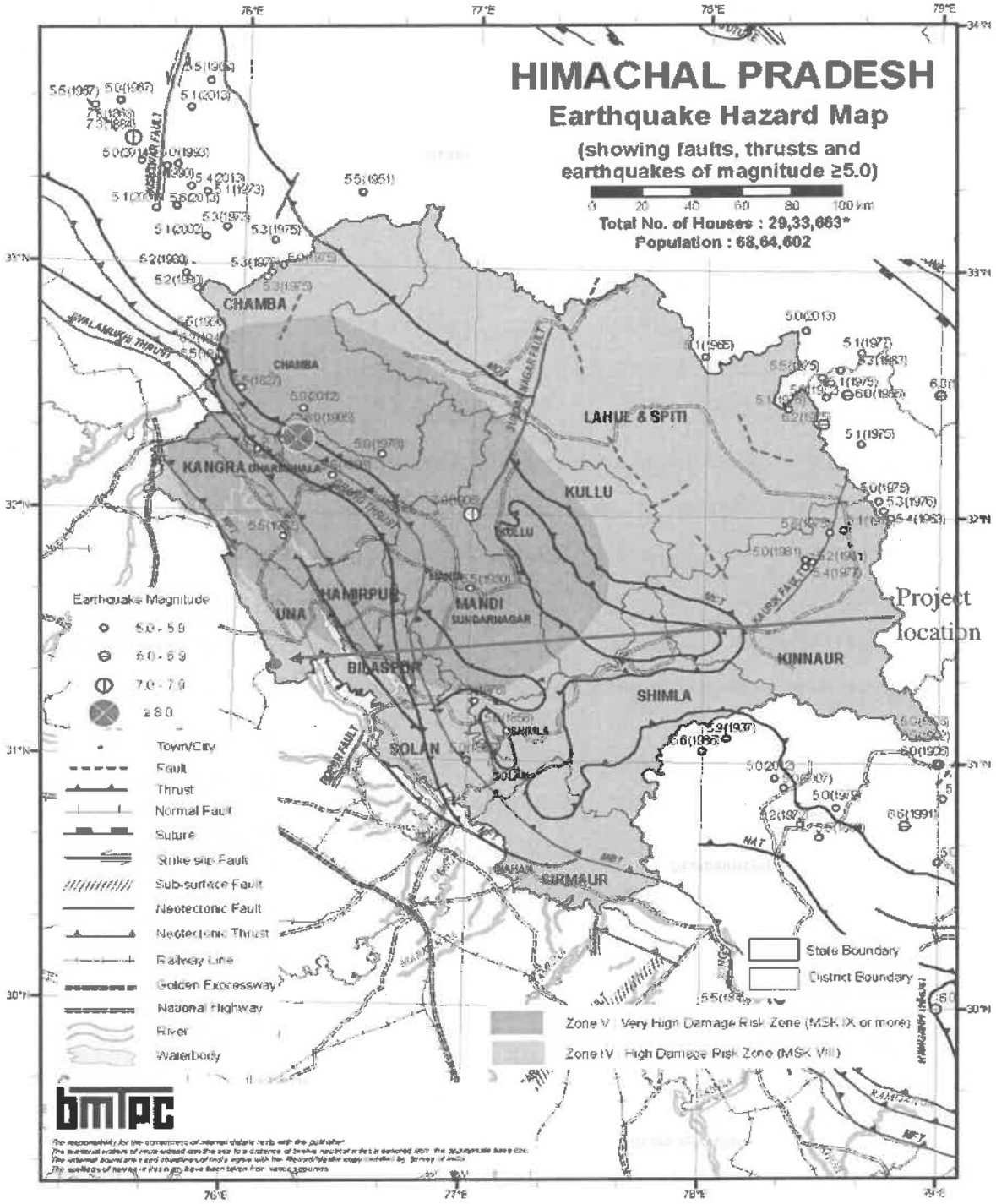
locations. In the northwest region of the region, pebble beds make up the majority of the coarser sediments. The boulder bed, which makes up the uppermost portion in the southern sections, is composed of pebbles, cobbles, and boulders with thin clay beds separating them. The higher Siwalik formations, located north of the valley, are primarily composed of huge sandstone and conglomerate, interspersed with beds of indurate sand and clay. Typically, sandstones are pebbly, soft, and friable.

The middle Siwalik is composed primarily of hard, grey or brown sandstones, with sporadic gravel beds and small amounts of dull shales and orange clays. Two isolated outcrops of middle Siwalik rocks, consisting of massive, medium- to coarse-grained, fairly hard micaceous sands with thin clay intercalations, can be found between Kathaulas-ki-Khad and Panjoa-ki-khad.

Purple shale and hard sandstones with clay nodules make up the lower Siwalik. In most cases, the sandstone creates noticeable strike ridges. Unconsolidated river deposits with boulders, pebbles, cobbles, and gravels combined with clays make up the valley fill. The different khads that are forming on the left bank and joining the Soan, as well as the piedmont and fan deposits, are probably going to show up as possible groundwater horizons.

### 3.4.1.3 Seismicity

The state of Himachal Pradesh, which is a portion of the Northwest Himalayas, is extremely sensitive in terms of seismic activity. The state has seen several micro and macro earthquakes throughout the past century. Several devastating earthquakes have hit the state and the areas of Punjab, Uttar Pradesh, and J&K that are next to it. A few of the notable earthquakes that shook the state were the Dharamshala earthquake of 1986 (M5.7), the Kinnaur earthquake of 1975 (M=6.7) that claimed 60 lives, and the Kangra earthquake of 1905 (M=8.0) that claimed 18,815 lives. In addition to these significant tremors, the state has seen over 250 earthquakes of magnitude 4.0 and 62 earthquakes of magnitude greater than 5.0. According to the state's earthquake hazard map, the districts of Chamba, Kangra, Mandi, Kullu, Hamirpur, and Bilaspur are particularly vulnerable because they are located in Zone V, or Very High Damage Risk Zone (MSK IX or More), while the remaining areas are located in the High Damage Risk Zone (MSK VIII). (HPSDMA, 2018)




BMTPC - Vulnerability Atlas - 3rd Edition - Peer Group, MoHUA, GOI. Map is Based on digitised data of SOI, Seismic Zones of India Map IS 1893 (Part 1) 2002, BIS, Earthquake Epicentre from IMD, Seismotectonic Atlas of India and its Environs, GSI. Houses/Population as per Census 2011. *Houses including vacant & locked houses. Disclaimer: The maps are solely for thematic presentation.

**Fig. 3.4: Seismic Map of Himchal Pradesh marked project location (BMTPC, 2019)**

### 3.4.1.4 Meteorological & Climatic Conditions

The climate of different parts of the district depends to some extent on the elevation. The terrain is hilly with elevation below 300 m in valleys and western region and the elevation gently increases by a few hundred meter over the northeastern region of the district. The climate of the district is somewhat like that of the adjoining plains of the Punjab, except for a milder hot season and higher rainfall. The cold season is quite bracing. The year may be divided into four seasons. The period from November to March is the winter season. The next three months, April to June, form the summer season. The following period lasting upto about the middle of September is the southwest monsoon season. The latter half of September and October form the post monsoon or transition period.

Assessment of micro and macro meteorology is important from the point of view of understanding nature of environment. Climate has an important role in build-up of pollution levels. Climatic condition may be classified as moderately or seasonally dry, tropical or temperate savanna climate with four seasons in a year. Winter is critical for air pollution build-up because of frequent calm conditions with temperature inversions resulting in poor atmospheric mixing, natural ventilation and high emission loads. Meteorological data were collected during the study period.

### 3.4.1.2 Methodology for meteorological data collection:

Meteorological data for last 10 years (2011-20) were collected from secondary authorized sources as NASA ((Source: POWER | Data Access Viewer (nasa.gov)) using geo-referencing of project site coordinates. Further, primary micrometeorological data at project location recorded using automatic weather station during for a period one year (2023) to verify the secondary data record and prevailing meteorological conditions. Hourly data air temperature, barometric pressure, humidity, wind speed, wind direction, rainfall and solar radiation were recorded in data logger of AWS. The met station was kept in an open area at an appropriate height of 10m from the ground. Cloud cover is observed visually.

### 3.4.1.4.2 Climate

The district has a tropical to moderate climate due to its varied terrain, which includes high hills and plains. The wintertime minimum temperature is 4°C, while the summertime maximum is 46°C.

November marks the beginning of winter, which lasts until the middle of March. After then, the temperature keeps rising until the commencement of the monsoon, which begins the final week of June and lasts until the middle of September.

Both the non-monsoon (winter) and monsoon (June to September) seasons bring rainfall to the region. About 1040 mm of rain falls there on average each year. IMD keeps an eye on three rain gauge stations located in the Una district: Una, Amb, and Bangana.

### 3.4.1.4 Temperature:

The temperature conditions in the different parts of the district are influenced to a great extent by their elevation and geographical locations. In past 10 years (2011-20), temperature ranged 0°C to 46.2 °C. The period from March to about the end of June is one of continuous increase in temperature and June is the hottest month of the year when the monthly mean of daily maximum temperature is about 38.4°C and the monthly mean of daily minimum temperature is about 23.2°C. The maximum temperature on individual days may go up to about 46°C. In the valleys the daily maximum temperature may be a couple of degrees higher and at places of higher elevation the temperatures are lower and the weather is pleasant. With the onset of the southwest monsoon early in July, there is an appreciable drop in day temperatures.

**Table 3.3. Atmospheric Temperature record of the study area for past 10 years (2011-20)**

| Duration (Year) | Min. Temp. (°C) | Max. Temp. (°C) | Avg. Temp. (°C) |
|---|---|---|---|
| 2011 | -0.18 | 44.1 | 23.7 |
| 2012 | 0.79 | 45.2 | 24.1 |
| 2013 | -0.24 | 46.2 | 23.8 |
| 2014 | 1.06 | 45.5 | 23.9 |
| 2015 | 1.03 | 43.1 | 23.7 |
| 2016 | 1.46 | 44.2 | 24.8 |
| 2017 | 0.74 | 45.9 | 24.2 |
| 2018 | -0.21 | 43.3 | 23.7 |
| 2019 | -1.45 | 45.6 | 23.0 |
| 2020 | -0.30 | 42.6 | 22.7 |

After the withdrawal of the monsoon by about the middle of September, both day and night temperatures decrease, the drop in night temperatures being more rapid. January is the coldest month of the year with the mean daily maximum temperature of about 20°C and the mean daily minimum temperature of about 0°C. Temperature is lowest at places of higher elevation by a degree or two, depending on elevation. The cold season is quite bracing. During this season, cold waves in the rear of western disturbances which move across Punjab and Kashmir, affect the district. Consequently, the minimum temperature occasionally drops down to about a degree or so below the freezing point of water and frost occurs.

### 3.4.1.5 Rainfall:

Records of rainfall in the district are meager and limited to two rain gauge stations in Una district. Details of rainfall in the district observed by Una rain gauge stations and the data obtained by NASA source are presented in **Tables 3.4 and 3.5**. The average annual rainfall in the district is about 1200 mm. About 70 percent of the annual rainfall in the district is received during the short monsoon season July to September. July is the month with the heaviest rainfall. Rainfall amounting to about 14 percent of the normal is received during the cold season in association with passing western disturbances. The rainfall in the district generally increases from southwest towards northeast.

**Table 3.4. Rainfall record of the study area for past 10 years (2011-20)**

| Duration (Year) | Avg. Rainfall (mm) | Max. Rainfall. (mm) | Total Rainfall (mm) |
|---|---|---|---|
| 2011 | 0.12 | 10.5 | 1040.1 |
| 2012 | 0.08 | 9.6 | 680.8 |
| 2013 | 0.14 | 11.2 | 1229.9 |
| 2014 | 0.11 | 11.8 | 968.1 |
| 2015 | 0.13 | 8.4 | 1144.0 |
| 2016 | 0.12 | 8.9 | 1014.7 |
| 2017 | 0.13 | 12.1 | 1108.1 |
| 2018 | 0.15 | 9.0 | 1355.8 |
| 2019 | 0.14 | 9.3 | 1245.1 |

| | | | |
|---|---|---|---|
| 2020 | 0.14 | 8.5 | 1253.8 |

The variation in the rainfall from year to year is large. During the fifty year from 1951 to 2000, the highest rainfall amounting to 196 percent of the normal occurred in 1988 while the lowest annual rainfall which was only 40 percent of the normal occurred in 1981. The annual rainfall in the district was less than 80 percent of the normal in 11 years in this 50 years' period.

**Table 3.5. Normal and Extremes of Rainfall in Una district (Source: IMD 2010)**

| STATION | No. of Years of Data | | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | ANNUAL | HIGHEST | LOWEST | HEAVIEST RAINFALL in 24 HOURS * | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | | | | ANNUAL RAINFALL AS % OF NORMAL & YEARS ** | | Amount (mm) | Date |
| Una | 48 | a | 47.2 | 49.2 | 41.5 | 17.8 | 27.2 | 65.4 | 332.2 | 307.1 | 151.3 | 35.3 | 16.7 | 26.3 | 1117.2 | 212 (1988) | 43 (1981) | 323.4 | 24 Sep 1988 |
| | | b | 3.1 | 3.0 | 3.3 | 1.4 | 2.1 | 4.1 | 11.1 | 11.2 | 5.5 | 1.3 | 0.9 | 1.5 | 48.5 | | | | |
| Una (Obsy) | 10 | a | 29.4 | 48.6 | 35.8 | 22.5 | 44.9 | 137.8 | 369.5 | 342.3 | 191.7 | 29.4 | 25.8 | 22.9 | 1300.6 | 117 (1998) | 66 (1999) | 173.8 | 14 Aug 2001 |
| | | b | 3.3 | 3.8 | 3.8 | 2.0 | 1.5 | 8.3 | 11.0 | 12.3 | 8.8 | 2.0 | 1.5 | 0.6 | 56.1 | | | | |
| Una (Distrct) | | a | 38.3 | 48.9 | 38.7 | 20.1 | 36.1 | 101.6 | 350.9 | 324.7 | 171.5 | 32.3 | 21.3 | 24.6 | 1209.0 | 196 (1988) | 40 (1981) | | |
| | | b | 3.2 | 3.0 | 3.6 | 1.7 | 1.8 | 6.2 | 11.1 | 11.8 | 7.2 | 1.7 | 1.2 | 1.1 | 53.6 | | | | |

a: Normal rainfall in mm.
b: Average number of rainy days (i.e. days with rainfall of 2.5 mm or more)
* Based on all available data upto 2005.
** Years of occurrence given in brackets.

### 3.4.1.7 Relative Humidity:

Humidity is generally high throughout the year about 80 to 90 percent in the mornings and above 60 percent in the afternoons except during April to June, the driest months, when the humidity is mostly below 50 percent in the afternoons.

**Table 3.6. Relative Humidity record of the study area for past 10 years (2011-20)**

| Duration (Year) | Min. RH (%) | Max. RH (%) | Avg. RH (%) |
|---|---|---|---|
| 2011 | 8.9 | 99.4 | 49.2 |
| 2012 | 6.9 | 97.4 | 42.8 |
| 2013 | 5.6 | 97.1 | 51.2 |
| 2014 | 5.6 | 97.0 | 47.8 |
| 2015 | 8.1 | 98.2 | 51.4 |
| 2016 | 6.3 | 97.6 | 45.9 |
| 2017 | 9.2 | 97.8 | 48.8 |

| | | | |
|---|---|---|---|
| 2018 | 6.0 | 97.8 | 50.6 |
| 2019 | 7.1 | 99.8 | 55.9 |
| 2020 | 12.6 | 98.9 | 56.7 |

**Table 3.7. Temperature and Relative Humidity in Una District (Source: IMD 2010)**

| MONTH | Mean Daily Maximum Temperature | Mean Daily Minimum Temperature | Highest Maximum ever recorded | | Lowest Minimum ever recorded | | Relative Humidity (%) | |
|---|---|---|---|---|---|---|---|---|
| | °C | °C | °C | Date | °C | Date | 0830 IST | 1730 IST |
| January | 20.3 | 5.1 | 28.4 | 1991 Jan 30 | -5.8 | 2003 Jan 15 | 91 | 67 |
| February | 22.6 | 6.8 | 30.8 | 2003 Feb 28 | -0.9 | 2002 Feb 04 | 89 | 64 |
| March | 26.3 | 10.7 | 35.2 | 2002 Mar 22 | 3.4 | 1997 Mar 02<br>2002 Mar 03 | 85 | 68 |
| April | 34.0 | 15.3 | 41.8 | 2002 Apr 23 | 6.7 | 2000 Apr 06 | 64 | 40 |
| May | 36.2 | 19.2 | 45.2 | 1988 May 30 | 8.6 | 2003 May 05 | 67 | 47 |
| June | 38.4 | 23.2 | 45.0 | 1995 Jun 17 | 15.2 | 2000 Jun 05<br>2002 Jun 15 | 67 | 50 |
| July | 33.8 | 24.5 | 42.2 | 1987 Jul 03 | 15.6 | 1994 Jul 01 | 86 | 75 |
| August | 32.6 | 24.1 | 38.4 | 1987 Aug 03 | 17.5 | 1999 Aug 27<br>2000 Aug 03<br>2002 Aug 22 | 91 | 79 |
| September | 33.0 | 21.9 | 35.8 | 1987 Sep 28<br>1988 Sep 06 | 13.2 | 2002 Sep 28 | 90 | 74 |
| October | 30.6 | 15.5 | 35.0 | 1987 Oct 02<br>2002 Oct 07 | 8.1 | 1993 Oct 23 | 85 | 67 |
| November | 27.0 | 9.6 | 33.4 | 2002 Nov 03 | 1.8 | 1996 Nov 30 | 84 | 61 |
| December | 21.1 | 6.4 | 28.2 | 2001 Dec 07<br>2002 Dec 01 | -2.0 | 2001 Dec 31 | 92 | 68 |
| Annual | 29.7 | 15.2 | | | | | 82 | 63 |

### 3.4.1.8 Cloudiness:

October and November are the months when the skies over the district are least clouded i.e. when the skies are mostly clear. During winter (December to March) the skies are moderately clouded but in April and May the clouding decreases slightly and it again increases from June onwards. July and August are the most clouded months when on an average on 10 to 12 days per month, the skies are overcast over the district.

### 3.4.1.9 Wind Pattern:

Due hilly terrain of the district, the wind is highly local and variable. However, the wind is generally from the sector southwest to west in the afternoons and from north to east in the mornings. In

general, the wind is calm throughout the year (on 50% or more occasions), in the mornings except in the southwest monsoon season. During the cold season, western disturbances affect the weather over the district. Thunderstorms occur mainly during the period March to October. The thunderstorms in the cold season are occasionally associated with hail. Fog occurs occasionally during the cold season, particularly in the valleys.

**Table 3.8. Wind speed record of the study area for past 10 years (2011-20)**

| Duration (Year) | Min. Wind speed (m/s) | Max. Wind speed (m/s) | Avg. Wind speed (m/s) |
|---|---|---|---|
| 2011 | 0.02 | 8.4 | 2.4 |
| 2012 | 0.02 | 10.5 | 2.6 |
| 2013 | 0.03 | 9.9 | 2.5 |
| 2014 | 0.02 | 10.6 | 2.5 |
| 2015 | 0.03 | 8.6 | 2.5 |
| 2016 | 0.03 | 11.1 | 2.5 |
| 2017 | 0.01 | 13.6 | 2.6 |
| 2018 | 0.02 | 12.0 | 2.5 |
| 2019 | 0.02 | 10.1 | 2.4 |
| 2020 | 0.02 | 9.1 | 2.4 |

**Wind rose**

Meteorological pre-processed data used to determine its corresponding Wind Rose. Wind rose shows most pre-dominant wind direction and emissions plume will be dispersed mainly in that direction. Meteorological data collected from secondary source for last 10 years (2011-20) and recorded on continuous & hourly basis during March to June 2023 at project location. Percentage frequencies of occurrence of various wind speed classes in different directions computed from recorded as Wind Rose as given in **Fig. 3.8** below.

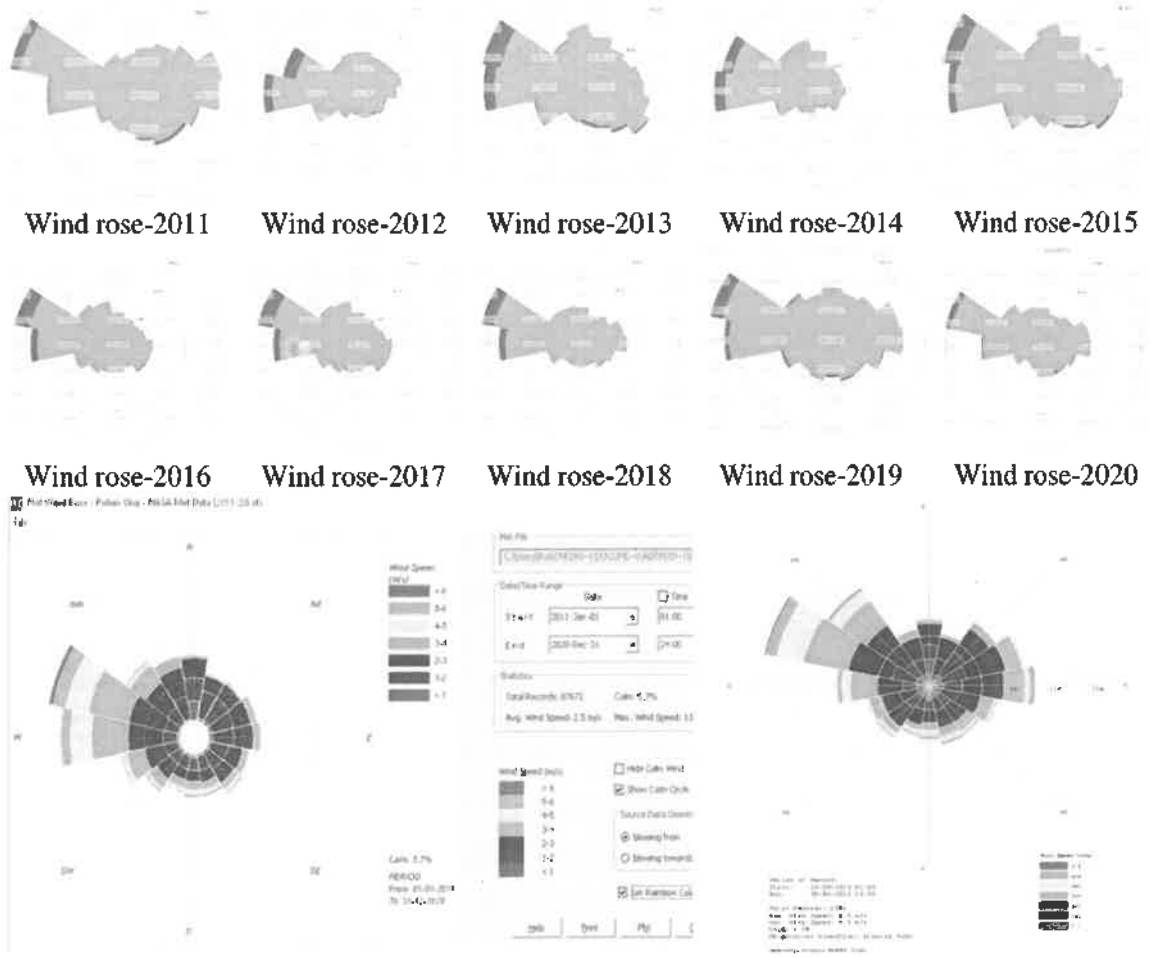



**Figure 3.3. Wind rose diagram of project area for last 10 years and during study period**

Wind rose diagram shows the predominant winds are mainly blowing from West North-west (WNW). Calm conditions are observed as 4.6% of the total time.

### 3.4.2 AIR ENVIRONMENT

Air environment defines the existing air quality, sources of air emissions, levels of criteria air pollutants, health hazards of air pollution and safe guards'/ control measures. The prime objective of baseline air quality monitoring is to assess the existing air quality of the area. This will also be useful in assessing the conformity to standards of the ambient air quality. Baseline status of ambient air quality has been assessed through scientifically designed ambient air quality network.

The design of monitoring network in the air quality surveillance program has been based on the following considerations:

- Meteorological conditions of the study area
- Topography of the study area
- Presence of human settlements & sensitive receptors in the study area
- Likely impacts on environment in the study area.

**3.4.2.1 Season & period of monitoring:**

Ambient air quality monitoring was carried out at 10 locations at a frequency of twice a week 24 hourly basis for three months of summer season (April to June 2023) from primary sources. Secondary data were also collected from CPCB/ HPSCB/ EIA studies and referred for a comparative evaluation of existing air quality in the region.

**3.4.2.2 Methodology:**

Ambient air quality monitoring (AAQM) station were installed in upwind, downwind and crosswind directions as per prevailing meteorological conditions (predominant wind direction from WNW) in the study area. Meteorological data for last 10 years (2011-20) were collected from secondary authorized sources as NASA ((Source: POWER | Data Access Viewer (nasa.gov)) and other recent EIA studies of the region. Primary source of data as automatic weather station of Eco laboratories installed at project site before two weeks and during period of environmental sampling (March to June 2023) to verify the secondary data and prevailing meteorological conditions. Air quality sampling was carried out as per the defined periodicity and for parameters indicated in ToR at 10 locations (3 locations in core zone/project area of 1405 acres and 7 locations in buffer zone of 10kms). Sampling was done at 3m height from ground level at each location as per CPCB guidelines and standard method of IS 5182. Air quality sampling was carried out using RDS for $PM_{10}$ (including metals and BaP), Fine Particulate Sampler for $PM_{2.5}$, Thermoelectrically cooled assembly for gaseous pollutants and low volume sampler for benzene. Sampling was done twice a week on 24 hourly bases at 3m height from ground level at each location as per CPCB guidelines and standard method of IS 5182. All efforts are made to collect photographs of monitoring locations while monitoring is in operation.

### 3.4.2.3 Sampling frequency:

Ambient air quality monitoring was carried out at 10 locations at a frequency of twice a week. Air samples were drawn at a sampling height of 3-10m from ground level on 24 hourly bases for three months during summer season (April to June 2023) at each selected locations.

### 3.4.2.4 Parameters monitored & methods used:

Parameters for ambient air quality monitoring were selected as per Technical EIA Guidance Manual for Industrial Estates (MoEF&CC) as $PM_{10}$, $PM_{2.5}$, $NO_2$, $SO_2$, CO, Ozone, $NH_3$, BaP (PAH), $H_2S$, VOCs, HCl, HBr, $Cl_2$, $Br_2$, BTX, Acetonitrile and Dichloromethane as relevant to the nature of proposed project.

However, the parameters as BaP (PAH), $H_2S$, VOCs, HCl, HBr, $Cl_2$, $Br_2$, BTX, Acetonitrile and Dichloromethane which were found to be below detection limits (BDL) in present study and as per secondary data records, these parameters were excluded and not reported in EIA study. The test parameters selected and finalized are elaborated in **Table 3.9** excluding the parameters which are non-relevant to proposed project and/or which are not detected in the study area as per secondary data of HPSPCB and previous EIA studies held in Una region.

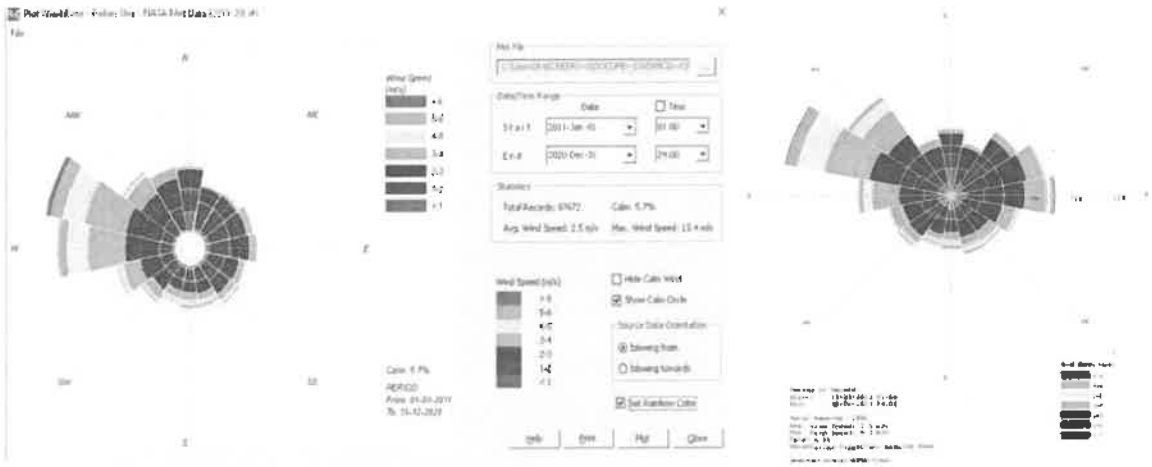
**Table 3.9. Test Methods for determining various Air Quality parameters**

| S. No | Test Parameter | Test Method |
|---|---|---|
| 1. | Particulate Matter ($PM_{10}$) | IS:5182 (Part 23) |
| 2. | Particulate Matter ($PM_{2.5}$) | IS:5182 (Part 24) |
| 3. | Sulphur Dioxide ($SO_2$) | IS:5182 (Part 2) |
| 4. | Nitrogen Dioxide ($NO_2$) | IS:5182 (Part 6) |
| 5. | Ammonia ($NH_3$) | IS:5182 (Part 25) |
| 6. | Ozone ($O_3$) | IS:5182 (Part 9) |
| 7. | Carbon Monoxide (CO) | IS 5182 (Part 10) NDIR Method |
| 8. | Benzene ($C_6H_6$) | IS:5182 (Part 11) |
| 9. | Benzo-a-pyrene (BaP), Particulate Phase only | IS:5182 (Part 12) |
| 10. | Bromine ($Br_2$) | USEPA and APHA |
| 11. | Chlorine ($Cl_2$) | IS 5182 (Part – 19) |

| | | |
|---|---|---|
| 12. | Hydrogen Sulphide ($H_2S$) | IS-5182 (Part 7) |
| 13. | Hydrogen Chloride (HCl) | Lab SOP/ USEPA Method |
| 14. | Hydrogen Bromide (HBr) | Lab SOP/ USEPA Method |

### 3.4.2.5 Ambient air quality monitoring:

Ambient air quality monitoring (AAQM) station were installed in upwind, downwind and crosswind directions as per prevailing meteorological conditions (predominant wind direction from WNW) in the study area at 3 locations in core zone/project area and 7 locations in buffer zone of 10kms.



Wind rose 2011-20 (10 Years)

Wind rose Mar-Jun 2023 (Study period)

**Figure 3.4. Wind rose diagram of project area for last 10 years and during study period**

Sampling stations along with their distance from project are given in **Table 3.10** and shown in **Fig. 3.5**. Ambient air quality analysis data for various parameters are given in **Table 3.11.** Test reports of project location & 10 km study area are enclosed as **Annexure 13(a) & 13(b)** respectively.

**Table 3.10. Description of ambient air quality monitoring locations/ stations**

| Location Code | Name of Location | Co-ordinates of Location | Aerial Distance from Project Site |
|---|---|---|---|
| AQ-1 | Gram Panchayat Bhawan, Village Chak Narial | 31°22'51.69"N, 76° 06'51.34"E | 3.3km, West |
| AQ-2 | Shiv Mandir, Village Khanni | 31°21'57.23"N, 76° 07'56.06"E | 3.0km, West |

| | | | |
|---|---|---|---|
| AQ-3 | Jaswal Cottage, Village Mohalla Nathan | 31°19'22.92"N, 76° 7'49.63"E | 4.0km, SW |
| AQ-4 | Govt. Primary School, Village Dulehar | 31°20'31.68"N, 76°12'35.21"E | 2.2km, SE |
| AQ-5 | Gurdwara Baba Bande Singh, Village Makorgarh | 31°21'45.97"N, 76°12'33.30"E | 2.7km, East |
| AQ-6 | Jal Shakti Vibhag, Village Kuthar Beet | 31°23'11.89"N, 76°11'08.83"E | 1.4km, East |
| AQ-7 | Gram Panchayat Bhawan, Village Baliwal | 31°24'35.83"N, 76°11'19.47"E | 1.9km, NNE |
| AQ-8 | Post Office, Tahliwal | 31°20'59.97"N, 76°16'35.75"E | 8.5km, ESE |
| AQ-9 | Project Site, Barora Niwas, Village Panjoiyan | 31°22'02.96"N, 76°10'09.40"E | Project site (Central Part) |
| AQ-10 | Project Site, Guest House Forest Dept. Village Polian Beet | 31°21'25.57"N, 76°10'53.56"E | Project site (Southern Part) |

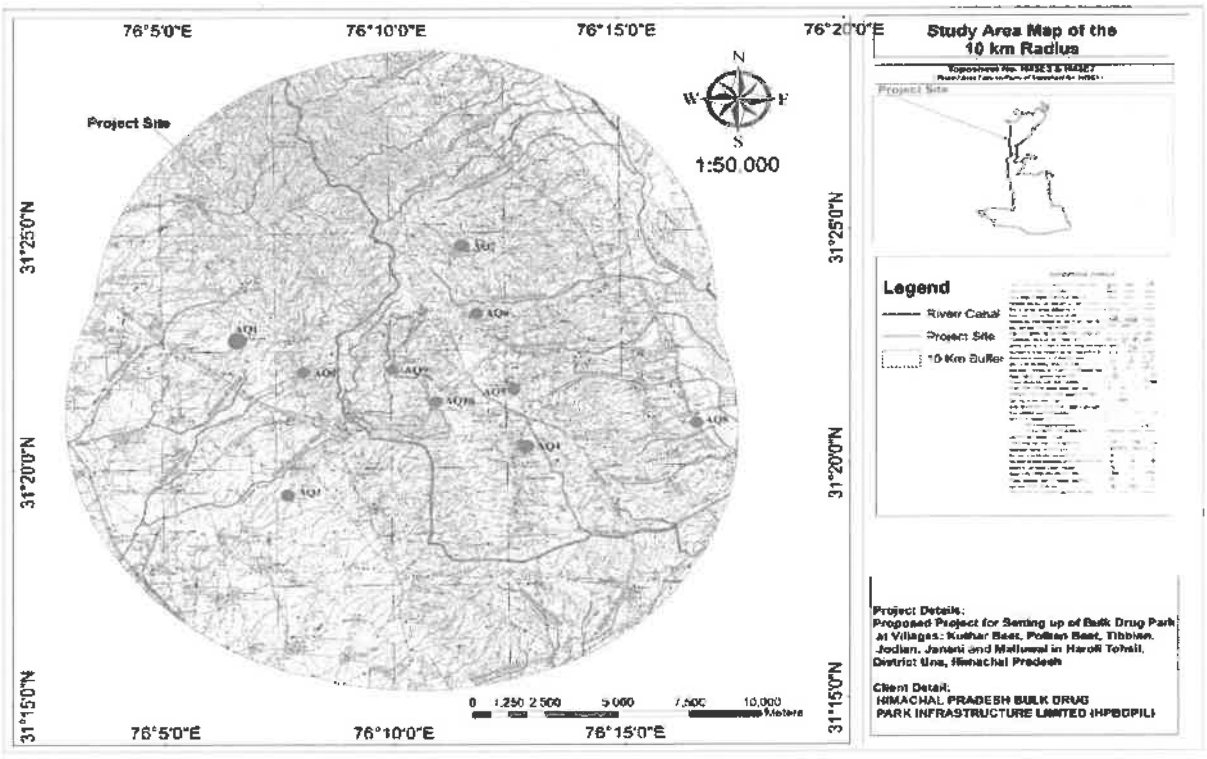



**Figure 3.5. Location of ambient air monitoring stations in study area of 10 km (Marked on Toposheet No. H43E3 and H43E7; Not on scale)**

Air quality sampling was carried out using RDS for $PM_{10}$ (including metals and BaP), Fine Particulate Sampler for $PM_{2.5}$, Thermoelectrically cooled assembly for gaseous pollutants and low volume sampler for benzene. Air samples were collected twice a week on 24 hourly bases at a sampling height of 3-10m from ground level at each location as per CPCB guidelines and standard method of IS 5182. The test parameters selected and finalized are $PM_{10}$, $PM_{2.5}$, $NO_2$, $SO_2$, CO, Ozone, and $NH_3$ excluding the parameters which are non-relevant to proposed project and/or which are not detected in the study area as per secondary data of HPSPCB and previous EIA studies held in Una region. Air quality sampling was carried out using RDS for $PM_{10}$ (including metals and BaP), Fine Particulate Sampler for $PM_{2.5}$, Thermoelectrically cooled assembly for gaseous pollutants and low volume sampler for benzene. Air samples were collected twice a week on 24 hourly bases at a sampling height of 3-10m from ground level at each location as per CPCB guidelines and standard method of IS 5182. The test parameters selected and finalized are $PM_{10}$, $PM_{2.5}$, $NO_2$, $SO_2$, CO, Ozone, and $NH_3$ excluding the parameters which are non-relevant to proposed project and/or which are not detected in the study area as per secondary data of HPSPCB and previous EIA studies held in Una region. The photographs of sample collection is represented in **Figure 3.6.**

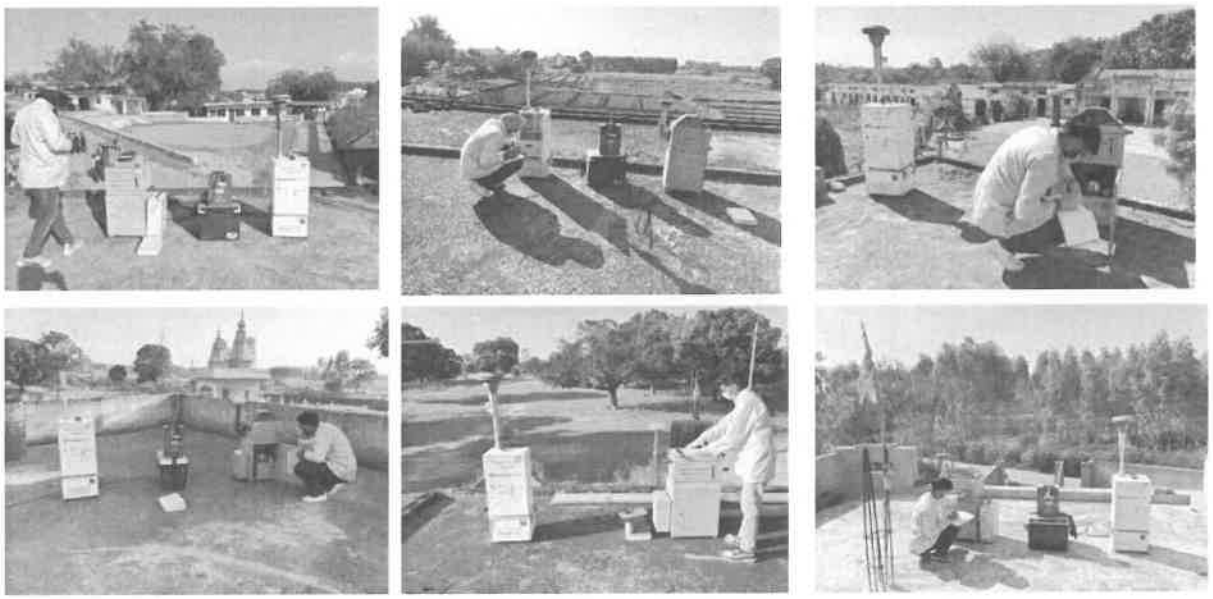


**Figure 3.6. Photographic view of ambient air quality monitoring in the study area**

### 3.4.2.6 Interpretation of ambient air quality

The test parameters selected and finalized are $PM_{10}$, $PM_{2.5}$, $NO_2$, $SO_2$, CO, Ozone, and $NH_3$ excluding the parameters which are non-relevant to proposed project and/or which were not detected in the study area as per secondary data of HPSPCB and previous EIA studies held in Una region.

**Table 3.11. Statistical summary of ambient air quality results for criteria parameters**

| Location | Parameter | $PM_{10}$ ($\mu g/m^3$) | $PM_{2.5}$ ($\mu g/m^3$) | $SO_2$ ($\mu g/m^3$) | $NO_2$ ($\mu g/m^3$) | $NH_3$ ($\mu g/m^3$) | $O_3$ ($\mu g/m^3$) | CO ($mg/m^3$) |
|---|---|---|---|---|---|---|---|---|
| AQ-1 | Min | 34.3 | 18.3 | 4.3 | 5.5 | 4.7 | 2.4 | 0.19 |
| | Max | 70.0 | 37.8 | 10.2 | 15.6 | 7.0 | 6.8 | 0.39 |
| | Avg | 51.1 | 28.1 | 6.9 | 10.0 | 5.7 | 4.8 | 0.26 |
| | 98th % | 69.5 | 37.0 | 9.9 | 15.0 | 7.6 | 6.7 | 0.37 |
| AQ-2 | Min | 33.5 | 19.0 | 4.5 | 3.8 | 3.7 | 1.6 | 0.22 |
| | Max | 72.6 | 41.0 | 10.7 | 16.5 | 6.3 | 7.0 | 0.43 |
| | Avg | 53.4 | 29.2 | 7.4 | 10.0 | 5.5 | 4.3 | 0.28 |
| | 98th % | 72.2 | 40.4 | 10.3 | 16.3 | 8.1 | 6.9 | 0.39 |
| AQ-3 | Min | 35.8 | 19.1 | 5.0 | 5.7 | 4.9 | 2.5 | 0.20 |
| | Max | 70.0 | 39.4 | 10.5 | 16.8 | 7.3 | 7.1 | 0.41 |
| | Avg | 52.2 | 28.5 | 7.8 | 10.7 | 5.9 | 5.0 | 0.28 |
| | 98th % | 69.4 | 38.8 | 10.4 | 16.2 | 7.9 | 7.0 | 0.39 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| AQ-4 | Min | 37.1 | 18.1 | 5.7 | 4.9 | 4.1 | 2.5 | 0.27 |
| | Max | 83.4 | 43.8 | 13.4 | 21.0 | 7.0 | 10.9 | 0.54 |
| | Avg | 59.9 | 28.9 | 9.3 | 12.7 | 6.1 | 6.7 | 0.35 |
| | 98$^{th}$ % | 82.3 | 43.5 | 12.9 | 20.7 | 9.0 | 10.7 | 0.48 |
| AQ-5 | Min | 35.6 | 17.4 | 4.8 | 4.4 | 3.9 | 2.4 | 0.25 |
| | Max | 80.4 | 45.0 | 11.3 | 19.2 | 6.7 | 10.4 | 0.49 |
| | Avg | 57.6 | 30.0 | 7.9 | 11.6 | 5.9 | 6.5 | 0.32 |
| | 98$^{th}$ % | 79.9 | 44.1 | 10.9 | 18.9 | 8.6 | 10.3 | 0.44 |
| AQ-6 | Min | 40.4 | 21.2 | 5.7 | 7.9 | 5.6 | 3.4 | 0.27 |
| | Max | 80.0 | 42.0 | 12.1 | 20.4 | 8.3 | 9.6 | 0.55 |
| | Avg | 59.4 | 28.8 | 9.1 | 14.2 | 6.7 | 6.8 | 0.37 |
| | 98$^{th}$ % | 79.0 | 41.1 | 12.0 | 20.4 | 8.9 | 9.4 | 0.52 |
| AQ-7 | Min | 39.2 | 20.5 | 5.6 | 7.6 | 5.4 | 3.3 | 0.21 |
| | Max | 76.0 | 41.0 | 11.7 | 19.7 | 8.0 | 9.3 | 0.44 |
| | Avg | 57.6 | 28.0 | 8.8 | 14.0 | 6.5 | 6.6 | 0.30 |
| | 98$^{th}$ % | 75.7 | 40.5 | 11.7 | 19.7 | 8.6 | 9.2 | 0.42 |
| AQ-8 | Min | 38.7 | 18.9 | 6.3 | 5.3 | 4.3 | 2.8 | 0.33 |
| | Max | 84.4 | 45.7 | 14.8 | 22.8 | 7.3 | 12.1 | 0.65 |
| | Avg | 61.9 | 29.3 | 10.3 | 13.8 | 6.4 | 7.5 | 0.42 |
| | 98$^{th}$ % | 84.1 | 44.6 | 14.2 | 22.5 | 9.4 | 12.0 | 0.58 |
| AQ-9 | Min | 37.3 | 19.5 | 4.9 | 6.7 | 5.1 | 2.6 | 0.21 |
| | Max | 74.0 | 41.0 | 10.3 | 18.4 | 7.6 | 7.4 | 0.43 |
| | Avg | 55.3 | 27.4 | 7.7 | 12.2 | 6.2 | 5.2 | 0.29 |
| | 98$^{th}$ % | 72.9 | 40.6 | 10.3 | 17.9 | 8.2 | 7.3 | 0.40 |
| AQ-10 | Min | 34.9 | 19.0 | 4.7 | 4.0 | 3.9 | 1.7 | 0.23 |
| | Max | 75.6 | 40.0 | 11.1 | 17.2 | 6.6 | 7.3 | 0.45 |
| | Avg | 55.5 | 30.4 | 7.7 | 10.4 | 5.8 | 4.5 | 0.29 |
| | 98$^{th}$ % | 75.2 | 39.5 | 10.7 | 16.9 | 8.5 | 7.2 | 0.40 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| NAAQ Limits | 100 | 60 | 80 | 80 | 400 | 180 | 4 |

**Table 3.12. Comparison of primary and secondary AAQM data of Una region.**

| Parameter | Primary Data | Secondary Data | | | NAAQ Limits (CPCB 2009) |
|---|---|---|---|---|---|
| | Baseline data of Present Study (Rural Area & Industrial) (April – June 2023) | HPSPCB (RO/DIC Una) data (Urban Area) (April – June 2023) | EIA Mine Project, Haroli, Una (Oct. – Dec. 2022) | EIA IOCL, Mehatpur, Una (Jan. – Apr. 2017) | |
| $PM_{10}$ ($\mu g/m^3$) | 33.5 – 84.4 (Avg. 56.6) | 20.8 – 180.1 (Avg. 65) | 35.41 – 54.98 (Avg. 44.0) | 72 – 96 | 100 |
| $PM_{2.5}$ ($\mu g/m^3$) | 17.4 – 45.7 (Avg. 29.9) | 16.9 – 62.5 (Avg. 26.4) | 9.57 – 32.97 (Avg. 18.52) | 18 – 71 | 60 |
| $SO_2$ ($\mu g/m^3$) | 4.3 – 14.8 (Avg. 8.3) | 1.4 – 4.0 (Avg. 2.4) | 3.84 – 9.83 (Avg. 6.47) | 2 – 8 | 80 |
| $NO_2$ ($\mu g/m^3$) | 3.8 – 22.8 (Avg. 12.1) | 2.3 – 21.5 (Avg. 8.2) | 5.81 – 14.94 (Avg. 9.24) | 3 – 78 | 80 |
| $NH_3$ ($\mu g/m^3$) | 3.7 – 8.3 (Avg. 6.0) | 1.2 – 8.9 (Avg. 4.6) | BDL <20 | Not detected | 400 |
| $O_3$ ($\mu g/m^3$) | 1.6 – 12.1 (Avg. 5.7) | 0.8 – 3.7 (Avg. 2.1) | BDL <10 | Not detected | 180 |
| CO ($mg/m^3$) | 0.19 – 0.65 (Avg. 0.34) | 0.40 – 0.92 (Avg. 0.75) | 0.19 – 0.92 (Avg. 0.69) | Not detected | 4 |

**Particulate Matter ($PM_{10}$ and $PM_{2.5}$)**

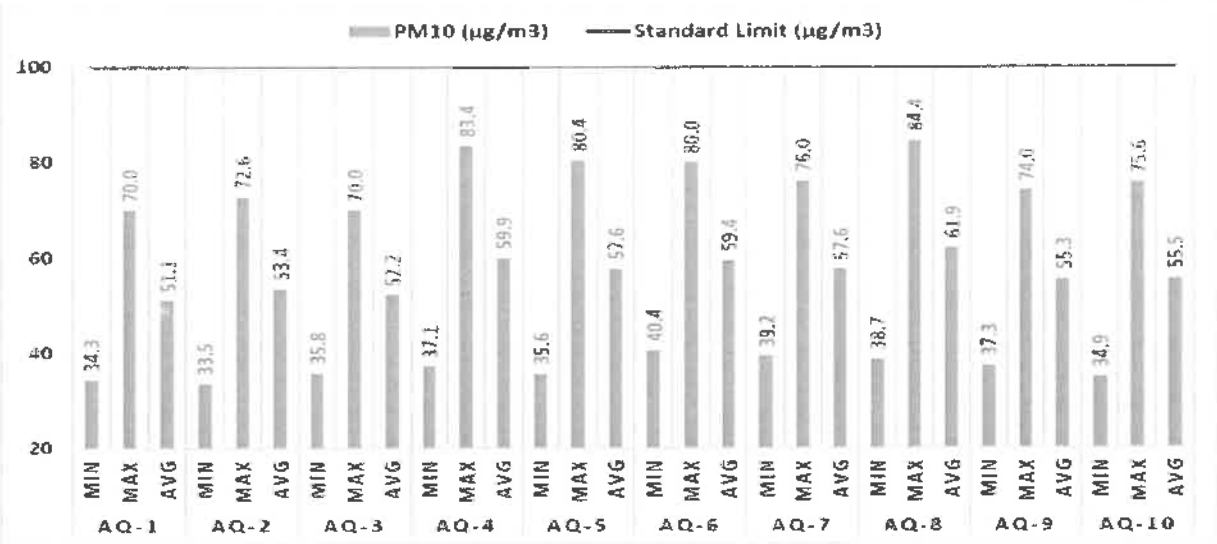



**Figure 3.7. Statistical analysis of PM10**

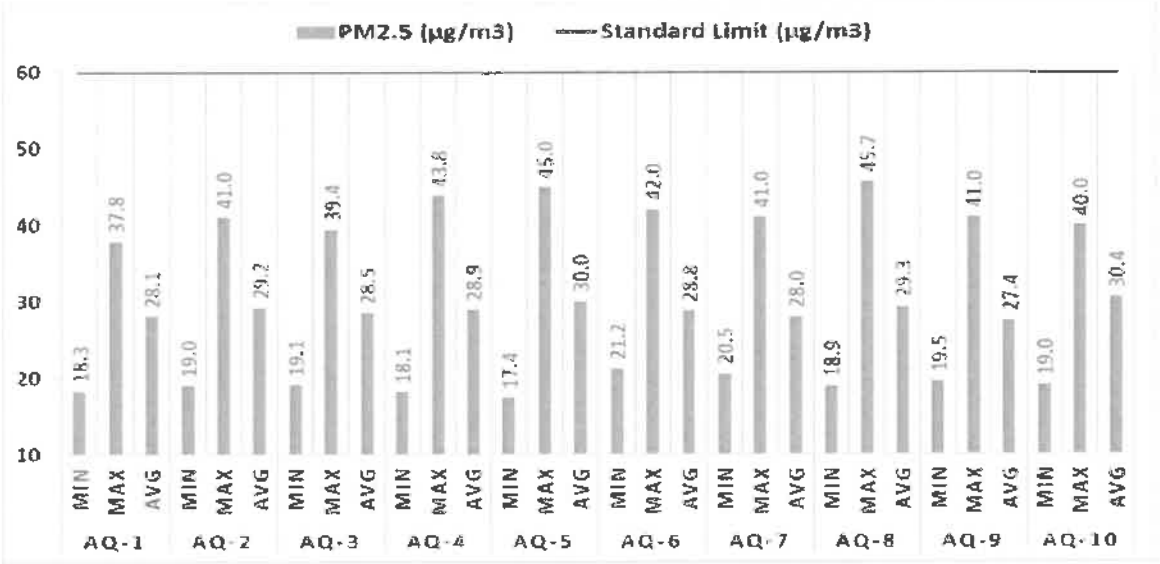



**Figure 3.8. Statistical analysis of PM2.5**

As it is evident from **Table 3.12 & Fig. 3.7 to 3.8,** Particulate aerosols observed in the study area during April to June 2023 ranged 33.5 - 84.4 µg/m$^3$ (avg. 56.6 µg/m$^3$) as $PM_{10}$ and 17.4 – 45.7 µg/m$^3$ (avg. 29.9 µg/m$^3$) as $PM_{2.5}$ are within the prescribed limits of 100 µg/m$^3$ for $PM_{10}$ and 60 µg/m$^3$ for $PM_{2.5}$ (NAAQS CPCB, 2009). The obtained results are comparable and in agreement with the secondary data collected by HPSPCB (RO/ DIC, Una) and other EIA studies of Una region. The baseline data of existing mass levels of $PM_{10}$ and $PM_{2.5}$ are associated to industrial units operating

in Tahliwal industrial area (about 6 kms from the project) and Bathri industrial area (about 10.5kms from the project) in ESE direction and Amb-Gagret-Jeetpur industrial cluster (about 20-25kms from the project) in ENE direction. Other source can be vehicles plying on the roads, ongoing domestic and agricultural activities in the study area. As evident from the baseline data, the locations AQ-4 to AQ-8 (specially AQ-8) located in Eastern side of project experience higher air pollution load in comparison to the locations AQ-1 to AQ-3 located in Western area due to close proximity of Tahliwal and Bathri industrial areas. Furthermore, additional air emission loads due to the proposed project will be quantified based on air quality dispersion modeling which has been explored in **Chapter 4**.

**Gaseous Pollutants**

**Sulphur Dioxide ($SO_2$) and Oxides of Nitrogen ($NO_2$)**

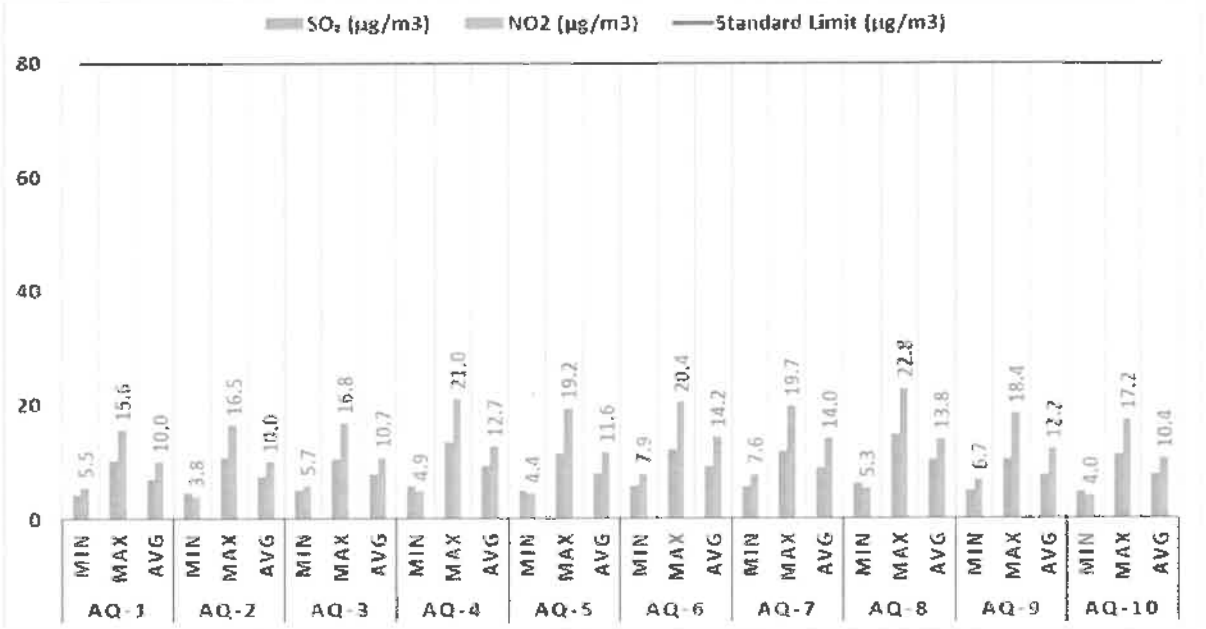



**Figure 3.9. Statistical analysis of $NO_2$ and $SO_2$**

As it is evident from **Table 3.12 & Fig. 3.9,** gaseous pollutants observed in the study area during April to June 2023 ranged 4.3 – 14.8 µg/m$^3$ (avg. 8.3 µg/m$^3$) as $SO_2$ and 3.8 – 22.8 µg/m$^3$ (avg. 12.1 µg/m$^3$) as $NO_2$ are well within the prescribed limits of 80 µg/m$^3$ (NAAQS CPCB, 2009) indicates no significant source of emission in the study area and air quality is safe and comfortable

for human health. The obtained results are comparable and in agreement with the secondary data collected by HPSPCB (RO/ DIC, Una) and other EIA studies of Una region. The observed baseline/ existing mass levels of $SO_2$ and $NO_2$ may be associated to industrial units operating in Tahliwal industrial (about 6kms from the project) and Bathri industrial area (about 10.5kms from the project) in ESE direction and Amb-Gagret-Jeetpur industrial cluster (about 20-25kms from the project) in ENE direction. Other source can be vehicles plying on the roads, ongoing domestic and agricultural activities in the study area. As evident from the baseline data, the locations AQ-4 to AQ-8 (specially AQ-8) located in Eastern side of project experience higher air pollution load in comparison to the locations AQ-1 to AQ-3 located in Western area due to close proximity of Tahliwal and Bathri industrial areas. Furthermore, additional air emission loads due to the proposed project will be quantified based on air quality dispersion modeling which has been explored in **Chapter 4**.

**Carbon Monoxide (CO), Ozone ($O_3$) and Ammonia ($NH_3$)**

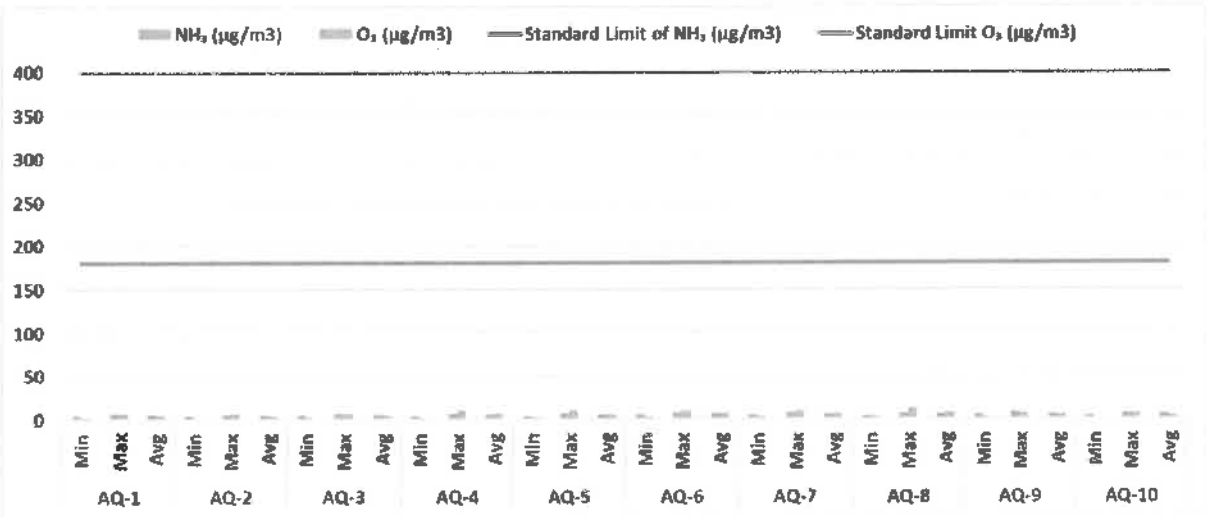



**Figure 3.10. Statistical analysis of $NH_3$ and $O_3$**

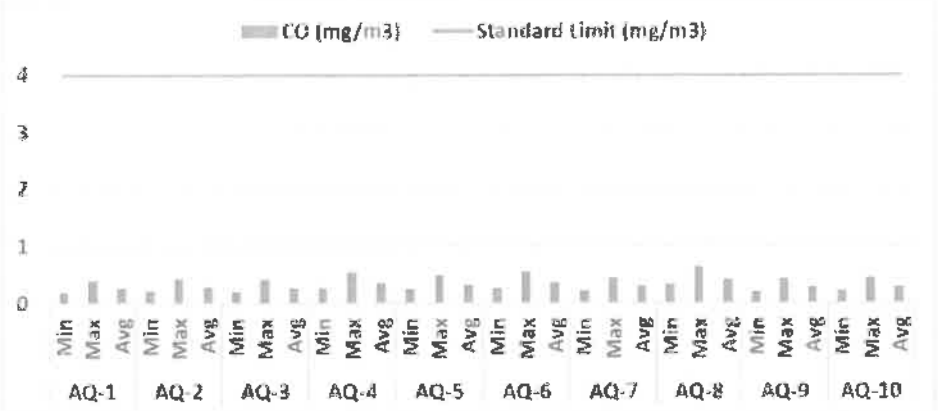



**Figure 3.11. Statistical analysis of CO**

As it is evident from **Table 3.12 & Fig. 3.11,** the gaseous pollutants as Carbon Monoxide (CO), Ozone ($O_3$) and Ammonia ($NH_3$) observed in the study area are found to be well within the prescribed limits (NAAQS CPCB, 2009) indicates no significant source of emission in the study area and air quality is safe and comfortable for human health. The obtained results are comparable and in agreement with the secondary data collected by HPSPCB (RO/ DIC, Una) and other EIA studies of Una region. The observed baseline/ existing mass levels of these gases may be associated to industrial units operating in Tahliwal industrial (about 6kms from the project) and Bathri industrial area (about 10.5kms from the project) in ESE direction and Amb-Gagret-Jeetpur industrial cluster (about 20-25kms from the project) in ENE direction. Other source can be vehicles plying on the roads, ongoing domestic and agricultural activities in the study area. As evident from the baseline data, the locations AQ-4 to AQ-8 (specially AQ-8) located in Eastern side of project experience higher air pollution load in comparison to the locations AQ-1 to AQ-3 located in Western area due to close proximity of Tahliwal and Bathri industrial areas. Furthermore, additional air emission loads due to the proposed project will be quantified based on air quality dispersion modeling which has been explored in **Chapter 4**.

**3.4.2.7 Conclusion:**

The overall ambient air quality in the study area is within the prescribed limits (NAAQS CPCB, 2009) and is safe and comfortable for human health. However, the observed baseline/ existing mass levels of air quality may be associated to industrial units operating in Tahliwal industrial (about 6kms from the project) and Bathri industrial area (about 10.5kms from the project) in ESE

direction and Amb-Gagret-Jeetpur industrial cluster (about 20-25kms from the project) in ENE direction. Other source can be vehicles plying on the roads, ongoing domestic and agricultural activities in the study area. As evident from the baseline data, the locations AQ-4 to AQ-8 (specially AQ-8) located in Eastern side of project experience higher air pollution load in comparison to the locations AQ-1 to AQ-3 located in Western area due to close proximity of Tahliwal and Bathri industrial areas. Furthermore, additional air emission loads due to the proposed project will be quantified based on air quality dispersion modeling which has been explored in **Chapter 4**.

### 3.4.3 NOISE ENVIRONMENT

Noise in general is sound, which is composed of many frequency components of various loudness distributed over the audible frequency range. The most common and universally accepted scale is the A weighted scale which is measured as dB (A). This is more suitable for audible range of 20 to 20,000 Hz and has been designed to weigh various components of noise according to the response of a human ear. The environmental assessment of noise from the industrial activity, construction activity and vehicular traffic can be undertaken by taking into consideration various factors like potential damage to hearing, physiological responses, and annoyance and general community responses.

The main objective of monitoring of ambient noise levels was to establish the baseline noise levels in different zones. i. e. Residential, Industrial, Commercial and Silence zones, in the surrounding areas and to assess the total noise level in the environment of the study area.

#### 3.4.3.1 Methodology:

**Identification of Sampling Locations**

A preliminary reconnaissance survey was undertaken to identify the major noise sources and sensitive receptors in the study area. The sampling sites were identified considering location of proposed project, industrial units, commercial activities and residential areas with various traffic spots and sensitive areas like hospital, court, temple and schools. The noise monitoring was conducted at four locations selected in the study area of 10 kms (one in core zone and 3 in buffer

zone within 1 km radius) as described in **Table 3.13.** The location map of the sampling locations for noise monitoring is represented in **Figure 3.12.**

**Table 3.13. List of sampling locations for noise monitoring**

| Location Code | Name of Location | Co-ordinates of Location | Distance Project Site |
|---|---|---|---|
| NQ-1 | Village –Jaijon Doaba (near Gurudwara) | 31°20'58.79"N, 76°08'51.73"E | 6 km, WSW |
| NQ-2 | Village - Panjoiyan (Near Lakh Data Peer Mandir) | 31°22'10.38"N, 76° 09'49.74"E | 100m, West |
| NQ-3 | Village – Puboal ( At Govt Ayuryedic Heath Center) | 31°23'12.18"N, 76°11'33.65"E | 1.2 km, NNE |
| NQ-4 | Project Site, Guest House Forest Dept. Village Polian Beet | 31°21'22.07"N, 76°10'52.07"E | 0 Km, Project Site |

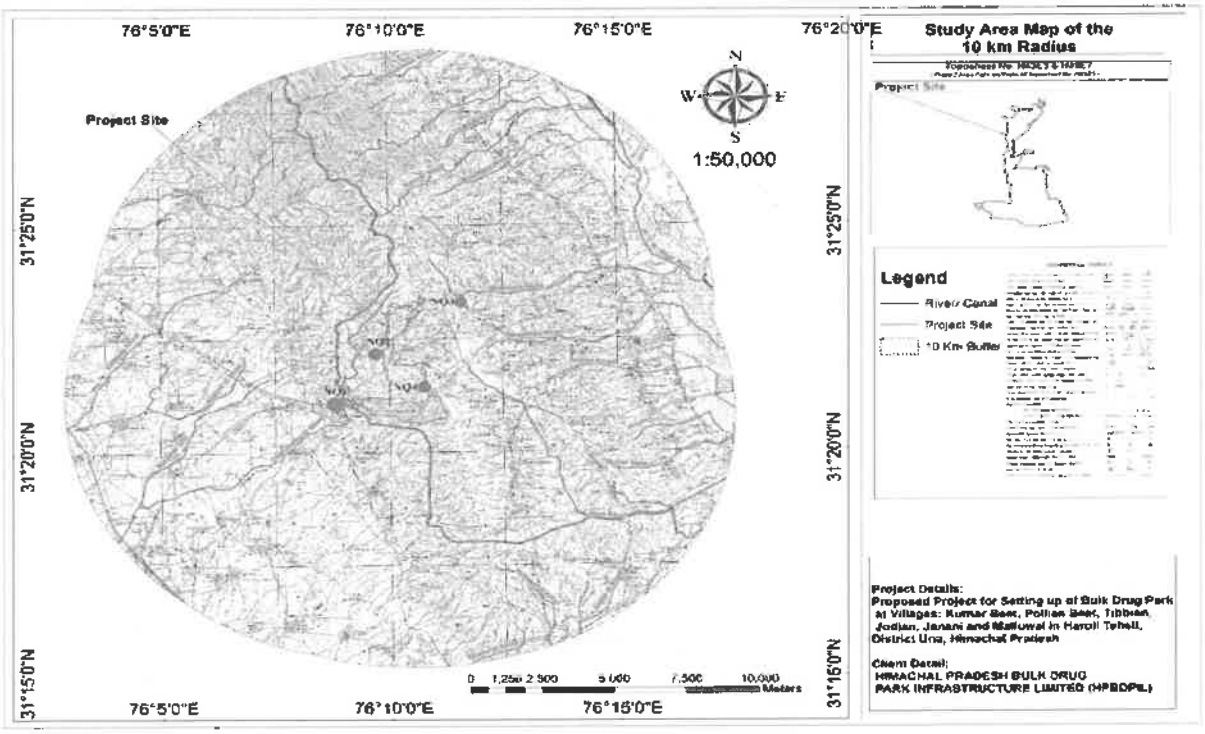



**Figure 3.12. Location map of sampling locations for noise monitoring (Marked on Toposheet No. H43E3 and H43E7; Not on scale)**

**Methods for Noise Monitoring**

Integrated Sound Level Meters (SLMs) with data logger were used for data collection. Calibration check of SLMs were performed before and after sampling. Noise sampling was done by installing SLMs at a sampling height of 1.2 to 1.5 m in open area or ≥ 250 m away from source of noise or obstructions or reflecting surfaces. Noise monitoring was carried out during day time (06:00 am – 10:00 pm) and night time (10:00 pm to 06:00 am) continuously for 24-hours with one-hour login interval as per national/ international standard methods as CPCB Noise Rules (2000), IS: 9989-1981 & IS: 4758-1968.Monitoring of noise sources/activities is observed and recorded for abnormal data and evaluation of additional sources.

**Parameters for Noise Monitoring**

Noise monitoring was carried out continuously for 24-hours with one-hour login interval. During each hour parameters like L10, L50, L90 and Leq were directly computed by the instrument based on the sound pressure levels. Monitoring was carried out at 'A' weighting and in fast response mode.

The key parameters of noise quality were measured as Leq, $L_{day}$, $L_{night}$, $L_{10}$, $L_{50}$ and $L_{90}$.

Leq: Integrated SLM used has the facility for measurement of Leq directly. However, Leq can also be calculated using the following equation:

$$Leq\ (hrly) = L_{50} + (L_{10} - L_{90})^2 / 60$$

Where,

$L_{10}$ (Ten Percentile Exceeding Level) is the level of sound exceeding 10% of the total time of measurement.

$L_{50}$ (Fifty Percentile Exceeding Level) is the level of sound exceeding 50% of the total time of measurement.

$L_{90}$ (Ninety Percentile Exceeding Level) is the level of sound exceeding 90% of the total time of measurement.

$L_{day}$: This represents $L_{eq}$ of daytime. $L_{day}$ is calculated as Logarithmic average using the hourly Leq's for day time hours from 6.00 a.m to 10.00 p.m

$L_{night}$: This represents $L_{eq}$ of night time. $L_{night}$ is calculated as Logarithmic average using the hourly Leq's for nighttime hours from 10.00 p.m to 6.00a.m.

### 3.4.3.2 Ambient standards in respect of noise:

Ministry of Environment, Forest & Climate Change has notified the ambient standards in respect of noise. **Table 3.14** gives these standards in respect of noise.

**Table 3.14. Ambient Standards in respect of Noise**

| Area Code | Category of Area | Leq. Limits in dB(A) | |
|---|---|---|---|
| | | Day Time | Night Time |
| A | Industrial Area | 75 | 70 |
| B | Commercial Area | 65 | 55 |
| C | Residential Area | 55 | 45 |
| D | Silence Zone | 50 | 40 |

**Note:**

1. Day time is reckoned in between 6:00 a.m and 10:00 p.m.
2. Night time is reckoned is between 10:00 p.m and 6.00 a.m.
3. Silence Zone is defined as areas upto 100 m around such premises as hospitals, educational, institutions and Courts. Silence Zones are to be declared by the competent authority.

**Photographic view of Noise Quality Monitoring**

**Figure 3.13. Photographic view of noise quality monitoring in the study area**

### 3.4.3.3.1 Interpretation of noise results:

The reported noise levels for day-time ($L_{day}$) and night-time ($L_{night}$) computed from hourly Leq values collected from each location within the study area are presented in **Table 3.15**. The test reports are enclosed as **Annexure 13(a)**.

**Table 3.15. Test Results for Noise Quality Monitoring in the Study Area**

| Location Code | Name of Location | Co-ordinates of Location | Distance from Project Site | Noise Leq dB(A) | |
|---|---|---|---|---|---|
| | | | | Day Time | Night Time |
| NQ-1 | Village –Jaijon Doaba (near Gurudwara) | 31°20'58.79"N, 76°08'51.73"E | 6 km, WSW | 51.2 | 40.2 |
| NQ-2 | Village - Panjoiyan (Near Lakh Data Peer Mandir) | 31°22'10.38"N, 76° 09'49.74"E | 100m, West | 46.3 | 35.4 |
| NQ-3 | Village – Puboal (At Govt Ayuryedic Heath Center) | 31°23'12.18"N, 76°11'33.65"E | 1.2 km, NNE | 50.3 | 39.6 |
| NQ-4 | Project Site, Guest House Forest Dept. Village Polian Beet | 31°21'22.07"N, 76°10'52.07"E | 0 Km, Project Site | 48.2 | 37.8 |
| Standard Limits of Noise (CPCB, Noise Rules 2000) | | | | 55 | 45 |

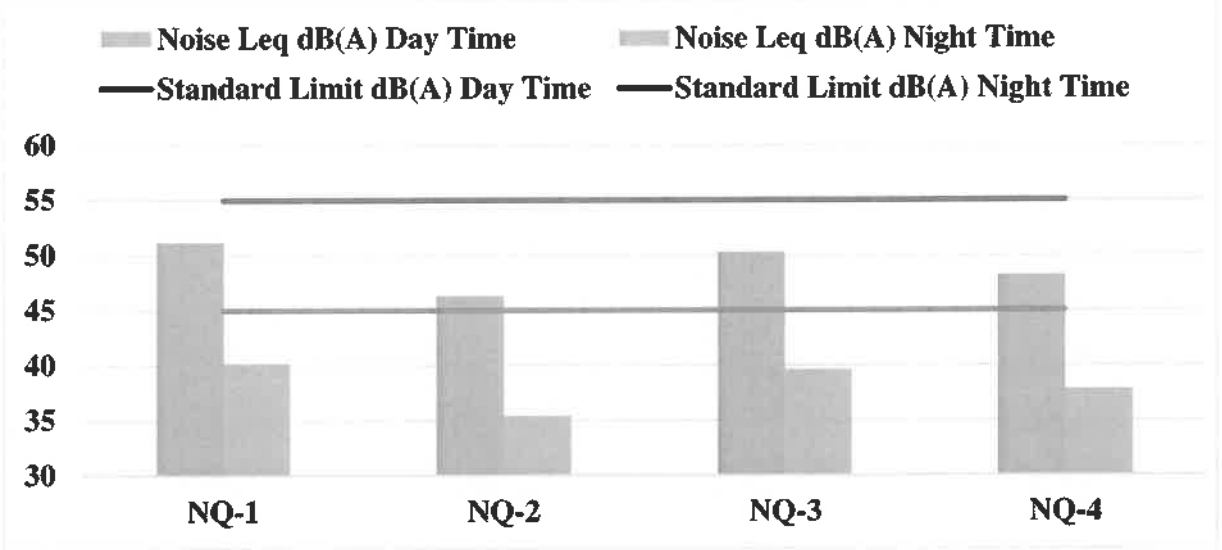



**Figure 3.14. Statistical analysis of Noise Monitoring Results**

As evident from **Table 3.15 & Fig. 3.14**, ambient noise levels measured in the study area varied from 46.3 – 51.2 dB(A) during day time and 35.4 – 40.2 dB(A) during night time. The observed noise levels are found to be within the prescribed limits for residential area (Noise Rules, 2000). The obtained results are comparable and in agreement with the secondary data of EIA studies conducted in Una region. The observed baseline/ existing noise quality may be associated to industrial units operating in Tahliwal industrial (about 6 km from the project) and Bathri industrial area (about 10 km from the project) in ESE direction. Other source can be vehicles plying on the roads, ongoing domestic and agricultural activities in the study area. Furthermore, additional emission loads due to the proposed project is to be quantified and associated environmental impacts are to be identified based on noise propagation modeling which has been explored in **Chapter 4**.

**Table 3.16. Comparison of primary and secondary noise quality data of Una region.**

| Parameter | Primary Data | Secondary Data | | Standard Limit (Noise Rules, 2000) |
|---|---|---|---|---|
| | Present Study (Rural Area & Industrial) (April – June 2023) | EIA Mine Project, Haroli, Una (Oct.-Dec. 2022) | EIA IOCL, Mehatpur, Una (Jan.-Apr. 2017) | |

| | | | | |
|---|---|---|---|---|
| Day Time dB(A) | 46.3 - 51.2 | 45.6 – 58.2 | 53 - 61 | 55 |
| Night Time dB(A) | 35.4 - 40.2 | 32.1 – 46.2 | 44 - 52 | 45 |

#### 3.4.3.3.2 Conclusion

The overall noise quality in the study area is within the prescribed limits (CPCB, Noise Rules 2000) and is safe and comfortable for human health. The observed baseline/ existing noise quality may be associated to industrial units operating in Tahliwal industrial (about 6 km from the project) and Bathri industrial area (about 10 km from the project) in ESE direction. Other source can be vehicles plying on the roads, ongoing domestic and agricultural activities in the study area. Furthermore, additional noise emission loads due to the proposed project will be quantified and identified based on noise propagation modeling.

### 3.4.4 LAND ENVIRONMENT

#### 3.4.4.1 Land use & land cover:

#### 3.4.4.1.1 Methodology for land use land cover mapping:

The land use and land cover (LULC) map have been prepared by adopting the interpretation techniques of the image in conjunction with collateral data. Image classification was done by using visual interpretation techniques and digital classification using Arc GIS 9.3.1 image processing software. Sentinel-2 Satellite Data images were acquired and used to evaluate LULC changes. The image processing software is used for preprocessing, rectification and classifying the satellite data for preparation of land use land cover map for assessing and monitoring the temporal changes in land use land cover and land developmental activities.

#### 3.4.4.1.2 Ground data:

Ground data is essential to verify and increase the accuracy of the interpreted classes and also to minimize the field work.

#### 3.4.4.1.3 Data analysis:

For analysis and interpretation of satellite data, the study can be divided into three parts:

I. Preliminary work

II. Field work

III. Post field work

**3.4.4.1.4 Outcome:**

Land use and land cover have a direct relationship with environmental characteristics and processes, including the productivity of the land, species diversity, climate, biogeochemistry and the hydrologic cycle. GIS and Remote Sensing are gradually becoming an integrated technology that is being widely used in various applications. These two technologies are complementary, as they are simply variants of the digital spatial data. They have become inextricably linked in many application fields. The spatial display techniques for GIS and Remote Sensing information has greatly advanced within the past two decades. Technological advances in image processing and visualization techniques have developed display and interpretation mechanisms for the analysis of all forms and sources of geographical information.

**3.4.4.1.5 Study area land use & land cover classification system:**

As per the mandatory requirements, the mapping of land use and land cover of the area falling within 10 km radius of study area is to be undertaken with the help of Topographical data, Satellite data and Field studies.

The land use and land cover (LULC) map has been prepared by adopting the interpretation techniques of the image in conjunction with collateral data such as Survey of India topographical maps, census records, Sentinel-2 Satellite Data Imagery and ground truth. Land use map is shown in **Fig. 3.15.**

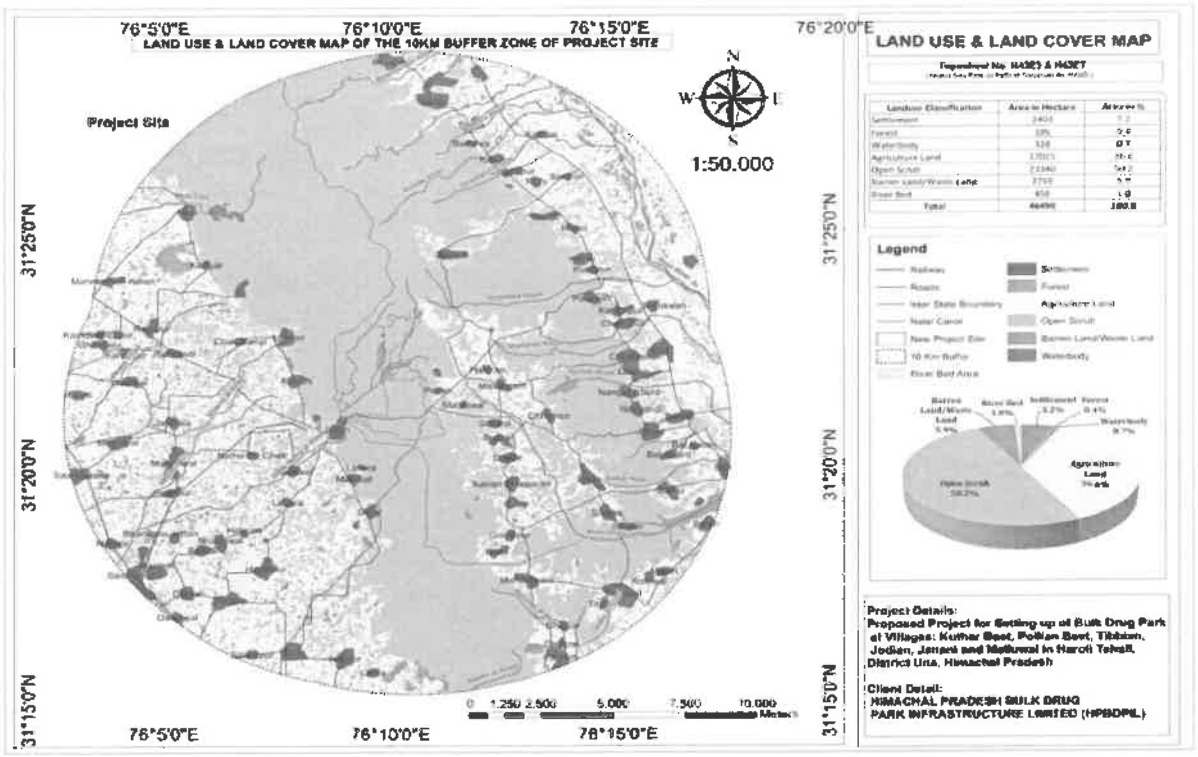



**Figure 3.15. Land use map of the project area within 10 km of the project location**

**Table 3.17. Land use distribution within 10 km of project**

| S. No. | Land Use/Land Cover | Area in sq. Km. | % |
|---|---|---|---|
| 1. | Agriculture land | 170.15 | 36.6% |
| 2. | Barren/Waste land | 27.59 | 5.9% |
| 3. | Forest land | 1.95 | 0.4% |
| 4. | Water body | 7.86 | 1.7% |
| 5. | Open Scrub land | 233.40 | 50.2% |
| 6. | Settlement | 24.03 | 5.2% |
| | **Total** | **464.98** | **100** |

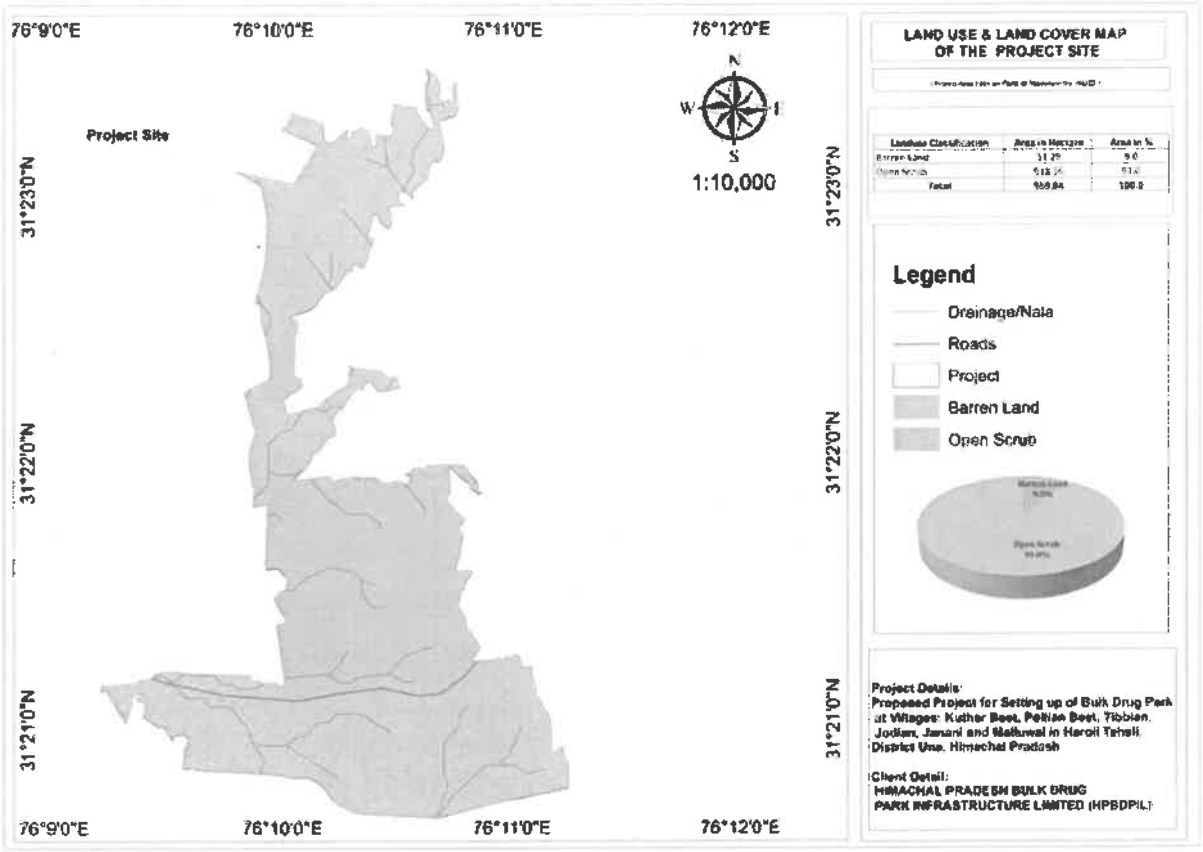



**Figure 3.16. LULC map of the project site**

### 3.4.4.1.5 Interpretation of LULC results:

The study area comprises of crop land of about 170.15 sq.km. (36.60%). Barren/Waste land of about 27.59 sq.km. (5.9%). Forest land of approximately 1.95 sq.km. (0.4%). Water of 3.28 sq.km. (0.7%). River bed of 4.58 sq.km. (1.0%). Open Scrub land of about 233.40 sq.km. (50.2%) and settlement in the study area cover an area of 24.03 sq.km (5.2%). The land cover pattern and the respective coverage are given in **Table 3.17** above.

Similarly, the LULC of project site was also prepared which comprise of open scrub land of about 5.19 sq. km. (91%) and barren land of about 0.51 sq. km. (9%). The LULC of the project site is represented in **Figure 3.16.**

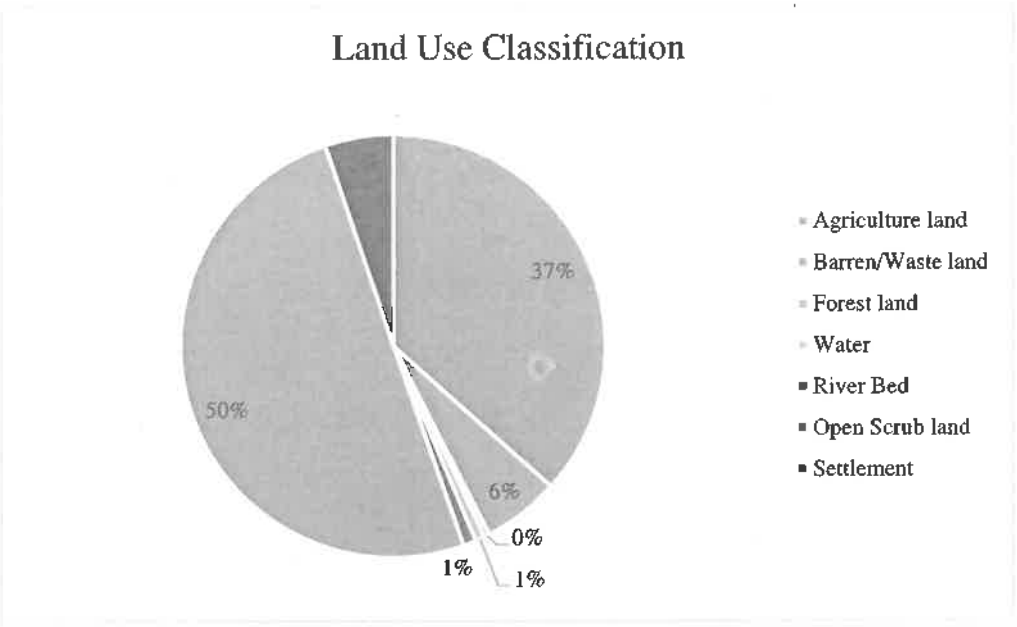



**Figure 3.17. Pie-chart showing Land use of the study area**

**3.4.4.1.6 Conclusion of the land use**

Land use Classification suggests that approx. 50 % of the land area is under Open Scrub area while approx. 37% is under agriculture land and approx. 6 % is Barren/Waste land. Thus, considering the land use pattern adequate, measures can be taken under EMP to facilitate afforestation in nearby area with the help of forest management techniques.

## 3.4.5 SOIL ENVIRONMENT

### 3.4.5.1. Geomorphology & Soil

Una district nestles between Siwalik ranges and forms part of the lesser Himalayas. It has a diverse landscape made 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 Dharwith 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 forms 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.

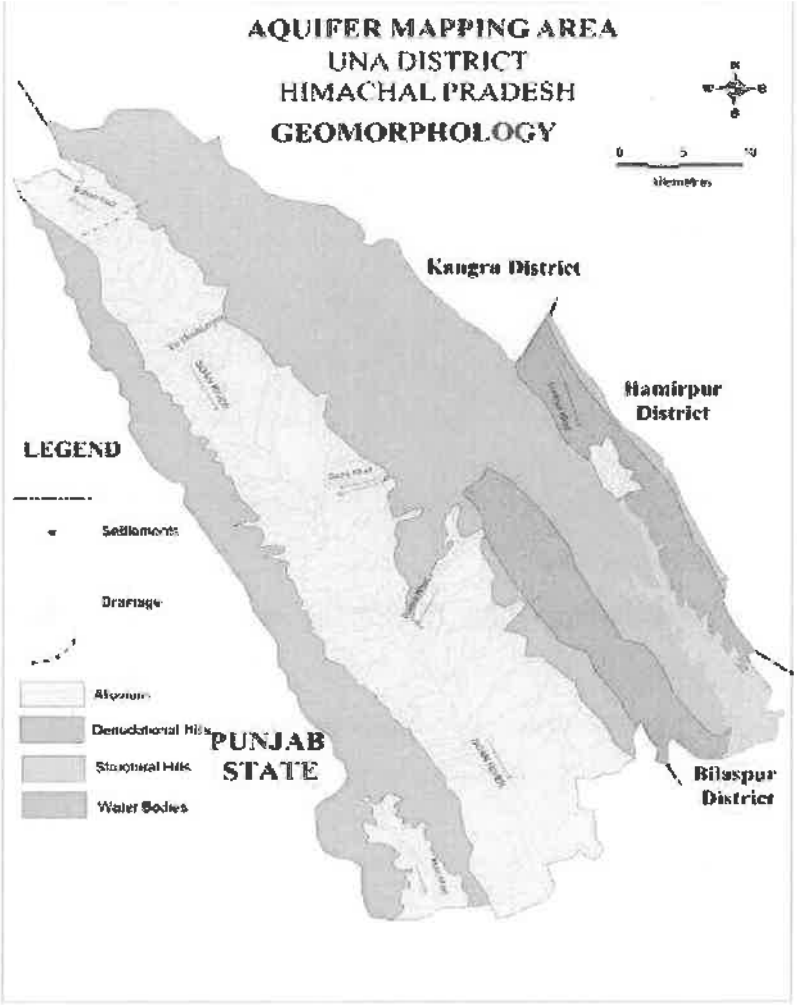



**Figure 3.18. Geomorphological map of Una district, Himachal Pradesh (*Source:* CGWB, 2020)**

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. Number of local streams (about 73 khads) joins the river within the district. During monsoon Soan river gets flooded due to shallow bank heights and large area on both sides get

affected. Govt. of HP has initiated riverbank protection cum flood control measures and the work is in progress. In Bangana area, another stream (Khad), flowing parallel to Soan river, is Lunkhar khad, which debouches in Govind Sagar lake. Also, in the extreme north-western part of the district small area forms the catchments of a tributary of Beas river basin.

Two types of soils are observed in the district viz., alluvial soil and non-calcic brown 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.

| Soil Classification Code | Soil Description |
|---|---|
| 8E | Shallow, well drained, hyperthermic, sandy soils on very gentle slopes with sandy surface and moderate erosion; associated with: Shallow, well drained, coarse-loamy soils with loamy surface and moderate erosion. |
| 72 | Medium deep to deep, well drained, thermic, loamy skeletal soils on steep slopes with loamy surface and severe erosion; associated with: Medium deep, well drained, calcareous, fine-loamy soils with loamy surface and moderate erosion. |
| 80 | Medium deep, well drained, thermic, loamy skeletal soils on moderately steep slopes with loamy surface and severe erosion; associated with: Medium deep, well drained, fine-loamy soils with loamy surface and severe erosion. |
| 90 | Deep, well drained, hyperthermic, coarse loamy soils on very gentle slopes with loamy surface and severe erosion; associated with: Medium deep, well drained, coarse-loamy soils with loamy surface and moderate erosion. |
| 78 | Medium deep, well drained, thermic, coarse-loamy soils on gentle slopes with loamy surface and severe erosion; associated with: Medium deep, moderately well drained, fine-loamy soils with loamy surface and severe erosion. |
| 81 | Medium deep, well drained, hyperthermic, coarse-loamy soils on gentle slopes with loamy surface and slight erosion; associated with: Deep, well drained, coarse-loamy, calcareous soils with loamy surface and moderate erosion. |
| 75 | Medium deep, well drained, thermic, loamy skeletal soils on very gentle slopes with loamy surface, moderate erosion and moderate stoniness; associated with: Deep, well drained, fine-loamy soils with loamy surface and slight erosion. |

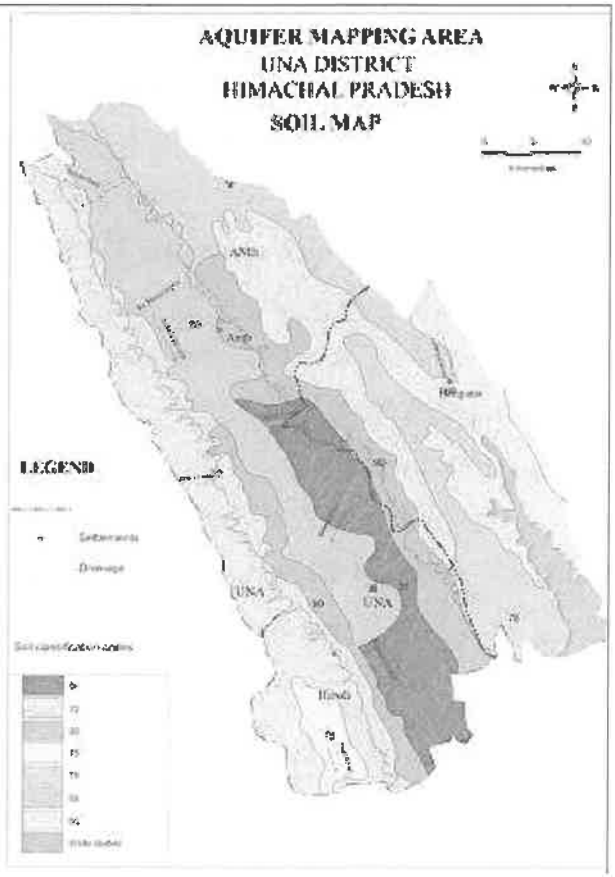



**Figure 3.19. Soil characteristic of Una district, Himachal Pradesh (*Source:* CGWB, 2020)**

### 3.4.5.1 Soil quality:

The information on soil has been collected from various secondary sources and also through primary soil sampling analysis of which is described in this section. For studying the soil profile

of the region, soil samples were collected from 5 locations in the study area as well as from project site to assess the existing soil conditions within the study area representing various land uses. The sampling locations have been finalized with the following objectives:

- To determine the base line characteristics
- To determine the soil characteristics of project location.
- To determine the impact of industrialization/urbanization on soil characteristics
- To determine the impacts on soils from agricultural productivity point of view.

**3.4.5.2 Methodology for soil sampling:**

The sampling locations are selected based on input source. The soil sample is collected from various depths of 30 cm, 60 cm & 90 cm from nearby agriculture land, waste disposal areas or likely impacted areas as described in Lab SOP. Monitoring and sample handling (including sample preservation and transportation) is carried out as per national/ international standard methods as Soil/Sludge quality monitoring (IS: 2720, APHA & ICAR/IARI guidelines). The interpretation of data is being done with respect to standards and norms prescribed by recognized bodies as well as statistical analysis of observed values/data where required.

**3.4.2.3 Sampling frequency:**

Soil quality monitored once at 5 locations (including project location) within 10 km of study area during the monitoring period. Sampling locations for monitoring of soil selected in the study area are given in **Table 3.18.** Locations of soil monitoring stations are shown in **Fig. 3.20**.

**Table 3.18. Details of Soil Sample Monitoring Stations**

| S. No. | Sample Code | Name of Village/ Location | Distance & Direction (km) |
|---|---|---|---|
| 1. | S1 | Project Site | 0 |
| 2. | S2 | Near Lakh Data Peer Mandir, Panjoiyan | 2.1 km; NW |
| 3. | S3 | Near Brora Niwas ,Vill Panjoiyan | 1.6 km; NW |
| 4. | S4 | Village- Jaijon | 1.5 km; NE |
| 5. | S5 | Village- Kutharbeet | 2.0 km; SW |

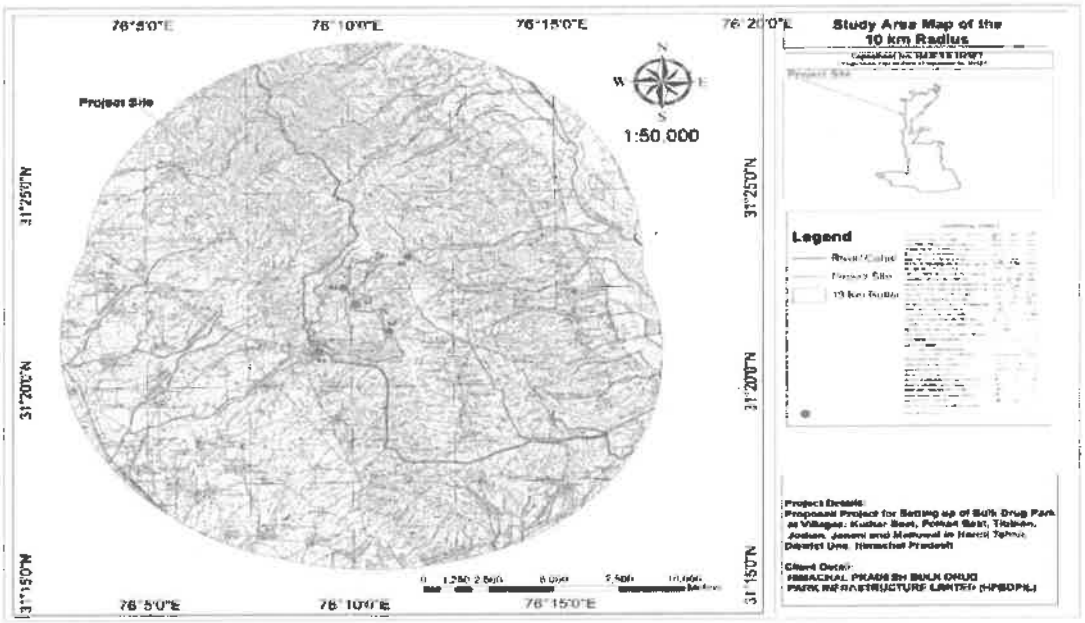



**Figure 3.20. Location of Soil Monitoring Stations (Marked on Toposheet No. H43E3 and H43E7)**

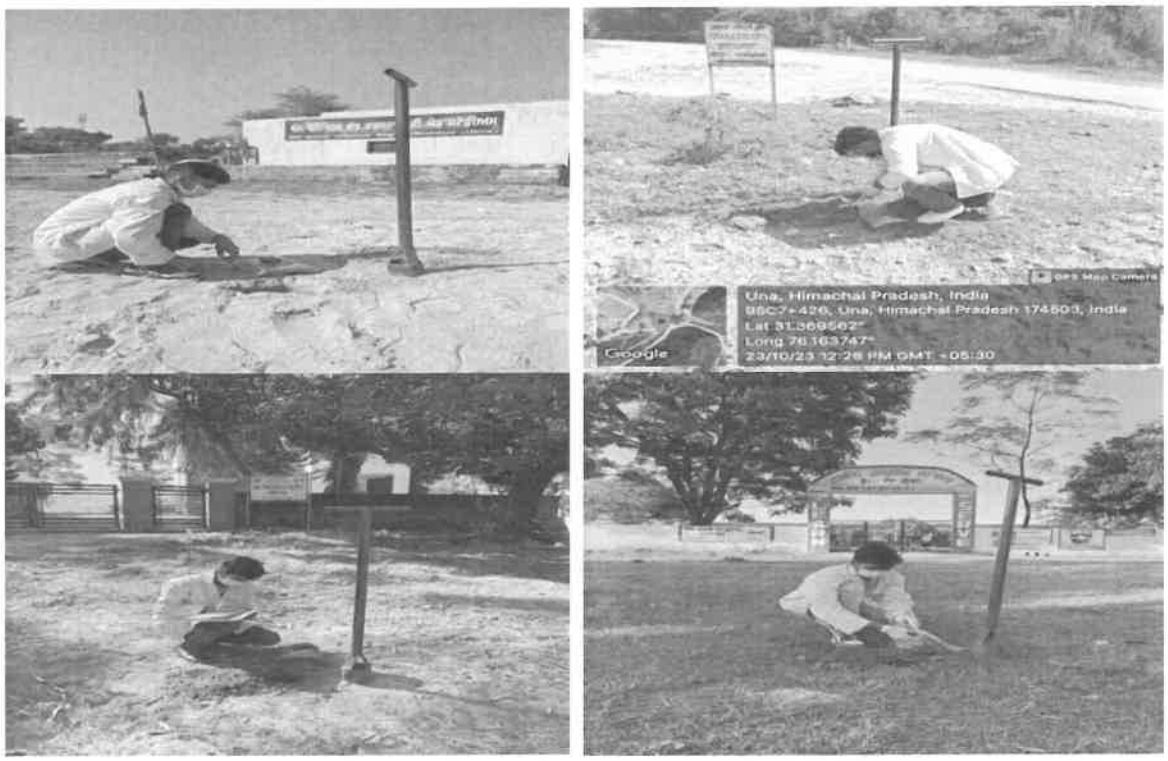



**Figure 3.21. Sampling photographs of soil monitoring**

### 3.4.5.4 Parameters Monitored & Methods Used

Test methods for determining Soil Quality are given below in **Table 3.19**.

**Table 3.19. Test Methods for determining Soil Quality**

| Sr. No. | Test Parameter | Test Method |
|---|---|---|
| 1. | pH | IS: 2720 (P-26) 1987 RA2016 |
| 2. | Electric Conductivity (EC) | IS: 14767: 2000 RA2016 |
| 3. | Texture | IS: 2720 (P-4) 1985 RA 2015 |
| 4. | Extractable Sodium as Na | Lab SOP: EL/SOP/SS/10 |
| 5. | Extractable Potassium as K | Lab SOP: EL/SOP/SS/10 |
| 6. | Available Nitrogen as N | Lab SOP:EL/SOP/SS/16 |
| 7. | Available Phosphorus as P | Lab SOP:EL/SOP/SS/14 |
| 8. | Porosity | Lab SOP:EL/SOP/SS/36 |
| 9. | Permeability | Lab SOP:EL/SOP/SS/37 |
| 10. | Sodium Absorption Ratio (SAR) | Lab SOP:EL/SOP/SS/31 |
| 11. | Cation Exchange capacity (CEC) | Lab SOP:EL/SOP/SS/30 |
| 12. | Extractable Magnesium as Mg | Lab SOP:EL/SOP/SS/09 |
| 13. | Extractable Calcium as Ca | Lab SOP:EL/SOP/SS/08 |
| 14. | Particle Size | IS: 2720 (P-4) |
| 15. | Chloride ($Cl^-$) | Lab SOP:EL/SOP/SS/46 |

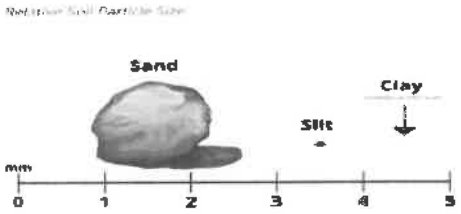
### 3.4.5.3 Physical characteristics:

Soil is generally considered as the upper layer of the earth that is dug or ploughed, especially the loose material in which plants grow. It is generally unconsolidated material composed of soil particles produced by disintegration of rocks. The void spaces between the particles may contain air, water or both. Physical characteristics of soil influence its use and behavior towards plants growth. The plant support root penetration, drainage, aeration, retention of moisture & plant nutrients is linked with the physical condition of soils. Normally following physical parameters are important for determining quality of soil:

**(i) Soil Texture:**

Soil texture determined by percentage of sand, silt and clay is the important soil characteristic

influencing soil quality. Sand particles are relatively large, silt particles are medium-sized and clay particles are very tiny in size. Clay and silt soil holds more water and plant nutrients than the sand. Soil is classified as four major textural classes: 1) sand; 2) silt; 3) clay and 4) loam based on the proportion of particle sizes.




**(ii) Porosity:**

Volume of soil mass that is not occupied by soil particles and usually occupied by air & water are known as pore space. The plant roots grow & exist in the pore spaces. Porosity, therefore, refers to that percentage of soil volume which is occupied by pore spaces.

**(iii) Bulk Density:**

Bulk density weight of a unit of volume of soil inclusive of pore spaces.

**(iv) Water holding capacity:**

Water holding capacity is the amount of water retained by soil to make available for crops which is determined by soil texture and available pore spaces in soil. Clay and silty soil tend to have higher water holding capacity whereas sandy soils have lower water holding capacity.

**(v) Soil fertility:**

Soil fertility is the ability of a soil to provide the nutrients needed by crop plants to grow.

### 3.4.5.4 Chemical characteristics:

The chemical characteristics for each monitoring locations were analysed and presented in **Table 3.20** along with the min., max and mean values. Test reports depicting soil results are enclosed as **Annexure 13.**

**Table 3.20. Results of soil samples**

| Sr. No. | Parameter | Units | S1 | S2 | S3 | S4 | S5 | Min | Max | Avg. |
|---|---|---|---|---|---|---|---|---|---|---|
| 1. | pH | - | 8.16 | 8.09 | 8.05 | 7.79 | 7.41 | 7.41 | 8.16 | 7.9 |
| 2. | EC | mmhos/cm | 0.119 | 0.133 | 0.097 | 0.09 | 0.148 | 0.09 | 0.15 | 0.12 |
| 3. | CEC | meq/100g | 8.52 | 11.2 | 5.8 | 10.87 | 12.17 | 5.8 | 12.17 | 9.71 |
| 4. | Na | mg/kg | 35.5 | 89 | 18.5 | 16 | 92.5 | 16 | 92.5 | 50.3 |
| 5. | K | mg/kg | 740 | 745 | 423 | 408 | 417 | 408 | 745 | 546.6 |
| 6. | SAR | meq/L | 0.2 | 0.29 | 0.11 | 0.09 | 0.53 | 0.09 | 0.53 | 0.24 |
| 7. | **Particle Size**<br>Clay<br>Sand<br>Gravel | % | <br>2.5<br>95.7<br>1.80 | <br>2.10<br>67.5<br>30.40 | <br>5.80<br>90.7<br>3.50 | <br>7.90<br>72.50<br>19.60 | <br>5.00<br>53.90<br>40.10 | <br>2.1<br>53.9<br>1.80 | <br>7.9<br>97.5<br>40.1 | <br>4.66<br>76.1<br>19.1 |
| 8. | Permeability | cm/hr | 1.48 | 0.79 | 1.4 | 1.33 | 1.37 | 0.79 | 1.48 | 1.274 |
| 9. | Porosity | % | 32.9 | 54.32 | 32.16 | 31.72 | 30.15 | 30.15 | 54.32 | 36.25 |
| 10. | Texture | - | Loam Sand | Sandy Clay Loam | Loam Sand | Sandy Loam | Sandy Loam | -- | -- | -- |
| 11. | Ca | mg/kg | 112 | 344 | 112 | 112 | 112 | 112 | 344 | 158.4 |
| 12. | Mg | mg/kg | 10 | 21.6 | 4.8 | 10 | 2 | 2 | 21.6 | 9.68 |
| 13. | N | mg/kg | 912 | 945 | 450 | 889 | 705 | 450 | 945 | 780.2 |
| 14. | P | mg/kg | 172 | 188 | 165 | 168 | 159 | 159 | 188 | 170.4 |
| 15. | Cl | mg/kg | 40 | 40 | 40 | 60 | 60 | 40 | 60 | 48 |

### 3.4.5.6 Interpretation of soil characteristics:

- **Soil pH:** Soil pH is an important soil property, which affects the availability of several plant nutrients. It is a measure of acidity and alkalinity and reflects the status of base saturation. pH of soil samples is for all sampling locations is reported neutral to slightly alkaline in nature (7.4 to 8.2). Because the pH of the soil influences the activity of beneficial bacteria, it can also effect plant growth. In highly acidic soils, the majority of legume bacteria that fix nitrogen are not very active.
- **Soil Conductivity (EC):** The ability of soil water to convey electrical current is measured by soil electrical conductivity, or EC. Water-filled pores are the main electrolytic medium via which electrical conductivity is produced. When salts are dissolved in soil water, the anions ($SO_4^{2-}$, $Cl^-$, $NO_3^-$, and $HCO_3^-$) and cations ($Ca^{2+}$, $Mg^{2+}$, $K^+$, $Na^+$, and $NH_4^+$) carry electrical charges and transmit the electrical current. EC has mostly been utilized in agriculture as a gauge for soil salinity. The estimated results of the EC indicate that the soil is non-saline in nature as the observed values ranges between 0.09 to 0.15 mmhos/cm.

**Table 3.21. Categorisation of soil salinity based on EC (Source: USDA-NRCS handbook)**

| Sr. No. | EC range (mmhos/cm) | Level of soil salinity |
|---|---|---|
| 1. | 0 - 2 | Non- saline |
| 2. | 2 - <4 | Very Slight saline |
| 3. | 4 - <8 | Slightly Saline |
| 4. | 8 - <16 | Moderate Saline |
| 5. | >16 | Strongly saline |

- **Soil Texture:** The soil textures refer to proportion of particle size of soil that refers to the sand, clay and silt fraction present in the soil samples. The observed soil texture is Loam sand for site S1 and S3, Sandy Clay Loam for site S2 and Sandy Loam at site S4 and S5.
- **Permeability:** Soil permeability is the property of the soil to transmit water and air. Usually, the finer the soil texture, the slower the permeability. Since, the permeability of soil samples is 1.48cm/hr. at the project site (S1) thus as per the classification of soil permeability, it is categories as moderate.

- **SAR:** SAR content of the monitoring locations were observed 0.2 meq/L, 0.29 meq/L, 0.11 meq/L, 0.09 meq/L and 0.53 meq/L for site S1, S2, S3, S4 and S5 respectively, indicating that the general distribution SAR was matching with distribution pattern of EC.
- **Chloride:** Chloride is a chemically and hydrologically inert material. $Cl^-$ is involved in the synthesis of organically bound chlorine as part of a complex biogeochemical cycle. The accompanying anion $Cl^-$ has traditionally been referred to as unwanted but unavoidable; generally speaking, cation K+ is generally viewed as one of the major plant nutrients. But now days, it's thought that $Cl^-$ is a necessary vitamin for healthy growth. The primary ions involved in neutralizing charges are $K^+$ and $Cl^-$, which are also the most significant inorganic osmotic active chemicals found in plant tissues and cells. The opening and closure of stomata is connected to the relationship between K and Cl. In present investigation the Cl- concentration raged from 40-60 mg/Kg.

### 3.4.5.7 Conclusion:

In the current study, indicators viz., pH, EC, porosity, permeability, macro and micro-mineral compositions (such as Na, K, N, P, Ca and Mg) etc. were analyzed and assessed. The soil parameters could offer the information of soil fertility status well, so these indicators were used to evaluate the soil composition in the study area. The pH of the monitoring location indicates neutral to alkaline in nature so soil. SAR was reported below 13 meq/L and mineral composition refers to its suitability for agriculture and cultivations purposes.

## 3.4.6 HYDROGEOLOGY:

According to hydrogeology, the Una district is made up of two aquifer systems: The Consolidated and the Unconsolidated. Upper, middle, and lower Siwalik rocks are found in the hilly regions. The main types of rocks found in highland regions like Bhangana and Bharwain are sandstones, shale, clay, conglomerate, and exposed boulder layers (**Figure 3.22**). By digging shallow wells along the drainage lines in low topography, ground water in these formations is poorly developed. The majority of these constructions dried up during the hottest summer months. The depth to water level of the dug wells in the overburden area ranges from 2 to approximately 8 meters. Springs can be found in low-lying topographic regions near streams, lineaments, and the intersection of several

formations.

Only valley regions contain the unconsolidated formations. These include the terrace deposits on the highlands and the valley floor. These formations are made up of boulders, cobbles, and pebbles combined with different amounts of sand and clay and boulder beds made of clay. The proportion of coarse-grained sediments rises as one moves uphill, while the deposits get finer as one moves towards the Soan River, or the central Una valley. Granular zones in terrace deposits are more promising and may generate future horizons that hold water.

**Aquifer parameters**

In the Una Valley, the Central Ground Water Board has dug 45 exploratory tube wells, ranging in depth from 90 to 163 meters. From artesian 1.45 m agl (Rampur) to 43.20 m bgl at Chalet, the static water level fluctuates. The tube well yield varies from 338 lpm in Badehra to 3430 lpm in Athens. For a dip of 2 to 40 meters, the exploratory wells' discharge varied from 68 lpm to 3430 lpm while tapping aquifers between 27 and 168 m bgl. For drawdowns of 24 m, 39 m, and 11 m, respectively, the artesian wells at Bhadsali, Kaloh, and Rampur that were accessing restricted aquifers produced yields of 1230 lpm, 3290 lpm, and 886 lpm. In the Valley region, transmissivity varies from 150 to 2600 $m^2$/day.

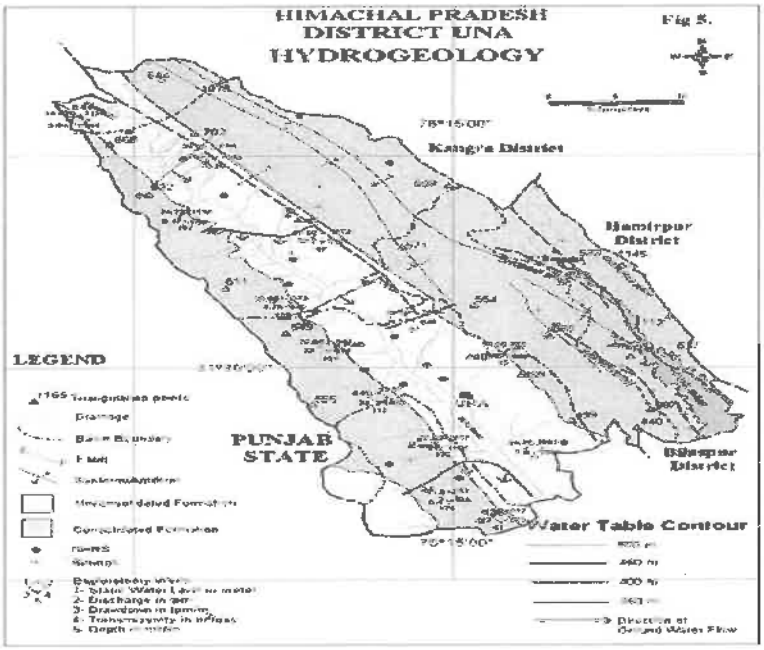



**Figure 3.22. Hydrogeological map of the Una district (CGWB, 2020)**

The Department of Irrigation and Public Health (I&PH) of Himachal Pradesh has also dug approximately 300 tube wells, with depths ranging from 51.0 to 220.0. These tube wells have water levels that range from artesian condition to 45.00 m. With a discharge ranging from 553 to 3500 lpm for a 7–10 m draw down, the well yields are high. Thirty of the 300 tube wells are used for irrigation, and the remaining 270 tube wells are used for water delivery. The I&PH department has dug a few shallow bore-wells (equipped with hand pumps) in the hilly regions of Una district to supply the hamlets with safe drinking water. at a depth of 45 to 80 meters, with yields or discharges of less than 0.5 litres per year.

Precipitation is the principal source of Ground water recharge to aquifer systems in the district. The return flow from the irrigation systems like tube well irrigation, surface water lift irrigation, kuhl irrigation are the main sources of ground water recharge. Inflow seepage from khads, rivers, and water reservoirs (pong dam) also contribute to the ground water reserves. In the district, all the major irrigation and drinking water supplies depend on the tube wells, and dug wells, in addition to various water supply schemes based on rivers/ nallas.

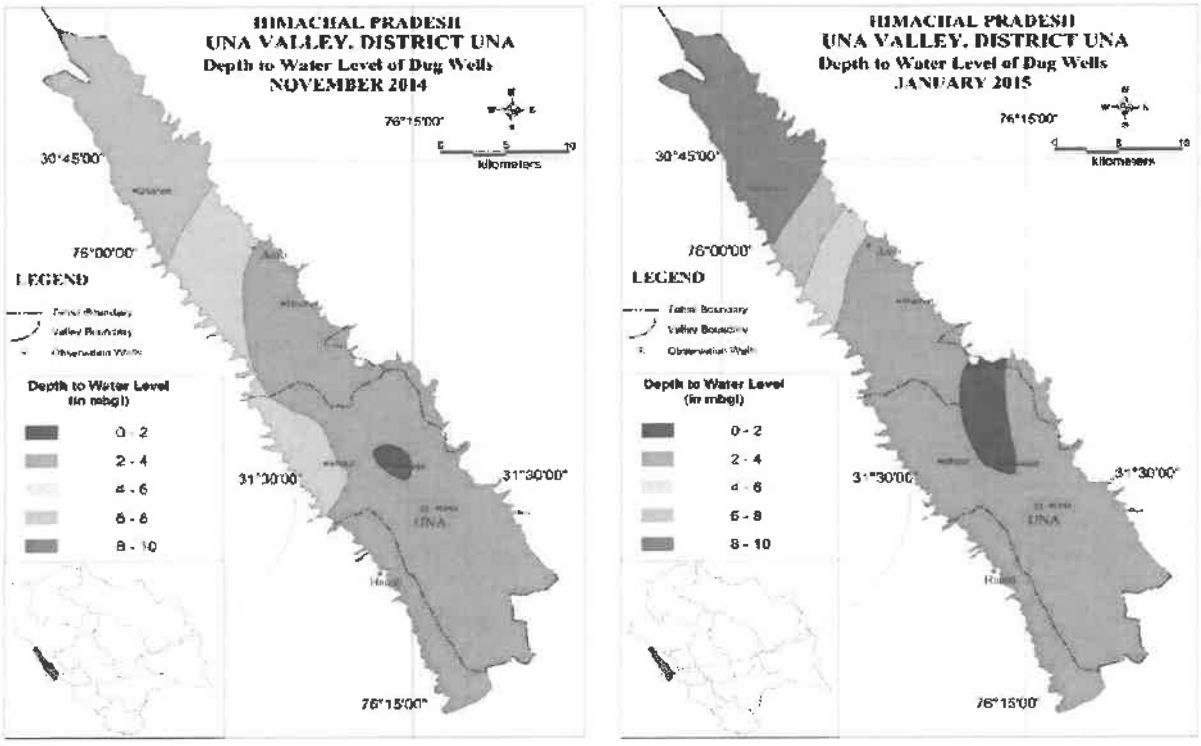



**Figure 3.23. Depth of water level of Distt. Una**

### 3.4.6.2 Ground water resources:

In the arenaceous rocks of the Siwalik group of rocks, such as sandstone, siltstone, gravel boulder beds, etc., ground water is found in unconfined to semiconfined environments. Inter granular pore spaces and fracture porosity regulate the occurrence and flow of ground water. Hilly/undulating regions with bowries and gravity/contact type springs serving as the primary groundwater structures aside from hand pumps are covered with Siwalik sediments. The springs' discharges range from seepages to 0.50 lps. Bowries are a form of dug well used to tap seepages from sediments that are built on hill slopes or in nalas. The primary groundwater constructions in the low-lying regions covered by Siwalik rock are hand pumps and dug wells, which vary in depth from 3.00 to 25.00 m bgl.

The majority of the Una Valley's ground water is found in porous, unconsolidated, alluvial formations (valley fills), which are made of gravel, sand, silt, cobbles, and other materials. Both phreatic and restricted situations can produce ground water. The lower portion of the Soan River exhibits artesian characteristics as well. In the area, hand pumps, dug-cum-borewells, medium-to-deep tube wells, and other methods are being used extensively to develop ground water. The area's dug-well and dug-cum-borewell depths range from 4.00 to 70.00 meters below the surface.

### 3.4.6.3 Status of ground water development:

Precipitation is the principal source of Ground water recharge to aquifer systems in the district. The return flow from the irrigation systems like tube well irrigation, surface water lift irrigation, kuhl irrigation are the main sources of ground water recharge. Inflow seepage from khads, rivers, and water reservoirs (pong dam) also contribute to the ground water reserves. Generally, these springs are tapped at the source, so that the water can be supplied under gravity. These springs are generally contact or depression types. Drainage map within 5 km of study area is shown below in **Fig. 3.12.**

### 3.4.6.4 Brief of drainage map:

The flow of water is according to natural slope the surface i.e. towards river Beas and the same is highlighted by drainage map of the project area within 10 km of the project location.

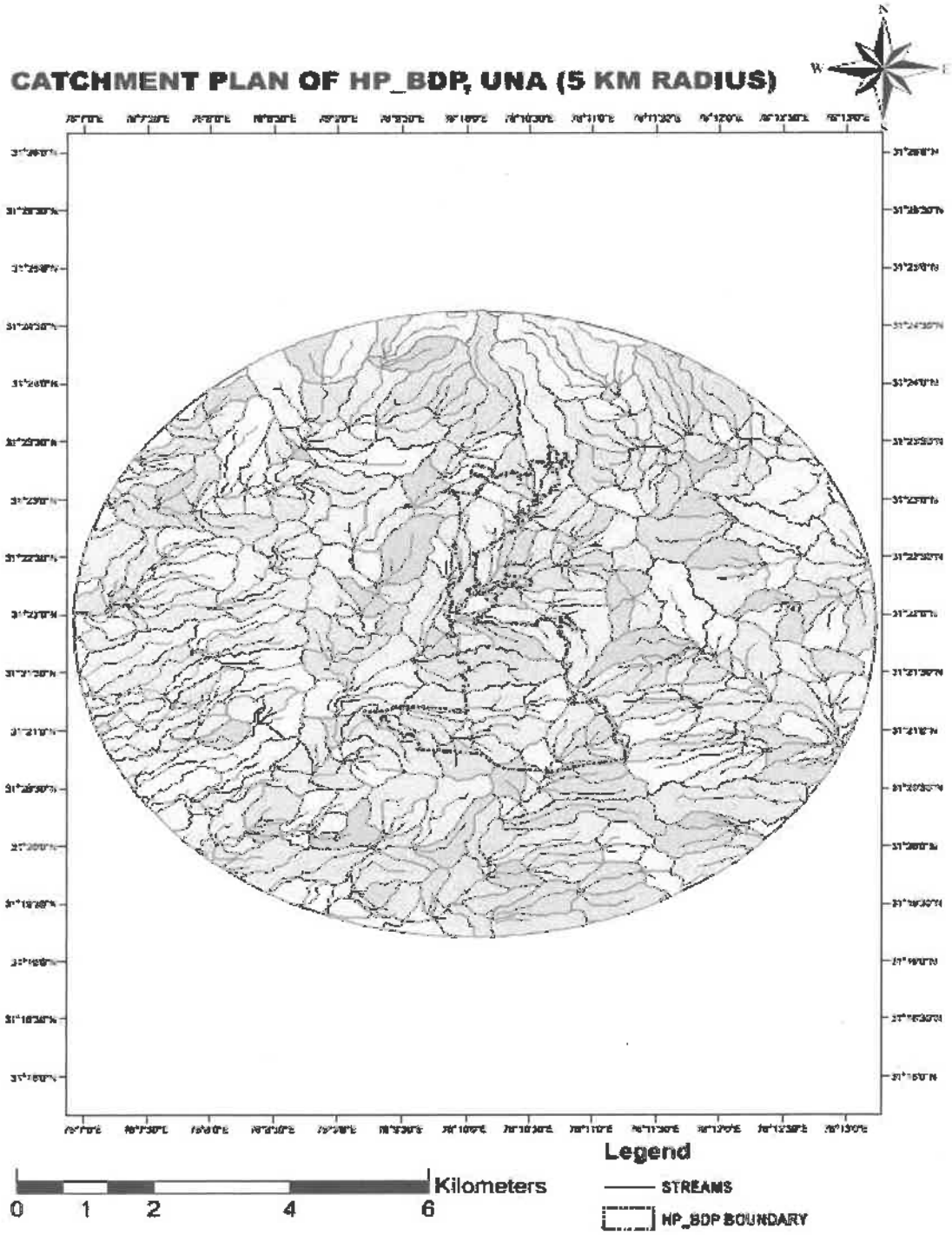



**Fig. 3.12: Drainage map of the project area within 5 km of the project location**

### 3.4.6.5 Conclusion

The water level of Una valley falls under safe category, However, rainwater harvesting outside the project premises will still be done to increase ground water level. The proposed development of Bulk drug park is expected to result in increased runoff and minor changes in drainage patterns. However, with the implementation of proposed storm water management and flood mitigation measures, the impacts on local water resources will be managed effectively.

## 3.4.7. WATER REQUIREMENT

### 3.4.7.1. Ground Water quality:

Water quality of groundwater has been studied in order to access proposed water-uses in drinking, cooling and horticulture purposes.

### 3.4.6.6 Methodology

Five sampling locations (including project location) has been selected as per the monitoring plan. Grab sampling method has been used to collect ground water samples. Sampling is carried out as per the defined periodicity and for the parameters indicated in the Technical Guidance Manual for Industrial Estate approved by MoEF&CC. PTFE and glass bottles have been used to collect samples depending on the parameter to be tested. Source of sampling has been sterilized properly by Iso-propyl Alcohol via cotton followed by heating by spirit lamp for 2-3 minutes. Sample is collected after pumping the borewell for a period of at least 5-6 minutes. Further, collected samples are labelled and stored in Ice box maintained at approx. 6°C. pH, temperature, etc. are analyzed on site and recorded. Samples thus collected were analyzed for various parameters. All Ground water samples are analyzed as per IS 17614: Part 1: 2021.

### 3.4.7.1.4 Ground water Monitoring

Ground water is available in the study area at different depths. Samples have been drawn from different locations and quality evaluated. To monitor the existing quality of groundwater, 5 samples were collected. Locations of Ground Water Monitoring stations are given in **Table 3.23** and is shown in **Fig. 3.24**. Test reports of project location & baseline data from 8 locations within study area are enclosed as **Annexure 13** respectively.

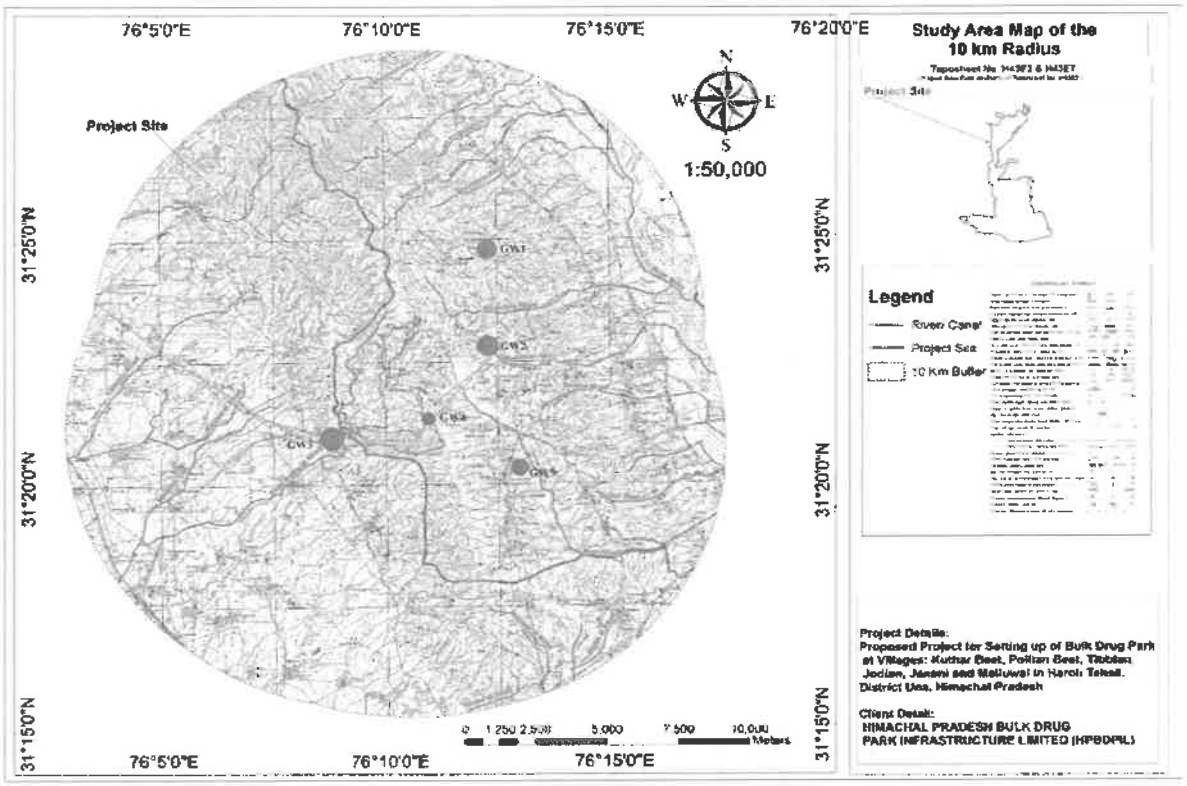



**Figure 3.24. Locations of ground water monitoring stations (Marked on Toposheet No. H43E3 and H43E7; Not on scale)**

**Table 3.22. Details of ground water monitoring stations**

| S. No. | Sample Code | Name of Village/ Location | Co-ordinates of Location | Distance & Direction (km) |
|---|---|---|---|---|
| 1. | GW1 | Village – Baliwal (From Tubewell) | 31°24'58.39"N, 76°12'21.56"E | 3.8 km; NE |
| 2. | GW2 | Village- Pubowal (From Tubewell) | 31°22'55.27"N, 76°12'15.23"E | 2.5 km; E |
| 3. | GW3 | Village - Jaijon Doaba ( From Borewell ) | 31°21'00.45"N, 76° 08'51.69"E | 0.6 km; SW |
| 4. | GW4 | Project Site, Guest House Forest Dept. Village Polian Beet (From Tubewell) | 31°23'3.11"N, 76°13'26.53"E | 0 km; Project site |
| 5. | GW5 | Villlage – Dulehr (From Tubewell) | 31°21'21.42"N, 76°10'51.60"E | 2.4 km; SE |

### 3.4.7.1.2 Sampling Frequency

Ground water quality was monitored at 5 different locations within 10 km of study area during the monitoring period (once in summer season: April, 2023).

### 3.4.7.1.3 Parameters Monitored & Methods Used

Test methods for determining ground water monitoring are given below in **Table 3.22**.

**Table 3.23. List of tested groundwater quality variables along with method codes**

| Sr. No. | Test Parameter | Test Method |
|---|---|---|
| **Physical Parameters** | | |
| 1. | Colour | IS: 3025 (P-4), Cl 2.0 |
| 2. | Odour | IS: 3025 (P-5) |
| 3. | pH | IS: 3025 (P-11) |
| 4. | Turbidity (TU) | IS:3025 (P-10) |
| 5. | Total Dissolved Solids (TDS) | IS:3025 (P-16) |
| **Chemical Parameters** | | |
| 6. | Electric conductivity (EC) | IS: 3025 (P-14) |
| 7. | Salinity | EL/SOP/W/005 |
| 8. | Dissolved oxygen (DO) | IS:3025 (P-38) |
| 9. | Biochemical oxygen demand (BOD) | IS:3025 (P-44) |
| 10. | Mg Hardness | IS:3025 (P-46) |
| 11. | Total Hardness (TH) as $CaCO_3$ | IS: 3025 (P-21) |
| 12. | Total Alkalinity (TA) as $CaCO_3$ | IS: 3025 (P-23) |
| 13. | Total Nitrogen (Total N) | IS: 3025 (P-34) |
| 14. | Total Phosphorous (Total P) | IS: 3025 (P-31) |
| 15. | Phenol | IS:3025 (P-43) |
| **Cations** | | |
| 1. | Sodium ($Na^+$) | IS:3025 (P-45) |
| 2. | Potassium ($K^+$) | IS:3025 (P-45) |
| 3. | Magnesium ($Mg^{++}$) | IS: 3025 (P-46) |
| 4. | Calcium ($Ca^{++}$) | IS: 3025 (P-40) |
| **Anions** | | |
| 1. | Chloride ($Cl^-$) | IS: 3025 (P-32) |

| | | |
|---|---|---|
| 2. | Fluoride ($F^-$) | IS: 3025 (P-60) |
| 3. | Nitrate ($NO_3^-$) | IS: 3025 (P-34)- Cl 3, 3, Chromotropic Acid Method |
| 4. | Sulphate ($SO_4^{--}$) | IS: 3025 (P-24), Cl 4.0 |
| **Heavy Metals** | | |
| 1. | Lead (Pb) | APHA-23rd Ed-3111B A-Ac Flame AAS Method |
| 2. | Mercury (Hg) | APHA-23rd Ed-3111B A-Ac Flame AAS Method |
| **Biological Indicators** | | |
| 1. | Total Coliform (TC) | IS:15185 |
| 2. | Fecal Coliform (FC) | IS:15185 |

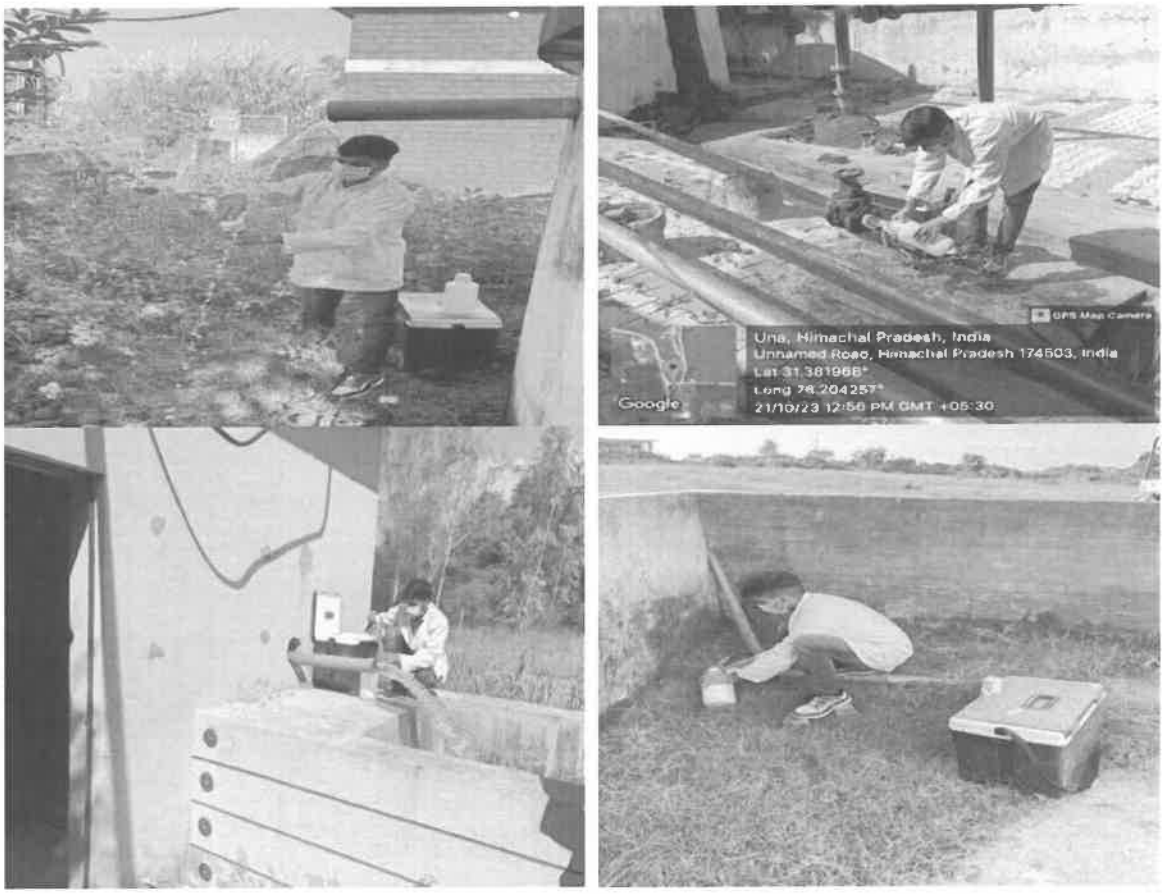



**Figure 3.25. Sampling photographs of groundwater monitoring**

**Table 3.24. Results of ground water samples**

| Sr. No. | Parameter | Units | GW1 | GW2 | GW3 | GW4 | GW5 | Min | Max | Avg. | Acceptable limit | Permissible limit |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Physical Parameters** | | | | | | | | | | | | |
| 1. | Colour | CU | BDL | BDL | BDL | BDL | BDL | -- | -- | -- | **5** | **15** |
| 2. | Odour | -- | Agreeable | Agreeable | Agreeable | Agreeable | Agreeable | -- | -- | -- | **Agreeable** | **Agreeable** |
| 3. | pH | -- | 7.51 | 7.2 | 7.32 | 7.44 | 7.25 | 7.2 | 7.51 | 7.34 | **6.5-8.5** | **No relaxation** |
| 4. | TU | NTU | BDL | BDL | BDL | BDL | BDL | -- | -- | -- | **1** | **5** |
| 5. | TDS | mg/L | 461 | 459 | 429 | 431 | 408 | 408 | 461 | 437.6 | **500** | **2000** |
| **Chemical Parameters** | | | | | | | | | | | | |
| 6. | EC | mmho/cm | 693 | 690 | 645 | 648 | 614 | 614 | 693 | 658 | -- | -- |
| 7. | Salinity | mg/L | 19 | 18 | 19 | 17 | 17 | 17 | 19 | 18 | -- | -- |
| 8. | DO | mg/L | 5.4 | 5.6 | 5.5 | 5.3 | 5.8 | 5.3 | 5.8 | 5.52 | -- | -- |
| 9. | BOD | mg/L | BDL | BDL | BDL | BDL | BDL | -- | -- | -- | -- | -- |
| 10. | Mg Hardness | mg/L | 128 | 120 | 136 | 128 | 128 | 120 | 136 | 128 | -- | -- |



7998
488

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 11. | TH | mg/L | 324 | 360 | 344 | 328 | 320 | 320 | 360 | 335.2 | **200** | **600** |
| 12. | TA | mg/L | 364 | 360 | 328 | 340 | 316 | 316 | 364 | 341.6 | **200** | **600** |
| 13. | Total N | mg/L | BDL | BDL | BDL | BDL | BDL | -- | -- | -- | -- | -- |
| 14. | Total P | mg/L | BDL | BDL | BDL | BDL | BDL | -- | -- | -- | -- | -- |
| 15. | Phenol | Mg/L | BDL | BDL | BDL | BDL | BDL | -- | -- | -- | **0.001** | **0.002** |
| **Cations** | | | | | | | | | | | | |
| 1. | $Na^+$ | mg/L | 22 | 28 | 29 | 25 | 22 | 22 | 29 | 25.2 | -- | -- |
| 2. | $K^+$ | mg/L | 2.4 | 2.7 | 2.1 | 2.6 | 1.9 | 1.9 | 2.7 | 2.34 | -- | -- |
| 3. | $Mg^{++}$ | mg/L | 31 | 29 | 33 | 31 | 31 | 29 | 33 | 31 | **30** | **100** |
| 4. | $Ca^{++}$ | mg/L | 79 | 96 | 83 | 80 | 77 | 77 | 96 | 83 | **75** | **200** |
| **Anions** | | | | | | | | | | | | |
| 1. | $Cl^-$ | mg/L | 12 | 10 | 11 | 9.8 | 9.5 | 9.5 | 12 | 10.46 | **250** | **1000** |
| 2. | $F^-$ | mg/L | 0.40 | 0.55 | 0.35 | 0.50 | 0.4 | 0.35 | 0.55 | 0.44 | **1** | **1.5** |
| 3. | $NO_3^-$ | mg/L | 3.7 | 4.4 | 3.4 | 4.8 | 3.6 | 3.4 | 4.8 | 3.98 | **45** | **No relaxation** |
| 4. | $SO_4^{--}$ | mg/L | 32 | 38 | 41 | 38 | 33 | 32 | 41 | 36.4 | **200** | **400** |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Heavy Metals** | | | | | | | | | | | | |
| 1. | Pb | mg/L | BDL | BDL | BDL | BDL | BDL | -- | -- | -- | **0.01** | **No relaxation** |
| 2. | Hg | mg/L | BDL | BDL | BDL | BDL | BDL | -- | -- | -- | **0.001** | **No relaxation** |
| **Biological Indicators** | | | | | | | | | | | | |
| 1. | TC | Shall not be detectable in any 100 ml sample | Absent | Present | Absent | Absent | Absent | -- | -- | -- | **Absent** | -- |
| 2. | FC | Shall not be detectable in any 100 ml sample | Absent | Absent | Absent | Absent | Absent | -- | -- | -- | **Absent** | -- |

### 3.4.6.6 Interpretation of ground water quality:

The groundwater quality of 5 different monitoring locations within the 10 km radius of study area was evaluated in terms of various physico-chemical and biological parameters. The observed data set was initially statistical analyzed and represented in terms of minimum, maximum and mean values (**Table 3.24**). Later on the data set was compared with the standard guideline of acceptable and prescribed limit for drinking water quality under IS: 10500, 2012 and its amendments proposed by Bureau of Indian Standards (BIS).

The analysis of physical parameters such as colour, odour, pH, TU and TDS represents that the groundwater samples were colourless, odourless, within suitable pH (6.5-8.5), no turbid and presence of suitable amount of dissolved solids (below 500 mg/L). The comparison of groundwater variables with standards limits indicated that the all groundwater quality parameters were within the prescribed limit of drinking water quality. Only the Total Hardness, Cations (Ca++ and Mg++) and Total Alkalinity were reported exceeds the acceptable limit of 200 mg/L, 30 mg/L, 75 mg/L and 200 mg/L respectively at almost monitoring locations. This indicates the prior treatment of hardness before any use of groundwater such as domestic and commercial purposes. The graphical presentations of comparison

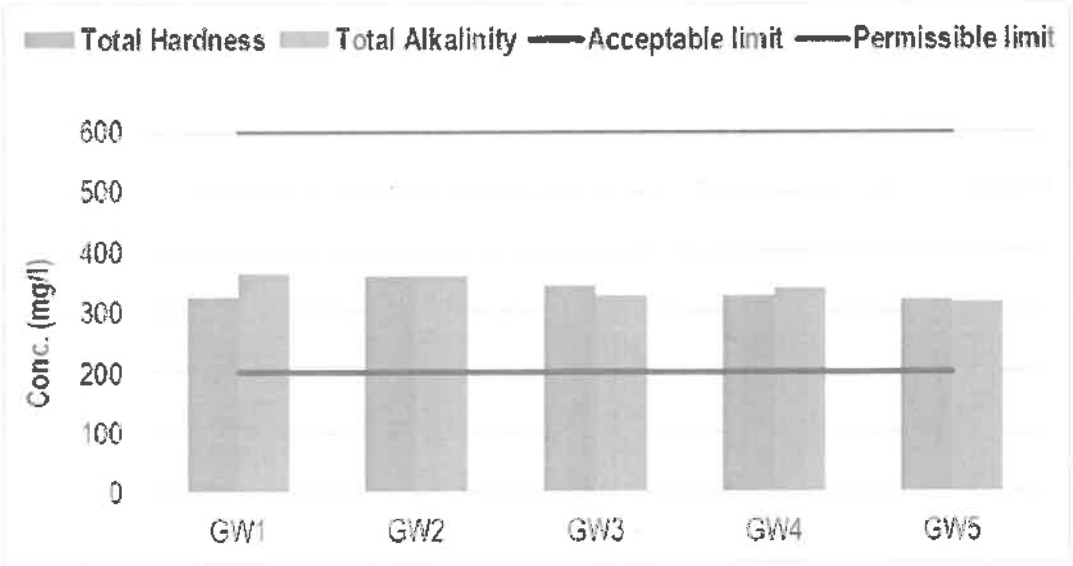



**Figure 3.26. Status of Total Hardness & Total Alkalinity in Ground Water**

The concentration of BOD, Total N, Total P, Phenol and Heavy Metals (PB and Hg) were recorded below detection limit (BDL) which represents negligence of these quality variables in

groundwater samples.

The biotic factors such as TC and FC were found absent in all groundwater samples at all monitoring locations.

### 3.4.6.7 Conclusion:

In evaluation of groundwater quality at 5 different locations of study area within 10 km radius of project site, the water quality variables were reported below the prescribed limit of drinking water quality. Only the TH and TA were reported exceeded the acceptable limit (200 mg/L) of guideline for drinking water. Similarly, the cation such $Ca^{2+}$ and $Mg^{2+}$ were reported above the acceptable limit. The concentration of TU, BOD, Total N, Total P, Phenol and Heavy Metals (PB and Hg) were recorded below detection limit (BDL). The biological parameters (TC and FC) were found absent in groundwater samples. The ground water test results indicate that groundwater quality at selected monitoring locations is hard water in nature and requires prior treatment before the use for domestic, industrial and commercial purposes.

## 3.4.7. Surface water quality:

### 3.4.7.1 Methodology of Surface water

Four sampling locations have been selected in the study area for surface water sampling as per the monitoring plan. Grab sampling as per APHA methods has been used to collect the surface water samples. Sampling is carried out as per the defined periodicity and for parameters indicated in the Technical Guidance Manual for Industrial Estate approved by MoEF&CC. PTFE and glass bottles have been used to collect samples. Sample has been collected from center of the source and middle of water body with the help of depth sampler. pH, temperature, etc. are analyzed on site and recorded. To fix DO, Manganese sulphate, Alkali iodide azide & conc. $H_2SO_4$ has been added to DO water sample bottles. All collected water samples are then stored in ice box maintained at approx. 6°C. Samples thus collected were analyzed for various parameters. All Surface water samples are analyzed as per APHA.

### 3.4.7.2.4 Surface water Quality Monitoring

Surface water quality was monitored at 2 locations of each 4 surface water bodies within 10 km radius. List of surface water sampling locations is given in **Table 3.26** and depicted in **Fig. 3.26.**

The descriptive statistics of hydro-chemical parameters in terms of minimum, maximum and mean is given in **Table 3.27**. Test reports depicting water analysis results are enclosed as **Annexure 9.**

**Table 3.25. Details of surface water monitoring stations**

| S. No. | Sample Code | Name of Village/Location | Distance from project (km) |
|---|---|---|---|
| 1. | SW1 | Pond, Village Khutar Beet | 0.7 km; E |
| 2. | SW2 | Pond, Village Pubowal | 2.5 km; E |
| 3. | SW3 | Pond, Village Palakwah | 6.5 km; NE |
| 4. | SW4 | Sawan River, Near Village Palakwah | 8.6 km; NE |

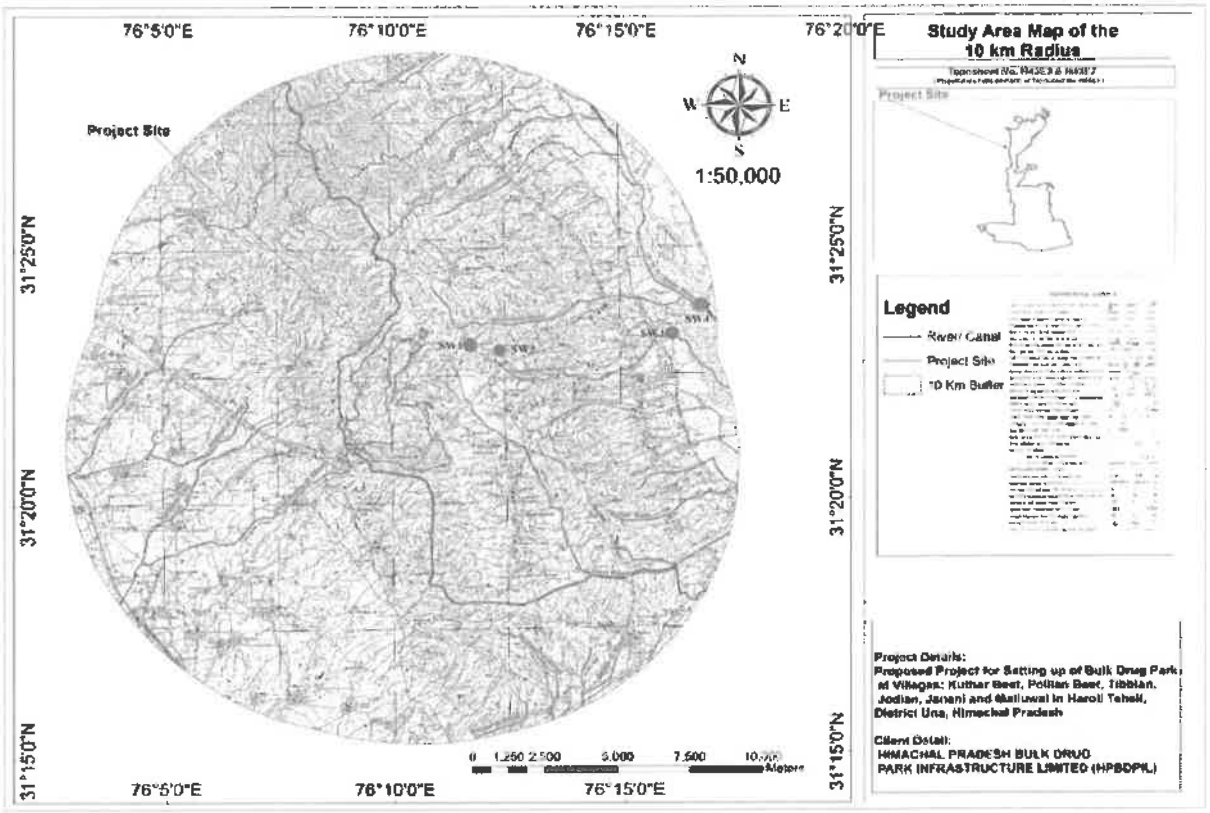



**Figure 3.27. Sampling locations of surface water monitoring (Marked on Toposheet No. H43E3 and H43E7; Not on scale)**

### 3.4.7.2.2 Sampling Frequency

The sample collection and surface water quality has been studied once in a season of summer during the monitoring period (during the year 2023).

### 3.4.7.2.3 Parameters & Methods of Monitoring

Surface water quality is monitored for the parameters mentioned below as per Test methods given in **Table 3.25**.

**Table 3.26. Test Methods for determining Surface water Quality**

| Sr. No. | Test Parameter | Test Method |
|---|---|---|
| 1. | Colour | IS: 3025 (P-4), Cl 2.0 |
| 2. | Odour | IS: 3025 (P-5) |

| | | |
|---|---|---|
| 3. | pH | IS: 3025 (P-11) |
| 4. | EC | IS: 3025 (P-14) |
| 5. | Salinity | EL/SOP/W/005 |
| 6. | Turbidity | IS:3025 (P-10) |
| 7. | DO | IS:3025 (P-38) |
| 8. | BOD | IS:3025 (P-44) |
| 9. | COD | IS:3025 (P-16) |
| 10. | Total Dissolved Solids | IS:3025 (P-58) |
| 11. | Mg Hardness | IS:3025 (P-46) |
| 12. | Total Hardness | IS: 3025 (P-21) |
| 13. | Total alkalinity | IS: 3025 (P-23) |
| 14. | Total Nitrogen | IS: 3025 (P-34) |
| 15. | Total Phosphorous | IS: 3025 (P-31) |
| 16. | Free Ammonia | IS: 3025 (P-34) Cl 2.5 |
| 17. | Phenol | IS:3025 (P-43) |
| 18. | Boron | APHA-23rd Ed-4500B Curcumin Method |
| 19. | SAR | IS: 11624 |
| **Cations** | | |
| 1. | Sodium ($Na^+$) | IS: 3025 (P-45) |
| 2. | Potassium ($K^+$) | IS: 3025 (P-45) |
| 3. | Magnesium ($Mg^{++}$) | IS: 3025 (P-46) |
| 4. | Calcium ($Ca^{++}$) | IS: 3025 (P-40) |
| **Anions** | | |
| 1. | Chloride ($Cl^-$) | IS: 3025 (P-32) |
| 2. | Fluoride ($F^-$) | IS: 3025 (P-60) |
| 3. | Nitrate ($NO_3^-$) | IS: 3025 (P-34)- Cl 3, 3, Chromotropic Acid Method |
| 4. | Sulphate ($SO_4^{--}$) | IS: 3025 (P-24), Cl 4.0 |
| **Heavy Metals** | | |
| 1. | Lead (Pb) | APHA-23rd Ed-3111B A-Ac Flame AAS Method |
| 2. | Mercury (Hg) | APHA-23rd Ed-3111B A-Ac Flame AAS Method |
| **Biological Indicators** | | |
| 1. | Total Coliform | IS:15185 |

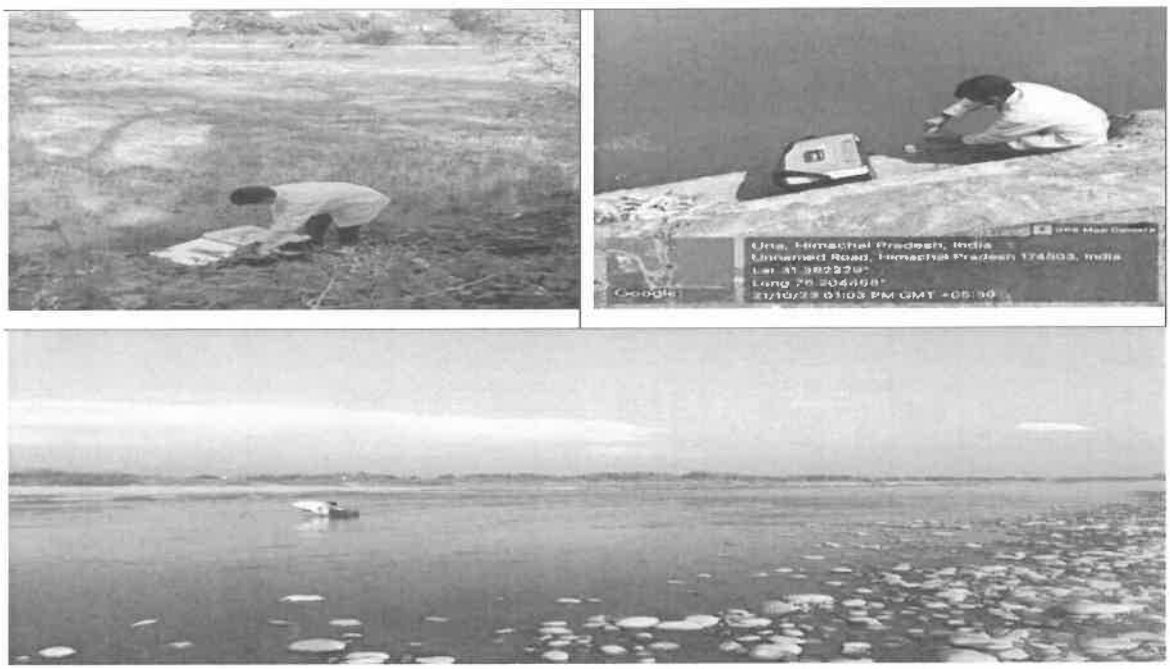


**Figure 3.28. Photographs of the surface water sample collection at different locations**

**Table 3.27. Results of surface water samples**

| Sr. No. | Test Parameter | Units | SW1 | SW2 | SW2 | SW4 | Min | Max | Avg. |
|---|---|---|---|---|---|---|---|---|---|
| 1. | Colour | CU | BDL | BDL | BDL | BDL | -- | -- | -- |
| 2. | Odour | -- | Agreeable | Agreeable | Agreeable | Agreeable | -- | -- | -- |
| 3. | pH | -- | 7.21 | 7.36 | 7.19 | 7.28 | 7.19 | 7.36 | 7.26 |
| 4. | EC | mmho/cm | 386 | 326 | 352 | 278 | 278 | 386 | 335.5 |
| 5. | Salinity | mg/l | 32 | 20 | 27 | 15 | 15 | 32 | 23.5 |
| 6. | TU | NTU | 9.8 | 5.3 | 7.1 | 2.1 | 2.1 | 9.8 | 6.07 |
| 7. | DO | mg/l | 3.8 | 4.3 | 4.0 | 5.6 | 3.8 | 5.6 | 4.42 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 8. | BOD | mg/l | 12 | 7.2 | 8.2 | <2 | 7.2 | 12 | 9.13 |
| 9. | COD | mg/l | 58 | 36 | 52 | 8 | 8 | 58 | 38.5 |
| 10. | TDS | mg/l | 251 | 212 | 229 | 181 | 181 | 251 | 218.25 |
| 11. | Mg Hardness | mg/l | 11 | 20 | 15 | 28 | 11 | 28 | 18.5 |
| 12. | TH | mg/l | 136 | 125 | 130 | 118 | 118 | 136 | 127.25 |
| 13. | TA | mg/l | 140 | 125 | 132 | 120 | 120 | 140 | 129.25 |
| 14. | Total Carbon | mg/l | NP* | NP* | NP* | NP* | -- | -- | -- |
| 15. | Total Nitrogen | mg/l | BDL | BDL | BDL | BDL | -- | -- | -- |
| 16. | Total Phosphorous | mg/l | NA | NA | NA | NA | -- | -- | -- |
| 17. | Free Ammonia | mg/l | BDL | BDL | BDL | BDL | -- | -- | -- |
| 18. | Phenol | mg/l | NA | NA | NA | NA | -- | -- | -- |
| 19. | Boron | mg/l | BDL | BDL | BDL | BDL | -- | -- | -- |
| 20. | SAR | meq/l | 1.30 | 0.97 | 1.10 | 0.73 | 0.73 | 1.3 | 1.025 |
| **Cations** | | | | | | | | | |
| 1. | Sodium ($Na^+$) | mg/l | 35 | 25 | 29 | 18 | 18 | 35 | 26.75 |
| 2. | Potassium ($K^+$) | mg/l | 2.7 | 2.1 | 2.4 | 1.7 | 1.7 | 2.7 | 2.22 |
| 3. | Magnesium ($Mg^{++}$) | mg/l | 2.7 | 4.9 | 3.7 | 6.1 | 2.7 | 6.1 | 4.35 |
| 4. | Calcium ($Ca^{++}$) | mg/l | 50 | 42 | 46 | 36 | 36 | 50 | 43.5 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **Anions** | | | | | | | | | |
| 1. | Chloride ($Cl^-$) | mg/l | 18 | 11 | 15 | 8.5 | 8.5 | 18 | 13.12 |
| 2. | Fluoride ($F^-$) | mg/l | 0.55 | 0.3 | 0.45 | 0.25 | 0.25 | 0.55 | 0.39 |
| 3. | Nitrate ($NO_3^-$) | mg/l | 5.4 | 4.3 | 4.9 | 3.6 | 3.6 | 5.4 | 4.55 |
| 4. | Sulphate ($SO_4^{--}$) | mg/l | 40 | 32 | 36 | 25 | 25 | 40 | 33.25 |
| **Heavy Metals** | | | | | | | | | |
| 1. | Lead (Pb) | mg/l | NA | NA | NA | NA | -- | -- | -- |
| 2. | Mercury (Hg) | mg/l | NA | NA | NA | NA | -- | -- | -- |
| **Biotic Factor** | | | | | | | | | |
| 1. | Total Coliform | Shall not be detectable in any 100 ml sample | 4 x10^5 | 3.2x 10^3 | 2.2 x 10^4 | 1.8 x 10^3 | -- | -- | -- |

### 3.4.6.9 Surface water quality:

As per CPCB, water can be classified into different classes according to its criteria (in terms of chemical characteristics) and designated best use can be identified as shown in **Table 3.28.**

**Table 3.28. Designated Best Use Water Quality Criteria**

| Classes of Water | Designated Best use | Criteria |
|---|---|---|
| Class-A | Drinking water source without conventional treatment but after disinfection | • pH between 6.5 and 8.5<br>• Dissolved Oxygen 6 mg/l or more<br>• $BOD_5$ at 20° C 2 mg/l or less<br>• Total Coliform (MPN/100) shall be 50 or less |

| | | |
|---|---|---|
| Class-B | Outdoor bathing (organized) | • pH between 6.5 and 8.5<br>• Dissolved Oxygen 5mg/l or more<br>• BOD5 at 20° C 3 mg/l or less<br>• Total Coliform (MPN/100) shall be 50 or less |
| Class-C | Drinking water source with conventional treatment followed by disinfection | • pH between 6 to 9<br>• Dissolved Oxygen 4 mg/l or more<br>• BOD5 at 20° C 3 mg/l or less<br>• Total Coliform (MPN/100) shall be 5000 or less |
| Class-D | Propagation of wildlife and fisheries | • pH between 6.5 to 8.5<br>• Dissolved Oxygen 4 mg/l or more<br>• Free ammonia (as N) 1.2 mg/l or less |
| Class-E | Irrigation, industrial cooling, controlled waste disposal | • pH between 6.0 to 8.5<br>• Electrical Conductivity at 25°C micro mhos/cm Max. 2250.<br>• Sodium absorption Ratio Max. 26<br>• Boron Max. 2 mg/l |

*Source: CPCB.nic.in/wqstandards*

### 3.4.7.2.6 Surface Water Quality Interpretation

The pH level of all monitoring locations was observed within the criteria proposed by CPCB which indicated the surface water suitability for all designated best uses. The EC were reported within the range 278-386 at all monitoring locations with an average value of 335.5 which is below the CPCB criteria for Irrigation, industrial cooling and controlled waste disposal uses. DO of all surface water samples were evaluated varied from 3.8 mg/l (at site SW1) to 5.6 mg/l (at SW4) which indicated that the surface water of site SW1 is not suitable Class A, B, C and D uses. The BOD concentration at all monitoring locations were ranged from 7.2 to 12 mg/l with the mean value of 9.13 mg/l, which showed the requirement of prior treatment before any designated use.

The value of the SAR is reported below 26 meq/l which indicated the surface water suitability for Class E uses. The Boron concentration was estimated below detection limit which also showed surface water quality for Class E use. The Total Coliform count were estimated very high (4,00,000) at SW1 site, in comparison to the criteria proposed by CPCB. Therefore, the surface water of all monitoring locations requires biological treatment before any designated use. Only for Class C the surface water of site SW2 to SW4 is suitable as the observed values were below 5000.

#### 3.4.6.10 Conclusion:

The findings of surface water quality estimation of all monitoring locations indicated that the prior treatment is required before designated use of surface water for Class A, Class B and Class C in terms of DO, BOD and TC.

### 3.4.7 BIOLOGICAL ENVIRONMENT

A natural ecosystem is a structural and functional unit of nature. It has different biological and physical components, which are interrelated to each other and survive by interdependence. An ecosystem has self-sustaining ability and controls the number of organisms at any level by cybernetic rules. The basic purpose of exploring the biological environment under Environmental Impact Assessment (EIA) is to assist the decision making process and to ensure that the project options under consideration are environmental-friendly. An ecological survey of the study area was conducted, particularly with reference to listing of species and assessment of the existing baseline ecological conditions in the study area. The main objectives of the ecological survey were aimed at assessing the existing flora and fauna components in the study area, to understand the possible impacts on the biological environment by the project activities during construction and operational phase and to formulate if necessary, the appropriate mitigation/preventive measures for such impacts. Data has been collected through secondary sources and by site visits. The present study was carried out in two separate headings for floral and faunal community.

#### 3.4.7.1 Sampling:

For field assessment, i.e. primary data collection, a standard statistical sampling method was followed. The sampling design followed random sampling method. The sampling area was decided

based on prior land-use map of the project influence zone (within the 10 km radius around the project area), outlining forest areas and other types of habitats, topographic features and build-up area.

The project is located in large chunk of land in relatively plain area and that too in the immediate vicinity of already developed industrial area namely Tahliwal and close proximity to the neighboring state of Punjab. As per toposheet no (H43E3 and H43E7), there is the Polian Shamlat Reserve Forest is adjoining the project site in West direction and the Kangar Protective Forest is approx. 7 km far away from project site in NW direction. Distance from another Eco sensitive zone, Swan River is also approx. 8.5 km from project site in NE direction.

**Table 3.15: Aspect to be covered in the study area**

| Aspect of Environment | Impacts |
|---|---|
| A. Terrestrial Ecology | Impacts on terrestrial flora and fauna |
| | Impacts on Rare-Endangered-Threatened (RET) wildlife |
| | Impacts on socially / economically / genetically/ biologically important species |
| B. Aquatic Ecology | Impacts on aquatic fauna/flora |
| | Impacts on spawning and breeding grounds for aquatic species |

The information presented in this section has been collected through field studies, consultation with various government departments and collection of available literature with various institutions and organizations.

### 3.4.7.2 Site selection criteria:

Land Use and Land Cover (LU/LC) Map of Core and Buffer Zone is used for the biological component assessment. Selection of sampling locations was made with reference to topography, land use, vegetation pattern, etc. The observations were taken on natural vegetation, dense forests, roadside plantation and non-forest area (agricultural field, in plain areas, village wasteland, etc.) for quantitative representation of different species. The study area for the survey has been divided into three major segments namely Primary Zone (0 - 3 km), Secondary Zone (3 - 7 km) and Tertiary/ Outer Zone (7 - 10 km) which shows the biodiversity pattern in different zones of the study area has been observed.

List of sampling locations for study on biological aspects is detailed in **Table No. 3.16** and shown in **Fig. No. 3.16.**

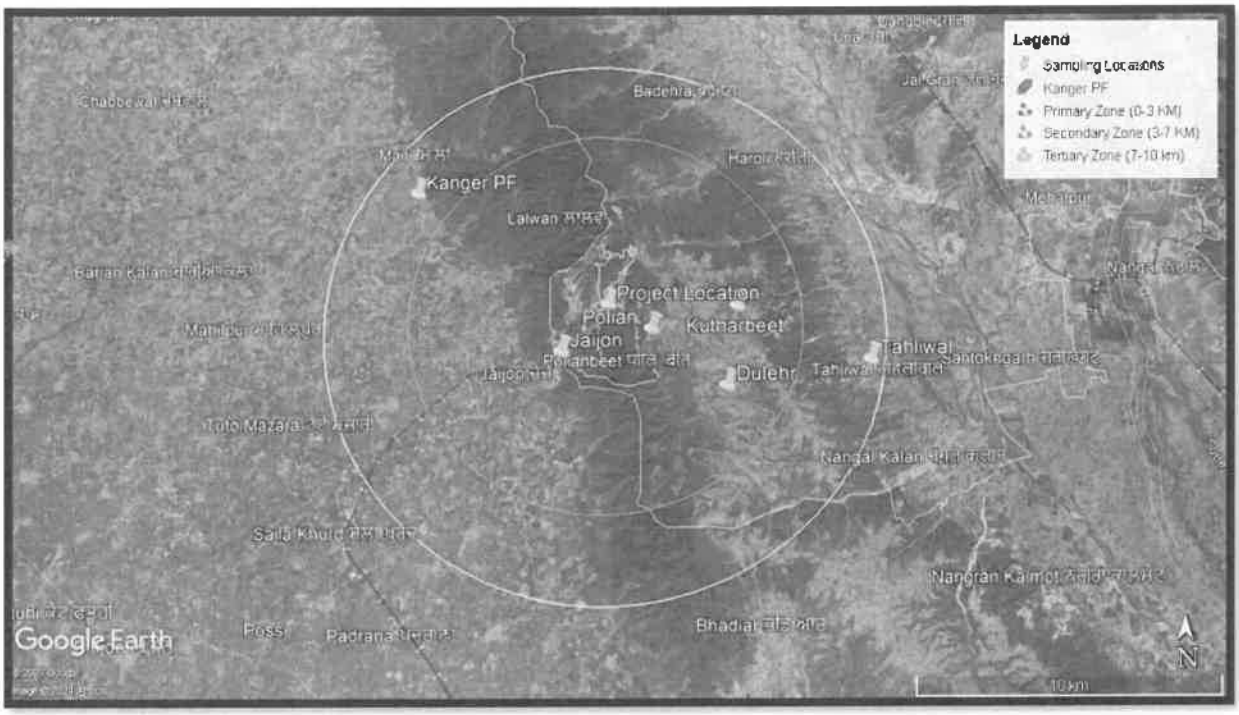



**Fig. 3.16: Sampling Locations for Biological Study in Core and Buffer Zone**

**Table 3.16: Sampling Locations for biological study in core and buffer zone**

| S. No. | Sampling Location | Distance from project location | Direction from project location | Zone |
|---|---|---|---|---|
| 1 | Project location | - | - | - |
| 2 | Polian | Approx. 1.5 km | SE direction | Primary |
| 3 | Jaijon | Approx. 2.60 km | SW direction | Primary |
| 4 | Kutharbeet | Approx. 4.57 km | E direction | Secondary |
| 5 | Dulehr | Approx. 4.93 km | SE direction | Secondary |
| 6 | Kanger PF | Approx. 7.00 km | NW direction | Tertiary |
| 7 | Tahliwal | Approx. 8.59 km | SE direction | Tertiary |

*Source: Field Study*

Summary of data collected from these sources as a part of the EIA study is outlined in **Table 3.17.**

**Table 3.17: Summary of Data Collected from various sources**

| Aspect | Mode of data collection | Parameters Monitored | Frequency | Source(s) |
|---|---|---|---|---|
| Terrestrial Ecology | Primary field survey and secondary literature survey | Floral and Faunal Diversity and their Importance | One Season (Summer) | Field studies, Forest & Wildlife Department and literature review |
| Aquatic Ecology | Primary field survey and secondary literature survey | Diversity of Species and their Importance | One Season (Summer) | Field studies, Forest/ Wildlife Department and literature review |

With the change in environmental conditions, the vegetation cover as well as animals reflects several changes in its structure, density and composition.

### 3.4.7.3 Ecological pattern:

Project site (core zone) as well the buffer zone area was surveyed to assess the ecological status. The present study was carried out separately for floral and faunal community respectively.

### 3.4.7.4 Flora

#### 3.4.7.4.1 Methodology for floral study:

- Secondary literature survey – Published literature, including those from relevant organizations like the Botanical Survey of India (BSI), the Wildlife Institute of India (WII-Dehradun), the respective Forest Department of the State concerned etc., research papers, articles, books and reliable websites, available within and adjacent to the study area were compiled and inventoried as "Secondary Floral Diversity Database".
- Primary database – Data generated from the field survey within and adjacent to the study area were meticulously compiled and inventoried as "Primary Floral Diversity Database".
- Field instruments/materials for floral study – Measuring tape/s, herbarium sheets, newspaper, herbarium press, polythene bags (incl. zip-locked pouches), clinometers, and magnifying glass, camera, and GPS unit.
- Primary field survey – Field identification of the species and later identification through photographs were followed. In addition, randomly distributed quadrats were laid for ecological assessment.

**Herbs:** Herbaceous plants were studied using the quadrat method as followed, during vegetation survey. The size of each quadrat for herb survey was 1 m x 1 m. Field identification of the species and later identification through photographs were followed.

**Shrubs:** Shrubs were studied using the quadrat method as followed during vegetation survey. The size of each quadrat for shrub survey was 5 m x 5 m for shrubs of 3 m height. Field identification of the species and later identification through photographs were followed. Unidentified shrubs were collected following proper procedure and prepared into herbarium sheets for later identification.

**Trees:** Trees were studied using the quadrat method as followed during vegetation survey. The size of each quadrat for tree survey was 10m x 10m.

To study herbaceous and woody vegetation systematically, standard methods of analyzing vegetation were used for determination of vegetation composition and richness. Quadrat numbers depend upon the requirement in specific cases. Comparative analysis of the outcome of the Quadrat Sampling was done to understand the characteristics of species observed in the study area. The detailed species characteristics like frequency, abundance & density were computed as follows:

(i) **Frequency**: The frequency of individual species is the number of times the species occurs in the sampling quadrant. It is actually represented as a percentage calculated as follows:

$$Frequency\ (\%) = \frac{No.of\ quadrats\ in\ which\ the\ species\ occurred}{Total\ no.of\ quadrats\ studied} * 100$$

It reflects the probability of encountering the species within the sampled area

(ii) **Density:** Density is the measure of dense in the distribution of an individual species within a given area. Density of a species is defined as the average number of the species per quadrant and calculated as follows:

$$Density = \frac{Total\ no.of\ individuals\ of\ a\ species\ in\ all\ quadrats}{Total\ no.of\ quadrats\ studied}$$

(i) **Abundance:** Abundance is to determine how common or rare a species is relative to other species in a defined area. It reflects how evenly one species is distributed within the sampling area. Abundance of a species is defined as the number of individuals per quadrant and calculated as follows:

$$Abundance = \frac{Total\ no.of\ individuals\ of\ a\ species\ in\ all\ quadrats}{Total\ no.of\ quadrats\ in\ which\ species\ occurred}$$

The relative frequency (RF), relative density (RD) and relative abundance (RA) has been calculated to calculate the Importance Value Index (IVI) i.e., the species having highest IVI is of most ecological importance and the one having the lowest IVI is of least ecological importance.

The floral pattern in the study area has been studied in detail. Mainly the regional flora and fauna is found in the study area. The local species are proposed to plant during afforestation. So, biodiversity of the area due to the project shall be maintained.

### 3.4.7.4.2 Phyto-sociological analysis:

The forests within Study area have three distinct strata, viz., (i) Upper canopy layer with dominance of emergent trees, (ii) Sub-canopy layer with dominance of small trees and pole size trees, and (iii) Under canopy layer with dominance of shrubs, herbs and juvenile trees. The details of species available are given below:

**Table 3.18: Phyto-sociological analysis of Upper canopy layer with dominance of emergent Trees**

| Scientific Name of Species | Common Name | Density | Frequency (%) | Abundance | RD | RF | RA | IVI |
|---|---|---|---|---|---|---|---|---|
| *Acacia catechu* | Khair | 0.8 | 60 | 1.33 | 29.32 | 76.36 | 38.39 | 144.08 |
| *Juglans regia* | Akhrot | 2.8 | 80 | 3.50 | 102.62 | 101.82 | 100.79 | 305.22 |
| *Pinus roxburghii* | Chir Pine | 3.7 | 80 | 4.63 | 135.60 | 101.82 | 133.18 | 370.60 |
| *Azadirachta indica* | Neem | 3.2 | 90 | 3.56 | 117.28 | 114.55 | 102.39 | 334.21 |
| *Mangifera indica* | Mango | 2.8 | 60 | 4.67 | 102.62 | 76.36 | 134.38 | 313.36 |
| *Ficus religiosa* | Pipal | 3 | 90 | 3.33 | 109.95 | 114.55 | 95.99 | 320.48 |
| *Eucalyptus* | Safeda | 2.8 | 90 | 3.11 | 102.62 | 114.55 | 89.59 | 306.75 |
| **Total** | | **2.73** | **78.57** | **3.47** | **100** | **100** | **100** | **300** |

The upper canopy layer covers taller trees with well-developed foliage at the site. Above given table shows the different trees varieties with their density, frequency and abundance. The Importance Value Index (IVI) of tree species varied from 144.08 of Khair *(Acacia catech)* species to 370.60 of Chir Pine *(Pinus roxburghii)* species. Chir Pine *(Pinus roxburghii)* so the high density followed by Neem *(Azadirachta indica).*

**Table 3.19: Phyto-sociological analysis of Sub-canopy layer with dominance of small trees and pole size trees**

| Scientific Name of Species | Common Name | Density | Frequency (%) | Abundance | RD | RF | RA | IVI |
|---|---|---|---|---|---|---|---|---|
| *Aegle marelos* | Bil | 2.00 | 80.00 | 2.50 | 87.59 | 100.00 | 87.59 | 275.18 |
| *Diospyross fomentosa* | Kinu | 2.00 | 80.00 | 2.50 | 87.59 | 100.00 | 87.59 | 275.18 |
| *Morus alba* | Toot | 2.40 | 100.00 | 2.40 | 105.11 | 125.00 | 84.09 | 314.20 |
| *Cassia fistula* | Amaltas | 1.80 | 70.00 | 2.57 | 78.83 | 87.50 | 90.09 | 256.43 |
| *Callistemon viminalis* | Bottle brush | 2.00 | 60.00 | 3.33 | 87.59 | 75.00 | 116.79 | 279.38 |
| *Terminalia chebula* | Harrer | 3.50 | 90.00 | 3.89 | 153.28 | 112.50 | 136.25 | 402.04 |
| **Total** | | **2.28** | **80** | **2.85** | **100** | **100** | **100** | **300** |

The IVI of tree species varied from 256.43 of Amaltas (*Cassia fistula)* to 402.04 of Harrer *(Terminalia chebula*). Harrer *(Terminalia chebula*) has shown the high-density value with 3.70 followed by Toot *(Morus alba).*

**Table 3.20: Phyto-sociological analysis under canopy layer with dominance of shrubs, herbs and juvenile trees**

| Scientific Name | Common Name | Density | Frequency (%) | Abundance | RD | RF | RA | IVI |
|---|---|---|---|---|---|---|---|---|
| *Dendrocalamus strictus* | Bamboo | 3.1 | 80 | 3.88 | 145.31 | 109.09 | 133.20 | 387.61 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| *Cymbopogon martinii* | Lemon grass | 0.5 | 40 | 1.25 | 23.44 | 54.55 | 42.97 | 120.95 |
| *Parthenium hysterophorus* | Congress grass | 2.8 | 100 | 2.80 | 131.25 | 136.36 | 96.25 | 363.86 |
| **Total** | | **2.13** | **73.33** | **2.91** | **100.00** | **100.00** | **100.00** | **300.00** |

The number of shrubs, shrubby climbers and tree saplings together was total of 64 individuals of different species were found. The IVI varied from 120.95 of Lemon Grass (*Cymbopogon martinii)* to 387.61 of Bamboo (*Dendrocalamus strictus)*. Maximum density value is shown in Bamboo (*Dendrocalamus strictus)* followed by Congress *(Parthenium hysterophorus).*

### 3.4.7.4.3 Floral diversity of the study area:

A total of 52.43% is covered in forest land within the buffer zone of the study area. Based on Actual Sighting, based on inputs from locals and Perused from Secondary Data.

**Table 3.21: Inventory of Floral Diversity in Buffer Zone**

| S. No. | Botanical Name | Common Name | Family |
|---|---|---|---|
| | **TREES** | | |
| 1. | *Acacia catechu* | Khair | *Mimosaceae* |
| 2. | *Acacia nilotica* | Babul | *Mimosaceae* |
| 3. | *Aegle marmelos* | Bel | *Rutaceae* |
| 4. | *Albizia lebbeck* | Siris tree | *Mimosaceae* |
| 5. | *Albizia odoratissima* | Black Siris | *Mimosaceae* |
| 6. | *Anogeissus latifolia* | Dhaura | *Combretaceae* |
| 7. | *Anthocephalus cadamba* | Kadam | *Rubiaceae* |
| 8. | *Artocarpus heterophyllus* | Jack fruit | *Moraceae* |
| 9. | *Artocarpus lacucha* | Dheu/Monkey Jack | *Moraceae* |
| 10. | *Azadirachta indica* | Neem | *Meliaceae* |
| 11. | *Bauhinia variegata* | Kachnar | *Caesalpiniaceae* |
| 12. | *Bombax ceiba* | Semal/ Kapok | *Bombacaceae* |
| 13. | *Butea monosperma* | Palash | *Fabaceae* |
| 14. | *Casearia tomentosa* | Chilla | *Salicaceae* |
| 15. | *Cassia fistula* | Amaltas | *Caesalpiniaceae* |
| 16. | *Casuarina equisetifolia* | Vilayati saru | *Casuarinaceae* |
| 17. | *Celtis australis* | Honeyberry | *Cannabaceae* |

| | | | |
|---|---|---|---|
| 18. | *Colebrookea oppositifolia* | Binda | *Lamiaceae* |
| 19. | *Cordia dichotoma* | Indian Cherry | *Boraginaceae* |
| 20. | *Cornus macrophylla* | Large Leaf Dogwood | *Cornaceae* |
| 21. | *Cupressus torulosa* | Himalayan Cypress | *Cupressaceae* |
| 22. | *Dalbergia sissoo* | Shisham | *Fabaceae* |
| 23. | *Delonix regia* | Gulmohar | *Fabaceae* |
| 24. | *Ehretia laevis* | Chamror | *Boraginaceae* |
| 25. | *Elaeocarpus sphaericus* | Rudraksh | *Elaeocarpaceae* |
| 26. | *Emblica officinalis* | Amla | *Phyllanthaceae* |
| 27. | *Erythrina suberosa* | Dhaul Dhak | *Fabaceae* |
| 28. | *Eucalyptus hybrid* | Safeda | *Myrtaceae* |
| 29. | *Feronia limonia* | Barnasi | *Rutaceae* |
| 30. | *Ficus auriculata* | Timla | *Moraceae* |
| 31. | *Ficus benghalensis* | Bad | *Moraceae* |
| 32. | *Ficus benjamina* | Weeping Fig | *Moraceae* |
| 33. | *Ficus palmata* | Jungle Anjir | *Moraceae* |
| 34. | *Ficus racemosa* | Goolar | *Moraceae* |
| 35. | *Ficus religiosa* | Pipal | *Moraceae* |
| 36. | *Flacourtia indica* | Bilangada/ Kangu | *Salicaceae* |
| 37. | *Gmelina arborea* | Gamhar | *Verbenaceae* |
| 38. | *Grevillea robusta* | Silver Oak | *Proteaceae* |
| 39. | *Grewia oppositifolia* | Bihul | *Tiliaceae* |
| 40. | *Jacaranda mimosifolia* | Blue Gulmohar | *Bignoniaceae* |
| 41. | *Kydia calycina* | Bharanga/Bhoti/Pula | *Malvaceae* |
| 42. | *Lagerstroemia parviflora* | Lendia/ Sidi | *Lythraceae* |
| 43. | *Lannea coromandelica* | Mohin | *Anacardiaceae* |
| 44. | *Limonia acidissima* | Wood Apple | *Rutaceae* |
| 45. | *Mallotus philippensis* | Kamala/Rohan/Kambel | *Euphorbiaceae* |
| 46. | *Mangifera indica* | Mango/Aam | *Anacardiaceae* |
| 47. | *Melia azedarach* | Bakain/ Darek tree | *Meliaceae* |
| 48. | *Moringa oleifera* | Senjana | *Moringaceae* |
| 49. | *Mitragyna parvifolia* | Kaim/ Kadamb | *Rubiaceae* |
| 50. | *Olea cuspidata* | Wild olive/ Brown olive | *Oleaceae* |
| 51. | *Oroxylum indicum* | Bhut vriksha | *Bignoniaceae* |
| 52. | *Ougeinia oojeinensis* | Sandan | *Fabaceae* |
| 53. | *Phoenix sylvestris* | Khajur | *Arecaceae* |
| 54. | *Pinus roxburghii* | Chir Pine/ Chid | *Pinaceae* |
| 55. | *Pinus wallichiana* | Himalayan Blue Pine | *Pinaceae* |
| 56. | *Pistacia integerrima* | Kakkar | *Anacardiaceae* |

| | | | |
|---|---|---|---|
| 57. | *Polyalthia longifolia* | Ashok | *Annonaceae* |
| 58. | *Populus ciliata* | Himalayan Poplar | *Salicaceae* |
| 59. | *Prosopis cineraria* | Khejri | *Fabaceae* |
| 60. | *Rhus punjabensis* | Tittri | *Anacardiaceae* |
| 61. | *Sapindus mukorossi* | Reetha | *Sapindaceae* |
| 62. | *Sapium sebiferum* | Chicken Tree | *Euphorbiaceae* |
| 63. | *Santalum album* | Sandalwood | *Santalaceae* |
| 64. | *Saraca asoca* | Sita Ashok | *Caesalpiniaceae* |
| 65. | *Schleichera oleosa* | Kusum | *Sapindaceae* |
| 66. | *Syzygium cumini* | Jamun | *Myrtaceae* |
| 67. | *Tamarindus indica* | Imli | *Caesalpiniaceae* |
| 68. | *Tectona grandis* | Teak/ Sagwan | *Verbenaceae* |
| 69. | *Terminalia arjuna* | Arjun | *Combretaceae* |
| 70. | *Terminalia bellirica* | Baheda | *Combretaceae* |
| 71. | *Terminalia chebula* | Harad | *Combretaceae* |
| 72. | *Terminalia tomentosa* | Asan | *Combretaceae* |
| 73. | *Toona ciliata* | Toon | *Meliaceae* |
| 74. | *Toona serrata* | Toon | *Meliaceae* |
| 75. | *Vitis parviflora* | Panibel | *Vitaceae* |
| **SHRUBS & HERBS** | | | |
| 76. | *Adhatoda vasica* | Adusa | *Acanthaceae* |
| 77. | *Aloe vera* | Gwar patha | *Asphodelaceae* |
| 78. | *Alstonia scholaris* | Saptaparni | *Apocynaceae* |
| 79. | *Artemisia vulgaris* | Naagdona | *Asteraceae* |
| 80. | *Berberis asiatica* | Daruhaldi | *Berberidaceae* |
| 81. | *Berberis lycium* | Darhaldi | *Berberidaceae* |
| 82. | *Bougainvillea glabra* | Booganbel | *Nyctaginaceae* |
| 83. | *Caesalpinia decapetala* | Mysore Thorn/ Ralan | *Caesalpiniaceae* |
| 84. | *Calotropis procera* | Aak | *Asclepiadaceae* |
| 85. | *Cannabis sativa* | Marijuana/ Hemp | *Cannabaceae* |
| 86. | *Carica papaya* | Papaya | *Caricaceae* |
| 87. | *Carissa opaca* | Karonda | *Apocynaceae* |
| **GRASSES** | | | |
| 88. | *Bambusa arundinacea* | Indian Thorny Bamboo | *Poaceae* |
| 89. | *Bambusa vulgaris* | Golden Bamboo | *Poaceae* |
| 90. | *Chrysopogon fulvus* | Guria grass | *Poaceae* |
| 91. | *Cymbopogon martinii* | Lemon grass | *Poaceae* |
| 92. | *Cynodon dactylon* | Doob grass | *Poaceae* |
| 93. | *Desmostachya bipinnata* | Dabh grass | *Poaceae* |

| | | | |
|---|---|---|---|
| 94. | *Dendrocalamus giganteus* | Giant Bamboo | *Poaceae* |
| 95. | *Eulaliopsis binata* | Sabaigrasss/ Bhabar | *Poaceae* |
| 96. | *Heteropogon contortus* | Blackspear grass | *Poaceae* |
| 97. | *Parthenium hysterophorus* | Congress grass | *Asteraceae* |
| 98. | *Saccharum spontaneum* | Wild Sugarcane/Kans Grass | *Poaceae* |

***References:*** *Himachal Pradesh State Biodiversity Board. (n.d.). https://hpbiodiversity.gov.in/. Retrieved August 2, 2024, from https://hpbiodiversity.gov.in/Pdf/Status%20of%20Biodiversity%20in%20Himachal%20Pradesh.pdf*

- *https://hpbiodiversity.gov.in/*
- *https://hpforest.nic.in/*

### 3.4.7.5 Fauna

1. Secondary literature survey: Published literature, including those from relevant organizations like Zoological Survey of India (ZSI), Forest Department of the State, research papers, articles, books & reliable websites, available within & adjacent to study area were meticulously compiled & inventoried as "Secondary Faunal Diversity Database".
2. Primary field survey –

   **Birds:** For avian diversity assessment, point count method was used. The radius of each of the point was 50 m. Birds were identified on-site using field-books, or later through photographs and field-sketches.

   **Mammals:** For mammalian diversity assessment, direct observations were done on the field. Field identification of species was done on-site through photographs/ sketches and with the help of field-books/other reliable sources.

   **Amphibians and reptilians:** Direct observation & indirect evidence/sign survey were done for assessing amphibian and reptilian diversity in the field site. Identification of species was done on-site through photographs/sketches and with the help of field-books or other reliable sources.
3. Primary database: Data generated from the field survey within and adjacent to the study area was meticulously compiled and inventoried as "Primary Faunal Diversity Database".
4. Field instruments/materials for faunal study: Rangefinder, compass, binoculars, camera, slide-calipers, measuring tape, GPS unit, polythene bags (incl. zip-lock pouches) and field-books.

### 3.4.7.1 Faunal diversity of the study area:

As per the discussion with local people, observations & studies the faunal diversity found in buffer zone are given below in **Table 3.22:**

**Table 3.22: Inventory of Fauna diversity in Buffer zone**

| S. No. | Scientific Name | English Name | Schedule | IUCN Status |
|---|---|---|---|---|
| **VERTEBRATES** | | | | |
| **MAMMALS** | | | | |
| 1. | *Boselaphus tragocamelus* | Nilgai | Schedule II | LC |
| 2. | *Canis aureus* | Jackal | Schedule I | LC |
| 3. | *Felis chaus* | Jungle Cat | Schedule I | LC |
| 4. | *Funambulus pennanti* | Northern Palm Squirrel | -- | LC |
| 5. | *Herpestes edwardsii* | Common Mongoose | -- | LC |
| 6. | *Hystrix indica* | Indian Porcupine | Schedule I | LC |
| 7. | *Lepus nigricollis* | Indian Hare | Schedule II | LC |
| 8. | *Muntiacus muntjac* | Barking deer | Schedule I | LC |
| 9. | *Semnopithecus entellus* | Common Langur | Schedule II | LC |
| 10. | *Pteropus giganteus* | Flying Fox | Schedule II | EN |
| 11. | *Rattus rattus* | Common Rat | -- | LC |
| 12. | *Suncus murinus* | Grey Musk Shrew | -- | LC |
| 13. | *Sus scrofa* | Wild Boar | Schedule II | LC |
| 14. | *Vulpes bengalensis* | Common fox | Schedule I | LC |
| 15. | *Panthera pardus* | Leopard | Schedule I | VU |
| **AMPHIBIANS** | | | | |
| 16. | *Bufo melanostictus* | Common Indian toad | -- | LC |
| 17. | *Euphlyctis cyanophlyctis* | Indian Skipper Frog | Schedule II | LC |
| 18. | *Fejervarya limnocharis* | Indian Cricket Frog | -- | LC |
| 19. | *Hoplobatrachus tigerinus* | Indian Bull Frog | Schedule II | LC |
| **REPTILES** | | | | |
| 20. | *Gloydius himalayanus* | Himalayan Pit Viper | Schedule II | LC |
| 21. | *Bungarus caeruleus* | Common Indian krait | Schedule II | LC |
| 22. | *Calotes versicolor* | Garden Lizard | -- | LC |

| | | | | |
|---|---|---|---|---|
| 23. | *Chameleon spp.* | Chameleon | Schedule I | LC |
| 24. | Hemidactylus leschenaultii | Common house Gecko | -- | LC |
| 25. | *Mabuya carinata* | Brahminy Skink | -- | LC |
| 26. | *Melanochelys trijuga* | Indian black turtle | Schedule II | LC |
| 27. | *Naja naja* | Indian Cobra | Schedule I | LC |
| 28. | *Ptyas mucosa* | Indian Rat Snake | Schedule I | LC |
| 29. | *Varanus bengalensis* | Monitor Lizard | Schedule I | NT |
| | | **AVES** | | |
| 30. | *Accipiter badius* | Shikra | Schedule I | LC |
| 31. | *Acridotheres ginginianus* | Bank Myna | Schedule II | LC |
| 32. | *Acridotheres fuscus* | Jungle myna | Schedule II | LC |
| 33. | *Acridotheres tristis* | Common Myna | Schedule II | LC |
| 34. | *Amaurornis phoenicurus* | White breasted waterhen | Schedule II | LC |
| 35. | *Anthus rufulus* | Paddy field pipit | Schedule II | LC |
| 36. | *Aquila rapax* | Tawny Eagle | Schedule II | LC |
| 37. | *Ardea intermedia* | Intermediate Egret | Schedule II | LC |
| 38. | *Ardeola grayii* | Indian Pond Heron | Schedule II | LC |
| 39. | *Athene brama* | Spotted Owlet | Schedule II | LC |
| 40. | *Pavo cristatus* | Indian peafowl | Schedule I | LC |
| 41. | *Perdicula asiatica* | Jungle Bush Quail | Schedule II | LC |
| 42. | *Perdix perdix* | Grey Partridge | Schedule I | LC |
| 43. | *Phalacrocorax carbo* | Great Cormorant | Schedule II | LC |
| | | **PISCES** | | |
| 44. | *Anguilliformes Spp.* | Eel | -- | LC |
| 45. | *Cirrhinus mrigala* | White Carp | -- | LC |
| 46. | *Coryphaena spp.* | Common dolphinfish | -- | LC |
| 47. | *Hypophthalmichthys molitrix* | Silver Carp | -- | LC |
| 48. | *Labeo rohita* | Rohu | -- | LC |
| 49. | *Sperata seenghala* | Giant river-catfish | -- | LC |
| 50. | *Tor putitora* | Mahasheer | -- | EN |
| 51. | *Cirrhinus reba* | Reba carp | -- | LC |
| 52. | *Gudusia chapra* | Chappera or Palla | -- | DD |
| 53. | *Boga Labeo* | Labeo boga | -- | LC |

Source: *IUCN Red List of Threatened Species*
LC: Least Concerned
VU: Vulnerable

NT: Near Threatened
EN: Endangered
DD: Data deficient
Source: *Wildlife (Protection) Amendment Act, 2022*

**Table 3.23(a): Inventory of Birds observed in buffer zone**

| | | | No. of individuals observed | |
|---|---|---|---|---|
| **S. No** | **Common Name** | **Scientific Name** | **Winter** | **Summer** |
| 1. | Greater white fronted goose | *Anser albifrons* | 120 | 0 |
| 2. | Greyleg goose | *Anser anser* | 451 | 0 |
| 3. | Bar headed goose | *Anser indicus* | 27395 | 30 |
| 4. | Ruddy shelduck | *Tadorna ferruginea* | 124 | 6 |
| 5. | Common shelduck | *Tadorna tadorna* | 38 | 0 |
| 6. | Gadwall | *Anas strepera* | 332 | 6 |
| 7. | Eurasian wigeon | *Anas penelope* | 215 | 0 |
| 8. | Mallard | *Anas platyrhynchos* | 37 | 0 |
| 9. | Indian spot billed duck | *Anas poecilorhyncha* | 6 | 4 |
| 10. | Northern shoveller | *Anas clypeata* | 390 | 2 |
| 11. | Northern pintail | *Anas acuta* | 1625 | 4 |
| 12. | Garganey | *Anas querquedula* | 82 | 8 |
| 13. | Common teal | *Anas crecca* | 1381 | 12 |
| 14. | Red crested pochard | *Netta rufina* | 172 | 0 |
| 15. | Common pochard | *Aythya ferina* | 4083 | 0 |
| 16. | Ferruginous duck | *Aythya nyroca* | 66 | 0 |
| 17. | Tufted duck | *Aythya fuligula* | 108 | 0 |
| 18. | Grey Francolin | *Francolinus pondicerianus* | 0 | 3 |
| 19. | Red jungle fowl | *Gallus gallus* | 0 | 2 |
| 20. | Indian Peafowl | *Pavo cristatus* | 0 | 2 |
| 21. | Little grebe | *Tachybaptus ruficollis* | 78 | 10 |
| 22. | Great crested grebe | *Podiceps cristatus* | 60 | 12 |
| 23. | Woolly necked stork | *Ciconia nigra* | 2 | 0 |
| 24. | Little cormorant | *Phalacrocorax niger* | 865 | 7 |
| 25. | Great cormorant | *Phalacocorax carbo* | 349 | 0 |
| 26. | Grey heron | *Ardea cinerea* | 13 | 0 |
| 27. | Purple heron | *Ardea purpurea* | 1 | 0 |
| 28. | Great egret | *Ardea alba* | 6 | 0 |
| 29. | Intermediate egret | *Mesophoyx intermedia* | 3 | 2 |
| 30. | Little egret | *Egreta garzetta* | 19 | 23 |
| 31. | Indian pond heron | *Ardeola grayii* | 7 | 0 |
| 32. | Osprey | *Pandion haliaetus* | 3 | 3 |

| | | | | |
|---|---|---|---|---|
| 33. | White rumped vulture | *Gyps bengalensis* | 15 | 6 |
| 34. | Himalayan griffon | *Gyps himalayensis* | 4 | 1 |
| 35. | Greater spotted eagle | *Clanga clanga* | 2 | 0 |
| 36. | Booted eagle | *Hieraaetus pennatus* | 1 | 0 |
| 37. | Eurasian marsh harrier | *Circus aeruginosus* | 2 | 0 |
| 38. | Shikra | *Accipiter badius* | 4 | 3 |
| 39. | Pariah kite | *Milvus migrans* | 15 | 8 |
| 40. | White breasted water hen | *Amaurornis phoenicurus* | 10 | 3 |
| 41. | Purple swamphen | *Porphyrio porphyrio* | 5 | 1 |
| 42. | Common moorhen | *Gallinule chloropus* | 1 | 4 |
| 43. | Common coots | *Fulica atra* | 3350 | 56 |
| 44. | Great thick knee | *Esacus recurvirostris* | 3 | 0 |
| 45. | Black winged stilt | *Himantopus himantopus* | 26 | 15 |
| 46. | Pied avocet | *Recurvirostra avosetta* | 16 | 0 |
| 47. | Northern lapwing | *Vanellus vanellus* | 4 | 0 |
| 48. | River lapwing | *Vanellus duvaucelii* | 31 | 0 |
| 49. | Red wattled lapwing | *Vanellus indicus* | 0 | 31 |
| 50. | Yellow wattled lapwing | *Vanellus malabaricus* | 0 | 4 |
| 51. | White tailed lapwing | *Vanellus leucurus* | 1 | 0 |
| 52. | Kentish plover | *Charadrius alexandrinus* | 14 | 0 |
| 53. | Little ringed plover | *Charadrius dubius* | 137 | 12 |
| 54. | Common sandpiper | *Actitis hypoleucos* | 14 | 2 |
| 55. | Green sandpiper | *Tringa ochrophus* | 4 | 0 |
| 56. | Common greenshank | *Tringa nebularia* | 9 | 0 |
| 57. | Marsh sandpiper | *Tringa stagnatilis* | 10 | 0 |
| 58. | Wood sandpiper | *Tringa glareola* | 4 | 0 |
| 59. | Common redshank | *Tringa tetanus* | 4 | 0 |
| 60. | Curlew sandpiper | *Calidris ferruginea* | 1 | 0 |
| 61. | Little stint | *Calidris minuta* | 46 | 55 |
| 62. | Temminck's stint | *Calidris tamminkii* | 72 | 0 |
| 63. | Oriental pranticole | *Glareola lacteal* | 0 | 2 |
| 64. | Slender billed gull | *Chroicocephalus genei* | 2 | 0 |
| 65. | Black headed gull | *Chroicocephalus ridibundus* | 50 | 6 |
| 66. | Brown headed gull | *Chroicocephalus brunnicephalus* | 43 | 2 |
| 67. | Pallas's gull | *Ichthyaetus ichthyaetus* | 54 | 0 |
| 68. | Caspian gull | *Larus cachinnanus* | 25 | 0 |
| 69. | Yellow legged gull | *Larus michahellis* | 1 | 0 |
| 70. | Little tern | *Sternula albifrons* | 10 | 0 |

| | | | | |
|---|---|---|---|---|
| 71. | Whiskered tern | *Chlidonias hybrid* | 13 | 0 |
| 72. | River tern | *Sterna aurantia* | 108 | 7 |
| 73. | Black bellied tern | *Sterna acuticauda* | 1 | 3 |
| 74. | Rock pigeon | *Columba livia* | 43 | 16 |
| 75. | Oriental turtle dove | *Streptopelia orientalis* | 0 | 5 |
| 76. | Eurasian collared dove | *Streptopelia decaocta* | 0 | 5 |
| 77. | Spotted dove | *Streptopelia tranquebarica* | 0 | 5 |
| 78. | Laughing dove | *Streptopelia senegalensis* | 0 | 1 |
| 79. | Common Hawk –cuckoo | *Hierococcyx varius* | 0 | 1 |
| 80. | Asian koel | *Eudynamys scolopaceus* | 1 | 14 |
| 81. | Greater coucal | *Centropus sinensis* | 1 | 1 |
| 82. | White throated kingfisher | *Halcyon smyrnensis* | 1 | 2 |
| 83. | Pied kingfisher | *Ceryle rudis* | 8 | 2 |
| 84. | Green bee-eater | *Merops orientalis* | 0 | 2 |
| 85. | Indian roller | *Coracias benghalensis* | 0 | 1 |
| 86. | Eurasian hoopoe | *Upupa epops* | 2 | 3 |
| 87. | Indian grey Hornbill | *Ocyeros birostris* | 0 | 14 |
| 88. | Great barbet | *Megaliama virens* | 0 | 1 |
| 89. | Brown headed barbet | *Megalaima zeylanica* | 4 | 4 |
| 90. | Copper smith Barbet | *Megaliama haemacephala* | 0 | 2 |
| 91. | Fulvous-breasted woodpecker | *Dendrocopus macei* | 0 | 1 |
| 92. | Peregrine falcon | *Falco peregrinus* | 3 | 2 |
| 93. | Rose ringed parakeet | *Psittacula krameri* | 27 | 26 |
| 94. | Plum headed parakeet | *Psittacula cyanocephala* | 11 | 7 |
| 95. | Slaty headed parakeet | *Psittacula himalayana* | 4 | 11 |
| 96. | Long tailed shrike | *Pericrocotus erythropygius* | 2 | 3 |
| 97. | Rosy minivet | *Lanius tephronotus* | 0 | 1 |
| 98. | Black Drongo | *Dicrurus macrocercus* | 0 | 8 |
| 99. | Ashy Drongo | *Dicrurus leucophaeus* | 0 | 2 |
| 100. | SprangledDrongo | *Dicrurus aeneus* | 0 | 1 |
| 101. | Asian Paradise flycatcher | *Terpsiphone paradisi* | 0 | 1 |
| 102. | Red billed blue magpie | *Urocissa erthrorhyncha* | 0 | 1 |
| 103. | Rufous tree pie | *Dendrocitta vagabunda* | 7 | 12 |
| 104. | House crow | *Corvus splendens* | 76 | 3 |
| 105. | Large billed crow | *Corvus macrorhynchos* | 0 | 12 |
| 106. | Indian bushlark | *Mirafra erythroptera* | 10 | 12 |
| 107. | Singing bushlark | *Mirfra cantillans* | 6 | 20 |
| 108. | Bimaculated lark | *Melanocorypha bimaculata* | 5 | 4 |

| | | | | |
|---|---|---|---|---|
| 109. | Humes short toed lark | *Calandrella acutirostris* | 9 | 3 |
| 110. | Sand lark | *Calandrella raytal* | 56 | 16 |
| 111. | Crested lark | *Galerida cristata* | 17 | 12 |
| 112. | Eurasian skylark | *Aluda arvensis* | 12 | 0 |
| 113. | Oriental skylark | *Alauda gulgula* | 10 | 4 |
| 114. | Barn swallow | *Hirunda rustica* | 145 | 25 |
| 115. | Wire tailed swallow | *Hirundo smithii* | 0 | 6 |
| 116. | Streak throated swallow | *Petrochelidon fluvicola* | 10 | 4 |
| 117. | Great tit | *Parus major* | 4 | 16 |
| 118. | Red vented bulbul | *Pycnonotus cafer* | 2 | 13 |
| 119. | Himalayan bulbul | *Pycnotus leucogenys* | 22 | 36 |
| 120. | Pale rumped warbler | *Phylloscopus griseolus* | 6 | 0 |
| 121. | Sulphur bellied warbler | *Phylloscopus chloronotus* | 0 | 1 |
| 122. | Greenish warbler | *Seicercus poliogenys* | 0 | 3 |
| 123. | Whistlers warbler | *Seicercus whistleri* | 0 | 1 |
| 124. | Grey cheeked warbler | *Phylloscopus trochiloides* | 1 | 0 |
| 125. | Common tailor bird | *Orthotomus sutorius* | 0 | 6 |
| 126. | Jungle prinia | *Prinia sylvatica* | 3 | 1 |
| 127. | Ashy prinia | *Prinia socialis* | 0 | 1 |
| 128. | Grey breasted prinia | *Prinia hodgsonii* | 2 | 2 |
| 129. | Yellow eyed babbler | *Chrysomma sinense* | 17 | 0 |
| 130. | Oriental white eye | *Zosterops palpebrosus* | 12 | 12 |
| 131. | Common babbler | *Turdoides caudate* | 26 | 7 |
| 132. | Striated babbler | *Turdoides earlei* | 8 | 4 |
| 133. | Jungle babbler | *Turdoides striata* | 41 | 8 |
| 134. | Large grey babbler | *Turdois malcolmi* | 0 | 5 |
| 135. | Streaked laughing thrush | *Trochalopteron lineatum* | 1 | 0 |
| 136. | Indian robin | *Copsychus fulicatus* | 2 | 18 |
| 137. | Oriental magpie robin | *Copsychus saularis* | 1 | 6 |
| 138. | Blue whistling thrush | *Myophonus caeruleus* | 1 | 12 |
| 139. | Plumbeous redstart | *Phoenicurus frontalis* | 1 | 0 |
| 140. | White capped redstart | *Phoenicurus leucocephalus* | 2 | 1 |
| 141. | Black redstart | *Phoenicurus ochruros* | 0 | 6 |
| 142. | Grey bushchat | *Saxicola ferrus* | 6 | 4 |
| 143. | Pied bushchat | *Saxicola caprata* | 0 | 20 |
| 144. | Indian chat | *Ceromela fusca* | 0 | 3 |
| 145. | Pied wheater | *Oenanthepies chanka* | 0 | 1 |
| 146. | Jungle myna | *Acridotheres fuscus* | 0 | 0 |
| 147. | Bank myna | *Acridotheres ginginianus* | 10 | 0 |

| | | | | |
|---|---|---|---|---|
| 148. | Common myna | *Acridotheris tristis* | 117 | 13 |
| 149. | Brahminy starling | *Temenuchus pagodarum* | 7 | 14 |
| 150. | Pale billed flowerpecker | *Dicaeumerythro rhynchos* | 0 | 1 |
| 151. | Purple sunbird | *Cinnyris asiaticus* | 0 | 35 |
| 152. | Western yellow wagtail | *Motacilla flava* | 4 | 5 |
| 153. | Citrine wagtail | *Motacilla citreola* | 39 | 20 |
| 154. | Grey wagtail | *Motacilla cinerea* | 42 | 0 |
| 155. | White wagtail | *Motacilla alba* | 135 | 57 |
| 156. | White browed wagtail | *Motacilla madaraspatensis* | 23 | 18 |
| 157. | Paddyfield pipit | *Anthus rufulus* | 13 | 40 |
| 158. | Tawny pipit | *Anthus campestris* | 4 | 0 |
| 159. | Upland pipit | *Anthus sylvanus* | 1 | 0 |
| 160. | Tree pipit | *Anthus trivalis* | 0 | 3 |
| 161. | Water pipit | *Anthus spinoletta* | 26 | 14 |
| 162. | Olive backed pipit | *Anthus hodgsoni* | 0 | 2 |
| 163. | Crested bunting | *Melophus lathami* | 0 | 1 |
| 164. | Rock bunting | *Emberiza cia* | 0 | 4 |
| 165. | Fire fronted siren | *Serinus pusillus* | 1 | 0 |
| 166. | House sparrow | *Passer rutilans* | 4 | 40 |
| 167. | Russet sparrow | *Petronia xanthochollis* | 0 | 6 |
| 168. | Chestnut shouldered petronia | *Passer domesticus* | 0 | 1 |

*Source: Book of Indian Birds*

### 3.4.7.2 Conclusion:

The faunal and floral diversity observed during the field survey does not claim considerable attention as most of the species observed are common throughout the region. The impact of the project activities thus is understood to be negligible on the biological environment. As a measure to minimize the prevailing and forthcoming environmental impacts due to industrial pollution and activities, it is advisable to increase green areas through plantations in the available land so that the local faunal and floral biodiversity may increase.

## 3.4.8 SOCIO-ECONOMIC ENVIRONMENT

### 3.4.8.1 Scope of socio-economic survey:

Scope of the study is as follows:

- Collection of baseline data of the study area.
- Collation of data, analysis and generation of tables.
- Comprehension of socio-economic status of the people living in the study area.
- Identification and inventory of probable socio economic impacts of the project activities on social and economic aspects in the study area.
- Assessment of the probable impacts of the project on the people living in the study area.
- Facilitation of sustainability of positive impact by recommending community development initiatives in the study area.
- Suggestion of mitigation measures in case of adverse impact.

### 3.4.8.2 Methodology:

The socio-economic aspects of people have been analyzed and presented for the project within the Tehsil Haroli of Una District. The study carried out is descriptive and exploratory in nature.

The methodology adopted for the project has been collected from various secondary sources.

- Review of secondary data (2011 census and latest available district statistical hand books) with respect to population and occupational structure.
- Discussion with local population in some areas on socio- economic & cultural aspects of people in the study area.
- Extensive site visits and observation of the socio-economic environment.

Sociological aspects of this study include human settlements, demographic, socio economic aspects & others. The economic aspects include agriculture, industry and occupational structures of workers. Demographic & socio-economic details are described in following sections.

**Site selection criteria:** 2011 census data have been supplemented and corroborated by a socio-economic sample survey conducted within the study area including the project location through structured questionnaires portraying demographic and socio-economic aspects of the study area population. 49 villages falling in the 10 km radius of project location arranged on the basis of population in increasing order. Every 10$^{th}$ village out of the total villages in the buffer zone surveyed where socio-economic survey & focus group discussions were done as given in **Table 3.25**. Primary data was collected by Mr. Himanshu and his team through a structured schedule

covering all the facilities available in the sample villagers for fulfilling the responsibility towards different sections of society through questionnaires & the same is presented in **Table 3.25.**

**Table no: List of Surveyed Villages for Sample Survey in core and buffer zone**

| S. No. | Village Name | District Name (State Name) | Total Population | Project/ Sample Village |
|---|---|---|---|---|
| 1. | Mehdud | Hoshiyarpur (Punjab) | 743 | Sample Village |
| 2. | Kungrat (527) | Una (HP) | 808 | Sample Village |
| 3. | Jaijon | Hoshiyarpur (Punjab) | 1064 | Sample Village |
| 4. | Samnal (466) | Una (HP) | 1098 | Sample Village |
| 5. | Lalwan | Hoshiyarpur (Punjab) | 1193 | Sample Village |
| 6. | Goindpur Tarf Bula (529) | Una (HP) | 1273 | Sample Village |
| 7. | Polianbeet (525) | Una (HP) | 1295 | Sample Village |
| 8. | Kutharbeet (524) | Una (HP) | 1420 | Sample Village |
| 9. | Saihnsowal (464) | Una (HP) | 1425 | Sample Village |
| 10. | Nangal Khurd (471) | Una (HP) | 1498 | Sample Village |
| 11. | Rora Baliwal (465) | Una (HP) | 1502 | Sample Village |
| 12. | Haroli (467) | Una (HP) | 1537 | Sample Village |
| 13. | Dulehar (526) | Una (HP) | 1780 | Sample Village |
| 14. | Palakwah (469) | Una (HP) | 1854 | Sample Village |
| 15. | Kangar (462) | Una (HP) | 2282 | Sample Village |
| 16. | Dharampur (463) | Una (HP) | 2311 | Sample Village |
| 17. | Lalehri (470) | Una (HP) | 4242 | Project Village |
| 18. | Badehra (199) | Una (HP) | 5000 | Sample Village |

### 3.4.8.3 Demographic & socio-economic details of study area within 10 km radius:

The study area is falling under the 10 Km buffer zone of Una Tehsil Haroli and as well as of Hoshiarpur District Tehsil Garhshanker. So, the details of demographic Features of the study area are highlighted below:

**Table 3.24: Demographic feature of the study area**

| Area | Total Population | Male | Female | No. of literate | Total Worker |
|---|---|---|---|---|---|
| **Tehsil Haroli** | 71,416 | 36,308 | 35,108 | 52,644 | 27,160 |
| **Tehsil Garhshankar** | 3,30,711 | 1,68,229 | 1,62,482 | 2,43,065 | 1,06,181 |

- Tehsil Haroli, District Una, Himachal Pradesh State has total population of 71,416 of which male and female were 36,308 and 35,108 respectively.
- Tehsil Garhshankar, District Hoshiarpur, Punjab State has total population of 3,30,711 of which male and female were 1,68,229 and 1,62,482 respectively.
- The average literacy Rate of the Haroli Tehsil is 73.71%. which is lower than the average literacy rate of Himachal Pradesh i.e. 82.80% whereas the literacy rate of Garhshankar Tehsil is 73.50. which is lower than the average literacy rate of Himachal Pradesh i.e. 75.84%

### 3.4.8.4 Demographic details of the study area:

Demographic details of the study area in detail & villages within 10 km of study are shown in **Fig. 3.17**.

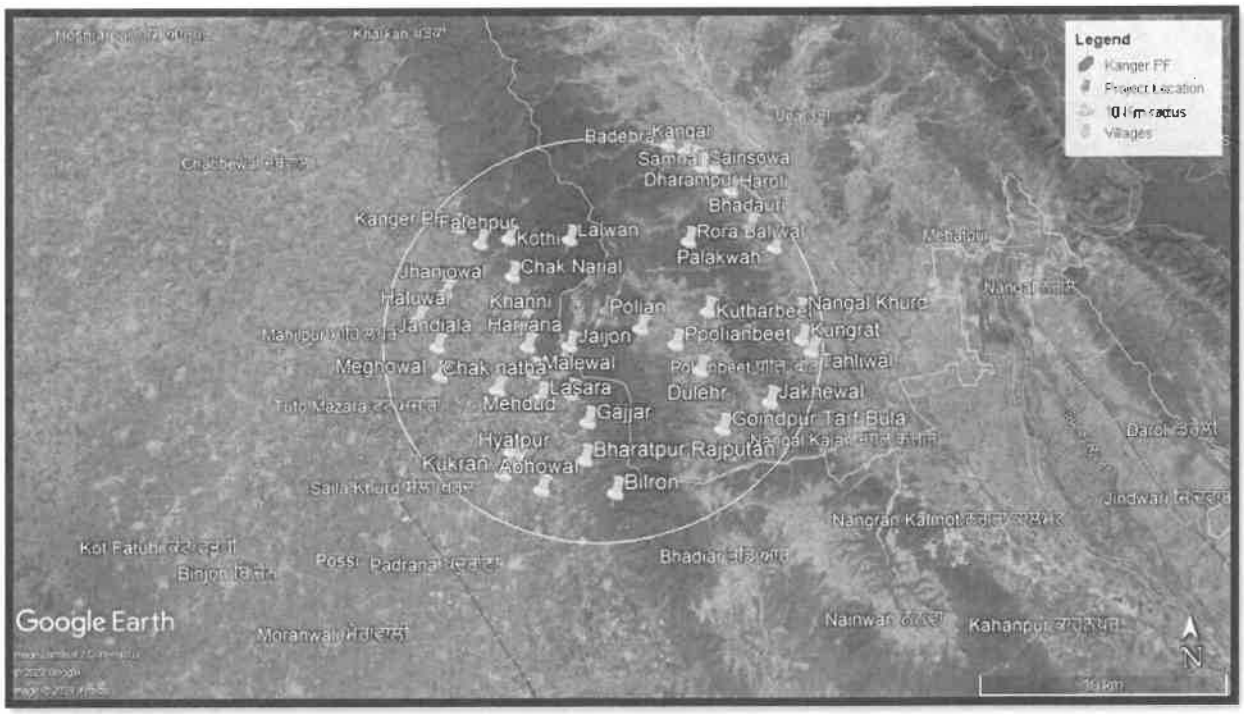



**Fig. 3.17: Google Earth Image showing Villages falls within 10 km study area**

Demographic details within study area of 10 km is attached as **Annexure 10.**

### 3.4.8.5 Interpretation of socio-economic data:

The sociological aspects of the project area have been studied that include human settlements, demographic, socio economic aspects among others. The economic aspects include agriculture, school and occupational structures of workers. The demographic & socio-economic details are described in the following sections:

#### 3.4.8.5.1 Population distribution:

The population distribution varies from place to place. There are around 49 villages within 10 km radius of the project area. Among 49 villages 26 villages found in Himachal region & rest 23 villages falling in Punjab region. Based on Census Data 2011, the number of household population consists of 43,289 (in no.) and total population of the villages within 10 km radius comprises of 1,88,790 (in no.) Out of which, male and female were 91,797 and 96,993 respectively as given below in **Table 3.26(b):**

**Table 3.26(b): Total Population of the study area**

| Population | Total Male Population | Total Female Population | Total Population |
|---|---|---|---|
| **Total** | 2,04,537 | 1,97,590 | 4,02,127 |
| **Percentage (%)** | 51% | 49% | 100% |

*Source: Census of India, 2011*

The graphical representation of the population is shown in **Fig. 3.18** which represents the overall percentage of the total population of the study area.

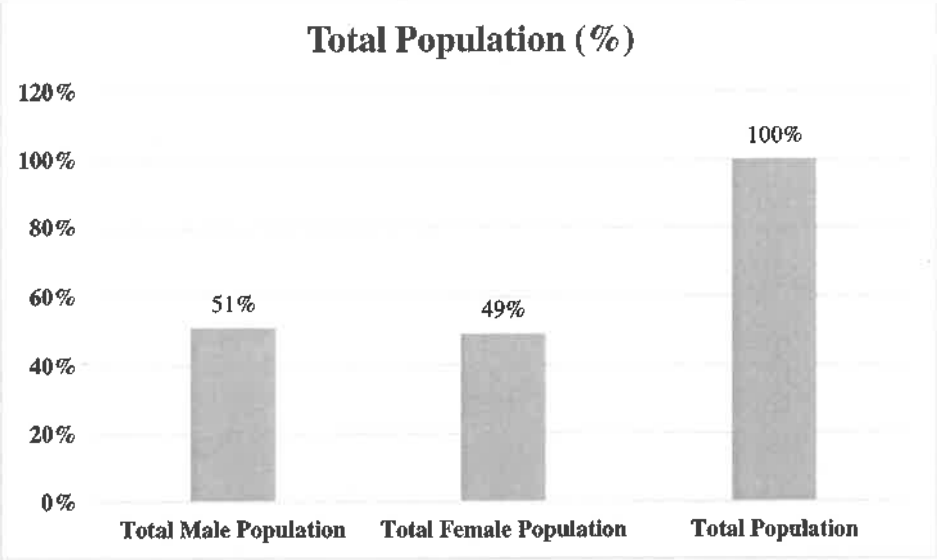



**Fig. 3.18: Population distribution of study area**

### 3.4.8.5.2 Sex ratio (Females per 1000 Males):

Sex ratio is used to describe the number of females per 1000 of males. Sex ratio is a valuable source for finding the population of women in India and what is the ratio of women to that of men in India. In the Population Census of 2011, it was revealed that the population ratio in India 2011 is 940 females per 1000 of males. The Sex Ratio 2011 shows an upward trend from the census 2001 data. Interesting and alarming trend is noticed in gender ratio. As per the Census 2011, state Himachal Pradesh has a gender ratio of (972) which is comparatively lower than the sex ratio of study area i.e. (1072) while the district Una has an average sex ratio i.e. (976) which is low from the study area but higher than the average state sex ratio.

### 3.4.9.9 Recommendation and Suggestion

- Vocational training centers should be established in the villages. So that rural people can get training in various activities and generate self-employment or skill themselves for various job opportunities in the nearby areas.
- Project proponent should conduct professional skills development program for Business opportunities to local people.
- Assistance in Pradhanmatri Kaushal Vikas Yojana (PMKYY) like Animal Health Worker, Green House Operator, Dairy farmer / Entrepreneur, Tractor operator, Organic Grower, Quality Seed Grower, Backhoe operator, Crane operator, Engine mechanic, Excavator operator, loader operator etc.
- Upgradation of existing school infrastructure.
- Camp to provide knowledge of Government schemes and loans or subsidies for agriculture and allied sectors. Need to subsidize construction of ground water tank for storing rainwater for utilizes it for daily chore.
- Health care center, mobile health ambulance and routine health camp facility shall be provided to make the people get easy medical facilities.
- Vocational training session shall be organized to provide self–employment to the women and unemployed youth for involve in income generation sources for short term and long-term employment.

## 3.4.8.9 SOCIO-ECONOMIC BENEFITS OF THE PROJECT ACTIVITIES ON THE LOCAL COMMUNITY

M/s HPBDPIL will employ the people from the local region, to ensure maximum benefit to the local qualified un-employed youth around the project location, thus the local population will benefit at large with the operation of the project.

The employment of the local population will ensure to benefit them by improving their living standard and consequently economic development of the region.

Thus, there are many youths in the district of Una who can be trained through capacity building for contributing towards the GDP improvement of the district as well as state of Himachal Pradesh.

Further, the literacy rate of District Una i.e. 86.52%. is higher than the average literacy rate of Himachal Pradesh i.e. 82.80%.

The availability of educated and qualified youth in the local region of the project site is promising. ITI students from local ITI Institutes can also be employed under the skilled people's employment. It is an effort to access or estimate, in advance, the social consequences that are likely to follow from specific policy actions and specific government action as resultant of proposed unit. Summarized socio economic benefits are as under:

- With the coming up of the project, the employment opportunities (direct as well as indirect) will increase, and local people will be employed on priority basis as per their skills. Training will also be provided to the local people.
- People will get direct opportunity in the unit. Not only direct employment but also indirect employment will be created from industry related various activities.
- Indirect employment will also be created from transportation, from the mushrooming of services, shops, and retails etc.
- After getting employment, the socio- economic status of people will be increased. They will be able to get basic amenities directly and indirectly from the project.
- Local people will be employed; hence, it will not cause any stress on the community infrastructure, or any social stress, due to changing patterns of social interaction.
- Increased income security will contribute to the empowerment of the most vulnerable sections of society.
- It is a long-term project; therefore, it will bring avenues for long term jobs.
- Group insurance, free medical facilities, ESI and EPF will be provided to the employees.
- Indirectly, the project will help the government by paying different taxes (sales tax, excise duty, etc.) from time to time, which is a part of revenue and thus, will help in development of the region.

### 3.4.8.10 Conclusion

As per the primary survey, basic facilities like drinking water, education, electricity, road connectivity etc. are adequate in surveyed villages. However, the project management will aid with the development of additional public amenities in the nearby area and will also employ the people from the local region, to ensure maximum benefit to the local qualified un-employed youth around the project

location, thus the local population will benefit at large with the operation of the project. The overall effect will improve the buying power of people and thus a higher standard of living viz. better education, improved health and sanitation facilities, housing and acquisition of consumer durables. Housing, transport, medical, educational, and other civic amenities will improve in the future. This is envisaged as a major positive benefit.

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# CHAPTER 4

# ANTICIPATED ENVIRONMENTAL IMPACTS & MITIGATION MEASURES

## 4.1 INTRODUCTION

Environmental impact in the study area is any alteration of environmental conditions or creation of new set of environmental conditions, adverse or beneficial, caused or induced by the impacts of project. Prediction involving identification and assessment of potential impacts of the project on surrounding environment is a significant component of EIA studies. This chapter presents identification and appraisal of various impacts from the proposed project of Bulk Drug Park. The construction and operational phase of the proposed project comprises various activities, each of which may have an impact on environmental attributes in the region as air quality, water quality, soil, land use, ecology and public health.

The proposed project will create impact on the environment in two distinct phases:

- During the construction phase which may be regarded as temporary or short term; and
- During the operation phase which would have long term effects.

The resultant (post-project) quality of environmental parameters is reviewed with respect to the permissible limits. Based on the impacts thus, predicted preventive mitigation measures were formulated and incorporated in the environmental management plan to minimize adverse impacts on environmental quality. The environmental impacts in this study have been discussed separately for both construction and operation phase. Spatially, the impacts have been assessed over the study area of 10 km radius of the project location based on the standard methodology presented below.

**Table 4.1 Severity Criteria for Magnitude of Impacts**

| S. No | Category | Description of category | Impact | |
|---|---|---|---|---|
| | | | Adverse | Beneficial |
| 1. | No impact | - | 0 | 0 |
| 2. | No appreciable impact | Short term reversible | -1 | 1 |
| 3. | Significant impact | Long term reversible | -2 | 2 |
| 4. | Major impact | Irreversible but of lesser extent | -3 | 3 |
| 5. | High impact | Irreversible but of medium | -4 | 4 |

| | | | | |
|---|---|---|---|---|
| | | extent | | |
| 6. | Permanent impact | Severe irreversible impact | -5 | 5 |

| | | | Impact | | | | |
|---|---|---|---|---|---|---|---|
| | | | Very low 1 | Low 2 | Medium 3 | High 4 | Very High 5 |
| Probability | Very High | 5 | 5 | 10 | 15 | 20 | 25 |
| | High | 4 | 4 | 8 | 12 | 16 | 20 |
| | Medium | 3 | 3 | 6 | 9 | 12 | 15 |
| | Low | 2 | 2 | 4 | 6 | 8 | 10 |
| | Very Low | 1 | 1 | 2 | 3 | 4 | 5 |

**Figure 4.1 Impact quantification chart**

**Table 4.2: Cumulative Score range for Beneficial and Adverse impacts**

| Sr. No. | Cumulative Score | Impact Type & Potential |
|---|---|---|
| 1. | +Ve / -Ve | Beneficial impact / adverse impact |
| 2. | 2. 0-150 | No appreciable Beneficial impact / adverse impact |
| 3. | 151-300 | Appreciable but reversible adverse impact-mitigation measures are needed |
| 4. | 301-450 | Significant adverse impacts: most of the impacts are reversible. Mitigation measures are crucial. |
| 5. | 451-600 | Major adverse impacts; most of the impacts are reversible. Alternative site selection to be considered. |
| 6. | >600 | Permanent irreversible impact; alternatives to the project need to be explored |

## 4.2 IMPACTS AND MITIGATION MEASURES DURING CONSTRUCTION PHASE

The prediction of impacts during the construction phase is an important aspect of the present study so that implementation of the EMP during construction can be ensured effectively to minimize the environmental impacts of the project. This phase involves the activities like site preparation, site levelling, construction works, infrastructure provision and other activities, greenbelt development etc. The environment impacts will be marginal and for short term only.

The officials of Bulk Drug Park will be directly involved in execution of the mitigation measures of environmental pollution generated from the project activity during construction phase.

**Table 4.3: Impact Identification Matrix (During Construction Phase)**

| Activities | Environmental Attributes | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Air | Water | Soil | Noise | LU/LC | Hydrology | Geology | SHW | Risks &Hazard | Ecology & Biodivers | Socio Economi |
| Land Acquisition | - | - | - | - | - | - | - | - | - | - | ✓ |
| Site clearing & levelling | ✓ | - | ✓ | ✓ | ✓ | - | - | ✓ | ✓ | ✓ | - |
| Transportation (vehicular movement) and operation of machineries | ✓ | - | ✓ | ✓ | - | - | - | - | ✓ | ✓ | ✓ |
| Storage and Handling of construction material | ✓ | - | ✓ | ✓ | ✓ | - | - | - | ✓ | - | - |
| Civil construction activities & disposal of construction debris | ✓ | ✓ | ✓ | ✓ | - | ✓ | - | ✓ | ✓ | ✓ | ✓ |
| Sewage Disposal | - | ✓ | ✓ | - | - | - | - | - | ✓ | - | - |
| Laying of pipelines and drains to develop common facilities | ✓ | ✓ | ✓ | ✓ | - | - | - | ✓ | ✓ | ✓ | ✓ |
| Greenbelt Development | ✓ | ✓ | ✓ | ✓ | ✓ | - | - | - | - | ✓ | ✓ |
| Employment Generation | - | ✓ | - | - | - | - | - | ✓ | - | - | ✓ |

Table 4.4: Environmental Impact Assessment Matrix without Mitigation Measures (Construction Phase)

| Activities | Environmental Attributes |
|---|---|

| | Air | Water | Soil | Noise | LU/LC | Geo hydrology | Geology | SHW | Risks &Hazards | Ecology & Biodiversity | Socio Economics | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Land Acquisition | - | - | - | - | - | - | - | - | - | - | - 20 | **-20** |
| Site clearing & levelling | - 16 | - | - 16 | - 16 | - 20 | - | - | - 12 | - 15 | - 16 | - | **- 111** |
| Transportation (vehicular movement) and operation of | - 16 | - | -9 | - 12 | - | - | - | - | -8 | -9 | 12 | **-42** |
| Storage and Handling of construction | - 12 | - | -9 | -8 | -8 | - | - | - | -6 | -4 | - | **-47** |
| Civil construction activities & disposal of construction debris | - 16 | - 12 | - 12 | - 16 | - | - | - | - 18 | - 10 | -8 | 12 | **-80** |
| Sewage Disposal | - | -9 | -9 | - | - | - | - | - | - | - | - | **-18** |
| Laying of pipeline for effluents and Drains/Nallah for storm water | -9 | - 12 | -9 | - 12 | - | - | - | -8 | -8 | -4 | -6 | **-68** |
| Greenbelt Development | 9 | -8 | 12 | 10 | 8 | - | - | - | - | 8 | 8 | **47** |
| Employment Generation | - | -6 | - | - | - | - | - | - 10 | - | - | 20 | **4** |
| Cumulative Score | **- 60** | **- 47** | **- 52** | **- 54** | **- 20** | **0** | **0** | **- 48** | **- 47** | **- 33** | **26** | **- 335** |

The total cumulative score for various environmental attributes without mitigation measures is -335 that means "Significant adverse impacts" with most of the them are reversible. Mitigation

measures are crucial and need to be proper attention to minimize the environmental impacts during construction phase.

### 4.2.1 Air Environment

**Table 4.5: Impact on Air Environment and Mitigation Measures**

| Project Activity | Impacts | Mitigation Measures |
|---|---|---|
| Site preparation (clearing & levelling) | • Fugitive emission will be generated from site cleaning and levelling activities like removing shrubs/ de-weeding, digging, grading, cutting and filling of earth and rocky material which will affect the air quality in surrounding area of construction site.<br>• Emission from the operation of heavy tools and machinery as Cranes, JCB, Dumpers, Mechanical Hammers, Tractors, etc. used for site clearing and levelling purpose, which may deteriorate ambient air quality.<br>• Cutting of tress during the levelling and development of proposed project. | • Regular water sprinkling will be done for controlling fugitive emission.<br>• Excavated soil and construction debris will be sprinkled with water and kept moist & shall be reused within the boundary for area levelling purpose.<br>• The impact will be for short duration and confined locally to the construction site.<br>• All the machineries used for site clearing & levelling will be examined by competent person before use and regular maintenance will be ensured.<br>• Dust Mask will be provided to the construction workers in dust prone area.<br>• During the primary survey it was observed major area of proposed project is semi hilly with barren land and bushy trees, hence slope stabilization will be ensured. More over |

| | | |
|---|---|---|
| | | additional greenbelt will be developed by BDP authorities. |
| Transportation (vehicular movement) and operation of machineries | • Fugitive Dust Emissions due to vehicular movement may deteriorate the quality of Air.<br>• Exhaust emissions from vehicles like bulldozers, trucks etc. and equipment deployed during the construction phase is also likely to result in marginal increase in the levels of SO2, NOx and PM which may lead to health issues. | • Only valid PUC certified vehicle will be used for the transportation of materials and equipment.<br>• Regular water sprinkling will be done to control fugitive emissions.<br>• Regular maintenance, servicing of the vehicles and periodic emission check for equipment and machinery will be carried out in conformity with the Central Motor Vehicles Rules, 1989.<br>• Trucks used for transportation of construction materials shall be covered with tarpaulin sheet to avoid dust dispersion at site and along the route.<br>• The approach roads will be made paved or tarred. |
| Storage and Handling of construction material | • Spillage and fugitive emissions of construction materials may lead to inhalation of dust/gases/fumes which may cause adverse impacts to the workers.<br>• Stomatal index may be minimized due to dust deposit | • Construction materials will be covered with tarpaulin sheets throughout the construction phase to avoid dust generation.<br>• Barricading of the major dust generation area. |

| | | |
|---|---|---|
| | on leaf which reduces crop yield and deteriorate crop quality | • Safety goggles and dust mask will be provided to the workers. |
| Civil Construction Activities & Disposal of Construction debris | • Increase of dust and airborne particulates due to fugitive emission may deteriorate the quality of the air and affect worker's health.<br>• Construction debris and improper disposed of domestic garbage/wastes will create nuisance due to odour generation. | • Temporary thin sheets of sufficient height (3m) will be erected around the construction sites/ areas as a barrier for dust control.<br>• Regular water sprinkling will be done to control emission.<br>• Separate bin with cover lid will be provided for storage of garbage/ wastes and the same will be disposed of adequately.<br>• Personnel Protective Equipment (PPEs) will be provided to the construction workers. Hence, there will be no significant impacts on their health due to the dust particle. |
| Laying of pipeline for effluent disposal | • Air quality may be affected by construction related emissions generated by construction equipment, movement of trucks and worker vehicles.<br>• Dust will also be generated due to excavation and trenching, back filling activities for pipeline laying. | • Regular water sprinkling will be done to reduce dust generation during clearing of site.<br>• Construction material and waste will be stored in properly covered areas/ wet conditions or use tarpaulin sheet.<br>• Personal protective equipment will be provided to the workers. |
| Greenbelt Development | • Positive impact due to | • BDP authorities will develop |

| | | |
|---|---|---|
| | Greenbelt development as it will act as natural barrier for dust emission.<br>• The impact will be confined within the project boundary and is expected to be negligible outside the park boundaries. | 19% greenbelt in Bulk Drug Park (1405 acres) and individual industries will develop remaining 14% green belt in their own premises as per CPCB/ State Board guidelines.<br>• Regular maintenance will be carried out for proper growth and maturity of the plants. |

### 4.2.2 Water Environment

**Table 4.6: Impact on Water Environment and Mitigation Measures**

| Project Activity | Impacts | Mitigation Measures |
|---|---|---|
| Civil Construction Activities & Disposal of Construction debris | • Decrease in ground water level due to water consumption in construction activities like concrete batching, grouting, dust suppression etc.<br>• The site development may produce large quantities of run-off with high suspended solids during the rainy season in the absence of appropriate mitigation measures it will pollute nearby receiving river body.<br>• During the construction phase, the storm-water may be contaminated with particulate matter, oil and grease, fuel from the construction machinery/ maintenance areas of the construction equipments/ vehicles which may increase the turbidity of the same. | • Water will be sourced through Private Tankers from nearby areas from natural/ surface water bodies. No ground water will be abstracted during the construction phase and hence, Impact on ground water due to proposed project is ruled out.<br>• Natural slope will be maintained during the site preparation to avoid any effect on the natural drainage pattern of the site.<br>• Temporary gully network will be formed during the construction work to channelize the storm-water in natural kash (natural drain) present in that area.<br>• Contamination of storm-water by oil and grease from the construction |

| | | |
|---|---|---|
| | | machinery/ maintenance areas of the construction equipment/ vehicles will be strictly avoided by implementing the mitigation measures like closed/ covered storage shed etc. |
| Sewage Disposal | • Untreated sewage if disposed openly may create nuisance in the surrounding areas.<br>• Wastewater generated during construction activities if discharged on ground, may reach the ground water table by leaching and affect the ground water quality. | • RCC construction septic tank followed by soak pit system will be provided for treatment of sewage.<br>• Sedimentation pits will be provided at appropriate location to trap the silt laden runoff water and prevent excessive silt from going outside. |
| Laying of pipeline for effluent disposal | • Impact on waterbody due to laying of pipeline and increase turbidity of water body and ultimately impact on aquatic flora & fauna.<br>• Untreated or inadequately treated hydro test water from pipeline Hydro testing operations will also possibly be leading to surface water contamination during the pipeline laying stage. | • Pipeline will be laid by HDD method, 2.5 m below the river bed/ Nallah/ Khud, hence there will be no significant impact on waterbody.<br>• Hydro testing is a one-time activity during construction phase. Mostly Clear water will be generated from hydro testing which can be reused. After been reused multiple times, shall be use for construction purpose.<br>• Regular surface water quality inspection will be conducted according to the Environmental Management Plan (EMP). |

| | | |
|---|---|---|
| Greenbelt development & Employment generation | • Water resource depletion due to water consumption for Greenbelt development | • Water requirement during construction phase will be fulfilled by deploying water tankers facility.<br>• Wastage of water will be strictly avoided.<br>• Awareness for water conservation will be provided to the workers. |
| Site clearing & levelling | • During construction, soil becomes unconsolidated due to removal of stabilizing material, such as vegetation and disturbance of stabilized existing grade resulting in loss of top soil. | • Excavated earth shall be stored in stockpiles and covered with plastic/tarpaulin sheets and reused for landscape development along the corridor.<br>• To minimize disruption of soil and for conservation of top soil, the contractor shall keep the top soil cover separately and stockpile it.<br>• After the construction activity is over, top soil will be utilized for landscaping activity. |
| Transportation (vehicular movement) and operation of machineries | • Soil may get contaminated from the spillage of chemicals such as fuels, oils, and other construction chemicals. This normally happens when these materials are transported in open or loosely capped containers.<br>• Impacts of construction activities on soils include the surface sealing caused by buildings and asphalt and soil compaction by construction | • To prevent soil compaction in the adjoining productive lands beyond the boundary, the movement of construction vehicles, machinery and equipment shall be restricted to the designated haulage route.<br>• Proper spillage management plan will be prepared and followed for oily residues such as transformer oil and lubricants in the case of |

### 4.2.3 Soil Environment

**Table 4.7: Impact on Soil Environment and Mitigation Measures**

| Project Activity | Impacts | Mitigation Measures |
|---|---|---|
| Site clearing & levelling | • During construction, soil becomes unconsolidated due to removal of stabilizing material, such as vegetation and disturbance of stabilized existing grade resulting in loss of top soil. | • Excavated earth shall be stored in stockpiles and covered with plastic/tarpaulin sheets and reused for landscape development along the corridor.<br>• To minimize disruption of soil and for conservation of top soil, the contractor shall keep the top soil cover separately and stockpile it.<br>• After the construction activity is over, top soil will be utilized for landscaping activity. |
| Transportation (vehicular movement) and operation of machineries | • Soil may get contaminated from the spillage of chemicals such as fuels, oils, and other construction chemicals. This normally happens when these materials are transported in open or loosely capped containers.<br>• Impacts of construction activities on soils include the surface sealing caused by buildings and asphalt and soil compaction by construction machinery, which may reduce air, water and nutrient exchange, reduce the permeability of soils and may impair natural soil processes. | • To prevent soil compaction in the adjoining productive lands beyond the boundary, the movement of construction vehicles, machinery and equipment shall be restricted to the designated haulage route. Proper spillage management plan will be prepared and followed for oily residues such as transformer oil and lubricants in the case of accidental or unexpected release. Transformer oil will be supplied in drums from an imported source.<br>• Oily residues, fuels and any contaminated soil residues will be captured at source. Refueling and maintenance will take place in dedicated areas. Contaminated residues and waste oily residues will be disposed as per guideline |

| | | |
|---|---|---|
| Storage and handling of construction material | • Soil contamination due to mixing of construction material may degrade soil fertility.<br>• Accidental spills of chemicals, oils or fuels from storage area or the leakage of lubricants or fuel by machinery etc. can affect nutritive composition of the soils. | • The construction material & diesel / oil to be used for various construction activities will be stored in designated storage yards to reduce the spills into unwarranted areas.<br>• Good practices of storage and material handling will be carried out.<br>• Spillage control will be carried out by disposing the affected soil at dedicated place. |
| Civil Construction Activities & Disposal of Construction debris | • Construction activities, such as grading and filling, drastically reduce soil quality on construction sites.<br>• Contamination of the soils of surrounding area due to construction materials such as cement, sand, oils, etc. | • Excavated earth will be stored in stockpiles and covered with plastic / tarpaulin sheets or stored in closed room and reused for landscape development along the corridor.<br>• The construction wastes shall be utilized for PCC works, road construction and other filling requirement etc. |
| Sewage Disposal | • Unmanaged sewage can contribute to contamination of soil. | • The wastewater generation during the construction period will be from the sanitary units provided for the constructional workers.<br>• This wastewater will be treated in septic tanks/ soak pits. |
| Laying of pipeline for effluent disposal | • Soil inversion and resulting loss in soil fertility or structure due to digging for pipeline laying and during site clearing and leveling.<br>• Before site development activity, the top soil of the site | • Top soils shall be strictly restored to near original condition without affecting the fertility of excavated area.<br>• Excavated topsoil shall be used for backfilling after laying of pipeline.<br>• Maximum portion of the ROU will be paved to minimize the soil erosion/dust carryover due to wind. |

| | | |
|---|---|---|
| | if not properly stripped and stored for future use, the entire volume of top soil will be permanently lost or fertility/soil characteristics will be changed. | |
| Greenbelt Development | Positive impact as improvement in soil texture due to binding of top soil materials and root structure.<br>Positive impact as greenbelt may increase soil fertility. | • BDP authorities will develop 20% greenbelt in Bulk Drug Park (1405 acres) and individual industries will develop remaining 13% green belt in their own premises as per CPCB/ State Board guidelines.<br>• Regular maintenance will be carried out for proper growth and maturity of the plants. |

### 4.2.4 Noise Environment

**Table 4.8: Impact on Noise Environment and Mitigation Measures**

| Project Activity | Impacts | Mitigation Measures |
|---|---|---|
| • Site clearing & leveling<br>• Transportation (vehicular movement) and operation of machineries<br>• Storage and Handling of construction material<br>• Civil Construction Activities & Disposal of Construction debris | • High noise from Site clearing & leveling activity and operation of machinery like Crawler Excavators, Wheel Loaders, and Crawler Loaders etc. and Noise generation from vehicles movement, D.G sets and construction equipment like dozers, scrapers, concrete mixers, cranes, pumps, compressors, pneumatic tools, saws, vibrators etc. may lead to hearing problem and other health related issues etc. | • Site clearing & leveling activity will be temporary during the daytime only. Hence, will not have any significant impact.<br>• Machinery used for construction will adhere to International standards. These standards itself take care of noise pollution control / vibration control.<br>• Lubrication will be carried-out periodically for rotation machinery.<br>• Use of well - maintained |

| | | |
|---|---|---|
| | • Due to increase in transportation activities during the construction phase, traffic congestion will be there which will create negative impact on air and noise environment.<br>• Biological environment i.e. Birds, reptiles are sensitive to high noise level. Continuous exposure of high noise level may cause negative impact. | construction equipment as well as vehicles used for transportation.<br>• Noise barriers will be provided near high noise generating areas.<br>• Provision of quiet areas where workers can find relief during breaks<br>• Vibration control damped tools will be used and the number of hours that a worker uses them must be limited.<br>• No engines to be running while waiting within the site for a certain length of time.<br>• According to traffic survey study, it was found that the existing road capacity is sufficient to cater traffic load.<br>• D.G. set shall be provided with acoustic enclosures and shall beused only in case of power failure / emergency.<br>• Provision of PPEs like earmuffs / earplug to avoid adverse effects of noise on occupational health and hearing capacity of workers as well as planning of working hours and shift of workers. |
| Laying of pipeline for effluent disposal | • Laying of the pipeline will include noise | • Construction activities carried out near |

| | | |
|---|---|---|
| | generating activities like soil stripping, trenching, pipe stringing, welding and laying and backfilling. However, such noise generating activities will occur intermittently, primarily during the daytime.<br>• Occupational health issues associated with high noise level like high blood pressure, heart disease etc. may be observed which can decrease working efficiency. | residential locations will be scheduled to the daytime (i.e. from 10.00 a.m. to 6.00 p.m.) only so as to have minimum disturbance to the residents.<br>• Machinery will be maintained and lubricated as per manufacturers' guidelines to reduce noise generation.<br>• All the major noise generating equipment will be equipped with acoustic enclosures.<br>• Provision of ear muffs and ear plugs to prevent continuous noise exposure risk to laborers working on site.<br>• Noise level will be monitored at regular intervals during construction phase, which will help in taking appropriate action to maintain it within the prescribed limits. |
| Greenbelt Development | • Plants absorb sound and rough bark and thick, fleshy leaves are particularly effective at absorbing sound with their dynamic surface area for absorbing sound. | • BDP will developed 277 Ha of area as greenbelt along the boundary wall which will increase aesthetic view as well as act as a barrier for noise. |

### 4.2.5 Land Use/Land Cover

**Table 4.9: Impact on Land Use/Land Cover and Mitigation Measures**

| | | |
|---|---|---|
| Site clearing & levelling | • Due to clearing of agriculture<br>• land & shrubs from acquired land, green cover area will be reduced and there will be change in land use from agriculture land to industrial area.<br>• Due to construction and development of Bulk Drug Park, open area will be converted in to industrial area. | • The Project area comprises of agricultural land. There are no trees in the project area. No tree cutting is therefore envisaged.<br>• Proposed project will provide various social and financial benefits to nearby community. |
| Laying of pipeline for effluent disposal | The impact on the land use along the pipeline corridor will be minimum and temporary as the excavated earth will be refilled back and efforts will be made to restore it to the original condition. | |
| Greenbelt Development | • Construction of plant and green belt development will lead to permanent change in land use pattern at the site as a direct impact. | • It is mandatory for Individual industries to develop around 33% greenbelt within their premises.<br>• Plantation along the boundary wall shall be initiated at the start of construction itself.<br>• Greenbelt area developed will result in beneficial impacts on land cover of the project area. |

### 4.2.6 Hydrogeology

There will be no significant impact on Hydrogeology due to project activity during construction phase.

### 4.2.7 Geology

There will be no significant impact on Geology due to project activity during construction phase.

### 4.2.8 Solid and Hazardous Wastes

**Table 4.10: Impact of Hazardous/Solid Waste and Mitigation Measures**

| Project Activity | Impacts | Mitigation Measures |
|---|---|---|
| Site clearing & levelling | • Due to Site clearing & levelling, vegetation and solid waste will be generated and will adversely affect the environment if not handle properly. | • The solid waste generated during this period being predominantly inert in nature, construction waste does not create chemical or biochemical pollution.<br>• Most of the solid waste material will be used for filing/ leveling of low-laying areas.<br>• Remaining Construction waste will be disposed as per guidelines. |
| Civil Construction Activities & Disposal of Construction Debris | • The excavated earth material if stacked loosely may result into runoff resulting in loss of top soil.<br>• Construction waste like asphalt, ordinary concrete, reinforced concrete, bricks, wood, glass, iron, electric pipes, concrete pipes, plastic pipes etc. will be generated which may cause adverse health impact, if not disposed properly. | • Excavated earth shall be stored in stockpiles and covered with plastic / tarpaulin sheets or stored in closed room and reused for landscape development along the corridor.<br>• Construction waste will be segregated and disposed off adequately.<br>• The construction wastes will be utilized for leveling work etc.<br>• Separate bins will be provided for storing Garbage / wastes and will be disposed off adequately. |
| Laying of pipeline for effluent disposal | • Solid wastes generated from the construction activities are | Construction Waste Management Plan (CWMP) will be prepared and implemented; which include the following measures in the plan: |

| | | |
|---|---|---|
| | brushes cleared from the site, excess excavated earth (spoils), discarded construction materials, cement bags, and other similar items.<br>• Domestic solid wastes may also be generated from the workers. Improper waste management will cause odour and vermin problems, pollution and flow obstruction of nearby watercourses and may negatively impact the landscape. | • Reuse of as much waste material as possible;<br>• All waste/waste sand and vegetation will be covered by secure tarpaulins, whenever transported offsite to prevent material being blown from trucks.<br>• Prior to being disposed, the mud will be tested for its hazardous nature and treated and/ or disposed in consultation with local authorities.<br>• Avoid stockpiling any excess spoils at the site for long time.<br>• Care shall also be taken that stagnant pools are not formed at the site during the construction phase.<br>• Prohibit dumping of construction and/or domestic waste anywhere;<br>• Provide proper collection bins and create awareness to use the dust bins.<br>• Proper sanitation and drinking water facilities shall be provided for construction workers.<br>• Sewage generated will be disposed properly through soak pit to avoid any adverse impacts on land.<br>• Domestic solid wastes shall be properly segregated as biodegradable and non-<br>• biodegradable for collection and disposal to designated solid waste disposal site. |

### 4.2.9 Risk and Hazards

**Table 4.11: Impact of Risk and Hazards and Mitigation Measures**

| Project Activity | Impacts | Mitigation Measures |
|---|---|---|
| Site clearing & levelling<br><br>Transportation (vehicular movement) and operation of machineries<br><br>Storage and Handling of construction material<br><br>Civil Construction Activities & Disposal of Construction Debris | • Vehicle collision due to failure may lead to loss of life and property.<br>• Failure of machineries during construction activities may cause injuries and accidents.<br>• Fire and explosion in storage area may cause loss of life and property.<br>• Fall from height, falling object, cut/crush injury, due to construction activities may cause serious injuries. | • Pipes and live cables must be deenergized or labeled clearly and instructed workers accordingly.<br>• Personnel Protective Equipment (PPEs) will be provided to the construction workers.<br>• All the activities will be carried out under the supervision and control of the competent person.<br>• The vehicles will be maintained in good repairs and checked thoroughly at least once a week.<br>• The vehicles will be maintained in good repairs and checked thoroughly at least once a week by the competent person appointed by the management.<br>• Construction machineries and equipments will be well maintained and properly guarded.<br>• Firefighting arrangement will be made available at construction site.<br>• Personal Protected equipment such as helmet, goggles, fall arrest earplug, etc., will be provided. |

| | | |
|---|---|---|
| Laying of pipeline for effluent disposal | Chances of slips, falls and other physical accidents due to presence of construction material, waste soil, trench excavation along the road, dust, narrowed road due to construction works, vehicle collisions with pedestrians, and other vehicles | • Temporary traffic control (e.g. flagmen) and signs will be necessary to improve safety and provide directions will be provided.<br>• Warning signs, blinkers will be attached to the barricading to caution the workers and employees about the hazards associated with the works, and presence of trenches / deep excavation.<br>• Restriction on public access to all areas where construction works are on-going through the use of barricading and security personnel.<br>• Standard and safe practices for trenching and pipe laying will be adopted.<br>• Safe construction practices will be followed to prevent any unwanted mishaps.<br>• Workers will be provided with adequate PPEs to safeguard them against potential risks. |

### 4.2.10 Ecology and Biodiversity

**Table 4.12: Impact on Ecology and Biodiversity and Mitigation Measures**

| Project Activity | Impact | Mitigation Measures |
|---|---|---|
| Site clearing & leveling<br>Transportation (vehicular movement) and operation of machineries<br>Civil Construction Activities & Disposal of Construction Debris | • Site preparation and development works will cause loss of potential agricultural land and loss of vegetation.<br>• Transportation of construction material by the trucks/dumper will affect the movement of | • Major trees will not be felled and protected, however in case unavoidable situation, compensatory tree plantation in the ratio of 1:10 will be followed.<br>• Transportation of products and raw material shall be carried out during daytime only.<br>• Only PUC vehicle shall be used for the transportation of materials and equipment.<br>• During the site visit, it was observed that there is no forest land, or ecologically sensitive area near the project site. Hence, |

| | | |
|---|---|---|
| | animals and birds.<br>• Fugitive emission from vehicle movement will form a layer on the leaves thus reducing the gaseous exchange process. This ultimately affects the growth of plants.<br>• Operation of machineries and civil construction activity will lead to noise pollution near surround areas. | impact on the same is not envisaged.<br>• Area falling under Costal regulation zone shall be kept open and no construction activities will be carried out.<br>• Noise control measures like enclosure, silencer will be installed to reduce noise generating from operation of construction machineries.<br>• The proposed activities do not envisage destruction of habitat and feeding or breeding area of faunal species. Further, development of plantation will provide habitat, food and breeding areas for small animals and insects. Thus, a positive impact is envisaged.<br>• No rare or endangered species of fauna are reported to exist in the area.<br>• Thus, no impacts on rare / endangered species are envisaged due to normal operations. |
| Laying of pipeline for effluent disposal | • Accidental spills or leakage of lubricants may affect terrestrial plants and animals in the vicinity of the spill. | • It will be ensured that there is no loss of plants or animals outside the designated footprint of construction areas, and no excessive dust/emissions/noise from those areas that would harm wildlife in adjacent areas.<br>• Ensure that all construction work or other activities near the site perimeter are conducted with particular care and include measures to reduce production of noise and dust to the minimum possible.<br>• Prevent access to areas located beyond the construction zone.<br>• The working area which has to be disturbed will be kept minimum at all times.<br>• Regular maintenance of vehicles and machineries to control noise and air pollutant emission.<br>• Noise barrier will be provided in sensitive locations. |

| | | |
|---|---|---|
| | | • Appropriate shading of lights to prevent scattering.<br>• The movement of construction vehicles will be as per policy for road safety prescribed by the company. |
| Greenbelt Development | • Greenbelt development may cause positive impacts on the flora by enhancement of green spaces<br>• Generation of habitats for avifauna i.e. positive impact | • Local species will be planted during the development of greenbelt to maintain the ecological balance of the Area<br>• Regular watering and maintenance of the greenbelt for sustained plant growth. |

### 4.2.11 Socio-Economic

**Table 4.13: Impact on Socio-Economic and Mitigation Measures**

| Project Activity | Impacts | Mitigation Measures |
|---|---|---|
| Land Acquisition | • Due to Land Acquisition, land owners had lost their land due to proposed project of Bulk Drug Park | • Land compensation as per rules and regulations of Govt. of Gujarat has been provided to affect all land owners. |
| Transportation (vehicular movement) and operation of machineries | • The construction phase will generate employment opportunity in skilled as well as unskilled categories.<br>• Although the workforce requirement will be temporary in nature, it will be met from the local populace hence, there will be positive impact. | • It will be ensured that contractor provides all necessary amenities like sanitary, drinking water facility, first aid etc. to the workers.<br>• Local businessmen will get opportunity to supply construction materials.<br>• Demands generated from the employees working at site for |
| Civil Construction Activities & Disposal of Construction Debris | | |
| Laying of pipeline for effluent disposal | | |
| Greenbelt Development | | |

| | | |
|---|---|---|
| Employment Generation | • Transportation, movement/ operation of machineries and civil construction activities will generate noise and air pollution, which will impair the health of the nearby community. It may also increase the traffic due to transportation.<br>• Construction workers will require essential basic infrastructure facilities viz. safe drinking water, adequate sanitation, etc. will have temporary impact on the existing facilities.<br>• Greenbelt will enhance the aesthetic value and beautify the landscapes. | basic facilities will increase the local business activity of the area.<br>• During the construction phase 3500 nos. of employment will be generated.<br>• Proper mitigation measure like use of only PUC vehicle for the transportation of materials and equipment, use of well-maintained vehicles etc. will be adopted to reduce various pollution generated by Transportation, movement/ operation of machineries and civil construction activities<br>• Any development, either temporary or permanent will support the family of many villagers. Thus, positive impacts are envisaged on socioeconomic environment. |

**Table 4.14: Environmental Impact Assessment Matrix with Mitigation Measures (Construction Phase)**

| Project Activities | Environmental Attributes | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Air | Water | Soil | Noise | LU/LC | Geo hydrology | Geology | SHW | Risks &Hazards | Ecology & Biodiversity | Socio Economics | Total |
| Land Acquisition | - | - | - | - | - | - | - | - | - | - | -12 | -12 |
| Site clearing & levelling | -8 | - | -12 | -12 | -8 | - | - | -8 | -6 | -8 | - | -62 |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Transportation (vehicular movement) and operation of machineries | -12 | - | -6 | -8 | - | - | - | - | -4 | -4 | +12 | -22 |
| Storage and Handling of construction material | -4 | - | -6 | -6 | - | - | - | - | -4 | - | - | -20 |
| Civil Construction Activities & Disposal of Construction debris | -12 | -8 | -8 | -12 | - | - | - | -12 | -8 | -4 | +12 | -52 |
| Sewage Disposal | - | -4 | -4 | - | - | - | - | - | - | - | - | -8 |
| Laying of pipeline for effluent disposal | -8 | -6 | -4 | -8 | - | - | - | -4 | -4 | -2 | -4 | -40 |
| Greenbelt Development | +9 | -4 | +8 | +10 | +8 | - | - | - | - | +8 | +6 | 45 |
| Employment Generation | - | -6 | - | - | - | - | - | -6 | - | - | +20 | **8** |
| **Cumulative score** | **-35** | **-28** | **-32** | **-36** | **0** | **0** | **0** | **-30** | **-26** | **-10** | **+34** | **-163** |

The total cumulative score for various environmental attributes will reduce to -163 after providing proper mitigation measures during construction phase, which is appreciable to overcome reversible impacts of the project.

The overall and all possible adverse impacts due to various activities during the construction phase on different environmental factors have been identified and predicted. The study shows that the impact is confined within the site boundary, low in magnitude and lasts only for a short duration and will not exist beyond the construction period. On the other hand, due to construction phase of the project components are increased direct & indirect employment opportunities, transport and development of ancillary and associated small-scale units,

restaurants, shops and small vendors. These developments will have a positive impact on the socio-economic structure in the surrounding area of the Bulk Drug Park.

## 4.3 IMPACTS AND MITIGATION MEASURES DURING OPERATION PHASE

Operation phase activities can have significant major impacts on land use, demography and socio-economics, on-site soils and on-site noise, water use, air and water quality and ecology in the study area. During the operation phase, the project activities and their associated impacts have been identified as depicted in below table.

**Table 4.15: Impact Identification Matrix (Operation Phase)**

| Project Activities | Environmental Attributes | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Air | Water | Soil | Noise | LU/LC | Geo hydrology | Geology | SHW | Risks &Hazards | Ecology & Biodiversity | Socio Economics |
| Transportation of Raw Material, Products & Fuels | ✓ | - | ✓ | ✓ | - | - | - | - | ✓ | ✓ | ✓ |
| Handling and Storage of Raw Material, Products & Fuels | ✓ | - | ✓ | - | - | - | - | - | ✓ | - | - |
| Product Manufacturing | ✓ | ✓ | - | ✓ | - | - | - | ✓ | ✓ | - | ✓ |
| Utility Operation | ✓ | - | - | ✓ | - | - | - | - | ✓ | ✓ | ✓ |
| CETP/ ETP/ STP Operation & wastewater discharge | ✓ | ✓ | ✓ | - | - | ✓ | - | - | - | ✓ | - |
| Solid/ Hazardous waste generation & disposal | ✓ | ✓ | ✓ | - | - | ✓ | - | ✓ | - | ✓ | - |
| Discharge of effluent through pipeline | - | ✓ | ✓ | - | - | - | - | - | - | - | - |
| Greenbelt Development | ✓ | ✓ | ✓ | ✓ | ✓ | - | - | - | - | ✓ | ✓ |
| Employment Generation | - | ✓ | - | - | - | - | - | ✓ | - | - | ✓ |

**Table 4.16: Environmental Impact Matrix without Mitigation Measures (Operation Phase)**

| Project Activities | Environmental Attributes | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Air | Water | Soil | Noise | LU/LC | Geo hydrology | Geology | SHW | Risks &Hazards | Ecology & Biodiversity | Socio Economics | Total |
| Transportation of Raw Material, Products & Fuels | -16 | - | -12 | -16 | - | - | - | - | -12 | -6 | 12 | -50 |
| Handling and Storage of Raw Material, Products & Fuels | -16 | - | -8 | - | - | - | - | -6 | -16 | - | - | -46 |
| Product Manufacturing | -20 | -16 | - | -12 | - | - | - | -16 | -16 | - | 12 | -68 |
| Utility Operation | -20 | - | - | -16 | - | - | - | -12 | -12 | -9 | 9 | -60 |
| CETP/ETP/STP Operation & wastewater discharge | -9 | -20 | -16 | - | - | -12 | - | -12 | - | -9 | - | -78 |
| Solid/ Hazardous waste generation & disposal | -9 | -16 | -16 | - | - | - | - | -20 | - | -6 | - | -67 |
| Discharge of effluent through pipeline | - | -16 | -10 | - | - | - | - | - | - | - | - | -26 |
| Greenbelt Development | 12 | -8 | 8 | 12 | 10 | 8 | - | - | - | 10 | 6 | 58 |
| Employment Generation | - | -8 | - | - | - | - | - | -8 | - | - | 20 | 4 |
| Cumulative Score | -78 | -84 | -54 | -32 | 10 | -4 | 0 | -74 | -56 | -20 | 59 | -333 |

The total cumulative score of various project activities phase without mitigation measures during operation would be – 333 as a significant adverse impacts: most of the impacts would be reversible and to reduce them, mitigation measures taken will be crucial.

To overcome and/ or control the associated project impacts during the operational phase, the implementation of environmental management plan will be prime responsibility of BDP authorities and individual member industries.

### 4.3.1 Air Environment

Air pollution during operation phase will be generated due to utility operation of Bulk Drug Park & various operations of individual member industries and vehicular emissions due to transportation of fuel, raw materials and products.

**Prediction and Quantification Air Emissions**

Prediction and quantification air emissions due to project operation are evaluated with scientific and mathematical tools using emission factors and Gaussian plume modeling. Air quality dispersion modelling was performed using AERMOD Cloud software assuming worst-case scenario (considering all possible emission sources running with full load and emission capacity simultaneously) during project operation.

**Air Quality Modelling and Prediction of Impacts**

**Details of Emission Sources**

Emissions sources as flue gas stacks and process gas vents were considered as a point source. The movement of traffic (Transport vehicles plus passenger vehicles) were considered as road/ line source in the study area of 10 kms. The Cumulative Air Quality Modeling for the proposed Bulk Drug Park spreads in 1405 acres was carried out by considering as an area source to predict the impact on ambient air quality during the operational phase. The prediction has been done by using AERMOD View Gaussian Plume Dispersion model. The overall air emission sources considered for air quality modeling and prediction of environmental impacts during project operation has been depicted in **Table 4.17.**

**Table 4.17: Air emission sources considered for assessment and prediction of environmental impacts during project operation**

| Sr. No. | Type of Source | Capacity/ Qty. |
|---|---|---|
| **Stationary Sources** | | |
| 1. | Industrial Boilers | 6x50 TPH |
| 2. | Incinerators | 4x25 TPH |

| | | |
|---|---|---|
| 3. | DG Sets | 2x1000 KVA |
| 4. | Process Reactors | 80 Nos. |
| **Mobile Sources (Vehicles)** | | |
| 5. | Trucks (Heavy vehicle, Diesel) | 80 |
| 6. | Buses (Heavy vehicle, Diesel/CNG) | 480 |
| 7. | Passenger SUVs & Cars (Diesel/Petrol/CNG) | 820 |
| 8. | Two wheelers (Motor cycles and scooters-Petrol) | 1600 |
| 9. | Three wheelers (Auto-rickshaws-Diesel/Petrol/CNG) | 100 |

A number of sources from the proposed project which can cause potential impacts on Air environment during operation phase are discussed as below:

- Flue gas emission of PM10, PM2.5, SO2, & NOx and CO from the stack attached to Boilers (6x50 TPH), Incinerators-4Nos. and D.G Sets (2x1000 KVA) of BDP and Process Reactors – 80 Nos. of member API industries (70-80 units).
- Vehicular exhaust emissions of PM10, PM2.5, SO2, & NOx and CO from Trucks–80 Nos., Buses–480 Nos., Cars–820 Nos., Bikes–1600 Nos. and Autos–100 Nos. associated to the project operation.
- Process emission of NH3, Cl2, Br2, HCl, HBr, BTX (Benzene, Toluene, Xylene), Acetonitrile and Dichloromethane from the vent attached to Reactors-80Nos. of member API industries (70-80 units).

The parameters were considered for dispersion modeling for an area source as blow

- Quantity of fuel;
- Emission rate of pollutants and;
- Length of the X and Y Side and Orientation Angel from North

The parameters were considered for dispersion modeling for Stack and Vent as

- Height from ground level;
- Internal diameter at top;
- Exit flue gas velocity;
- Exit flue gas temperature and;
- Efficiencies of air pollution control devices (APCDs) installed.

The details of overall emission sources associated to proposed Bulk Drug Park are as given below in **Table 4.18** and **Table 4.19**.

**Table 4.18: Details of Major Source Emissions during Project Operation**

| S. No. | Input Parameter | | | | |
|---|---|---|---|---|---|
| 1. | Source of Emission | Boiler | Incinerator | DG Set | Process Duct (Reactor) |
| 2. | Qty. & Capacity of Source | 6x50 TPH (Working 3x50TPH, Standby 3x50TPH) | 100 TPH (40+30+20+10) (Working 50TPH, Standby 50TPH) | 2x1000 kva (Working 1000kva, Standby 1000kva) | 80 |
| 3. | Fuel Type | Rice Husk | HSD/CNG/LPG | HSD | Electricity |
| 4. | Fuel Consumption | 37,500 kg/hr | 150 ltr/h HSD | 200 ltr/h | - |
| 5. | APCD installed | ESP | Wet Scrubber | NA | Wet Scrubber |
| 6. | Stack height from Ground (m) | 90 | 90 | 60 | 10 |
| 7. | Inner Dia of Stack/Duct (m) | 1 | 0.5 | 0.5 | 0.3 |
| 8. | Temperature of Flue Gas (°C) | 120 | 150 | 400 | Ambient |
| 9. | Velocity of Flue Gas (m/s) | 10 | 15 | 15 | 3 |

**Table 4.19: Details of Vehicular Emissions during Project Operation**

| Emission Factors for Indian Vehicles | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Type of Vehicle** | **Emission Factor, EF (gm/km/vehicle)** | | | **No. of Vehicles in day** | **Road Length travelled (km)** | **Vehicular Emission Load (gm/day) = No. of vehicles in a day*Road Length (km)*EF (gm/km/vehicle)** | | |
| | **CO** | **NOx** | **PM** | | | **CO** | **NOx** | **PM** |
| HCV Trucks Diesel | 6.00 | 9.30 | 1.24 | 80 | 20 | 9600 | 14880 | 1984 |
| HCV Bus Diesel | 3.92 | 6.53 | 0.30 | 240 | 20 | 18816 | 31344 | 1440 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| HCV Bus CNG | 3.72 | 6.21 | 0.04 | 240 | 20 | 17856 | 29808 | 211 |
| LCV Diesel | 3.66 | 2.12 | 0.48 | 10 | 20 | 732 | 424 | 95 |
| MUV Diesel | 0.25 | 0.67 | 0.1 | 10 | 20 | 50 | 134 | 19 |
| Passenger Cars LPG | 2.72 | 0.20 | 0.002 | 200 | 20 | 10880 | 800 | 8.0 |
| Passenger Cars CNG | 0.60 | 0.01 | 0.002 | 200 | 20 | 2400 | 40 | 8.0 |
| Passenger Cars Diesel | 0.06 | 0.28 | 0.02 | 200 | 20 | 240 | 1120 | 60 |
| Passenger Cars Petrol | 0.84 | 0.090 | 0.002 | 200 | 20 | 3360 | 360 | 8.0 |
| Three Wheeler CNG Retro 2S | 0.69 | 0.19 | 0.12 | 20 | 10 | 138 | 38 | 24 |
| Three Wheeler CNG OEM 4S | 1.00 | 0.50 | 0.02 | 20 | 10 | 200 | 100 | 3.0 |
| Three Wheeler Diesel | 0.41 | 0.51 | 0.09 | 20 | 10 | 82 | 102 | 18 |
| Three Wheelers (4Stroke) | 2.29 | 0.53 | 0.010 | 20 | 10 | 458 | 106 | 2.0 |
| Three Wheelers (2Stroke) | 1.15 | 0.16 | 0.04 | 20 | 10 | 230 | 32 | 8.6 |
| Motorcycle (4 s) (>100cc) | 0.72 | 0.15 | 0.010 | 1000 | 10 | 7200 | 1500 | 100 |
| Scooter (4 Stroke) (>100cc) | 0.40 | 0.25 | 0.02 | 600 | 10 | 2400 | 1500 | 90 |
| Total Vehicular Emission Load (gm/day) | | | | | | 74642 | 82288 | 4079 |
| Vehicles running hours per day | | | | | | 2 | 2 | 2 |
| Total Vehicular Emission Rate (gm/sec/day) | | | | | | 10.4 | 11.4 | 0.57 |

**Prediction of GLCs**

The estimation and evaluation of atmospheric emissions from proposed activity involves a number of scientific inputs i.e. meteorology and surface data and source strength and quantity of emissions from each activity/ process/ source associated to project operation. Prediction of GLC was done in case that plant is operational at full load with all proposed emission sources, transport vehicles as heavy trucks for material transportation and passenger vehicles for employees and workers plying on road on daily basis.

Air emissions were estimated based on following hypothesis/ assumptions as

- Operation of common facilities of Boilers for steam generation, Incinerators and DG sets for power backup for 10 hours in a day.
- DG sets will only be operated for power backup in case of power failure only.
- The vehicular emission factors were used as calculated by CPCB & ARAI, Pune report.
- Daily movement of vehicles (heavy trucks and passenger vehicles) in the study area about 20kms/ per day.

The average vehicular emission factors were calculated with following assumptions as

- The vehicle models were taken after the manufacturing year of 2005 (ARAI, Pune).
- The average emission factors were calculated using each type of vehicle category based on type and model, capacity and fuel used as petrol/diesel/CNG/LPG to explore the worst case scenario.

The source specific assumptions considered are as follows:

- The flue gas emission rate of stacks for PM and SO2 were calculated based on the Ash and Sulphur content specification of fuel used
- The flue gas emission rate of stacks for NOx were calculated based on respective flue gas emission standards.
- The process emission rates for NH3, Cl2, Br2, HCl, HBr, BTX, Acetonitrile and Dichloromethane were calculated based on emission standards.
- The terrain of the study area was considered as hilly.

- The mathematical equations used for the dispersion modeling assumes that the earth surface acts as a perfect reflector of plume and physio-chemical processes such as dry and wet deposition and chemical transformation of pollutants are negligible.

Prediction of GLC was done based on two approaches as

- GLC during plant operation in worst case conditions (without pollution control measures or failure of APCD/ process) and
- GLC during plant operation with controlled conditions (with effective pollution control measures/APCDs).

The details of overall emission sources associated to proposed Bulk Drug Park are considered during plant operation as given in **Table 4.20** and **Table 4.21.**

**Table 4.20: Details of Source Emissions during Project Operation (Stack Emissions)**

| S. No. | Description | | | | |
|---|---|---|---|---|---|
| 1. | Source of Emission | | Boiler | Incinerator | DG Set |
| 2. | Qty. & Capacity of Source | | 6x50 TPH (Working 3x50TPH, Standby 3x50TPH) | 100 TPH (40+30+20+10) (Working 50TPH, Standby 50TPH) | 2x1000 kva (Working 1000kva, Standby 1000kva) |
| 3. | Fuel Type | | Rice Husk | HSD/CNG/LPG | HSD |
| 4. | Fuel Consumption | | 37,500 kg/hr | 150 ltr/h HSD | 200 ltr/h |
| 5. | Stack height from Ground (m) | | 90 | 90 | 60 |
| 6. | Inner Dia of Stack/Duct (m) | | 1 | 0.5 | 0.5 |
| 7. | Temperature of Flue Gas (°C) | | 120 | 150 | 400 |
| 8. | Velocity of Flue Gas (m/s) | | 10 | 15 | 15 |
| 9. | Volumetric Flow Rate of Flue Gas ($Nm^3/hr$) | | 21091 | 19596 | 4619 |
| 10. | APCD installed | Without APCD | - | - | - |
| | | With APCD | ESP | Wet scrubber | - |
| 11. | Emission Rate of $PM_{10}$ (g/s) | Without APCD | 58 | 2.72 | 0.096 |
| | | With APCD | 0.29 | 0.27 | 0.096 |
| 12. | Emission Rate of $PM_{2.5}$ (g/s) | Without APCD | 41 | 1.9 | 0.064 |
| | | With APCD | 0.20 | 0.19 | 0.064 |
| 13. | Emission Rate of $NO_x$ (g/s) | Without APCD | 0.58 | 2.71 | 0.26 |
| | | With APCD | 0.58 | 0.82 | 0.26 |
| 14. | Emission Rate | Without APCD | 0.59 | 5.5 | 0.19 |

| | | | | | |
|---|---|---|---|---|---|
| | of CO (g/s) | With APCD | 0.59 | 0.54 | 0.19 |
| 15. | Emission Rate of $SO_2$ (g/s) | Without APCD | 0.12 | 5.4 | 0.064 |
| | | With APCD | 0.12 | 0.52 | 0.063 |

**Table 4.21: Details of Source Emissions during Project Operation (Process/ Vent Emissions)**

| Pollutant | Limits ($mg/Nm^3$) | Dia of Duct (m) | Area of Duct ($m^2$) | Velocity of Flue gas (m/s) | APCD used | Emission Rate per duct (g/s) | Total Emission Rate (g/s) |
|---|---|---|---|---|---|---|---|
| $NH_3$ | 30 | 0.3 | 0.071 | 3 | Wet Scrubber | 0.0064 | 0.51 |
| $Cl_2$ | 15 | 0.3 | 0.071 | 3 | Wet Scrubber | 0.0032 | 0.25 |
| $Br_2$ | 15 | 0.3 | 0.071 | 3 | Wet Scrubber | 0.0032 | 0.25 |
| HCl | 35 | 0.3 | 0.071 | 3 | Alkali Scrubber | 0.0074 | 0.59 |
| HBr | 35 | 0.3 | 0.071 | 3 | Alkali Scrubber | 0.0074 | 0.59 |
| Benzene | 5 | 0.3 | 0.071 | 3 | Wet Scrubber | 0.0011 | 0.08 |
| Toluene | 100 | 0.3 | 0.071 | 3 | Wet Scrubber | 0.021 | 1.7 |
| Xylene | 100 | 0.3 | 0.071 | 3 | Wet Scrubber | 0.021 | 1.7 |
| Dichloro-methane | 200 | 0.3 | 0.071 | 3 | Wet Scrubber | 0.042 | 3.4 |
| Acetonitrile | 1000 | 0.3 | 0.071 | 3 | Wet Scrubber | 0.21 | 17 |
| Acetone | 2000 | 0.3 | 0.071 | 3 | Wet Scrubber | 0.42 | 34 |
| HCl - Worst case | - | 0.3 | 0.071 | 3 | - | 0.0743 | 5.94 |
| Benzene - Worst case | - | 0.3 | 0.071 | 3 | - | 0.01 | 0.85 |

**GLCs during worst-case/ without APCDs**

**Fig. 4.2: GLCs/ Isopleths of $PM_{10}$ during project operation in worst-case/ without APCDs**

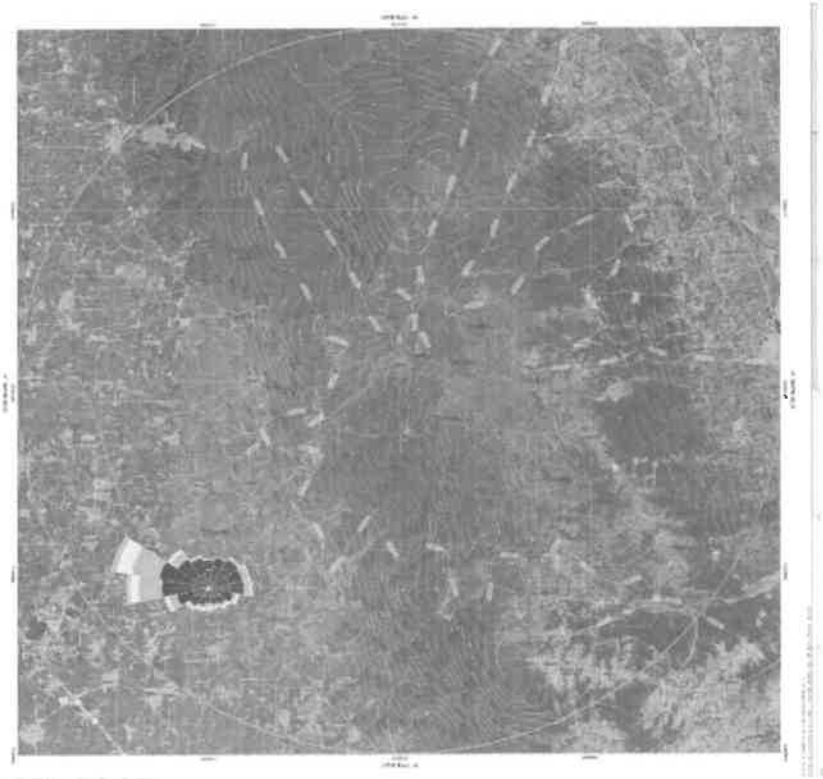

**Fig. 4.3: GLCs/ Isopleths of NOx during project operation in worst-case/ without APCDs**

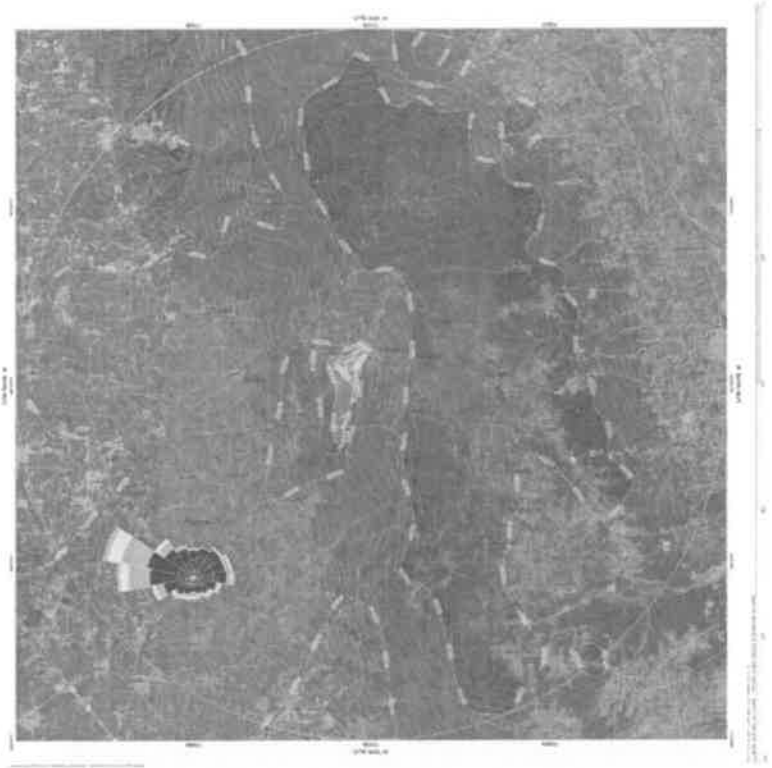

**Fig. 4.4: GLCs/ Isopleths of HCl during project operation in worst-case/ without APCDs**

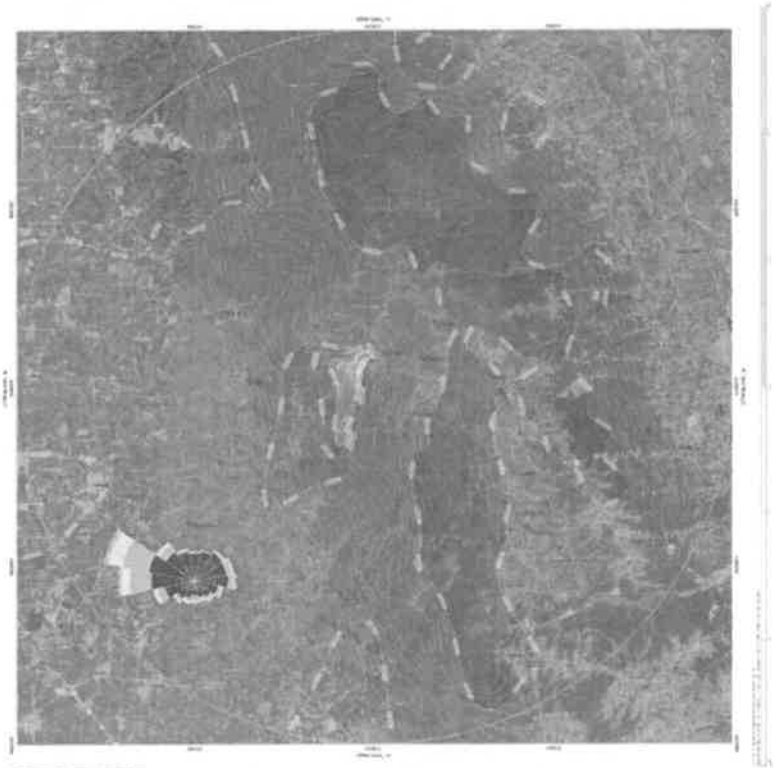

**Fig. 4.5: GLCs/ Isopleths of Benzene during project operation in worst-case/ without APCDs**

**GLCs during controlled conditions/ with APCDs**

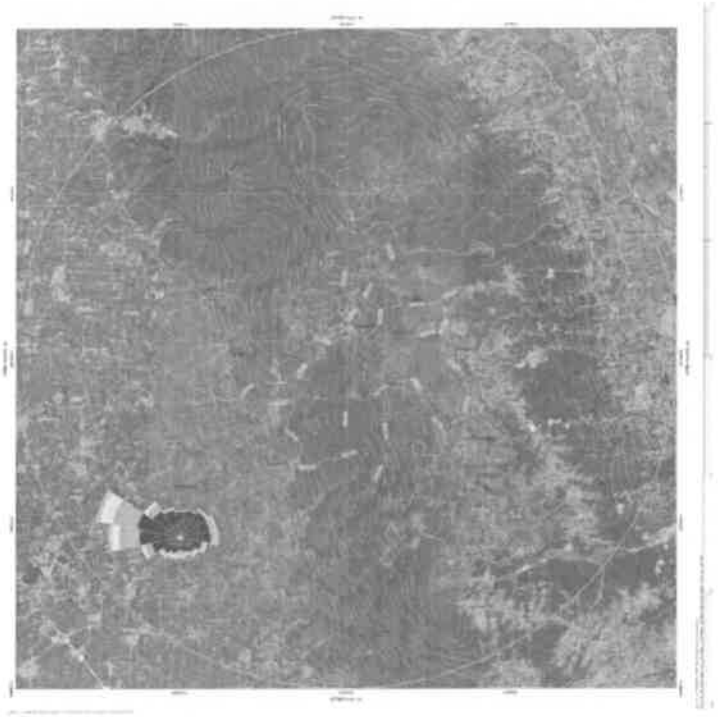

**Fig. 4.6: GLCs/Incremental Emissions of $PM_{10}$ during controlled conditions/ with APCDs**

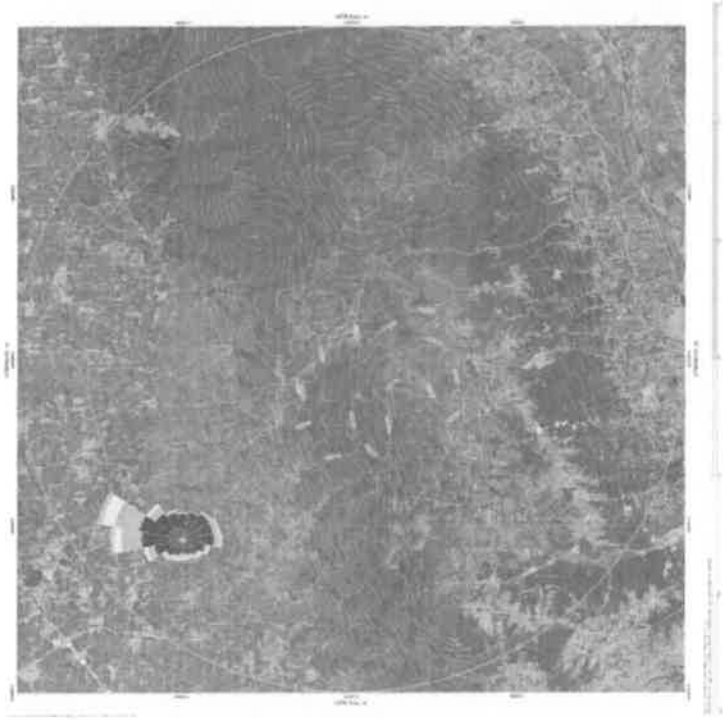

**Fig. 4.7: GLCs/Incremental Emissions of $PM_{2.5}$ during controlled conditions/ with APCDs**

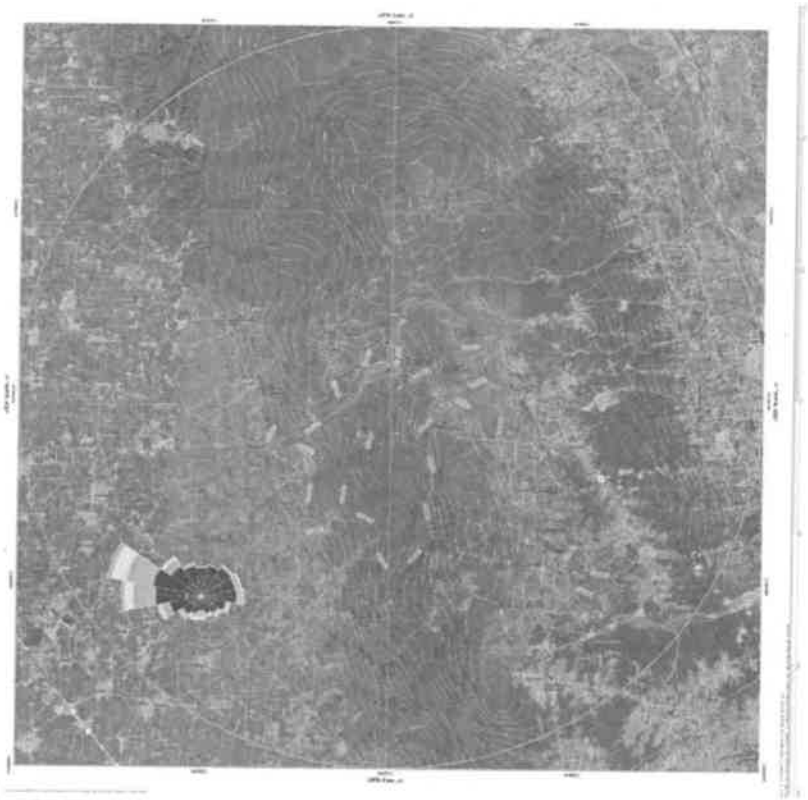

**Fig. 4.8: GLCs/Incremental Emissions of NOx during controlled conditions/ with APCDs**

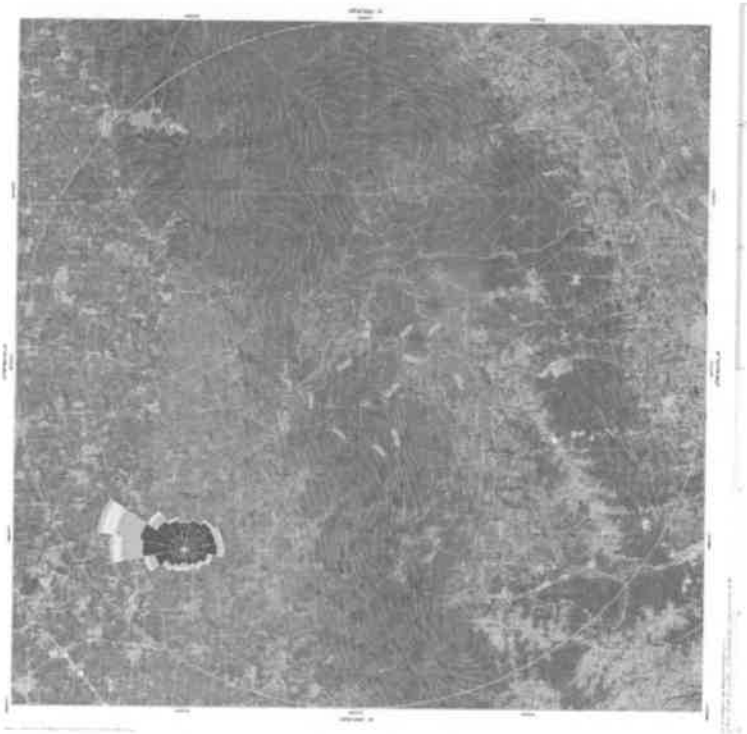

**Fig. 4.9: GLCs/Incremental Emissions of SO2 during controlled conditions/ with APCDs**

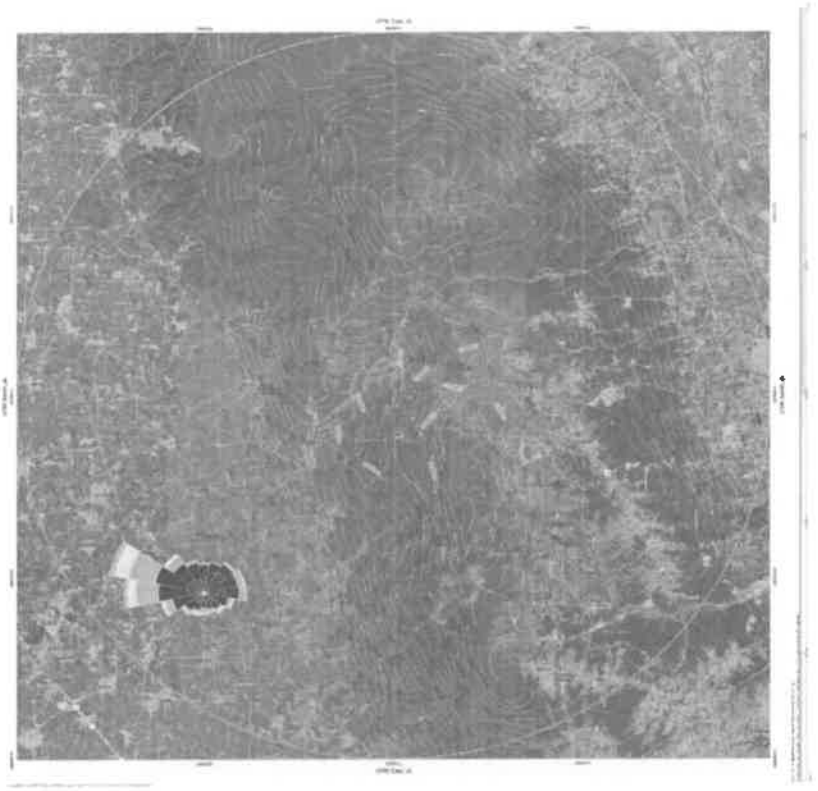

**Fig. 4.10: GLCs/Incremental Emissions of CO during controlled conditions/ with APCDs**

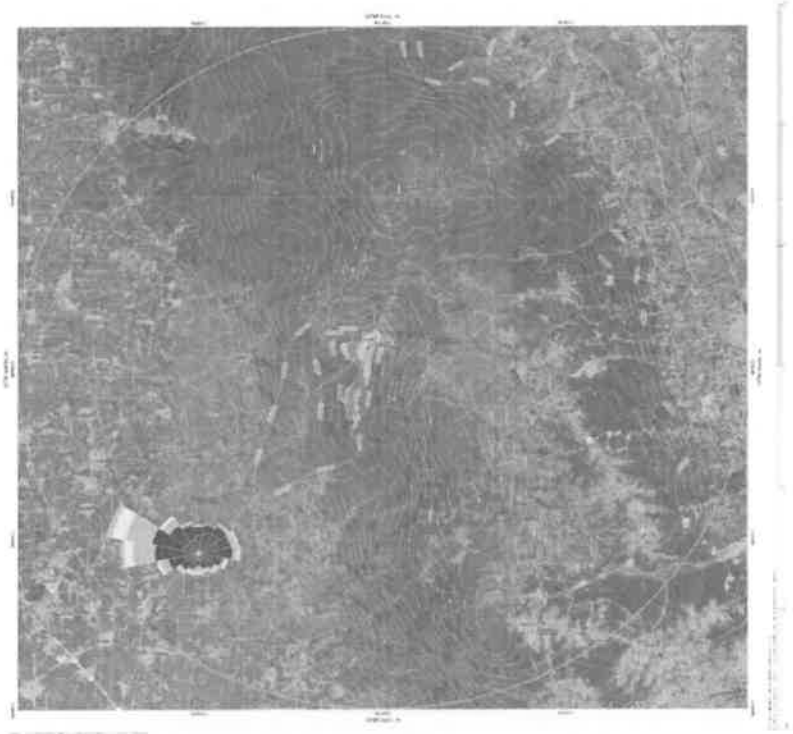

**Fig. 4.11: GLCs/Incremental Emissions of $NH_3$ during controlled conditions/ with APCDs**

**Fig. 4.12; GLCs/Incremental Emissions of HCl during controlled conditions/ with APCDs**

**Fig. 4.13: GLCs/Incremental Emissions of Benzene during controlled conditions/ with APCDs**

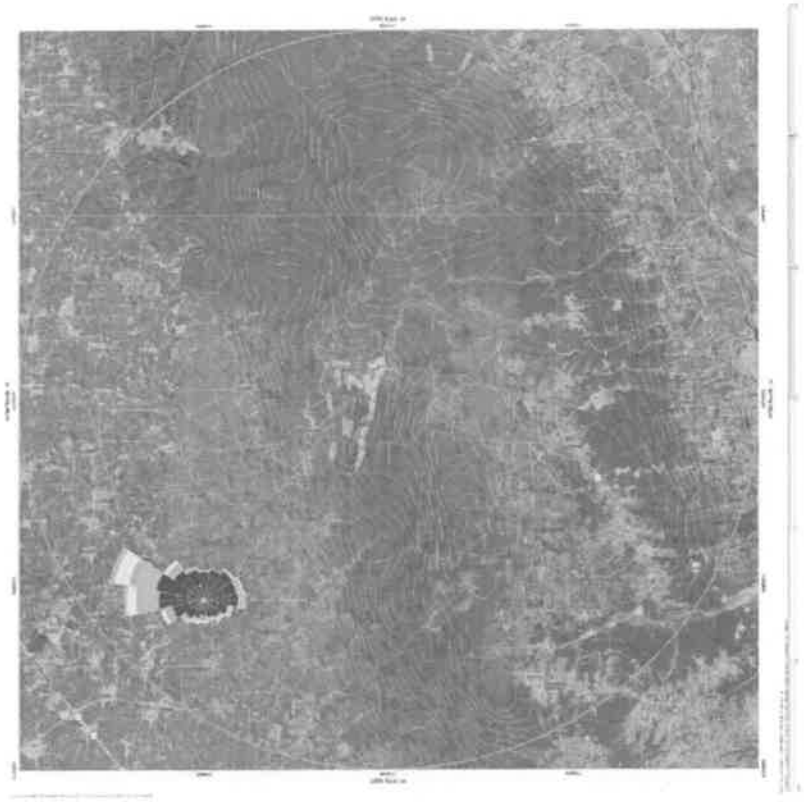

**Fig. 4.14: GLCs/Incremental Emissions of Chlorine during controlled conditions/ with APCDs**

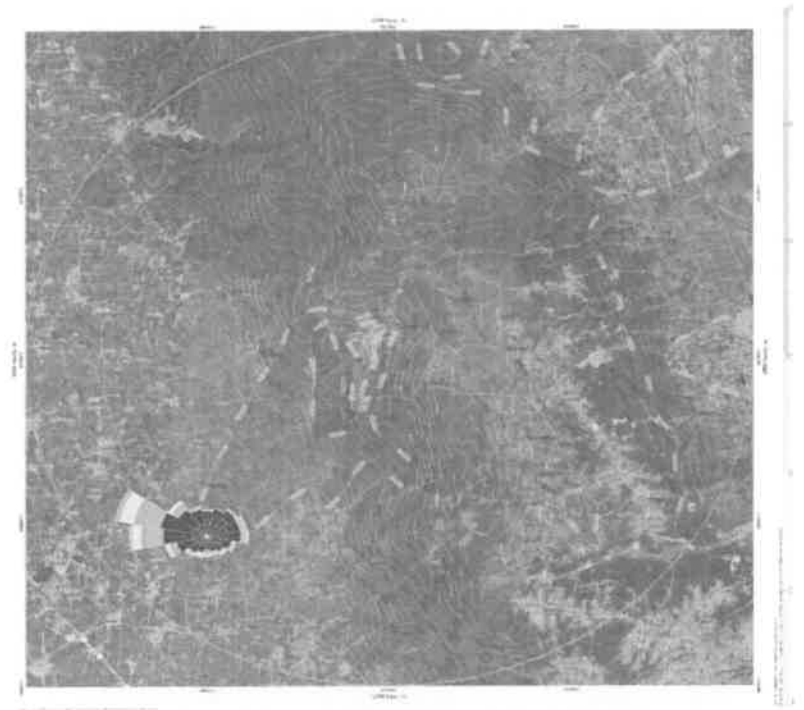

**Fig. 4.15: GLCs/Incremental Emissions of Dichloromethane during controlled conditions/ with APCDs**

**Fig. 4.16: GLCs/Incremental Emissions of Acetonitrile during controlled conditions/ with APCDs**

**Prediction of impacts on Air Environment**

**Table 4.22: A comparative overview of Max. GLCs during project operation in worst-case (without APCDs) and controlled conditions (with APCDs) in core zone area**

| Parameter | Baseline Data (Max. 98$^{th}$ %) | Max. GLC (Worst-case/ without APCDs) | Max. GLC (Controlled Cond./ with APCDs) | NAAQ Limits (CPCB, 2009) |
|---|---|---|---|---|
| $PM_{10}$ ($\mu g/m^3$) | 84.1 | 37.5 | 10.0 | 100 |
| $NO_x$ ($\mu g/m^3$) | 22.5 | 21.1 | 9.8 | 80 |
| HCl ($\mu g/m^3$) | - | 29.9 | 10.1 | - |
| Benzene ($\mu g/m^3$) | - | 4.3 | 0.4 | 5 |

**Table 4.23: Prediction of GLC and Assessment of Impacts on Air Environment (µg/m3) within the study area**

| Pollutant | Conc. | Village Chak Narial | Village Khanni | Villae Mohalla Nathan | Village Dulehar | Village Makorgarh | Village Kuthar Beet | Village Baliwal | Village Tahliwal | Project Site ( Panipivan) | Project Site (Polian Beet) | NAAQ Limits (CPCB, 2009) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| $PM_{10}$ | Baseline | 69.5 | 72.2 | 69.4 | 82.3 | 79.9 | 79 | 75.7 | 84.1 | 72.9 | 75.2 | 100 |
| | Incremental | 0.02 | 0.05 | 0.01 | 0.06 | 0.1 | 0.12 | 0.13 | 0.03 | 0.27 | 0.23 | |
| | Cumulative | 69.5 | 72.3 | 69.4 | 82.4 | 80 | 79.1 | 75.8 | 84.1 | 73.2 | 75.4 | |
| $PM_{2.5}$ | Baseline | 37 | 40.4 | 38.8 | 43.5 | 44.1 | 41.1 | 40.5 | 44.6 | 40.6 | 39.5 | 60 |
| | Incremental | 0.01 | 0.04 | 0.01 | 0.05 | 0.08 | 0.1 | 0.1 | 0.02 | 0.21 | 0.18 | |
| | Cumulative | 37.0 | 40.4 | 38.8 | 43.6 | 44.2 | 41.2 | 40.6 | 44.6 | 40.8 | 39.7 | |
| $SO_2$ | Baseline | 9.9 | 10.3 | 10.4 | 12.9 | 10.9 | 12 | 11.7 | 14.2 | 10.3 | 10.7 | 80 |
| | Incremental | 0 | 0 | 0 | 0 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | |
| | Cumulative | 9.9 | 10.3 | 10.4 | 12.9 | 10.9 | 12.0 | 11.7 | 14.2 | 10.3 | 10.7 | |
| $NO_x$ | Baseline | 15 | 16.3 | 16.2 | 20.7 | 18.9 | 20.4 | 19.7 | 22.5 | 17.9 | 16.9 | 80 |
| | Incremental | 0.01 | 0.09 | 0.01 | 0.06 | 0.06 | 0.07 | 0.08 | 0.04 | 0.15 | 0.13 | |
| | Cumulative | 15.0 | 16.4 | 16.2 | 20.8 | 19.0 | 20.5 | 19.8 | 22.5 | 18.0 | 17.0 | |
| $NH_3$ | Baseline | 7.6 | 8.1 | 7.9 | 9.0 | 8.6 | 8.9 | 8.6 | 9.4 | 8.2 | 8.5 | 400 |
| | Incremental | 0.15 | 0.18 | 0.27 | 0.07 | 0.06 | 0.08 | 0.07 | 0.43 | 0.23 | 0.09 | |
| | Cumulative | 7.75 | 8.28 | 8.17 | 9.07 | 8.66 | 8.98 | 8.67 | 9.83 | 8.43 | 8.59 | |
| CO | Baselin | 37 | 39 | 39 | 48 | 44 | 52 | 42 | 58 | 400 | 400 | 4000 |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | e | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | |
| | Incremental | 0.92 | 2.5 | 0.4 | 3.05 | 5.32 | 6.53 | 6.87 | 1.66 | 14 | 12.05 | |
| | Cumulative | 370.9 | 392.5 | 390.4 | 483.0 | 445.3 | 526.5 | 486.9 | 581.7 | 414 | 412.05 | |
| $Cl_2$ | Baseline | - | - | - | - | - | - | - | - | - | - | - |
| | Incremental | 0.07 | 0.09 | 0.13 | 0.03 | 0.03 | 0.04 | 0.03 | 0.21 | 0.11 | 0.04 | |
| | Cumulative | 0.07 | 0.09 | 0.13 | 0.03 | 0.03 | 0.04 | 0.03 | 0.21 | 0.11 | 0.04 | |
| HCl | Baseline | - | - | - | - | - | - | - | - | - | - | - |
| | Incremental | 0.17 | 0.2 | 0.31 | 0.08 | 0.07 | 0.09 | 0.08 | 0.49 | 0.26 | 0.1 | |
| | Cumulative | 0.17 | 0.2 | 0.31 | 0.08 | 0.07 | 0.09 | 0.08 | 0.49 | 0.26 | 0.1 | |
| Benzene | Baseline | - | - | - | - | - | - | - | - | - | - | 5 |
| | Incremental | 0.02 | 0.03 | 0.04 | 0.01 | 0.01 | 0.01 | 0.01 | 0.07 | 0.04 | 0.01 | |
| | Cumulative | 0.02 | 0.03 | 0.04 | 0.01 | 0.01 | 0.01 | 0.01 | 0.07 | 0.04 | 0.01 | |
| Dichloro-methane | Baseline | - | - | - | - | - | - | - | - | - | - | - |
| | Incremental | 1 | 1.18 | 1.78 | 0.48 | 0.38 | 0.53 | 0.44 | 2.85 | 1.5 | 0.59 | |
| | Cumulative | 1 | 1.18 | 1.78 | 0.48 | 0.38 | 0.53 | 0.44 | 2.85 | 1.5 | 0.59 | |
| Acetonitrile | Baseline | - | - | - | - | - | - | - | - | - | - | - |
| | Incremental | 5.02 | 5.9 | 8.9 | 2.38 | 1.91 | 2.64 | 2.19 | 14.25 | 7.52 | 2.95 | |
| | Cumulative | 5.02 | 5.9 | 8.9 | 2.38 | 1.91 | 2.64 | 2.19 | 14.25 | 7.52 | 2.95 | |

**Observations & Findings of Air Modelling**

The prediction of GLCs/ incremental load was assessed in both cases of project operation as worst-case (without APCDs/ control measures) and controlled conditions (with APCDs/ control measures). In worst-case scenario (without APCD and/or failure of plant process).

**Prediction of GLCs/ incremental load during worst-case scenario**

The maximum cumulative load of PM10 will be 131.6 µg/m3 (Baseline Max. 84.1 + incremental Max. 37.5 µg/m3), NOx will be 43.6 µg/m3 (Baseline Max. 22.5 + Max. incremental 21.1 µg/m3), HCl will be 29.9 µg/m3 and Benzene will be 4.3 µg/m3

**Prediction of GLCs/ incremental load during controlled conditions**

In controlled conditions (with APCD /effective control measures), the maximum cumulative load of PM10 will be 94.1 µg/m3 (Baseline Max. 84.1 + incremental Max. 10 µg/m3), NOx will be 32.3 µg/m3 (Baseline Max. 22.5 + incremental max. 9.8 µg/m3), HCl will be 10.1 µg/m3 and Benzene will be 0.4 µg/m3.

The total predictive GLCs due to project operation in controlled conditions are overserved as

- PM10 in the range of 69.4-84.1 µg/m3 at receptors in the study area and 94.1 µg/m3 at core zone area is within the NAAQ Standard limit of 100 µg/m3 (CPCB, 2009).
- PM2.5 in the range of 37-44.6 µg/m3 at receptors in the study area and 52.5 µg/m3 at core zone area is within the NAAQ Standard limit of 60 µg/m3 (CPCB, 2009).
- NOx (as NO2) in the range of 15-22.5 µg/m3 at receptors in the study area and 32.3 µg/m3 at core zone area is within the NAAQ Standard limit of 80 µg/m3 (CPCB, 2009).
- SO2 in the range of 9.9-14.2 µg/m3 at receptors in the study area and 14.7 µg/m3 at core zone area is within the NAAQ Standard limit of 80 µg/m3 (CPCB, 2009).
- NH3 in the range of 7.75-9.83 µg/m3 at receptors in the study area and 12 µg/m3 at core zone area is within the NAAQ Standard limit of 400 µg/m3 (CPCB, 2009).
- CO in the range of 370.9-581.7 µg/m3 at receptors in the study area and 1107 µg/m3 at core zone area is within the NAAQ Standard limit of 4000 µg/m3 (CPCB, 2009).
- Cl2 in the range of 0.03-0.21 µg/m3 at receptors in the study area and 1.26 µg/m3 at core zone area is within the safe limits.

- HCl in the range of 0.07-0.49 µg/m3 at receptors in the study area and 2.98 µg/m3 at core zone area is within the safe limits.
- Benzene in the range of 0.01-0.07 µg/m3 at receptors in the study area and 0.4 µg/m3 at core zone area is within the safe limits.
- Dichloromethane in the range of 0.38-2.85 µg/m3 at receptors in the study area and 17.1 µg/m3 at core zone area is within the safe limits.
- Acetonitrile in the range of 1.91-14.25 µg/m3 at receptors in the study area and 58.7 µg/m3 at core zone area is within the safe limits.

**Conclusion of Air Quality Modelling**

The prediction of air quality due to proposed project was studied using AERMOD cloud (version 18.8) and local meteorological data in order to ensure compliance with the standard limits of ambient air quality (CPCB, 2009). The prediction of GLCs/ incremental load was assessed in both cases of project operation as worst-case (without APCDs/ control measures) and controlled conditions (with APCDs/ control measures). In worst-case scenario (without APCD and/or failure of plant process), the maximum cumulative load of $PM_{10}$ will be 131.6 $\mu g/m^3$, NOx will be 43.6 $\mu g/m^3$, HCl will be 29.9 $\mu g/m^3$ and Benzene will be 4.3 µg/m3 can deteriorate the air quality with sever health and environmental impacts. Hence this condition will be avoided in any circumstances and the project will be operated with proper and effective pollution control measures, regular checkups and maintenance of APCDs and plant process at all stages of the operation.

In controlled conditions (with APCD /effective control measures), the maximum cumulative load of PM10 will be 94.1 µg/m3, NOx will be 32.3 µg/m3, HCl will be 10.1 µg/m3 and Benzene will be 0.4 µg/m3. The overall maximum loads at receptors within the study area will be PM10 as 69.4-84.1 µg/m3, PM2.5 as 37-44.6 µg/m3, NO2 as 15-22.5 µg/m3, SO2 as 9.9-14.2 µg/m3, NH3 as 7.75-9.83 µg/m3, CO as 370.9-581.7 µg/m3, Cl2 as 0.03-0.21 µg/m3, HCl as 0.07-0.49 µg/m3, Benzene as 0.01-0.07 µg/m3, Dichloromethane as 0.38-2.85 µg/m3 and Acetonitrile as 1.91-14.25 µg/m3 indicates the minor change in air quality with no significant health and environmental impacts.

Implementation of Environmental Management Plan, daily checkups and routine maintenance of APCDs and process equipment/ machinery, water sprinkling, tree planting and good

housekeeping can minimize the air pollution and can protect the environment at a great extent. The major point sources of air pollution will be provided with appropriate air pollution control systems and effective stack heights to limit the air pollutant emissions within the general permissible norms <50 mg/Nm3. Use of PUC certified vehicles and engines with routine maintenance, paved roads and loading/ unloading areas will also be ensured to curb the air emissions. Fugitive emissions of fumes, mists and toxic gases in work environment will be removed by adequate and effective ventilation systems.

**Table 4.24: Impact on Air Environment and Mitigation Measures**

| Project Activity | Impact | Mitigation Measures |
|---|---|---|
| Transportation of Raw Material, Products and fuels | ▪ Gases emission likes PM, SO2 and NOx from diesel operated vehicles and machineries.<br>▪ During movement of vehicles, fine dust settled on the roads get airborne and remains suspended for a long time. Repetitive movement of vehicles throughout the day leads to substantial fugitive emissions. It can have pronounced effect on people's health and wellbeing. | ▪ Valid PUC certified vehicles will be used for transportation of material and equipment.<br>▪ Trucks used for transportation of raw material and products will be closed/ covered with tarpaulin sheet to avoid fugitive material dispersion at site.<br>▪ BDP authority will develop internal tar road in park and also within the plot premises pucca road will be developed by Individual member industries.<br>▪ Fugitive emissions will be minimized by water sprinkling on roads and regular vehicular maintenance.<br>▪ Vehicular speed inside the park will be restrained to 20 kmph to reduce the possibility of dust emissions |
| Handling and Storage of Raw Material, Products and fuels | ▪ Fugitive emission may occur due to improper storage and handling of raw materials and products which may impact workers' health. | ▪ Industrial members will store raw materials in closed containers and the same will be handled through closed system to avoid direct contact and handling losses.<br>▪ Manual handling of raw materials will be avoided.<br>▪ Adequate PPE's will be provided to workers. |

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| Product Manufacturing & utility operation | ▪ Flue gases like PM, SO2 and NOx etc. will be generated from boilers of common steam supply facility of the bulk drug park and from individual units on operation of various utilities like boilers, Thermic fluid heater and Hot air generator, D.G sets etc., which may increase pollutant level in air environment and impact worker's health.<br>▪ From common solvent recovery plant of Bulk Drug Park and chemical handling plants of individual industries, VOCs are likely to be generated which may cause eye and respiratory tract irritation and other serious health impacts.<br>▪ From individual industries process gas emission like PM, SO2, NOX, HCl, HBr, Cl2, Br2 and NH3, etc. will also be generated, which may have chronic health impacts on workers.<br>▪ Operation of various units in the park will create cumulative impact and will increase ground level concentration.<br>▪ Adverse air quality will directly and indirectly | ▪ For controlling flue gas and process gas emissions, appropriate APCM along with adequate stack height as per CPCB, MoEFCC guidelines will be provided by BDP Authorities & industrial member units.<br>▪ Along with boilers, Thermic fluid heater and Hot air generator etc. adequate APCs like MDS, Bag filer and ESP etc. will be provided.<br>▪ To control the VOC emission from storage and handling of solvent, closed loop system, Mechanical seal and breather valve, Sufficient<br>▪ HTA, chilled water & brine circulation etc. will be provided by BDP Authorities & individual member industries.<br>▪ To control the process gas emission appropriate APCM like water scrubber, alkali/acid scrubber, cyclone separator, bag filter, adequate vent height etc. be provided by member industries.<br>▪ It will be mandatory for all the industries in the proposed park to obtain Consent to Establish and Consent to Operate from GPCB under section 21 of Air (Prevention and Control of Pollution) Act, 1981<br>▪ Strict compliance with the standards and condition of CPCB will be mandated, wherever applicable and necessary.<br>▪ Air modelling has been carried out considering all the flue gas and process gas emission from BDP & individual industries, and after addition of cumulative incremental in baseline concentration; resultant concentration is within the |

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| | affect to people and flora-fauna of nearby vicinity. | permissible limits.<br>▪ Post project ambient air quality monitoring will be carried out regularly at selected locations by BDP as well as individual Industries. |

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| Greenbelt Development | ▪ Positive impact due to greenbelt development as it will act natural barrier for controlling dust emissions. | ▪ BDP will develop 19% area of greenbelt in the park in 15 m wide belt along the periphery of the park and individual units will maintain 14 % green area of the total plot area.<br>▪ Trees species to be planted in park shall be in line with the guidelines recommended by CPCB for developing greenbelt. |

### 4.3.2 Water Environment

**Table 4.25: Impact on Water Environment and Mitigation Measures**

| Project Activity | Impact | Mitigation Measures |
|---|---|---|
| Product Manufacturing & utility operation | ▪ API manufacturing involves extensive usage of water in process and utilities. The water demand for manufacturing and non-manufacturing area, services, and greenbelt development is will lead to shortage of water in surrounding area. | ▪ At initial stage of project, the water demand of 15 MLD will be met from ground water and waste water will be treated CETP with ZLD technology and treated water will be used in project demand only. In later stage of project, during full occupancy by industrial units, the water will be tapped from Satluj river having adequate capacity to cater the demand of the park. BDP Una has already obtained water permission letter from the BBMB and state Govt. authority. |
| CETP/ETP/STP operation & wastewater discharge | ▪ Industrial effluent generated from process, utility, washing, scrubbers etc., which if disposed off without proper treatment may pollute nearby ground and surface water.<br>▪ Contamination of | ▪ A CETP 15 MLD capacity with ZLD technology is provided by BDP Una.<br>▪ The member industries of the park will treat their effluent within own premises with ETP and final discharge will be sent to CETP<br>▪ The treated effluent from CETP will be utilized in process, plantation and land escaping in the project area.<br>▪ The concentrated effluents with HTDS will be treated in MEE and residues will |

| | | |
|---|---|---|
| | soil and nearby surface water due to improper disposal of untreated sewage from member industries and commercial and residential units within Industrial park.<br>▪ Contamination of water due to disposal of untreated waste water during cleaning & maintenance activities. | be disposed off in landfill site of BDP.<br>▪ Industrial Members will provide STP Plant for treatment of domestic sewage and treated water will be reused in gardening purposes.<br>▪ The sewage generated from commercial and residential units within Industrial park will be treated in two STP of 3 MLD capacity installed by BDP Una and reused in gardening purposes.<br>▪ It will be mandatory for member industries to obtain CTE & CTO under Water (Prevention and Control of Pollution) Act, 1974.<br>▪ Online TOC and flow meters will be installed to check the quality and volumetric flow on daily basis. |
| Discharge of effluent through pipeline | ▪ Leakage of effluent from pipeline may pollute the nearby ground and surface water | ▪ All the trouble shooting mechanisms including routine check-ups and maintenance of pipeline supply system will be in place for any unforeseen circumstances.<br>▪ Online TOC and flow meters will be installed to check the quality and volumetric flow on daily basis. |
| Greenbelt Development & Employment Generation | ▪ Load on water resource causing exploitation and depletion of water<br>▪ Contamination of water and soil quality | ▪ Waste water treated with ZLD technology and will be recycled and reused in process, plantation and landscaping. • Water recycled from Sewage treatment plant of BDP and member industrial units will be used for greenbelt development. Therefore, load on fresh water requirement will be reduced.<br>▪ Wastage of water will be strictly avoided.<br>▪ Awareness to save water will be provided to employees. |

### 4.3.3 Soil Environment

**Table 4.26: Impact on Soil Environment and Mitigation Measures**

| Project Activity | Impacts | Mitigation Measures |
|---|---|---|
| Transportation (Raw Material, products, fuel Supply)<br>Raw materials and products Handling and Storage<br>CETP/ETP/STP operation & wastewater discharge<br>Solid/ Hazardous Waste Generation<br>Discharge of effluent through pipeline | ▪ Soil contamination may occur due to spillage/leakage of hazardous raw materials, fuel, and oil etc. from vehicle or utilities.<br>▪ Degradation of soil quality due to leakage or spillage of effluent from CETP/ETP/STP pipeline or operation units and leachate generated from waste.<br>▪ Inadequate disposal of Solid/ Hazardous waste may also cause adverse impact on soil quality.<br>▪ Soil quality may be degraded on leakage of pipeline carrying effluent. | ▪ Transportation vehicles shall be maintained and re-fuelled as per safe operating procedure.<br>▪ Spillage control plan will be prepared and workers will be trained for proper implementation.<br>▪ Pacca floor will be provided at raw material storage area and production area to avoid soil contamination.<br>▪ Regular checking and maintenance of CETP/ETP/STP operation units and pipelines will be carried out to avoid any leakage or spillage.<br>▪ During operation phase, hazardous waste management will be the responsibility of individual industries. Prior to the commencement of production, each unit shall take authorization for storage, handling and transport of hazardous waste, as per the Hazardous Waste (Management, Handling and Trans-boundary Movement) Rules, 2008 and amendments thereof, from HPSPCB.<br>▪ An integrated TSDF (comprising a secured landfill, a solid-liquid feed incinerator) is proposed inside the Bulk Drug Park to cater solid/hazardous waste generated from industrial units inside the park.<br>▪ All activities having potential for soil contamination will be planned properly and the hazardous materials will be collected in impermeable containers or areas. |
| Green Development Belt | ▪ Reduction in soil erosion and improvement in soil texture due to binding of top soil materials by root structure of extensive plantation. | ▪ BDP will develop 19% area of greenbelt in the park in 15 m wide belt along the periphery of the park and individual units will maintain 14% green area of the total plot area.<br>▪ Regular maintenance of greenbelt will be carried out. |

### 4.3.4 Noise Environment

**Table 4.27: Impact on Noise Environment and Mitigation Measures**

| Project Activity | Impacts | Mitigation Measures |
|---|---|---|
| Transportation of Raw Material, products and Fuel Supply<br>Product Manufacturing & utility Operation | ▪ Transportation of materials/ products contributes to increase in noise levels in inside and outside of project area on local and regional scale.<br>▪ Noise emissions associated to the proposed project will be due to vehicular movement, operation of utilities, D.G set and manufacturing plants from member industries and common utilities to be developed by BDP.<br>▪ High noise levels may lead to health issues such as, hearing impairment, hypertension, decreases in working efficiency, Lack of concentration, | ▪ Transportation activity outside the project promises will restricted to day time only.<br>▪ Regular maintenance & lubrication of utilities, equipment's and vehicles will be carried out.<br>▪ Vehicular speed will be strictly regulated.<br>▪ Vibrating pads & acoustic enclosure will be provided to high noise generating equipment like pumps, motors, blowers, process machineries and D.G sets to control noise level within norms.<br>▪ All the equipment / machineries operated in the proposed park will be designed/operated in such a way that the noise level in work place shall not exceed 85 dB (A) and 75 dB(A) outside the project promises as per the requirement of Noise Pollution (Regulation and Control) Rules, 2000.<br>▪ Hearing conservation program by audiometric testing will be implemented to detect early hearing loss in the workers.<br>▪ Provision of PPEs like earmuffs / earplug to avoid adverse effects of noise on occupational health and hearing capacity of workers as well as planning of working hours and shift of workers will be planned.<br>▪ D. G. Set shall be provided with acoustic enclosures and shall be used only in case of power failure/emergency.<br>▪ Routine oiling/ lubrication and preventive maintenance of machinery, tools and engines shall be carried out to reduce noise generation at source to permissible limit.<br>▪ Adequate noise control measures such as mufflers, silencers at the air inlet/outlet, anti-vibration pad for equipment with high |

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|---|---|---|
| | behavioural and sleep disorders in workers and nearby society and animals and wildlife etc. | vibration, earmuffs and earplugs to the operators, etc. shall be provided<br>▪ Pump operators are generally exposed to higher noise level for short duration.<br>▪ Transportation activity will be restricted to day time, regular maintenance and fitness programs will be ensured for vehicles. |
| Greenbelt Development | ▪ Positive impacts on noise environment as greenbelt act as noise barrier and reduce noise level in surrounding area. | ▪ BDP will develop 19% area of greenbelt in the park in 15 m wide belt along the periphery of the park and individual units will maintain 14% green area of the total plot area.<br>▪ Regular maintenance of greenbelt will be carried out. |

**Noise Propagation and Prediction Modelling**

**Sources of Noise Emission**

The all sources of noise emissions associated to the project operation were considered as common infrastructures provided by BDP authority as Boilers for steam generation, incinerators for hazardous waste management, DG sets for power backup and Trucks for transportation of raw materials, products and fuels. Other sources were also considered as process equipment/ reactors operated by member industries, transporting vehicles (Trucks for material handling, Buses, Cars, bikes and autos for employs/staff) during project operation.

The details of all noise emissions during project operation are elaborated in **Table 4.28**.

**Table 4.28: Details Noise Emission Sources during Project Operation**

| Type of Noise Source | Daily | Hourly | Noise dB(A) | Cumulative dB(A) |
|---|---|---|---|---|
| **Stationary Sources** | | | | |
| Boilers (6x50 TPH) | 3 | 3 | 90 | 94.8 |
| Incinerators (4 x 25 TPH) | 2 | 2 | 90 | 93.0 |
| DG Sets (2x1000 KVA) | 1 | 1 | 80 | 80.0 |
| **Mobile Sources (Vehicles)** | | | | |
| Trucks | 80 | 3 | 90 | 94.8 |
| Buses | 480 | 20 | 85 | 98.0 |
| Cars | 820 | 34 | 75 | 90.3 |

| | | | | |
|---|---|---|---|---|
| Bikes | 1600 | 67 | 65 | 83.3 |
| Autos | 100 | 4 | 70 | 76.0 |

Following assumptions were used to detail out the noise emissions during project operation as

- Boilers (6 x 50 TPH) are proposed for common steam generation facility for upcoming member industries. Three boilers will be in operation at a time and three will be on standby mode.
- Incinerators (4 x 25 TPH) are proposed for common facility of hazardous waste disposal for upcoming member industries. Two incinerators will be in operation at a time and two incinerators will be on standby mode.
- DG sets (2 x 1000 KVA) are proposed for power back up to operative common facilities for upcoming member industries. One DG set will be in operation at a time and One DG set will be on standby mode.
- Trucks (80 Nos.) are considered for transportation of goods to operate common facilities and 70-80 member industries on daily basis.
- Transporting vehicles as Buses – 480 Nos., Cars – 820 Nos., Bikes – 1600 Nos. and Autos – 100 Nos. were considered for manpower (employees/ staff and labour) to operate common facilities and 70-80 member industries on daily basis.
- The running of stationary sources was considered as 50% at a time and vehicles were considered as hourly basis (total vehicle number divided by 24 hrs) in a day.
- The source category wise cumulative noise levels were considered in noise modeling as putting too many sources in individual manner is not feasible and/or limitation of the software.

**Environmental Baseline Data**

To determine the baseline conditions, the sound levels in dB(A) were measured and recorded on hourly basis for a duration of 24 hours during 16-hour interval in day time (06:00-22:00) and 8-hour interval in night time (22:00-06:00). The data recapitulation of the measurement at every point, and the calculation of Leq can be observed in **Table 4.29**.

**Table 4.29: Baseline noise quality data of the study area**

| Code of Location | Name of Location | Noise Leq dB(A) | | Standard Limit dB(A) | |
|---|---|---|---|---|---|
| | | Day Time | Night Time | Day Time | Night Time |
| NQ-1 | Village –Jaijon Doaba (near Gurudwara) | 51.2 | 40.2 | 55 | 45 |
| NQ-2 | Village - Panjoiyan (Near Lakh Data Peer Mandir) | 46.3 | 35.4 | 55 | 45 |
| NQ-3 | Village – Puboal ( At Govt Ayuryedic Heath Center) | 50.3 | 39.6 | 55 | 45 |
| NQ-4 | Project Site, Guest House Forest Dept. Village Polian Beet | 48.2 | 37.8 | 55 | 45 |

**Weather/ Climatic Data**

To determine the propagation/ dispersion of noise levels, weather and climatic data plays an important role. The average of one-year data (POWER | Data Access Viewer (nasa.gov)) were used as input data as required in Dhawni Pro software. The weather and climatic data of the project area were collected from NASA website and averaged for one-year data as presented in **Table 3**.

**Table 4.30: Weather/climatic data of the study area**

| Parameter | Avg. value | Parameter | Avg. value |
|---|---|---|---|
| Atmospheric temperature | 25 °C | Wind Direction | 270° |
| Relative Humidity | 60 % | Atmospheric pressure | 955 hPa |
| Wind Speed | 2.5 m/s | Frequency | 500 Hz |

**Modelling Scenario**

The scenario used for the noise level modeling was the worst-case scenario, i.e. when all noise sources as equipment/machines, boilers, incinerators, DG sets and transportation vehicles associated to the project were considered. The variation in noise value actually depends on the variation of activities and the variation and number of equipment used. This modeling

generated a Leq contour that was obtained by combining the value of sound pressure levels during the project operating hours. Ambient noise levels during the day were used and assumed that the distance of the sound source reference is calculated from the midpoint of the sound source in case the dimensions of the sound sources were unknown. The modeling generated a Leq contour that was obtained by combining the value level of noise pressure during project operating hours and the baseline/ background ambient noise level when the project/ plant is not in operation.

**Table 4.31: Sources of Noise Emissions considered in noise modeling during Project Operation**

Title: Sound Propagation Model Run
Subtitle: UNA BDP
Unit: dB(A)

| Source ID Name | X-Coordinate m | Y-Coordinate m | Height m | SPL dB(A) |
|---|---|---|---|---|
| Boiler-6 | 611712 | 3473377 | 3 | 94.8 |
| Turbine-4 | 610849 | 3468902 | 3 | 93 |
| DG-2 | 611341 | 3469778 | 2 | 80 |
| REACT-80 | 611066 | 3470131 | 2 | 89 |
| Buses-480 | 611793 | 3469311 | 2 | 98 |
| Truck-80 | 611147 | 3472590 | 2 | 94.8 |
| Cars-820 | 611874 | 3470246 | 1 | 98.3 |
| Auto-4 | 611818 | 3471607 | 1 | 76 |
| Bikes-1600 | 610663 | 3469508 | 1 | 81.3 |

TOTAL POINT SOURCE: 9

Project File: C:\Users\Rai\OneDrive - Eco Paryavaran Engineers and Consultants Pvt Ltd\Documents\dhwaniprodata\UNA BDP.dwp
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**Output Data of Noise Modelling**

**Prediction of Noise Impacts on Environment**

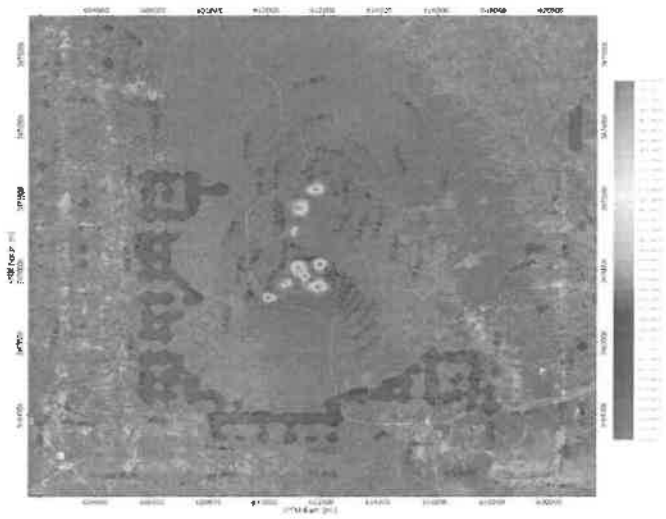

**Fig. 4.17: GLCs and Isopleths showing the Impacts of Noise within the Study Area due to Project Operation**

**Table 4.32: Prediction of Noise Impacts on nearby Receptors during Project Operation**

SUMMARY REPORT FOR DISCRETE RECEPTOR POINTS

Title: Sound Propagation Model Run
Subtitle: UNA BDP
Unit: dB(A)

| Receptor ID Name | X-Coordinate m | Y-Coordinate m | Predicted Level dB(A) | Baseline dB(A) | Resultant^ dB(A) |
|---|---|---|---|---|---|
| Jaijon | 609452 | 3468984 | 20.3 | 51.2 | 51.2 |
| Panjoiyan | 610905 | 3471033 | 25.9 | 46.3 | 46.3 |
| Puboal | 613568 | 3473115 | 24.5 | 50.3 | 50.3 |
| Polian | 612471 | 3469836 | 32.4 | 48.2 | 48.3 |

Remarks:
1. Summaries of highest values by receptor
2. ^Predicted plus background level

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27-08-2024 13:55:33

As depicted in noise modeling summery, the resulting/ cumulative noise levels (Baseline + Predicted) found to be in the range of 46.3-51.2 dB(A) were within the prescribed limits of 55 dB(A) for residential areas. Therefore, there is no significant impacts of noise on surrounding receptors within the study area due to the project operation.

**Control Measures for Noise Emissions**

Though the predicted noise levels due to plant operation are well within prescribed limits however, the increased noise levels can be reduced by adopting following control measures as

- To provide acoustic enclosures to high noisy machinery and equipment to be ensured by member industries.
- Tree plantation along with plant boundary by BDP authorities and industry/unit boundary by member industries as wind barrier and wind shield.
- Use of PUC certified vehicles and machinery to be ensured by BDP authorities and member industries.
- Routine check-ups and maintenance of machinery and equipment to be ensured by BDP authorities and member industries.

- Use of PPEs in highly noisy areas to be ensured by BDP authorities and member industries.
- Rotation of and/ or limited duty hours in high noisy areas to be ensured by BDP authorities and member industries

### 4.3.5 Land Use/Land Cover

Land is specially allotted for industrial development so the land use and land cover changes are inevitable; hence there will be no significant impact on Land Use/ Land Cover.

### 4.3.6 Geology

No significant major impact is envisaged on the geology of the area during operational phase.

### 4.3.7 Hydrogeology

| Project Activity | Impacts | Mitigation Measures |
|---|---|---|
| CETP/ETP/STP operation & wastewater discharge<br>Operation of Industrial Units and Utilities Production and | ▪ Contamination of groundwater may occur due to infiltration of untreated sewage/effluent through leaked underground pipelines or spillage from operational units.<br>▪ It can affect the quality water resources (ground and surface) available in nearby villages and also the growth of crops. | ▪ Proper scientific design and take care of storage areas for raw material and products, explosive and hazardous materials and fuels.<br>▪ Care shall be undertaken to avoid spillage / leakage of effluent /sewage.<br>▪ Proper spill control plan will be implemented.<br>▪ Regular monitoring of ground water near underground pipelines, water treatment plants (CETP/ ETP/ STP/ MEE areas), Storage areas and waste disposal sites will be carried out to check the water quality and water contamination levels. |
| Greenbelt Development | Tree roots improve drainage because each root acts as an underground water channel to help water penetrate the soil. | Selection of trees shall be as per guidelines prescribed by CPCB / MoEF&CC. |

### 4.3.8 Solid and Hazardous Waste

**Table 4.36: Impact and Mitigation Measures on Hazardous/Solid Waste**

| Project Activity | Impacts | Mitigation Measures |
|---|---|---|
| ▪ Product Manufacturing<br>▪ CETP/ETP/STP operation & wastewater discharge<br>▪ Solid/ Hazardous Waste generation | Hazardous waste generation from the proposed Bulk Drug Park has been estimated as follows:<br>▪ Landfill-able waste: 10-12 TPD & Inciner-able waste 650-800 TPD<br>▪ 8.8 TPD of Municipal Solid Waste is likely to be generated from various zones of the Park.<br>▪ 4-5 kg/day of Biomedical waste is likely to be generated from Industrial units & central OHC.<br>▪ Improper handling and disposal of above solid/hazardous waste may contaminate the soil and ground water quality and may cause serious effect on the health of the workers and surrounding area. | ▪ All the solid/hazardous waste generated shall be stored in Hazardous Waste Storage Facility having impervious layer and leachate collection system by Industrial Members.<br>▪ Solid/ Hazardous waste will be collected, stored, transported and disposed as per the Hazardous Waste (Management, Handling and Transboundary Movement) Rules, 2016.<br>▪ An integrated TSDF (comprising a secured landfill, a solid-liquid feed incinerator) is proposed inside the<br>▪ Bulk Drug Park to cater solid/hazardous waste generated from industrial units inside the park<br>▪ Adequate PPEs will be provided to the workers. Hence, there will be no significant impacts on their health.<br>▪ Routine check-ups of hazardous waste storage areas, disposal sites and handling and transportation facilities.<br>▪ Routine monitoring of water and soil quality near hazardous waste storage areas and disposal sites. |

### 4.3.9 Risk and Hazards

**Table 4.37: Impact and Mitigation Measures on Risk and Hazard**

| Project Activity | Impacts | Mitigation Measures |
|---|---|---|

| | | |
|---|---|---|
| ▪ Transportation of Raw Materials, products, fuel Supply<br>▪ Handling and Storage of Raw Material and Product<br>▪ Product Manufacturing and Utility Operation | ▪ Chances of fatal incident, severe injury and loss of property due to vehicle collision or failure or tilting of moving vehicle due to overloading.<br>▪ Spillage/leakage of chemicals during storage/handling may cause severe accident due to corrosion of tank and fittings.<br>▪ Occupational health hazard to workers working with hazardous chemicals.<br>▪ Due to flue gas emission and fugitive emission, there shall be adverse effect on workers' health.<br>▪ Risk of fire/explosion within flammable raw material/product storage area.<br>▪ Chances of fatal incident, severe injury and loss of property due to explosion of boiler.<br>▪ Due to continuous exposure to noise, work efficiency of workers will decrease and also impact on workers' health. | ▪ Trained driver having valid license will be employed for transportation of raw material & products.<br>▪ Speed limit within plant will be prescribed as per safety norms.<br>▪ Well-maintained vehicles will be deployed.<br>▪ Vehicle safety pre-checks will be carried out before use.<br>▪ In the proposed park, wide road will be provided for smooth<br>▪ movement of the goods carrying vehicles.<br>▪ All the member units will store, handle and transported hazardous chemicals as per manufacture, storage and import of hazardous chemical rules, 1989.<br>▪ Adequate ventilation shall be provided in production area and raw material storage area.<br>▪ Use of acid lined MOC for acid storage tank to resist corrosion.<br>▪ Standard operating procedure will be prepared and be strictly followed by workers.<br>▪ Material loading and unloading shall be carried out properly.<br>▪ MSDS of all raw materials will be readily available to all. The training for awareness of MSDS will be provided.<br>▪ Preventive maintenance will be scheduled periodically for all utilities.<br>▪ Adequate PPE's will be provided to workers for handling hazardous chemicals.<br>▪ Fire extinguishers, fire hydrant systems, water sprinkler will be provided by BDP authorities and individual member industries.<br>▪ Periodic medical check-up of employees will be carried out.<br>▪ Safety training will be provided to |

| | | |
|---|---|---|
| | | workers. |

### 4.3.10 Ecology and Biodiversity

**Table 4.38: Impact and Mitigation Measures on Ecology and Biodiversity**

| Project Activity | Impacts | Mitigation Measures |
|---|---|---|
| Transportation of Raw Material, products, fuels | ▪ Settling of fugitive dust on leaves reduces the gaseous exchange process. This affects the growth of plants, hence indirectly affects the fauna of the study area. | ▪ PUC verified vehicles will be used for transportation and speed limit of vehicles will be maintained. |
| Production and Utility Operation | ▪ Flue gas and process gas emission from GIDC and member industries will have impact on terrestrial ecology of surrounding area. | ▪ BDP, Una and Industrial Members will provide appropriate APCM with adequate stack height for proper dispersion of pollutant.<br>▪ Strict compliance with the standards and condition of CPCB will be mandated, wherever applicable and necessary.<br>▪ There is no reserved forest or wildlife sanctuary in core zone and buffer zone i.e. 10 km radius of the study area. • Hence, there will be no significant impact on the ecology of the core or buffer zone due to this upcoming Bulk Drug Park. |
| CETP/ETP/STP operation & wastewater discharge | ▪ Untreated disposal of sewage and effluent will have direct impact on nearby surface water bodies and | ▪ BDP Una and Industrial Members will be provided STP Plant for treatment of domestic sewage and treated effluent will be reused in gardening purpose. • Industrial Members will be provided ETP Plant for treatment of Industrial Effluent and treated water will be discharged to in house CETP |

| | | |
|---|---|---|
| | soil and indirect impact on plants and domestic animals. | of 15 MLD capacity for further treatment. Treated effluent from CETP will be recycled and reused in process, plantation and landscaping. |
| Solid/Hazardous Waste generation | ▪ Improper storage of solid/ hazardous waste will contaminate soil and will have impact on plants growth. | ▪ Solid/ Hazardous wastes from utilities, storage areas and industrial process will be collected, stored, transported and disposed as per the Hazardous Waste (Management, Handling and Transboundary Movement) Rules, 2016 by Industrial Members to TSDF sites. |
| Discharge of effluent through pipeline | ▪ Impact on environment due to additional effluent discharge without proper treatment. | ▪ All the faunal species reported from the core zone are very common and well adapted to the urban environment so no faunal species will be disturbed or affected significantly.<br>▪ As per the survey close to the proposed site and in the vicinity, no endangered species or wildlife is reported near project site.<br>▪ Effluent will be discharged only after adequate treatment and achieve all the prescribed parameters by the Board.<br>▪ Online TOC meter will be installed to check the quality of effluent.<br>▪ Vehicular speed will be strictly regulated. |
| Greenbelt Development | ▪ Fugitive emission from transportation activity may deteriorate air quality of surrounding area. | ▪ Valid PUC Certified Vehicle will be used for transportations.<br>▪ Transportation activity will be carried out during day time only.<br>▪ Regular maintenance & lubrication of utilities, equipment's and vehicles will be carried out |

### 4.3.11 Socio-Economic

**Table 4.39: Impact and Mitigation Measures on Socio-Economic**

| Project Activity | Impacts | Mitigation Measures |
|---|---|---|
| Transportation of Raw Material, | ▪ Fugitive emission from transportation activity may deteriorate air | ▪ Valid PUC Certified Vehicle will be used for transportations.<br>▪ Transportation activity will be carried |

| | | |
|---|---|---|
| products, fuels | quality of surrounding area. | out during day time only.<br>▪ Regular maintenance & lubrication of utilities, equipment's and vehicles will be carried out.<br>▪ Vehicular speed will be strictly regulated. |
| Production and Utility Operation | ▪ Hazardous flue gas emission and process gas emission will have negative effect on health of surrounding villages population.<br>▪ Generation of noise from operation of the park will have negative effect on hearing, mental status of surrounding village population. | ▪ BDP, Una and Industrial Members will provide appropriate APCM with adequate stack height for properly dispersion of pollutant.<br>▪ Padding and enclosing will be provided to high noise generating machineries and Equipments.<br>▪ Greenbelt will be developed in plant premises of member industries as well as periphery of industrial park, which will act as natural barrier to air and noise pollution. |
| Greenbelt Development | Greenbelt will enhance the aesthetic value and beautify the landscapes. | ▪ BDP will develop 19% area of greenbelt in the park in 15 m wide belt along the periphery of the park and individual units will maintain 14% green area of the total plot area.<br>▪ Regular maintenance of greenbelt will be carried out. |

**Table 4.40: Environmental Impact Matrix with Mitigation Measures (Operation Phase)**

| Project Activities | Environmental Attributes | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Air | Water | Soil | Noise | LU/LC | Geo hydrology | Geology | SHW | Risks | Ecology & Biodiversity | Socio Economics | Total |
| Transportation of Raw Material, Products & Fuels | -8 | - | -8 | -12 | - | - | - | - | -8 | -4 | -6 | -46 |
| Handling and Storage of Raw | -8 | - | -6 | - | - | - | - | - | -12 | - | - | -26 |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Material, Products & Fuels | | | | | | | | | | | | |
| Product Manufacturing | -12 | -8 | - | -8 | - | - | - | -8 | -12 | - | -4 | -52 |
| Utility Operation | -12 | - | - | -12 | - | - | - | - | -8 | -4 | -6 | -42 |
| CETP/ETP/STP Operation & wastewater discharge | - | -12 | -8 | - | - | -12 | - | -6 | - | -6 | - | -44 |
| Solid/ Hazardous waste generation & disposal | - | - | -8 | - | - | - | - | -12 | - | -4 | - | -24 |
| Discharge of effluent through pipeline | - | -4 | -4 | - | - | - | - | - | - | -4 | - | -12 |
| Greenbelt Development | +12 | -4 | +8 | +12 | - | +8 | - | - | - | +10 | +6 | +52 |
| Employment Generation | - | -6 | - | - | - | - | - | - | - | - | +16 | +10 |
| **Cumulative Score** | **-28** | **-34** | **-26** | **-20** | **0** | **-4** | **0** | **-26** | **-40** | **-12** | **+6** | **-184** |

**********

# CHAPTER 5

# ANALYSIS OF ALTERNATIVES (TECHNOLOGY AND SITE)

## 5.1 INTRODUCTION

Under the Gazette notification of The Department of Pharmaceuticals (DoP), Ministry of Chemical and Fertilizer, Government of India (GoI), dated 21 July 2021, 13 states proposed for the scheme *"Proposal for the Bulk Drug Parks"*. A total of 3 states were selected across the country under the scheme, among those 3 Himachal Pradesh is one of them.

M/s Himachal Pradesh Bulk Drug Park Infrastructure Limited (HPBDPIL) under Department of Industries, Government of Himachal Pradesh proposed to setup a Bulk Drug Park at Villages Kuthar Beet, Pollian Beet, Tibbian, Jodian, Janani and Malluwal, Teh. Haroli, Distt. Una, Himachal Pradesh.

## 5.2 SELECTION OF LOCATION

Three alternative sites were analyzed for establishment of the Bulk Drug Park. Analysis was carried out based on environmental sensitivity, availability of land, source of water supply, connectivity to proposed site, common infrastructure and PNG supply in the area, manpower and social aspects.

Prior to arriving at a conclusion regarding setting up of project at proposed site, a number of alternatives were examined and reviewed. The criteria and a comparison with potentially possible alternative sites are briefly described as follows:

**Table 5.1. Criteria of selection of project site in comparison to alternative sites**

| S. No. | Parameters | Option 1 | Option 2 | Option 3 |
|---|---|---|---|---|
| 1. | **Sites considered** | Distt. Una | Distt. Kangra | Distt. Mandi |
| 2. | **Availability of land** | Approx. 1,400 acres | Approx. 1,000 acres | Approx. 950 acres |
| 3. | **Villages falls** | 6 Villages namely Kuthar Beet, Pollian Beet, Tibbian, Jodian, Janani and Malluwal | 7 Villages namely Kerta, Barehr, Chakban Sarotari, Dhasehr, Kamlota, Baroh and Talai | 4 Villages namely Pakhrair, Bharad, Thunag and Bagsiad |

| S. No. | Parameters | Option 1 | Option 2 | Option 3 |
|---|---|---|---|---|
| | | | | (Less land available for set up of the unit) |
| 4. | **Terrain** | Semi Hilly | Hilly | Hilly |
| 5. | **Acquisition of land** | Majority of land available is Govt. land. Only small chunk of Private land involved approx. 40 acres | Chunk of Private land involved nearly 55 acres | Chunk of Private land involved nearly 70 acres |
| 6. | **R&R Involved** | No | Yes | Yes |
| 7. | **Cost of private land acquired** | Approx. 4 Crores | Approx. 8.5 Crores | Approx. 11.5 Crores |
| 8. | **Source of water supply** | Surface water supply from Satluj River having tap off point located approx. 15 to 20 km away | Surface water supply from Beas River having tap off point located approx. 20 to 25 km away | Surface water supply from Satluj River having tap off point located approx. 40 to 45 km away |
| 9. | **Cost involved for supply of surface water at proposed site** | Approx. 171 Crores | Approx. 203 Crores | Approx. 450 Crores |
| 10. | **Connectivity to proposed site** | More connectivity with National Highways<br>• NH-503A approx. 10 km<br>• NH-503 approx. 15.5 km<br>• NH-103 A approx. 9.5 km | Less connectivity with National Highways<br>• NH-303 approx. 7 km<br>• NH-154 approx. 10 km | Less connectivity with National Highways<br>• NH-13 approx. 13.5 km<br>• NH-154 approx. 21 km<br>• NH-305 approx. 18.5 km |

| S. No. | Parameters | Option 1 | Option 2 | Option 3 |
|---|---|---|---|---|
| | | • Punjab State Border approx. 100 m | | |
| 11. | **Transportation of materials** | Easy and less cost involved in transportation of materials due to well connectivity with many National Highways and relatively semi hilly terrain | Cost involved for transportation of material will be high; as site is hilly terrain | Cost involved will be high; as site is hilly terrain |
| 12. | **Other features** | • Site located near to already established industrial areas such as Mehatpur, Gagret, Tahliwal & Amb<br>• PNG supply available in proximity to site | • Small Industrial areas are established such as Nagri, Dhaliara etc. for MSME units and away from proposed site<br>• NO PNG supply available | • Small Industrial areas are established such as Mandi, Ratti and Bhambla for MSME units and away from proposed site<br>• No PNG Supply available |
| 13. | **Availability of manpower** | Both skilled and non-skilled manpower is available in plenty | Non-skilled manpower is available | Non-skilled manpower is available |
| 14. | **Environment Sensitivity** | • No tree counting involved<br>• No Forest land falls | • Tree cutting also involved<br>• Forest land falls within site | • Tree cutting also involved |

| S. No. | Parameters | Option 1 | Option 2 | Option 3 |
|---|---|---|---|---|
| | | within proposed site | • 3 rivulets pass through proposed site<br>• Pong Dam Wildlife Sanctuary falls in 10 km study area | • Forest land falls within site |
| 15. | **Overall Cost involved** | Approx. 1,923 Crore | Approx. 2,500 Crore | Approx. 3,500 Crore |
| 16. | **Selected** | Yes | No | No |

### 5.2.1 Geographical locations of Alternate sites chosen

**Option-1: Una District**

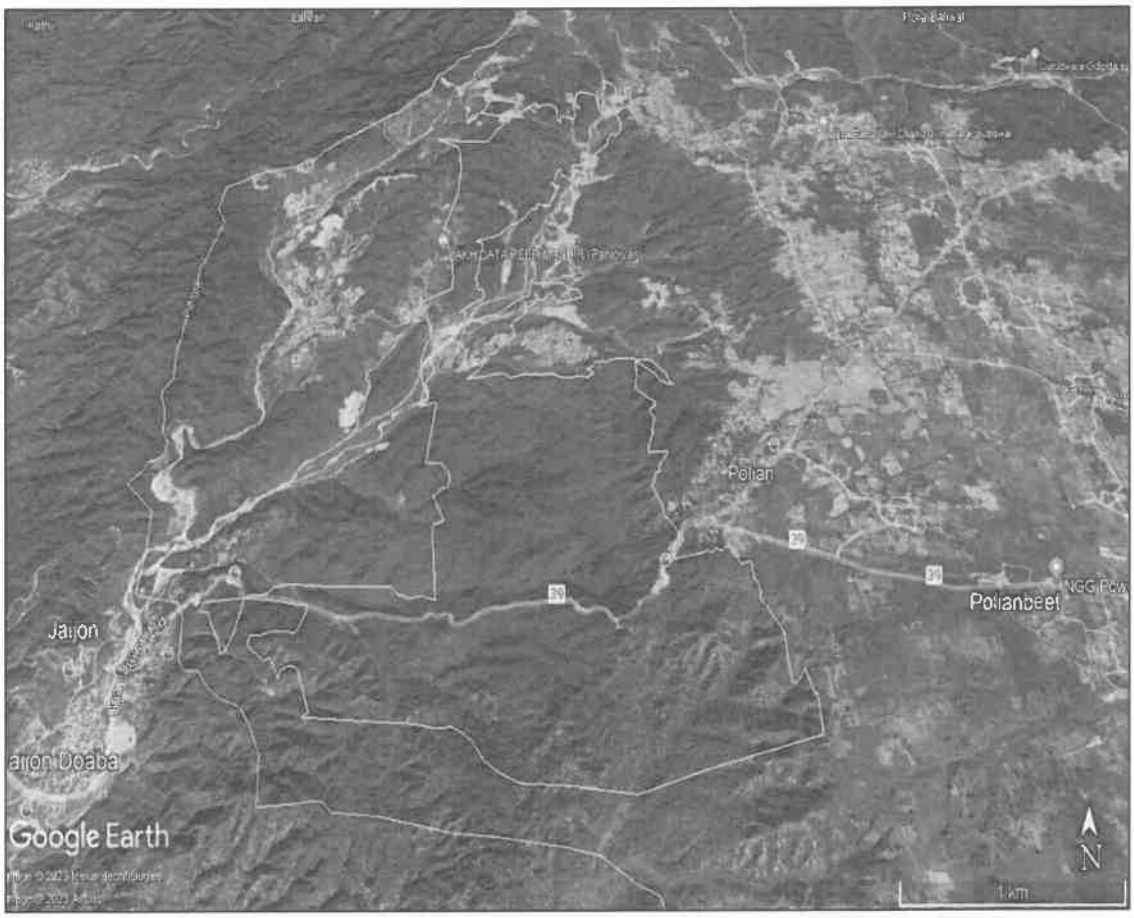


**Figure 5.1. Google Earth Image of proposed site considered at Distt. Una for setup of Bulk Drug Park**

**Option-2: Kangra District**

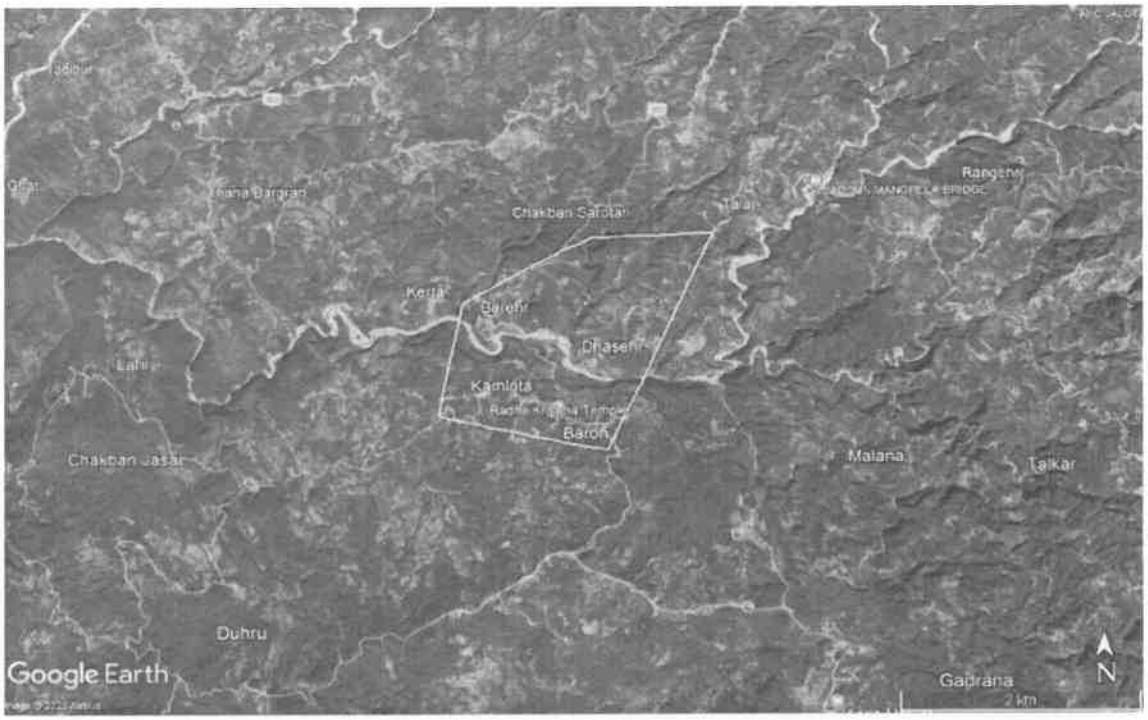


**Figure 5.2. Google Earth Image of alternate site considered at Distt. Kangra**

**Option-3: Mandi District**

**Figure 5.3. Google Earth Image of alternate site considered at Distt. Mandi**

Based on the ease in approach, connectivity, availability of sufficient land, environment and social aspects, and other environmental conditions Tehsil Haroli, District Una was considered for proposed project.

Himachal Pradesh being a hilly state, the availability of relatively plain land and with easy approach is a remote possibility. As such, the other possibilities worked out in the district Mandi and Kangra proved to be non-suitable, hence, the PP zero-in on this site. The selected site fulfils all the criteria viz-a-viz large area of chunk, contours, easy approach and its location. Further, the proposed site is suitable for establishment of the project due to following reasons:

a. Una district is well developed in the industrial sector due to its close proximity to Punjab. Mehatpur, Gagret, Tahliwal & Amb are main industrial centres of Una.

b. Availability of large chunk of land in relatively plain area and that too in the immediate vicinity of already developed industrial area namely Tahliwal and close proximity to the neighboring state of Punjab.

c. The project area is a calm rural area with its natural beauty but no Eco-sensitive component comes within the 10 km of the area.

d. The proposed project area is well connected to the nearby town and cities through road, rail and airways.

e. Punjab border is close (100 m) to the proposed site which makes this project economically beneficial to Himachal Pradesh State and Punjab State.

f. The manpower is easily accessible for the purpose of construction as well as operational phase.

g. The geography (rainfall, air temperature, humidity etc.) of the area is suitable for the establishment of Bulk Drug Park.

## 5.3 ENVIRONMENT SENSITIVITY OF LOCATION

1. There are no Wildlife Sanctuary/National Park/Habitat of Migratory birds within 10 km radius from the project.
2. There is no Tiger Reserve/Elephant Reserve/Turtle Nesting Ground within 10 km radius from the project.

3. There is no Archaeological Monument/Defence installation within 10 km radius from the project.
4. There is no Forest land involved in the project.

Thus, the project location has no environment sensitivity zone.

## 5.4 SELECTION OF TECHNOLOGY

The whole project is being developed on the lines of area development projects i.e. the project is to be established in totality as an umbrella project which will have individual units to be developed by individual entities. All services, utilities, axillary, logistics, pollution abatement measures, waste management and power etc. will be provide on centralizes basis. This project will be developed on "end to end "basis and there will be no vendors or interlinked entities. However, within this project, a CETP of 5 MLD capacity has been proposed to cater the treatment requirements for the process effluents in the pharma sector. As the CETP is itself covered under category 7(h), therefore the proposed CETP may be designated as interlinked project. An integrated TSDF (comprising a secured landfill with a solid-liquid feed incinerator) under category 7(d) is proposed inside the project in 33.6 acres of land. Similarly, this industrial park is being developed for setting up the API units which are covered under category 5(f), under the ambit of EIA Notification 2006.

Further, solar energy is proposed as an alternate energy. Solar streetlights to be used and industries asked to look at feasibility of installing solar heaters to feed preheated water for process operations. Feasibility of installing solar panels with battery backup along internal roads & buffer area shall be explored to conserve energy. Industries, residential & commercial establishment shall formulate a proposal to harness solar power within their premises particularly at roof tops. Solar power as backup will be explored to reduce DG set usage.

Hence, in view of above factors, no other alternative was recommended and examined in terms of Site and Technology.

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# CHAPTER 6
## ENVIROMENTAL MONITORING PROGRAM

Environmental Monitoring is an essential tool for sustainable development and ensuring most effective implementation and monitoring of Environmental Management Plan and mitigation measures. The monitoring and evaluation of the management measures envisaged are critical activities in implementation of the project. Monitoring involves periodic checking to ascertain whether the activities are going according to the plans. It provides the necessary feedback for project management to keep the program on schedule. The purpose of the environmental monitoring plan is to ensure that the envisaged purpose of the project is achieved and results in desired benefits. To ensure the effective implementation of the proposed mitigation measures, the broad objectives of monitoring plan are:

- To evaluate the performance of mitigation measures proposed in the EMP.
- To evaluate the adequacy of Environmental Impact Assessment.
- To suggest improvements in management plan, if required.
- To enhance environmental quality.
- To implement and manage the mitigative measures defined in EMP.
- To undertake compliance monitoring of the project operation and evaluation of mitigative measures.

The detailed monitoring of emissions and effluent sources for different environmental parameters is being carried out as per the present norms from Himachal Pradesh State Pollution Control Board (HPSPCB), Central Pollution Control Board (CPCB) and MoEF&CC. Monitoring methodologies follows standard methods prescribed by Central Pollution Control Board (CPCB), Bureau of Indian Standards (BIS), USEPA, etc.

### 6.1 MONITORING PARAMTERS

- Ambient Air Quality
- Stack Monitoring
- Ground water Quality
- Surface Water Quality
- Domestic Effluent Quantity
- Noise Level

- Soil monitoring

### 6.1.1 Ambient Air Quality

Presently, ambient air quality has been monitored regularly in accordance with HPSPCB/CPCB guidelines. The ambient air has been monitored twice in a week (according to Central Pollution Control Board) at eight locations including project & around the project area in one season. The parameters monitored are as per National Ambient air quality Standards, 2009 as given in **Table 6.1**

**Table 6.1. List of parameters as per the National Ambient Air Quality Standards, 2009**

| **Description** | |
|---|---|
| **Ambient Air Quality Stations** | 10 |
| **Parameters** | $PM_{10}$, $PM_{2.5}$, $NO_2$, $SO_2$, CO, Ozone, $NH_3$, BaP (PAH), $H_2S$, VOCs, HCl, HBr, $Cl_2$, $Br_2$, BTX, Acetonitrile and Dichloromethane |

In addition, during operational phase monitoring of all these parameters will be done at project location on six monthly bases through NABL/MoEF&CC/HPSPCB approved lab.

### 6.1.2 Stack Monitoring

Periodical monitoring of stack emissions for PM, $SO_2$, NOx & CO and process/vent emissions for $NH_3$, $H_2S$, VOCs, HCl, HBr, $Cl_2$, $Br_2$, BTX, Acetonitrile and Dichloromethane to be done to assess performance of pollution control facilities installed at the unit as per IS-11255. Emissions from all stacks (Mainly from D.G. sets) shall be monitored once a quarter using manually operated stack emissions monitoring equipment. However, frequency of monitoring may be increased, if required in accordance with directions of HPSPCB/CPCB or other statutory authorities.

### 6.1.3 Ground water Quality

Ground water sample has been collected and analyzed to set the baseline of drinking water quality. Ground water shall be sampled to check for possible contamination and to ascertain the trend of variation in the water quality, if any. In case any adverse trend will be noticed, immediate remedial measures shall be taken. In addition, during operational phase monitoring

of all ground water parameters will be done at project location on six monthly bases through NABL/MoEF&CC/HPSPCB

### 6.1.4 Surface Water Quality

Five Surface water has been sampled from different sources within study area and analyzed for important physico-chemical & biological parameters to establish quality of water prevailing in study area. SW samples were collected from nearby distributaries, Nala, Canal to check for possible contamination, if any. In addition, during operational phase monitoring of all surface water parameters will be done on six monthly bases through NABL/MoEF&CC/HPSPCB approved lab.

### 6.1.5 Domestic Effluent Quantity

Total sewage generated from domestic processes will be 2.6 MLD. STP will be provided with capacity of 3 MLD. Two samples, one from STP inlet & one from STP outlet will be collected quarterly and tested as per IS: 3025.

### 6.1.6 Industrial Effluent

Total industrial effluent generated from industrial processes will be 5 MLD for which CETP will be provided with capacity of 5 MLD. Total of two samples one from inlet & one from outlet of CETP will be collected quarterly and analysed as per IS:2488 (Part 1-5) methods for sampling & testing of industrial effluents. Parameters to be monitored are pH, TSS, TDS, BOD, COD, Oil & grease, NH3-N, bioassay, BTX, phosphate, sulphite, phenolic compounds, cyanide and Hg etc. or as per consent. Continuous online monitoring at outlet of treatment plant for parameters, if prescribed by regulatory authorities for will be installed with direct connectivity to HPSPCB

### 6.1.6 Noise Level

Monitoring of Ambient noise levels shall be carried out at 2 locations in core zone area and 4 locations in buffer zone within 1 Km from the project boundary during day time (6 AM to 10 PM) and night time (10 PM to 6 AM) as per Environment Protection Act GSR 1063(E) Schedule III through NABL/MoEF&CC/HPSPCB approved lab.

### 6.1.7 Soil monitoring

Soil has been monitored from 5 locations (1 at project location and 4 other locations within 10km study area) and to set the baseline of soil quality. In addition, during operational phase

monitoring of all soil parameters will be done at project location on six monthly bases through NABL/MoEF&CC/HPSPCB approved lab.

## 6.2 ENVIRONMENTAL MONITORING BY MEMBER INDUSTRIES

The environmental monitoring shall be carried out by each member industry as applicable within their industry premises:

- Ambient Air Quality Monitoring
- Stack and Process/Vent Emission monitoring
- Work Zone/ Indoor Air monitoring
- Fugitive Emissions Monitoring
- Noise Monitoring for ambient, work zone and source noise
- Lux/Illumination Monitoring in work zone/ process areas
- Inlet & Outlet of Treatment Plant, if any
- Cooling tower blow down, if any
- Drinking Water Quality Monitoring

Continuous online stack monitoring for parameters, if prescribed by regulatory authorities for any industry will be installed by them with direct connectivity to HPSPCB. The member industries shall not only limit the environmental monitoring as stated above, environmental monitoring program in terms of parameters, location and frequency shall be formulated as per the stipulations laid by HPSPCB/MoEF&CC in their respective Environmental Clearance/Consent to Establish (CTE)/Consent to Operate (CTO). Further, individual industries will also assure the following compliance:

### 6.2.1 INDUSTRIAL SAFETY TRAINING

Various trainings to employees on safety, health and environmental aspects and technology and ergonomic issues will be provided time to time or as per requirements. Emergency exercises including fire drills will be documented adequately.

### 6.2.2 HOUSE KEEPING

There shall be different stockyard for the raw materials, so that the working shed floor area will be kept clean. Proper maintenance and cleaning of the APCD's will be done as per requirement. Solid waste generated will be kept in specific area earmarked. Regular dust cleaning to be done on working platforms, equipment's and machinery and connecting pathways and plant premises is recommended for proper housekeeping, effectiveness in working and preventing health hazard and breakthrough of diseases.

### 6.2.3 ACCIDENTS & DISEASES MONITORING

These systems enable workers to report immediately to their immediate supervisor in any situation, they believe presents a serious danger to life or health. The systems and the employer further enable and encourage workers to report to management.

- Occupational injuries;
- Suspected cases of occupational disease; and
- Dangerous occurrences and incidents.

All reported occupational accidents, occupational diseases, dangerous occurrences and incidents together with near misses shall be duly investigated with the assistance of a person knowledgeable/competent in occupational safety. The investigation shall:

- Establish what happened;
- Determine the cause of what happened;
- Identify measures necessary to prevent a recurrence.

### 6.2.4 PERIODIC PREVENTIVE MAINTENANCE

A detailed maintenance schedule will be prepared for all pollution control systems. Maintenance will be done strictly as per schedule and guidelines furnished by plant manufacturer. All pollution control, monitoring and safety equipment will be periodically checked and calibrated.

## 6.3 OCCUPATIONAL HEALTH & SAFETY MONITORING

Occupational health and safety monitoring programs verify the effectiveness of prevention and control strategies. The selected indicators are representative of the most significant occupational, health and safety hazards and the implementation of prevention and control strategies. The performance and achievements of the OHSMS responsible for all management of all environment, Health & Safety aspects shall be re-assessed on annual basis. The occupational health and safety monitoring program includes:

- Industries carries out inspection and testing of all safety features and hazard control measures for industry operation. This includes regular inspection and testing of all safety features and hazard control measures focusing on engineering and personal protective features, work procedures, place of work, installations, equipment and tools used. The inspection verify that issued personal protective equipment (PPE) continues to provide adequate protection and shall be worn as required.
- All instruments installed and recording of working environment parameters shall be regularly tested and calibrated and the respective records are maintained.
- Surveillance of the working environment shall be carried out.
- Surveillance of worker health: Workers will be provided appropriate and relevant health surveillance prior to exposure and at regular intervals. Industries will provide appropriate and relevant occupational health & safety measures to workers at the time of appointment and at regular intervals thereafter.

Further, general conditions to be defined in the sample allotment letter are given below:

**Allotment Cum Intimation – Letter (General)**

1. The Land allottee/Developer shall abide with the conditions imposed in the EC letter in spirit.
2. Every Individual Industry/ land allottee will appoint an EHS officer and constitute EMP Cell within their Organization
3. Every Industry will formulate and submit Environmental Policy within 1 month of Land Allotment, to the SPV.

4. Disposal of hazardous Industrial waste will be the responsibility of Individual industry.
5. Every Individual industry will obtain activity specific CTE/CTO from PSPCB
6. Industry will not discharge any waste/Effluent in open environment.
7. Allottee shall obtain all necessary permissions and clearances etc. from requisite department/agency as necessary according to law, rules and regulations in force. This will also apply in case of relevant amenities/facilities that the allottee may need for their project.
8. The allottee at his own expense shall take permission for all the utilities from SPV for e.g. Sewerage connection, water connection, electricity etc. and shall comply with all terms and conditions pertaining to supply of water and drainage/sewerage facilities.
9. The allottee shall abide by Punjab Building Rules 2021 and other provisions of the Punjab Industrial Development Act and rules made thereunder and any amendment thereto.

The allottee shall keep copies of all the environmental regulations/reports, clearances and all other relevant documents in his premises in the BDP, Una all the time for inspection by HHPSPCB at any time.

## 6.4 BUDGET AND PROCUREMENT SCHEDULE

On regular basis, Environment Management Cell will inspect the necessity and availability of the materials, technologies, services and maintenance works. The cell will make appropriate budget for the purpose. Regular record review for any change in financial requirement of environment management will be done and appropriate budgetary provisions will be made. Along with other budgets, environmental management budget will be prepared and revised regularly as per requirement. The budget will include provisions for:

- Environmental Monitoring Program
- Emergency Purchase of necessary materials, equipment, tools, services, etc.
- Landscape development

- Social and Environmental Welfare and Awareness programs/training including CER
- Annual Environmental Audit.

**Table 6.2. Cost of Environmental Monitoring Program**

| S. No. | Particulars | Parameters | Frequency | Methods of sampling | Cost/ Annum (in lakhs) |
|---|---|---|---|---|---|
| 1. | **Ambient Air Monitoring** | $PM_{10}$, $PM_{2.5}$, $NO_2$, $SO_2$, CO, Ozone, $NH_3$, BaP (PAH), $H_2S$, VOCs, HCl, HBr, $Cl_2$, $Br_2$, BTX, Acetonitrile and Dichloromethane | Every Six Months; Project location | IS-5182 Pt-14 | 10x4 =40 |
| 2. | **Stack Emission Monitoring** | Stack emissions - PM, $SO_2$, NOx & CO Process/vent emissions - $NH_3$, $H_2S$, VOCs, HCl, HBr, $Cl_2$, $Br_2$, BTX, Acetonitrile and Dichloromethane | Every Six Months; DG sets | IS-11255 Pt-1 | 5x4 =20 |
| 3. | **Treated Effluent Monitoring** | pH, TSS, TDS, BOD, COD, Oil & grease, NH3-N, bioassay, BTX, phosphate, sulphite, phenolic compounds, cyanide and Hg etc. | Quarterly; Outlet of CETP/ETPs | IS-3025 Pt-1 & IS:2488 (Part 1-5) | 3 x4 =12 |
| **4.** | **Domestic Wastewater Monitoring** | pH, TSS, TDS, BOD, COD, Oil & grease, NH3-N, phosphate | Quarterly; Outlet of STP | IS-3025 Pt-1 & IS:2488 (Part 1-5) | **3 x4 =12** |
| 4. | **Noise Level Monitoring** | 24 Hrs. Noise Level | Every Six Month; Project location | IS-9989-1981 | 1 x4= 4 |
| 5. | **Water Quality Monitoring** | Drinking Water Specifications as per IS 10500 | Every Six Months; Project location | IS-3025 Pt-1 | 3 x4 =12 |
| **Total** | | | | | **100 Lakhs** |

## 6.5 SUMMARY

The environment monitoring plan enables environmental management system with early sign of need for additional action and modification of ongoing actions for environment management, improvement and conservation. The environmental monitoring points will be decided considering the environmental impacts likely to occur due to the operation of project as the main scope of monitoring program is to track, timely and regularly, the change in environmental conditions and to take timely action for protection of environment. Monitoring of environmental samples will be done as per the guidelines provided by MoEF&CC/CPCB/HPSPCB. Separate records for water, wastewater, solid waste, air emission and soil will be prepared and preserved regularly. Along with other budgets, environmental management budget will be prepared and revised regularly as per requirement.

# CHAPTER 7
# ADDITIONAL STUDIES

The outline of the pre-project environmental status and the impact assessment of proposed project along with proper mitigation measures have been duly addressed in the previous Chapters. This Chapter briefly encompasses the additional aspects that were also dealt upon while conducting EIA study for the establishment of project.

## 7.1 PUBLIC CONSULTATION

Public hearing is a very significant part of the process of public participation envisaged under guidelines issued by MoEF&CC, Government of India. It facilitates involvement of all the stake holders of the project which is essential for ensuring smooth running of the proposed project and benefitting all sections of the society in the process of economic development of the region. Public hearing for establishment of the project was conducted by Himachal Pradesh State Pollution Control Board (HPSPCB) at ..... Copy of the advertisement is attached along as Annexure-. Proceedings of public hearing have been obtained vide letter dated ..... Copy of the public hearing proceedings are attached along as Annexure-. Photographs of the public hearing are attached along as Annexure-.

Therefore, summary of the complaints/queries raised during public hearings and action plan are given below in **Table 7.1**

**Table 7.1. Summary of Public Hearing Proceedings at .....**

| Sr. No. | Name and Address of the person | Detail of query / statement / information / clarification sought by the person at present | Reply of the query/ statement/ information/ Clarification given by the project proponent | Action Plan |
|---|---|---|---|---|
| 1. | | | | |
| 2. | | | | |

| | | | | |
|---|---|---|---|---|
| 3. | | | | |
| 4. | | | | |
| 5. | | | | |
| 6. | | | | |

## 7.2 RISK ASSESSMENT

The safety and protection of people, equipment and environment is a serious concern in the manufacturing industries. Proposed Bulk Drug Park will have housing, different API manufacturing industries and required infrastructure associated with the units. Risk assessment for proposed project is associated with construction and operation phases. Individual industries to be established in proposed IA shall carry out risk analysis by considering hazards associated with handling of chemicals, based on nature of process and inventory. However, at the extent and specifics of industrial activities, a general safety and emergency preparedness plan has been prepared. This study, accordingly, gives an outline of the associated environmental and other risk prone hazards, their assessment and remedial measures. It also describes an approach to emergency planning to be adopted by the Plant management.

Risk assessment (RA) provides a numerical measure of the risk that a particular facility poses to the public. It begins with the identification of probable potential hazardous events at an industry and categorization as per the predetermined criteria. The consequences of major credible events are calculated for different combinations of weather conditions to simulate worst possible scenario. These consequence predictions are combined to provide numerical measures of the risk for the entire facility.

### 7.2.1 OBJECTIVES OF RISK ASSESSMENT

As per the requirements stated in the Terms of Reference of the EIA study, the risk assessment study has been undertaken to address the following aspects:

- To identify hazards such as fire & explosion hazards arising from handling of equipments as well as storage of chemicals.
- To predict various credible scenarios and develop maximum credible accident scenarios with consequence.

- To eliminate or reduce to as low as reasonably practical in terms of risk to human health, risk of injury, risk of damage to plant, equipment and environment, business interruption or loss etc.

### 7.2.2 METHODOLOGY OF RISK ASSESSMENT AND MANAGEMENT

From methodological point of view, risk assessment procedure includes risk analysis and risk evaluation as presented in **Fig. 7.1.** In particularly in risk analysis step, hazards are identified and estimated by systematic use of available information; whereas, in risk evaluation step, evaluation of the level of risk is carried and decided whether acceptable risk has been achieved or not.

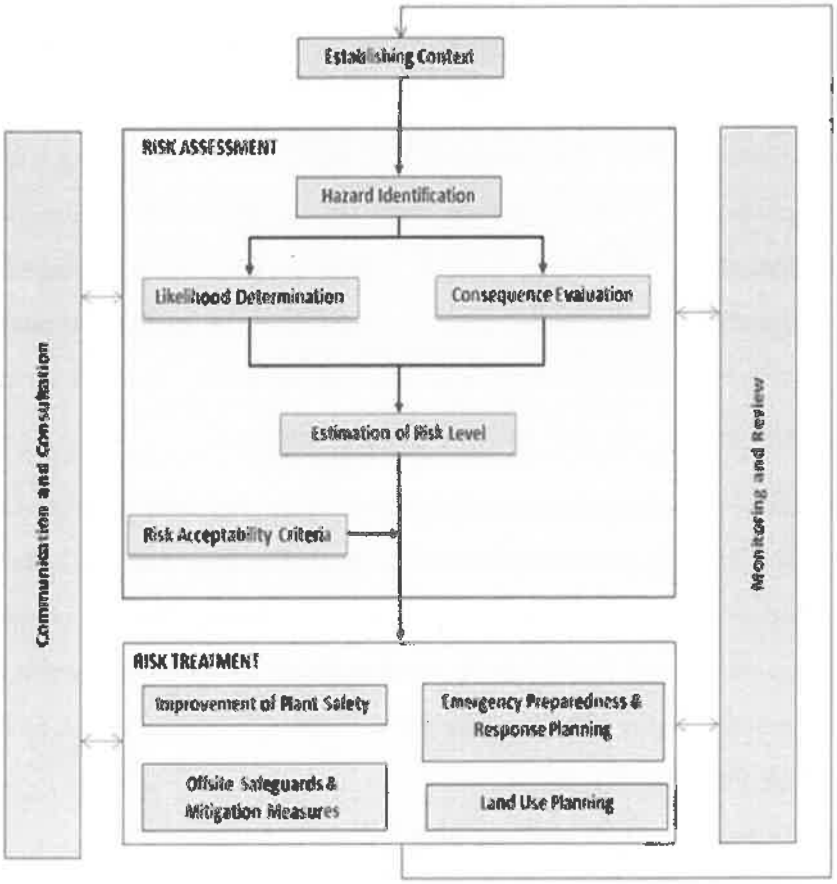



**Figure 7.1. Representation of Risk assessment and management framework**

The evaluation of resulted risk requires risk acceptance criteria - which issued as a basis for decisions about acceptable risk. In other words, risk assessment is the process of risk analysis and evaluation of the significance of the results. From this perspective, the risk assessment

process can be viewed as concentrating on five basic questions in relation with risk analysis and risk evaluation, as summarized in Table 7..

**Table 7.2. Elements of risk assessment**

| | | |
|---|---|---|
| Risk Assessment | Risk Analysis | **What can go wrong?** Potential accidents and the ways they could come about are identified |
| | | **How often?** Probability of their occurrence is estimated |
| | | **What are the consequences?** Potential consequences of the accidents are estimated |
| | | **What are the risks?** Risks are identified in terms of their level by using the above analyses, and their significance assessed; and compared with established criteria |
| | Risk Evaluation | **So What?** Risk management actions are carried out Demonstration of resulting risk and evaluation with established tolerability criteria (identification of mitigation measures, acceptance of result, modification or abandoning) |

Several approaches exist for assessing risk originating from hazardous industries and storages and they vary from purely quantitative to semi- quantitative and qualitative. Among others, methods for Quantitative Risk Assessment (QRA) based practices have evolved as an established practice amongst the scientific risk community to quantify a value of risk, based on the hazard potential of industries and the potential for damage to population present in the neighbourhood.

**Hazard (scenario) identification**

This step involves attaining an understanding of the hazards, including the location, type of storage involved and the hazardous property of the chemicals. It also refers to the characterization of the risk associated with hazardous storage.

**Frequency estimation**

Once the possible hazard scenarios and the type of negative outcome are identified, the scenario frequency is determined based on the failure frequency of the initiating event and the probability of intermediate events. The frequency of a scenario specifies the number of probable occurrences of that scenario in a period and is generally taken from failure frequency databases and literature prepared after analysing historical data of previous incidents. The probability of an intermediate event varies from 0 to 1 indicating the possibility of occurrence of that event.

**Estimation of Risk**

Finally, the risk estimate is derived by multiplying the consequence of the event and the probability of occurrence. The risk is represented in the form of metrics like individual and societal risk.

Individual (or location-based) Risk (IR) is the probability at which an individual may be expected to sustain a given level of harm from the realization of specified hazards (Engineers, 1992). In simple terms, it measures as the probability that an (unprotected) person dies in one year as a consequence of an accident with hazardous substances and is expressed as a frequency (per year). Principally, the IR estimation takes into account an annual frequency of occurrence of a reference damage (e.g. fatalities) in any area for a person present 24 hours/day and 365days/year without protection and possibility of being sheltered or evacuated. Graphically IR can be represented as a set of risk contours around a hazardous installation.

Societal Risk (SR), another risk measure of the QRA approach, is the relationship between frequency and the number of people suffering from a specified level of harm in a given population from the realization of specified hazards. Therefore, if no people are present around the hazardous activity, SR is zero whereas IR may be quite high.

In order to generate individual-risk contours, it was required to estimate the effect of all individual scenarios at each location. Accordingly, risk resulting from each reference scenario was estimated combining frequency of the initiating event (i.e. incident), conditional probability of the scenario (i.e. sequence) and the corresponding probability of fatality (i.e. Probit). In particular, the following expression was used to estimate IR at a given location for a particular accident scenario.

$$IR_{x,y,i} = [f_i PF_i] = [(f_{incident\ i} P_{sequence\ i}) PF_i]$$

Where,

- $IR_{(x,y,i)}$ is the individual risk at the geographical location (x, y) for a particular reference scenario *i*
- $f_i$ is the frequency of occurrence of the accident scenario *i* ($y^{-1}$);
- $PF_i$ is the probability of fatality that the accident scenario i will result at location (x, y)

The resulting overall IR at that particular location (x, y) was then calculated as the sum of the individual IR's corresponding to each reference scenario.

$$IR_{(x,y,i)} = \sum IR_{(x,y,i)}$$

$IR_{(x,y)}$ is the overall IR at the geographical location (x, y) for all reference scenarios

It is important to mention that all events considered had radial effects, except for the scenarios involving toxic release which were considered as a directional footprint with its spread distributed in a sector of 22.5 degrees, using a wind direction probability of 0.125 taking any of 8 principal wind directions.

A number of measures are there to estimate or express the societal risk among them, the PLL measure is chosen as it allows spatial display of the risk to society by combining the damage potential with population density estimates. In particular, the following expression is used to estimate SR in terms of Potential Loss of Life (PLL).

$$PLL_{(x,y)} = [IR_{(x,y)} NP_{(x,y)}]$$

Where:

- PLL(x, y) is the Potential Loss of Life at a geographical location (x, y);
- IR(x, y) is the individual risk at location (x, y); and
- NP(x, y) is the number of people at a geographical location (x, y).

#### 7.1.1.1 Risk analysis

The risk assessment process is intended to identify existing and probable hazards in all operations and work environment, to quantify the hazards and to access the risk levels of those hazards in order to prioritize those that need an immediate attention.

The methodology of risk assessment includes the following steps:

**Hazard Identification:** A classical definition of hazard states, "hazard is in fact the characteristic of system/ plant/ process that presents potential for an accident." Hence, all the components of a system such as process, storage of chemicals, handling, etc., need to be thoroughly examined to assess their potential for initiating or propagating an unplanned event/ sequence of events, which can be termed as an accident.

Identification of hazards is of primary significance in the analysis, quantification and cost effective control of accidents. Potential Hazards identified in the proposed Industrial

Manufacturing Cluster have been broadly classified as below:

**Hazards during Construction Phase**

- Mechanical Hazards
- Transportation Hazards
- Physical Hazards
- Storage and Handling of Hazardous Materials

**Hazards during Operation Phase**

- Material Hazards
- Mechanical Hazards
- Handling, Storage and Transportation Hazards
- Plant Hazards

**Hazards due to Natural Calamities**

- Earthquake
- Flood

**Hazards during Construction Phase**

**Mechanical Hazards:** Mechanical hazards during the construction phase arise due to the moving parts in the machinery, especially the belts and bolts of the construction equipment, which are heavy and pose a threat to the work personnel. Other hazards include falling (during

working at heights), falling objects like hand held tools, etc., failure of slips and traps created for scaffolding, and due to faulting of electrical equipment. **Transportation Hazards:** The planning of access/ egress to the construction site also plays a significant role in minimizing the associated hazards such as vehicles collision. **Physical Hazards:** The noise and vibrations generated during the construction phase may affect the worker's health, hinder effective communication and may jeopardize sensitive organs. In addition to noise and vibration, hot works also pose a considerable hazard to the workers. Storage and handling of hazardous materials: During the construction period, storage of hazardous materials like fuel for the engines, lubricants, paints and other flammable materials are likely to pose a fire and explosion risk. Due care shall be taken in locating these materials away from the work place, free of any influence of temperature or sparks or fire. Proper wiring of the electrical appliances like lights, exhausts, etc., would be made to ensure that there are no live wires causing short circuits to ignite these materials.

**Hazards during Operation**

The proposed Bulk Drug Park, Una (Himachal Pradesh) by HPBDPIL will have the following sectors of the industries represented in **Table 7.3.**

**Table 7.3. List of proposed industries in Bulk Drug Park, Una, Himachal Pradesh**

| Industries | Category of Industries | Potential Sub-Sector |
|---|---|---|
| Bulk Drug Pharmaceuticals | Red | API and API Intermediates (Chemical Synthesis based only) |

**Material Hazards:** In any installation, main hazard arises due to loss of containment during handling of flammable and toxic chemicals. The Chemicals are classified according to the properties and hazard class given by National Fire Protection Association (NFPA) is responsible for 380 codes and standards that are designed to minimize the risk and effects of fire by establishing criteria for building, processing, design, service and installation. NFPA classification **(Table 7.4)** for Health, Flammability & Reactivity of a chemical is on a scale from 04 least to worst. As per the NFPA Rating on the scale from 0-4 the chemicals having 3 & 4 are considered are highly hazardous and considered for analysis.

**Table 7.4. NFPA Classification**

| Rating | Health | Effect |
|---|---|---|
| 0 | No Hazard | Will not burn |
| 1 | Can cause significant irritation | must be preheated before ignition occur |
| 2 | Can cause temporary incapacitation or residual injury | must be heated or high ambient temperature to burn |
| 3 | Can cause serious or permanent injury | can be ignited under almost all ambient |
| 4 | Can be lethal | will vaporize and readily burn at normal temp |

NFPA provides standard for the chemicals to reduce the risk of fire and other hazards. The chemicals handled by the facility, that pose health and fire hazards as identified by their NFPA ratings, are mentioned in **Table 7.5**.

**Table 7.5. NFPA Rating**

| Sr. no. | Solvents | Flash Point (°C) | Boiling Point (°C) | NFPA Rating | | |
|---|---|---|---|---|---|---|
| | | | | Health | Fire | Relativity |
| 1 | Hydrochloric Acid | NA | 50.5 | 3 | 0 | 0 |
| 2 | Methanol | 16.1 | 64.5 | 1 | 3 | 0 |
| 3 | Acetonitrile | 5.55 | 81.6 | 2 | 3 | 1 |
| 4 | Dimethyl formamide | 67.2 | 153 | 1 | 2 | 0 |
| 5 | N-Butanol | 36.1 | 117.7 | 1 | 3 | 0 |

The chemicals handled at the site has been reviewed to identify the hazards associated with the same. The formulation and manufacturing of API and API intermediates in bulk drug pharma involves storage of hazardous chemicals which can lead to accidents in the proposed project are described in **Table 7.6**.

**Table 7.6. Important Hazardous Events**

| Types of possible Events | Causes |
|---|---|
| BLEVE (Boiling Liquid Evaporating Vapor Explosion) | Due to the catastrophic failure of refrigerated or pressurized gases or liquid stored above their boiling points, followed by early ignition of the same, typically leading to a fire ball |
| Deflagration | Reactions occurring at less than sonic velocity and initiation of the reaction at lower energy levels |
| Detonation | A propagating chemical reaction of a substance in which the reaction front advances in the unreacted substance at or greater than sonic velocity in the unreacted material |
| Explosion | A release of large amount of energy that form a blast wave |
| Fire | -- |
| | The burning of a flammable gas cloud on being immediately ignited at the edge before forming a flammable/explosive mixture. |
| Flash Fire | A flammable gas release gets ignited at the farthest edge resulting in flash-back fire |
| Jet Fire | A jet fire occurs when flammable gas releases from the pipeline (or hole) and the released gas ignites immediately. Damage distance depends on the operating pressure and the diameter of the hole or opening flow rate. |
| Pool Fire | Pool fire is a turbulent diffusion fire burning above a horizontal pool of vaporizing hydrocarbon fuel, where the fuel has zero or low initial momentum |
| Spill Release | 'Loss of containment'. Release of fluid or gas to the surroundings from unit's own equipment / tanks causing (potential) pollution and / or risk of explosion and / or fire |

| | |
|---|---|
| Structural Damage | Breakage or fatigue failures (mostly failures caused by weather but not necessarily) of structural support and direct structural failures |
| Vapor Cloud Explosion | Explosion resulting from vapor clouds formed from flashing liquids or non-flashing liquids and gases |

**Mechanical and Physical Hazards:** Injuries may be caused to working personnel due to the operations like cutting, lifting, and rotating machinery. Lifting and carrying heavy or awkwardly shaped objects, such as bags, can result in manual handling injuries.

**Handling, Storage and Transportation Hazards:** Proposed project will involve handling of various materials in the form of Solid, Liquid and Gases which are required for the operations. The individual industry may have material transport from the nearest road/rail route. The hazards related to material transport may be due to accidents of vehicles, failure in mechanical transmission components etc., The Handling hazards include:

- Insufficient knowledge on hazardous nature of chemical in use leading to inappropriate handling of the chemical.
- Failure to use appropriate control measures and Personal Protective Equipment (PPE).
- Use of expired/ worn Personal Protective Equipment (PPE's).
- Failure of liquid/solid or gas delivery tools.
- Using of container with narrow opening for a process that evolves heat and/or gases.
- Mixing of oxidizing agents with flammable / combustible substances, etc.

**Storage and Handling of Chemicals:** A storage and Handling of Hazardous chemical is inevitable, they carry inherent characteristic risk to the employees due to the properties of chemicals such as toxicity and flammability. Chemicals are to be handled in standard containers like MS, HDPE, GI Drums, PVC Carboys, etc. All the chemicals, if any are to be arranged and stored in accordance with their compatibility, dry, well ventilated, with flameproof electrical equipment's and lighting. All the chemicals are to be provided with identification labels. Eye wash/Drench shower is to be provided at a strategic location for emergency purpose. Chemical Safety Data Sheets and handling procedure, First Aid measures are to be prepared and displayed for information and safety of the working personnel.

**Plant/Industry Hazards:** The various types of hazards in the plant/industries are as follows

- **Fire Hazard:** Flammable chemicals are used in the manufacturing process of the chemicals. So it is susceptible to catch fire either at the places of storage, transportation and processing if source of ignition is available. These chemical fires may cause to catastrophic effects. The sudden development of pressure ruptures the container and causes shock waves which cause the structure damage and outburst of reaction vessel. Fire is considered very dangerous if occurs in uncontrolled manner. It should be clearly understood that when a liquid is used having flash point below the normal ambient temperature, it could, in suitable circumstances, liberate a sufficient quantity of vapour to give rise to flammable mixtures with air
- **Explosion Hazard:** Release of energy in a rapid and uncontrolled manner gives rise to explosion. Extra care shall be taken by providing rupture disc, pressure release valve and temperature controller
- **Corrosion Hazard:** Most corrosive substances will produce chemical burns, while certain chemical produce deep ulceration. Other has detailing effect on skin and may cause dermatitis. This has adverse effects on weakening the strength of material in contact.
- **Electric Hazard:** Electrical power is the main driving force of the industry. There is a potential hazard in electrical equipment like electric cables, motors, heaters, lights, electrical major equipment/ machinery, operations, welding, motors, and heavy lift devices, cabling, human intervention (short circuit possibility), maintenance work (due to machinery breakdown etc.), plant lighting related electrical hazards etc. there will be a fire hazard due to sparks and short circuits in the electrical systems. Static electricity may develop during the transfer of solvent from one vessel to another vessel and may leads to sparks, if there is no proper earthling system, the electrical sparks will act as ignition source for flammable chemicals.
- **Other Hazards:**
- Other toxic hazards due to acids/other toxic spillages (mainly limited to spillage area). The spillage if comes in contact with metal parts will produce hydrogen which is highly flammable gas. Any person moving in area and getting splash will get the injury. In

addition, the spillage will cause pollution problem. The spillage is to be collected and neutralized for toxic contents before disposal.

- Hazards due to individual soft spots like walking casually and not noticing a pit and falling or colliding/stumbling or slipping (not noticing a wet place, etc.).

**Table 7.7. Details of Indicative Major Plant/Industrial Hazards**

| Plant/Industrial Hazards | Details |
|---|---|
| Leaks/ruptures | Fracture: Breaking open of a containment system by the propagation of a crack |
| | Puncture: a perforation or hole in a containment system as a result of impact |
| | Relief device stuck open |
| | Seal/gasket/flange failure |
| | Corrosion/erosion |
| | Flow surge or hydraulic hammer |
| Incorrect actions or inactions by people | Operator opens a valve, etc. |
| Exceeding process limits | Over/under pressuring |
| | Over heating |
| | Over cooling |
| | Over filling |
| Control system failure | Sensor |
| | Logic Solver |
| | Final element |
| | Communication interface |
| | Field wiring |
| | Power source |

| | |
|---|---|
| Reactivity | Runaway reactions |
| | Air ingress |
| | Inadvertent mixing of chemicals |
| Structure failure | Equipment support |
| | Foundations/floor |
| | Cyclic loading |
| | Pressure fluctuations |
| Utility failure | Electricity |
| | Instrument air |
| | Plant nitrogen |
| | Cooling water |
| Human external events | Vehicle impacts |
| | Dropped objects from lifting devices |
| Knock-on effects | Incident in adjacent processes |
| | Incident with process |
| Multiple Faliure | Combinations of equipment failures |
| | Combinations of human failure |
| | Combinations of external events |
| | Combination of any of these |

**Fire and Explosion Indices (F & EI)**

Dow's Fire and Explosion Index is a step-by-step objective evaluation of the realistic fire, explosion and reactivity potential of process equipment and its contents. The quantitative measure shall be employed based on historical loss data, the energy potential of the material under study and the extent to which loss prevention practices are currently applied. This is

helpful in identifying high-risk process areas needing more detailed hazard analysis to ensure that the facilities do not pose unacceptable risks.

The steps involved in this technique are shown in **Fig. 7.2.** Once the pertinent process unit is selected, the Material Factor (MF) for the material in the unit shall be estimated. This depends on the flammability, reactivity and operating temperature. Factor for general process hazards ($F_1$) takes into account the nature of the reaction, ventilation of the unit, accessibility of the unit, drainage facilities etc. Factor for special process hazards ($F_2$) takes into account toxicity of the material, operating pressure, operation near flammable range, quantity of material, joints and packing, use of hot oil exchange system etc.

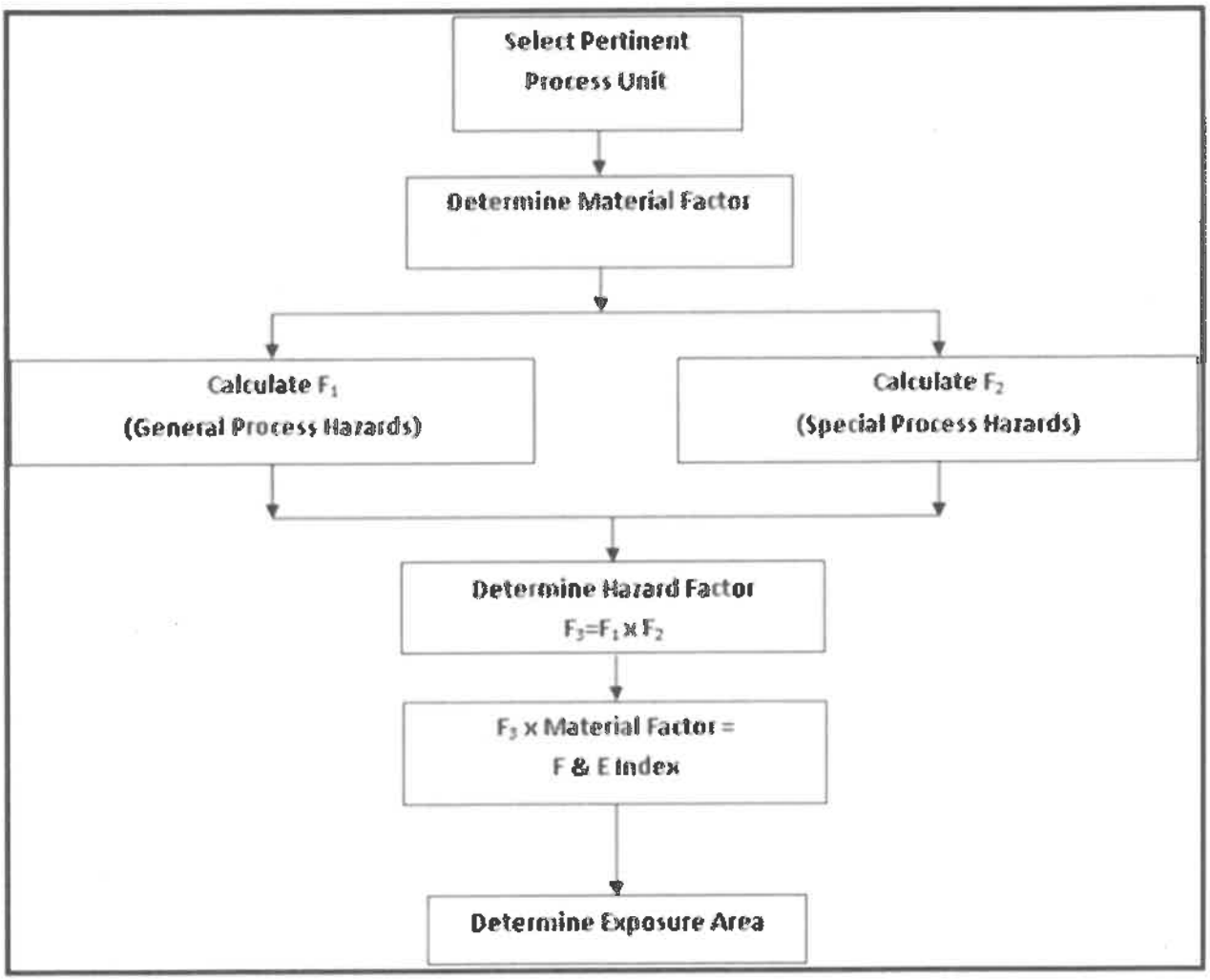



**Figure 7.2. Steps involved in Fire and Explosion Index Calculation**

F & EI is determined based on the procedure shown above and the relative hazard rating is done as per the following criteria. Degree of Hazard with respect to F & E Index is given in

**Table 7.8.**

**Table 7.8. Degree of Hazard with respect to F & E Index**

| S. No. | F & E Index Range | Degree of Hazard |
|---|---|---|
| 1. | 1 – 60 | Light |
| 2. | 61 – 96 | Moderate |
| 3. | 97 – 127 | Intermediate |
| 4. | 128 - 158 | Heavy |
| 5. | 159 and more | Severe |

**Toxicity Index (TI):**

The TI value is computed from Maximum Allowable Concentration (MAC), General Process Hazard (GPH) and Special Process Hazard (SPH) by use of DOW's hazard classification guide. The scale for TI is given in **Table 7.9**.

**Table 7.9. Degree of Hazard with respect to Toxicity Index**

| TI Range | Degree of Hazard |
|---|---|
| 0 - 6 | Light |
| 6 - 10 | Moderate |
| Above 10 | High |

**Hazards due to Natural Calamities**

In case of natural disasters such as earthquake, flood etc., occurring at the proposed Bulk Drug Park may result in fire and explosions/toxic gas release due to failure of equipment. The damage consequences will be similar whether the damage is because of manmade disaster or natural calamity for the worst cases.

**Hazard and Damage Assessment:** Toxic, flammable and explosive substances released from sources of storage as a result of failures or catastrophes, can cause losses in the surrounding area in the form of:

- Toxic gas dispersion, resulting in toxic levels in ambient air,

- Fires, fireballs, and flashback fires, resulting in a heat wave (radiation), or
- Explosions (Vapors Cloud Explosions) resulting in blast waves (overpressure).

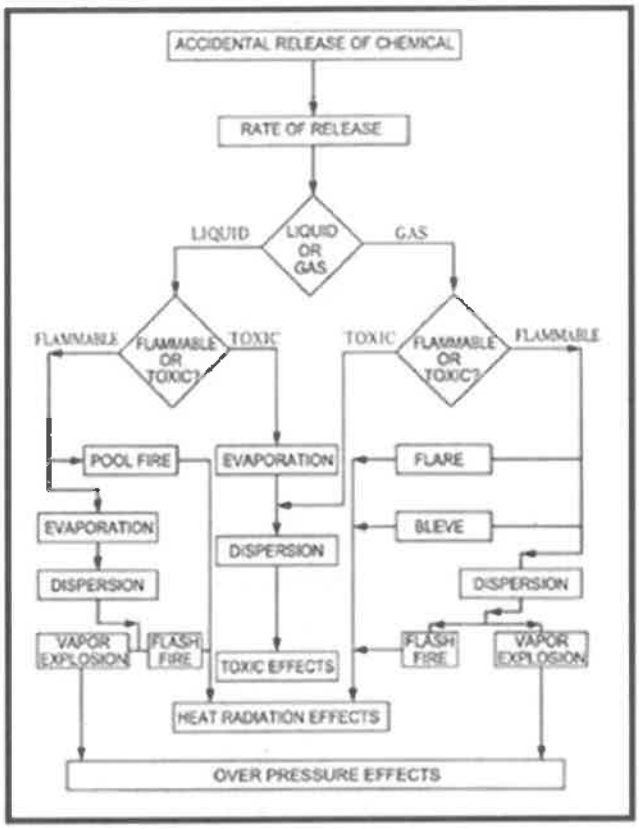



**Figure 7.3. Sequence of probable events**

**Effect of Fire/Heat wave Radiation:** The effect of thermal radiation on people is mainly a function of intensity of radiation and exposure time. The effect is expressed in term of the probability of death and different degree of burn. The consequence effects studied to assess the impact of the events on the receptors are provided in **Table 7.10**

**Table 7.10. Impact of Radiation Intensity**

| Radiation ($kW/m^2$) | Damage to Equipment | Damage to People |
|---|---|---|
| 4.0 | -- | Causes pain if duration is longer than 20 sec. But blistering is unlikely. |
| 9.5 | -- | Pain threshold reached after 8 sec. second-degree burns after 20 sec. |
| 12.5 | Minimum energy to ignite | 1% lethality in one minute. First |

| | | |
|---|---|---|
| | wood with a flame; melts plastic tubing. | degree burns in 10 sec. |
| 37.5 | Severe damage to plant | 100% lethality in 1 min.<br>50% lethality in 20 sec.<br>1% lethality in 10 sec. |

**Effects of Overpressure:** The effects of the shock wave vary depending on the characteristics of the material, the quantity involved and the degree of confinement of the vapor cloud. The peak pressures in an explosion therefore vary between a slight over- pressure and a few hundred kilopascals (kPa). Whereas dwelling are demolished and windows and doors broken at overpressures as low as 0.03- 0.1 bar. A peak overpressure of 0.1bar will cause serious damage to 10% of the housing/structures. Falling fragments will kill one of each eight persons in the destroyed buildings. Direct injury to people occurs at greater pressures. The pressure of the shock wave decreases rapidly with the increase in distance from the source of the explosion. The overpressure damage is shown in **Table 7.11**

**Table 7.11. Effect of Overpressure**

| **Peak Overpressure** | **Level of Damage** | **Description** |
|---|---|---|
| 0.01 (bar) | Minor Damage | Crack in glass |
| 0.02 (bar) | Minor Damage | Limited structural damage |
| 0.03 (bar) | Significant Damage | Shattering of glass |
| 0.1 (bar) | Moderate Damage | Repairable damage to plant equipment & structure |
| 0.2 (bar) | Heavy Damage | Corrugated asbestos shattered; corrugated steel or aluminum panels, fastenings fail, followed by buckling, wood panels (standard housing) fastenings fail, panels blown in, structural damage to Buildings |
| 0.3 (bar) | Heavy Damage | Major damage to plant equipment structure |

| | | |
|---|---|---|
| 1.0 (bar) | Fatality | -- |

**Effects of toxic release**

A material may be considered as toxic or poisonous, when a small quantity can cause injurious effect on an average normal adult human being. The effect of exposure to toxic substance depends upon the duration of exposure and the concentration of the toxic substance. Short-term exposures to high concentration give Acute Effects while long term exposures to low concentrations result in Chronic Effects.

Only acute effects are considered under hazard analysis, since they are likely credible scenarios. These effects are:

- Irritation (respiratory system, skin, eyes)
- Narcosis (nervous system)
- Asphyxiation (oxygen deficiency)
- System damage (blood organs)

There are several ways of expressing the severity of the toxic nature of the chemicals. These are:

- TLV - Threshold Limit Value:
- IDLH -Immediately dangerous to life and health
- LDLO - Lethal dose low
- LD50 -Median lethal dose

The Immediately Dangerous to Life and Health (IDLH) value which is a limit for personal exposure to a substance defined by the United States National Institute for Occupational Safety and Health (NIOSH), normally expressed in parts per million (ppm) can be considered as the reference concentration.

**Typical Failure Frequencies**

The hazardous material release scenarios can be broadly divided into two categories (i) catastrophic failures which are of low frequency and (ii) ruptures and leaks which are of

relatively high frequency. Vapour or liquid releases from failure of gasket, seal and rupture in pipe lines and storage tanks fall in second category whereas catastrophic failure of storage tanks and full bore rupture of pipelines, etc. fall into first category. Typical failure frequencies are given in **Table 7.12 .**

**Table 7.12. General failure frequencies**

| **Item** | **Mode of failure** | **Failure Frequencies** |
|---|---|---|
| ***Atmospheric vessel*** | Serious leak catastrophic | $1x10^{-4}$/ yr<br>$5x10^{-6}$/ yr |
| ***Pressure vessel*** | Serious leak | $1.0 \times 10^{-5}$/yr |
| | Catastrophic | $3x10^{-6}$/yr |
| ***Process pipe lines*** | | |
| =50 mm dia | Full bore rupture | $8.8 \times 10^{-7}$/m.yr |
| | Significant leak | $8.8 x10^{-6}$/m.yr |
| > 50 mm = 150 mm dia | Full bore rupture | $2.6 \times 10^{-7}$/m.yr |
| | Significant leak | $6x10^{-5}$ /m.yr |
| > 150 mm dia | Full bore rupture | $8.8 x10^{-8}$ /m.yr |
| | Significant leak | $6x10^{-6}$ /m.yr |
| **Hoses** | Rupture | $3.5 x10^{-2}$/yr |
| **Check valve** | Failure on demand | $1x10^{-4}$/demand |
| **Motor operated valve** | Failure on demand | $1x10^{-3}$/demand |
| **Flange** | Leak | $3 x10^{-4}$/yr |
| **Gasket failure** | Failure | $5 \times 10^{-5}$/yr |
| **Pump seal** | Leak | $5 x10^{-3}$/yr |
| **Process Safety Valve** | Lifts heavily | $4 x10^{-3}$/yr |

| | | |
|---|---|---|
| | Blocked | 1 x$10^{-3}$/yr |
| | Lifts lightly | 2 x$10^{-2}$/yr |

Source: 1. Loss Prevention in the Process Industries -Frank P.lees.Vol.2 & 3, 2nd edition.

2. TNO communication

**Risk Mitigation Measures**

- Consider feasibility of substitution of hazardous chemicals such as solvent based paints with less hazardous alternatives. Label chemicals with appropriate, internationally recognised, hazard symbols.
- Chemicals with different hazard symbols should not be stored together - clear guidance on the compatibility of different chemicals can be obtained from the Materials Safety Data Sheets (MSDS) which should be readily available from the manufacturer and on site.
- Store chemicals in a dedicated, enclosed and secure facility with a roof and a paved/concrete floor. Chemical tanks should be completely contained within secondary containment such as bonding.
- Install devices to prevent spills and overfills, e.g. alarms to warn of overfilling and automatic shut-off devices or secondary spill containment.
- Maintain and inspect storage units regularly.
- Consider installation and use of groundwater monitoring points on site to check for contamination. Implement a Solvent/Hazardous Materials Management Plan to monitor and control the use of solvents and hazardous materials on site.
- Necessary arrangement of firefighting facility as per various national and international codes for the facilities to avoid any major incident.
- To identify the hazards, present in the system, a hazard identification study such as a Hazard and Operability study (HAZOP) should be undertaken by the individual industries. All hazards identified should be examined and appropriate mitigating measures developed and implemented.

- For all the hazardous material tanks where there is a single in/outlet line, a Remotely Operated Vehicle (ROV) (or an equivalent design to allow isolation of the tank from the line in an emergency) should be provided.
- First aid equipment and manpower resources are at place to deal with emergencies, in consultation with emergency services to rescue any personnel, trapped or immobilized by an accident scenario.
- Implement and maintain appropriate safety management systems to control the managerial and organizational factors that can impact on the overall risk associated with the hazardous materials.
- Carryout regular checks/maintenance and testing of instruments, valves and flange joints as per strict schedule. Pipelines, flanges and valves require special attention to minimize the failure rate.
- Prevention of potential ignition sources such as:

➢ Proper grounding to avoid static electricity build up and lightening hazards (including formal procedures for the use and maintenance of grounding connections) – Use of intrinsically safe electrical installations and non-sparking tools.

➢ Implementing permit systems and formal procedures for conducting any hot work during maintenance activities, including proper tank cleaning and venting.

- Facilities should also be equipped with Fire Detection and suppression equipment such as Fire tenders, all types of fire extinguishers like DCP, CO2, water CO2 foam types in adequate numbers, Fire Hydrant and monitor system as per TAC guidelines to take care of any fire hazard.
- Fire Detection/alarm system to be provided for Control Rooms, cable Galleries, Transformers area and Administrative building and these may be of ionization, optical and heat sensing type.
- All fire systems should be located in a safe area of the proposed facility
- Firefighting equipment shall be provided as per applicable standards and guidelines.
- Consider linking foam and fire water system. Considerations should be given to directly

inject AFFF (Aqueous Film Forming Foam) compound into the respective fire mains (at 6 percent strength), which can act as a vehicle to transport foam solution to user points on either site for mobile response foam branches / cannons.

- Facilities should be properly equipped with fire suppression equipment that meets internationally recognized technical specifications for the type and amount of flammable material stored at the facility.
- Preparation of a fire response plan supported by the necessary resources and training, including training in the use of fire suppression equipment and evacuation. Procedures may include coordination activities with local authorities or neighboring facilities.
- Provision of fire safety training and response as part of workforce health and safety induction/training, including training the use of fire suppression equipment and evacuation, with advanced fire safety training provided to a designated firefighting team.
- It is recommended that all electrical fittings in the system should confirm to flame/explosion proof regulations.
- It is recommended to carryout regular maintenance and testing of instruments, valves and flange joints as per strict schedule. Pipelines, hoses, PSV's require special attention to minimise the failure rate.
- Pipeline should be protected against external / internal corrosion
- Do's and Don'ts shall be displayed prominently in the site near the pipelines and at all workplaces. Regular maintenance shall be carried out under the supervision of an authorized person.
- Important telephone numbers of emergency shall be displayed prominently in bold letters in the plant site and administration building.
- Caution boards shall be displayed for all working person. – No smoking signs
- No flames or pilot lights or electrical gadgets. – Emergency contact numbers.
- All electrical equipment shall be provided with proper earthling. Earthed electrode should be calibrated, periodically tested and maintained.

- Emergency lighting shall be available at all critical locations including the operator's room to carry out safe shut down of the plant, ready identification of firefighting facilities such as fire water pumps and fire alarm stations.
- All electrical equipment shall be free from carbon dust, oil deposits, and grease.
- Use of approved insulated tools, rubber mats, shockproof gloves and boots, tester, fuse tongs, discharge rod, safety belt, hand lamp, wooden or insulated ladder and not wearing metal ring and chain is insured.
- Flame and shock detectors for fire safety shall be provided.
- Danger from excess current due to overload or short circuit is prevented by providing fuses, circuit breakers, thermal protection.

**Risk Management**

**a) Occupational Hazards – Steam Generation and Boilers**

The Boilers Act, 1923 should be complied for establishment and operation of Boilers.

- Boilers work at a high heat adjacent to pressurized vessels, which puts their operators at risk of burns and explosions.
- Burning of fuel used in boilers may lead to fires, carbon monoxide poisoning, etc.
- Boiler operators meet various substances used in boilers (fuel, water additives, etc.) which may lead to eye and skin disorders.
- Boiler operators work in a noisy, hot and humid environment that may cause tiredness and general ill-feeling.

**b) Hazards related to Steam Generation and Boilers**

**Table 13 Details of Hazards related to Steam Generations and Boilers**

| Type of Hazard | Description of Hazard |
|---|---|
| Accident hazards | Falls from ladders, stairs and elevated platforms |
| | Slips and falls on the level, particularly on floors made slippery by water, fuel, oils, etc. |
| | Mechanical accidents when operating pulveriser and stoker in coal-fired boilers |

| Type of Hazard | Description of Hazard |
|---|---|
| | Burns from hot surfaces, hot water and escaping steam |
| | Electrocution or electric shocks |
| | Poisoning by carbon monoxide or by other combustion products in the air, particularly in the case of faulty ventilation or inadequate air supply to burners (acute carbon monoxide poisoning may cause headache, dizziness, nausea, unconsciousness, coma and death |
| | Asphyxia due to breathing of oxygen-depleted air |
| | Splashes of hydrazine and its derivatives on the skin may cause penetrating burns and severe dermatitis |
| | Splashes into the eyes of chemicals used in the regeneration of ion exchange columns, in derusting and descaling; particularly, splashes of hydrazine and its derivatives may cause permanent corneal lesions |
| | Fires and explosions (particularly from fuel leaks) and from rags soaked with fuel; fires of soot; explosions of gas-air mixtures within the boiler |
| | Bursting of boilers (because of overheating and overpressure, failure of structural components due to metal fatigue, etc.) with possible fires, and injury by the explosion wave, by flying fragments, flames, steam, excessive noise, etc. |
| | Excessive continuous noise levels - as high as 94 dBA |
| Physical hazards | Heat stress caused by prolonged work at high temperatures and relative humidity's |
| Chemical Hazard | Irritation of eyes, respiratory tract and skin as a result of exposure to hydrazine and its derivatives, used as additives to boiler water; severe exposure may cause temporary blindness |
| | Pneumoconioses from exposure to vanadium-containing dust, and to asbestos from the insulation, particularly during maintenance and repair work, and from exposure to respirable fly ash |

| Type of Hazard | Description of Hazard |
|---|---|
| | Dermatoses from exposure to fuels and to corrosion inhibitors (various organic or metalorganic compounds) and other water additives |
| | Asbestos may cause cancer; smoking strongly increases the risk |
| Biological hazards | Development of fungi and growth of bacteria in the boiler room, due to the elevated temperature and humidity |
| | Presence of rodents and insects may result in bites and infectious diseases |
| Ergonomic, psychosocial, and organizational factors | General tiredness as a result of physical work in a noisy, warm and humid environment; |
| | Cumulative trauma disorders as a result of continuous repetitive movements or over strenuous efforts |
| | Back pains and other musculoskeletal problems (including lesions of intervertebral discs) resulting from overexertion and wrong postures, during lifting and moving of sacks and heavy loads |
| | Psychological stress due to dissatisfaction at work, as a result of boredom, monotony, low salary, problematic personal relations with peers and/or superiors, etc. |

**c) Preventive Measures**

1. Wear safety shoes with non-skid soles
2. Periodically check and adjust burners operation to prevent carbon monoxide generation
3. Install effective exhaust ventilation to prevent air contamination; add local exhaust ventilation if necessary
4. Wear long-sleeve shirts and protect hands with chemical-resistant gloves; if impractical, use a barrier cream
5. Wear appropriate eye protection; consult a safety supervisor or a supplier
6. Arrange a periodic inspection of boilers to detect the failure of components, metal cracking, etc.
7. Wear hearing protection appropriate for the noise levels and type of noise - consult the supplier or an expert

8. Replace hydrazine with less-hazardous substitutes
9. Wear respiratory protection during maintenance or other work in which dust may be released into the atmosphere
10. Wear respiratory protection during maintenance or other work in which dust may be released into the atmosphere

**d) Precautions to be carried out at Start in Steam Boilers**

- Hydraulic should be carried out at a defined pressure before the start of a boiler.
- Check if the pump inlets are open at the start of a boiler.
- Install an automatic ash removal system such as rotary valves in a boiler so as to prevent the accumulation of ash in a furnace or other equipment. The accumulation may result in the blockage or excessive heating of boiler parts resulting in its failure.
- Pump priming must be done at the start of the boiler.
- All loose and wrong connections must be checked, and make sure to rectify the connections before starting your boiler.
- A trained and technical boiler operator must be hired to operate your boiler.

**e) Precautions to be carried out Regularly**

- Never operate the boiler above the design pressure and check for the safe operation of Safety valves as well as fusible plugs.
- Regular cleaning of the perforated line is necessary
- Stainer must be installed before the pump & check for its proper functioning to remove dirt particles from boiler feed water as this prevents the blockage of a feed line.
- Water must be treated before feeding it to the boiler to prevent the accumulation of dirt in a Boiler shell.
- Regular inspection and maintenance of the boiler, including its accessories and valves, to check for possible failures and cracks are necessary.
- Make sure that the boiler vents are not restricted by any kind of obstruction such as cloth etc.
- Always check for the leakages of steam, water, air and flue gases from any suspicious place.
- Follow the boiler manual for safe and efficient working of your boiler.

- The panel should be cleaned regularly and should be kept in a cool and isolated place away from your boiler.
- Check if all the hot parts of the boiler are insulated, do not touch the parts with bare hands where the insulation is not provided.
- Maintenance of both FD Fan and ID Fan is important and regularly check for greasing in all the movable parts for ease of operation.
- Regular cleaning of movable mechanical parts is necessary.
- Do not increase the frequency of a drive above 50 Hz for the safe operation of motors.
- Pressure switch, Mobrey and Pressure Gauge should be checked for their proper

**f) Precautions to be carried out Occasionally:**

- Occasionally clean the boiler tubes to prevent any ash deposition or to scale inside or outside the tubes. Failure to do so will affect the boiler efficiency and will eventually overheat the tubes leading to tube leakage problems.
- The ratio of primary and secondary air must be maintained in accordance with fuel feeding.
- Periodically check burner operation back pressure and line pressure to prevent any thermal hazards.

**Emergency Preparedness and Response Planning**

The practice of industrial risk management deals with short-term strategies and plans that can help the administration and communities at risk to prepare for and respond effectively to major accidents originating from hazardous facilities. Effective management of emergencies requires careful planning, preparedness and response in order to be able to reduce damage, rescue victims, and ensure quick return to normalcy. In the perspective of industrial risk, this would mean accidents like a toxic release, fire or explosion originating from a hazardous industry or a transportation accident involving a hazardous chemical. Emergency management deals with short-term preparedness and response strategies as well as long-term mitigation plans that can help the administration and communities deal with an emergency.

**Key phases of emergency management are:**

**Mitigation:** pre-disaster efforts directed at reducing the effect of a probable industrial event on human life and personal property;

**Preparedness:** actions taken prior to a disaster event that enables disaster management units to appropriately respond to the hazard;

**Response:** actions taken immediately prior to, during, and after, the accidental event that assists in reducing human and property losses as well as actions taken to aid in the post-disaster recovery effort;

**Recovery:** actions and measures that facilitate the return of social and economic activities to an acceptable standard.

The task of managing industrial emergencies is complex. Experience has shown that they often develop very rapidly, with factors that may change rapidly over time (e.g. weather conditions, traffic volumes, etc.). They are often difficult to predict and require multiple actors to work in coordination to arrive quickly at decisions to protect the community and the environment. In addition, judgments during an emergency are often tentative, imprecise and approximate due to incomplete information, and the inherent complexity and uncertainty of a rapidly evolving decision environment, where a mistake can lead to immensely adverse consequences on life and property. Such dynamic and time-sensitive requirements require emergency managers to efficient use up-to-date information from several heterogeneous and multi- disciplinary sources in order to be able to make correct decisions. The decision-making requirements are most critical when an accident situation evolves, accompanied by uncertainty and rapidly changing information. A delay in reaching a decision may lead to higher loss of lives and/or damage to property.

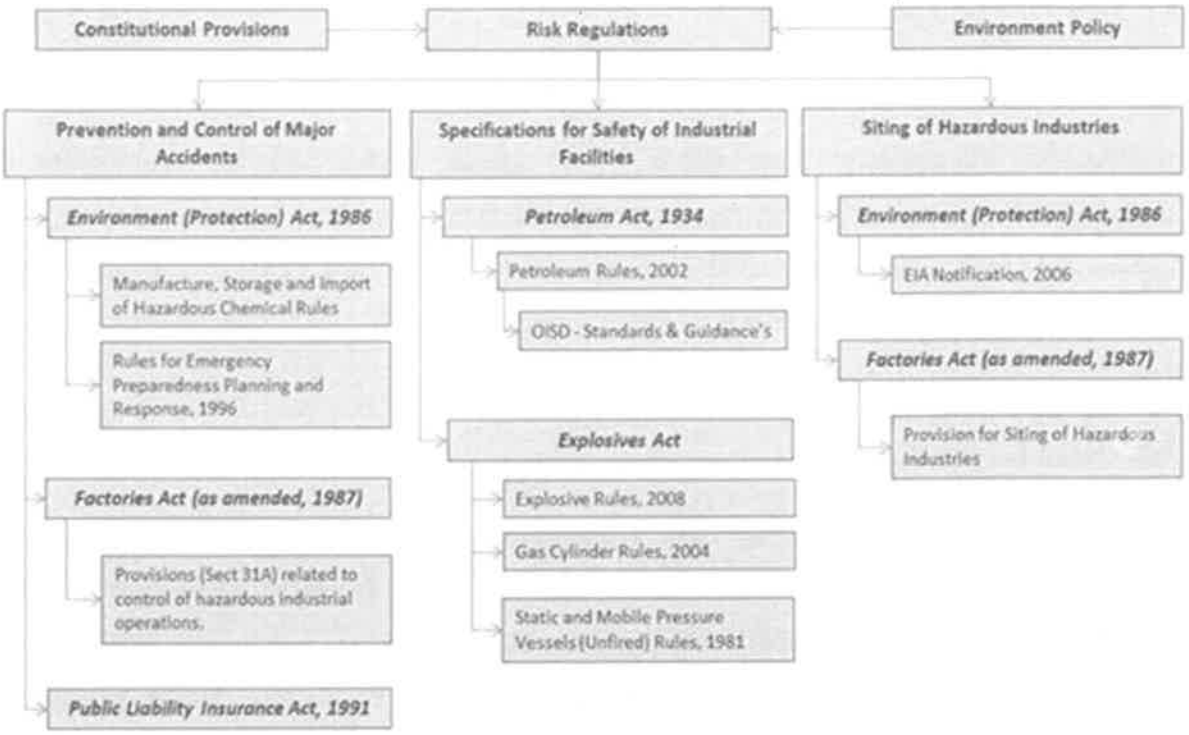



**Figure 7.4. Regulatory Framework for industrial risk management**

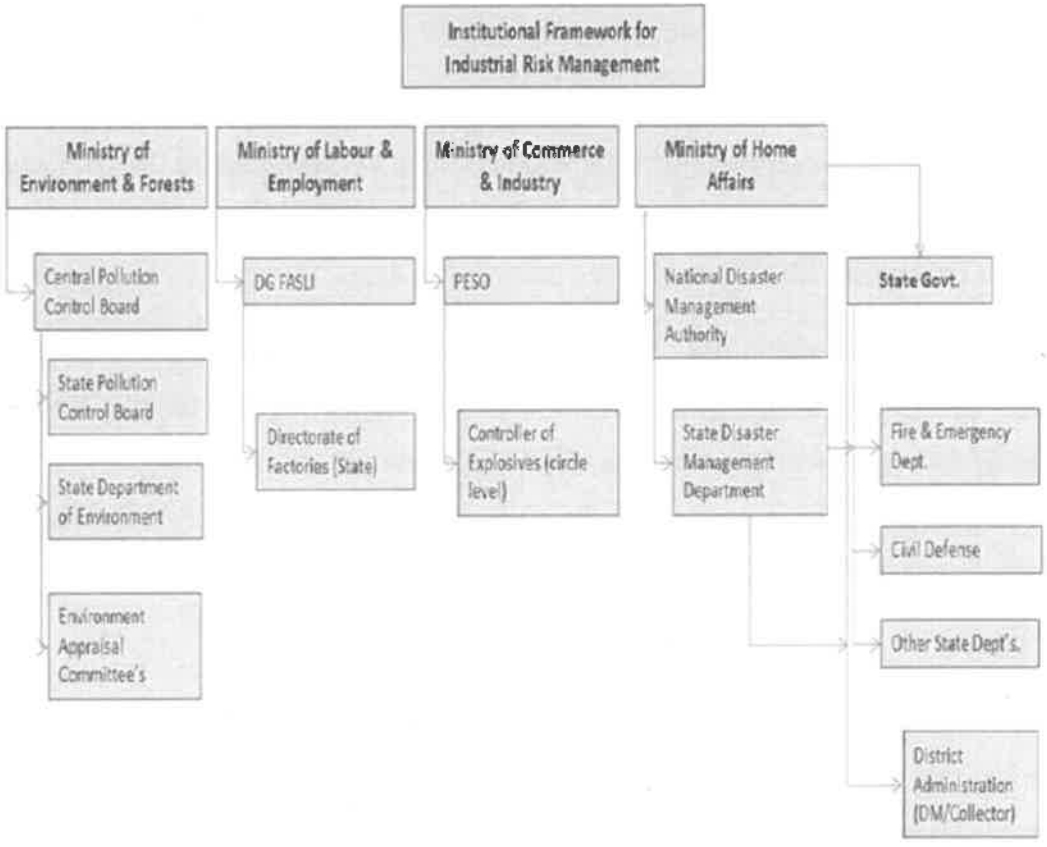



**Figure 7.5. Institutional framework for industrial risk management**

## 7.3 Disaster Management Plan

### 7.3.1 Introduction

The Disaster Management Plan (DMP) is a guide, giving detailed organizational responsibilities, actions, reporting requirements and support resources available to ensure effective and timely management of emergencies likely to arise from planned operations. The DMP has been prepared for the HP Bulk Drug Park on the basis of the Risk Assessment and related findings covered in the foregoing topics in this report.

### 7.3.2 Need for the Plan

M/s. Himachal Pradesh Bulk Drug Park Infrastructure Limited (HPBDPIL) has proposed Setting up of New Bulk drug park - HP in total area of 568.74 Hectares. The project will be developed at Villages: Kuthar Beet, Pollian Beet, Tibbian, Jodian, Janani and Mulluwal of Tahsil Haroli, District: Una, Himachal Pradesh. The Bulk Drug Park area is densely populated with large numbers of industries to be developed with manufacturing API Bulk Drug and operation of various utilities like Solvent Management Plan, Steam Supply Facility, CETP Complex, TSDF Complex etc. This clearly defines the need for a Disaster Management Plan (DMP) for HP Bulk Drug Park.

The onsite plans will be prepared by the individual Major Accident Hazard (MAH) installation as per Rule 13(1) of MSIHC Rules which will provide vital information for the offsite plan to be prepared under Rule 14(1).

A disaster can set back significantly the development of an affected region and even beyond, depending on its scale, reversing decades or more of accumulated gains. Development without recognising disaster probabilities and incorporating adequate risk reduction could, in effect, worsen existing risks and carries with it the likelihood of introducing new risks, aggravating the negative impact of potential disasters.

### 7.3.3 Vision

The vision behind the DMP of HP Bulk Drug Park is to work towards building a disaster safe environment for the industries and demography in the region. The DMP recognizes that disasters undermine the capacity of the district for sustainable development and that an effective Disaster Risk Reduction (DRR) approach requires administrative and financial

commitment towards sustainable human development and effective management of the environment. DMP is developed in the understanding that disaster resilience requires coordinated, committed, and inclusive action of Govt. departments, institutions and civilians to develop effective strategies for preventing hazard events from turning into disasters and to respond effectively to all emergency situations. It emphasizes building civilian and institutional capacities for DRR by promoting and advocating a policy of sustainable development and by creating awareness and enhancing the preparedness measures. It also ensures a safer community that implements a pragmatic response mechanism to manage an event of a disaster and consistently advances in all aspects of DRR.

### 7.3.4 Objective

By considering above, the key objectives of DMP is to plan, prepare and develop an implementable mechanism for HP Bulk Drug Park to avert and minimize the impact of disaster on human life, environment and property. Same can be described under following:

- To assess various hazard, exposure, vulnerability, capacity and risk associated with the Bulk Drug Park.
- To lay down various measures and guidelines for prevention and mitigation.
- To lay down preparedness measures for all stakeholders.
- To build the capacity of all stakeholders in the state to cope with the localized hazards.
- To provide clarity on roles and responsibilities for all stakeholders concerned with various phases of disaster risk management.
- To ensure co-ordination and promote productive partnership with all other agencies related to disaster risk management.
- To mainstream disaster risk management concerns into the developmental planning process.

### 7.3.5 Brief description of the project- Identifying of Disaster Risk

M/s. Himachal Pradesh Bulk Drug Park Infrastructure Limited (HPBDPIL)has proposed Setting up of New Bulk drug park - HP in total area of 568.74 Hectares. The project will be developed at Villages: Kuthar Beet, Pollian Beet, Tibbian, Jodian, Janani and Mulluwal of Tahsil Haroli, District: Una, Himachal Pradesh.

### 7.3.6 Brief of Disaster Risks in Bulk Drug Park Area

### 7.3.6.1 Earthquake

The Bulk Drug Park area in Haroli, Una District, Himachal Pradesh falls under the Seismic Zone IV, as per the Seismic zoning map of India from IS 1893 (Part-1): 2002. Hence, the area is under no susceptible risk due to earthquakes.

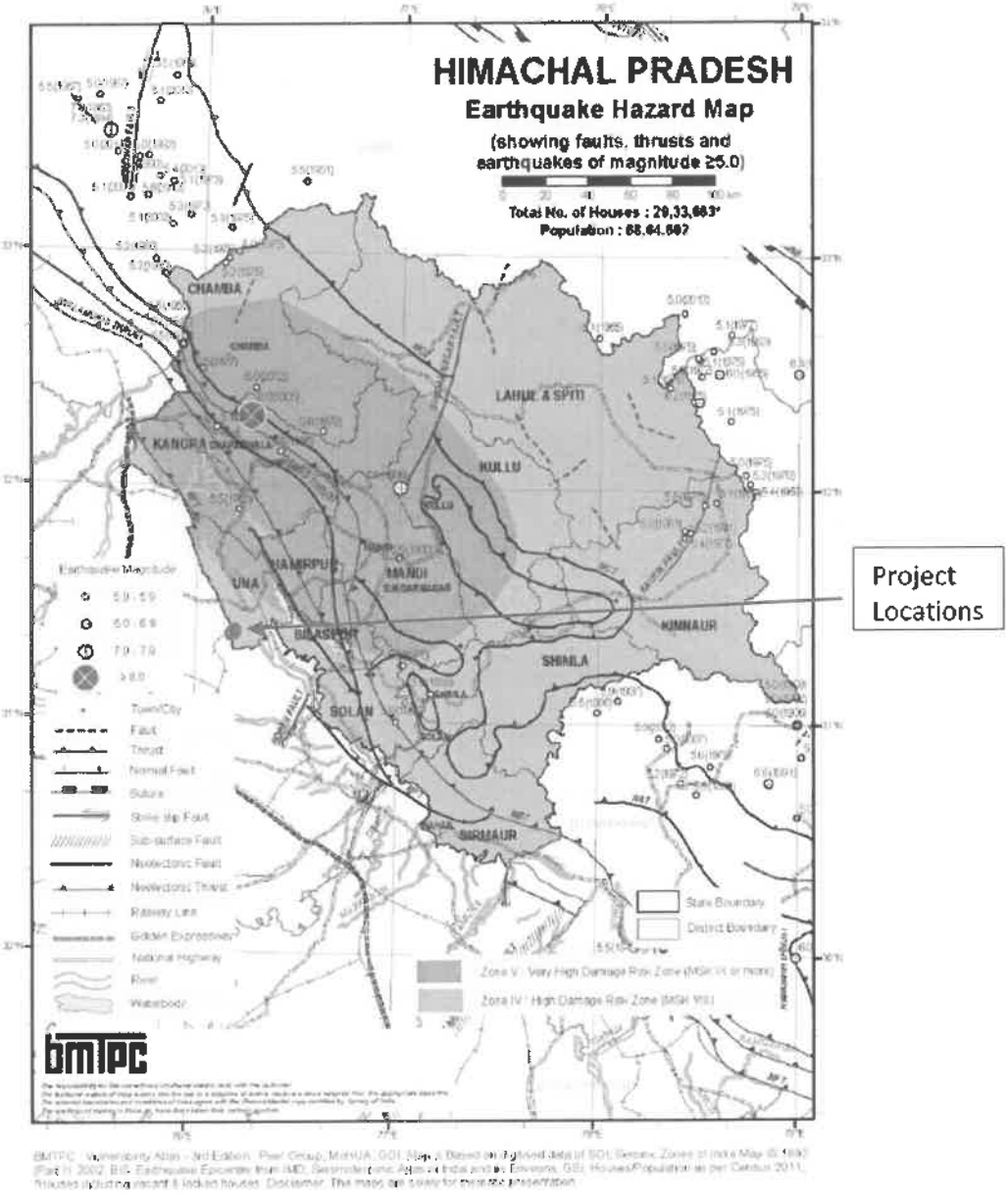



**Figure 7.6: Seismic Zones of India**

### 7.3.6.2 Riverine Flood

The flooding in Bulk Drug Park region may occur as a result of heavy monsoons. Flash flood is the most frequent and damaging floods that occur with little or no warning causing immense loss to life and assets and infrastructures of the state. Damages are caused due to flash floods mainly in the Sutlej, Yamuna, Beas and Parvati rivers. In August 1994, the Manimahesh cloudburst and a flash flood washed away almost the entire length of Chamba-Bharmour road (62 km), over 50 people feared dead, and 2000 injured. Similarly, the flash flood in Satluj river in 2000 had claimed 140 lives in Kullu, Mandi, Kinnaur and Rampur. Floods though have not directly damaged the assets of Industrial sectors have caused direct and indirect losses to the industrial production and the manufacturing by impacting the power, road infrastructure and intra and inter-state distribution networks of the state. Floods are among the most frequent natural hazards that trigger accidents in chemical infrastructures or oil and gas pipelines that result in the release of hazardous materials, fires, and explosions. Although, the area does have storm water drains, yet the flood water may enter the industrial units. Hence, water logging becomes prominent issue which possess moderate to high risk.

### 7.3.6.3 Landslide

Landslides are one of the key hazards in the mountain regions particularly in the state of HP which cause damage to infrastructure i.e. roads, railways, bridges, dams, bio-engineering structures, and houses but also lead to loss of life, livelihood and environment. According to the analysis carried by TARU in 2015, 6824 villages of the state falls under high landslide risk zone whereas 11061 villages are in the medium risk zone. 824 villages are in the low-risk zone of landslides.

### 7.3.6.4. Fire

Fire is caused by the factory electrical short circuits, flammable materials, and operational mishandling including burning hazardous materials causing health hazards. Persons working in the factory, as well as inhabitants of in nearby places, face threat to their lives, safety and wellbeing of workers due to such fires. Industrial Fire and explosion may cause huge loss to valuable properties in the factory including stock, plants, office infrastructures, power infrastructures, storage and transport godowns, cold storages and raw material stocks thereby affecting the production and livelihood provided by the industrial units. Consideration based

on risk calculated for the different Fire scenarios and the risk levels, HPBDP possess the Fire Risk of Medium to High.

#### 7.3.6.5 Chemical

Chemical hazard exposure (Pool Fire, Vapour Cloud Explosion and Toxic Release) due to various installations in HP Bulk Drug Park area, depending on the wind direction at the time of release it will impact the surrounding area and population. HPBDP envisages employment opportunities for more than 68,000 persons for various industries proposed in Bulk Drug Park and other contractor persons.

### 7.3.7 Disaster Risk Management at HP Bulk Drug Park Area

The State Government has adopted the Disaster Management Act 2005 as enacted by the Govt. of India for providing an effective mechanism for Disaster Management in the State of Himachal Pradesh. HPBDPIL includes; to identify locations suitable for industrial development, create industrial estates with infrastructure such as roads, drainage, electricity, water supply, street lights, and ready-to-occupy factory sheds.

### 7.3.8 Institutional Mechanism for Disaster Management at HPBDP

The proposed institutional mechanism for disaster management at HP Bulk Drug Park Area is depicted in below figure.

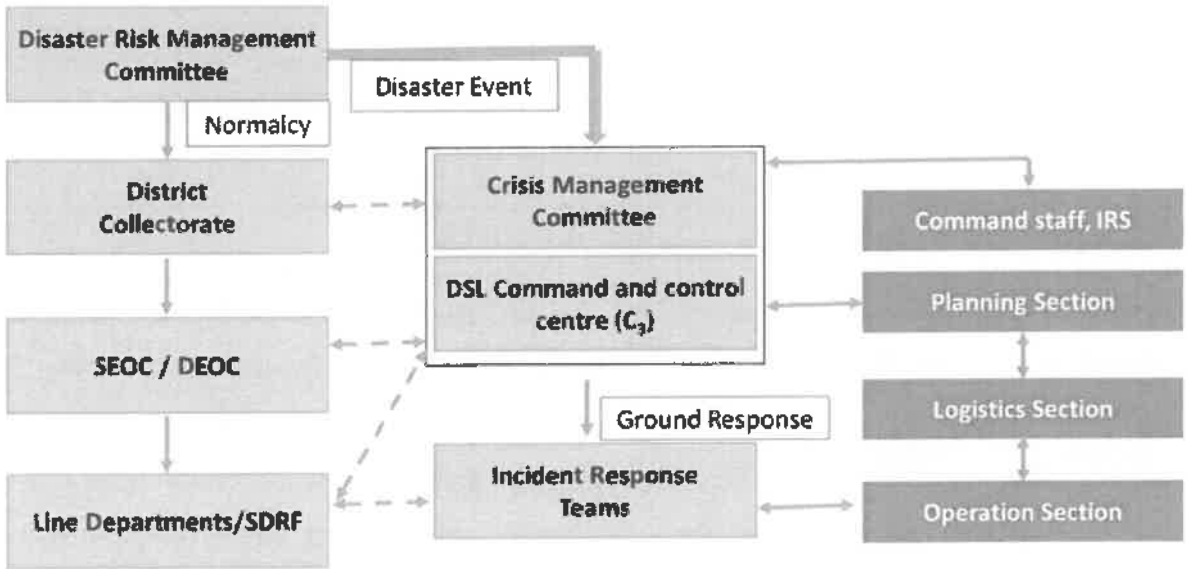



**Figure 7.7: Institutional setup for Disaster Risk Management at HPBDP**

### 7.3.9 Disaster Risk Management Committee (DRMC), HPBDP

Disaster Risk Management Committee, HPBDP is a nodal body for planning and implementing various activities during pre-disaster phase targeted for developing disaster risk resilience. To fulfil its crucial functions, DRMC shall:

a) Ensure implementation of Disaster Risk Management Plan (DRMP) of HPBDP Area
b) Ensure that on the basis of DRMP, each stakeholder lay down its Standard Operating Procedure (SOP) for integration of various DRM activities in their routine functioning and Emergency Response Plan (ERP) for prompt and effective response and relief
c) Ensure formulation of Crisis Management Committee (CMC) and Enterprise/ Financial Risk Management Committee of HPBDP
d) Develop mechanism for annual testing of DRMP, SOPs and ERPs through regular table top exercises and mock drills involving different industries and other stakeholders of HPBDP
e) Annually upgrade the Disaster Risk Management Plan of HPBDP through a participative exercise involving key stakeholders
f) Identify areas of water logging and inundation, black spots of road accidents and other specific hazard prone locations within and around HPBDP Area which may impact life, property and functioning of HPBDP.
g) Identify alternate places/ safe buildings for establishment of facilities under IRS such as temporary shelter, incident command post, staging area, medical post, relief camp, etc.

**Table 7.14: Disaster Risk Management Committee, HPBDP**

| S. No | Designation | Designated Role |
|---|---|---|
| 1 | Chief Executive Officer | Chairperson |
| 2 | Chief Financial Officer | Vice-Chairperson |
| 3 | Manager (Infrastructure) | Member Secretary |
| 4 | Senior Manager (Land Issue & Co-ordination) | Member |
| 5 | Assistant Manager (S&M) | Member |

| | | |
|---|---|---|
| 6 | Architect | Member |
| 7 | Site Engineer (Water Supply & Environment) | Member |
| 8 | Site Engineer (Civil) | Member |
| 9 | Security Officer | Member |
| 10 | Executive (Admin & Safety) | Member |
| 11 | IT Executive | Member |
| 12 | In-charge, Medical Services | Member |
| 13 | Representative, District Collectorate, Una | Member |
| 14 | Representative, Local NGO | Member |
| 15 | Representative from DMC, Haroli | Member |
| 16 | Representative from Local Crisis Group (LCG), Haroli | Member |

### 7.3.10 Crisis Management Committee (CMC), HPBDP

It is proposed that the DRMC, HPBDP may formulate a crisis management committee (CMC), HPBDP to support decision making and monitor various activities in the event of a disaster at HP Bulk Drug Park Area level.

The key roles and responsibilities of the CMC are as follows:

a) Oversee the command, control and coordination of the disaster response and immediate relief
b) Ensures continuous information flow from the HPBDP to the stakeholders regarding the situation for effective response
c) Assist in the immediate restoration of affected services

### 7.3.11 Integration of Crisis Management Committee (CMC), HPBDP with Incident Response System (IRS)

The crisis management committee plays vital functions during disaster response and immediate relief. In event of any disaster, depending on the magnitude and extent of disaster, CMC activates Incident Response System of HPBDP. IRS is based on principles of unity of command and chain of command to ensure orderly and clear cut reporting pattern and eliminates duplicity in orders and efforts; thereby strengthening accountability for coordinated response. Chairperson of DRMC, HPBDP assumes the role of Responsible Officer (RO) under IRS and other members of CMC get integrated with command staff of IRS. The integration of CMC and IRS is presented in figure below.

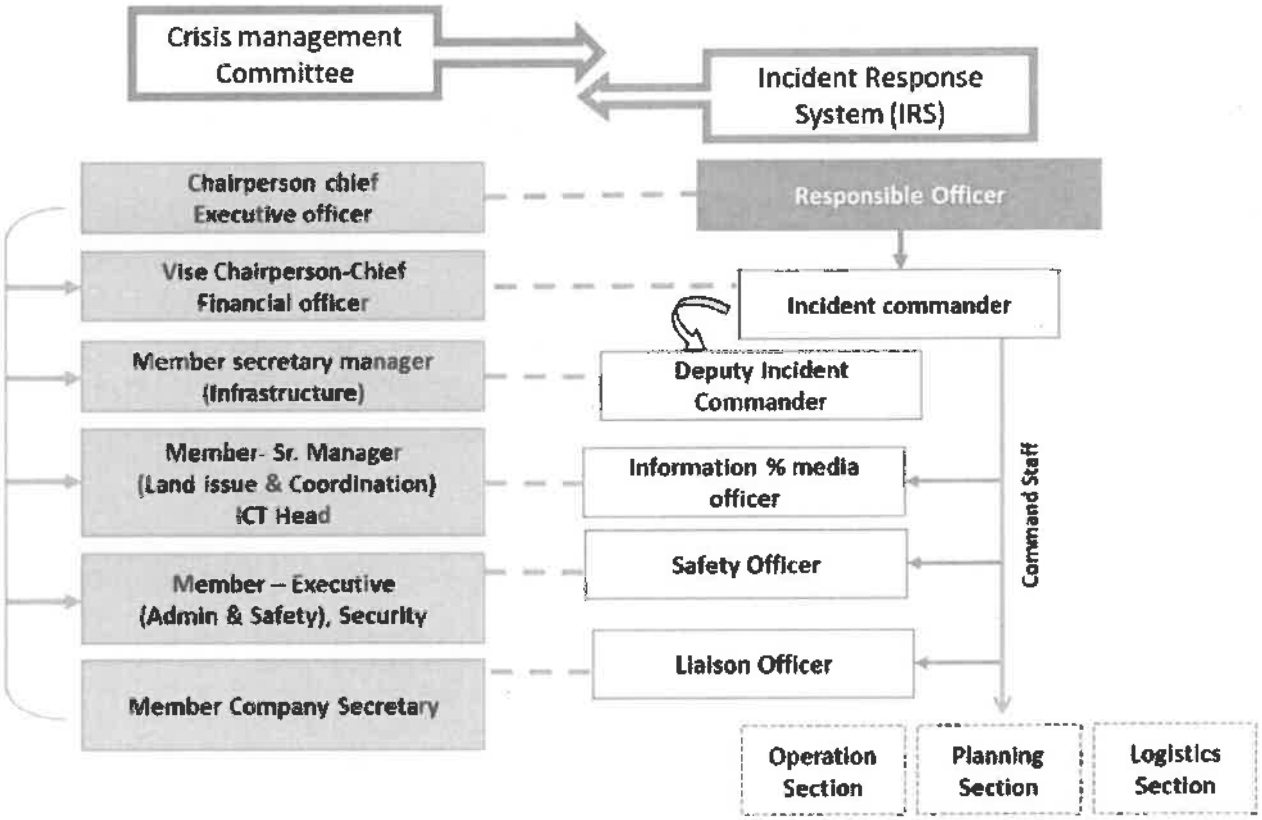



**Figure 7.8: Integration of Crisis Management Committee and Incident Response System**

### 7.3.12 Communication Linkages with Stakeholders

The communication among internal stakeholders at the HP Bulk Drug Park Area will mainly takes place through mobile phones, intercom, and emails or using hotline at Command and Control Centre (C3) and fire services. In case of disaster situation, various external departments and agencies will also play a critical role in early warning, response and relief activities.

Therefore, the C3 will act as a central hub for to and fro communication with both internal and external stakeholders. To ensure this, DRMC, HPBDP along with ICT department of HPBDP shall strengthen the resources and infrastructure at C3. Further, the DRMC, HPBDP shall also liaise with external stakeholders and establish suitable communication linkages for prompt receipt and dissemination of information as depicted in figure below. The figure identifies some of the key authorised agencies and departments for early warnings and alerts and some key emergency and response agencies with respect to HP Bulk Drug Park Area and shows the flow of communication amongst them.

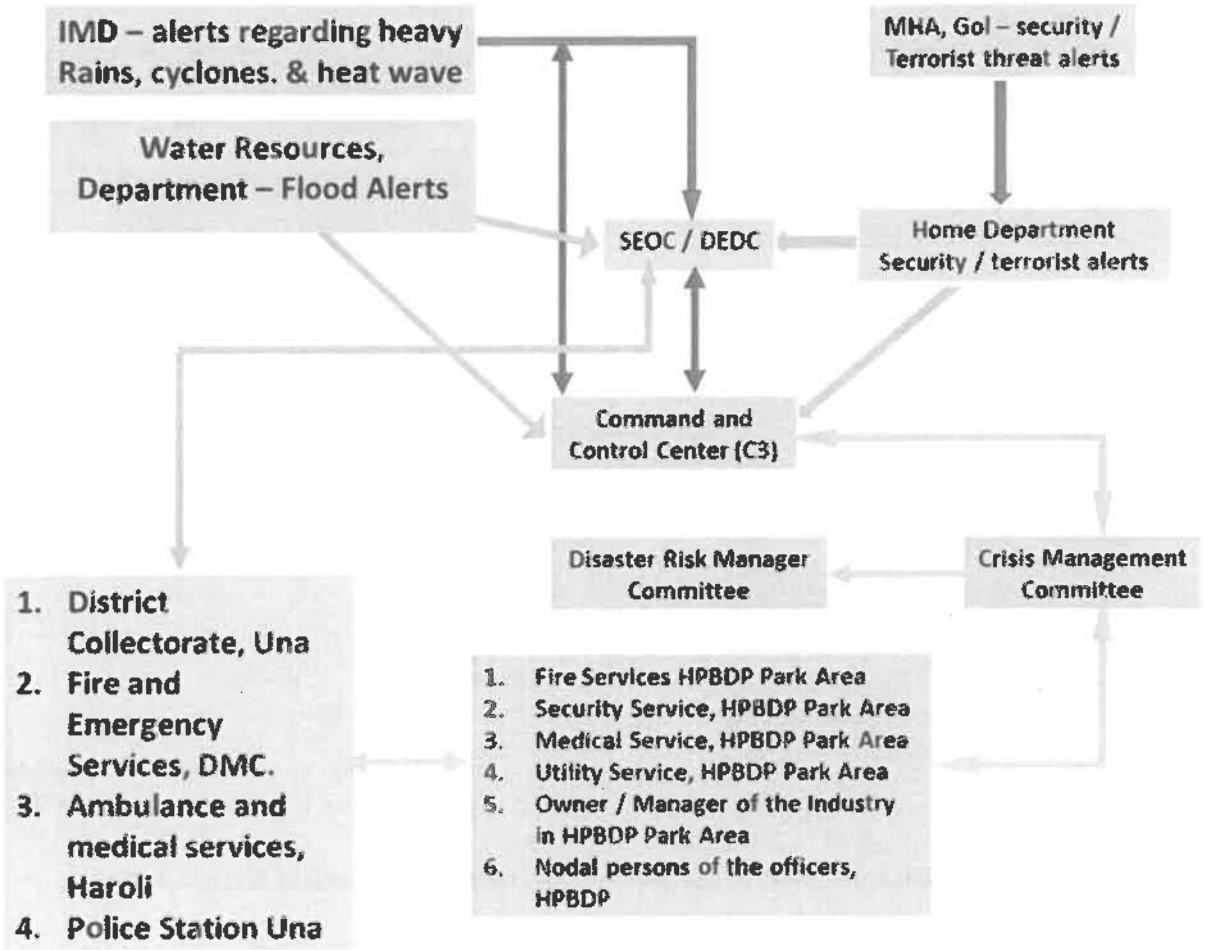



**Figure 7.9: Communication Linkages with Stakeholders**

### 7.3.13 Prevention & Mitigation Measures for Disaster Risks in HP Bulk Drug Park Area

The structural and non-structural mitigation measures to be undertaken by various stakeholders for reducing loss of life and injuries and other possible damages to assets and infrastructure at HP Bulk Drug Park Area in relation to different hazards are as follows:

### 7.3.13.1 Earthquake

| Activities | Responsible Department/ Agency |
|---|---|
| ▪ Ensure strict compliance with earthquake resistant building codes, standards, IRC specifications and latest techno-legal regime including NBC, BIS Codes, BMTPC guidelines, town planning byelaws, land use zoning, development control regulations and other regulations and model codes for civil works and infrastructure. | • Owner/Manager of the industry<br>• Manager (Infrastructure), HPBDP<br>• Senior Manager (Land Issue & Co-ordination), Architect, HPBDP. |
| ▪ Ensure implementation of strengthening and seismic retrofitting of critical infrastructure as per recommendation of safety audits Ensure appropriate land use zonation is undertaken guided by microzonation studies conducted.<br>▪ Ensure that all stakeholders like developers, architects, engineers responsible for regulation and enforcement adopt earthquake-safe construction practices and provide for seismic safety in all designs and construction activities through Design Team<br>▪ Ensure structural safety audit of critical infrastructure and other buildings by qualified accredited professionals<br>▪ Liaison with leading agencies like IMD, INCOIS, ISR which provide real time seismic warnings and updates<br>▪ Build requisite number of trained persons to handle seismic safety and compliance of bylaws | • Site Engineer (Civil), HPBDP<br>• DRMC, HPBDP |

### 7.3.13.2 Riverine Floods

| Activities | Responsible Department/ Agency |
|---|---|
| • Ensure regular inspection and preventive maintenance of storm water drainage / sewage system<br>• Ensure cleaning and de-clogging of drainage before monsoon and rainy season<br>• Build requisite number of trained persons in compliance of bylaws<br>• Ensure strict compliance with relevant building codes, standards, IRC specifications and latest techno-legal regime including NBC, BIS Codes, BMTPC guidelines, town planning byelaws, land use zoning, development control regulations and other regulations and model codes for civil works and infrastructure<br>• Design drains as per future projections of run off in HPBDP Area due to change in rainfall pattern<br>• Undertake studies on flood line mapping, vulnerability analysis and flood risk assessment of the areas prone to floods and urban flooding based on hydrological profile with help of professionals and experts of the field<br>• Regulate land use in the flood plains/ catchment areas to restrict damage due to floods<br>• Implement afforestation programmes in chronic low lying areas Maintain a proper GIS-based inventory of existing storm water drainage system/ sewage system starting from the smallest connection to the sewer trunk mains for all the areas which are serviced with a proper sewerage system. | • Owner / Manager of the industry<br>• Manager (Infrastructure), HPBDP<br>• Senior Manager (Land Issue & Co-ordination), HPBDP<br>• Architect, HPBDP<br>• Site Engineer (Civil), HPBDP<br>• DRMC, HPBDP<br>• DMC, Haroli<br>• DEOC, Una |

### 7.3.13.3 Storm

| Activities | Responsible Department/ Agency |
|---|---|
| • Ensure incorporation of wind resistant features in planning and construction of housing & commercial schemes and other critical infrastructure in HPBDP Bulk Drug Area<br>• Ensure regular plan shapes and avoid re-entrant corners as an asymmetrical building with zig-zag plan and having empty pockets is more prone to winds compared to a symmetrical building with a compact plan-form<br>• Ensure that communications and power transmission towers are designed on the basis of 100-year return period wind velocity<br>• Undertake studies on vulnerability analysis and storm risk assessment<br>• Estimate possible inundation levels and demarcate areas likely to be inundated<br>• Liaison with IMD for real time warnings and updates<br>• Ensure regular inspections/ survey conditions of roads, culverts and bridges pre and post monsoon period - Manual for highway inspection and Guidelines for inspection and maintenance of bridges Build requisite number of trained persons in safety and compliance of bylaws | • Owner / Manager of the industry<br>• Manager (Infrastructure), HPBDP<br>• Senior Manager (Land Issue & Co-ordination), HPBDP<br>• Architect, HPBDP<br>• Site Engineer (Civil), HPBDP<br>• DRMC, HPBDP<br>• DMC, Haroli<br>• DEOC, Una |

### 7.3.13.4 Fire

| Activities | Responsible Department/ Agency |
|---|---|
| • Ensure that all buildings / industries in HP Bulk Drug Area meet requirements for structural fire resistance and compartmentation laid down in national building code and Himachal Pradesh Fire Prevention and Life Safety Measures Regulation.<br>• Ensure that building elements such as columns, beams, floors shall be of minimum fire resistance rating (ability to withstand the effects of a fire for the minimum specified time period) depending on occupancy, height and floor area<br>• Ensure that doors of HVAC room open outside<br>• Ensure that materials used in building construction are non-combustible and do not contribute to the spread of fire. | • Owner / Manager of the industry<br>• DRMC, HPBDP<br>• DDMA, Una |
| • Ensure that all buildings are designed with proper access to emergency vehicles and minimum outback as per building codes and standards<br>• Install requisite fire protection system and equipment on each floor of the building as mandated by NBC fire safety codes and Himachal Pradesh Fire Prevention and Life Safety Measures Regulation<br>• Install proper fire alarm system and voice communication system for generating alert to occupants and assisting them in providing directions<br>• Install smoke exhausts for long interior corridors, occupied large floor areas, atrium and parking areas to provide additional level of protection to occupants for evacuation | |

| | |
|---|---|
| • Install proper signage showing exit routes, fire-related instructions, assembly points, etc.<br>• Ensure regular fire audits (Rapid Visual Screening) to check adequacy and functioning of firefighting systems and equipment in each building<br>• Conduct regular mock drills in participation with concerned stakeholders | |

### 7.3.13.5 Chemical Hazards

| Activities | Responsible Department/ Agency |
|---|---|
| • Implement land-use restrictions to provide minimum safe distances from hazardous sources to residential complexes, school, hotel and other public places<br>• Ensure suitable material for construction of chemical storage rooms/ plants to prevent corrosion and other adverse impacts in case of chemical spillage or release<br>• Identify infrastructure and population in vicinity to these facilities which is likely to be affected in case of release of hazardous material Ensure overall chemical safety of the facilities / buildings / industries including process safety, transportation, storage, handling, personal protective equipment, staff training, etc. as laid down in MSDS and operational and handling manual of concerned chemical<br>• Identify routes for transportation of hazardous materials and ensure necessary safety & security measures<br>• Put in place SOP on process safety and prompt evacuation & response in case of release of hazardous materials | • Owner/ Manager of the industry<br>• DRMC, HPBDP<br>• DDMA, Una |

| | |
|---|---|
| • Ensure proper anchoring of storage tanks and containers to avoid spillage and other damage to them<br>• Ensure proper bracing of overhead pipes carrying hazardous chemicals and gases<br>• Develop inspection formats and guidelines specific to plants and utilities involving chemicals and gases<br>• Build requisite number of trained persons in chemical safety and compliance of bylaws | |

### 7.3.13.6 Road Accidents

| **Activities** | **Responsible Department/ Agency** |
|---|---|
| • Ensure demarcated pedestrian facilities for differently-abled persons<br>• Ensure roads are constructed as per technical standards laid down by<br>• Indian Road Congress (IRC)<br>• Ensure employees and occupants abide by safety standards including seat-belts, safety helmets, etc.<br>• Ensure proper SOP are followed during transportation of hazardous materials<br>• Ensure roads, pavements, dividers are fully functional during monsoon season and promptly attend to any repair works = Display proper signage showing allowed direction of traffic, parking places, etc.<br>• Install proper road barriers wherever needed to ensure | • Owner /Manager of the industry<br>• DRMC, HPBDP<br>• R&B Panchayat, Una |

| | |
|---|---|
| smooth flow of traffic or at places with restricted entry | |

### 7.3.13.7 Terrorism/ Public Unrest

| Activities | Responsible Department/ Agency |
|---|---|
| • Identify the key facilities and infrastructure at risk of terrorist attack and public unrest<br>• Ensure enhanced protection of critical facilities and infrastructure at risk including the ones carrying or storing hazardous material, data centre, etc.<br>• Prevent illegal trafficking of hazardous material in the Area<br>• Ensure integrity assessment of pipelines carrying hazardous materials, tunnel and other utilities using supervisory control and data acquisition (SCADA) system and periodic inspections<br>• Ensure a proper grievance redressal mechanism to prevent any labour dispute or demonstrations<br>• Train disaster management teams for crowd and rumour management | • Owner / Manager of the industry<br>• DRMC, HPBDP |

### 7.3.14 Training

DRMC shall ensure organising the following training programmes for different stakeholders with the help of training institutes and field experts such as HPDMA, Red Cross Society, Fire & Emergency Services, Una, 108 Emergency Services, etc. Considering the nature of development at HPBDP Area, DRMC shall ensure assessing the new training needs of the HPBDP and shall include more training programmes accordingly.

To begin with, the trainings could be targeted for members of internal response teams and different disaster management teams proposed under DRMP. After successful conduct of these

trainings, as the next step, occupants and residents of HPBDP at large shall be trained in batches for further strengthening the capacity of first responders.

| **Proposed Training** | **Key Components of Training** | **Target Participants** |
|---|---|---|
| **Understanding Risk Disaster Management Plan of HPBDP Area** | • Concepts of Disaster Risk Management contextualised for HPBDP Area<br>• Understanding HRVC of HPBDP Area<br>• Hazard wise do-s and don't-s<br>• Understanding disaster risk governance and mechanism at HPBDP Area<br>• Knowing and understanding roles & responsibilities of all stakeholders during pre-disaster phase of prevention, mitigation, preparedness & capacity development and financial mechanism<br>• Understanding Incident Response System and Emergency Support Functions for HPBDP Area Principles and mechanism of relief, rehabilitation, reconstruction and recovery Implementation & maintenance of DRMP | • DRMC<br>• CMC<br>• Developers / Property Managers /<br>• Owners of the Industries<br>• Medical Services, HPBDP<br>• Representative from DMC,<br>• Haroli. |
| **Disaster of Communication and Functioning Control Room** | • Recording and dissemination of early warning/ alert<br>• Clear and concise dissemination to avoid panic, chaos and stampede.<br>• Functioning of various surveillance and communication equipment at HPBDP Area Alternate communication mechanism<br>• Effective communication with internal and external response agencies<br>• Coordination with District and State Emergency Operation Centre | • Staff of Command and Control Centre<br>• Staff of Control Room of various Industries<br>• Security services, HPBDP |

| | | |
|---|---|---|
| **Fire Safety and Management** | • Identification of fire hazards at HPBDP Area and possible mitigation measures<br>• Types of fires and how to fight them<br>• Types of fire safety and firefighting systems including fire extinguishers at HPBDP Area Operation and maintenance of these systems<br>• Identification of fire exits and fire escape routes<br>• Procedure of fire evacuation | • CMC, HPBDP<br>• Representatives from Developers / Property Managers / Owners of the Industries<br>• Representatives from DMC, Haroli. |
| **Evacuation & Search and Rescue** | • Mechanism for evacuation; knowing emergency exits and routes and assembly point Understanding signage and displayed instructions Maintenance of emergency routes and exits Procedure for head count and generating alarm for missing people Types and technical procedure for emergency lifts. Mechanism for handover to medical services | • CMC, HPBDP<br>• Representatives from Developers / Property Managers / Owners of the Industries<br>• Representatives from DMC, Haroli. |
| **First Aid** | • Principles of first aid<br>• Performing triage<br>• Detailed first steps for various kind of possible injuries in aftermath of disasters at HPBDP<br>• Procedure for emergency lifts<br>• Types of bandages and knots<br>• Procedure for handover to medical/ referral services<br>• Psycho-social first aid | • CMC, HPBDP<br>• Representatives from Developers / Property Managers / Owners of the Industries<br>• Representatives from DMC, Haroli<br>• Staff of Security Services, HPBDP<br>• Staff of Medical Services, HPBDP |
| **Security and Surveillance** | • Understanding possible security hazards Involving public at large in reporting suspicious activities Responding to different kinds of security issue Functioning of various surveillance and communication equipment at HPBDP. | • CMC, HPBDP<br>• Representatives from DMC, Haroli.<br>• Staff of Security Services, HPBDP |

| | | |
|---|---|---|
| | | • Staff of Medical Services, HPBDP |
| **Chemical Safety and Management** | • Understanding hazardous material stored at<br>• HPBDP Area<br>• Knowing the detailed mechanism of their process safety<br>• Identification of released/ leaked material and use of antidotes<br>• Communication to external response teams in case of chemical disasters<br>• A separate non-technical session for general residents around the storage units on do-s and don't-s in case of release/ leakage of hazardous materials | • Staff of concerned utilities<br>• Representatives from Developers / Property Managers / Owners of the<br>• Industries<br>• Staff of Fire Services, HPBDP<br>• Staff of Security Services, HPBDP<br>• Staff of Medical Services, HPBDP<br>• Population at risk<br>• |
| **Post Damage and Need Assessment** | • Understanding principles and procedure for conducting damage and need assessment Understanding minimum standards of relief existing at state, national and global level<br>• Understanding needs of vulnerable groups Mechanism for reporting and successive updation in standard formats. | • CMC<br>• MIRA and PDNA Team |
| **Multi-hazard Resilient Construction and Design** | • Understanding hazard profile of HPBDP Area<br>• Knowing the techno-legal regime at state, national and global level including national building codes, BIS standards, BMTPC<br>• guidelines for various hazards<br>• Understanding non-structural hazards in a building and possible mitigation measures | • Concerned teams of Planning and Engineering Department, HPBDP<br>• Representatives from Developers / Property Managers / Owners of the Industries |

| | | |
|---|---|---|
| | • A separate easy-to-comprehend session may also be undertaken for masons deployed for construction work at HPBDP Area | |

### 7.3.15 Roles and Responsibilities of various department of HPBDP

#### 7.3.15.1 General Preparedness Measures for All Stakeholders

The following are some of the common preparedness measures to be undertaken by all stakeholders of the HPBDP including each industry, utilities, developers, residents, office bearers, shop/ outlet owners, school, medical centre, etc.:

- Each head/ owner to actively support Disaster Risk Management Committee (DRMC) and Crisis Management Committee (CMC) by formulation of disaster management teams in their respective industries
- Each head/ owner to ensure safety of all labourers/employees deployed by the industry/ office/ building for construction/ renovation/ maintenance or any other support and services. Maintain a record of them for head count during evacuation, search and rescue and other response and relief operations
- Each head/ owner to ensure development of SOP/ Emergency Response Plan/Onsite Emergency Plan for respective industry/ office/ building on the lines of DRMP, HPBDP
- Each stakeholder to ensure support and active participation to DRMC and CMC in implementation of all components of DRMP, HPBDP Area
- Each stakeholder to ensure compliance to all recommendations provided by DRMC and CMC

#### 7.3.15.2 HPBDP Administration

Chief Executive Officer (CEO), heading both the development authority and administration, will ensure that the following preparedness measures are promptly and diligently implemented by respective officers, departments, subsidiaries and other stakeholders of HPBDP.

**a) Legal Department**

Company Secretary, HPBDP shall ensure that the following subsidiaries of HPBDP undertake their respective preparedness measures.

- Ensure all the concerned departments and stakeholders are informed of respective legal mandates of disaster risk management
- Ensure all legal compliances in relation to disaster management are incorporated in planning and development
- Establish mechanism to facilitate legal aid and advice to affected persons and entities in aftermath of disasters, if required

**b) Landscape Department**

Senior Manager (Land Issue & Co-ordination), HPBDP shall ensure that the following subsidiaries of HPBDP undertake their respective preparedness measures.

- Ensure suitable, deep rooted tree plantation to avoid uprooting due to strong winds
- Assess the conditions of trees/ branches before monsoon and rainy season and take appropriate measures to prevent them from uprooting/ falling
- Ensure regular maintenance and trimming of gardens, wild bushes, etc., especially during monsoon season, to prevent growth/ shelter to insects and reptiles

**c) Human Resources**

Assistant Manager (S & A), HPBDP shall ensure that the following subsidiaries of HPBDP undertake their respective preparedness measures.

- Develop a central digital database of all employees and staff, and HPBDP occupants of HPBDP Area with segregated data (on age, gender, differently-abled persons, night population, day population, etc. to assist in understanding vulnerable population at any given time) which can be easily updated on change of any information
- Develop a similar database for recording trained human resources available with different stakeholders at HPBDP Area and segregate the data showing their respective age, gender, skills, contact details, location and availability timing in HPBDP; ensure mechanism to promptly update any change in information
- Ensure data base of experts and practitioners who can be recruited/ hired immediately after disaster for providing technical guidance and support for post-disaster operations.

## d) Engineering Department

### d.1 Water and Sewage

Site Engineer, Water Supply & Environment, HPBDP shall ensure that the following subsidiaries of HPBDP undertake their respective preparedness measures.

- Ensure proper monitoring of the water and sewage carrying pipeline and other infrastructure through routine physical inspection for prompt detection of damage/ disruption in services
- Keep at disposal the MSDS and supplier's handling and storage instructions of chemicals and ensure all operators of chemicals are duly aware of safety precautions and respective do-s and don't-s.
- Keep at disposal suitable personal protective equipment including working gloves, protection shoe, chemical protective clothing while working in chemical rooms and/or handling stored chemicals
- Maintain, at disposal, minimum stock of critical spare parts, drainage inventory aids in operation & maintenance, monitoring system and other critical installations which are not readily available for prompt repair and restoration of water supply, treatment, pumping & storage and drainage & sewage system
- Identify nearby vendors for prompt supply of the same, if required
- Establish procedure for prompt communication of disruption of water supply, treatment and sewage services with suggestive time required for repair/ restoration to concerned industry/ owner, so that they can plan their functioning accordingly
- Identify nearby service providers for technical support and services during major damage / disruption of water and sewage system and consider signing MoU or having mutual aid agreement with them
- Consider signing MoU or having mutual aid agreement with nearby service providers like vehicle mounted RO systems with integrated power source, water tanker providers, packaged drinking water, vehicle mounted heavy duty dewatering pumps, portable toilets
- Ensure sufficient stock of chlorine tablets for purification of drinking water, in case of disruption in water treatment plant

**e) Planning, Architecture & Environment**

Architect, HPBDP in coordination with Owner / Manager of the industries shall ensure that the following subsidiaries of HPBDP undertake their respective preparedness measures.

- Ensure display of signage/ markers of 'do not dig, gas pipeline' along the route of buried gas pipeline to avoid damage/ accidents/ leakage during possible excavations
- Develop GIS databases and maps for HPBDP Area indicating all critical structures and utilities, safe assembly points, suggested location for various facilities under IRS, resources available within and in nearby areas for better DRM planning
- Develop detailed floor layout maps having details of evacuation routes, location of fire extinguishers & fire alarm, first aid box and emergency exits, staircases, lifts, ramps, assembly points, refuge area, etc. of each floor in all buildings occupied by HPBDP; display them on respective floors and ensure that a copy of the same is placed with internal response team and can also be made readily available digitally or otherwise for quick familiarisation of external response teams
- Ensure that each owner / manager of the industry prepares similar evacuation maps for their respective buildings; ensure their display on respective area and that a copy of the same is placed with internal response team and can also be made readily available digitally or otherwise for quick familiarisation of external response teams
- Ensure that all designs of proposed development comply with laid down techno-legal regime including town planning byelaws, land use zoning, development control regulations and other regulations and model codes for civil works and infrastructure, national building codes, BIS standards, BMTPC guidelines, environmental compliances, etc.

**f) ICT Department**

IT Executive, HPBDP and Executive, Admin & Safety, HPBDP in coordination with Owner / Manager of the industries shall ensure that the following subsidiaries of HPBDP undertake their respective preparedness measures.

- Ensure display of signage/ markers of 'do not dig, ICT cables' along the route of buried cables to avoid damage during possible excavations

- Establish mechanism to set up temporary communication facilities in case of damage to ICT infrastructure
- Ensure having binding agreements with telecom service providers to restore damaged facilities
- Ensure inter-operability among different telecom service providers
- Establish mechanism at C3 for prompt communication linkages with internal and external response agencies during disasters
- Establish mechanism for receiving early warning and alert from identified departments and agencies and prompt dissemination of the same to CMC, internal response teams and public at large through public address system/ mass messaging system, etc.
- Ensure linking of all control rooms at HPBDP with the centralised surveillance system at C3.

**g) HPBDP Administration**

Manager, Infrastructure, HPBDP in coordination with Owner / Manager of the industries shall ensure that the following subsidiaries of HPBDP undertake their respective preparedness measures.

- Identify and liaison with nearby service providers of packaged food, mobile kitchen and dry ration, baby foods, packaged drinking water, etc. for prompt procurement
- Identify liaison with nearby organisations/ trusts and NGOs for setting up community kitchens for prompt procurement
- Identify nearby vendors supplying blankets, tarpaulins, pre-fabricated structures, tents, inflatable lights, torches, ropes, etc. for prompt procurement during response and relief operation
- Consider entering into a pre-contract with the above identified vendors and service providers for prompt deployment during disaster
- Identify safe and open location for setting up temporary shelters and relief camps in case of failure of any safe building to host the same.

**h) Fire Services**

Executive, Admin & Safety, HPBDP in coordination with Owner / Manager of the industries shall ensure that the following subsidiaries of HPBDP undertake their respective preparedness measures.

- Ensure regular maintenance of firefighting and fire safety installations, fire hotline at HPBDP
- Identify and establish mutual aid agreements with nearby fire services providers of government, private and corporate sectors, industrial setups, etc.
- Establish centralised fire alarm generation system to get real time alert of fire incidents in any part of HPBDP Area
- Ensure the staff of fire services is duly aware of all possible hazards leading to fire incidents and is duly trained and equipped to fight the same
- Keep, at disposal, MSDS of various hazardous materials stored at industries in vicinity of HPBDP and train the response staff accordingly to address possible release/ leakage of the same; ensure the response staff is duly equipped with personal protective equipment before entering the exposed area
- Keep, at disposal, digital copy of floor layout of various buildings / industrial buildings and utilities of existing in HPBDP Area and familiarise the firefighting staff with the same for prompt and informed access to buildings during firefighting or search and rescue operations

**i) Security Services**

Security Officer, HPBDP in coordination with Owner / Manager of the industries shall ensure that the following subsidiaries of HPBDP undertake their respective preparedness measures.

- Ensure regular maintenance of security and communication equipment
- Prepare to surge the capacity of security services for emergency deployment with the help of service provider
- Ensure the staff of security services is duly aware of all possible security hazards including terrorist attack, public unrest, mob violence and is duly trained and equipped to control the same

- Establish mechanism for surveillance of HPBDP Area during high alert in Una, Himachal Pradesh or India
- Establish mechanism for robust public address system
- Establish SOP for crowd management and rumour management during large/ VVIP congregation at Haroli, Una.
- Keep, at disposal, MSDS of various hazardous material stored at industries in vicinity of HPBDP and train the response staff accordingly for carrying out search and rescue operation in case of release/ leakage of the same; ensure the response staff is duly equipped with personal protective equipment before entering the exposed area
- Keep, at disposal, digital copy of floor layout of various buildings / industrial buildings and utilities of existing in HPBDP Area and familiarise the security staff with the same for prompt and informed access to buildings during search and rescue operations

**j) Medical Services**

In-charge, Medical, HPBDP in coordination DRMC shall ensure that the following subsidiaries of HPBDP undertake their respective preparedness measures.

- Ensure availability of medical stocks capable of treating 25/50/100 casualties for prompt mobilisation in case of an emergency
- Identify nearby vendors of drugs, equipment and consumables including vaccines, antidotes, etc. for prompt procurement of medical supplies during response and relief operations
- Identify nearby referral services, trauma centres, blood banks, poison centres, diagnostic laboratories/ centres, specialised facilities to cater to chemical disaster victims, etc.
- Establish mechanism for prompt establishment of medical post and for surging capacities to respond to any mass casualty emergency at HPBDP Area by making advance tie ups and arrangement with Civil Hospital, Una and other private hospitals for making available doctors and para-medic staff at short notice for relief camps or for referral services
- Keep, at disposal, MSDS of various hazardous material stored at industries in vicinity of HPBDP and train the medical staff accordingly for treatment of victims exposed to

hazardous materials; ensure the medical staff is duly equipped with personal protective equipment before handling and treating such victims

- Ensure that staff of medical service is duly trained in psycho-social first aid
- Medical Services with the help of DRMC, HPBDP Industries and subject matter experts, develop and regularly update the Antidote plan.

**k) Owner / Manager of the Industries**

- Develop detailed emergency maps having details of evacuation routes, location of fire extinguishers & fire alarm, first aid box and emergency exits, staircases, lifts, ramps, assembly points, refuge area, etc. of each building of the industry; display them on respective area and ensure that a copy of the same is placed with internal response team and can also be made readily available digitally or otherwise for quick familiarisation of external response teams
- Develop and implement SOP and On-site Emergency Plans for respective industry as mandated by MSIHC
- Ensure that all staff including operation & maintenance team, housekeeping, etc. are duly aware of all hazards and corresponding do-s and don't-s, SOP, On-site Emergency Plans and trained for the same
- Develop and implement Disaster Risk Management Plans for respective industry as mandated by DM Act
- Ensure safety and other compliances in all buildings including under-construction sites
- Ensure regular audits and maintenance of fire-fighting systems and other safety installations in the building
- Ensure that labourers at construction/ renovation/ maintenance sites are adequately equipped with personal protective equipment and are aware of possible hazards and necessary actions to be taken in case of any emergency
- Establish mechanism for prompt dissemination of early warnings and alerts to labourers in construction/ renovation/ maintenance sites and ensure their safe evacuation
- Establish mechanism for recording labourers at construction/ renovation/ maintenance sites present on the day for ensuring headcount in case of evacuation
- Establish mechanism to receive prompt disaster warnings and alerts from C3

### 7.3.15.3 Occupants

**a) Industries/Offices/ Businesses**

- Develop business continuity mechanism for respective businesses undertaken
- Identify hazards at office level including those in pantry area, electric/ generator room, etc. and take suitable non-structural mitigation measures to ensure safety of employees and staff and to assist in safe and smooth evacuation process
- Ensure regular audit & maintenance of fire safety, first aid and other safety supplies at office level
- Ensure readily available digital database of employees and staff (segregated based on gender, age and differently abled, pregnant & lactating women, etc.) present on the day for ensuring headcount in case of evacuation
- Develop an office level disaster risk management plan/ SOP on lines of HPBDP Area DRMP and ensure its implementation & upgradation
- Actively support DRMC and CMC in planning and implementing all disaster risk management activities

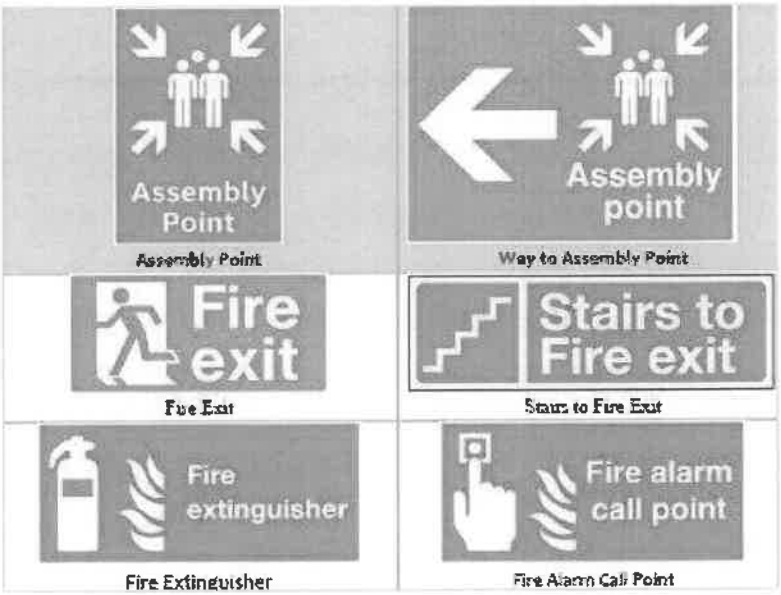
**b) Residents of Kuthar Beet, Pollian Beet, Tibbian, Jodian, Janani and Mulluwal**

- Identify hazards at household level including electric instalments, kitchen area, LPG cylinders, chemicals stored for cleaning purpose, insect repellents and other flammable and hazardous materials, non-structural hazards, etc.
- Develop Village level disaster management plan/ SOP and emergency and safety kits
- Ensure each family member is duly aware of possible hazards and corresponding do-s and don't-s
- Ensure infants, children, old aged persons, differently-abled (divyaang) members, pregnant and lactating mothers are taken special care of during all phases of disaster risk management, especially, evacuation, response and relief
- Make a list of special needs of above mentioned vulnerable groups and convey them to MIRA team during need assessment in aftermath of disasters
- Actively support DRMC and CMC in planning and implementing all disaster risk management activities

### 7.3.15.4 Signage

Signage shall be placed/displayed at appropriate locations inside the buildings as well as outside the buildings. The material, colour, size etc. of the signage should adhere to the ISO/BIS standards.

- The Exit Sign shall be well illuminated.
- A sign shall be posted and maintained on every floor at or near the lift indicating that in case of fire, occupants shall use the stairs unless instructed otherwise. The sign shall also contain a plan for each floor showing the location of the stairways. Floor marking shall be done at each floor on the wall in front of the lift-landing door.
- Floor indicators and signage's for fire alarms and fire extinguishers have to be given in lobbies, staircases, refuge areas and any other escape routes.
- Smoking shall be prohibited throughout the basement(s) and in all areas where there is a profusion of combustible materials. Easily readable "NO SMOKING" signs must be conspicuously posted at locations where they can catch the eye.]




### 7.3.15.5 Emergency Evacuation Routes

The emergency evacuation routes need to be as direct as possible reaching to the assembly points which may take minimum possible duration of time to reach. The exit paths of a building must be clearly marked and always clutter free. Even though the floor level disaster management teams along with security personnel are guiding occupants to assembly points,

the directions shall be clearly signposted. Emergency exits shall be illuminated at all times with emergency lighting and routes shall be guided with radium signage. Evacuation maps to be prepared marking the emergency evacuation routes from emergency exits reaching out to respective assembly point. The maps shall be clearly displayed in the buildings guiding to the staff and visitors. An exercise undertaken to prepare the evacuation maps of the major operational buildings along with demarcating routes of the emergency vehicles.

### 7.3.15.6 Mock Exercise

Mock exercise at Bulk Drug Park Area will help in testing of the efficacy of the DRMP including evaluating preparedness, response and improving coordination within the administration, with various departments, utility service, developers, property managers, offices/businesses, communities, government departments and all other relevant stakeholders. Mock drill shall be conducted at different locations of Bulk Drug Park Areas on different scenarios. The district level mock drill shall be conducted once in a year involving multiple industries and utilities with multiple scenarios. DRMC shall prepare a mock drill calendar for ready reference.

### 7.3.15.7 Post Disaster Needs Assessment (PDNA)

The data collected through Multi-Cluster/ Sector Initial Rapid Assessment caters mainly for providing response and immediate relief base on extent and nature of damage. This however is not adequate for undertaking comprehensive assessment of the disaster impacts in terms of loss of livelihood, economic loss of businesses, impact on living conditions, disruption of services and social activities and thereby overall impact on the socio-economic development of the Bulk Drug Park Area and its occupants and residents. For this purpose, it is pertinent to undertake PDNA which caters to not only sectoral damages but also losses and thereby ensures that the post-disaster needs for recovery and reconstruction are duly accounted and financed. Thus, PDNA helps set up credible baselines for subsequent monitoring and evaluation of reconstruction and recovery program.

A bottom-up approach of first undertaking sectoral assessment and then careful aggregation of sectoral results to analyse overall disaster impact at Bulk Drug Park Area level is recommended. Key sectors at Bulk Drug Park Area are power, gas, water resources, water supply, sewerage and waste management, transportation, ICT, business services, Common

Steam Supply Facility, Common Effluent Treatment Plant, Sewage Treatment Plant(s), TSDF (Secured landfill, Incineration, MEE/SD facility), Municipal waste management facility, Common solvent recycling facility, etc. and other services at amenities centre. To ensure comparability of assessment results, from one disaster to another, standard methodology and format shall be used for carrying out PDNA for all concerned sectors of economic and social activity of Bulk Drug Park Area. Government of India has developed PDNA tools based on existing damage assessment system in India. The tools include PDNA India Handbook, PDNA India Manual and PDNA India SOP. DRMC, Bulk Drug Park Area shall be guided by these PDNA tools in undertaking the PDNA exercise.

**Conclusion**

The Disaster Management Plan (DMP) is prepared in conjunction with and taking into consideration all technical reviews and suggestions as per acceptable norms. These details shall be considered as guidelines for preparation of individual DMP by other member industries based on respective (industry specific) detailed risk analysis.

## 7.4 REHABILITATION AND RESETTLEMENT (R&R)

No R&R is applicable to the proposed project.

## 7.5 TRAFFIC STUDY

Traffic study is under investigation and will be incorporated in Final EIA report.

### 7.5.1 METHODOLOGY ADOPTED

Traffic analysis is basically the process of intercepting and examining the number of vehicles on the road and deducing the pattern of traffic movement. Manual counting was done so as to count the vehicles in the form of cycle, scooter, car, bus, truck, jeep etc. The safe and time efficient movement of the people and goods is dependent on Traffic flow, which is directly, connected to the traffic characteristics. For better understanding of the present status of traffic flow at the junction, traffic survey is conducted. Thereafter, value of Passenger Car Units (PCU's) is calculated for different vehicular types and accordingly value of Level of Services (LOS) is calculated for existing scenario. In order to calculate the traffic load after establishment of project, additional traffic is assumed based on projects that are being expanded. Subsequently, modified PCUs are calculated and LOS is being checked whether it is sufficient to cater the load after establishment.

### 7.5.2 TRAFFIC STUDY OF EXISTING & AFTER PROPOSED ESTABLISHMENT OF BDP

Traffic study measurements were performed to assess the impact on local transport infrastructure due to the establishment of project namely "Bulk Drug Park" located at Kuthar Beet, Pollian Beet, Tibbian, Jodian, Janani and Mulluwal, Tehsil Haroli, District Una, Himachal Pradesh. The project is connected to Una – Jaijon Road (Major District Road 39) through internal roads. The proposed site has easy connectivity to the National Highways; NH-503A at a distance of approx. 10 km in 'N' direction, NH-503 at a distance of 15.5 km in 'W' direction and NH-103 A at a distance of approx. 9.5 km in 'W' direction.

## 7.6 Land and Slope Stabilization Plan

As per ToR point no. 1.4, In reference to hilly terrain and critical topography of project area, a land and slope stabilization plan was executed to minimize the natural disasters as landslides, earthquakes and floods in the project area.

Slope areas especially sharp slopes more than 45° angles were identified using Civil 3D software within project area of 1405.41 acres. A total of five sharp slope area with more than 45° angles were observed as depicted in **Figure 1** and described in **Table 1**.

**Table 7.15. Identification of slope areas in project site**

| Sr. No. | Location of Slope | Area of Slope (Acres) |
|---|---|---|
| 1. | Landfill site | 0.89 |
| 2. | Industrial Plot No. 110 | 0.68 |
| 3. | Water Reservoir/ Pond | 0.62 |
| 4. | Common Steam Generation area | 0.57 |
| 5. | Industrial Plot No. 93 | 0.20 |
| **Total Area (Acres)** | | **2.96** |

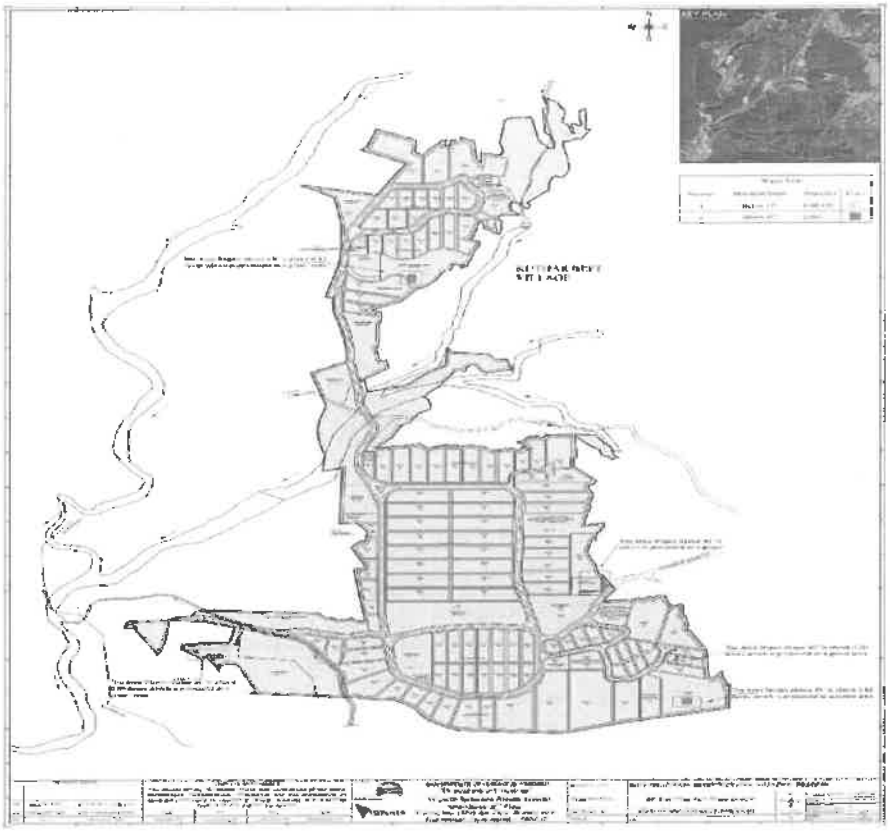


**Figure 7.9. Identification of slope areas in Bulk Drug Park, Una**

The total of five identified slopes of more than 45° angles comprising an area of 2.96 aces will be kept untouched at any stage of project life and will be protected by developing afforestation / green belt management.

Even in slopes less than 45-degree will be protected to avoid undue earth cuttings as feasible and using slope stabilization methods viz Breast wall/retaining wall constructions/use of geo-fabrics at under site preparation and construction sites.

In reference to hilly terrain / topography of project area, the dominant soil type is covered by loam, clay, sandy-loam at 0-30 cm depth from ground level with moderate infiltration rates. To avoid floods, water logging and landslides, dedicated drainage system is proposed for surface run off water to discharge in natural nallah/ khads. Rain water from roof tops of buildings, common utility areas and other pucca/paved areas will be tapped and collected in water storage pond of 100 MLD to recycle/reuse of water in industrial processes.

Furthermore, for the conservation of water and soil in the project area, the natural drainage such as Nallah/ khuds will be kept undisturbed by keeping 15 m wide open areas along all the

existing Nallah/ khuds. These open areas will be developed under green belt for the stabilization of land and conservation of water resources.

### 7.7 Muck Disposal Plan

Muck disposal plan along with cutting and filling is under investigation and will be included in final EIA report.

### 7.8 Rain Water Harvesting Plan

As per ToR Point No. 1.6, the rain water harvesting through the provisions for check dams across all major and minor drains/streams and water re-charge wells along the banks of these drains/nallah/khad has not been considered as the area is hilly terrain and flood prone. Though the rain water collection is proposed from roof tops of buildings and other pucca areas through dedicated drainage system and will be collected in storage pond/ tank of 100 MLD. The area of the proposed water storage tank is 5.33 ha and the proposed cost estimates for the tank is approx. 62 Cr as per project DRP. After treatment of rain water collected, it will be re-used n industrial processes. To avoid floods, water logging and landslides in the area, a dedicated drainage system is proposed for surface run off water to discharge in natural nallah/ khads.

Furthermore, for the conservation of water and soil in the project area, the natural drainage such as Nallah/ khuds will be kept undisturbed by keeping 15 m wide open areas along all the existing Nallah/ khuds. These open areas will be developed under green belt for the stabilization of land and conservation of water resources.

Pre-development runoff is estimated at 22711.52 cubic meter per second (m3/s). Post-development runoff is estimated at 34067.28 m3/s, with mitigation measures reducing peak flows by 33%.

**Table 7.16. Estimation of rainfall runoff**

| S.No. | Internal Catchment Areas | Pre-development runoff (m3/s) | Post-development runoff (m3/s) |
|---|---|---|---|
| 1 | 60.762 | 2430.48 | 3645.72 |
| 2 | 205.400 | 8216.01 | 12324.02 |
| 3 | 301.626 | 12065.03 | 18097.55 |
| | **Total:** | **22711.52** | **34067.28** |

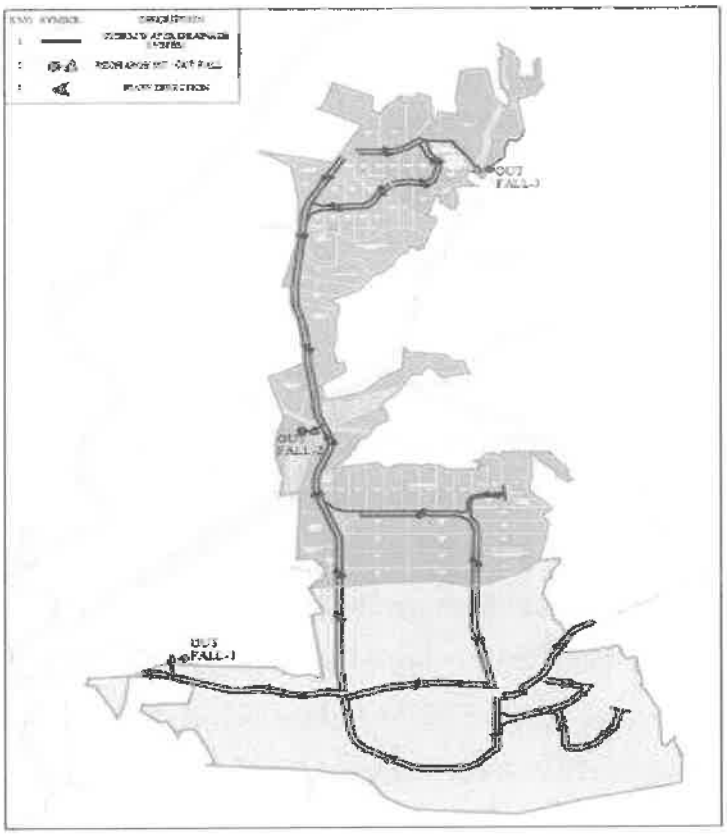



**Figure 7.10. Major internal catchment areas in project area**

### 7.9 Green Area Development Plan

Green area will be developed as per following scheme

Green belt to be developed by Himachal Pradesh Bulk Drug Park Infrastructure Ltd. (HPBDPIL) in area of 279.46 Acre (@13.21%) in following manner

- 50-meter-wide green belt all along the major streams/ nallah/khads
- 15-meter-wide green belt along the minor streams.
- 15-meter-wide green belt along the project boundary.

Green belt to be developed by member industries in area of 185.72 Acres (@20%) in their industrial premises along the plot boundary.

Green Belt in the project area will be developed with thick plantation of broad leaved trees preferably in three rows to mitigate the various types of pollution.

- Large open spaces for maintaining the green cover

- Small Quality green spaces for recreation
- Linear plantations to provide relief during movement
- Small aesthetic greens for forming vistas etc.

### 7.10 Tree cutting and compensatory afforestation plan

In case of exigencies demand, tree felling will be done with prior permission from concerned authority. A compensatory plantation in ratio of 1:10 will be adopted and maintained in project area along the green belt development areas marks in master plan.

The tree remuneration survey has been done and the total tree will be fell down approx. 3440 Nos. (40% of total trees 8599 Nos. enumerated in common utility areas) and the compensatory afforestation of trees will be 34,400 Nos. in the ratio of 1:10 (trees to be cut and the trees to be planted). A compensatory afforestation with native species of trees will be done by HPBDPIL in the project area in following manner

- 50-meter-wide green belt all along the major streams/ nallah/khads
- 15-meter-wide green belt along the minor streams.
- 15-meter-wide green belt along the project boundary.

Afforestation plan will be pesticides free and flowering plants of native species for attracting bees and insects, which will be beneficial to the agriculture. Farmers around the project site will be involved in developing such an afforestation Plan for social benefits.

### 7.11 Alternate Source of Energy

#### 7.11.1 Solar Energy

A total of 14.2 MW solar power generation is proposed on the roof tops of commercial buildings/areas, electrical utility areas and treatment units. The complete details of solar power system are provided in **Table 7.17.**

**Table 7.17. Details of proposed solar power system**

| Details of Solar Energy | | | | | | |
|---|---|---|---|---|---|---|
| S.No | Description | Total Area (In Sq m.) | BUA (In Sq m.) | Actual Roof top shadow free area for Calculation (In sq. m) | Solar Power Generation(KW) (12 Sq.m for 1KW) | Solar Generation (MW) |
| 1 | Building 1 | 61399.65 | 36839.79 | 18419.89 | 1534.99 | 1.53 |
| 2 | Building 2 | 13213.66 | 7928.20 | 3964.10 | 330.34 | 0.33 |
| 3 | Building 3 | 80109.50 | 48065.70 | 24032.85 | 2002.74 | 2.00 |
| 4 | Building 4 | 34752.04 | 20851.23 | 10425.61 | 868.80 | 0.87 |
| 5 | Building 5 | 33027.82 | 19816.69 | 9908.35 | 825.70 | 0.83 |
| 6 | Building 6 | 147465.16 | 88479.09 | 44239.55 | 3686.63 | 3.69 |
| 7 | Building 7 | 14546.31 | 8727.79 | 4363.89 | 363.66 | 0.36 |
| (A) | Commercial area | 384514.15 | 230708.49 | 115354.24 | 9612.85 | 9.61 |
| 1 | ESS.P.1 | 7884.34 | 3153.73 | 1261.49 | 105.12 | 0.11 |
| 2 | ESS.P.2 | 5832.23 | 2332.89 | 933.16 | 77.76 | 0.08 |
| 3 | ESS.P.3 | 6113.88 | 2445.55 | 978.22 | 81.52 | 0.08 |
| 4 | ESS.P.4 | 6307.53 | 2523.01 | 1009.20 | 84.10 | 0.08 |
| 5 | ESS.P.5 | 60933.75 | 24373.50 | 9749.40 | 812.45 | 0.81 |
| 6 | ESS.P.6 | 7522.89 | 3009.16 | 1203.66 | 100.31 | 0.10 |
| (B) | Electrical Utilities | 94594.62 | 37837.85 | 15135.14 | 1261.26 | 1.26 |
| 1 | WTP | 60039.11 | 18011.73 | 18011.73 | 1500.98 | 1.50 |
| 2 | STP/ETP/MEE | 108695.26 | 21739.05 | 21739.05 | 1811.59 | 1.81 |
| (C) | Treatment units | 168734.38 | 39750.79 | 39750.79 | 3312.57 | 3.31 |
| (A+B+C) | Total Solar Power | 647843.14 | 308297.12 | 170240.17 | 14186.68 | 14.19 |
| | | | | | Say (MW) | 14.20 |

## 7.11.2 Natural Gas (PNG)

Supply of PNG is proposed for Bulk Drug Park in stage – 2. GAIL is committed for the supply of PNG to BDP as the GAIL has already presence in Tahliwal industrial area approx. 8-10 km from BDP area. Use of PNG will be ensured to operate common infrastructure as boilers for steam generation, MEE for waste water treatment and Incinerators for hazardous wastes management by HPBDPIL and other industrial process/ operations by member industries.

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# CHAPTER 8
## PROJECT BENEFIT

According to the vision & approach of Central Govt., the major focus is on the term of making India **"Aatamnirbhar Bharat"** and in this line, the Central Govt. has chalked out major industrial projects, which in turn will minimize or eliminate the need of the import from the neighboring countries. As such, this project is also an ambitious project of the Central/State Govt. The proposed project will enhance the local infrastructure of the region.

The State of Himachal Pradesh is primarily a hill state. However, the geographical location of the chosen/selected site is relatively plain chunk of land. The most peculiar aspect of the site is that, it abuts the State boundary of Punjab, which in turn is an added merit/benefit. For the localized development of the area, such projects are must. There is an abundance of natural resources in the State and easily availability of manpower consisting of local youth. In the hindsight, the local folklore consists of marginal to very small scale farmers having very small land pieces in their ownership. In such scenario employment opportunities for the local youth is minimized. In view of the present trend in local youth regarding attaining good education and skill, such project will be a big boon for the local youth including the girl child, who otherwise normally refrain from venturing out to far of places for job opportunities

Apart from above, the project is also having national value. The pharma sector at present is dependent on the import sector upto the large extent, chiefly from China. It's a known fact that China is a hostile country, therefore the dependency on the said country if reduced or eliminated, better it will be, in the National interest. Further, the Indian Govt. has initiated a noble concept of "Aatmanirbhar Bharat" and this project will negate the need of import from the neighboring countries to certain effects, will add to the self-sufficiency of the country. Hence, the project is the need of the hour and deserves all the encouragement and facilitation for implementation, to promote technologies and industry for Environment Management.

The project is intended to facilitate development of:

1. A well-planned and resource-efficient industrial base
2. World-class sustainable connectivity infrastructure

As such this project may be considered in true earnest and forward looking spirits. M/s Himachal Pradesh Bulk Drug Park Infrastructure Limited (HPBDPIL) intended to provide the improvements in following infrastructure:

## 8.1 Improvements in Physical Infrastructure

The proposed site for Bulk Drug Park comprises of revenue villages Kuthar Beet, Pollian Beet, Tibbian, Jodian, Janani and Malluwal in Haroli Tehsil, District Una, Himachal Pradesh. The site has access by rail, road and air links and has a distinct locational advantage of being equidistant from centers, i.e., from Ludhiana, Jalandhar, and one of India's largest Pharma Clusters, Baddi.

The Bulk Drug Park will have industrial and commercial plots, fire station & other facilities, help in meeting the growing industrial need for nation. Care has been taken to provide the staff and visitors with necessary facilities as power, water supply, parking spaces, and broad roads that are safe and secure.

- The BDP proposed to establish a mixed use area on site for essential services staff initially and may develop discreet sites in future away from the park which may facilitate local development due to increased demand on domestic services and agri produce.
- The need for additional housing in the project vicinity will provide opportunity for surrounding villagers to build and lease out their houses.
- The basic infrastructure for the community needs will be strengthened by extending health care, educational facilities, drainage, drinking water quality to the village, building/strengthening existing roads in the area, etc as part of corporate environmental responsibility (CSE).
- The occupational health facility proposed on site with all amenities may be used by surrounding population in case of emergency.

**Increasing other business opportunities for local people:** There will be scope of hiring materials from local market and business for the transportation agencies for transportation of raw materials and finished goods.

## 8.2 Improvements in Social Infrastructure

The proposed project aims at overall development of the area. The social infrastructure of the area will be enhanced by state of the art facilities of advance research institute, health care facility, residential areas, common amenities, drainages, sewerage, electricity and many more. The potential for development will increase manifolds.

**Training Facility:** The locals will be given much more priorities in training for different types of employment options as per the training suggested. The locals are literate but many are not qualified for the skilled jobs and illiterate people will be provided with training. The training increases the possibility for acquiring the job opportunity. The project proponent has to be given more priorities to the locals and has to be given employment with the jurisdiction.

**Women Empowerment:** The proposed project will enhance the status of women as they will be engaged in different types of employment opportunities. They will be given training for the job opportunities. Women earning capacity will help them in participating the decision making process in the family as well as community level.

A temple is also proposed for the spiritual faith of locals and industrial people.

Research institute for pharmaceutical advancement

## 8.3 Employment Potential (skilled/semi-skilled/unskilled):

The proposed project is likely to bring one of the most significant alterations of generation of employment. The BDP, Una will bring multitude level of employment opportunities in the region.

Manpower of 2,500 to 3,000 persons will be employed during the construction phase. The proposed employment is projected for the entire bulk drug park, with a worker density of 120 employees/Ha. Out of the total area of 568.76 ha, nearly 336 Ha. will be occupied under the industrial and commercial activities. As such, an employment opportunity for approx. 40,000 no. of employees will be generated. Apart from this direct employment, there will be numerous number of persons with indirect employment will be connected with this project. The exact number of such persons cannot be assessed at this stage; as such kind of employment/job work activities come from the informal/unorganized sectors. However, for the calculation of waste

generation and other related entities/activities, a floating population of 10% of direct employees have been considered, thus arriving at the total population Fig. of 44,000 persons.

## 8.4 Other Tangible Benefits

### 8.4.1 Benefits to the Environment

The following are the benefits to the Environment:

- Plantation/Green belt is being done around project site.
- Green belt will enhance the green coverage in the area & aesthetics.
- Rain water harvesting will enhance the ground water table.
- As seen above there is marginal impacts on air, noise, water & soil environments.
- The marginal impact due to the proposed assignment will be fully mitigated by the Environmental Management Plan (EMP).
- Corporate Environmental Responsibility (CER) will provide the well-being of the society and the protection of the environment will help in conserving the ecosystem. It will also provide employment opportunities to larger population.

Thus, the proposed project will benefit both the local as well as Indian economy.

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# CHAPTER 9

# ENVIRONMENTAL COST BENEFIT ANALYSIS

## 9.1 INTRODUCTION

As per EIA Notification dated 14th September, 2006 and its amendments, chapter on "Environmental Cost Benefit Analysis" is applicable only if the same is recommended at the Scoping Stage.

# CHAPTER 10

## ENVIRONMENTAL MANAGEMENT PLAN

### 10.1 GENERAL

Industrial development inevitably brings both benefits and drawbacks to the environment. While the positive aspects are often highlighted, it is crucial not to overlook the negative impacts. To address these challenges, an Environmental Management Plan (EMP) must be created. This plan is tailored to the current environmental conditions and the results of environmental impact assessments. It plays a key role in the formulation, implementation, and monitoring of environmental standards throughout and beyond the project's lifecycle. The EMP outlines strategies for effectively managing and mitigating air and water pollution. It also covers the creation of green spaces around the plant, ensuring worker safety, controlling noise, and implementing fire protection systems. Through these measures, the plan aims to maintain a balance between industrial progress and environmental stewardship.

### 10.2 PURPOSE OF ENVIRONMENTAL MANAGEMENT PLAN

Environment management plan is prepared with a view to facilitate effective environment management of the project, in general and implementation of the mitigation measures in particular. EMP provides a delivery mechanism to address potential adverse impacts and to introduce standards of good practice to be adopted.

For each stage of the program, the EMP lists all the requirements to ensure effective mitigation of every potential biophysical and socio-economic impact identified in the EIA. For each operation, which could otherwise give rise to impact, following information is presented:

- To treat and dispose-off all the pollutants viz. liquid, gaseous and solid waste so as to meet the statutory requirements (Pollution Control Acts) with appropriate technology.
- To support and implement work to achieve environmental standards and to improve the methods of environmental management.
- To promote green-belt development.
- To encourage good working conditions for employees.
- To reduce fire and accident hazards.

- Budgeting and allocation of funds for environment management system.
- To adopt cleaner production technology and waste minimization program.

The primary goals of the Environmental Management Plan (EMP) are to:

- Identify major environmental concerns expected during both the construction and operational phases of the project.
- Offer guidelines for effective mitigation strategies.
- Develop systems and procedures to implement these mitigation measures.
- Ensure the consistent application of the mitigation measures.
- Monitor the effectiveness of these measures over time.
- Respond swiftly and appropriately to any unexpected environmental impacts that arise.

## 10.3 ENVIRONMENT MANAGEMENT POLICY & ENVIRONMENT COMMITTEE

HPBDPIL is very much oblivious of its responsibility in protecting the Environment. Thus, various mitigation measures as given in the report shall be taken-up and effort will be made to nullify the effect of project on Environment, if any. Regular project monitoring and corrective measures have been proposed. Company will design well-defined policy to keep the environment clean. The management decided that all effective steps shall be taken to prevent deterioration of the environment. Environment Management Committee will be constituted for the purpose consisting of following persons as given in **Fig. 10.1**.

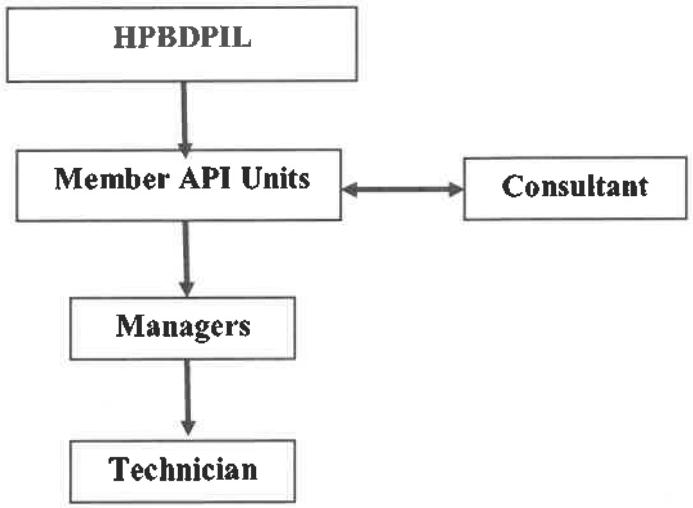


**Fig. 10.1: Environment Management Committee of HPBDPIL and Member Units**

The purpose of the Environment Committee is to:

- Authorities and corrective measures will be undertaken.
- Conduct reviews of our operations to monitor environmental performance.
- Comply with all relevant environmental laws and regulations to minimize risks to health, safety and environment.
- Work with local government, regulatory authorities and communities to ensure safe handling, use and disposal of all materials, resources and products.
- Violations if any, will be brought to notice of the Top Management. It will also be intimated to concerned regulatory.

The main aims under the said Policy are to:

- Effectively manage, monitor, improve and communicate the environmental performance.
- Take all reasonable steps to prevent pollution.
- Set realistic and measurable objectives and targets for continual improvement of the environmental performance.
- Ensure that all employees & contractors will be trained to understand their environmental responsibilities and create an environment that adheres to the Company's Policies, procedures and applicable regulations.
- Minimize waste and increase recycling within the framework of waste management procedures.
- Comply fully with all relevant legal requirements, codes of practice and regulations.
- Identify and manage environmental risks and hazards.
- Hold leadership accountable for good environment performance of our operations and projects. Inherent in that accountability will be the commitment of management to provide resources and successfully create an appropriate environment.
- Reduce, recycle and reuse resources.
- Project proponent shall regularly review this policy and ensure that corrective and preventive actions are taken in order to ensure continual improvement.
- To treat all the pollutants viz. liquid and gaseous, which contribute to the degradation of

the environment, with appropriate technologies.

- To comply with all regulations stipulated by the Central/State Pollution Control Boards related to air emissions and liquid effluent discharge as per Air & Water pollution control Acts.
- To handle hazardous wastes as per the Hazardous & Other Wastes (Management and Trans boundary Movement) Rules, 2016 of the Environment (Protection) Act, 1986.
- To encourage support and conduct developmental work for the purpose of achieving environmental standards and to improve the methods of environmental management.
- To make continuous efforts to improve environment.
- The system of reporting of Non-conformances/violation of any Environmental Law/ Policy will be as per the management system.

## 10.4 BUDGETARY PROVISION FOR EMP IMPLEMENTATION

**Table 10.1: Cost of EMP**

| S. No. | Environmental Protection Measures | Capital Cost (Crores) | Recurring Cost (Lakhs/year) |
|---|---|---|---|
| 1. | Air Pollution Control System (Installation of APCD on Steam Generation Boilers of 6 x 50 TPH with ESPs and appropriate stack height for DG sets 2 x 1000 KVA) | 312.30 | 10 |
| 2. | Water Pollution Control System (Installation of CETP 5 MLD, STP 3 MLD, MEE along with continuous effluent monitoring system) | 244.43 | 25 |
| 3. | Noise Pollution Control System (Acoustic enclosures for DG sets & Noisy Machinery/ Equipment & Tools, Noise Barriers along roadsides and project boundary at the places nearby settlement areas) | 10 | 1 |
| 4. | Landscaping (Development of green area and stabilization of hilly slopes/ land) | 10 | 120 |
| 5. | Solid and Hazardous Waste Management System (Installation of TSDF site, Incinerators 4 x 25 TPH with continuous emission monitoring | 55 | 20 |

| | | | |
|---|---|---|---|
| | system) | | |
| 6. | Environment Monitoring & Management | 1 | 100 |
| 7. | Rain water harvesting | 2 | 10 |

Further, the issues raised during public hearing will be considered under Corporate Environment Responsibility (CER) and covered in the final EIA report.

**Environmental Policy**

HPBDPIL has established a comprehensive Corporate Environmental Policy (CEP) that outlines standard operating procedures (SOPs) for reporting on the performance of its environmental management system and driving improvements. This policy includes directives for addressing environmental issues and a reporting mechanism for non-compliance or violations of environmental regulations.

The Corporate Environmental Policy includes the following key components:

1. **Raising Awareness:** Educate personnel about the environmental impact of their actions and promote effective environmental management practices in their daily activities.
2. **Advanced Technology:** Employ state-of-the-art technology to prevent and control environmental impacts.
3. **Pollution Prevention:** Commit to preventing pollution and protecting the environment by minimizing the environmental effects of our activities and products through careful design, manufacturing, distribution, use, and disposal practices.
4. **Continuous Improvement:** Prioritize continual improvement and pollution prevention by implementing practices and procedures that reduce waste and conserve energy. Regularly review facilities and programs, set measurable targets, and enhance environmental performance.
5. **Resource Optimization:** Convert waste into valuable resources and make optimal use of natural resources to lower carbon footprints.
6. **Compliance Management:** Identify and evaluate instances of non-conformance or non-compliance, determine corrective and preventive actions, and review these actions to

ensure their effectiveness. Make the policy accessible to interested parties and review it periodically.

**Environment Management Cell**

A qualified and experienced environmental professional—whether an environmental engineer, environmental scientist, or another relevant expert—will be appointed to oversee all issues related to Environment, Health, and Safety within the plant. This individual will work in consultation with the HPBDPIL in-charge and report directly to the CEO concerning the Environmental Management System (EMS) of the unit. Their responsibilities will include:

- **Implementation:** Effectively execute the environmental monitoring program according to the established schedule.
- **Data Management:** Collect data from regular monitoring activities and maintain a comprehensive database.
- **Analysis and Action:** Analyze the data to identify critical areas requiring immediate attention and implement corrective actions to ensure pollution levels remain within prescribed limits.
- **Action Plan Development:** Develop and execute an action plan based on recommendations from the Environmental Management Plan.
- **Budget Preparation:** Prepare and allocate the budget for the environmental management program.
- **Problem Resolution:** Address any issues within the EMS by either replacing equipment or enhancing its performance as needed.
- **Compliance Assurance:** Ensure adherence to statutory standards and norms, as well as compliance with conditions of statutory clearances and approvals, such as Environmental Clearances (EC) and Consent to Establish and Operate (CC&A).

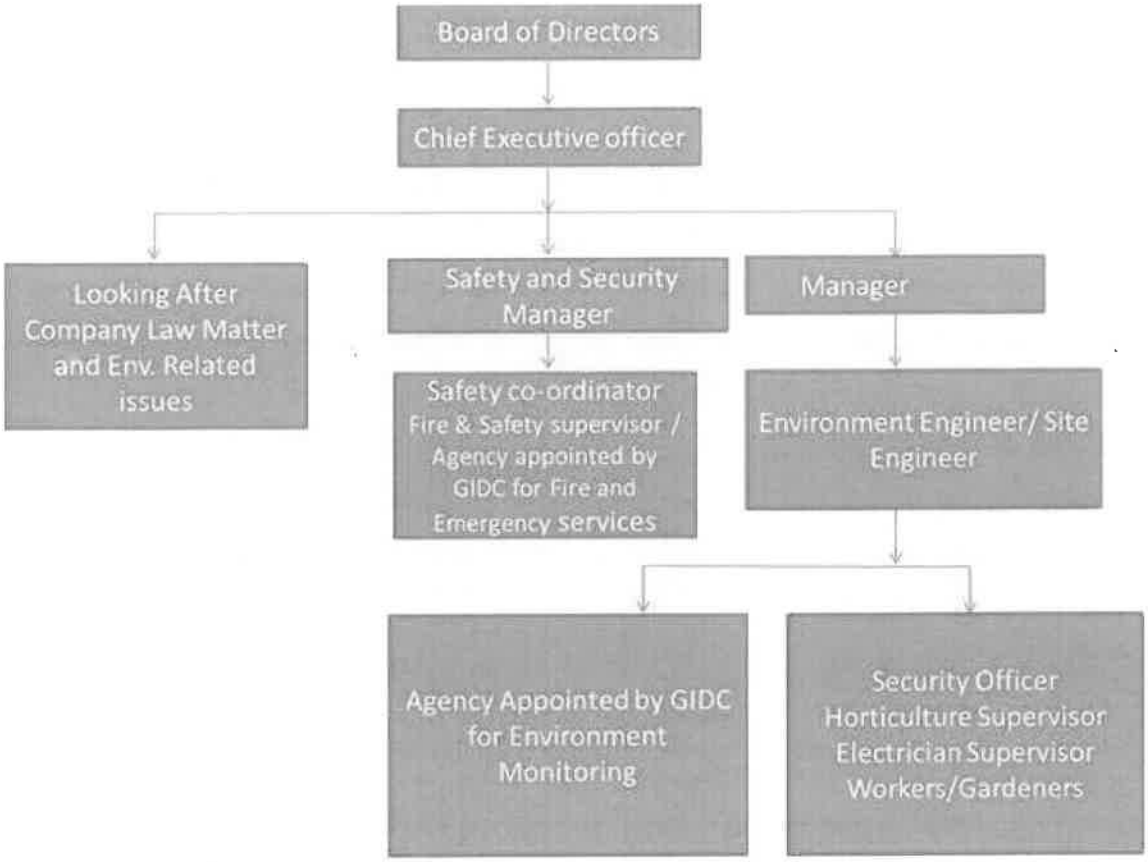


**Figure 10.1 Organization Chart of Environmental Management Cell**

**Role and Responsibility of EMC**

The primary duties and responsibilities of the Environmental Management Coordinator (EMC) include:

- **EMP Implementation:** Oversee the implementation of the Environmental Management Plan (EMP).
- **Regulatory Compliance:** Ensure adherence to all relevant regulations and rules set by SPCB/ CPCB/ MoEF&CC.
- **Pollution Control:** Guarantee the regular operation and maintenance of air pollution control devices.
- **Impact Minimization:** Reduce environmental impacts by strictly following the EMP.
- **Environmental Monitoring:** Initiate and oversee environmental monitoring according

to the approved schedule.

- **Data Review:** Review and interpret monitoring results; implement corrective actions if results exceed specified limits.
- **Conservation Planning:** Plan and schedule activities for environmental conservation and protection to meet environmental standards and enhance management practices.
- **Workplace Improvement:** Enhance the working environment by implementing measures for Occupational Health and Safety and improving workplace conditions.
- **Budget Management:** Allocate funds and manage the budget for the environmental management system, ensuring timely updates.
- **Mitigation Implementation:** Implement planned mitigation measures, including research and development of innovative technologies for resource conservation, recovery, recycling, and waste utilization.
- **Employee Engagement:** Encourage and motivate employees and contractors to achieve high performance in environmental conservation, protection, and improvement.
- **Documentation:** Maintain documentation of best environmental practices and relevant environmental laws for reference.
- **Record Keeping:** Keep accurate records related to environmental management.
- **Coordination:** Coordinate with regulatory agencies, external consultants, and monitoring laboratories.
- **Public Complaints:** Maintain a log of public complaints and the actions taken in response.

**Roles and Responsibilities of HPBDPIL**

- **Industrial Plot Development:** Develop industrial plots of appropriate sizes to accommodate various industrial activities and provide power through a centrally organized supply grid.
- **Common Infrastructure Provision:** To provide roads network of sufficient width, laboratory and research centre, Safety and Hazards Management Cell, steam generation, wastes management, wares house, electricity, drainage system, water resources, solvent storage and recovery facility.

- **Water and Effluent Management:** Establish water storage and supply networks, a common effluent collection sump, a guard pond, and an effluent disposal pipeline connecting member units to the in-house Common Effluent Treatment Plant (CETP).
- **Waste Management:** Set up an Integrated Treatment, Storage, and Disposal Facility (TSDF), including a secured landfill, incinerator, Multi-Effect Evaporator (MEE) facility, and municipal waste treatment facility for the management and disposal of hazardous and municipal waste from industrial units.
- **Common Utilities:** Provide essential shared utilities, such as solvent recovery and steam supply facilities, to reduce capital and maintenance costs and space requirements for individual units.
- **Security:** Implement a security gate and essential security measures within and around the Bulk Drug Park.
- **Amenities:** Develop a canteen area, administrative building, customs house, and commercial complex with shops, a bank, and offices.
- **Emergency Services:** Establish a fire station and an occupational health center to handle emergency situations.
- **Environmental Monitoring:** Create laboratory facilities for monitoring environmental parameters of effluents and emissions from member industries.
- **Specialized Cells:** Develop an Environmental Cell, Emergency Management Cell, and Common Health Surveillance System.
- **Residential Facilities:** Provide housing and dormitory facilities for industrial workers within the Bulk Drug Park.
- **Regulatory Compliance:** Ensure compliance with environmental clearances and Consent to Establish (CCA) conditions, as well as adherence to statutory requirements and the Environmental Management Plan (EMP) during both the operational and non-operational phases.
- **Penalty and Enforcement:** Implement penalty provisions and punishment mechanisms for member units that fail to comply with regulations.
- **Stakeholder Engagement:** Facilitate effective environmental management through

regular meetings, updates, and awareness programs to bridge the interface between individual units and HPBDPIL.

**Roles and Responsibilities of Individual Member Industries**

- **Project Documentation:** Provide a Detailed Project Report (DPR) outlining raw materials, manufacturing processes, utilities, costs, and other infrastructure details before commencing production.
- **Pollution Control:** Install and operate pollution control measures that meet MoEF&CC standards and GPCB guidelines for water/wastewater, air emissions, solid/hazardous waste, and noise.
- **Water Usage:** Inform HPBDPIL of the required water quantity and obtain necessary permissions.
- **Wastewater Treatment:** Treat wastewater in an on-site Effluent Treatment Plant (ETP), reuse treated water for utilities, domestic purposes, and greenbelt development, and send the remaining effluent to the Common Effluent Treatment Plant (CETP) for further treatment and disposal. Obtain HPBDPIL permission for effluent disposal quantities.
- **Effluent Storage:** Maintain a minimum two-day holding capacity for treated effluent on-site.
- **Waste Management:** Provide facilities for the storage and handling of solid and hazardous waste generated at the plant.
- **Energy Conservation:** Implement energy conservation measures and adhere to the Energy Conservation Building Code (ECBC) 2005.
- **Risk and Safety:** Conduct risk analysis and develop a Disaster Management Plan (DMP) in accordance with Chemical Accident Rules.
- **Local Employment:** Guarantee employment for at least 85% of local workers based on their skills, in compliance with government regulations.
- **Greenbelt Development:** Develop a greenbelt covering at least 20-33% of the acquired plot area and 14% green belt will be provided and maintained by HPBDPIL in the project area.

- **Rainwater Harvesting:** To collect and tap the rain water from roof tops and pucca/paved areas and discharge in dedicated rain water collection system provided by HPBDPIL.
- **Corporate Responsibility:** Establish and maintain a framework for Corporate Environmental and Social Responsibilities, focusing on resource management and pollution control.
- **Environmental Upgradation:** Allocate a dedicated annual budget for environmental upgradation and monitoring.
- **Legal Compliance:** Ensure that all activities commence only after obtaining the required clearances and permits as per legal requirements.
- **Coordination with HPBDPIL:** Collaborate with HPBDPIL authorities to ensure effective environmental management.

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# CHAPTER 11
# SUMMARY AND CONCLUSION

## 11.1 OVERALL JUSTIFICATION FOR IMPLEMENTATION OF THE PROJECT

The Government of India approved the "Promotion of Bulk Drug Parks" scheme on March 20, 2020, with the goal of drastically reducing the cost of manufacturing bulk drugs and boosting the competitiveness of the domestic bulk drug industry by facilitating easy access to standard testing and infrastructure facilities.

The Department of Pharmaceuticals, Govt. of India has granted "in-principle" approval to the three states' proposals—Himachal Pradesh, Gujarat, and Andhra Pradesh—under the "Promotion of Bulk Drug Parks" Scheme, a crucial program to assist the nation's bulk drug manufacturing.

The state Govt. of Himachal Pradesh in association with Department of Industries (DOI) proposed the establishment of Bulk Druk Park in 1405.41 acres of land at Villages Kuthar Beet, Pollian Beet, Tibbian, Jodian, Janani and Mulluwal, Tehsil Haroli, District Una, Himachal Pradesh.

## 11.2 PROJECT DESCRIPTION

| S. No. | Parameters | Description |
|---|---|---|
| 1. | **Identification of the project** | The proposed project **"Bulk Drug Park"** falls in Category 'A' under Schedule 7(c) - 'Industrial estates/ parks/ complexes/ areas, export processing Zones (EPZs), Special Economic Zones (SEZs), Biotech Parks, Leather Complexes' as per EIA Notification, 2006 and its amendments thereof. |
| 2. | **Project Proponent** | **M/s Himachal Pradesh Bulk Drug Park Infrastructure Limited (HPBDPIL)**<br>E-mail: trsharma4@gmail.com |
| 3. | **Brief description of nature of the project** | The proposed "Bulk Drug Park" located at Village Kuthar Beet, Pollian Beet, Tibbian, Jodian, Janani and Mulluwal, Tehsil Haroli, District Una, Himachal Pradesh with project area of **1,405.41 Acres (568.75 ha)** to cater **API manufacturing industries** with Common Infrastructure Facilities, to be developed and operated by **M/s Himachal Pradesh Bulk Drug Park Infrastructure Limited (HPBDPIL),** a 100% Govt. owned agency under the aegis of Department of Industries, Govt. of Himachal Pradesh. |

| | | |
|---|---|---|
| | | The project is exclusively for API manufacturing industries to fill the gap of demand and supply under national mission of **"Aatmanirbhar Bharat"** to reduce the foreign imports and make India self-sufficient in pharma sector. |
| 4. | **Salient Features of the Project Proposed** | |
| 4.1 | **Overall plant capacity** | The project will provide 137 industrial plots in 776.89 Acre of land dedicated for approx. 80 API industries with common infrastructure facilities as Electricity, Water, CETP, TSDF and Steam to optimize the resources for a sustainable development in the pharma sector. |
| 4.2 | **Area Details** | The total area of the project is 1405.41 Acres (or 56,87,492 sq. m.) |
| 4.3 | **Location** | Proposed project is located at Village Kuthar Beet, Pollian Beet, Tibbian, Jodian, Janani and Mulluwal, Tehsil Haroli, District Una, Himachal Pradesh.<br><br>Project boundary coordinates of all corners are as follows: |

| Corners | Latitude | Longitude |
|---|---|---|
| 1 | N31° 20' 45.24" | E76° 11' 14.64" |
| 2 | N31° 20' 38.76" | E76° 10' 40.8" |
| 3 | N31° 20' 39.84" | E76° 10' 19.56" |
| 4 | N31° 20' 48.12" | E76° 10' 6.24" |
| 5 | N31° 20' 50.64" | E76° 9' 33.48" |
| 6 | N31° 20' 56.4" | E76° 9' 30.96" |
| 7 | N31° 21' 5.76" | E76° 9' 23.76" |
| 8 | N31° 21' 1.08" | E76° 9' 18.36" |
| 9 | N31° 21' 9.72" | E76° 9' 12.24" |
| 10 | N31° 21' 12.24" | E76° 9' 26.28" |
| 11 | N31° 21' 9.36" | E76° 10' 0.84" |
| 12 | N31° 21' 35.28" | E76° 9' 55.8" |
| 13 | N31° 21' 50.04" | E76° 9' 56.52" |
| 14 | N31° 22' 15.24" | E76° 9' 50.4" |
| 15 | N31° 22' 35.4" | E76° 9' 53.64" |
| 16 | N31° 23' 4.92" | E76° 9' 48.96" |
| 17 | N31° 23' 2.4" | E76° 10' 4.44" |
| 18 | N31° 23' 18.24" | E76° 10' 4.08" |
| 19 | N31° 23' 14.28" | E76° 10' 18.48" |
| 20 | N31° 23' 10.32" | E76° 10' 25.68" |
| 21 | N31° 23' 20.04" | E76° 10' 30.72" |
| 22 | N31° 23' 27.96" | E76° 10' 38.64" |
| 23 | N31° 23' 19.32" | E76° 10' 48.00" |
| 24 | N31° 23' 6.36" | E76° 10' 42.24" |
| 25 | N31° 22' 58.44" | E76° 10' 35.04" |
| 26 | N31° 22' 50.52" | E76° 10' 23.16" |
| 27 | N31° 22' 42.96" | E76° 10' 21.36" |
| 28 | N31° 22' 31.8" | E76° 10' 3.00" |
| 29 | N31° 22' 13.08" | E76° 10' 1.20" |

| | | |
|---|---|---|
| | | 30 N31° 22' 21.36" E76° 10' 18.48"<br>31 N31° 22' 15.6" E76° 10' 31.8"<br>32 N31° 22' 5.88" E76° 10' 14.88"<br>33 N31° 21' 55.08" E76° 10' 3.36"<br>34 N31° 21' 56.52" E76° 10' 32.52"<br>35 N31° 21' 52.2" E76° 10' 53.04"<br>36 N31° 21' 57.96" E76° 10' 44.04"<br>37 N31° 21' 46.08" E76° 10' 48.36"<br>38 N31° 21' 34.92" E76° 10' 49.8"<br>39 N31° 21' 27" E76° 10' 46.2"<br>40 N31° 21' 14.04" E76° 10' 49.44"<br>41 N31° 21' 12.96" E76° 11' 5.28"<br>42 N31° 20' 54.96" E76° 11' 13.2"<br>Google Earth Image showing project location & its surroundings within 500 m are submitted. Project and its study area falls in the Survey of India, Toposheet No. **H43E3** and **H43E7.** |
| 4.4 | **Water requirement** | **Source:** Borewells (approx. 15 No.) permitted by **Jal Shakti Department, Himachal Pradeseh**<br><br>**Water Requirement:** Total water requirement for the proposed project will be 22.1 MLD; out of which 15 MLD will be fresh water demand met from groundwater and 7.1 MLD will be recycled water met from treated water. Breakup of the total water demand is given below: |

| **Description** | **Demand (MLD)** | **Source** |
|---|---|---|
| Freshwater Demand (Potable + Process water demand) | 15 (2.2+12.8) | Groundwater |
| Flushing water demand | 1.15 | Treated water |
| AC Cooling demand | 2.00 | Treated water |
| Horticulture water demand | 3.95 | Treated water |
| **Total Water Demand** | **22.1 MLD** | Ground & treated water |

| | | |
|---|---|---|
| 4.5 | **Wastewater** | During construction phase, there will be generation of domestic effluent from workers or laborers. The management & disposal of domestic effluent will be taken care by Construction agency/contractor.<br><br>For operation phase, Common Effluent Treatment facility of capacity 5 MLD followed by MEE have been proposed within project for treatment of HTDS and LTDS industrial effluent |

| | | |
|---|---|---|
| | | generating from various API manufacturing units, for which 36.8 acres of land has been earmarked.<br><br>Also, STP of capacity 3 MLD has been proposed to treat the domestic effluent. The project shall adhere to Zero Liquid Discharge (ZLD). |
| 4.6 | **Man Power** | Around 3,000 nos. of workers will be employed during construction phase.<br><br>Further, the expected employment generation during operation phase has been calculated with worker density of 120 employees per hectare. Around 336 ha area is allotted for industrial and commercial Plots. Thus, approx. 40,000 no. of workers will be employed. The expected direct employment potential of the project is about 44,000 persons including criteria of floating population as 10%. |
| 4.7 | **Power requirement** | Total power demand for the proposed project will be about 120 MW<br><br>**Source:** Himachal Pradesh State Electricity Board Limited (HPSEBL). |
| 4.8 | **Alternative site** | Himachal Pradesh being a hilly state, the availability of relatively plain land and with easy approach is a remote possibility. As such, the other possibilities worked out in the district Mandi and Kangra proved to be non-suitable, hence, the PP zero-in on this site. The selected site fulfil all the criteria viz a viz large area of chunk, contours, easy approach and its location.<br><br>Further, the site has multi-nodal connectivity through Rail, Road, Dry Port, Airport. Internet connectivity, vicinity of Punjab-Himachal Pradesh boarder, environment suitability and accessibility of local manpower are available. The LPG gas pipelining will also be available in future. Considering all these options project site was selected. |
| 4.9 | **Land form, Land use and Land ownership** | Present land is vacant land largely covered by thick bushes and wild growth. As the land is already under the ownership of state Govt., so there is no cultivation or any other activity noted on the entire land. The present land-use of the area is required to be changed to the "industrial use", for which the PP has got approval for Building Plans/maps from the Dept. of Town & Country Planning, which in-turns and in general parlance is equivalent/substitute of the CLU. Moreover, the land has been allotted to Department of Industries, HP (PP) for establishment of the proposed Bulk Drug Park. Approval letter obtained from Department of Pharmaceuticals, Ministry of Chemicals and Fertilizers, Govt. of India for establishment of the said project. |

| | | |
|---|---|---|
| | | Plot area of the project is 1,405.41 acres (or 568.75 Ha); out of which, Govt. land of 1,365.77 acres has been allotted to Dept. of Industries, Govt. of HP and 39.64 acres of land has been purchased and transferred to Dept. of Industries, Govt. of HP for setup of the proposed industrial park. |

## 11.3 Description of the environment

### 11.3.1 In terms of meteorological factors

Meteorological data for last 10 years (2011-20) were collected from secondary authorized sources as NASA ((Source: POWER | Data Access Viewer (nasa.gov)) using geo-referencing of project site coordinates. Further, primary micrometeorological data at project location recorded using automatic weather station during for a period one year (2023) to verify the secondary data record and prevailing meteorological conditions. Hourly data air temperature, barometric pressure, humidity, wind speed, wind direction, rainfall and solar radiation were recorded in data logger of AWS. The met station was kept in an open area at an appropriate height of 10m from the ground. Cloud cover is observed visually. Ambient Air Quality

The ambient air monitoring carried out from April to June,2021 at project location and within 10km radius of the project by NABL and MoEF&CC approved laboratory.

### 11.3.2 Ambient Air Quality

Ambient air quality monitoring (AAQM) station were installed in upwind, downwind and crosswind directions as per prevailing meteorological conditions (predominant wind direction from WNW) in the study area at 3 locations in core zone/project area and 7 locations in buffer zone of 10kms.

Particulate aerosols observed in the study area during April to June 2023 ranged 33.5 - 84.4 $\mu g/m^3$ (avg. 56.6 $\mu g/m^3$) as $PM_{10}$ and 17.4 – 45.7 $\mu g/m^3$ (avg. 29.9 $\mu g/m^3$) as $PM_{2.5}$ are within the prescribed limits of 100 $\mu g/m^3$ for $PM_{10}$ and 60 $\mu g/m^3$ for $PM_{2.5}$ (NAAQS CPCB, 2009). The obtained results are comparable and in agreement with the secondary data collected by HPSPCB (RO/ DIC, Una) and other EIA studies of Una region. The baseline data of existing mass levels of $PM_{10}$ and $PM_{2.5}$ are associated to industrial units operating in Tahliwal industrial area (about 6 kms from the project) and Bathri industrial area (about 10.5kms from the project) in ESE direction and Amb-Gagret-Jeetpur industrial cluster (about 20-25kms from the project) in ENE direction. Other source can be vehicles plying on the roads, ongoing domestic and

agricultural activities in the study area. As evident from the baseline data, the locations AQ-4 to AQ-8 (specially AQ-8) located in Eastern side of project experience higher air pollution load in comparison to the locations AQ-1 to AQ-3 located in Western area due to close proximity of Tahliwal and Bathri industrial areas.

Gaseous pollutants observed in the study area during April to June 2023 ranged 4.3 – 14.8 $\mu g/m^3$ (avg. 8.3 $\mu g/m^3$) as $SO_2$ and 3.8 – 22.8 $\mu g/m^3$ (avg. 12.1 $\mu g/m^3$) as $NO_2$ are well within the prescribed limits of 80 $\mu g/m^3$ (NAAQS CPCB, 2009) indicates no significant source of emission in the study area and air quality is safe and comfortable for human health. The obtained results are comparable and in agreement with the secondary data collected by HPSPCB (RO/ DIC, Una) and other EIA studies of Una region. the gaseous pollutants as Carbon Monoxide (CO), Ozone ($O_3$) and Ammonia ($NH_3$) observed in the study area are found to be well within the prescribed limits (NAAQS CPCB, 2009) indicates no significant source of emission in the study area and air quality is safe and comfortable for human health.

### 11.3.3 Ambient Noise Quality

The main objective of monitoring of ambient noise levels was to establish the baseline noise levels in different zones. i. e. Residential, Industrial, Commercial and Silence zones, in the surrounding areas and to assess the total noise level in the environment of the study area. The noise monitoring was conducted at four locations selected in the study area of 10 kms (one in core zone and 3 in buffer zone within 1 km radius). Integrated Sound Level Meters (SLMs) with data logger were used for data collection. Calibration check of SLMs were performed before and after sampling. Noise sampling was done by installing SLMs at a sampling height of 1.2 to 1.5 m in open area or ≥ 250 m away from source of noise or obstructions or reflecting surfaces. Noise monitoring was carried out during day time (06:00 am – 10:00 pm) and night time (10:00 pm to 06:00 am) continuously for 24-hours with one-hour login interval as per national/ international standard methods as CPCB Noise Rules (2000), IS: 9989-1981 & IS: 4758-1968.

Ambient noise levels measured in the study area varied from 46.3 – 51.2 dB(A) during day time and 35.4 – 40.2 dB(A) during night time. The observed noise levels are found to be within the prescribed limits for residential area (Noise Rules, 2000). The obtained results are comparable and in agreement with the secondary data of EIA studies conducted in Una region. The observed baseline/ existing noise quality may be associated to industrial units operating in

Tahliwal industrial (about 6 km from the project) and Bathri industrial area (about 10 km from the project) in ESE direction. Other source can be vehicles plying on the roads, ongoing domestic and agricultural activities in the study area.

### 11.3.4 Water Quality

Water quality of groundwater has been studied in order to access proposed water-uses in drinking, cooling and horticulture purposes. The groundwater quality of five different monitoring locations within the 10 km radius of study area was evaluated in terms of various physico-chemical and biological parameters. The observed data set was initially statistical analyzed and compared with the standard guideline of acceptable and prescribed limit for drinking water quality under IS: 10500, 2012 and its amendments proposed by Bureau of Indian Standards (BIS).

The analysis of physical parameters such as colour, odour, pH, TU and TDS represents that the groundwater samples were colourless, odourless, within suitable pH (6.5-8.5), no turbid and presence of suitable amount of dissolved solids (below 500 mg/L). The comparison of groundwater variables with standards limits indicated that the all groundwater quality parameters were within the prescribed limit of drinking water quality. Only the Total Hardness, Cations (Ca++ and Mg++) and Total Alkalinity were reported exceeds the acceptable limit of 200 mg/L, 30 mg/L, 75 mg/L and 200 mg/L respectively at almost monitoring locations. This indicates the prior treatment of hardness before any use of groundwater such as domestic and commercial purposes. Similarly, the cation such Ca2+ and Mg2+ were reported above the acceptable limit. The concentration of TU, BOD, Total N, Total P, Phenol and Heavy Metals (PB and Hg) were recorded below detection limit (BDL). The biological parameters (TC and FC) were found absent in groundwater samples. The ground water test results indicate that groundwater quality at selected monitoring locations is hard water in nature and requires prior treatment before the use for domestic, industrial and commercial purposes.

### 11.3.5 Soil Quality

Two types of soils are observed in the district viz., alluvial soil and non-calcic brown 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.

Soil quality monitored once at 5 locations (including project location) within 10 km of study area during the monitoring period. The soil sample were collected from various depths of 30 cm, 60 cm & 90 cm from nearby agriculture land, waste disposal areas or likely impacted areas and sample handling (including sample preservation and transportation) was carried out as per national/ international standard methods as Soil/Sludge quality monitoring (IS: 2720, APHA & ICAR/IARI guidelines).

In the current study, indicators viz., pH, EC, porosity, permeability, macro and micro-mineral compositions (such as Na, K, N, P, Ca and Mg) etc. were analyzed and assessed. The soil parameters could offer the information of soil fertility status well, so these indicators were used to evaluate the soil composition in the study area. The pH of the monitoring location indicates neutral to alkaline in nature so soil. SAR was reported below 13 meq/L and mineral composition refers to its suitability for agriculture and cultivations purposes.

### 11.3.6 Land Use Land Cover (LILC)

The study area comprises of crop land of about 170.15 sq.km. (36.60%). Barren/Waste land of about 27.59 sq.km. (5.9%). Forest land of approximately 1.95 sq.km. (0.4%). Water of 3.28 sq.km. (0.7%). River bed of 4.58 sq.km. (1.0%). Open Scrub land of about 233.40 sq.km. (50.2%) and settlement in the study area cover an area of 24.03 sq.km (5.2%).

Similarly, the LULC of project site was also prepared which comprise of open scrub land of about 5.19 sq. km. (91%) and barren land of about 0.51 sq. km. (9%).

### 11.3.7 Socio-Economic Status

The study area is falling under the 10 Km buffer zone of Una Tehsil Haroli and as well as of Hoshiarpur District Tehsil Garhshanker. So, the details of demographic Features of the study area are highlighted below:

**Table 11.1: Demographic feature of the study area**

| Area | Total Population | Male | Female | No. of literate | Total Worker |
|---|---|---|---|---|---|
| **Tehsil Haroli** | 71,416 | 36,308 | 35,108 | 52,644 | 27,160 |
| **Tehsil Garhshankar** | 3,30,711 | 1,68,229 | 1,62,482 | 2,43,065 | 1,06,181 |

- Tehsil Haroli, District Una, Himachal Pradesh State has total population of 71,416 of which male and female were 36,308 and 35,108 respectively.
- Tehsil Garhshankar, District Hoshiarpur, Punjab State has total population of 3,30,711 of which male and female were 1,68,229 and 1,62,482 respectively.
- The average literacy Rate of the Haroli Tehsil is 73.71%. which is lower than the average literacy rate of Himachal Pradesh i.e. 82.80% whereas the literacy rate of Garhshankar Tehsil is 73.50. which is lower than the average literacy rate of Himachal Pradesh i.e. 75.84%

### 11.3.8 Ecological and Biodiversity

As per toposheet no (H43E3 and H43E7), there is the Polian Shamlat Reserve Forest is adjoining the project site in West direction and the Kangar Protective Forest is approx. 7 km far away from project site in NW direction. Distance from another Eco sensitive zone, Swan River is also approx. 8.5 km from project site in NE direction.

## 11.4 Anticipated Environmental Impacts & Mitigation Measures

### 11.4.1 AIR QUALITY

In worst-case scenario (without APCD and/or failure of plant process), the maximum cumulative load of $PM_{10}$ will be 131.6 µg/m3, NOx will be 43.6 µg/m3, HCl will be 29.9 µg/m3 and Benzene will be 4.3 µg/m3 can deteriorate the air quality with sever health and environmental impacts. Hence this condition will be avoided in any circumstances and the project will be operated with proper and effective pollution control measures, regular checkups and maintenance of APCDs and plant process at all stages of the operation.

In controlled conditions (with APCD /effective control measures), the maximum cumulative load of $PM_{10}$ will be 94.1 µg/m3, NOx will be 32.3 µg/m3, HCl will be 10.1 µg/m3 and Benzene will be 0.4 µg/m3. The overall maximum loads at receptors within the study area will be $PM_{10}$ as 69.4-84.1 µg/m3, $PM_{2.5}$ as 37-44.6 µg/m3, $NO_2$ as 15-22.5 µg/m3, $SO_2$ as 9.9-14.2 µg/m3, $NH_3$ as 7.75-9.83 µg/m3, CO as 370.9-581.7 µg/m3, $Cl_2$ as 0.03-0.21 µg/m3, HCl as 0.07-0.49 µg/m3, Benzene as 0.01-0.07 µg/m3, Dichloromethane as 0.38-2.85 µg/m3 and Acetonitrile as 1.91-14.25 µg/m3 indicates the minor change in air quality with no significant health and environmental impacts.

### 11.4.2 NOISE QUALITY

As per noise propagation modeling carried out, the resulting/ cumulative noise levels (Baseline + Predicted) found to be in the range of 46.3-51.2 dB(A) were within the prescribed limits of 55 dB(A) for residential areas. Therefore, there is no significant impacts of noise on surrounding receptors within the study area due to the project operation.

### 11.4.3 WATER QUALITY

Industrial effluents will be treated with CETP of 5 MLD with ZLD technology and domestic discharges will be treated in STP of 3 MLD. No wastewater (effluent/ sewage) will be discharged outside the plant premises and will be recycled and reused in industrial processes only.

Storm water drains will be kept separate from wastewater drains. Hence, surface water quality will not be affected due to project operation.

### 11.4.4 SOLID WASTE

Solid waste of about 8.8 TPD (@ 0.2 kg/capita/day) will be generated. Solid waste will be duly segregated into biodegradable and non-biodegradable components. Separate area will be earmarked for segregation of solid waste. Biodegradable waste will be composted within project premises and recyclable component will be disposed off through authorized recycler vendors. The Solid Waste will be handled/disposed off as per the provision of Solid Waste Management Rules 2016 and its amendments.

### 11.4.5 HAZARDOUS WASTE

The proposed Bulk Drug Park will house API manufacturing units which involves chemical synthesis only. Generation of hazardous waste from API units depends upon type and quantity of production, nature and quantity of raw material used and process and technology to be used for API manufacturing. Generally, it is assumed that about 80 API units during full occupancy of Bulk Drug project with production capacity of 2000-2250 TPD of APIs will generate hazardous wastes in the tune of about 1/3rd of the production, thus a nearly 700-800 TPD of Hazardous Waste of different categories will be generated. Out of the total Hazardous Waste of 700-800 TPD quantum, likely to be generated in the project, nearly 10-12 TPD will be of storage able category (CETP sludge & MEE residue) and 650-800 TPD will be of incinerate-able/co-processing category. These all type of Hazardous Waste will be disposed of with the

authorized entities. An integrated TSDF (comprising a secured landfill, a solid-liquid feed incinerator is proposed inside the project for which 33.6 acres of land has been proposed.

For the development of TSDF for the storage-able waste and incinerator for the incinerate-able waste, the separate detailed proposal will be prepared by PP to meet with the requisite as per the EIA Notification, 2006.

### 11.4.6 Bio-Medical Waste

The source of Bio-Medical Waste generation will be from the health care facilities/activities to be established in the project only. Biomedical waste, approx. 4-5 kg/day is likely to be generated from dispensary & Research Institute for Pharmaceutical Advancement proposed within project which includes minor first aid or medical use of disposable dressing material. This waste will be disposed through authorized Common Bio-medical Waste Collection and Disposal Agency as per Bio-medical Waste Management Rules, 2016 and its amendments.

## 11.5 GREENERY DEVELOPMENT

Green area will be developed as per following scheme

Green belt to be developed by Himachal Pradesh Bulk Drug Park Infrastructure Ltd. (HPBDPIL) in area of 279.46 Acre (@13.21%) in following manner

- 50-meter-wide green belt all along the major streams/ nallah/khads
- 15-meter-wide green belt along the minor streams.
- 15-meter-wide green belt along the project boundary.

Green belt to be developed by member industries in area of 185.72 Acres (@20%) in their industrial premises along the plot boundary.

Green Belt in the project area will be developed with thick plantation of broad leaved trees preferably in three rows to mitigate the various types of pollution.

- Large open spaces for maintaining the green cover
- Small Quality green spaces for recreation
- Linear plantations to provide relief during movement

- Small aesthetic greens for forming vistas etc.

The green belt would;

- Mitigate gaseous emissions;
- Have sufficient capability to arrest accidental release;
- Effective in wastewater reuse;
- Maintain the ecological balance;
- Control noise pollution to a considerable extent;
- Prevent soil erosion;
- Improve the Aesthetics;

All the species suggested are pollution tolerant, besides having an aesthetic appeal.

## 11.6 ENVIRONMENTAL MONITORING PLAN

The environment monitoring plan enables environmental management system with early sign of need for additional action and modification of ongoing actions for environment management, improvement and conservation. The environmental monitoring points will be decided considering the environmental impacts likely to occur due to the operation of proposed expansion as the main scope of monitoring program is to track, timely and regularly, the change in environmental conditions and to take timely action for protection of environment Monitoring of environmental samples will be done as per the guidelines provided by MoEF&CC/CPCB. Separate records for water, wastewater, solid wastes, air emission, soil and manure/ compost will be prepared and preserved regularly. Along with other budgets, Budget for environmental monitoring will be prepared and revised regularly as per requirement. The estimated yearly budget for Environmental Monitoring has been kept as Rs. 5 lakhs which include monitoring of efficiency of pollution control equipment.

## 11.7 RISK MITIGATION MEASURES

Even with all precautions, disasters may take place. As such, an Emergency Plan will be formulated to take care of any disaster in the plant and surrounding areas. In order to prevent occurrence of any disaster, the plant will be provided with various safety and disaster control facilities. In addition to these, numerous material handling systems, heavy road transport, high-tension electric lines, overhead cranes and various other handling and transport systems always have chances of accidents.

## 11.8 PUBLIC CONSULTATION

## 11.9 PROJECT BENEFITS

The pharma sector at present is dependent on the import sector up to the large extent, chiefly from China. It's a known fact that China is a hostile country, therefore the dependency on the said country if reduced or eliminated, better it will be, in the National interest. Further, the Indian Govt. has initiated a noble concept of **"Aatmanirbhar Bharat"** and this project will negate the need of import from the neighbouring countries to certain effects, will add to the self-sufficiency of the country. Hence, the project is the need of the hour and deserves all the encouragement and facilitation for implementation, to promote technologies and industry for Environment Management.

## 11.10 ENVIRONMENTAL MANAGEMENT PLAN

Environment Management Department will implement the EMP of the project. All recommendations given in the EIA report including that of occupational health, risk mitigation and safety will be complied. EMC will ensure that all air pollution control devices and water re-circulating systems function effectively. Schemes for resource conservation (raw materials, water etc.) and rainwater harvesting will be taken up by EMC. Greenbelt and greenery development inside and outside the plant premises will be intensified by the EMC. Guidelines issued by the Central Pollution Control Board (CPCB) on greenbelt development will be followed. Environmental awareness programs for the employees will be conducted. and cleanliness inside the plant will ensured by individual member industries.

**Table 11.2: Cost of the Environmental Management Plan**

| S. No. | Environmental Protection Measures | Capital Cost (Crores) | Recurring Cost (Lakhs/year) |
|---|---|---|---|
| 1. | Air Pollution Control System (Installation of APCD on Steam Generation Boilers of 6 x 50 TPH with ESPs and appropriate stack height for DG sets 2 x 1000 KVA) | 312.30 | 10 |
| 2. | Water Pollution Control System (Installation of CETP 5 MLD, STP 3 MLD, MEE along with continuous effluent monitoring system) | 244.43 | 25 |
| 3. | Noise Pollution Control System (Acoustic enclosures for DG sets & Noisy Machinery/ Equipment & Tools, Noise Barriers along | 10 | 1 |

| | | | |
|---|---|---|---|
| | roadsides and project boundary at the places nearby settlement areas) | | |
| 4. | Landscaping (Development of green area and stabilization of hilly slopes/ land) | 10 | 120 |
| 5. | Solid and Hazardous Waste Management System (Installation of TSDF site, Incinerators 4 x 25 TPH with continuous emission monitoring system) | 55 | 20 |
| 6. | Environment Monitoring & Management | 5 | 5 |
| 7. | Rain water harvesting | 2 | 10 |

Further, the issues raised during public hearing will be considered under Corporate Environment Responsibility (CER) and covered in the final EIA report.

**********

# CHAPTER 12
# DISCLOSURE OF CONSULTANT ENGAGED

## 12.1 About Consultant

Eco Group is a reputed business house working in the field of environment in North India since 1999 with Vision & Mission of "Preventing pollution with purpose- Bringing profit and goodwill in equal measure". The group aims that the customers achieve effective compliance with legislation including a better public image and earn from waste. The group comprises of Eco Paryavaran Laboratories & Consultants Pvt. Ltd. (formerly known as Eco Laboratories & Consultants Pvt. Ltd.) - engaged in consultancy & analytical services; Eco Paryavaran Engineers & Consultants Pvt. Ltd. - engaged in providing engineering solutions and Environment Matters – undertaking capacity building programs in the field of environment.

**MAJOR MILESTONES**

- **1999:** Eco Engineers established
- **2001:** Er. Sandeep Garg (CEO) appointed as National Director, Institute of Environmental Sciences & Technology (IEST), USA
- **2003:** First one to be registered as Environmental Consultant with Himachal Pollution Control Board (HPCB)
- **2004:** Establishment of Environmental Testing Lab
- **2007:** Approval from Punjab Pollution Control Board (PPCB)
- **2009:** Approval from Ministry of Environment, Forests and Climate Change (MoEF&CC)

**Eco Paryavaran Laboratories & Consultants Pvt. Ltd. (formerly known as Eco Laboratories & Consultants Pvt. Ltd.)** - LABORATORY SERVICES DIVISION is known for excellence in monitoring and analysis of environmental, building material and microbiological parameters. Some of the key analytical services provided are Ambient Air Sampling and Analysis; Stack Monitoring – Process stack, DG Stack etc.; Noise and Lux Monitoring; Indoor & work zone monitoring; Water and Wastewater analysis; Soil & Sludge Testing; Testing of Cement – all grades; Testing of Concrete – Cubes, beams, cores, Paver blocks; Testing of Aggregates – Coarse and fine; Testing of Bricks – Burnt Clay, Fly ash; Soil Testing – Both physical and Chemical; Steel Testing – Tensile, Yield, Elongation, Bend and Rebend testing; Swab testing and Indoor air quality etc. ENVIRONMENT SERVICES DIVISION undertakes various activities as - Environmental Impact Assessment/Environmental Clearances; Environmental Audits; Pollution Control Systems Engineering & Design Services; Performance Evaluation of Pollution Control Systems; Benchmarking and Environment due diligence, CGWA/PWRDA/HGWA NOC, Action Plan on Plastic Waste Management, EHS Audits, Consent to Establish, Consent to Operate (CTO), HW Authorization, BMW authorization, Feasibility Reports for various pollution control Boards including Punjab, Haryana, Himachal, Chandigarh, J&K, UP, Uttarakhand, Delhi etc.

Eco Group operates from an independent 10,000 square feet built-up area on three levels each in Mohali, Punjab (India). A dedicated team of thirty engineers, scientists along with the support staff qualified in areas as environment, civil, electrical, mechanical, chemical engineering, biotechnology, chemistry and microbiology oversees the various activities.

Office Pic

**Special Facility of Eco Group for Environmental Testing & Management**

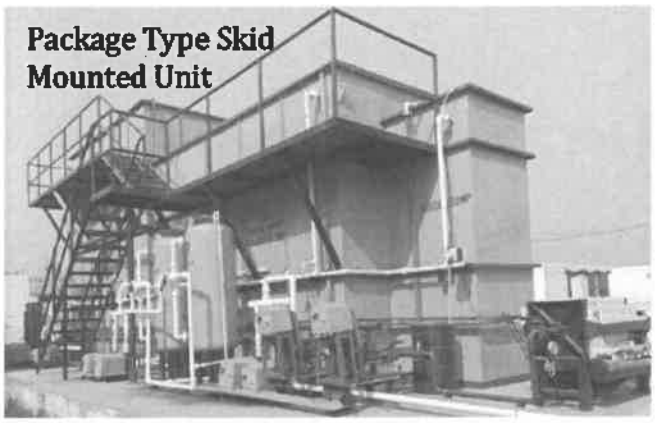
| | | | |
|---|---|---|---|
| Onsite Environmental Testing Mobile Testing Laboratory | | Noise Dose Monitoring in Work Zone Environment Noise Dosimeter – SVANTEK SV104IS, | |

| | | | |
|---|---|---|---|
| | | Intrinsically Safe | |
| Flue Gas Emissions from Stack/ Source/ Duct Flue Gas Analyzer – MRU, Optima 7 | | Calibration of Online CEMS (Emission/ Effluent) Calibration for Particulate Matter (Emissions) & pH, BOD, COD, TSS (Effluents) | |
| Aerosol Dust in Ambient/ Indoor/ Work zone Environment (TSI Side Pak™ AM520i Real Time Aerosol Sampler for PM10, PM5.0, PM2.5, PM1.0 and PM0.8 - DPM), Intrinsically Safe | | Milk Powder Emission Loss Monitoring in Dairy Industry Quantification of Milk Powder Emission Loss form Milk Dryers/ Fugitive Emissions/ General Leakage | |
| | | | |

| | | | |
|---|---|---|---|
| Validation of Indoor Environment in Hospitals/ Operation Theaters As per ISO 14664 standard, services are delivered as Air Change/ Ventilation Rate, Air Velocity at filtration unit, Pressure Differential, Validation of HEPA Filters by DOP /POA testing, Temp. and Humidity | | Industrial Hygiene & Occupational Health and Safety Study in Workzone Environment Industrial Hygiene, Ventilation Rate, Heat Stress, Health and Safety Study as per OSHA/ NIOSH/ Indian Factories Act, 1948 | |
| Noise & Vibration Monitoring Sound level meters and octave brands | | Biohazard Testing Air Quality Testing for Bacteria. Yeast & Mould Count | |

**Eco Paryavaran Engineers and Consultants Private Limited** is a 9001: 2015 organization, that provides engineering and turnkey solutions for pollution control and recycling including- Sewage Treatment Plants/Effluent Treatment Plants (both skid mounted and civil); Ultra Filtration-RO Combination Systems for Effluent recycling; Wastewater Treatment Equipments & Components- Aeration Systems; Disinfection systems-Ozone/UV based; Sludge Handling

Systems-Filter Press/Bags; Air Pollution Control Systems; Noise Attenuation; Solid Waste Management Systems.



**Environment Matters** undertakes various Education & Awareness Campaigns in Schools and Universities, plantation drives, Training of People from Economically Weaker Sections, Capacity-building of qualified professionals from universities, Generating Reliable Data Pitching for Sustainable Development. Glimpses of activities are shown below:

Sensitized more than 1, 00,000 people through Social Media. Facebook: env.matters; Twitter: EcoGroupMohali; LinkedIn: Environment Matters; Instagram: environmentmatters34; YouTube: Eco Group

## ASSOCIATIONS WITH ACADEMIA

- **PUNJAB ENGINEERING COLLEGE (PEC), CHANDIGARH**
  - ✓ *Name of Project: MoU for Testing and R & D in our laboratories*
  - ✓ *Date of Project: 11th July 2017*
- ***THAPAR UNIVERSITY, PATIALA***

- ✓ *Name of Project: R & D Support for Bio N; Industrial Training Programme for M.Tech. Students*
- ✓ *Date of Project: March 2012*

• ***IIT, MANDI, HIMACHAL PRADESH***

- ✓ *Name of Project: MoU for R & D projects under IMPRINT Scheme of MHRD, GoI.*
- ✓ *Date of Project: 8th July 2016*

## 12.2 KEY RECOGNITIONS/ACCREDITATIONS OF CONSULTANT

- QCI NABET accreditation vides Certificate No. NABET/EIA/22-23/RA 0324 dated 17.04.2024.
- Lab Approved by NABL in the field of Testing vide Certificate No. TC-11818 dated 26.06.2023.
- Recognition Letter from CPCB vide File No. LB/99/7/2021-INST LAB-HO-CPCB-HO/Pvt./2945 dated 08.08.2023.
- ISO 9000:2015, ISO 14001:2015, ISO 45001:2018, ISO 50001:2015 and ISO/IEC 17020:2012 certified.

भारतीय गुणवत्ता परिषद
QUALITY COUNCIL OF INDIA
Creating an Ecosystem for Quality

NABET

## National Accreditation Board for Education and Training

# Certificate of Accreditation

**Eco Paryavaran Laboratories & Consultants Pvt. Ltd, Mohali**

E 207, Phase VIII B, Sector 74, Industrial Area, S.A.S. Nagar (Mohali), Punjab- 160071

*The organization is accredited as **Category-A** under the QCI-NABET **Scheme for Accreditation of EIA Consultant Organization, Version 3**: for preparing EIA/EMP reports in the following Sectors*

| S.No | Sector Description | Sector (as per) | | Cat. |
|---|---|---|---|---|
| | | NABET | MoEFCC | |
| 1. | Mining of minerals- open cast mining only | 1 | 1 (a) (i) | A |
| 2. | Metallurgical industries | 8 | 3 (a) | A |
| 3. | Cement plants | 9 | 3 (b) | A |
| 4. | Synthetic organic chemicals industry (dyes & dye intermediates; bulk drugs and intermediates excluding drug formulations; synthetic rubbers; basic organic chemicals, other synthetic organic chemicals, and chemical intermediates) | 21 | 5 (f) | A |
| 5. | Distilleries | 22 | 5 (g) | A |
| 6. | Sugar Industry | 25 | 5 (j) | B |
| 7. | Industrial estates/ parks/ complexes/areas, export processing Zones (EPZs), Special Economic Zones (SEZs), Biotech Parks, Leather Complexes | 31 | 7 (c) | A |
| 8. | Common Effluent Treatment Plants (CETPs) | 36 | 7 (h) | B |
| 9. | Building and construction projects | 38 | 8 (a) | B |
| 10. | Townships and Area Development projects | 39 | 8 (b) | B |

***Note: Names of approved EIA Coordinators and Functional Area Experts are mentioned in RAAC minutes dated March 21, 2024, posted on QCI-NABET website.***

*The Accreditation shall remain in force subject to continued compliance to the terms and conditions mentioned in QCI-NABET's letter of accreditation bearing no QCI/NABET/ENV/ACO/24/3196 dated April 17, 2024. The accreditation needs to be renewed before the expiry date by Eco Paryavaran Laboratories and Consultants Pvt Ltd, Mohali following due process of assessment.*

**Issue Date**
**April 17, 2024**

**Valid up to**
**December 17, 2026**

**Mr. Ajay Kumar Jha**
**Sr. Director, NABET**

**Certificate No.**
**NABET/EIA/23-26/RA 0324**

**Prof (Dr) Varinder S Kanwar**
**(CEO NABET)**

*For the updated List of Accredited EIA Consultant Organizations with approved Sectors please refer to QCI-NABET website.*

National Accreditation Board for Testing and Calibration Laboratories

NABL

## CERTIFICATE OF ACCREDITATION

# ECO PARYAVARAN LABORATORIES & CONSULTANTS PRIVATE LIMITED

**has been assessed and accredited in accordance with the standard**

## ISO/IEC 17025:2017

## "General Requirements for the Competence of Testing & Calibration Laboratories"

**for its facilities at**

**ECO GROUP, ECO BHAWAN, E-207, INDUSTRIAL AREA, PHASE VIIIB (SECTOR 74), SAS NAGAR, MOHALI, PUNJAB, INDIA**

**in the field of**

## TESTING

**Certificate Number:** TC-11818

**Issue Date:** 26/06/2023 **Valid Until:** 25/06/2025

**This certificate remains valid for the Scope of Accreditation as specified in the annexure subject to continued satisfactory compliance to the above standard & the relevant requirements of NABL.**
**(To see the scope of accreditation of this laboratory, you may also visit NABL website www.nabl-india.org)**

**Name of Legal Identity :** Eco Paryavaran Laboratories & Consultants Private Limited

**Signed for and on behalf of NABL**

N. Venkateswaran
Chief Executive Officer

केन्द्रीय प्रदूषण नियंत्रण बोर्ड
CENTRAL POLLUTION CONTROL BOARD
MINISTRY OF ENVIRONMENT FOREST & CLIMATE CHANGE GOVT OF INDIA

F.No. LB/99/7/2021-INST LAB-HO-CPCB-HO/Pt1/ 9945 Dated: 8th August 2023

**Recognition Letter**

**To,**

**Head of Laboratory,**
**M/s Eco Paryavaran Laboratories & Consultants Private Limited,**
**E-207, Phase VIII-B, Industrial Area / Sector 74, Mohali- 160071,**
**Punjab.**

**Subject: Recognition of M/s Eco Paryavaran Laboratories & Consultants Private Limited, E-207, Phase VIII-B, Industrial Area / Sector 74, Mohali- 160071, Punjab as Environmental laboratory under the Environmental (Protection) Act- 1986.**

Sir,

I am directed to refer the online application, dated 24/05/2022 for the recognition of your laboratory under Environmental (Protection) Act, 1986. Based on the recommendations of the concerned Division, approval of Competent Authority for recognition of Environmental laboratories and your acceptance of the revised terms and conditions at Annexure-III & IV of the guidelines for recognition of environmental laboratories, CPCB approves the recognition of **M/s Eco Paryavaran Laboratories & Consultants Private Limited, E-207, Phase VIII-B, Industrial Area / Sector 74, Mohali- 160071, Punjab** and shall be notified in the Gazette of India. Considering the current requirement of mandatory accreditation/ certifications of the laboratory, **this recognition shall be valid up to 31/05/2025.**

2. As sought in the aforementioned application, **M/s Eco Paryavaran Laboratories & Consultants Private Limited, E-207, Phase VIII-B, Industrial Area / Sector 74, Mohali- 160071, Punjab,** may undertake the following tests:

i. **Physical Tests-**Conductivity, Colour, pH, Fixed & Volatile Solids, Total Solids, Total Dissolved Solids, Total Suspended Solids, Turbidity, Temperature, Velocity & Discharge Measurement of Industrial Effluent Stream, Flocculation Test (Jar test), Odour, Salinity, Settleable Solids and Sludge Volume Index.
ii. **Inorganic (General and Non-metallic):** Acidity, Alkalinity, Ammonical Nitrogen, Chloride, Chlorine Residual, Dissolved Oxygen, Fluoride, Total Hardness, Total Kjeldahl Nitrogen (TKN), Nitrite Nitrogen, Nitrate Nitrogen, Phosphate, Sulphate, Carbon Dioxide, Silica, Cyanide and Sulphide.
iii. **Inorganic (Trace Metals):** Boron, Cadmium, Calcium, Total Chromium, Chromium Hexavalent, Copper, Iron, Lead, Magnesium, Mercury, Nickel, Potassium, Sodium, Sodium Absorption Ratio, Zinc, Arsenic, Aluminium, Barium, Manganese, Selenium, Silver and Antimony.
iv. **Organics (General) and Trace Organics:** Biochemical Oxygen Demand (BOD), Chemical Oxygen Demand (COD), Oil and Grease, Phenolic Compounds, Pesticides (each) (Organo-Chlorine and Organo Nitrogen-Phosphorus), Surfactants, Poly-Chlorinated Biphenyl (PCB's) each, Poly-Nuclear Aromatic Hydrocarbon (PAH) and Organic Carbon (in Solid).
v. **Microbiological Test:** Total Coliform, Faecal Coliform, *E. coli, Faecal Streptococci* and Total Plate Count and *Enterococcus.*
vi. **Toxicological Tests:** Bioassay Method for Evaluation of Toxicity using Fish, Measurement of Toxicity using Daphnia or Other Organism and Measurement of Toxicity Factor Using Zebra Fish (Dimensionless Toxicity Test).
vii. **Biological Test:** Benthic Organism Identification and Count, Macrophytic Identification, Planktonic identification count.
viii. **Characterization of Hazardous waste:** Preparation of Leachate (TCLP extract/ Water extract), Ignibility (Flash Point), Toxicity and Measurement of heavy metals/ pesticides in the waste and leachate.

**Contd.**

'परिवेश भवन' पर्वी अर्जुन नगर, दिल्ली-110032
Parivesh Bhawan, East Arjun Nagar, Delhi-110032
दूरभाष/Tel : 43102030, 22305792, वेबसाईट/Website : www.cpcb.nic.in

ISO 9001:2015

# Certificate of Registration

*This is to Certify that*
*Quality Management System of*

**ECO PARYAVARAN LABORATORIES & CONSULTANTS PRIVATE LIMITED**

E-207, INDUSTRIAL AREA, PHASE VIII B (SECTOR–74), MOHALI–160071, PUNJAB, INDIA.

*has been assessed and found to conform to the requirements of*

ISO 9001:2015

*for the following scope :*

TESTING SERVICES IN BIOLOGICAL, CHEMICAL AND MECHANICAL CATEGORIES & EIA CONSULTANTS FOR PREPARING EIA/EMP REPORTS.

| | | | |
|---|---|---|---|
| Certificate No | : 22IQJK83 | | |
| Initial Registration Date | : 21/04/2022 | Issuance Date | : 21/04/2022 |
| Date of Expiry | : 20/04/2025 | | |
| 1st Surve. Due | : 21/03/2023 | 2nd Surve. Due | : 21/03/2024 |

Director

IAS ACCREDITED Management Systems Certification Body MSCB 119

MEMBER OF MULTILATERAL RECOGNITION ARRANGEMENT IAF

AQC MIDDLE EAST LLC

Head Office: Office No. 02, Ground Floor, Sharjah Media City, Sharjah, UAE. e-mail : info@aqcmeld.com
Key Location: A-60, Sector - 2, Noida, Uttar Pradesh, 201301, India.
Validity of the Certificate is subject to successful completion of surveillance audit on or before of due date. In case surveillance audit is not allowed/ conducted, this certificate shall be suspended/withdrawn.
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# Certificate of Registration

ISO 45001:2018

*This is to Certify that*
*Occupational Health & Safety Management System of*

**ECO PARYAVARAN LABORATORIES & CONSULTANTS PRIVATE LIMITED**

E-207, INDUSTRIAL AREA, PHASE VIII B (SECTOR-74), MOHALI-160071, PUNJAB, INDIA.

*has been assessed and found to conform to the requirements of*

**ISO 45001:2018**

*for the following scope :*

TESTING SERVICES IN BIOLOGICAL, CHEMICAL AND MECHANICAL CATEGORIES & EIA CONSULTANTS FOR PREPARING EIA/EMP REPORTS.

| | | | |
|---|---|---|---|
| Certificate No | : 221OJA85 | | |
| Initial Registration Date | : 21/04/2022 | Issuance Date | : 21/04/2022 |
| Date of Expiry | : 20/04/2025 | | |
| 1st Surve. Due | : 21/03/2023 | 2nd Surve. Due | : 21/03/2024 |

Director

IAS ACCREDITED Management Systems Certification Body MSCB-119

MEMBER OF MULTILATERAL RECOGNITION ARRANGEMENT IAF

*AQC MIDDLE EAST LLC*

*Head Office: Office No. 02, Ground Floor, Sharjah Media City, Sharjah, UAE. e-mail: info@aqcworld.com*
*Key Location: A-60, Sector - 2, Noida, Uttar Pradesh, 201301, India.*
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ISO 14001:2015

# *Certificate of Registration*

*This is to Certify that*
*Environmental Management System of*

**ECO PARYAVARAN LABORATORIES & CONSULTANTS PRIVATE LIMITED**

E-207, INDUSTRIAL AREA, PHASE VIII B (SECTOR–74), MOHALI–160071, PUNJAB, INDIA.

*has been assessed and found to conform to the requirements of*

**ISO 14001:2015**

*for the following scope :*

TESTING SERVICES IN BIOLOGICAL, CHEMICAL AND MECHANICAL CATEGORIES & EIA CONSULTANTS FOR PREPARING EIA/EMP REPORTS.

| | | | |
|---|---|---|---|
| Certificate No | : 221EJS76 | | |
| Initial Registration Date | : 21/04/2022 | Issuance Date | : 21/04/2022 |
| Date of Expiry | : 20/04/2025 | | |
| 1st Surve. Due | : 21/03/2023 | 2nd Surve. Due | : 21/03/2024 |

Director

IAS ACCREDITED Management Systems Certification Body MSCB-119

MEMBER OF MULTILATERAL RECOGNITION ARRANGEMENT IAF

AQC MIDDLE EAST LLC

Head Office: Office No. 02, Ground Floor, Sharjah Media City, Sharjah, UAE. e-mail: info@aqcworld.com
Key Location: A-663, Sector - 2, Noida, Uttar Pradesh, 201301, India.
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ISO 9001:2015

# Certificate of Registration

*This is to Certify that*
*Quality Management System of*

## ECO PARYAVARAN ENGINEERS & CONSULTANTS PRIVATE LIMITED

E-204 & 205, INDUSTRIAL AREA, PHASE VIII B (SECTOR-74),
MOHALI-160071, PUNJAB, INDIA.

*has been assessed and found to conform to the requirements of*

ISO 9001:2015

*for the following scope :*

DESIGNING, MANUFACTURING, SUPPLY AND COMMISSIONING OF POLLUTION CONTROL EQUIPMENTS.

| | | | |
|---|---|---|---|
| Certificate No | : **22IQJH70** | | |
| Initial Registration Date | : 21/04/2022 | Issuance Date | : 21/04/2022 |
| Date of Expiry | : 20/04/2025 | | |
| 1st Surve. Due | : 21/03/2023 | 2nd Surve. Due | : 21/03/2024 |

Director

IAS ACCREDITED Management Systems Certification Body MSCB-119

MEMBER OF MULTILATERAL RECOGNITION ARRANGEMENT IAF

AQC MIDDLE EAST LLC

*Head Office: Office No. 02, Ground Floor, Sharjah Media City, Sharjah, UAE. e-mail : info@aqcworld.com,*
*Key Location: A-060, Sector - 2, Noida, Uttar Pradesh, 201301, India.*
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# CERTIFICATE
## OF REGISTRATION

This is to Certify that

**ECO PARYAVARAN LABORATORIES AND CONSULTANTS PRIVATE LIMITED**

E-207, PHASE VIII B, MOHALI, SAS NAGAR, PUNJAB - 160055, INDIA

has been independently assessed by UICL and found to be complied with the requirements of

**ISO 50001:2018**

**(Energy Management System)**

For the Following Scope of Activities

**Providing Energy Audits and Consultancy Services to Industries, Educational Institutes and Commercial Establishments for the Management of Energy Performance and Environmental Carbon Footprints**

**Certificate No:- 206383/2024/U**

**Issue date : 05-06-2024** **1st Surveillance date : 04-05-2025**

**Expiry date : 05-06-2027** **2nd Surveillance date : 03-04-2026**

Auth. Signatory

UNIQ INTERNATIONAL CERTIFICATIONS LIMITED
71-75, Shelton Street, Covent Garden, London, WC2H 9JQ
Web:- www.ukuicl.com, Mail:- info@ukuicl.com

Validity of this certificate is subject to successful completion of Surveillance Audits.
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# CERTIFICATE
## OF REGISTRATION

This is to Certify that

**ECO PARYAVARAN LABORATORIES AND CONSULTANTS PRIVATE LIMITED**

E-207, PHASE VIII B, MOHALI, SAS NAGAR, PUNJAB - 160055, INDIA

has been independently assessed by UICL and found to be complied with the requirements of

**ISO/IEC 17020:2012**

**(Conformity assessment — Requirements for the operation of various types of bodies performing inspection)**

For the Following Scope of Activities

**Providing Audits & Certification Services to Industries, Educational Institutes and Commercial Establishments for Environment Management, Green Management, Energy Management, Environmental Carbon Footprints, Industrial Hygiene, Occupational Health and Safety".**

**Certificate No:- 506376/2024/U**

**Issue date : 05-06-2024** **1st Surveillance date : 04-05-2025**

**Expiry date : 05-06-2027** **2nd Surveillance date : 03-04-2026**

Auth. Signatory

UNIQ INTERNATIONAL CERTIFICATIONS LIMITED
71-75, Shelton Street, Covent Garden, London, WC2H 9JQ
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# EXECUTIVE SUMMARY

## 1.0 PROJECT DESCRIPTION

It is a proposed Bulk Drug Park to be established at Villages Kuthar Beet, Pollian Beet, Tibbian, Jodian, Janani and Mulluwal, Tehsil Haroli, District Una, Himachal Pradesh. Plot area of the project is 1,405.41 acres (or 568.75 Ha) has been allotted for establishment of the project; out of which, Govt. land of 1,365.77 acres allotted to Dept. of Industries, Govt. of HP and 39.64 acres of land purchased and transferred to Dept. of Industries, Govt. of HP for setup of the proposed industrial park. **Himachal Pradesh Bulk Drug Park Infrastructure Ltd. (HPBDPIL)** is nodal agency to coordinate and supervise the project development activities.

As per the clause 7 of the Bulk Drug Park scheme, the State Government has decided to set up dedicated State Implementing Agency (SIA) named the **"Himachal Pradesh Bulk Drug Park Infrastructure Ltd. (HPBDPIL)"** which is **formed under section 8 of the Company Act, 2013** and a **govt. own agency under the aegis of Department of Industries, Govt. of Himachal Pradesh.** SIA will form a management committee for monitoring, operation and maintenance of the park after the completion of the park.

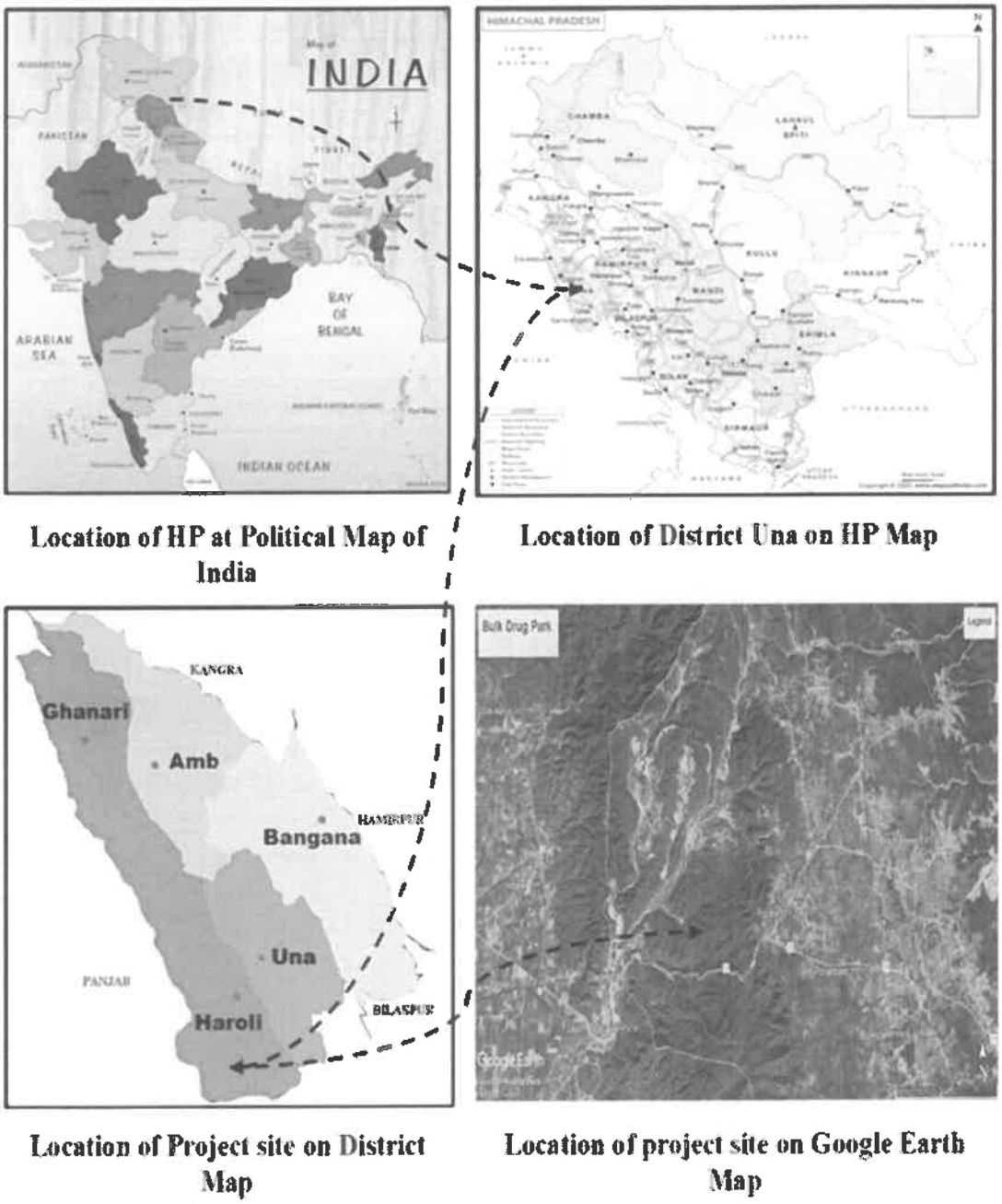
## 2.0 LOCATION & CONNECTIVITY

Bulk Drug Park site is proposed in Villages Kuthar Beet, Pollian Beet, Tibbian, Jodian, Janani and Mulluwal, Tehsil Haroli, District Una, Himachal Pradesh. The proposed site is accessible through Una-Jaijon. Location of the project site is given below in Fig. 1. Project location and its study area falls in the Survey of India, Toposheet No. H43K2 & H43K6. Fig. 2 and boundary co-ordinates of the project site are given in Table 1 below:

**Table 1. Boundary Co-ordinates of the Project**

| Corners | Latitude | Longitude | Corners | Latitude | Longitude |
|---|---|---|---|---|---|
| 1 | N31° 20' 45.24" | E76° 11' 14.64" | 22 | N31° 23' 27.96" | E76° 10' 38.64" |
| 2 | N31° 20' 38.76" | E76° 10' 40.8" | 23 | N31° 23' 19.32" | E76° 10' 48.00" |
| 3 | N31° 20' 39.84" | E76° 10' 19.56" | 24 | N31° 23' 6.36" | E76° 10' 42.24" |
| 4 | N31° 20' 48.12" | E76° 10' 6.24" | 25 | N31° 22' 58.44" | E76° 10' 35.04" |
| 5 | N31° 20' 50.64" | E76° 9' 33.48" | 26 | N31° 22' 50.52" | E76° 10' 23.16" |
| 6 | N31° 20' 56.4" | E76° 9' 30.96" | 27 | N31° 22' 42.96" | E76° 10' 21.36" |

| | | | | | |
|---|---|---|---|---|---|
| **7** | N31° 21' 5.76" | E76° 9' 23.76" | **28** | N31° 22' 31.8" | E76° 10' 3.00" |
| **8** | N31° 21' 1.08" | E76° 9' 18.36" | **29** | N31° 22' 13.08" | E76° 10' 1.20" |
| **9** | N31° 21' 9.72" | E76° 9' 12.24" | **30** | N31° 22' 21.36" | E76° 10' 18.48" |
| **10** | N31° 21' 12.24" | E76° 9' 26.28" | **31** | N31° 22' 15.6" | E76° 10' 31.8" |
| **11** | N31° 21' 9.36" | E76° 10' 0.84" | **32** | N31° 22' 5.88" | E76° 10' 14.88" |
| **12** | N31° 21' 35.28" | E76° 9' 55.8" | **33** | N31° 21' 55.08" | E76° 10' 3.36" |
| **13** | N31° 21' 50.04" | E76° 9' 56.52" | **34** | N31° 21' 56.52" | E76° 10' 32.52" |
| **14** | N31° 22' 15.24" | E76° 9' 50.4" | **35** | N31° 21' 52.2" | E76° 10' 53.04" |
| **15** | N31° 22' 35.4" | E76° 9' 53.64" | **36** | N31° 21' 57.96" | E76° 10' 44.04" |
| **16** | N31° 23' 4.92" | E76° 9' 48.96" | **37** | N31° 21' 46.08" | E76° 10' 48.36" |
| **17** | N31° 23' 2.4" | E76° 10' 4.44" | **38** | N31° 21' 34.92" | E76° 10' 49.8" |
| **18** | N31° 23' 18.24" | E76° 10' 4.08" | **39** | N31° 21' 27" | E76° 10' 46.2" |
| **19** | N31° 23' 14.28" | E76° 10' 18.48" | **40** | N31° 21' 14.04" | E76° 10' 49.44" |
| **20** | N31° 23' 10.32" | E76° 10' 25.68" | **41** | N31° 21' 12.96" | E76° 11' 5.28" |
| **21** | N31° 23' 20.04" | E76° 10' 30.72" | **42** | N31° 20' 54.96" | E76° 11' 13.2" |




**Location of HP at Political Map of India**

**Location of District Una on HP Map**

**Location of Project site on District Map**

**Location of project site on Google Earth Map**

**Figure 1. Location map of the project**

## 3.0 BRIEF FEATURES OF PROJECT

HPSBDPIL, Dept. of Industries, Govt. of HP is a nodal agency coordinating and supervising project development activities. HPBDPIL will be involved in the development of the proposed industrial estate, which will house API manufacturing industries based on the chemical synthesis only (Approx. 70-80 industrial units in the 110 industrial plots). The upcoming industries in the park will be in the pharma sector and mostly in large scale categories. The

project as a whole also comes under the large scale category. Area Statement is given as table below:

**Table 2. Magnitude and components of Bulk Drug Park**

| Sr. No. | Description | Area in Acres | Area in Ha | Percentage (%) |
|---|---|---|---|---|
| 1. | Industrial Plot Area | 558.28 | 225.93 | 39.72 |
| 2. | Commercial Plot Area | 95.02 | 38.45 | 6.76 |
| 3. | Electric Substation | 23.37 | 9.46 | 1.66 |
| 4. | Utility Area | 41.65 | 16.86 | 2.96 |
| 5. | TSDF Area | 29.46 | 11.92 | 2.10 |
| 6. | Parking Area | 18.46 | 7.47 | 1.31 |
| 7. | Green Area and Green Area Under Industrial Plots | 465.18 | 188.25 | 33.09 |
| 8. | Waste Treatment Facilities Area (STP /ETP /MEE & WTP) | 41.08 | 16.62 | 2.92 |
| 9. | Common Logistic Area | 18.90 | 7.65 | 1.34 |
| 10. | Roads | 86.45 | 34.98 | 6.15 |
| 11. | Water Bodies | 27.28 | 11.04 | 1.94 |
| 12. | Other | 0.30 | 0.12 | 0.02% |
| | Total Area | 1405.41 | 568.75 | 100% |

## 4.0 METEOROLOGY

Meteorological data for last 10 years (2011-20) were collected from secondary authorized sources as NASA ((Source: POWER | Data Access Viewer (nasa.gov)) using geo-referencing of project site coordinates. Further, primary micrometeorological data at project location

recorded using automatic weather station during for a period one year (2023) to verify the secondary data record and prevailing meteorological conditions. Hourly data air temperature, barometric pressure, humidity, wind speed, wind direction, rainfall and solar radiation were recorded in data logger of AWS. The met station was kept in an open area at an appropriate height of 10m from the ground. Cloud cover is observed visually.

## 5.0 AMBIENT AIR QUALITY

Ambient air quality monitoring (AAQM) station were installed in upwind, downwind and crosswind directions as per prevailing meteorological conditions (predominant wind direction from WNW) in the study area at 3 locations in core zone/project area and 7 locations in buffer zone of 10kms.

Particulate aerosols observed in the study area during April to June 2023 ranged 33.5 - 84.4 $\mu g/m^3$ (avg. 56.6 $\mu g/m^3$) as $PM_{10}$ and 17.4 – 45.7 $\mu g/m^3$ (avg. 29.9 $\mu g/m^3$) as $PM_{2.5}$ are within the prescribed limits of 100 $\mu g/m^3$ for $PM_{10}$ and 60 $\mu g/m^3$ for $PM_{2.5}$ (NAAQS CPCB, 2009). The obtained results are comparable and in agreement with the secondary data collected by HPSPCB (RO/ DIC, Una) and other EIA studies of Una region. The baseline data of existing mass levels of $PM_{10}$ and $PM_{2.5}$ are associated to industrial units operating in Tahliwal industrial area (about 6 kms from the project) and Bathri industrial area (about 10.5kms from the project) in ESE direction and Amb-Gagret-Jeetpur industrial cluster (about 20-25kms from the project) in ENE direction. Other source can be vehicles plying on the roads, ongoing domestic and agricultural activities in the study area. As evident from the baseline data, the locations AQ-4 to AQ-8 (specially AQ-8) located in Eastern side of project experience higher air pollution load in comparison to the locations AQ-1 to AQ-3 located in Western area due to close proximity of Tahliwal and Bathri industrial areas.

Gaseous pollutants observed in the study area during April to June 2023 ranged 4.3 – 14.8 $\mu g/m^3$ (avg. 8.3 $\mu g/m^3$) as $SO_2$ and 3.8 – 22.8 $\mu g/m^3$ (avg. 12.1 $\mu g/m^3$) as $NO_2$ are well within the prescribed limits of 80 $\mu g/m^3$ (NAAQS CPCB, 2009) indicates no significant source of emission in the study area and air quality is safe and comfortable for human health. The obtained results are comparable and in agreement with the secondary data collected by HPSPCB (RO/ DIC, Una) and other EIA studies of Una region. the gaseous pollutants as Carbon Monoxide (CO), Ozone ($O_3$) and Ammonia ($NH_3$) observed in the study area are found to be well within the prescribed limits (NAAQS CPCB, 2009) indicates no significant source of emission in the study area and air quality is safe and comfortable for human health.

## 6.0 AMBIENT NOISE QUALITY

The main objective of monitoring of ambient noise levels was to establish the baseline noise levels in different zones. i. e. Residential, Industrial, Commercial and Silence zones, in the surrounding areas and to assess the total noise level in the environment of the study area. The noise monitoring was conducted at four locations selected in the study area of 10 kms (one in core zone and 3 in buffer zone within 1 km radius). Integrated Sound Level Meters (SLMs) with data logger were used for data collection. Calibration check of SLMs were performed before and after sampling. Noise sampling was done by installing SLMs at a sampling height of 1.2 to 1.5 m in open area or ≥ 250 m away from source of noise or obstructions or reflecting surfaces. Noise monitoring was carried out during day time (06:00 am – 10:00 pm) and night time (10:00 pm to 06:00 am) continuously for 24-hours with one-hour login interval as per national/ international standard methods as CPCB Noise Rules (2000), IS: 9989-1981 & IS: 4758-1968.

Ambient noise levels measured in the study area varied from 46.3 – 51.2 dB(A) during day time and 35.4 – 40.2 dB(A) during night time. The observed noise levels are found to be within the prescribed limits for residential area (Noise Rules, 2000). The obtained results are comparable and in agreement with the secondary data of EIA studies conducted in Una region. The observed baseline/ existing noise quality may be associated to industrial units operating in Tahliwal industrial (about 6 km from the project) and Bathri industrial area (about 10 km from the project) in ESE direction. Other source can be vehicles plying on the roads, ongoing domestic and agricultural activities in the study area.

## 7.0 WATER QUALITY

Water quality of groundwater has been studied in order to access proposed water-uses in drinking, cooling and horticulture purposes. The groundwater quality of five different monitoring locations within the 10 km radius of study area was evaluated in terms of various physico-chemical and biological parameters. The observed data set was initially statistical analyzed and compared with the standard guideline of acceptable and prescribed limit for drinking water quality under IS: 10500, 2012 and its amendments proposed by Bureau of Indian Standards (BIS).

The analysis of physical parameters such as colour, odour, pH, TU and TDS represents that the groundwater samples were colourless, odourless, within suitable pH (6.5-8.5), no turbid

and presence of suitable amount of dissolved solids (below 500 mg/L). The comparison of groundwater variables with standards limits indicated that the all groundwater quality parameters were within the prescribed limit of drinking water quality. Only the Total Hardness, Cations (Ca++ and Mg++) and Total Alkalinity were reported exceeds the acceptable limit of 200 mg/L, 30 mg/L, 75 mg/L and 200 mg/L respectively at almost monitoring locations. This indicates the prior treatment of hardness before any use of groundwater such as domestic and commercial purposes. Similarly, the cation such $Ca^{2+}$ and $Mg^{2+}$ were reported above the acceptable limit. The concentration of TU, BOD, Total N, Total P, Phenol and Heavy Metals (PB and Hg) were recorded below detection limit (BDL). The biological parameters (TC and FC) were found absent in groundwater samples. The ground water test results indicate that groundwater quality at selected monitoring locations is hard water in nature and requires prior treatment before the use for domestic, industrial and commercial purposes.

## 8.0 SOIL QUALITY

Two types of soils are observed in the district viz., alluvial soil and non-calcic brown 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.

Soil quality monitored once at 5 locations (including project location) within 10 km of study area during the monitoring period. The soil sample were collected from various depths of 30 cm, 60 cm & 90 cm from nearby agriculture land, waste disposal areas or likely impacted areas and sample handling (including sample preservation and transportation) was carried out as per national/ international standard methods as Soil/Sludge quality monitoring (IS: 2720, APHA & ICAR/IARI guidelines).

In the current study, indicators viz., pH, EC, porosity, permeability, macro and micro-mineral compositions (such as Na, K, N, P, Ca and Mg) etc. were analyzed and assessed. The soil parameters could offer the information of soil fertility status well, so these indicators were used to evaluate the soil composition in the study area. The pH of the monitoring location indicates neutral to alkaline in nature so soil. SAR was reported below 13 meq/L and mineral composition refers to its suitability for agriculture and cultivations purposes.

## 9.0 ECOLOGY

As per toposheet no (H43E3 and H43E7), there is the Polian Shamlat Reserve Forest is adjoining the project site in West direction and the Kangar Protective Forest is approx. 7 km far away from project site in NW direction. Distance from another Eco sensitive zone, Swan River is also approx. 8.5 km from project site in NE direction.

## 10.0 ANTICIPATED ENVIRONMENTAL IMPACTS & MITIGATION MEASURES

### 10.1 AIR QUALITY

In worst-case scenario (without APCD and/or failure of plant process), the maximum cumulative load of $PM_{10}$ will be 131.6 µg/m3, NOx will be 43.6 µg/m3, HCl will be 29.9 µg/m3 and Benzene will be 4.3 µg/m3 can deteriorate the air quality with sever health and environmental impacts. Hence this condition will be avoided in any circumstances and the project will be operated with proper and effective pollution control measures, regular checkups and maintenance of APCDs and plant process at all stages of the operation.

In controlled conditions (with APCD /effective control measures), the maximum cumulative load of $PM_{10}$ will be 94.1 µg/m3, NOx will be 32.3 µg/m3, HCl will be 10.1 µg/m3 and Benzene will be 0.4 µg/m3. The overall maximum loads at receptors within the study area will be $PM_{10}$ as 69.4-84.1 µg/m3, $PM_{2.5}$ as 37-44.6 µg/m3, $NO_2$ as 15-22.5 µg/m3, $SO_2$ as 9.9-14.2 µg/m3, $NH_3$ as 7.75-9.83 µg/m3, CO as 370.9-581.7 µg/m3, $Cl_2$ as 0.03-0.21 µg/m3, HCl as 0.07-0.49 µg/m3, Benzene as 0.01-0.07 µg/m3, Dichloromethane as 0.38-2.85 µg/m3 and Acetonitrile as 1.91-14.25 µg/m3 indicates the minor change in air quality with no significant health and environmental impacts.

### 10.2 NOISE QUALITY

As per noise propagation modeling carried out, the resulting/ cumulative noise levels (Baseline + Predicted) found to be in the range of 46.3-51.2 dB(A) were within the prescribed limits of 55 dB(A) for residential areas. Therefore, there is no significant impacts of noise on surrounding receptors within the study area due to the project operation.

### 10.3 WATER QUALITY

Industrial effluents will be treated with CETP of 5 MLD with ZLD technology and domestic discharges will be treated in STP of 3 MLD. No wastewater (effluent/ sewage) will be

discharged outside the plant premises and will be recycled and reused in industrial processes only.

Storm water drains will be kept separate from wastewater drains. Hence, surface water quality will not be affected due to project operation.

## 10.4 SOLID WASTE

Solid waste of about 8.8 TPD (@ 0.2 kg/capita/day) will be generated. Solid waste will be duly segregated into biodegradable and non-biodegradable components. Separate area will be earmarked for segregation of solid waste. Biodegradable waste will be composted within project premises and recyclable component will be disposed off through authorized recycler vendors. The Solid Waste will be handled/disposed off as per the provision of Solid Waste Management Rules 2016 and its amendments.

### HAZARDOUS WASTE

The proposed Bulk Drug Park will house API manufacturing units which involves chemical synthesis only. Generation of hazardous waste from API units depends upon type and quantity of production, nature and quantity of raw material used and process and technology to be used for API manufacturing. Generally, it is assumed that about 80 API units during full occupancy of Bulk Drug project with production capacity of 2000-2250 TPD of APIs will generate hazardous wastes in the tune of about 1/3rd of the production, thus a nearly 700-800 TPD of Hazardous Waste of different categories will be generated. Out of the total Hazardous Waste of 700-800 TPD quantum, likely to be generated in the project, nearly 10-12 TPD will be of storage able category (CETP sludge & MEE residue) and 650-800 TPD will be of incinerate-able/co-processing category. These all type of Hazardous Waste will be disposed of with the authorized entities. An integrated TSDF (comprising a secured landfill, a solid-liquid feed incinerator is proposed inside the project for which 33.6 acres of land has been proposed.

For the development of TSDF for the storage-able waste and incinerator for the incinerate-able waste, the separate detailed proposal will be prepared by PP to meet with the requisite as per the EIA Notification, 2006.

### Bio-Medical Waste

The source of Bio-Medical Waste generation will be from the health care facilities/activities to be established in the project only. Biomedical waste, approx. 4-5 kg/day is likely to be

generated from dispensary & Research Institute for Pharmaceutical Advancement proposed within project which includes minor first aid or medical use of disposable dressing material. This waste will be disposed through authorized Common Bio-medical Waste Collection and Disposal Agency as per Bio-medical Waste Management Rules, 2016 and its amendments.

## 11.0 GREENERY DEVELOPMENT

Green area will be developed as per following scheme

Green belt to be developed by Himachal Pradesh Bulk Drug Park Infrastructure Ltd. (HPBDPIL) in area of 279.46 Acre (@13.21%) in following manner

- 50-meter-wide green belt all along the major streams/ nallah/khads
- 15-meter-wide green belt along the minor streams.
- 15-meter-wide green belt along the project boundary.

Green belt to be developed by member industries in area of 185.72 Acres (@20%) in their industrial premises along the plot boundary.

Green Belt in the project area will be developed with thick plantation of broad leaved trees preferably in three rows to mitigate the various types of pollution.

- Large open spaces for maintaining the green cover
- Small Quality green spaces for recreation
- Linear plantations to provide relief during movement
- Small aesthetic greens for forming vistas etc.

The green belt would;

- Mitigate gaseous emissions;
- Have sufficient capability to arrest accidental release;
- Effective in wastewater reuse;
- Maintain the ecological balance;
- Control noise pollution to a considerable extent;
- Prevent soil erosion;
- Improve the Aesthetics;

All the species suggested are pollution tolerant, besides having an aesthetic appeal.

## 12.0 ENVIRONMENTAL MONITORING PLAN

The environment monitoring plan enables environmental management system with early sign of need for additional action and modification of ongoing actions for environment management, improvement and conservation. The environmental monitoring points will be decided considering the environmental impacts likely to occur due to the operation of proposed expansion as the main scope of monitoring program is to track, timely and regularly, the change in environmental conditions and to take timely action for protection of environment Monitoring of environmental samples will be done as per the guidelines provided by MoEF&CC/CPCB. Separate records for water, wastewater, solid wastes, air emission, soil and manure/ compost will be prepared and preserved regularly. Along with other budgets, Budget for environmental monitoring will be prepared and revised regularly as per requirement. The estimated yearly budget for Environmental Monitoring has been kept as Rs. 5 lakhs which include monitoring of efficiency of pollution control equipment.

## 13.0 RISK MITIGATION MEASURES

Even with all precautions, disasters may take place. As such, an Emergency Plan will be formulated to take care of any disaster in the plant and surrounding areas. In order to prevent occurrence of any disaster, the plant will be provided with various safety and disaster control facilities. In addition to these, numerous material handling systems, heavy road transport, high-tension electric lines, overhead cranes and various other handling and transport systems always have chances of accidents.

## 14.0 PUBLIC CONSULTATION

## 15.0 PROJECT BENEFITS

The pharma sector at present is dependent on the import sector up to the large extent, chiefly from China. It's a known fact that China is a hostile country, therefore the dependency on the said country if reduced or eliminated, better it will be, in the National interest. Further, the Indian Govt. has initiated a noble concept of **"Aatmanirbhar Bharat"** and this project will negate the need of import from the neighbouring countries to certain effects, will add to the self-sufficiency of the country. Hence, the project is the need of the hour and deserves all the

encouragement and facilitation for implementation, to promote technologies and industry for Environment Management.

## 16.0 ENVIRONMENTAL MANAGEMENT PLAN

Environment Management Department will implement the EMP of the project. All recommendations given in the EIA report including that of occupational health, risk mitigation and safety will be complied. EMC will ensure that all air pollution control devices and water re-circulating systems function effectively. Schemes for resource conservation (raw materials, water etc.) and rainwater harvesting will be taken up by EMC. Greenbelt and greenery development inside and outside the plant premises will be intensified by the EMC. Guidelines issued by the Central Pollution Control Board (CPCB) on greenbelt development will be followed. Environmental awareness programs for the employees will be conducted. and cleanliness inside the plant will ensured by individual member industries.

**Table 3: Cost of the Environmental Management Plan**

| S. No. | Environmental Protection Measures | Capital Cost (Crores) | Recurring Cost (Lakhs/year) |
|---|---|---|---|
| 1. | Air Pollution Control System (Installation of APCD on Steam Generation Boilers of 6 x 50 TPH with ESPs and appropriate stack height for DG sets 2 x 1000 KVA) | 312.30 | 10 |
| 2. | Water Pollution Control System (Installation of CETP 5 MLD, STP 3 MLD, MEE along with continuous effluent monitoring system) | 244.43 | 25 |
| 3. | Noise Pollution Control System (Acoustic enclosures for DG sets & Noisy Machinery/ Equipment & Tools, Noise Barriers along roadsides and project boundary at the places nearby settlement areas) | 10 | 1 |
| 4. | Landscaping (Development of green area and stabilization of hilly slopes/ land) | 10 | 120 |
| 5. | Solid and Hazardous Waste Management System (Installation of TSDF site, Incinerators 4 x 25 TPH with continuous emission monitoring system) | 55 | 20 |
| 6. | Environment Monitoring & Management | 5 | 5 |
| 7. | Rain water harvesting | 2 | 10 |

Further, the issues raised during public hearing will be considered under Corporate Environment Responsibility (CER) and covered in the final EIA report.

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# परियोजना का कार्यकारी सारांश

## 1.0 परियोजना विवरण

यह हिमाचल प्रदेश के ऊना जिले की हरोली तहसील के कुठार बीट, पोलियन बीट, तिब्बियां, जोडियां, जनानी और मुल्लुवाल गांवों में स्थापित किया जाने वाला एक प्रस्तावित बल्क ड्रग पार्क है। परियोजना की स्थापना के लिए 1,405.41 एकड़ (या 568.75 हेक्टेयर) भूखंड आवंटित किया गया है; जिसमें से 1,365.77 एकड़ सरकारी भूमि हिमाचल प्रदेश सरकार के उद्योग विभाग को आवंटित की गई है और 39.64 एकड़ भूमि खरीद कर उद्योग विभाग, हिमाचल प्रदेश सरकार को प्रस्तावित औद्योगिक पार्क की स्थापना के लिए हस्तांतरित की गई है। हिमाचल प्रदेश बल्क ड्रग पार्क इंफ्रास्ट्रक्चर लिमिटेड (एचपीबीडीपीआईएल) परियोजना विकास गतिविधियों के समन्वय और पर्यवेक्षण के लिए नोडल एजेंसी है। बल्क ड्रग पार्क योजना के खंड 7 के अनुसार, राज्य सरकार ने "हिमाचल प्रदेश बल्क ड्रग पार्क इंफ्रास्ट्रक्चर लिमिटेड (एचपीबीडीपीआईएल)" नामक समर्पित राज्य कार्यान्वयन एजेंसी (एसआईए) स्थापित करने का निर्णय लिया है, जिसका गठन कंपनी अधिनियम, 2013 की धारा 8 के तहत किया गया है और यह हिमाचल प्रदेश सरकार के उद्योग विभाग के तत्वावधान में एक सरकारी एजेंसी है। पार्क के पूरा होने के बाद एसआईए पार्क की निगरानी, संचालन और रखरखाव के लिए एक प्रबंधन समिति बनाएगी।

## 2.0 परियोजना स्थान और कनेक्टिविटी

हिमाचल प्रदेश के ऊना जिले की हरोली तहसील के कुठार बीट, पोलियन बीट, तिब्बियां, जोडियां, जनानी और मुल्लुवाल गांवों में बल्क ड्रग पार्क स्थल प्रस्तावित है। प्रस्तावित स्थल ऊना-जैजों के रास्ते से पहुँचा जा सकता है। परियोजना स्थल का स्थान नीचे चित्र 1 में दिया गया है। परियोजना का स्थान और इसका अध्ययन क्षेत्र भारतीय सर्वेक्षण विभाग, टोपोशीट संख्या H43K2 और H43K6 में आता है। परियोजना स्थल के चित्र 2 और सीमा निर्देशांक नीचे तालिका 1 में दिए गए हैं:

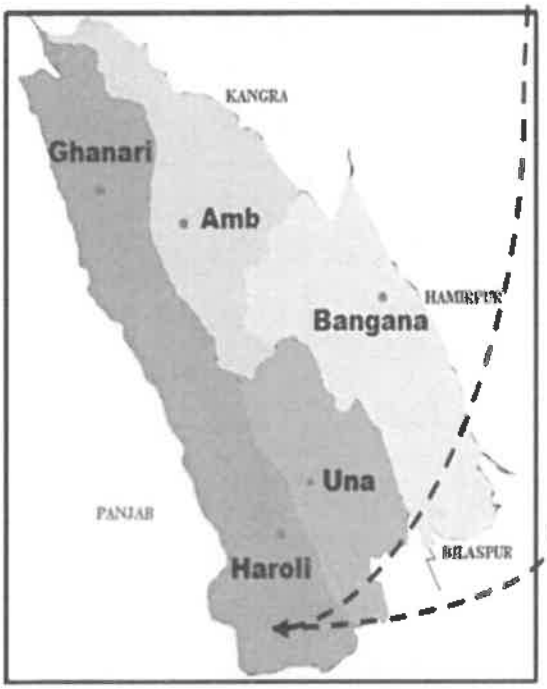
**तालिका 1. परियोजना के सीमा निर्देशांक**

| कोने | अक्षांश | देशांतर | कोने | अक्षांश | देशांतर |
|---|---|---|---|---|---|
| 1 | N31° 20' 45.24" | E76° 11' 14.64" | 22 | N31° 23' 27.96" | E76° 10' 38.64" |

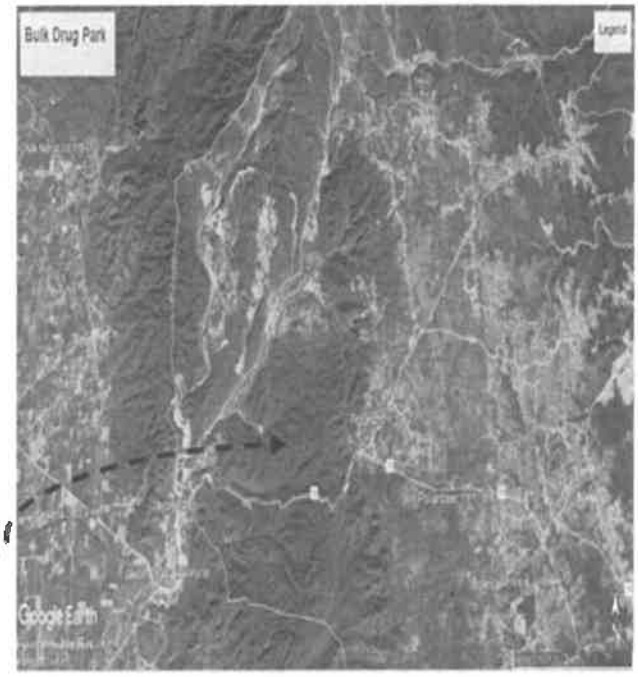
| | | | | | |
|---|---|---|---|---|---|
| **2** | N31° 20' 38.76" | E76° 10' 40.8" | **23** | N31° 23' 19.32" | E76° 10' 48.00" |
| **3** | N31° 20' 39.84" | E76° 10' 19.56" | **24** | N31° 23' 6.36" | E76° 10' 42.24" |
| **4** | N31° 20' 48.12" | E76° 10' 6.24" | **25** | N31° 22' 58.44" | E76° 10' 35.04" |
| **5** | N31° 20' 50.64" | E76° 9' 33.48" | **26** | N31° 22' 50.52" | E76° 10' 23.16" |
| **6** | N31° 20' 56.4" | E76° 9' 30.96" | **27** | N31° 22' 42.96" | E76° 10' 21.36" |
| **7** | N31° 21' 5.76" | E76° 9' 23.76" | **28** | N31° 22' 31.8" | E76° 10' 3.00" |
| **8** | N31° 21' 1.08" | E76° 9' 18.36" | **29** | N31° 22' 13.08" | E76° 10' 1.20" |
| **9** | N31° 21' 9.72" | E76° 9' 12.24" | **30** | N31° 22' 21.36" | E76° 10' 18.48" |
| **10** | N31° 21' 12.24" | E76° 9' 26.28" | **31** | N31° 22' 15.6" | E76° 10' 31.8" |
| **11** | N31° 21' 9.36" | E76° 10' 0.84" | **32** | N31° 22' 5.88" | E76° 10' 14.88" |
| **12** | N31° 21' 35.28" | E76° 9' 55.8" | **33** | N31° 21' 55.08" | E76° 10' 3.36" |
| **13** | N31° 21' 50.04" | E76° 9' 56.52" | **34** | N31° 21' 56.52" | E76° 10' 32.52" |
| **14** | N31° 22' 15.24" | E76° 9' 50.4" | **35** | N31° 21' 52.2" | E76° 10' 53.04" |
| **15** | N31° 22' 35.4" | E76° 9' 53.64" | **36** | N31° 21' 57.96" | E76° 10' 44.04" |
| **16** | N31° 23' 4.92" | E76° 9' 48.96" | **37** | N31° 21' 46.08" | E76° 10' 48.36" |
| **17** | N31° 23' 2.4" | E76° 10' 4.44" | **38** | N31° 21' 34.92" | E76° 10' 49.8" |
| **18** | N31° 23' 18.24" | E76° 10' 4.08" | **39** | N31° 21' 27" | E76° 10' 46.2" |
| **19** | N31° 23' 14.28" | E76° 10' 18.48" | **40** | N31° 21' 14.04" | E76° 10' 49.44" |
| **20** | N31° 23' 10.32" | E76° 10' 25.68" | **41** | N31° 21' 12.96" | E76° 11' 5.28" |
| **21** | N31° 23' 20.04" | E76° 10' 30.72" | **42** | N31° 20' 54.96" | E76° 11' 13.2" |

Location of HP at Political Map of India

Location of District Una on HP Map




Location of Project site on District Map




Location of project site on Google Earth Map

**चित्र 1. परियोजना का स्थान मानचित्र**

## 3.0 परियोजना की संक्षिप्त विशेषताएं

एचपीएसबीडीपीआईएल, उद्योग विभाग, हिमाचल प्रदेश सरकार परियोजना विकास गतिविधियों का समन्वय और पर्यवेक्षण करने वाली एक नोडल एजेंसी है। एचपीबीडीपीआईएल प्रस्तावित औद्योगिक एस्टेट के विकास में शामिल होगा, जिसमें केवल रासायनिक संश्लेषण पर आधारित एपीआई विनिर्माण उद्योग होंगे (110 औद्योगिक भूखंडों में लगभग 70-80 औद्योगिक इकाइयाँ)। पार्क में आने वाले उद्योग फार्मा क्षेत्र में होंगे और ज़्यादातर बड़े पैमाने की श्रेणियों में होंगे। पूरी परियोजना भी बड़े पैमाने की श्रेणी में आती है। क्षेत्र विवरण नीचे दी गई तालिका में दिया गया है:

**तालिका 2. बल्क ड्रग पार्क परियोजना का परिमाण और घटक**

| क्रम संख्या | विवरण | क्षेत्रफल एकड़ में | क्षेत्रफल हेक्टेयर में | प्रतिशत (%) |
|---|---|---|---|---|
| 1. | औद्योगिक भूखंड क्षेत्र | 558.28 | 225.93 | 39.72 |
| 2. | वाणिज्यिक भूखंड क्षेत्र | 95.02 | 38.45 | 6.76 |
| 3. | विद्युत सबस्टेशन | 23.37 | 9.46 | 1.66 |
| 4. | उपयोगिता क्षेत्र | 41.65 | 16.86 | 2.96 |
| 5. | TSDF क्षेत्र | 29.46 | 11.92 | 2.10 |
| 6. | पार्किंग क्षेत्र | 18.46 | 7.47 | 1.31 |
| 7. | हरित क्षेत्र और औद्योगिक भूखंडों के अंतर्गत हरित क्षेत्र | 465.18 | 188.25 | 33.09 |
| 8. | अपशिष्ट उपचार सुविधा क्षेत्र (STP /ETP /MEE और WTP) | 41.08 | 16.62 | 2.92 |
| 9. | सामान्य रसद क्षेत्र | 18.90 | 7.65 | 1.34 |

| | | | | |
|---|---|---|---|---|
| 10. | सड़कें | 86.45 | 34.98 | 6.15 |
| 11. | जल निकाय | 27.28 | 11.04 | 1.94 |
| 12. | अन्य | 0.30 | 0.12 | 0.02% |
| | कुल क्षेत्रफल | 1405.41 | 568.75 | 100% |

## 4.0 मौसम विज्ञान (मौसम और जलवायु)

पिछले 10 वर्षों (2011-20) के मौसम संबंधी आंकड़े नासा जैसे माध्यमिक अधिकृत स्रोतों से परियोजना स्थल निर्देशांकों के भू-संदर्भ का उपयोग करके एकत्र किए गए थे। इसके अलावा, द्वितीयक डेटा रिकॉर्ड और प्रचलित मौसम संबंधी स्थितियों को सत्यापित करने के लिए एक वर्ष (2023) की अवधि के लिए स्वचालित मौसम स्टेशन का उपयोग करके परियोजना स्थान पर प्राथमिक सूक्ष्म मौसम संबंधी डेटा रिकॉर्ड किया गया। एडब्ल्यूएस के डेटा लॉगर में प्रति घंटे हवा का तापमान, बैरोमीटर का दबाव, आर्द्रता, हवा की गति, हवा की दिशा, वर्षा और सौर विकिरण डेटा दर्ज किए गए। मौसम स्टेशन को जमीन से 10 मीटर की उचित ऊंचाई पर एक खुले क्षेत्र में रखा गया था।

## 5.0 परिवेशी वायु गुणवत्ता

अध्ययन क्षेत्र में प्रचलित मौसम संबंधी स्थितियों (मुख्य हवा की दिशा पश्चिमोत्तर से) के अनुसार कोर जोन/परियोजना क्षेत्र में 3 स्थानों पर और 10 किलोमीटर के बफर जोन में 7 स्थानों पर हवा की विपरीत दिशा, हवा की विपरीत दिशा और हवा की विपरीत दिशा में परिवेशी वायु गुणवत्ता निगरानी (एएक्यूएम) स्टेशन स्थापित किए गए थे। अप्रैल से जून 2023 के दौरान अध्ययन क्षेत्र में देखे गए कणिकीय एरोसोल पीएम 10 के रूप में 33.5 - 84.4 µg/m3 (औसत 56.6 µg/m3) और पीएम 2.5 के रूप में 17.4 - 45.7 µg/m3 (औसत 29.9 µg/m3) थे, जो पीएम 10 के लिए 100 µg/m3 और पीएम 2.5 के लिए 60 µg/m3 की निर्धारित सीमाओं के भीतर हैं (एनएएक्यूएस सीपीसीबी, 2009)। प्राप्त परिणाम तुलनीय हैं और एचपीएसपीसीबी (आरओ/डीआईसी, ऊना) और ऊना क्षेत्र के अन्य ईआईए अध्ययनों द्वारा एकत्र

द्वितीयक आंकड़ों के साथ सहमत हैं। पीएम 10 और पीएम 2.5 के मौजूदा द्रव्यमान स्तरों का आधारभूत डेटा ईएसई दिशा में टाहलीवाल औद्योगिक क्षेत्र (परियोजना से लगभग 6 किमी) और बाथरी औद्योगिक क्षेत्र (परियोजना से लगभग 10.5 किमी) और ईएनई दिशा में अंब-गगरेट-जीतपुर औद्योगिक क्लस्टर (परियोजना से लगभग 20-25 किमी) में संचालित औद्योगिक इकाइयों से जुड़ा हुआ है। अन्य स्रोत सड़कों पर चलने वाले वाहन, अध्ययन क्षेत्र में चल रही घरेलू और कृषि गतिविधियां हो सकती हैं। आधारभूत आंकड़ों से स्पष्ट है कि परियोजना के पूर्वी हिस्से में स्थित स्थान AQ-4 से AQ-8 (विशेष रूप से AQ-8) टाहलीवाल और बाथरी औद्योगिक क्षेत्रों की निकटता के कारण पश्चिमी क्षेत्र में स्थित स्थानों AQ-1 से AQ-3 की तुलना में अधिक वायु प्रदूषण का अनुभव करते हैं। अप्रैल से जून 2023 के दौरान अध्ययन क्षेत्र में देखे गए गैसीय प्रदूषक SO2 के रूप में 4.3 - 14.8 µg/m3 (औसत 8.3 µg/m3) और NO2 के रूप में 3.8 - 22.8 µg/m3 (औसत 12.1 µg/m3) थे, जो 80 µg/m3 (NAAQS CPCB, 2009) की निर्धारित सीमा के भीतर हैं, जो दर्शाता है कि अध्ययन क्षेत्र में उत्सर्जन का कोई महत्वपूर्ण स्रोत नहीं है और वायु की गुणवत्ता मानव स्वास्थ्य के लिए सुरक्षित और आरामदायक है। प्राप्त परिणाम तुलनीय हैं और HPSPCB (RO/DIC, ऊना) और ऊना क्षेत्र के अन्य EIA अध्ययनों द्वारा एकत्र किए गए द्वितीयक डेटा के साथ सहमत हैं। अध्ययन क्षेत्र में पाए गए कार्बन मोनोऑक्साइड (CO), ओजोन (O3) और अमोनिया (NH3) जैसे गैसीय प्रदूषक निर्धारित सीमाओं के भीतर पाए गए (NAAQS CPCB, 2009) जो इंगित करता है कि अध्ययन क्षेत्र में उत्सर्जन का कोई महत्वपूर्ण स्रोत नहीं है और वायु की गुणवत्ता मानव स्वास्थ्य के लिए सुरक्षित और आरामदायक है।

## 6.0 परिवेशीय शोर गुणवत्ता

परिवेशी शोर स्तरों की निगरानी का मुख्य उद्देश्य विभिन्न क्षेत्रों में आधारभूत शोर स्तरों को स्थापित करना था। अर्थात आवासीय, औद्योगिक, वाणिज्यिक और शांत क्षेत्र, आसपास के क्षेत्रों में और अध्ययन क्षेत्र के पर्यावरण में कुल शोर स्तर का आकलन करना। शोर की निगरानी अध्ययन क्षेत्र में 10 किलोमीटर के दायरे में चुने गए चार स्थानों (कोर ज़ोन में एक और 1 किलोमीटर के दायरे में बफर ज़ोन में 3) पर की गई। डेटा संग्रह के लिए डेटा लॉगर के साथ एकीकृत ध्वनि स्तर मीटर (एसएलएम) का उपयोग किया गया। नमूना लेने से पहले और बाद में एसएलएम की अंशांकन जाँच की गई। शोर का नमूना खुले क्षेत्र में 1.2 से 1.5 मीटर की नमूना ऊंचाई पर या शोर या अवरोधों या परावर्तक सतहों के स्रोत से ≥ 250 मीटर दूर एसएलएम स्थापित करके किया गया था। सीपीसीबी शोर नियम (2000), आईएस: 9989-1981 और

आईएस: 4758-1968 जैसे राष्ट्रीय/अंतरराष्ट्रीय मानक तरीकों के अनुसार एक घंटे के लॉगिन अंतराल के साथ लगातार 24 घंटे के लिए दिन के समय (06:00 बजे - 10:00 बजे) और रात के समय (10:00 बजे से 06:00 बजे तक) शोर की निगरानी की गई। अध्ययन क्षेत्र में मापा गया परिवेशी शोर का स्तर दिन के समय 46.3 - 51.2 डीबी (ए) और रात के समय 35.4 - 40.2 डीबी (ए) के बीच भिन्न था। देखे गए शोर के स्तर आवासीय क्षेत्र (शोर नियम, 2000) के लिए निर्धारित सीमाओं के भीतर पाए गए। प्राप्त परिणाम तुलनीय हैं और ऊना क्षेत्र में किए गए ईआईए अध्ययनों के द्वितीयक आंकड़ों के साथ सहमत हैं। देखी गई आधारभूत/मौजूदा ध्वनि गुणवत्ता, ताहलीवाल औद्योगिक क्षेत्र (परियोजना से लगभग 6 किमी दूर) और बाथरी औद्योगिक क्षेत्र (परियोजना से लगभग 10 किमी दूर) में संचालित औद्योगिक इकाइयों से संबंधित हो सकती है। अन्य स्रोत सड़कों पर चलने वाले वाहन, अध्ययन क्षेत्र में चल रही घरेलू और कृषि गतिविधियाँ हो सकती हैं।

## 7.0 जल गुणवत्ता

पीने, ठंडा करने और बागवानी के उद्देश्यों में प्रस्तावित जल उपयोगों तक पहुँचने के लिए भूजल की जल गुणवत्ता का अध्ययन किया गया है। अध्ययन क्षेत्र के 10 किमी के दायरे में पाँच अलग-अलग निगरानी स्थानों की भूजल गुणवत्ता का विभिन्न भौतिक-रासायनिक और जैविक मापदंडों के संदर्भ में मूल्यांकन किया गया था। अवलोकित डेटा सेट का प्रारंभ में सांख्यिकीय विश्लेषण किया गया और आईएस: 10500, 2012 के तहत पीने के पानी की गुणवत्ता के लिए स्वीकार्य और निर्धारित सीमा के मानक दिशानिर्देश और भारतीय मानक ब्यूरो (बीआईएस) द्वारा प्रस्तावित इसके संशोधनों के साथ तुलना की गई। रंग, गंध, पीएच, टीयू और टीडीएस जैसे भौतिक मापदंडों के विश्लेषण से पता चलता है कि भूजल के नमूने रंगहीन, गंधहीन, उपयुक्त पीएच (6.5-8.5) के भीतर थे, कोई टर्बिड नहीं थे और उपयुक्त मात्रा में घुले हुए ठोस (500 मिलीग्राम / एल से नीचे) मौजूद थे। केवल कुल कठोरता, धनायन (Ca++ और Mg++) और कुल क्षारीयता लगभग निगरानी स्थानों पर क्रमशः 200 mg/L, 30 mg/L, 75 mg/L और 200 mg/L की स्वीकार्य सीमा से अधिक बताई गई। यह घरेलू और व्यावसायिक उद्देश्यों जैसे भूजल के किसी भी उपयोग से पहले कठोरता के पूर्व उपचार का संकेत देता है। इसी तरह, धनायन जैसे Ca2+ और Mg2+ स्वीकार्य सीमा से ऊपर बताए गए। TU, BOD, कुल N, कुल P, फिनोल और भारी धातुओं (PB और Hg) की सांद्रता पता लगाने की सीमा (BDL) से नीचे दर्ज की गई। भूजल के नमूनों में जैविक पैरामीटर (TC और

FC) अनुपस्थित पाए गए। भूजल परीक्षण के परिणाम यह संकेत देते हैं कि चयनित निगरानी स्थानों पर भूजल की गुणवत्ता कठोर प्रकृति की है और घरेलू, औद्योगिक और वाणिज्यिक उद्देश्यों के लिए उपयोग से पहले पूर्व उपचार की आवश्यकता है।

## 8.0 मिट्टी की गुणवत्ता

जिले में दो प्रकार की मिट्टी पाई जाती है, जलोढ़ मिट्टी और गैर-कैल्सीक भूरी मिट्टी। जिले का अधिकांश क्षेत्र जलोढ़ मिट्टी से ढका है और जिले का केवल लगभग 25% क्षेत्र यानी पहाड़ी क्षेत्र गैर-कैल्सीक भूरी मिट्टी से ढका है। मिट्टी पोषक तत्वों से भरपूर होती है और इस प्रकार उपजाऊ होती है। निगरानी अवधि के दौरान अध्ययन क्षेत्र के 10 किमी के भीतर 5 स्थानों (परियोजना स्थान सहित) पर एक बार मिट्टी की गुणवत्ता की निगरानी की गई। मिट्टी के नमूने 30 सेमी, 60 सेमी और 90 सेमी की विभिन्न गहराई से पास की कृषि भूमि, अपशिष्ट निपटान क्षेत्रों या संभावित प्रभावित क्षेत्रों से एकत्र किए गए थे और नमूना हैंडलिंग (नमूना संरक्षण और परिवहन सहित) राष्ट्रीय / अंतर्राष्ट्रीय मानक तरीकों जैसे मिट्टी / कीचड़ गुणवत्ता निगरानी (आईएस: 2720, एपीएचए और आईसीएआर / आईएआरआई दिशानिर्देश) के अनुसार किया गया था। वर्तमान अध्ययन में, पीएच, ईसी, छिद्रण, पारगम्यता, मैक्रो और माइक्रो-खनिज संरचना (जैसे Na, K, N, P, Ca और Mg) आदि जैसे संकेतकों का विश्लेषण और मूल्यांकन किया गया। मिट्टी के पैरामीटर मिट्टी की उर्वरता की स्थिति की जानकारी अच्छी तरह से दे सकते हैं, इसलिए इन संकेतकों का उपयोग अध्ययन क्षेत्र में मिट्टी की संरचना का मूल्यांकन करने के लिए किया गया था। निगरानी स्थान का पीएच प्रकृति में तटस्थ से क्षारीय मिट्टी को इंगित करता है। एसएआर 13 meq/L से नीचे बताया गया था और खनिज संरचना कृषि और खेती के उद्देश्यों के लिए इसकी उपयुक्तता को संदर्भित करती है।

## 9.0 पारिस्थितिकीय

टोपोशीट संख्या (H43E3 और H43E7) के अनुसार, पोलियन शामलात रिजर्व फॉरेस्ट पश्चिम दिशा में परियोजना स्थल से सटा हुआ है और कंगार प्रोटेक्टिव फॉरेस्ट उत्तर-पश्चिम दिशा में परियोजना स्थल से लगभग 7 किमी दूर है। एक अन्य इको सेंसिटिव जोन, स्वान नदी की दूरी भी परियोजना स्थल से उत्तर-पूर्व दिशा में लगभग 8.5 किमी है।

## 10.0 प्रत्याशित पर्यावरणीय प्रभाव और शमन उपाय

### 10.1 परिवेशी वायु गुणवत्ता

सबसे खराब स्थिति में (एपीसीडी और/या संयंत्र प्रक्रिया की विफलता के बिना), पीएम10 का अधिकतम संचयी भार 131.6 µg/m3 होगा, NOx 43.6 µg/m3 होगा, HCl 29.9 µg/m3 होगा और बेंजीन 4.3 µg/m3 होगा जो गंभीर स्वास्थ्य और पर्यावरणीय प्रभावों के साथ वायु की गुणवत्ता को खराब कर सकता है। इसलिए किसी भी परिस्थिति में इस स्थिति से बचा जाएगा और परियोजना को उचित और प्रभावी प्रदूषण नियंत्रण उपायों, नियमित जांच और संचालन के सभी चरणों में एपीसीडी और संयंत्र प्रक्रिया के रखरखाव के साथ संचालित किया जाएगा। नियंत्रित स्थितियों में (एपीसीडी/प्रभावी नियंत्रण उपायों के साथ), पीएम10 का अधिकतम संचयी भार 94.1 µg/m3 होगा, NOx 32.3 µg/m3 होगा अध्ययन क्षेत्र के भीतर रिसेप्टर्स पर कुल अधिकतम भार PM10 69.4-84.1 µg/m3, PM2.5 37-44.6 µg/m3, NO2 15-22.5 µg/m3, SO2 9.9-14.2 µg/m3, NH3 7.75-9.83 µg/m3, CO 370.9-581.7 µg/m3, Cl2 0.03-0.21 µg/m3, HCl 0.07-0.49 µg/m3, बेंजीन 0.01-0.07 µg/m3, डाइक्लोरोमेथेन 0.38-2.85 µg/m3 और एसिटोनाइट्राइल 1.91-14.25 होगा। µg/m3 वायु गुणवत्ता में मामूली परिवर्तन को दर्शाता है जिसका स्वास्थ्य और पर्यावरण पर कोई महत्वपूर्ण प्रभाव नहीं पड़ता।

### 10.2 परिवेशीय शोर गुणवत्ता

शोर प्रसार मॉडलिंग के अनुसार, परिणामी/संचयी शोर स्तर (बेसलाइन + पूर्वानुमानित) 46.3-51.2 डीबी (ए) की सीमा में पाया गया जो आवासीय क्षेत्रों के लिए 55 डीबी (ए) की निर्धारित सीमा के भीतर था। इसलिए, परियोजना संचालन के कारण अध्ययन क्षेत्र के भीतर आसपास के रिसेप्टर्स पर शोर का कोई महत्वपूर्ण प्रभाव नहीं है।

### 10.3 जल गुणवत्ता

औद्योगिक अपशिष्टों को ZLD तकनीक के साथ 5 MLD के CETP में उपचारित किया जाएगा और घरेलू निर्वहन को 3 MLD के STP में उपचारित किया जाएगा। प्लांट परिसर के बाहर कोई अपशिष्ट जल (अपशिष्ट/सीवेज) नहीं छोड़ा जाएगा और इसे केवल औद्योगिक प्रक्रियाओं में ही पुनर्चक्रित और पुनः उपयोग किया जाएगा।

स्टॉर्म वाटर नालियों को अपशिष्ट जल नालियों से अलग रखा जाएगा। इसलिए, परियोजना संचालन के कारण सतही जल की गुणवत्ता प्रभावित नहीं होगी।

### 10.4 ठोस अपशिष्ट

लगभग 8.8 टीपीडी (0.2 किलोग्राम/व्यक्ति/दिन) ठोस अपशिष्ट उत्पन्न होगा। ठोस अपशिष्ट को बायोडिग्रेडेबल और गैर-बायोडिग्रेडेबल घटकों में विधिवत रूप से अलग किया जाएगा। ठोस अपशिष्ट के पृथक्करण के लिए अलग क्षेत्र निर्धारित किया जाएगा। बायोडिग्रेडेबल अपशिष्ट को परियोजना परिसर के भीतर खाद बनाया जाएगा और पुनर्चक्रणीय घटक को अधिकृत पुनर्चक्रण विक्रेताओं के माध्यम से निपटाया जाएगा। ठोस अपशिष्ट को ठोस अपशिष्ट प्रबंधन नियम 2016 और इसके संशोधनों के प्रावधान के अनुसार संभाला/निपटाया जाएगा।

### 10.5 खतरनाक अपशिष्ट

प्रस्तावित बल्क ड्रग पार्क में एपीआई निर्माण इकाइयां होंगी, जिनमें केवल रासायनिक संश्लेषण शामिल है। एपीआई इकाइयों से उत्पन्न खतरनाक अपशिष्ट उत्पादन के प्रकार और मात्रा, प्रयुक्त कच्चे माल की प्रकृति और मात्रा और एपीआई निर्माण के लिए इस्तेमाल की जाने वाली प्रक्रिया और प्रौद्योगिकी पर निर्भर करता है। आमतौर पर यह माना जाता है कि 2000-2250 टीपीडी एपीआई की उत्पादन क्षमता वाली बल्क ड्रग परियोजना के पूर्ण अधिभोग के दौरान लगभग 80 एपीआई इकाइयां उत्पादन के लगभग 1/3 के बराबर खतरनाक अपशिष्ट उत्पन्न करेंगी, इस प्रकार विभिन्न श्रेणियों के लगभग 700-800 टीपीडी खतरनाक अपशिष्ट उत्पन्न होंगे। परियोजना में उत्पन्न होने वाले संभावित 700-800 टीपीडी मात्रा के कुल खतरनाक अपशिष्ट में से लगभग 10-12 टीपीडी भंडारण योग्य श्रेणी (सीईटीपी कीचड़ और एमईई अवशेष) परियोजना के अंदर एक एकीकृत टीएसडीएफ (जिसमें एक सुरक्षित लैंडफिल, एक ठोस-तरल फीड भस्मक शामिल है) प्रस्तावित है, जिसके लिए 33.6 एकड़ भूमि प्रस्तावित की गई है। भंडारण योग्य अपशिष्ट के लिए टीएसडीएफ और भस्म करने योग्य अपशिष्ट के लिए भस्मक के विकास के लिए, ईआईए अधिसूचना, 2006 के अनुसार अपेक्षित को पूरा करने के लिए पीपी द्वारा अलग से विस्तृत प्रस्ताव तैयार किया जाएगा।

### 10.6 जैव-चिकित्सा अपशिष्ट

बायो-मेडिकल अपशिष्ट उत्पादन का स्रोत केवल परियोजना में स्थापित की जाने वाली स्वास्थ्य देखभाल सुविधाओं/गतिविधियों से होगा। परियोजना के भीतर प्रस्तावित औषधालय और फार्मास्युटिकल एडवांसमेंट के लिए अनुसंधान संस्थान से लगभग 4-5 किलोग्राम/दिन बायोमेडिकल अपशिष्ट उत्पन्न होने की संभावना है, जिसमें डिस्पोजेबल ड्रेसिंग सामग्री का मामूली प्राथमिक उपचार या चिकित्सा उपयोग शामिल है। इस अपशिष्ट का निपटान बायो-मेडिकल अपशिष्ट प्रबंधन नियम, 2016 और इसके संशोधनों के अनुसार अधिकृत कॉमन बायो-मेडिकल अपशिष्ट संग्रह और निपटान एजेंसी के माध्यम से किया जाएगा।

## 11.0 हरियाली बेल्ट विकास

हरित क्षेत्र का विकास निम्न योजना के अनुसार किया जाएगा। हिमाचल प्रदेश बल्क ड्रग पार्क इंफ्रास्ट्रक्चर लिमिटेड (एचपीबीडीपीआईएल) द्वारा 279.46 एकड़ क्षेत्र में निम्नलिखित तरीके से हरित पट्टी विकसित की जाएगी। • सभी प्रमुख धाराओं/नालों/खाड़ों के साथ 50 मीटर चौड़ी हरित पट्टी। • छोटी धाराओं के साथ 15 मीटर चौड़ी हरित पट्टी। • परियोजना की सीमा के साथ 15 मीटर चौड़ी हरित पट्टी। सदस्य उद्योगों द्वारा भूखंड की सीमा के साथ अपने औद्योगिक परिसर में 185.72 एकड़ क्षेत्र में (@20%) हरित पट्टी विकसित की जाएगी। परियोजना क्षेत्र में हरित पट्टी को विभिन्न प्रकार के प्रदूषण को कम करने के लिए अधिमानतः तीन पंक्तियों में चौड़ी पत्ती वाले पेड़ों के घने वृक्षारोपण के साथ विकसित किया जाएगा। • हरियाली बनाए रखने के लिए बड़े खुले स्थान

- मनोरंजन के लिए छोटे गुणवत्ता वाले हरे स्थान
- आवागमन के दौरान राहत प्रदान करने के लिए रैखिक वृक्षारोपण
- दृश्यावलोकन आदि के लिए छोटे सौंदर्यपूर्ण हरे क्षेत्र

हरित पट्टी

- गैसीय उत्सर्जन को कम करेगी;
- आकस्मिक उत्सर्जन को रोकने की पर्याप्त क्षमता होगी;
- अपशिष्ट जल के पुनः उपयोग में प्रभावी;

- पारिस्थितिक संतुलन बनाए रखेगी;
- ध्वनि प्रदूषण को काफी हद तक नियंत्रित करेगी;
- मिट्टी के कटाव को रोकेगी;
- सौंदर्य में सुधार करेगी;

सुझाई गई सभी प्रजातियाँ प्रदूषण सहने योग्य हैं, साथ ही इनमें सौंदर्य अपील भी है।

## 12.0 पर्यावरण निगरानी योजना

पर्यावरण निगरानी योजना पर्यावरण प्रबंधन प्रणाली को पर्यावरण प्रबंधन, सुधार और संरक्षण के लिए चल रही कार्रवाइयों में अतिरिक्त कार्रवाई और संशोधन की आवश्यकता के प्रारंभिक संकेत के साथ सक्षम बनाती है। पर्यावरण निगरानी बिंदुओं का निर्णय प्रस्तावित विस्तार के संचालन के कारण होने वाले पर्यावरणीय प्रभावों को ध्यान में रखते हुए किया जाएगा क्योंकि निगरानी कार्यक्रम का मुख्य दायरा पर्यावरणीय स्थितियों में बदलाव को समय पर और नियमित रूप से ट्रैक करना और पर्यावरण की सुरक्षा के लिए समय पर कार्रवाई करना है।

पर्यावरण नमूनों की निगरानी MoEF&CC/CPCB द्वारा प्रदान किए गए दिशानिर्देशों के अनुसार की जाएगी। पानी, अपशिष्ट जल, ठोस अपशिष्ट, वायु उत्सर्जन, मिट्टी और खाद/कम्पोस्ट के लिए अलग-अलग रिकॉर्ड तैयार किए जाएंगे और नियमित रूप से संरक्षित किए जाएंगे। अन्य बजटों के साथ-साथ पर्यावरण निगरानी के लिए बजट तैयार किया जाएगा और आवश्यकतानुसार नियमित रूप से संशोधित किया जाएगा।

## 13.0 जोखिम न्यूनीकरण उपाय

तमाम सावधानियों के बावजूद भी आपदाएँ हो सकती हैं। इसलिए, प्लांट और आस-पास के इलाकों में किसी भी आपदा से निपटने के लिए आपातकालीन योजना बनाई जाएगी। किसी भी आपदा की घटना को रोकने के लिए, प्लांट को विभिन्न सुरक्षा और आपदा नियंत्रण सुविधाएँ प्रदान की जाएँगी। इनके अलावा, कई मटेरियल हैंडलिंग सिस्टम, भारी सड़क परिवहन, हाई-टेंशन इलेक्ट्रिक लाइन, ओवरहेड क्रेन और कई अन्य हैंडलिंग और परिवहन प्रणालियों में हमेशा दुर्घटनाओं की संभावना बनी रहती है।

## 14.0 सार्वजनिक परामर्श

"सार्वजनिक सुनवाई पूरी होने के बाद विस्तृत जानकारी दी जाएगी"

## 15.0 परियोजना लाभ

वर्तमान में फार्मा क्षेत्र मुख्य रूप से चीन से आयात क्षेत्र पर काफी हद तक निर्भर है। यह एक ज्ञात तथ्य है कि चीन एक शत्रुतापूर्ण देश है, इसलिए यदि उक्त देश पर निर्भरता कम या समाप्त हो जाती है, तो यह राष्ट्रीय हित में बेहतर होगा। इसके अलावा, भारत सरकार ने "आत्मनिर्भर भारत" की एक महान अवधारणा शुरू की है और यह परियोजना कुछ हद तक पड़ोसी देशों से आयात की आवश्यकता को समाप्त कर देगी, देश की आत्मनिर्भरता में वृद्धि करेगी। इसलिए, यह परियोजना समय की मांग है और पर्यावरण प्रबंधन के लिए प्रौद्योगिकियों और उद्योग को बढ़ावा देने के लिए कार्यान्वयन के लिए सभी प्रोत्साहन और सुविधा की हकदार है।

## 16.0 पर्यावरण निगरानी योजना

पर्यावरण प्रबंधन विभाग परियोजना के ई.एम.पी. को लागू करेगा। व्यावसायिक स्वास्थ्य, जोखिम न्यूनीकरण और सुरक्षा सहित ई.आई.ए. रिपोर्ट में दी गई सभी सिफारिशों का अनुपालन किया जाएगा। ई.एम.सी. यह सुनिश्चित करेगा कि सभी वायु प्रदूषण नियंत्रण उपकरण और जल पुनःपरिसंचरण प्रणालियाँ प्रभावी रूप से कार्य करें। संसाधन संरक्षण (कच्चा माल, जल आदि) और वर्षा जल संचयन की योजनाएँ ई.एम.सी. द्वारा शुरू की जाएँगी। ई.एम.सी. द्वारा संयंत्र परिसर के अंदर और बाहर हरित पट्टी और हरियाली विकास को तीव्र किया जाएगा। हरित पट्टी विकास पर केंद्रीय प्रदूषण नियंत्रण बोर्ड (सी.पी.सी.बी.) द्वारा जारी दिशा-निर्देशों का पालन किया जाएगा। कर्मचारियों के लिए पर्यावरण जागरूकता कार्यक्रम आयोजित किए जाएँगे। तथा संयंत्र के अंदर स्वच्छता को प्रत्येक सदस्य उद्योग द्वारा सुनिश्चित किया जाएगा।

## तालिका 3: पर्यावरण प्रबंधन योजना की लागत

| क्र. सं. | पर्यावरण संरक्षण उपाय | पूंजीगत लागत (करोड़ में) | आवर्ती लागत (लाख/वर्ष) |
|---|---|---|---|
| 1. | वायु प्रदूषण नियंत्रण प्रणाली (ईएसपी के साथ 6 x 50 टीपीएच के स्टीम जनरेशन बॉयलर पर एपीसीडी की स्थापना और डीजी सेट 2 x 1000 केवीए के लिए उचित स्टैक ऊंचाई) | 312.30 | 10 |
| 2. | Water Pollution Control System (Installation of जल प्रदूषण नियंत्रण प्रणाली (सीईटीपी 5 एमएलडी, एसटीपी 3 एमएलडी, एमईई की स्थापना के साथ-साथ निरंतर अपशिष्ट निगरानी प्रणाली) | 244.43 | 25 |
| 3. | ध्वनि प्रदूषण नियंत्रण प्रणाली (डीजी सेट और शोर मशीनरी / उपकरण और औजारों के लिए ध्वनिक बाड़े, सड़कों के किनारे और परियोजना सीमा के पास शोर अवरोधक) | 10 | 1 |
| 4. | भूनिर्माण (हरित क्षेत्र का विकास और पहाड़ी ढलानों / भूमि का स्थिरीकरण) | 10 | 120 |
| 5. | ठोस और खतरनाक अपशिष्ट प्रबंधन प्रणाली (टीएसडीएफ साइट की स्थापना, निरंतर उत्सर्जन निगरानी प्रणाली के साथ 4 x 25 टीपीएच भस्मक) | 55 | 20 |
| 6. | पर्यावरण निगरानी और प्रबंधन | 5 | 5 |
| 7. | वर्षा जल संचयन | 2 | 10 |

इसके अलावा, सार्वजनिक सुनवाई के दौरान उठाए गए मुद्दों पर कॉर्पोरेट पर्यावरण उत्तरदायित्व (सीईआर) के तहत विचार किया जाएगा और अंतिम ईआईए रिपोर्ट में शामिल किया जाएगा।

**********

1056

745

Annexure R15
Annexure R-II

Annex R-II

HPSPCB

**H.P. STATE POLLUTION CONTROL BOARD**
**Regional Office Una**
Phase-IV Rakkar Colony, Tehsil & Distt. Una, Pin-174303(H.P.)
Phone: 01975-238131
Website : http://www.hppcb.nic.in e-mail : pcbrouna2@gmail.com

No: HPSPCB/RO/Una/OA No. 148 of 2025/2025: 1107 Dated: 26/07/25
From: Regional Officer
To

The Deputy Commissioner,
Una, Distt. Una (HP).

**Subject:** **OA No. 148/225 titled as Rohit Vs. Ministry of Environment Forest and Climate Change & ors.**

Sir,

Kindly refer to your office letter No. 366-374/DRO/DRA dated 07/07/2025 and even file letter No. 466-72 dated 19/07/2025 on the subject cited above, wherein this office, along with others, was directed to submit parawise comments in respect of the aforementioned Original Application.

In this regard, it is submitted that the HP State Pollution Control Board has been arrayed as Respondent No. 4 in the said matter. Accordingly, the reply on behalf of the State Board has been finalized and duly signed by the Member Secretary, HP State Pollution Control Board, Shimla-9 (HP) and the copy of the signed reply, which will be filed before the Hon'ble National Green Tribunal, is enclosed herewith for your kind perusal and further necessary action, please.

Yours faithfully.

Encls. As above.
(e-mailed)

Er. Praveen Kumar
Regional Officer
HPSPCB Una

DRO/DRA
04.08.25

20441379
04.08.25

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05/08/25

**BEFORE THE HON'BLE NATIONAL GREEN TRIBUNAL, PRINCIPAL BENCH, DELHI**

**OA No. 148/2025**

**IN THE MATTER OF:**

Rohit Singh

**.....Applicant**

**VERSUS**

Ministry of Environment Forest and Climate Change & Ors.

**.....Respondents**

**REPLY BY WAY AFFIDAVIT ON BEHALF OF RESPONDENT NO.4 i.e. HP STATE POLLUTION CONTROL BOARD IN COMPLIANCE TO ORDER DATED 30-04-2025.**

**MAY IT PLEASE YOUR LORDSHIPS :**

I, Anil Joshi, S/o Sh. Ram Dutt aged about 59 years, presently working as Member Secretary, H.P. State Pollution Control Board at Shimla, Himachal Pradesh do hereby solemnly declare and affirm on oath as under:

ATT.
Oath Cmr.
H.P. High

Member Secretary
HP State Pollution Control
Shimla

I. That I am duly authorized to file this reply on affidavit by Respondent No. 4 in the present Original Application (hereinafter referred as OA)

II. That afore-cited case is pending adjudication before this Hon'ble Tribunal and was last listed on 30-04-2025 wherein following directions were passed :

*".....3. Issue notice to the respondents for filing their response/reply by way of affidavit before the Tribunal at least one week before the next date of hearing through e-filing. If any respondent directly files the reply without routing it through his advocate, then the said respondent will remain virtually present to assist the Tribunal....."*

III. That in pursuance to afore-cited order it is submitted that the present OA has been filed by applicant against the Bulk Drug Park to be setup in Polian Beet, Tehsil Haroli, Una. The applicant alleges that the project is being constructed in violation of Environmental norms and standards.

IV. That I have gone through the contents of Original Application, I deny all the allegations pertaining to the State Board contained in the Original Application and in the Synopsis, as if the same have been specifically denied, save and except which are specifically admitted hereinafter in this counter affidavit.

Member Secretary
HP State Pollution Control
Shimla

## PARAWISE REPLY TO ORIGINAL APPLICATION:

1-2. The contents of para 1-2 are matter of record hence need no reply from the replying respondent.

## REPLY TO THE FACTS OF THE CASE:

1. That the contents of para 1 are a matter of record. It is submitted that Bulk Drug Park is being established by the State of Himachal Pradesh through the project proponent M/s Himachal Pradesh Bulk Drug Park Infrastructure Limited (HPBDPIL) at Polian Beet, Tehsil Haroli , District Una (H.P) as a part of centrally sponsored scheme of the Government of India i.e "Promotion of Bulk Drug Parks" to promote domestic manufacturing of bulk drugs. This project falls under category "A" as per EIA Notification, 2006 and require prior Environment Clearance from Ministry of Environment Forest and Climate Change (MoEF&CC) Government of India. The State Board has received application on 17-09-2024 (Annexed as **annexure R-4/1**) from the project proponent for conducting public hearing for the purpose of grant of Environment Clearance under EIA Notification, 2006.The State Board has conducted public hearing of the project on 20-11-2024 under chairmanship of Additional Deputy Commissioner, Una with proper public notice in Newspapers (Copy annexed as **annexure R-4/2**). The proceedings of public hearing were sent to the Director (Environment, Science & Technology) Department of

ATTESTED
Oath Commissioner
H.P. High Court, Shimla

Member Secretary
HP State Pollution Control
Shimla

Environment, Science & Technology, Shimla H.P and Secretary, MoEF&CC Government of India vide letter dated 09-12-2024 (Annexed as **annexure R-4/3**) for taking a decision on grant of Environment Clearance under EIA Notification, 2006 which is under examination by MoEF&CC Government of India. As per information received from Joint Director Industries, District Industries Centre, Una, at present HPBDPIL has not commenced any construction activity at the proposed site.

2-3. That the contents of para 2 are denied. It is submitted that as per the Draft Environment Impact Assessment (EIA) Report submitted by the project proponent before conducting Public Hearing as per EIA Notification 2006, the total estimated water demand for the proposed Bulk Drug Park is 22.1 MLD, out of which 15 MLD is proposed to be fresh water and 7.1 MLD is proposed to be met through recycling of treated effluents.

As per EIA report, the project proponent has obtained a confirmation letter from the Jal Shakti Department, Himachal Pradesh, regarding the proposed extraction of groundwater. The project proponent has also proposed an alternative surface water supply scheme through a dedicated pipeline of approximately 15 km from river Satluj. The EIA report also states that the Bhakra Beas Management Board (BBMB) has approved the proposed comprehensive surface water supply

Member Secretary
HP State Pollution Control
Shimla

scheme, and the project proponent has deposited seed money with BBMB for initiation of the same.

Further it is submitted that the matter regarding permission for extraction of groundwater and approval for the same falls within the mandate of Himachal Pradesh Ground Water Authority/Jal Shakti Vibhag. The replying respondent shall ensure that all the industrial effluents are treated adequately in Common Effluent Treatment Plant and treated water is reused for industrial and domestic purposes, thereby minimizing the fresh water demand and ensuring compliance with environmental safeguards.

4. That in reply to para 4 it is submitted that projection made in the Draft EIA Report are based on standard methodologies and conservative estimates as per the guidelines prescribed by the Ministry of Environment, Forest & Climate Change (MoEF&CC), Government of India. The project proponent has proposed adequate pollution control measures for the prevention of water and air pollution including the establishment of Common Effluent Treatment Plants (CETPs), Air Pollution Control Devices and reuse/recycling mechanisms. The project proponent has also proposed to manage and dispose of the solid waste, hazardous waste, bio-medical waste, e-waste and plastic waste strictly in accordance with the provisions of the respective Waste

ATTESTED
Oath Commissioner
H.P. High Court

Member Secretary,
HP State Pollution Control
Shimla

Management Rules notified under Environment (Protection) Act, 1986.

So far as replying respondent is concerned it shall ensure monitoring and implementation of above mentioned pollution control measures through regular inspections, sampling and compliance verifications and imposing penalties under the "Polluter Pay Principle" for any violation of environmental laws.

5. That the contents of para 5 relate to the issue of receding of the groundwater in the Haroli area due to illegal sand mining, stone crushing activities and digging up of bores for bulk drug park which calls for submission of Ground Water Authority and Jal Shakti Vibhag and need no reply from the replying respondent.

6. That the contents of para 6 relate to the waste generation and pollution generation due to the project. In this regard, it is submitted that as per the draft EIA Report, the Project Proponent has proposed to set up scientifically validated pollution control measures for the management and mitigation of potential environmental impacts. These measures are as follow:

i. **Water Pollution Control Measures:**

**Common Effluent Treatment Plant (CETP)**: A CETP of 5 MLD has been proposed for treating industrial effluents from

Member Secretary
HP State Pollution Control
Shimla

the API manufacturing units. The treated effluent will be reused for non potable purposes such as cooling, landscaping and horticulture within Bulk Drug Park thereby reducing fresh water dependency and mitigating risk to groundwater.

**Sewage Treatment Plant (STP):** A STP of 3 MLD capacity is proposed for treatment of domestic wastewater generated from residential and ancillary facilities. Treated water will be reused for flushing and gardening purposes.

**ii. Air Pollution Control Measures:**

**Boilers:** 6 numbers of industrial boilers are proposed to be operated on rice husk will be fitted with Electrostatic Precipitators (ESPs)—an established and widely used air pollution control device.

**Incinerators:** 4 incinerators to be operated using HSD/CNG/LPG shall have wet scrubbers installed to control emissions effectively.

**Process Reactors:** Each of the 80 process reactors will be equipped with wet scrubbers as air pollution control devices to manage gaseous pollutants from chemical processes.

**DG Sets:** 2 silent DG sets (1000 KVA each) will be installed with acoustic enclosures and stacks of adequate height to mitigate noise and air emissions.

ATTESTED
Oath Commissioner
H.P. High Court, Shimla

Member Secretary,
HP State Pollution Control
Shimla

iii. **Waste Management:**

**Solid Waste:** Solid waste generation is estimated at 0.6 TPD during construction and 8.8 TPD during operation. Waste will be segregated at source into biodegradable and non-biodegradable fractions. Biodegradable waste will be composted on-site, and recyclable waste will be sent to authorized vendors, in compliance with the Solid Waste Management Rules, 2016.

**Hazardous Waste:** At full operational capacity, the Bulk Drug Park is expected to generate 700–800 TPD of hazardous waste. Out of this, 10–12 TPD will be of storage-able category (like CETP sludge and MEE residue), while the remaining will be incinerable/co-processable. The project proponent has proposed to establish an integrated Treatment, Storage and Disposal Facility (TSDF) (secured landfill + incinerator) over 33.6 acres within the project area. A separate detailed proposal for TSDF shall be submitted as per EIA Notification, 2006.

**Biomedical Waste:** The proposed dispensary and Research Institute for Pharmaceutical Advancement are expected to generate 4–5 kg/day of bio-medical waste. This will be disposed of through an authorized Common Bio-Medical Waste Treatment Facility, in accordance with the Bio-Medical Waste Management Rules, 2016.

ATTESTED
Joint Commissioner
H. High Court, Shimla

Member Secretary,
HP State Pollution Control
Shimla

The pollution control measures proposed by the project proponent are scientifically proven, technically feasible and in alignment with national regulatory frameworks. The replying respondent will ensure strict implementation and continuous monitoring of these measures through inspection and sampling. Any violation of the environmental law will be dealt strictly as per the provisions of the Environment (Protection) Act 1986.Penalties will be imposed under the "Pollution Pay Principle" in accordance with the applicable laws and CPCB/SPCB guidelines. The strategies outlined in the EIA report comprises proven technologies already adopted in industrial parks across the country.

7. That the contents of para 7 relate to alleged threat to forests and wildlife species, including Schedule I species under the Wildlife (Protection) Act 1972 which do not pertain to the Board hence need no reply from the replying respondent.

8. That the contents of para 8 which relate to the hypothetical concerns / mere apprehension of health care facilities and health related issues which do not pertain to Board, hence need no reply from the replying respondent. As far as Board is concerned strict monitoring of the activities of proposed Bulk Drug Park will be conducted to ensure the compliance of environmental laws.

ATTESTED
Oath Commissioner
H. High Court

9. That the contents of para 9 relate to the source and availability of power supply for the Bulk Drug Park do not

Member Secretary
HP State Pollution Control
Shimla

pertain to the Board hence need no reply from the replying respondent.

**REPLY TO THE GROUNDS:**

a-e. That the contents of para a-e are already stand controverted in view of the submissions made in para supra.

V. That the afore-cited reply by way of affidavit may kindly be taken on record and matter may kindly be disposed off qua the replying respondent with such order as may be deemed fit in public interest.

Affidavit identified by

**DEPONENT**
Member Secretary,
HP State Pollution Control
Shimla

**Verification:**

I , the above named deponent do hereby verify that the above contents of this affidavit are correct to the best of my knowledge, based on information derived from official records, no part of the same is wrong and nothing material has been concealed therefrom.

Verified at Shimla, H.P on this 25th day of July, 2025

Rakesh Thakur Advocate

Rohali - ALO

**DEPONENT**
Member Secretary,
HP State Pollution Control
Shimla

All Corrections are attested by me

Oath Commissioner

# HIMACHAL PRADESH
# STATE INDUSTRIAL DEVELOPMENT CORPORATION LTD

**Regd. Office:-New Himrus Building, Circular Road, Shimla-171001(H.P)**
**Tel No.0177-2621426/2624751e-mail:**sidc-hp@nic.in **Visit us at:** www.hpsidc.org

## NOTICE INVITING TENDERS (NIT)
### (National Competitive Bidding)

The Executive Engineer HPSIDC Ltd. Shimla on behalf of Managing Director HPSIDC Ltd Shimla, hereby invites online bic through electronic tendering system for the following works on EPC mode (Engineering, Procurement and Construction) from the eligibl and approved contractors/ firms, registered in the appropriate class with HPPWD/ CPWD/ I&PH/ HIMUDA/ any other Gov agency/organization as per the schedule, terms and conditions mentioned below.

| Sr. No. | Name of work | Estimated Cost | Earnest Money | Cost of Tender ( i/c G.S.T.) | Time Limit | Eligible Class of Contractor |
|---|---|---|---|---|---|---|
| 1. | Development of Bulk Drug Park at Una Distt. Una (H.P.) SH:- Construction of Common Effluent Treatment Plant (CETP) 5.0 MLD (HTDS- 1.5 MLD, LTDS- 3.5 MLD). | Rs. 2,73,49,03,846/- | Rs. 2,83,49,000/- | Rs. 2,80,000/- | 24 Months | Appropriate Class |
| 2. | Development of Bulk Drug Park at Una Distt. Una (H.P.) SH:- Construction of Steam Generation and Distribution Network along with Power Generation. | Rs. 3,00,28,84,615/- | Rs. 3,10,30,000/- | Rs. 3,00,000/- | 24 Months | Appropriate Class |
| 3. | Development of Bulk Drug Park at Una Distt. Una (H.P.) SH:- Construction of Hazardous Waste Management Plant (HWMP) 50,000 MT/ Annum. | Rs. 52,88,46,154/- | Rs. 62,90,000/- | Rs. 60,000/- | 24 Months | Appropriate Class |

**Schedule, terms and conditions:-**

| Date and time for download of bidding documents from e-procurement portal. | | Date & time for online submission of bids, required documents, cost of form and earnest money (EMD) | | Date & time of openin online Technical Bids |
|---|---|---|---|---|
| From | To | From | To | 11.07.2025 |
| 06.06.2025 | 10.07.2025 | 06.06.2025 | 10.07.2025 | 11:00AM |
| 11:00AM | 05:00 PM | 11:00AM | 05:00 PM | |

1. The bids shall be opened in the office of Executive Engineer, HPSIDC Ltd; Shimla by the authorized officers. Other details of the eligibility and qualification criteria as well as scope of work can be seen in the online bidding document. For detailed terms and conditions log on to website **https:// hptenders.gov.in**
2. The bids should be submitted online on website: **https:// hptenders.gov.in**. Bidders should get registered themselves on website **https://hptenders.gov.in**
3. Corrigendum, if any, will be published on website **https://hptenders.gov.in / www.hpsidc.org.**
4. The Executive Engineer/competent authority reserve the right to accept or reject any or all the bids or withdrawn from tendering without assigning any reason thereto.

Executive Engineer
HPSIDC Ltd. Shimla
for and on behalf of
the Managing Director

**1.1.4** The selected Bidder (the "Contractor") shall be responsible for the investigations, Designing, Engineering, Procurement and Construction of the Project under and in accordance with the provisions of an Engineering, Procurement and Construction contract (the "Agreement") to be entered into between the Contractor and the Employer / Authority in the form provided by the Employer / Authority as part of the Bidding Documents pursuant hereto. The Contractor shall also be responsible for the rectification/replacement/curing of all defects of the Project during the Defects Liability Period specified, as per the tender document.

**1.1.5** The scope of the project will broadly include surveys, investigations, design, supply, and construction of a Common Effluent Treatment Plant (CETP) with a total capacity of 5.0 MLD (comprising 1.5 MLD for High Total Dissolved Solids (HTDS) and 3.5 MLD for Low Total Dissolved Solids (LTDS)), along with a Zero Liquid Discharge (ZLD) system, for the Bulk Drug Park at Una District, Himachal Pradesh.

The CETP shall be developed in two phases as follows:

a) Phase I – 2.0 MLD (HTDS: 0.5 MLD, LTDS: 1.5 MLD)

b) Phase II – 3.0 MLD (HTDS: 1.0 MLD, LTDS: 2.0 MLD)

c) The Effluent Conveyance Network shall be executed as per park requirements. However, the network for recycling and reuse of treated discharge shall be undertaken through a separate tender.

The scope also includes covering the Defects Liability Period (DLP) of the Project, which shall be aligned with the Operation & Maintenance (O&M) obligations of the Preferred Bidder. Accordingly, the DLP shall remain in force for the entire O&M period of 25 years from the date of commissioning, during which the Preferred Bidder shall be responsible for the performance, maintenance, and overall functionality of the system.

**In normal circumstances Phase II would be started after the 80% of utilisation of Phase-I. However, Government may ask successful bidder to execute Phase-II in advance, if required.**

**Total duration of the project is 24 months (Execution period for the main facility shall be 18 months & time line for the development of conveyance network shall be 24 months).**

***The standards for the Common Effluent Treatment Plant (CETP) are prescribed by the Central Pollution Control Board (CPCB) vide notification S.O. 3864(E) dated 09.09.2024 under the Environment (Protection) Second Amendment Rules, 2024, effective from 01.09.2025. These rules amend Schedule-I of the Environment (Protection) Rules, 1986, serial number 55. Sector-specific standards shall also be considered. The State Pollution Control Board, Himachal Pradesh (HP) shall be kept informed, as State standards may slightly differ. The CETP design and operations shall primarily comply with CPCB standards unless otherwise specified.****

**1.1.6** The assessment of actual costs, however, will have to be made by the Bidders.

**1.1.7** The Agreement sets forth the detailed terms and conditions for the award of the Project to the Contractor, including the scope of the Contractor's work and obligations.

**1.1.8** The Statements and explanations contained in this tender are intended to provide a better understanding to the Bidders about the subject matter of this RFP and should not be construed or interpreted as limiting in any way or manner the scope of work and obligations of the Contractor set forth in the Agreement or

**HIMACHAL PRADESH**

**STATE INDUSTRIAL DEVELOPMENT CORPORATION LTD**
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**Tel No.0177-2621426/2624751e-mail:**sidc-hp@nic.in **Visit us at:** www.hpsidc.org

**NOTICE INVITING TENDERS (NIT)**
**(National Competitive Bidding)**

The Executive Engineer HPSIDC Ltd. Shimla on behalf of Managing Director HPSIDC Ltd Shimla, hereby invite online bids through electronic tendering system for the following work on EPC mode (Engineering, Procurement an Construction) from the eligible and approved contractors/ firms, registered in the appropriate class with HPPWD/ CPWD I&PH/ HIMUDA/ any other Govt. agency/organization as per the schedule, terms and conditions mentioned below.

| Sr. No. | Name of work | Estimated Cost | Earnest Money | Cost of Tender ( I/c G.S.T.) | Time Limit | Eligible Class of Contractor |
|---|---|---|---|---|---|---|
| 1. | Development of Bulk Drug Park at Una Distt. Una (H.P.) SH:- Construction of Common Effluent Treatment Plant (CETP) 5.0 MLD (HTDS- 1.5 MLD, LTDS- 3.5 MLD). | Rs. 2,73,49,03,846/- | Rs. 2,83,49,000/- | Rs. 2,80,000/- | 24 Months | Appropriate Class |

**Schedule, terms and conditions:-**

| Date and time for download of bidding documents from e-procurement portal. | | Date & time for online submission of bids, required documents, cost of form and earnest money (EMD) | | Date & time of opening online Technical Bids |
|---|---|---|---|---|
| From | To | From | To | 09.09.2025 |
| 23.08.2025 11:00AM | 08.09.2025 05:00 PM | 23.08.2025 11:00AM | 08.09.2025 05:00 PM | 11:00AM |

1. The bids shall be opened in the office of Executive Engineer, HPSIDC Ltd; Shimla by the authorized officers. Other details of the eligibility and qualification criteria as well as scope of work can be seen in the online bidding document. For detailed terms and conditions log on to website **https:// hptenders.gov.in**
2. The bids should be submitted online on website: **https:// hptenders.gov.in**. Bidders should get registered themselves on website **https://hptenders.gov.in**
3. Corrigendum, if any, will be published on website **https://hptenders.gov.in / www.hpsidc.org.**
4. The Executive Engineer/competent authority reserve the right to accept or reject any or all the bids or withdrawn from tendering without assigning any reason thereto.

Executive Engineer
HPSIDC Ltd. Shimla
for and on behalf of
the Managing Director

3. सीईटीपी के सदस्य उद्योगों की भूमिकाएं और उत्तरदायित्व -

1. सदस्य उद्योग राज्य बोर्ड या समिति द्वारा जारी सहमति में उल्लिखित प्रत्येक पीईटीपी के निर्गम सन्नियमों को पूरा करते हुऐ अपने व्यापार बहिस्राव का निस्सरण करेंगे।

2. (क) सदस्य उद्योग, बहिस्राव के विनिर्दिष्ट गुणवत्ता संबंधी मानदंडों और उसकी प्रवाह दर की मानीटरी करेंगे और सीईटीपी के प्रचालक को रीयल-टाइम ऑनलाइन आधार पर मानीटरी संबंधी डेटा प्रस्तुत करेंगे।

(ख) सीईटीपी में निस्सरित किए जाने वाले पूर्व-उपचारित बहिस्राव की गुणवत्ता और मात्रा, राज्य बोर्ड या समिति द्वारा यथा उल्लिखित सीमाओं से अधिक नहीं होगी।

3. सदस्य उद्योग में सीईटीपी तक पहुंचाने वाली संवहन प्रणाली में एकल निस्सरण बिंदु होगा।

4. सदस्य उद्योग, प्रचालन और रखरखाव संबंधी लागतों को पूरा करने के लिए सीईटीपी के प्रचालन अभिकरण को ऑनलाइन मोड के माध्यम से समय पर अपने हिस्से का संदाय करेंगे।

5. सदस्य उद्योग, कच्चे माल या संसाधनों की बर्बादी और प्रदूषण को रोकने के लिए लीकिंग वाल्व, पाइपों में दरारों और छिद्रों और खराब उपकरणों की जांच करके उचित रखरखाव सुनिश्चित करेंगे।

6. सदस्य उद्योग, प्राधिकार में उल्लिखित शर्तों के अनुसार विभिन्न इकाई प्रचालनों और प्राथमिक उपचार से उत्सर्जित होने वाले परिसंकटमय बहिस्राव के पृथक्करण, भंडारण और निपटान के लिए पर्याप्त व्यवस्था करेंगे।

[फा. सं. क्यू-15017/18/2014-सीपीडब्ल्यू]

नरेश पाल गंगवार, अपर सचिव

**टिप्पण.**—मूल नियम, भारत के राजपत्र, असाधारण, भाग II, खंड 3, उपखंड (i) में संख्यांक का.आ. 844(अ), तारीख 19 नवंबर, 1986 के द्वारा प्रकाशित किए गए थे और इनमें गत संशोधन सा.का.नि. 75(अ), तारीख 30 जनवरी, 2024 के द्वारा अंतिम बार संशोधित किया गया था।

## MINISTRY OF ENVIRONMENT, FOREST AND CLIMATE CHANGE
## NOTIFICATION

New Delhi, the 9th September, 2024

**S.O. 3864(E).**—In exercise of the powers conferred under sections 6 and 25 of the Environment (Protection) Act, 1986 (29 of 1986), the Central Government hereby makes the following rules further to amend the Environment (Protection) Rules, 1986, namely:—

1. (1) These rules may be called the Environment (Protection) Second Amendment Rules, 2024.

(2) They shall come into force on the 1st day of September, 2025.

2. In the Environment (Protection) Rules, 1986, in Schedule-I, for serial number 55 and the entries relating thereto, the following serial number and entries shall be substituted, namely:—

"

| Serial Number | Industry | Parameter | Standards | | |
|---|---|---|---|---|---|
| (1) | (2) | (3) | (4) | | |
| "55. | **Common Effluent Treatment Plants (CETP)** | | | | |
| | **A. Inlet Quality Standards** | | For each Common Effluent Treatment Plant, the State Board or Pollution Control Committee (the Committee) will specify Inlet Quality Standards for general parameters, ammonical nitrogen and heavy metals as per design, local needs, and conditions of the Common Effluent Treatment Plant. | | |
| | **B. Treated Effluent Quality Standards** | | Maximum permissible values (in milligram/litre except for pH and Temperature) | | |
| | | | Into inland surface water | On land for irrigation | Into sea |

| | | | | | |
|---|---|---|---|---|---|
| | | **General Parameters** | (i) | (ii) | (iii) |
| | | pH | 6-9 | 6-9 | 6-9 |
| | | Biochemical Oxygen Demand $(BOD)_3$, 27 °C | 30 | 100 | 100 |
| | | Chemical Oxygen Demand (COD) | 250 | 250 | 250* |
| | | Total Suspended Solids (TSS) | 100 | 100 | 100 |
| | | Total Dissolved Solids (TDS) | 2100** | 2100** | NS |
| | | **Specific parameters** | (i) | (ii) | (iii) |
| | | Temperature °C | shall not exceed more than 5°C above ambient temperature of the receiving water body | shall not exceed more than 5°C above ambient temperature of the receiving water body | shall not exceed more than 5°C above ambient temperature of the receiving water body |
| | | Oil and Grease | 10 | 10 | 10 |
| | | Ammonical Nitrogen | 50 | NS | 50 |
| | | Total Kjeldahl Nitrogen (TKN) | 50 | NS | 50 |
| | | Nitrate Nitrogen | 10 | NS | 50 |
| | | Phosphates (P) | 5 | NS | NS |
| | | Chlorides | 1000 | 1000 | NS |
| | | Sulphates ($SO_4$) | 1000 | 1000 | NS |
| | | Flouride | 2 | 2 | 15 |
| | | Sulphides (S) | 2 | 2 | 5 |
| | | Phenolic compounds as $C_6H_5OH$ | 1 | 1 | 5 |
| | | Total Residual Chlorine | 1 | 1 | 1 |
| | | Zinc | 5 | 15 | 15 |
| | | Iron | 3 | 3 | 3 |
| | | Copper | 3 | 3 | 3 |
| | | Total Chromium | 2 | 2 | 2 |
| | | Manganese | 2 | NS | 2 |
| | | Nickel | 3 | NS | 3 |
| | | Arsenic | 0.2 | NS | 0.2 |
| | | Cyanide (CN) | 0.2 | NS | 0.2 |
| | | Vanedium | 0.2 | NS | 0.2 |
| | | Lead | 0.1 | NS | 0.1 |
| | | Hexavalent Chromium | 0.1 | NS | 0.1 |
| | | Selenium | 0.05 | NS | 0.05 |
| | | Cadmium | 0.05 | NS | 0.05 |

| | | | | | |
|---|---|---|---|---|---|
| | | Mercury | 0.01 | NS | 0.01 |
| | | Bio-assay test | As per industry-specific standards | As per industry-specific standards | As per industry-specific standards |

**Note 1.—**

NS-Not specified

Note 2.—* Discharge of treated effluent into sea shall be through proper marine outfall. The existing shore discharges shall be converted to marine outfalls. In cases where the marine outfall provides a minimum initial dilution of 150 times at the point of discharge and a minimum dilution of 1500 times at a point 100 m away from discharge point, then, the State Board may relax the Chemical Oxygen Demand limit:

Provided that the maximum permissible value for Chemical Oxygen Demand in treated effluent shall be 500 milligram per liter.

** The maximum permissible Total Dissolved Solids limit with respect to treated effluent from a common effluent treatment plant shall be 2100 milligrams per liter. However, the limit may be relaxed by the concerned State Pollution Control Board or the Pollution Control Committee, in case where total dissolved solids in intake water to the member industries is above 1100 milligrams per liter and a maximum contribution up to 1000 milligrams per liter is permitted, provided the maximum value of 3100 milligrams per liter is not exceeded in the treated effluent from common effluent treatment plant, as under:—

| **Serial number** | **Total Dissolved Solids (TDS) in intake water milligrams per liter** | **Maximum limit of Total Dissolved Solids TDS in treated effluent milligrams per liter** |
|---|---|---|
| (1) | (2) | (3) |
| 1. | TDS in intake water upto 1100<br>a. e. TDS ≤ 1100 | 2100 |
| 2. | TDS in intake water more than 1100 to 2100<br>i.e. 1100 < TDS ≤ 2100 | TDS in intake water plus 1000 |
| 3. | TDS in intake water more than 2100<br>i.e. TDS > 2100 | 3100 |

**Note 3.—**

1. In case of discharge of treated effluent on land for irrigation, the impact on soil and groundwater quality shall be monitored twice a year (pre-monsoon and post-monsoon) by common effluent treatment plants management. For combined discharge of treated effluent and sewage on land for irrigation, the mixing ratio with sewage shall be prescribed by the State Board.

2. Specific parameters for some important sectors, which are selected from the sector-specific standards are given as under:

| **Serial number** | **Sector** | **Specific Parameters** |
|---|---|---|
| (1) | (2) | (3) |
| 1. | Textile | Bio-assay test, Total chromium, Sulphide, Phenolic compounds |
| 2. | Electroplating | Oil and grease, Ammonia Nitrogen, Nickel, Hexavalent chromium, Total chromium, Copper, Zinc, Lead, Iron, Cadmium, Cyanide, Fluorides, Sulphides, Phosphates, Sulphates |
| 3. | Tannery | Sulphides, Total chromium, Oil and grease, Chlorides |
| 4. | Dye and dye intermediate | Oil and grease, Phenolic compounds, Cadmium, Copper, Manganese, Lead, Mercury, Nickel, Zinc, Hexavalent Chromium, Total Chromium, Bio-assay test, Chlorides, Sulphates |
| 5. | Organic chemicals | Oil and grease, Bio-assay test, Nitrates, Arsenic, Hexavalent chromium, Total chromium, Lead, Cyanide, Zinc, Mercury, |

| | | |
|---|---|---|
| | manufacturing | Copper, Nickel, Phenolic compounds, Sulphides |
| 6. | Pharmaceutical | Oil and grease, Bio-assay test, Mercury, Arsenic, Hexavalent chromium, Lead, Cyanide, Phenolic compounds, Sulphides, Phosphates |

**Note 4.—**

1. Roles and responsibilities of State Governments or the State Board or the Committee.—

2. The State Government or its agencies shall ensure that adequate upstream and downstream conveyance linkages or channels are in place for proper carriage of effluent.

3. The State Board and the Committee shall ensure that a member industry has single discharge outlet point to conveyance system leading to the CETP inlet.

4. The State Board or the Committee shall lay down the standards for specific quality parameters, in consultation with the CETP operating agency, for discharge of effluent from each member industry to CETP, based on design features or capacity of CETP and ensure compliance of the same.

5. The State Board or the Committee may ensure that the CETP operating personnel and staff are not associated with member units, and having technical knowledge of CETP operations, so as to avoid the conflict of interest.

6. The State Board or the Committee shall carry out real-time online monitoring with random physical inspection of all CETPs and the associated industrial areas with the following objectives, namely:—

   (a) to check compliance of inlet quality parameters of the CETP;

   (b) to check compliance of the notified discharge standards for CETPs, or if any more stringent standards or Zero Liquid Discharge (ZLD) condition laid down by the Board or Committee;

   (c) to check maintenance and calibration status of the online continuous effluent quality monitoring system in the CETP;

   (d) to check occurrence of any bypass of untreated industrial effluents from member industries or CETP or industrial area.

6. The State Board or the Committee shall upload the performance status of all CETPs on their respective websites, at least quarterly. The performance status may include, design and operational capacity, treatment scheme, validity period of consents and authorisation, monitored values and compliance status of inlet and outlet quality parameters and action taken thereof.

7. The State Board or the Committee shall not permit establishment of new industrial units that propose to join a CETP or expansion of existing member industries, if they are not complying with the specified standards or where such CETP does not have adequate hydraulic capacity, except for the cases which do not impact performance of the CETP, such as,—

   (a) not resulting in increase in pollution load such as industries generating no effluent, 100% effluent recycling units, industries generating only concentrated streams disposed through appropriate systems at any common facility authorised by the State Board or the Committee, as per consent to establish, consent to operate and authorisation, to the extant following Central Pollution Control Board (Central Board) guidelines, in this regard.

   (b) CETP has unutilised hydraulic capacity, and the effluent of new industry or expansion of existing member industries will help in effective utilization of the CETP.

   (c) in case, a member industrial unit does not discharge its effluent to a CETP, the environmental standards of the standalone industry shall be applicable to the said unit.

8. (a) In case of violations or non-compliances, the Board or Committee shall take suitable actions such as, issuing show cause notices/closure directions, etc., against defaulting units or CETPs.

   (b) In case of the State Board or the Committee issuing any notice to defaulting member unit, the same shall also be communicated to the CETP operating agency.

9. The State Government and its agencies shall ensure availability of Common Hazardous Waste Treatment, Storage and Disposal Facilities for disposal of hazardous wastes generated from CETPs and Primary Effluent Treatment Plants (PETPs).

10. The State Board or the Committee shall ensure association of CETPs and member industries with Common Hazardous Waste Treatment, Storage and Disposal Facilities for disposal of generated hazardous wastes, as per the conditions mentioned in the Authorization, issued by the State Board or the Committee, under Hazardous and other Waste Management (Management and Transboundary Movement) Rules, 2016, as amended from time to time.

11. Mixing of appropriate quantity of sewage with effluent at an appropriate stage of treatment in CETP, may be permitted by the Board or Committee, in case it improves treatability in biological treatment process,

provided that design of the CETP has taken into account hydraulic as well as organic load of sewage proposed to be treated in CETP.

2. Roles and responsibilities of CETP operating agencies.—

1. In order to manage the CETP professionally, there shall be a Special Purpose Vehicle (SPV) or Society (registered under the Societies Registration Act, 1860) or Trust (registered under an appropriate statute), which would be responsible for the entire operation and maintenance of CETP.

2. (a) The CETP operating agencies shall distribute the total available treatment capacity among the member units in a rational and transparent manner.

(b) A legal agreement between the CETP and its member units clearly delineating their mutual obligations, terms and conditions of membership, membership fee, cost recovery formula developed for the installation and treatment charges, operation and maintenance of CETP, shall be executed.

3. The CETP operating agencies shall comply with the prescribed inlet and outlet effluent standards. In order to strengthen the monitoring and compliance through self-regulatory mechanism, Online Continuous Effluent Monitoring System (OCEMS) shall be installed at the CETP and data connectivity be provided to the Central Board and concerned Board or Committee.

4. (a) The CETP operating agencies shall develop an automated online mechanism to monitor quantity and quality of effluent (by way of installing SCADA–PLC and auto samplers or sensors,) being discharged by the member units through pipelines or sewers, at individually or in cluster, to ensure compliance.

(b) The connectivity of the monitored data shall be provided to the State Board or the Committee.

(c) CCTV cameras at appropriate locations shall also be installed to check bypass or unauthorised discharges.

5. In case of transportation of effluent through tankers, CETP operating agencies shall,—

(a) ensure a tri-partite interface among the CETP, member industries and tankers, through an integrated communication technology (ICT), combined with logistic system with tankers for collection and transportation of effluent to CETPs;

(b) ensure that tankers are fitted with GPS system and carry out real-time monitoring of the tankers; and

(c) ensure the sampling and quality check of the effluent upon receipt of tanker at CETP.

6. (a) The CETP operating agencies shall have authority to access the member industry premises, without prior notice, to collect wastewater samples.

(b) The OCEMS system, if installed, shall also be accessible to the CETP operating agencies for cross-verification of the monitored values with the online data.

7. (a) The CETP operating agencies shall ensure that the member industries discharge their trade effluent meeting the outlet norms of their individual PETPs. In case of non-compliance of the norms and/or non-payment of their share, within specific or agreed time limits, towards meeting operation and maintenance costs, the CETP operating agencies shall take appropriate action, such as, refusal to take effluent of defaulting member, cancellation of membership of the individual unit with CETP.

(b) The CETP operating agency shall develop the control mechanism to regulate the flow from a member industry.

(c) The list of such non-complying member industrial units and action taken against them shall be provided to the Board or Committee, through online mode, for further necessary action.

8. (a) The CETP operating agencies shall ensure sludge management based on the sludge characteristics (i.e. hazardous or non-hazardous) as per the conditions mentioned in the authorisation.

(b) Adequate linkage with Treatment, Storage and Disposal Facility (TSDF) for disposal of hazardous waste, generated from the facility, shall be ensured.

9. (a) The CETP operating agencies, shall also monitor the upstream and downstream conveyance linkages for the physical and hydraulic status.

(b) In case of any inadequacy, the same shall be addressed and reported to the State agencies.

10. The CETP operating agencies shall establish the laboratory facilities on site, at least, for the core parameters, namely, pH, BOD, COD, TSS and any other parameter required by the State Board or the Committee.

11. Alternate power backup arrangement of adequate capacity shall be installed at CETP to ensure continuous operation of CETP even during power failure.

12. The CETP operating agencies shall be responsible for carrying regular surface and ground water quality monitoring of the receiving water and ground water along its reaches, covering all the parameters prescribed in the stream standards at least once a year. Such analysis report shall form part of environmental audit being conducted annually.

3. Roles and responsibilities of Member Industries of a CETP.—

1. Member industries shall discharge the trade effluent meeting the outlet norms of their individual PETPs, as mentioned in the consents issued by the State Board or the Committee.
2. (a) Member industries shall monitor specified quality parameters and flow rate of the effluent and submit the monitoring data to the CETP operator through real-time online basis.

   (b) The quality and quantity of the pre-treated effluent discharged to CETP shall not exceed the limits as mentioned by the State Board or the Committee.
3. Member industry shall have a single discharge point to the conveyance system leading to CETP.
4. Member industries shall pay their share, timely through online mode, to CETP operating agency towards meeting operation and maintenance costs.
5. The member industries shall ensure proper maintenance by keeping check on leaking valves, cracks and fissures in pipes, faulty equipment, so as to avoid wastage of raw materials or resources and pollution.
6. Member industries shall make adequate arrangement for segregation, storage and disposal of the hazardous waste being generated from different unit operations and the primary treatment, as per the conditions mentioned in the authorisation".

[F. No. Q-15017/18/2014-CPW]

NARESH PAL GANGWAR, Addl. Secy.

**Note**.—The principle rules were published in the Gazette of India, Extraordinary, Part II, Section 3, Sub-section (i), *vide* number S.O. 844(E), dated the 19th November, 1986 and last amended, *vide* G.S.R. 75(E), dated the 30th January, 2024.

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Annexure R 20.

**हिमाचल प्रदेश सरकार**

**उधोग विभाग**

**संख्याः इण्ड–11(एफ)6–14/2014 दिनांक शिमला–2, 13–03–2015**

**अधिसूचना**

हिमाचल प्रदेश के राज्यपाल, खान और खनिज (विनियमन और विकास) अधिनियम, 1957 की धारा 23ग के साथ पठित धारा 15 द्वारा प्रदत्त शक्तियों का प्रयोग करते हुए निम्नलिखित नियम बनाते हैं, अर्थातः–

**अध्याय–1**

**प्रारम्भिक**

1. **संक्षिप्त नाम और प्रारम्भः–**

(1) इन नियमों का संक्षिप्त नाम हिमाचल प्रदेश गौण खनिज (रियायत) और खनिज (अवैध खन्न, उसके परिवहन और भण्डारण का निवारण)नियम, 2015 है ।

(2) ये नियम राजपत्र, हिमाचल प्रदेश में इनके प्रकाशन की तारीख से प्रवृत्त होंगे ।

2. **परिभाषाएंः–** (1) इन नियमों में, जब तक कि संदर्भ से अन्यथा अपेक्षित न हो,

(क) 'अधिनियम' से खान और खनिज (विनियमन और विकास) अधिनियम, 1957 अभिप्रेत है;

(ख) 'निर्धारिति' से खनिज रियायत धारी अभिप्रेत है और इसके अन्तर्गत ऐसा व्यक्ति भी है जो किसी भूमि से विभाग की अनुज्ञा के बिना किसी गौण (खनिज) को निकालता/उठाता है;

(ग) 'निर्धारण प्राधिकारी' से खनन अधिकारी अभिप्रेत है और इसके अन्तर्गत इन नियमों के अधीन निर्धारण करने वाला कोई अन्य प्राधिकृत अधिकारी भी है;

(घ) 'निर्धारण वर्ष' से प्रत्येक वर्ष, प्रथम अप्रैल से प्रारम्भ होने वाली बारह मास की अवधि अभिप्रेत है;

(ड.) 'नीलामी' से, खुली नीलामी, इलैक्ट्रानिक नीलामी (ई–ऑकशॅन) जिसके अन्तर्गत ई–टैण्डर भी सम्मिलित है के रूप में प्रतियोगी बोली की पद्वति अभिप्रेत है;

(च) 'प्राधिकृत अधिकारी' से, इन नियमों के अधीन ऐसे कृत्य तथा ऐसे क्षेत्र के लिए जैसे चौथी अनुसूची में विनिर्दिष्ट किए जाएं, करने हेतु प्राधिकृत कोई व्यक्ति अभिप्रेत है और इसके अन्तर्गत ऐसे कृत्यों जैसे सक्षम प्राधिकारी द्वारा विनिर्दिष्ट किए जाएं को कार्यन्वित करने वाला कोई अन्य अधिकारी भी है;

(छ) 'प्रतियोगी बोली' से, किसी खुली नीलामी या भागीदारों द्वारा निविदा प्रकिया में प्रस्तावित कोई रकम अभिप्रेत है;

(ज) 'सक्षम प्राधिकारी' से, ऐसा प्राधिकारी अभिप्रेत है जिसे सरकार इन नियमों के प्रयोजन हेतु सक्षम प्राधिकारी घोषित करे;

(झ) 'संविदा' से निदेशक द्वारा अधिसूचित कतिपय विनिर्दिष्ट क्षेत्रों के लिए नीलामी या निविदा के माध्यम से खुदाई करने, छंटाई कार्य करने और उसे ले जाने के लिए सरकार की ओर से दी गई संविदा अभिप्रेत है;

(ञ) 'संविदाकार' से इन नियमों के अधीन खनन संविदा धारण करने वाला कोई व्यक्ति अभिप्रेत है;

(ट) 'संविदा धन' से, संविदा पर आंबटित क्षेत्र से खनिज निकालने/छंटाई करने हेतु विभाग को संविदाकार द्वारा संदत्त की जाने वाली रकम अभिप्रेत है;

(ठ) 'अनिवार्य भाटक' से किसी व्यक्ति, जिसे इन नियमों के अन्तर्गत इस तथ्य को विचार में लिए बिना खन्न पट्टा प्रदान किया गया है, कि ऐसा खन्न पट्टा प्रचालित किया गया है या नहीं, द्वारा वर्ष में संदेय न्यूनतम रकम अभिप्रेत है;

(ड) 'व्यौहारी' से ऐसा व्यक्ति अभिप्रेत है जो खनिजों और खनिज उत्पादों के विकय के लिए उसका/उनका कय करने, उसका/उनका विकय करने, उसका/उनका प्रदाय करने, उसका/उनका वितरण करने या उसका/उनका परिदान करने का कारोबार करता है और इसके अन्तर्गत निम्नलिखित कोई व्यक्ति है,–

(i) जो विकय के लिए खनिज या खनिज उत्पादों को कय करता है और उसका/उनका प्रसंस्करण करता है,

(ii) जो 50 मीट्रिक टन से अधिक खनिज के कारोबार, विकय और भण्डारण के कारोबार में लगा हुआ है; और

(iii) जो मिनरल कन्शेसन रूल, 1960 या इन नियमों के अधीन प्रदान किए गए खनन पट्टे, संविदा या अनुज्ञा–पत्र का धारक है ।

(ढ) 'विभाग' से उद्योग विभाग हिमाचल प्रदेश अभिप्रेत है;

(ण) 'निदेशक' से निदेशक उधोग, हिमाचल प्रदेश अभिप्रेत है,

(त) 'उत्खनन' से किसी भूमि से खनिजों की छंटाई के प्रयोजन हेतु सतह/उप सतह से खनिजों की खुदाई/ एकत्रीकरण अभिप्रेत है;

(थ) 'वित्तीय आश्वासन' से खनन पट्टा/संविदा/अनुज्ञा पत्र अनुज्ञा धारक द्वारा निदेशक को दी गई प्रतिभूति अभिप्रेत है ताकि भूमि पुनरूद्धार और पुनव्यर्वस्थापन लागत के लिए प्राधिकारी की क्षतिपूर्ति की जा सके;

(द) 'प्ररूप' से इन नियमों से संलगन प्ररूप अभिप्रेत है;

(ध) 'सरकार' से हिमाचल प्रदेश सरकार अभिप्रेत है;

(न) 'ग्राम सभा' या सभा' का वही अर्थ होगा जो हिमाचल प्रदेश पंचायती राज अधिनियम, 1994 की धारा 2 के खण्ड (16) के अधीन इसका है;

(प) 'ग्राम पंचायत' का वही अर्थ होगा जो हिमाचल प्रदेश पंचायती राज अधिनियम, 1994 की धारा 2 के खण्ड (15) के अधीन इसका है;

(फ) 'मंजूरी आदेश' से आशय पत्र में नियत शर्तों को पूर्ण करने के पश्चात् खनन पटटा को प्रदान करने हेतु आदेश अभिप्रेत है;

(ब ) खान के सम्बन्ध में प्रयुक्त 'पट्टेदार' से ऐसा व्यक्ति, उसका अंतरिती या समनुदेशिती और खान जिसका कारोबार समापक या प्रापक द्वारा कार्यान्वित किया जा रहा है, की दशा में, ऐसा समापक या प्रापक और कम्पनी के स्वामित्वाधीन खान, जिसका कारोबार प्रबन्धक अभिकर्ता द्वारा कार्यान्वित किया जा रहा है, की दशा में, ऐसा प्रबन्धक अभिकर्ता, जिसे सरकार द्वारा पट्टा प्रदान किया गया है, अभिप्रेत है;

(भ) 'स्थानीय प्राधिकारी' से जिला का उपायुक्त या राज्य सरकार द्वारा इन नियमों के प्रयोजन हेतु स्थानीय प्राधिकारी की शक्तियों का प्रयोग करने वाला प्राधिकृत कोई अन्य प्राधिकारी अभिप्रेत है;

(म) 'आशय पत्र (एल.ओ.आई) से नियत क्षेत्र में खनिज रियायत प्रदान करने के लिए सक्षम प्राधिकारी का सैद्धान्तिक रूप से अनुमोदन, जिसमें अपेक्षित दस्तावेजों/स्वीकृति को प्रस्तुत करने के लिए ऐसी शर्तें, जैसे कि खनिज रियायत को प्रदान करने के लिए अपेक्षित खनन योजना, पर्यावरणीय और वन स्वीकृति आदि में अन्तर्विष्ट है, अभिप्रेत है;

(य) 'खनिज रियायत' से गौण खनिज की बाबत, खनन पटटा या खनन संविदा या अनुज्ञापत्र अथवा कोई अन्य अनुज्ञा अभिप्रेत है;

(य क) 'खनन देय' से, रॉयलेटी अनिवार्य भाटक 'संविदा रकम' खान तथा खनिज विकास हेतु संदेय रकम प्रत्यावर्तन और पुनर्वासन निधि, किसी फीस के विलंबित संदाय पर ब्याज या इन नियमों के अधीन अनुदत्त खनिज रियायत की बाबत सरकार को देय किसी अन्य राशि के मद्दे कोई देय अभिप्रेत है;

(य ख) 'खनिज उत्पाद' से किसी कच्चे या प्रसंस्कृत रूप में खनिज, ईटें, दरेसी किए हुए पत्थर, चट्टान संकलित बजरी, चिप्स, रोड़ी, स्टोन डस्ट, बालू या कोई रसायन परिवर्तन किए बिना खनिजों से तैयार किए जाने वाला कोई उत्पाद, अभिप्रेत है;

(य ग) 'गौण खनिज' से इमारती पत्थर, बजरी, साधारण मिट्टी, निहित प्रयोजनों के लिए प्रयुक्त बालू से अन्यथा साधारण बालू, शिलाखण्ड, समुद्री कंकड़, केवल गोला बनाने के कारखानें में प्रयोग के लिए

श्वेतवर्ण स्फटिक के कंकड़, लाइमशैल, कांकर और भवन सामग्री के रूप में प्रयुक्त चूने के विनिर्माण के लिए भट्ठियों में प्रयुक्त चूना पत्थर, मरम, ईंट'–मिट्टी, साधारण मिट्टी, मुल्तानी मिट्टी, बेन्टोनाईट, रोड़ी, रहमती, निर्माण सामग्री के रूप में प्रयुक्त स्लेट और स्लेटी पत्थर, ग्रेनाईट, स्फटिक तथा बालू पत्थर, जब सनिर्माण/भवनों या रोड़ी बनाने के लिए प्रयोग किया जाता है और घरेलू बर्तन, स्फटिक कंकड़ जब गोला बनाने के कारखाने के लिए या बोर–वैल को भरने के लिए या भवनों में सजावट के प्रयोजन के लिए प्रयोग किया जाता है और अन्य कोई खनिज जिसे केन्द्रीय सरकार अधिनियम की धारा–3 के खण्ड (ङ) के अधीन राजपत्र में अधिसूचना द्वारा गौण खनिज घोषित करे, अभिप्रेत है;

(य ध) 'खान पहुंच मार्ग सड़क/ढुलाई मार्ग' से खनन क्षेत्र में विद्यमान मार्ग का वह भाग जिसका निर्माण मुख्यतः खान के विकास तथा खनिज के परिवहन हेतु किया गया है;

(य ङ) 'खनन योजना' से, इन नियमों के अधीन तैयार और खान के वैज्ञानिक विकास हेतु सक्षम प्राधिकारी द्वारा सम्यक् रूप से अनुमोदित खनन योजना अभिप्रेत है;

(य च) 'खनन अधिकारी' से, जिला स्तर पर खनिज नियमों और विनियमों के प्रवर्तन को सुनिश्चित करने के लिए सरकार द्वारा एक या एक से अधिक जिलों का प्रभार धारण करने के लिए नियुक्त कोई अधिकारी अभिप्रेत है;

(य,छ) 'पीठासीन अधिकारी' से, निदेशक या उस द्वारा नीलामी करने/संविदा के लिए निविदाएं आमन्त्रित करने के लिए प्राधिकृत कोई अधिकारी अभिप्रेत है;

(य ज) रॉयलेटी से, द्वितीय अनुसूची में विहित किसी भूमि से उत्खनिज अयस्क/खनिज की बाबत सरकार को संदेय रकम, अभिप्रेत है;

(य झ) 'अनुसूची' से इन नियमों से संलगन अनुसूची अभिप्रेत है;

(य ञ) ' अनुसूचित क्षेत्रों, से, भारत के संविधान के अनुच्छेद 244 के खण्ड (1) में यथा निर्दिष्ट अनुसूचित क्षेत्र, अभिप्रेत है;

(य ट) 'राज्य भू विज्ञानी' से, हिमाचल प्रदेश राज्य हेतु राज्य भू विज्ञानी अभिप्रेत है;

(य ठ) 'स्टैक याड या विक्रय डिपों' से ऐसा कोई स्थान अभिप्रेत है, जहां किसी खनिज या इसके उत्पादों का वाणिज्यिक प्रयोजनों के लिए किसी अपरिस्कृत या प्रसंस्कृत रूप में भण्डारण किया गया है और उसके चट्टे लगाए गए है;

(य ड) 'स्टोन कशर' से, इन नियमों के अधीन रजिस्ट्रीकृत किया जाने वाला स्टोन कशर अभिप्रेत है जिसके अन्तर्गत कोई मशीन जो कंकरीट/बजरी के विनिर्माण हेतु चट्टान/ खनिज को तोड़ने /कण्वाकार में कम करने के लिए धातु सतह का प्रयोग किया जाता है या प्रवलित या पूर्व दबाव वाले सीमेंट कंकरीट उत्पाद या सिवाय चूर्णन या प्रेषण के सन्निर्माण के प्रयोजन के लिए भवन सामग्री, विनिर्माण में अपरिष्कृत रूप में प्रयोग किए जाने के लिए धातु–शोधक आकार तक और कम करने और क्लिंकर/सीमेंट के उत्पादन हेतु सीमेंट संयन्त्र में चट्टान के टुकड़ों को छोटा करके वाहक पट्टों का प्रयोग किए बिना चट्टान का परिवर्तन किया जाता है;

(य ढ) 'अभिवहन पास' से, खनन अधिकारी या किसी अन्य प्राधिकृत अधिकारी द्वारा निकाले गये किसी खनिज के विधिपूर्ण प्रेषण तथा परिवहन हेतु खनिज रियायत धारक या व्यौहारी को जारी किया गया दस्तावेज, अभिप्रेत है; और

(य ण) 'अप्राधिकृत खनन' से, सरकार या इस निमित्त प्राधिकृत व्यक्ति द्वारा अनुदत्त वैध खनिज रियायत या अनुज्ञा के बिना किया गया कोई खनन प्रचालन अभिप्रेत है।

(2) उन शब्दों और पदो के, जो इन नियमों में प्रयुक्त हैं किन्तु परिभाषित नहीं किए गये है, के वही अर्थ होंगे जो अधिनियम और केन्द्रीय सरकार द्वारा बनाए गये नियमों में क्रमशः उनके हैं ।

3. **कतिपय मामलों में छूट** .— इन नियमों में अन्तर्विष्ट किसी बात के होते हुए भी, निम्नलिखित कियाकलापों को खनन कार्यकलाप नहीं माना जाएगा और उनसे निम्न के लिए कोई किराया, रॉयलेटी या अनुज्ञापन फीस प्रभारित नहीं की जाएगी :—

(i) 'उन वंशागत कुम्हारों द्वारा साधारण मिट्टी या साधारण रेत का निकाला जाना, जो कुटीर उद्योग के आधार पर मिट्टी के बर्तन तैयार करते है और जिनका एक वर्ष के दौरान कुल आर्वत एक लाख रूपये से अधिक नहीं है;

(ii) अधिकार धारकों द्वारा वाजिव—उल—अर्ज में अभिलिखित उनके अधिकारों के अनुसार उन क्षेत्रों से, जो किसी पट्टेदार या संविदाकार के कब्जे में नहीं है, उनकी मूलभूत निजी अपेक्षाओं के लिए, चिनाई पत्थरों, साधारण मिट्टी और किसी अन्य गौण खनिज का निकाला जाना, जब ऐसी निकासी खनन अधिकारी या खनन निरीक्षक या सहायक खनन निरीक्षक द्वारा दो मास के लिए विधिमान्य अनुज्ञापत्र के अधीन की गई हो :

परन्तु इस नियम के अधीन किसी ऐसे क्षेत्र में गौण खनिज के उत्खनन के लिए छूट लागू नहीं होगी, जहां विस्फोटक का उपयोग अपरिहार्य हो:

परन्तु यह और कि ऐसे क्षेत्र, जो किसी संविदाकार या पट्टेदार के कब्जे में नहीं है, से भवन के पत्थरों और बालू का उत्खनन, अनुसूचित जाति, अनुसूचित जनजाति और पिछड़े वर्गों के सदस्यों, जिनकी मासिक आय प्रतिमास पांच हजार रूपये से अनधिक है और ऐसे व्यक्तियों, जो खनन अधिकारी या खनन निरीक्षक अथवा सहायक खनन निरीक्षक द्वारा जारी दो मास के लिए विधिमान्य अनुज्ञा—पत्र के अधीन धर्मशाला, प्याऊ या पूर्त या परोपकारी प्रयोजनों के लिए ऐसे अन्य सनिर्माण करना चाहते हैं, द्वारा ही किया जा सकेगा ।

4. **वास्तविक उपयोग के लिए खनिजों की आपूर्ति .–** (1) संविदाकार/पट्टाधारक, उन व्यक्तियों को, इमारती पत्थर, चूना पत्थर, कंकर, बालू और बजरी की आपूर्ति करेंगे या इनके उत्खनन हेतु अनुज्ञात करेंगे, जिनके अधिकार, उनके वास्तविक निजी उपयोग के लिए या पूर्त अथवा परोपकारी प्रयोजनों के लिए अभिप्रेत अन्य भवनों के सन्निर्माण के लिए द्वितीय अनुसूची में यथा विनिर्दिष्ट रॉयलेटी दरों को प्रभारित करने पर वाजिव–उल–अर्ज में इस प्रकार अभिलिखित है ।

(2) उप नियम(1) के प्रयोजन के लिए, सम्बद्ध खनन अधिकारी यह विनिश्चित करने के लिए कि क्या कोई व्यक्ति गौण खनिजों का उत्खनन उसके निजी वास्तविक उपयोग के लिए कर रहा है अथवा नहीं, प्राधिकारी होगा ।

5. **अनुमोदन का प्रमाण–पत्र.–** (1) कोई व्यक्ति जो भारतीय नागरिक है, यथास्थिति, खनन पट्टे या संविदा या निविदा आदि जैसी दीर्घकालिक रियायत प्राप्त करने के लिए, प्रथम अनुसूची में यथाविनिर्दिष्ट आवेदन फीस के संदाय पर, निदेशक या उसके द्वारा प्राधिकृत किसी अधिकारी से अनुमोदन का प्रमाण–पत्र प्राप्त करने का हकदार होगा । अनुमोदन के प्रमाण–पत्र के लिए आवेदन प्ररूप–'क' में निदेशक या इस निमित्त उसके द्वारा प्राधिकृत किसी अधिकारी को प्रस्तुत किया जाएगा ।

(2) निदेशक सरकार के पूर्व अनुमोदन से, ऐसे व्यक्ति को, जो भारत का नागरिक नहीं है, प्रथम अनुसूची में यथा विनिर्दिष्ट आवेदन फीस के संदाय पर, अनुमोदन का प्रमाण–पत्र प्रदान कर सकेगा ।

(3) अनुमोदन का प्रमाण–पत्र प्ररूप–'ख' में जारी किया जाएगा और ऐसे प्रमाण–पत्र को प्रदान करने की तारीख से पांच वर्ष की अवधि के लिए या खनिज की रियायत तक जो भी पूर्वतर हो, विधिमान्य रहेगा ।

(4) अनुमोदन का प्रमाण–पत्र सक्षम प्राधिकारी द्वारा प्ररूप–'ख' में तभी नवीकृत किया जाएगा यदि प्रथम अनुसूची में यथा निविर्दिष्ट नवीकरण फीस संदत्त कर दी गई है और इसके नवीकरण के लिए आवेदन को प्रमाण–पत्र के अवसान की तारीख से पूर्व प्रस्तुत कर दिया गया है ।

**स्पष्टीकरणः–** उप नियम(1) के प्रयोजन के लिए, कोई भी पट्टाधारक भारतीय नागरिक समझा जाएगा,

(क) कम्पनी अधिनियम, 2013 (2013 का अधिनियम संख्यांक 18) में यथा परिभाषित किसी सार्वजनिक कम्पनी की दशा में, यदि केवल कम्पनी के निदेशक बहुमत में भारत के नागरिक है और उसकी शेयर पूंजी का इक्यावन प्रतिशत से अन्यून ऐसे व्यक्तियों के पास है जो या तो भारत के नागरिक है या उक्त अधिनियम में यथा परिभाषित कम्पनियां है;

(ख) उक्त अधिनियम में यथा परिभाषित किसी प्राईवेट कम्पनी की दशा में, यदि केवल कम्पनी के समस्त सदस्य भारत के नागरिक है;

(ग) किसी फर्म या व्यष्टियों के अन्य संगम की दशा में, यदि केवल फर्म के समस्त भागीधार या संगम के सभी सदस्य भारत के नागरिक है; और

(घ) किसी व्यक्ति की दशा में, यदि केवल वह भारत का नागरिक है और यदि कोई प्रश्न उत्पन्न होता हो कि क्या कोई व्यक्ति भारतीय नागरिक है या नहीं तो यह केन्द्रीय सरकार को निर्दिष्ट किया जाएगा जिस पर उसका विनिश्चय अंतिम होगा ।

## अध्याय–2

## खनिज रियायतें प्रदान करना और खनन पट्टे के प्रदान करने के लिए शर्तें:–

6. **खनन पट्टा प्रदान करने पर निर्बन्धन** .– (1) कोई भी खनन पट्टा, सक्षम प्राधिकारी द्वारा विशेष परिस्थितयों के अधीन के सिवाय नगर निगम/नगरपालिका समिति की ठीक बाहरी सीमाओं से दो किलोमीटर नगर पंचायत की ठीक बाहरी सीमाओं से एक किलोमीटर की दूरी के भीतर भूमि की बाबत प्रदान नहीं किया जाएगा ।

(2) संयुक्त निरीक्षण समिति द्वारा विशेष छूट के सिवाय, कोई भी खनन पट्टा, राष्ट्रीय उच्चमार्ग/एक्सप्रैस मार्ग के छोर से 100 मीटर तक, राज्य उच्चमार्ग के छोर से 25 मीटर और अन्य मार्गों के छोर (किनारे ) से 10 मीटर तक प्रदान नहीं किया जाएगा ।

(3) कोई भी खनन प्रचालन संयुक्त निरीक्षण समिति द्वारा लोक उपयोगिताओं से नियत दूरी के भीतर अनुमत नहीं किया जाएगा ।

(4) किसी भी ऐसे व्यक्ति को खनिज रियायत प्रदान नहीं की जाएगी जिसके पास अनुमोदन का प्रमाण पत्र नहीं है ।

(5) किसी ऐसे व्यक्ति को खनन पट्टा प्रदान नहीं किया जाएगा जो भारत का नागरिक नहीं है ।

(6) अधिसूचित क्षेत्र में किसी व्यक्ति को सम्बद्ध ग्राम सभा की पूर्व संस्तुति के बिना कोई भी खनन पट्टा प्रदान नहीं किया जाएगा और स्टोन क्रशर का लगाया जाना (प्रतिष्ठापन) मंजूर नहीं किया जाएगा ।

(7) खनन पट्टे को प्रदान करने और स्टोन क्रशर के लगाए जाने (प्रतिष्ठापन) की अनुज्ञा के लिए अनुसूचित क्षेत्र से अन्यथा क्षेत्रों में सम्बन्धित ग्राम पंचायत से परामर्श किया जाएगा और ग्राम पंचायत का यह दायित्व होगा कि वह तीन मास की अवधि के भीतर अपना अनुमोदन या अस्वीकृति (इंकार) सूचित करे, ऐसा न होने पर यह समझा जाएगा कि ग्राम पंचायत का कोई आक्षेप नहीं है ।

सम्बद्ध ग्राम पंचायत के इनकार करने या उठाए गये किसी आक्षेप की दशा में, ऐसे इनकार/आक्षेप के लिए पर्याप्त कारणों को लिखित में अभिलिखित किया जाएगा । अनुदान प्राधिकारी द्वारा, संयुक्त निरीक्षण समिति से अभिमत/राय लेने के पश्चात् आक्षेप का पुर्नरीक्षण/विनिश्चय किया जाएगा:

परन्तु 5–00 हैक्टेयर से कम क्षेत्र वाली निजि (प्राईवेट) भूमि में ईंट मिट्टी और सामान्य भूमि की मिट्टी के खनन पट्टे को प्रदान करने के लिए, सम्बद्ध ग्राम पंचायत का परामर्श और अनुमोदन अपेक्षित नहीं होगा ।

(8) किसी भी वन क्षेत्र में खनन पट्टा वन संरक्षण अधिनियम, 1980 और तद्धीन बनाए गये नियमों के उपबन्धों के अनुसार केन्द्रीय सरकार से वन स्वीकृति, अन्नापति (फारेस्ट क्लीअरैंस) के बिना प्रदान नहीं किया जाएगा ।

(9) किसी भी ऐसे गौण खनिज की बाबत जिसे सरकार इस निमित्त समय–समय पर अधिसूचित करे कोई खनन पट्टा प्रदान नहीं किया जाएगा ।

7. **खनन पट्टे को प्रदान करने या उसका नवीकरण करने के लिए आवेदन** .– खनन पट्टे को प्रदान करने या उसका नवीकरण करने हेतु आवेदन राज्य भू विज्ञानी को प्ररूप–'ग' में, तीन प्रतियों में, किया जाएगा और उसमें निम्नलिखित विशिष्टियां अन्तर्विष्ट होंगी :–

(क) (i) यदि आवेदक एक व्यक्ति है तो उसका नाम, राष्ट्रीयता, व्यवसाय और आवासीय पता; और

(ii) यदि आवेदक एक भागीदारी फर्म, कम्पनी या संगम अथवा व्यष्टियों का संगम, चाहे निगमित हो या न हो, है तो उसका नाम, स्वरूप और कारोबार का स्थान और रजिस्ट्रीकरण या निगमन का स्थान;

(ख) गौण खनिज (खनिजों) का नाम /के नाम जिसके लिए आवेदक पट्टा प्राप्त करना चाहता है;

(ग) खनन पट्टे हेतु आवेदित क्षेत्र के नक्शा (ततीमा) के साथ राजस्व अभिलेख, अवधि, जिसके लिए पट्टा अपेक्षित है और प्रयोजन, जिसके लिए उत्खनन किए गये गौण (खनिजों) का उपयोग किया जाना है, भूमि अपेक्षित है, की अवस्थिति, सीमाओं और क्षेत्र को दर्शाता राजस्व नक्शा या योजना (प्लॉन) द्वारा दृष्टान्त सही विवरण जिसकी बाबत पट्टा अपेक्षित है;

(घ) विभाग से आवेदक के विरूद्व बकाया देयों, यदि कोई हों, को दर्शाते हुए कथन की प्रमाणित प्रति;

(ङ) आवेदक द्वारा कब्जारहित निजि (प्राईवेट) भूमि की दशा में, इस प्रमाण का शपथ–पत्र कि आवेदक ने खनन प्रचालन के कार्यान्वयन के लिए सम्बद्ध भू स्वामी (स्वामियों) से सतही अधिकार या सहमति प्राप्त कर ली है;

(च) आयकर समाशोधन की बाबत वचनबंधता;

(छ) खनिज आधारित उद्योग स्थापित करने हेतु प्रस्ताव की दशा में, प्रस्ताव की साध्यता को उपदर्शित करती तकनीकी रिपोर्ट;

(ज) (i) प्रथम अनुसूची में यथा विनिर्दिष्ट अप्रतिदेय फीस; और

(ii) प्ररूप–'ख' में अनुमोदन का प्रमाण–पत्र ।

**टिप्पणः–** खनन पट्टे के लिए आवेदन, इसकी प्राप्ति की तारीख से तीन वर्ष की अवधि के लिए विधिमान्य होगा जिसे तथापि निदेशक या इस निमित्त प्राधिकृत किसी अधिकारी द्वारा आगे और बढ़ाया जा सकेगा यदि उसका समाधान हो जाता है कि आवेदक, वांछित औपचारिकताओं को पूर्ण करने में देरी के लिए उत्तरदायी नही है ।

8. **आवेदन की अभिस्वीकृति .–** (1) जहां खनन पट्टा प्रदान करने या उसका नवीकरण करने हेतु आवेदन वैयक्तिक तौर पर परिदत्त किया जाता हे, तो इसकी रसीद तुरन्त अभिस्वीकृत की जाएगी ।

(2) जब ऐसा आवेदन रजिस्ट्रीकृत डाक द्वारा प्राप्त होता है तो इसकी रसीद प्राप्ति के तीन दिन के भीतर अभिस्वीकृत की जाएगी ।

(3) ऐसे प्रत्येक आवेदन की रसीद प्ररूप–'घ' में अभिस्वीकृत की जाएगी ।

9. **खनन पट्टा प्रदान करने हेतु प्राथमिकता .–** (1) निम्नलिखित को खनन पट्टा प्रदान करने में प्राथमिकता दी जाएगी ।

(क) प्रथम प्राथमिकता बहुउद्देशीय परियोजना और विद्युत विभाग तथा भारतीय राष्ट्रीय राजमार्ग प्राधिकरण में अवसंरचनात्मक परियोजनाओं के कार्यान्वयन से सम्बद्ध समस्त अभिकरणों और अन्य विभागों, जैसे कि हिमाचल प्रदेश लोक निर्माण विभाग, सिंचाई एवं जन–स्वास्थ्य विभाग आदि और राज्य महत्व की परियोजनाओं और उनके प्राधिकृत अभिकर्ताओं या संविदाकारों, जिन्हें सम्बद्ध विभाग की संस्तुति पर संकर्म आबंटित हुए है, को दी जाएगी;

(ख) दूसरी प्राथमिकता नये खनिज के खोजकर्ता को दी जाएगी; और

(ग) तीसरी प्राथमिकता ऐसे व्यक्ति को दी जाएगी, जो राज्य में खनिज आधारित उद्योग स्थापित करना चाहता है;

परन्तु जहां एक ही प्रवर्ग के दो या दो से अधिक व्यक्तियों ने एक ही भूमि की बाबत खनन पट्टे हेतु आवेदन किया है, वहां उस आवेदक का, जिसका आवेदन पहले प्राप्त हुआ है दूसरे आवेदक, जिसका आवेदन बाद में प्राप्त हुआ, पर, पट्टा प्रदान किए जाने हेतु अधिमानी अधिकार होगा:

परन्तु यह और कि जहां ऐसे आवेदन एक ही दिवस को प्राप्त हुए हों, वहां सरकार निम्नलिखित कारकों पर विचार करने के पश्चात् ऐसे आवेदकों में से किसी एक को खनन पट्टा प्रदान कर सकेगी जिसे यह उचित समझे:–

(क) आवेदक का खनन में अनुभव;

(ख) आवेदक की वित्तीय प्रास्थिति, स्थायित्व और भू विज्ञान और खनन के क्षेत्र में विशेष ज्ञान;

(ग) संकर्म के लिए पहले से नियोजित या नियोजित किए जाने वाले तकनीकी कर्मचारिवृन्द का भू विज्ञान और खनन में विशेष ज्ञान;

(घ) जहां आवेदक या उसके परिवार का सदस्य पूर्ववर्ती खनन कारोबार में लगा हुआ हो, सरकारी देयों और रॉयलेटी का समाशोधन; और

(ङ) आवेदक का संतोषजनक कार्य निष्पादन जहां वह पूर्ववर्ती खनन उद्योग में लगा हुआ था ।

(2) सरकार किसी ऐसे आवेदन को जिसका आवेदन बाद में प्राप्त हुआ हो अन्य आवेदक, जिसका आवेदन पहले प्राप्त हुआ के अधिमान में विशेष कारणों को लिखित में अभिलिखित करके, खनन पट्टा प्रदान कर सकेगी ।

(3) राज्य सरकार, कारणों को लिखित में अभिलिखित करके और आवेदक को संसूचित करके, आवेदित क्षेत्र के सम्पूर्ण या उसके किसी भाग पर किसी खनन पट्टे को प्रदान करने या उसके नवीकरण करने से इनकार कर सकेगी या किसी भाग पर खनन पट्टे को प्रदान करने या उसका नवीकरण करने से इंकार कर सकेगी ।

(4) खनन पट्टा आवेदन (आवेदनों) का एक पूर्विकता रजिस्टर अनुरक्षित किया जाएगा ।

(5) आवेदक, किसी भी स्तर पर कारणों को लिखित में अभिलिखित करके पूर्विकता को वापिस ले सकेगा ।

10. **संयुक्त निरीक्षण समिति** .— (1) प्रत्येक उपमण्डल में एक संयुक्त निरीक्षण समिति होगी जो निम्नलिखित से गठित होगी:—

| | | |
|---|---|---|
| (i) | सम्बद्ध उप–मण्डल अधिकारी (नागरिक) | अध्यक्ष; |
| (ii) | सम्बद्ध सहायक अरण्यपाल/वन परिक्षेत्र अधिकारी | सदस्य ; |
| (iii) | हिमाचल प्रदेश राज्य प्रदूषण नियन्त्रण बोर्ड का प्रतिनिधि | सदस्य ; |

(iv) सम्बद्ध अधिशाषी अभियन्ता या सहायक अभियन्ता, लोक निर्माण विभाग — सदस्य ;

(v) सम्बद्ध अधिशाषी अभियन्ता या सहायक अभियन्ता, सिंचाई एवं जनस्वास्थ्य विभाग — सदस्य ;

(vi) भू विज्ञानी या सहायक भू विज्ञानी या सम्बद्ध खनन अधिकारी — सदस्य सचिव ।

(2) संयुक्त निरीक्षण समिति, खनन/खदान स्थल के निरीक्षण का संचालन करेगी तथापि, निरीक्षण के प्रयोजन के लिए, कम से कम चार सदस्यों, अर्थात् अध्यक्ष, वन विभाग का सहायक अरण्यपाल/वन परिक्षेत्राधिकारी, सिंचाई एवं जन–स्वास्थ्य विभाग का अधिशाषी अभियन्ता/सहायक अभियन्ता और भू विज्ञानी/सहायक भू–विज्ञानी/खनन अधिकारी, की उपस्थिति अनिवार्य है और अन्य सदस्य अलग से अनापत्ति प्रमाण पत्र (एन.ओ.सी) जारी कर सकेंगे । अध्यक्ष, स्थल–अपेक्षा के अनुसार उक्त समिति में किन्ही अन्य अतिरिक्त सदस्यों को सहन्योजित कर सकेगा :

परन्तु 5–00 हैक्टेयर से अन्यून क्षेत्र वाली निजि(प्राईवेट) भूमि में ईंट मिट्टी और साधारण मिट्टी/गारे के उत्खनन की दशा में, समिति केवल सम्बन्धित उपमण्डल अधिकारी(नागरिक), हिमाचल प्रदेश राज्य प्रदूषण नियन्त्रण बोर्ड के प्रतिनिधि और सम्बद्ध खनन अधिकारी से गठित होगी ।

(3) संयुक्त निरीक्षण समिति, खान/खदान स्थल का अंकन करेगी और अपनी संप्रेक्षण और संस्तुति राज्य भू विज्ञानी को भेजेगी । यदि खनन पटटे के लिए आवेदित क्षेत्र सरकारी भूमि में आता है तो वन संरक्षण अधिनियम, 1980 के उपबन्धों को आकृष्ट करता हो तो रिपोर्ट सम्बन्धित वन मण्डल अधिकारी द्वारा प्रतिहस्ताक्षरित की जाएगी ।

11. **खनन् पट्टे का रजिस्टर .–** खनन पट्टों का रजिस्टर सम्बद्ध खनन अधिकारी के कार्यालय में प्ररूप–'ङ' में रखा जाएगा ।

12. **खनन पट्टे का क्षेत्र** .– (1)नदी तल में खनन पट्टे हेतु प्रदान किया गया न्यूनतम क्षेत्र दो हैक्टेयर से अन्यून का नहीं होगा और खनिज आधारित उद्योग हेतु एक सौ हैक्टेयर से अधिक नहीं होगा ।

(2) पहाड़ी ढलान में खनन पट्टे को प्रदान करने हेतु अपेक्षित न्यूनतम क्षेत्र 0.5 हैक्टेयर से अन्यून नहीं होगा :

परन्तु इन नियमों के प्रकाशन से पूर्व प्रदान किए गये खनन पट्टों की दशा में, उनके नवीकरण के समय पर खनन पट्टा क्षेत्र का निर्बन्धन लागू नहीं होगा:

परन्तु यह और कि राज्य सरकार का प्रस्तावित उत्पादन स्तर, भू–वैज्ञानिक या स्थलाकृतिक शर्तों के आधार पर, समाधान हो जाता है, कारणों को लिखित में अभिलिखित करके क्षेत्र की शर्त में छूट दे सकेगी ।

(3) कोई भी पट्टाधारक, वैयक्तिक रूप से या किसी व्यक्ति से संयुक्त हित में, हिमाचल प्रदेश में एक गौण खनिज की बाबत खनन पट्टे के अन्तर्गत, साधारणतः कुल क्षेत्र के पांच वर्ग किलोमीटर से अधिक क्षेत्र धरित नहीं करेगा:

परन्तु खनन पट्टे के नवीकरण के समय, पट्टाधारक क्षेत्र के किसी भाग को अभ्यर्पित करने का हकदार होगा ।

13. **पट्टा क्षेत्र की लम्बाई और चौड़ाई** .– (1) खनन पट्टे हेतु प्रस्तावित क्षेत्र ऐसा होगा कि यह मैटलीफिरस माइन्स रेगुलेशन, 1961 के अनुसार वैज्ञानिक खनन को समर्थ बना सके ।

(2) ईंट मिट्टी और साधारण मिट्टी/गारे के सिवाय खनन पट्टे के लिए कोई आवेदन केवल एक संदत क्षेत्र से सम्बन्धित होगा ।

(3) यदि राज्य सरकार की यह राय है कि किसी खनिज के विकास के हित में ऐसा करना आवश्यक है तो यह, कारणों को लिखित में अभिलिखित करके, किसी क्षेत्र, जो संदत या संलग्न क्षेत्र नहीं है, के सम्बन्ध में खनन पट्टे को प्रदान करना अनुज्ञात कर सकेगी ।

14. **सतह के नीचे सीमाएं .–** किसी खनन पट्टे से आच्छादित क्षेत्र की सीमाएं सतह से नीचे की ओर से भूमि के मध्य की ओर ऊर्ध्व रूप से बनाई जाएं ।

15. **प्रतिभूति निक्षेप और प्रतिभूति का प्रतिदाय .–** (1) आवेदक, पट्टा विलेख के निबन्धन और शर्तों की देय अनुपालना के लिए निदेशक के पक्ष में सम्यक् रूप से गिरवी रखी गई सावधि जमा प्राप्ति (एफ डी आर) के रूप में प्रथम अनुसूची में यथा विनिर्दिष्ट रकम प्रतिभूति के रूप में जमा करेगा ।

(2) पट्टेदार (पट्टेदारों) को खनन पट्टे के अवसान के पश्चात् बारह कलैण्डर मास के भीतर ऐसी तारीख को, जैसी सरकार नियत करें, खनन पट्टे की बाबत संदत्त प्रतिभूति निक्षेप की रकम को प्रतिदाय कर दिया जाएगा, यदि पट्टा विलेख के निबन्धन और शर्तों का कोई उल्लंघन नहीं हुआ है ।

16. **खनन पट्टे की अवधि .–** (1) खनन पट्टे की अवधि निम्न प्रकार से होगी,–

(क) गौण खनिजों, जो प्रमुख उपस्करों या विनिधानों के बिना निकाले जा सकते हो, जैसे कि नदी/नाले में उपलब्ध बालू, पत्थर और बजरी की खुली बिक्री के लिए पांच वर्ष;

(ख) गौण खनिजों, जिनमें खनिजों की खदाने विकसित करने हेतु विनिधान और उपस्कर अपेक्षित है; जैसे कि पहाड़ी ढलानों पर उपलब्ध चूना पत्थर, स्लेटों और भवन के पत्थरों, के लिए दस वर्ष; और

(ग) नदी/नाले के तलों या पहाड़ी ढलानों में उपलब्ध स्टोन क्रशिंग यूनिट के लिए नियंत्रित स्रोत के रूप में सहायक गौण खनिजों के लिए पंद्रह वर्ष:

परन्तु खनन पट्टा अवधि खनन योजना में संगठित खनिज संचय पर निर्भर करेगी:

परन्तु यह और कि खनन पट्टे को प्रदान करने के पश्चात्, प्रत्येक पांच वर्ष के अवसान के पश्चात् निदेशक उधोग द्वारा इस प्रयोजन हेतु उसके द्वारा गठित समिति के पुर्नरीक्षण और सिफारिशों के आधार पर और यह समाधान हो जाने पर कि पट्टेदार द्वारा पट्टा क्षेत्र को वैज्ञानिक

रीति में विकसित किया गया है तथा वह नियमित आधार पर समस्त सरकारी देयों का संदाय कर रहा है, पट्टा क्षेत्र में कार्य को अनुज्ञात किया जा सकेगा । पट्टेदार प्रत्येक पांच वर्ष के अवसान के छह मास पूर्व पट्टा क्षेत्र में कार्य के पुर्नरीक्षण हेतु आवेदन प्रस्तुत करेगा । पुर्नरीक्षण पर यदि यह पाया जाता हे कि पट्टेदार ने खनन योजना के उपबन्धों के अनुसार पट्टा क्षेत्र को व्यवस्थित और वैज्ञानिक रीति में विकसित नहीं किया है और उस पर सरकारी देयों का बकाया है तो पट्टा सुनवाई का अवसर प्रदान किए जाने के पश्चात्, समय से पूर्व समाप्त किए जाने हेतु दायी होगा ।

(2) खनन पट्टे के नवीकरण हेतु अपनाई जाने वाली प्रकिया, सम्बन्धित ग्राम पंचायत के साथ परामर्श के सिवाय, खनन पट्टे के नये अनुदान के लिए यथा अधिकथित प्रकिया के समरूप होगी । तथापि, खनन पट्टे के नवीकरण हेतु आवेदन पट्टे के अवसान से एक वर्ष से पूर्व वांछित दस्तावेजों सहित और प्रथम अनुसूची में यथा विनिर्दिष्ट अप्रतिदेय फीस से संदाय पर प्ररूप–'ग' में किया जाएगा । यह नवीकरण चतुर्थ अनुसूची में यथाविनिर्दिष्ट प्राधिकारी के इस समाधान के अध्यधीन होगा कि खानों को पट्टेदार द्वारा पट्टा–विलेख के निबन्धन और शर्तों के अनुसार विकसित किया गया है और उसके द्वारा मशनरी, उपस्करों पर पर्याप्त निक्षेप किया गया है और यह कि खानों को वैज्ञानिक रीति में संचालित और विकसित किया गया है तथा पट्टेदार नियमों के अधीन नियमित रूप से सरकारी देयों को संदत्त कर रहा है ।

(3) यदि खनन पट्टे के नवीकरण के लिए आवेदन समस्त औपचारिकताएं पूर्ण करने के पश्चात् समस्त वांछित दस्तावेजों सहित उप नियम (2) में विनिर्दिष्ट समय के भीतर किया गया है और प्राधिकारी द्वारा पट्टा अवधि के अवसान से पूर्व निपटान नहीं किया गया है तो निदेशक उद्योग, कारणों को लिखित में अभिलिखित करके ऐसे खनन पट्टे के नवीकरण होने तक आदेश द्वारा, खान में कार्य करना अनुज्ञात कर सकेगा ।

(4) जब नवीकरण प्रदान कर दिया जाता है तो अनिवार्य भाटक (किराया) या रॉयलेटी नवीकरण के समय प्रवृत्त दरों पर प्रभारित किया जाएगा परन्तु सतही भाटक (किराया), (यदि लागू हो) पृथकतः प्रभारित किया जाएगा ।

(5) इन नियमों के अधीन प्रदान की गई खनन पट्टे की वास्तविक अवधि से अनधिक एक या अधिक अवधि के लिए नवीकृत किया जा सकेगा ।

17. **खनन् पट्टे का प्रदान किया जाना और खन्न पट्टा विलेख का निष्पादन .–** (1) संयुक्त निरीक्षण समिति द्वारा किए गये संप्रेषण और संस्तुतियों के आधार पर, सक्षम प्राधिकारी द्वारा आवेदक के पक्ष में, खनन पट्टा प्रदान करने हेतु सम्बद्ध विभागों से अपेक्षित पर्यावरणीय और अन्य समाशोधन प्राप्त करने तथा अन्य अपेक्षित औपचारिकताओं को पूर्ण करने के लिए आशय–पत्र जारी किया जाएगा ।

(2) आवेदक द्वारा आशय–पत्र में यथा नियत शर्तों को पूर्ण करने के पश्चात् खनन पट्टा प्रदान करने हेतु आदेश जारी किया जाएगा ।

(3) जब खन्न पट्टा प्रदान करने के लिए आदेश जारी कर दिया जाता है तो इन नियमों के अधीन पट्टे की स्वीकृति हेतु सक्षम प्राधिकारी के स्वीकृति आदेश जारी करने की तारीख से तीन मास के भीतर पट्टा विलेख प्ररूप–'च' में निष्पादित किया जाएगा और यदि उपर्युक्त अवधि के भीतर पट्टे का निष्पादन नहीं होता है तो पट्टे की स्वीकृति के आदेश प्रतिसहृत समझे जाएंगे और आवेदन फीस को सरकार द्वारा समपहृत कर दिया जाएगाः

परन्तु जहां सरकार का समाधान हो गया है कि पट्टे के निष्पादन में विलम्ब के लिए पट्टेदार उत्तरदायी नहीं है तो वहां सरकार उक्त अवधि के अवसान के पश्चात् भी पट्टे का निष्पादन अनुमत कर सकेगी और पट्टे के चालू रहने की अवधि इसके निष्पादन की तारीख से प्रभावी होगी ।

(4) नवीकरण की दशा में, पट्टे की नवीकरण अवधि, जब तक कि अन्यथा कथित न हो, वास्तविक अवधि के अवसान के अगले दिन तक होगी ।

18. **खनन पट्टों की बाबत रॉयलेटी और हित, यदि कोई हो** .– (1) किसी खनन पट्टे का धारक, पट्टा क्षेत्र से उसके द्वारा निकाले जाने वाले किसी खनिज की बाबत, द्वितीय अनुसूची में उस गौण खनिज की बाबत विनिर्दिष्ट दरों पर अग्रिम में रायल्टी संदत्त करेगा ।

(2) सरकार, राजपत्र में अधिसूचना द्वारा प्रथम, द्वितीय और तृतीय अनुसूची को, या तो संपूर्ण राज्य या किसी विनिर्दिष्ट क्षेत्र की बाबत,उस दर पर जिससे किसी गौण खनिज के सम्बन्ध में रॉयलेटी संदेय होगी को ऐसी तारीख से जैसी अधिसूचना में विनिर्दिष्ट की जाए, बढ़ाने या कम करने के लिए, संशोधित कर सकेगी ।

(3) सरकार, अधिनियम या किन्ही अन्य नियमों में अंतर्विष्ट उपबन्धों पर प्रतिकूल प्रभाव डाले बिना किसी किराए पर चौबीस प्रतिशत प्रतिवर्ष की दर से साधारण ब्याज, रॉयलेटी या फीस (इन नियमों के अधीन संदेय किसी आवेदन फीस के अतिरिक्त) या इन नियमों के अधीन या किसी खनिज के निबन्धन और शर्तों के अधीन सरकार को देय अन्य रकम प्रभारित कर सकेगी ।

19. **खनन पट्टे की शर्तें** .– (1) प्रत्येक खनन पट्टा निम्नलिखित शर्तों के अध्यधीन होगा:–

(क) पट्टेदार, पट्टा क्षेत्र से निकाले जाने वाले गौण खनिजों पर द्वितीय अनुसूची में विनिर्दिष्ट दर पर अग्रिम में रॉयलेटी संदत्त करेगा । तथापि, पट्टेदार द्वारा उद्योगों को चूना भट्ठा से अन्यथा, जब कभी भी चूना पत्थर की आपूर्ति की जाती है, तो पट्टेदार द्वारा चूने के लिए रॉयलेटी प्रमुख खनिज के रूप में, जो भी अधिक हो, संदत्त की जाएगी । पट्टेदार प्रत्येक वर्ष के लिए तृतीय अनुसूची में विनिर्दिष्ट सीमाओं के अन्तर्गत ऐसा वार्षिक अनिवार्य भाटक (किराया) भी संदत्त करेगा जैसा सरकार द्वारा समय समय पर नियत किया जाए और यदि पट्टेदार एक ही क्षेत्र में एक से अधिक खनिज का कार्य अनुमत करता है तो

सरकार ऐसे प्रत्येक गौण खनिजों की बाबत पृथक अनिवार्य भाटक (किराया) प्रभारित कर सकेगी:

परन्तु पट्टेदार, प्रत्येक खनिज की बाबत या तो विलेख किराया या स्वामित्व (रॉयलेटी), जो भी अधिकतर हो, संदत्त करने हेतु दायी होगा परन्तु दोनों नहीं, तथापि, यदि सरकार द्वारा अपने स्तर पर खनन प्रचालन स्थगित किया गया है तो वह अनिवार्य भाटक (किराया) या रॉयलेटी संदत्त करने हेतु दायी नहीं होगा ।

(ख) रॉयलेटी स्वामित्व का परिकलन करने हेतु पट्टेदार, पूर्ववर्ती कलैण्डर मास में पट्टा क्षेत्र से निकाले गये और भेजे गये गौण खनिज (खनिजों) की कुल मात्रा और इसका मूल्य दर्शाती (देती) विवरणी और खनिज आधारित उद्योग की दशा में, मासिक विद्युत खपत बिल और अन्य वांछित ब्यौरे भी खनन कार्यालय को प्ररूप–'छ' में प्रत्येक मास की दस तारीख तक प्रस्तुत करेगा । यदि पट्टेदार, मास की दस तारीख तक पूर्ववर्ती मास के लिए देय रॉयलेटी जमा नहीं करवाता है तो मास की दस तारीख के पश्चात् व्यतिकम अवधि के लिए 24 प्रतिशत वार्षिक साधारण ब्याज प्रभारित किया जाएगा;

(ग) पट्टेदार, गत वित्तीय वर्ष के दौरान प्राप्त किए गये गौण खनिज (खनिजों की मात्रा और मूल्य, नियोजित नियमित श्रमिकों (पुरूष और महिलाएं पृथक्तः) की औसत संख्या और कार्य दिवसों की संख्या ओर उन्हें पृथकतः संदत्त की गई मजदूरी से सम्बन्धित सूचना देती विवरणी को प्ररूप–'ज' में प्रत्येक वर्ष 15 अप्रैल तक निदेशक तथा समबद्ध खनन अधिकारी को भी प्रस्तुत करेगा; और

(घ) यदि खनन पट्टे की भूमि सरकार से सम्बन्धित है तो पट्टेदार को रॉयलेटी /अनिवार्य भाटक (किराया) के अतिरिक्त तृतीय अनुसूची में यथा विनिर्दिष्ट दर पर सतही भाटक (किराया) भी संदत्त करना पड़ेगा ।

(2) पट्टेदार पट्टा क्षेत्र में पट्टे में विनिर्दिष्ट न किए गये किसी खनिज के खोज की रिपोर्ट ऐसी खोज के तीस दिन के भीतर सरकार को करेगा:

परन्तु यदि पट्टे में विनिर्दिष्ट न किए गये किसी खनिज की पट्टा क्षेत्र में खोज की जाती है तो पट्टेदार, सक्षम प्राधिकारी से उसकी अनुज्ञा प्राप्त न किए जाने तक ऐसे खनिज को न तो रखेगा (उपार्जित करेगा) और न ही उसका व्ययन करेगा ।

(3) पट्टेदार, सरकार के पुर्वानुमोदन के सिवाय खनन प्रचालनों के सम्बन्ध में किसी भी व्यक्ति को, जो भारत का नागरिक नहीं है, नियोजित नहीं करेगा ।

(4) सिवाय जहां सरकार, पर्याप्त कारणों से, अन्यथा अनुमत करती है, पट्टेदार पट्टा विलेख के निष्पादन के एक वर्ष की अवधि के भीतर खनन प्रचालन प्रारम्भ करेगा और तत्पश्चात् जानबूझकर किए गये किसी अवरोधक बिना समुचित, दक्षतापूर्ण और कार्यकुशल रीति में ऐसे प्रचालन संचालित करेगा ।

**स्पष्टीकरणः–** इस नियम के प्रयोजन के लिए खनन प्रचालनों में खान में कार्य करने के सम्बन्ध में मशीनरी स्थापित करना, ट्रॉमवे को विछाना या सड़कों का विनिर्माण करना सम्मिलित होगा ।

(5) पट्टेदार अपने खर्चे पर पट्टे से संलग्न योजना में दर्शाए गये सीमांकन को दर्शाने के लिए आवश्यक सीमा के चिन्ह और खम्बों को स्थापित करेगा और उनका हर वक्त अनुरक्षण करेगा तथा उन्हें अच्छी स्थिति में रखेगा ।

(6) पट्टेदार खान से प्राप्त किये गये समस्त खनिजों की मात्रा और अन्य विशिष्टियों को दर्शातें हुए, उनके परिवहन की पद्वति, यान की रजिस्ट्रीकरण संख्या, यान या पशु के प्रभारी व्यक्ति, और ले जाए गये खनिज का प्रकार और मात्रा, विकय मूल्य, उसमें नियोजित व्यक्तियों की संख्या और राष्ट्रीयता तथा खान की सम्पूर्ण योजनाओं के सही लेखें रखेगा और केन्द्रीय सरकार या सरकार द्वारा इस निमित्त प्राधिकृत किसी अधिकारी को किसी लेखे, योजना और उसके द्वारा अनुरक्षित

अभिलेखों का परीक्षण करने के लिए अनुज्ञात करेगा और केन्द्रीय सरकार या सरकार या इस निमित्त प्राधिकृत किसी अधिकारी को ऐसी सूचना, जैसी अपेक्षित हो, देगा ।

(7) पट्टेदार पट्टे के अधीन उसके द्वारा किये गये खनन प्रचालनों के क्रम में उसके द्वारा बनाई समस्त खाईयों (ट्रैन्चिज), गड्ढों और ड्रिल करने (ड्रिलिंग) के सही अभिलेख रखेगा और केन्द्रीय सरकार या सरकार द्वारा प्राधिकृत किसी अधिकारी को उसका निरीक्षण करने के लिए अनुज्ञात करेगा । ऐसे अभिलेख में निम्नलिखित विशिष्टियां अर्न्तर्विष्ट होंगी, अर्थातः–

(क) अवमृदा और तहें (स्ट्रेटा) जिनमें से ऐसी खाईयां (ट्रैन्चिज), गडढे या ड्रिलिंग होती है;

(ख) मिले कोई खनिज; और

(ग) ऐसी अन्य विशिष्टियां जिनकी केन्द्रीय सरकार या सरकार समय समय पर अपेक्षा करे ।

(8) पट्टेदार किसी रेलवे लाईन से, रेलवे प्रशासन की पूर्व लिखित अनुज्ञा के अनुसार और के अन्तर्गत से अन्यथा 100 मीटर या सक्षम प्राधिकारी की पूर्व अनुज्ञा के अनुसार और के अन्तर्गत से अन्यथा राष्ट्रीय उच्च मार्ग के किनारे से 100 मीटर या राज्य उच्च मार्ग के किनारे से 25 मीटर, अन्य सड़कों के किनारे से 10 मीटर या किसी जलाशय, नहर या भवन या आवासीय स्थलों से 50 मीटर की दूरी के भीतर किसी स्थल पर कोई खनन प्रचालन कार्यान्वित नहीं करेगा या कार्यान्वित करने के लिए अनुज्ञात नहीं किया जाएगा । रेलवे प्रशासन या संयुक्त निरीक्षण समिति ऐसी अनुज्ञा प्रदान करने में, ऐसी शर्तें अधिरोपित कर सकेगी जैसी यह उचित समझे ।

(9) पट्टेदार किसी भूमि के, जो पट्टेदार द्वारा धारित भूमि में समाविष्ट है या साथ लगती है या जिसके लिए उस तक पहुंच है, वर्तमान और भावी पट्टाधारकों या संविदाकारों की उस तक पहुंच के लिए युक्तियुक्त प्रसुविधाएं अनुज्ञात करेगा । पट्टेदार सरकार या केन्द्रीय सरकार द्वारा प्राधिकृत किसी अधिकारी को खानों में निरीक्षण के प्रयोजन के लिए पट्टे में समाविष्ट किसी भवन या भूमि में प्रवेश

करने के लिए अनुज्ञात करेगा और ऐसे निर्देशों का पालन करेगा जो निरीक्षण अधिकारियों द्वारा समय–समय पर वैज्ञानिक कार्यान्वयन और खनिजों के परिरक्षण के लिए जारी किए जाएं:

परन्तु यदि पट्टेदार उपनियम(9) के अधीन प्रवेश करने या निरीक्षण करना अनुज्ञात नहीं करता है तो सरकार पट्टे को रद्द कर सकेगी और नियम 15 के अधीन पट्टेदार द्वारा संदत्त प्रतिभूति निक्षेप पूर्णतयः या भागतः समपहृत कर सकेगी ।

(10) पट्टेदार खान के किसी भाग को, जो उसकी राय में किसी रेलवे लाइन, पुल, राष्ट्रीय उच्च मार्ग, जलाशय, टैंक, नहर, सड़क या किसी अन्य लोक संकर्मों या भवनों की ऐसी मजबूती या सहारे के लिए अपेक्षित है, यथास्थिति, रेलवे प्रशासन या सरकार के समाधानप्रद सुदृढ़ और स्थिर करेगा ।

(11) सरकार का समय–समय पर और पट्टे की अवधि के दौरान और सभी समयों पर उक्त गौण खनिजों और उनके समस्त उत्पादों जो उक्त भूमि पर या में जो एतद्द्वारा पट्टान्तरित है या कही और पट्टेदार के नियन्त्रणाधीन है पर अग्रव्याधिकार (जिसका प्रयोग पट्टेदार को लिखित में नोटिस द्वारा किया जाना है) होगा तथा पट्टेदार उसके समस्त गौण खनिजों या उत्पादों को प्रचलित बाजार दरों पर, ऐसी मात्रा में और ऐसी रीति में तथा ऐसे स्थानों पर, जैसे उक्त अधिकार को प्रयोग करने के नोटिस में विनिर्दिष्ट है, सरकार को परिदत्त करेगा ।

(12) पट्टेदार विस्फोटक के उपयोग के लिए प्ररूप–'झ' में तत्काल सूचना देगा, जैसे ही

(क) खनन में कार्य उपरिवर्ती तल से नीचे विस्तारित होता है;

(ख) किसी खुले ढलवां उत्खनन की इसके उच्चतम बिन्दू से न्यूनतम बिन्दू तक मापी गई गहराई छः मीटर तक पहुंच गई हो;

(ग) किसी दिवस को नियोजित व्यक्तियों की संख्या 50 (पचास) से अधिक हो गई हो; और

(घ) विसफोटक प्रयोग में लाए गये हों ।

(13) जब खन्न पट्टा सरकार द्वारा प्रदान किया गया है, तो पट्टे के अधीन प्रदान किए गये क्षेत्र के सर्वेक्षण और सीमांकन के लिए, यदि आवश्यक हो, पट्टेदार के खर्चे पर व्यवस्था की जाएगी । पट्टेदार को कार्य के लिए प्रतिनियुक्त कर्मचारिवृन्द का वास्तविक व्यय वहन करना होगा । वास्तविक व्यय में यात्रा भत्ता, दैनिक भत्ता और कर्मचारिवृन्द के वेतन सहित उपकरण प्रभारों के रूप में दस प्रतिशत सम्मिलित होगा ।

(14) खन्न पट्टे में ऐसी अन्य शर्तें अन्तर्विष्ट हो सकेगी जैसी सरकार निम्नलिखित की बाबत आवश्यक समझे, अर्थातः–

(i) समय सीमा भाटक(किराए) और रॉयलेटी के संदाय की पद्धति और स्थान;

(ii) पट्टे के अन्तर्गत भूमि को हुई क्षति के लिए प्रतिकर;

(iii) वृक्षों का गिरान;

(iv) किसी प्राधिकरण द्वारा प्रतिषिद्ध किसी क्षेत्र में सतही प्रचालनों का निर्बन्धन;

(v) सतही अधिभोग के लिए पट्टेदार द्वारा नोटिस;

(vi) पट्टे पर लिए गये क्षेत्र या साथ लगते क्षेत्र में अन्य गौण खनिजों के प्रचालन के लिए पट्टेदार द्वारा दी जाने वाली सुविधाएं;

(vii) आरक्षित और संरक्षित वन में प्रवेश करना और उसमें प्रचालन;

(viii) गड्ढों और शाफटों की सुरक्षा करना;

(ix) दुर्घटनाओं की रिपोर्ट करना;

(x) तृतीय पक्षकारों के दावों के विरूद्व सरकार का परित्राण;

(xi) खनन क्षेत्र में स्वच्छता स्थितियों का अनुरक्षण;

(xii) पट्टे के पर्यवसान के पश्चात् शेष सम्पति का समपहरण;

(xiii) पट्टे के समर्पण, अवसान या पर्यवसान पर भूमि और खानों पर कब्जे का परिदान;

(xiv) युद्ध या आपातकाल की दशा में संयन्त्र, मशीनरी, परिसरों और खानों का कब्जा लेने की शक्ति;

(xv) हिमाचल प्रदेश राज्य क्षेत्र के भीतर पट्टे पर लिए गये क्षेत्र से खनिज के परिवहन की पद्धति और व्यवस्था; और

(xvi) किसी भी शिलाखण्ड, पन पत्थरों और हाथ से तोड़े जाने वाले कंकरीट का राज्य से बाहर परिवहन नहीं किया जाएगा ।

(15) नदी/नाले के तल में यान्त्रिक खनन केवल सक्षम प्राधिकारी अर्थात् निदेशक की अनुज्ञा से ही बिना पीछे की ओर सुराख किए 80 हॉर्स पावर तक टायर मांउटिड फ्रण्ट एण्ड लोडर की सहायता से, अनुज्ञात किया जाएगा । पट्टा धारक ऐसी अनुज्ञा प्राप्त करने के लिए प्रतिभूति के रूप में प्रथम अनुसूची में यथा विनिर्दिष्ट रकम जमा करेगा और निदेशक निम्नलिखित निबन्धनों और शर्तो के अन्तर्गत यांत्रिक खनन के प्रयोग की अनुज्ञा दे सकेगा:–

(i) सतह से नीचे गड्ढे की गहराई नदी/नाले के तल की दशा में साथ लगती भूमि से एक मीटर से अधिक नहीं होगी;

(ii) जल के प्राकृतिक बहाव को बाधित नहीं किया जाएगा;

(iii) खनिज का उत्खनन वैज्ञानिक रीति में खनिज के एक समान टुकड़ों (स्ट्रीपिंग) में किया जाएगा;

(iv) सक्षम प्राधिकारी द्वारा अधिरोपित की जाने वाली कोई अन्य शर्त;

(v) ऐसी अनुज्ञा प्रदान करते समय अधिरोपित निबन्धनों और शर्तो के उल्लंघन के परिणामस्वरूप अनुज्ञा का रद्दकरण उसकी प्रतिभूति की रकम का समपहरण हो जाएगा:

परन्तु पट्टा धारक पहाड़ी ढलान खनन में किसी भी प्रकार के उत्खनन का प्रयोग कर सकेगा ।

(16) (i) सरकारी भूमि की दशा में, सरकार लिखित में दो मास पूर्व नोटिस देकर, पट्टे का पर्यवसान कर सकेगी यदि सरकार समझती है कि पट्टे के अन्तर्गत के गौण खनिज (खनिजों) लोकहितप्रद किसी उधोग को स्थापित करने के लिए अपेक्षित है:

परन्तु राष्ट्रीय आपातकाल या युद्ध की दशा में पट्टे का ऐसा नोटिस दिए बिना, पर्यवासन किया जा सकेगा ।

(ii) जहां सरकार की यह राय है कि खान और खनिज विकास विनियमन, प्राकृतिक पर्यावरण के परिरक्षण, बाढ़–नियंत्रण, प्रदूषण नियन्त्रण और लोक स्वास्थ्य के खतरे का निवारण या संसूचना या भवन, स्मारकों या अन्य अवसंरचनाओं की सुरक्षा सुनिश्चित करना या ऐसे अन्य प्रयोजनों, जिसे राज्य सरकार उचित समझे, के हित में समाचीन है तो वह आदेश द्वारा किसी गौण खनिज की बाबत ऐसे पट्टे के अन्तर्गत उसके किसी भाग के सम्बन्ध में खनन पट्टे को समयपूर्व समाप्त कर सकेगी:

परन्तु खनन पट्टे को समयपूर्व समाप्त करने का कोई भी आदेश पट्टा धारक को सुनवाई का युक्तियुक्त अवसर दिए बिना नहीं किया जाएगा ।

(iii) सरकार के पास पट्टेदार को नोटिस जिसमें पट्टेदार को नोटिस की प्राप्ति की तारीख से, तीस दिन की अवधि के भीतर देयों का संदाय करने को कहा गया हो की तामील करने के पश्चात् पट्टा पर्यवसित करने का अधिकार होगा यदि पट्टेदार द्वारा संदेय किए जाने वाले आरक्षित या अनिवार्य भाटक या रॉयलेटी या सतही भाटक (सर्विसरेन्ट) पट्टा विलेख में उसके संदाय के लिए नियत तारीख के पश्चात् उसके आगामी पन्द्रह दिन के भीतर संदत्त नहीं किया गया है तो सरकार या इस

निमित्त उसके द्वारा प्राधिकृत कोई अन्य अधिकारी भी पूर्वोक्त नोटिस की तामील के पश्चात् किसी भी समय उक्त परिसर में प्रवेश कर सकेगा और उसमें समस्त या किसी गौण खनिज या चल सम्पति या उसके उतने भाग जो देय भाटक या रॉयलेटी और उसके असंदाय के कारण समस्त लागतों और व्ययों के समाधानप्रद पर्याप्त है को करस्थम् कर सकेगा तथा इस करस्थम की गई सम्पति को ले जा सकेगा या निरूद्व कर सकेगा या विक्रय करने के आदेश दे सकेगा । पट्टा क्षेत्र में स्थापित समस्त अचल और चल सम्पति पट्टे के अवसान के पश्चात् सरकार की सम्पति हो जाएगी ।

(17) खनन पट्टे में कोई अन्य विशेष शर्तें हो सकेगी, जैसी सरकार द्वारा विनिर्दिष्ट की जाए ।

20. **पट्टेदार के अधिकार.–** नियम 19 में वर्णित शर्तों के अध्यधीन, पटटेदार को, उसे पट्टे पर प्रदान की गई भूमि के सबन्ध में, उस भूमि पर खनन प्रचालन के प्रयोजन के लिए,–

(i) खान का कार्य करने;

(ii) गड्ढे खोदने और शाफ्टस तथा भवनों और सड़क का सनिर्माण करने;

(iii) संयन्त्र और मशीनरी की स्थापना करने;

(iv) चट्टे लगाने के प्रयोजन के लिए भू उपयोग करने;

(v) पट्टे में विनिर्दिष्ट कोई अन्य कार्य करने; और

(vi) स्टोन क्रशर को प्रदान लिए गये पट्टे से बालू, नदी से निकलने वाली बजरी, क्रशर डस्ट तथा साधारण मिट्टी/गारे का विक्रय करने, का अधिकार होगा ।

21. **खनन पट्टे का अन्तरण .–** (1) पट्टेदार, मंजूरी प्राधिकारी के पूर्वानुमोदन से अपने पट्टे या किसी अधिकार, हक या उसके हित को प्रथम अनुसूची में यथा विनिर्दिष्ट रकम का संदाय करने पर अनुमोदन का

कोई विधिमान्य प्रमाण–पत्र धारण करने वाले किसी व्यक्ति या प्रत्यक्षतः खनन प्रचालन करने वाले निकाय को समनुदेशित, आगे भाड़े पर दे सकेगा या उसका अन्तरण कर सकेगा ।

(2) आवेदक प्रथम अनुसूची में यथाविनिर्दिष्ट रकम के संदाय पर अनुमोदन के किसी विधिमान्य प्रमाण–पत्र को धारण करने वाले किसी व्यक्ति के पक्ष में पहले ही जारी 'आशय पत्र' या आदेश प्रदान के हक या नाम में भी परिवर्तन कर सकेगा ।

(3) जहां उप नियम(1) के अधीन खनन पट्टे के अन्तरण के लिए कोई आवेदन किया गया है और सक्षम प्राधिकारी ने ऐसे पट्टे के अन्तरण के लिए अनुमोदन प्रदान कर दिया है तो प्ररूप–'ञ' में अन्तरण पट्टा विलेख आदेश को जारी करने की तारीख से तीन मास के भीतर या ऐसी अन्य अवधि के भीतर, जैसी सक्षम प्राधिकारी इस निमित्त अनुज्ञात करें, निष्पादित किया जाएगा ।

22. **पट्टे को अभ्यर्पित करने का अधिकार .–** पट्टेदार सरकार को समस्त परादेय देयों को संदत्त करने और खान को बन्द करने की योजना की शर्तों को परिपूर्ण करने के पश्चात् सक्षम प्राधिकारी को छः कैलेण्डर मास से अन्यून का नोटिस देकर किसी भी समय पट्टे को अभ्यर्पित कर सकेगा ।

**संविदाएं प्रदान करना :**

23. **नीलामी या निविदा द्वारा संविदाएं प्रदान करना .–** (1) यदि सरकार संविदा के रूप में खनन रियायत प्रदान करने का विनिश्चय करती है तो यह नीलामी या निविदा के माध्यम से प्रतियोगी बोली प्रकिया का अनुसरण करके दस वर्ष की अधिकतम् अवधि के लिए उसे खनन के लिए दे सकेगी :

परन्तु वन भूमि की दशा में संविदा की अवधि अधिकतम पन्द्रह वर्ष तक बढ़ाई जा सकेगी ।

(2) कोई भी नीलामी या निविदा या संविदा तब तक सफल नहीं समझी जाएगी जब तक कि सक्षम प्राधिकारी द्वारा इस पर स्वीकृति प्रदान न की गई हो । सफल बोली/निविदा की रकम दो वर्ष की अवधि के लिए सरकार को संविदाकार द्वारा संदेय वार्षिक संविदा रकम होगी और दो वर्ष की

अवधि के पूर्ण होने के पश्चात् आरम्भ में प्रदान करने के समय चकवृद्धि रीति में अवधारित वार्षिक संविदा की रकम प्रतिवर्ष दस प्रतिशत की दर से कम्पाउडिंग की जाएगी :

परन्तु अधिसूचित क्षेत्र में गौण खनिजों के विदोहन से सम्बन्धित, यथास्थिति, कोई नीलामी या निविदा या संविदा पर सरकार द्वारा तब तक मंजूरी के लिए विचार नहीं किया जाएगा जब तक कि ग्राम सभा द्वारा संस्तुति न की गई हो ।

(3) उप नियम(2) के अधीन संविदाकार द्वारा सरकार को वार्षिक रूप से संदत्त की जाने वाली रकम अग्रिम में बराबर त्रैमासिक किश्तों में संदेय होगी ।

(4) करार विलेख सफल बोलीदाता या निविदाकार द्वारा प्ररूप–'ट' में निदेशक या किसी अन्य प्राधिकृत अधिकारी के पास निष्पादित किया जाएगा और खनन प्रचालन करार विलेख के निबन्धनों और शर्तों के अनुसार कार्यान्वित किया जाएगा ।

(5) संविदा प्रदान करने की दशा में पक्षकार को अपनी बोली या निविदा को प्रत्याहृत करने के लिए अनुज्ञात नहीं किया जाएगा और ऐसा करने पर पक्षकार अग्रिम धन और प्रतिभूति के समपहरण के लिए दायी होगा ।

(6) नदी/नाले के तल में यान्त्रिक खनन केवल निदेशक की अनुज्ञा से ही पीछे की ओर गड्ढा किए बिना 80 हॉर्स पावर तक टायर मांउडिट फ्रन्ट एण्ड लोडर की सहायता से अनुज्ञात किया जाएगा । संविदाकार ऐसी अनुज्ञा प्राप्त करने के लिए प्रतिभूति के रूप में प्रथम अनुसूची में यथाविनिर्दिष्ट रकम जमा करेगा और निदेशक निम्नलिखित निबन्धनों और शर्तों पर यान्त्रिक खनन के प्रयोग की अनुज्ञा दे सकेगाः–

(i) सतह से नीचे गडढे की गहराई नदी/नाले के तल की दशा में साथ लगती भूमि से एक मीटर से अधिक नहीं होगी;

(ii) जल के प्राकृतिक बहाव को बाधित नहीं किया जाएगा;

(iii) खनिज का उत्खनन वैज्ञानिक रीति में खनिज के एक समान टुकड़ों (स्ट्रीपिंग) में किया जाएगा;

(iv) सक्षम प्राधिकारी द्वारा अधिरोपित की जाने वाली कोई अन्य शर्त; और

(v) ऐसी अनुज्ञा प्रदान करते समय अधिरोपित निबन्धनों और शर्तों के उल्लंधन के परिणामस्वरूप संविदा का रद्दकरण और उसकी प्रतिभूति की रकम का समपहरण हो जाएगा :

परन्तु संविदाकार पहाड़ी ढलान खनन में किसी भी प्रकार के उत्खनक का प्रयोग कर सकेगा ।

(7) संविदाकार प्ररूप–'छ' में उत्पादन और अन्य विषयों के सम्बन्ध में विवरणियॉ प्रस्तुत करेगा ।

(8) किसी भी व्यक्ति को जिसके पास प्ररूप –'ख' में अनुमोदन का प्रमाण पत्र नहीं है, को कोई संविदा प्रदान नहीं की जाएगी ।

24. **नीलामी/निविदा समिति .–** राज्य सरकार नीलामी संचालित करने के लिए और इसे अंतिम रूप देने के लिए सम्बद्ध जिला हेतु समिति(यां) गठित करेगी जो बोलीदाता या निविदाकार को कारण बताए बिना किसी बोली या निविदा को नांमजूर या मंजूर कर सकेगी और बोली या निविदा के नामंजूर किए जाने की दशा में कारण की सरकार को रिपोर्ट की जाएगी ।

25. **नीलामी या निविदा का नोटिस .–** निदेशक द्वारा नीलामी या संविदा निम्नलिखित रीति में अधिसूचित की जाएगी:–

(i) निदेशक , उपमण्डल अधिकारी(नागरिक), खनन अधिकारी के कार्यालय के नोटिस बोर्ड पर और जहां खान/खदान अवस्थित है, के क्षेत्र में व्यापक परिचालन वाले कम से कम दो समाचार पत्रों, जिनमें से एक हिन्दी में होना चाहिए, में प्रकाशित करके;

(ii) राजपत्र, हिमाचल प्रदेश में नीलामी या निविदा की तारीख से कम से कम तीस दिन पूर्व नीलामी के नोटिस के प्रकाशन द्वारा । नीलामी या निविदा की एक प्रति क्षेत्र में अधिकारिता रखने वाले स्थानीय प्राधिकरण को जहां खान अवस्थित है, व्यापक प्रचार के लिए भेजी जाएगी;

(iii) नीलामी या निविदा के नोटिस में स्थान, तारीख, समय और पद्धति सहित अग्रिम धन तथा नीलामी या संविदा के संदाय की पद्धति के सम्बन्ध में संक्षिप्त विशिष्टि अन्तर्विष्ट होगी । खान/खदान का ब्यौरा, संविदा में देना होगा, संविदा की अवधि और आरक्षित मूल्य, अग्रिम धन, नीलामी या संविदा के निबन्धन और शर्तें, खान की अवस्थिति तथा अन्य सुसंगत सूचना की बाबत विस्तृत विशिष्टियां राज्य भू–विज्ञानी और सम्बद्ध खान अधिकारी के कार्यालय में उपलब्ध होगी; और

(iv) संविदा के निबंधन और शर्तें तथा विशिष्टियां नीलामी के समय आशयित बोलीदाताओं को पढ़कर सुनाई जाएंगी । निविदा की दशा में, संविदा के निबन्धन, शर्तें और विशिष्टियां निविदा के प्ररूप के साथ संलग्न की जाएंगी ।

26. **नीलामी द्वारा संविदा प्रदान करने के लिए प्रकिया** .– (1) आशयित बोलीदाता ऐसा अग्रिम धन, जैसा नियम 25 के खण्ड (iii) में यथा विनिर्दिष्ट है, जमा करेगा ।

(2) कोई भी बोली तब तक मंजूर नहीं समझी जाएगी जब तक सक्षम प्राधिकारी द्वारा इसकी पुष्टि न कर दी गई हो । नीलामी के पूर्ण होने पर परिणाम घोषित कर दिया जाएगा और अन्तिम तथा चयनित बोलीदाता उच्चतम बोली की रकम का पच्चीस प्रतिशत संविदा के निबन्धनों और शर्तो की सम्यक् अनुपालना के लिए प्रतिभूति के रूप में तुरन्त जमा करेगा ।

(3) अग्रिम धन का बोली पूर्ण होने पर समस्त व्यक्तियों को तुरन्त प्रतिदाय किया जाएगा सिवाय उस व्यक्ति के, जिसकी बोली अन्तिमतया मंजूर की गई और उसका अग्रिम धन उप नियम(2) के अधीन प्रतिभूति के विरूद्व समायोजित किया जाएगा ।

(4) किसी बोलीदाता द्वारा नीलामी के दौरान कदाचार से उसके अग्रिम धन को समपहृत किया जा सकेगा या उसे नीलामी प्रकिया से विवर्जित किया जा सकेगा या यदि आवश्यक हो तो उसे पीठासीन अधिकारी द्वारा इन नियमों के अधीन किसी भावी नीलामी से तीन वर्ष की अवधि के लिए विवर्जित किया जा सकेगा ।

(5) यदि अन्तिमतया चयनित बोलीदाता उप नियम(2) के अधीन यथा अपेक्षित प्रतिभूति की रकम जमा करने में असफल रहता है तो इस नियम के उप नियम(1) के अधीन जमा किया गया अग्रिम धन सरकार को समपहृत हो जाएगा ।

(6) सफल बोलीदाता को सक्षम प्राधिकारी द्वारा इस शर्त के साथ 'आशय पत्र' जारी किया जाएगा कि वह सक्षम प्राधिकरण से पर्यावरण स्वीकृति अनुमोदित खनन योजना और स्वीकृति (यदि अपेक्षित हो) प्राप्त करेगा और आशय पत्र जारी करने की तारीख से दो वर्ष की अवधि के भीतर अंतिम रूप से मंजूर की गई बोली से पूर्व विधि के अधीन आवश्यक औपचारिकताएं भी पूरी करेगा:

परन्तु यदि निदेशक का समाधान हो जाता है कि कि आशय पत्र का धारक विभिन्न स्वीकृतियों को प्राप्त करने में हुए विलम्ब के लिए उत्तरदायी नहीं है तो वह अवधि को एक और वर्ष के लिए बढ़ा सकेगा । यदि आशय पत्र का धारक विस्तारित अवधि में भी अपेक्षित स्वीकृतियों को प्राप्त करने में असफल रहता है तो आशय पत्र प्रत्याहृत कर दिया जाएगा और इस नियम के उप नियम(2) के अधीन जमा प्रतिभूति की रकम सरकार को समपहृत हो जाएगी तथा क्षेत्र की पुनः नीलामी की जाएगी ।

(7) सफल संविदाकार/प्रस्तावक द्वारा 'आशय पत्र' में नियत शर्तों को पूर्ण किए जाने के पश्चात् और नियम 23 के उपनियम (2) के अधीन यथा अवधारित संविदा रकम के अनुसार वार्षिक बोली के पच्चीस प्रतिशत के संदाय के लिए अंतिम मंजूरी आदेश जारी करेगा ।

(8) प्ररूप –'ट' में करार विलेख सफल संविदाकार और सक्षम प्राधिकारी के मध्य सफल संविदाकार को, बोली की अंतिम मंजूरी को संसूचित करने की तारीख से साठ दिन के भीतर निष्पादित किया जाएगा और इस अवधि के दौरान कोई ऐसी संविदा निष्पादित नहीं की जाती है तो बोली मंजूर करने का आदेश प्रतिसंहृत समझा जाएगा और उप नियम(2) के अधीन संदत्त प्रतिभूति रकम सरकार को समपहृत हो जाएगी:

परन्तु यदि सक्षम प्राधिकारी का समाधान हो जाता है कि बोलीदाता संविदा के निष्पादन के विलम्ब के लिए उत्तरदायी नहीं है तो वह साठ दिन की पूर्वोक्त अवधि के अवसान के पश्चात् युक्तियुक्त समय के भीतर संविदा के निष्पादन की अनुज्ञा दे सकेगा ।

(9) संविदा की अवधि के अवसान के पश्चात् यदि सरकार या प्राधिकृत अधिकारी का समाधान हो जाता है कि संविदाकार करार के समस्त निबन्धनों को पूरा करता है तो प्रतिभूति की रकम का संविदाकार को प्रतिदाय कर दिया जाएगा ।

27. **निविदा आमन्त्रित करने के लिए प्रकिया .–** (1) प्रत्येक निविदा, निविदाकार के सुसंगत ब्यौरों सहित लिखित बन्द लिफाफे में, निदेशक या इस निमित्त उसके द्वारा प्राधिकृत किसी अन्य अधिकारी को प्रस्तुत की जाएगी ।

(2) प्रत्येक निविदा नियम 25 के खण्ड (iii) के अधीन जारी नोटिस में यथा विनिर्दिष्ट अग्रिम धन सहित की जाएगी ।

(3) निविदा, निविदाकारों, जो निविदा खोलने के लिए अधिसूचित समय और स्थान पर उपस्थित हो सके, की उपस्थिति में खोली जाएगी । निविदाओं को खोलने के पश्चात् परिणाम घोषित किया

जाएगा और अन्तिम तथा चयनित निविदाकार संविदा के निबन्धनों और शर्तो की सम्यक् अनुपालना के लिए प्रतिभूति के रूप में संविदा बोली की कुल रकम की पच्चीस प्रतिशत रकम तुरन्त जमा करेगा ।

(4) अग्रिम धन का निविदा प्रकिया पूर्ण हो जाने पर समस्त व्यक्तियों को प्रतिदाय कर दिया जाएगा सिवाय उस व्यक्ति के जिसकी निविदा अनन्तिमतया मंजूर की गई है और उसका अग्रिम धन उप नियम(2) के अधीन प्रतिभूति के विरूद्व समायोजित किया जाएगा ।

(5) निविदा प्रकिया के दौरान किसी निविदाकार द्वारा गिए गये कदाचार को गम्भीरता से लिया जाएगा और उसके अग्रिम धन को समपहृत किया जा सकेगा या उसे निविदा प्रकिया से विवर्जित किया जा सकेगा और यदि आवश्यक हो तो उसे इन नियमों के अधीन किसी भावी संविदा से तीन वर्ष की और अवधि के लिए विवर्जित किया जा सकेगा ।

(6) यदि अनन्तिमतया चयनित निविदाकार इस नियम के उप नियम(3) के अधीन यथा अपेक्षित प्रतिभूति रकम जमा करने में असफल रहता है तो इस नियम के उप नियम(2) के अधीन जमा किया गया अग्रिम धन सरकार को समपहृत हो जाएगा ।

(7) सफल निविदाकार को सक्षम प्राधिकारी द्वारा इस शर्त के साथ 'आशय पत्र' जारी किया जाएगा कि वह सक्षम प्राधिकरण से पर्यावरण स्वीकृति अनुमोदित खनन योजना और वन स्वीकृति (यदि अपेक्षित हो) प्राप्त करेगा और आशय पत्र जारी करने की तारीख से दो वर्ष की अवधि के भीतर अंतिम रूप से मंजूर की गई निविदा से पूर्व विधि के अधीन अपेक्षित आवश्यक औपचारिकताएं भी पूरी करेगा:

परन्तु यदि निदेशक का समाधान हो जाता है कि आशय पत्र का धारक विभिन्न स्वीकृतियों को प्राप्त करने में हुए विलम्ब के लिए उत्तरदायी नहीं है तो वह अवधि को एक और वर्ष के लिए बढ़ा सकेगा । यदि आशय पत्र का धारक विस्तारित अवधि के भीतर अपेक्षित

स्वीकृतियों को प्राप्त करने में असफल रहता है तो आशय पत्र प्रत्याहृत कर दिया जाएगा और इस नियम के उप नियम(3) के अधीन जमा प्रतिभूति की रकम सरकार को समपहृत हो जाएगी तथा क्षेत्र की पुनः नीलामी की जाएगी या पुनः निविदा की जाएगी ।

(8) सफल संविदाकार/प्रस्तावक द्वारा ' आशय पत्र' में नियत शर्तों को पूर्ण कर दिए जाने के पश्चात् सक्षम प्राधिकारी द्वारा करार विलेख के निष्पादन और नियम 23 के उप नियम (2) के अधीन यथा अवधारित संविदा रकम के अनुसार वार्षिक बोली के पच्चीस प्रतिशत के संदाय के लिए अंतिम मंजूरी आदेश जारी करेगा ।

(9) प्ररूप –'ट' में करार विलेख सफल संविदाकार और सक्षम प्राधिकारी के मध्य, सफल निविदाकार को बोली की अंतिम मंजूरी को संसूचित करने की तारीख से साठ दिन के भीतर, निष्पादित किया जाएगा और यदि पूर्वोक्त अवधि के दौरान कोई संविदा निष्पादित नहीं की जाती है तो निविदा के मंजूर करने का आदेश प्रतिसंहृत समझा जाएगा और उप नियम(3) के अधीन संदत्त प्रतिभूति की रकम सरकार को समपहृत हो जाएगी:

परन्तु यदि सक्षम प्राधिकारी का समाधान हो जाता है कि निविदाकार संविदा के निष्पादन में विलम्ब के लिए उत्तरदायी नहीं है, तो वह साठ दिन की पूर्वोक्त अवधि के अवसान के पश्चात् युक्तियुक्त समय के भीतर संविदा के निष्पादन की अनुज्ञा दे सकेगा ।

(10) संविदा की अवधि के अवसान के पश्चात् यदि सरकार या प्राधिकृत अधिकारी का समाधान हो जाता है कि संविदाकार करार के समस्त निबन्धनों और शर्तों को पूरा करता है तो प्रतिभूति की रकम का संविदाकार को प्रतिदाय कर दिया जाएगा ।

28. **अल्पकालिक नीलामी के लिए प्रक्रिया** .– (1) अभिगृहीत/अनाधिकृत रूप से निकाले गये गौण खनिज के शीघ्र निपटान के लिए, नोटिस, जिसमें अभिगृहीत खनिज की लगभग मात्रा, नीलामी की तारीख और स्थान और अग्रिम धन की रकम का वर्णन हो जो सम्बन्धित खनन अधिकारी द्वारा प्रश्नगत अभिगृहीत

खनिज के परिक्षेत्र में व्यापक प्रचार के लिए सम्बन्धित खनन अधिकारी द्वारा जारी किया जाएगा और जिसे उप मण्डल अधिकारी (नागरिक), खण्ड विकास अधिकारी और स्वशासन के स्थानीय निकाय के सम्बन्धित कार्यालय के नोटिस बोर्ड पर प्रदर्शित किया जाएगा, के माध्यम से अल्पकालिक नीलामी प्रक्रिया का अनुसरण किया जाएगा ।

(2) नोटिस अल्पकालिक नीलामी की तारीख से कम से कम एक सप्ताह पूर्व प्रदर्शित किया जाएगा । नोटिस की एक प्रति क्षेत्र में अधिकारिता रखने वाले प्राधिकरण को भेजी जाएगी ।

(3) प्रत्येक बोलीदाता अग्रिम धन, सम्बन्धित खनन अधिकारी के पक्ष में क्रॉस किए गये नकद ड्राफट के माध्यम से जमा करेगा । आरक्षित मूल्य नीलामी समिति द्वारा प्रचलित दरों के अनुसार मामला–दर–मामला (केस–टू–केस) के आधार पर नियत किया जाएगा ।

(4) नीलामी संचालित करने के लिए नीलामी समिति, सम्बन्धित खनन अधिकारी, तहसीलदार और सहायक अभियन्ता, हिमाचल प्रदेश लोक निर्माण विभाग, से गठित होगी । उच्चतम बोलीदाता, जिसे अनन्तिमतया चयनित किया गया है, बोली की रकम का पच्चीस प्रतिशत नीलामी के पूर्ण होने के तुरन्त पश्चात् जमा करेगा और शेष रकम नीलामी की तारीख से तीन दिन के भीतर जमा करेगा । यदि उच्चतम बोलीदाता नियत अवधि की भीतर अतिशेष रकम जमा करने में असफल रहता है तो जमा की गई रकम प्रतिसंहृत हो जाएगी और उस दशा में पुनः नीलामी की प्रक्रिया तुरन्त प्रारम्भ की जाएगी ।

(5) सफल बोलीदाता से पूरी रकम प्राप्त करने के पश्चात् सम्बन्धित खनन अधिकारी या उसका प्रतिनिधि नीलाम किए गए गौण खनिज का कब्जा उसे सौंपेगा ।

(6) खनिज को उठान/निपटारे की अवधि सदैव नीलामी समिति द्वारा नियत की जाएगी ।

29. **गौण खनिजों को निकालने के लिए आवेदन .–** (1) किसी प्राईवेट (निजि) भूमि में गौण खनिजों को निकालने के लिए अनुज्ञा प्रदान करने हेतु आवेदन निदेशक या इस निमित्त उसके द्वारा प्राधिकृत किसी

अन्य अधिकारी को किया जाएगा । इसमें अपेक्षित दस्तावेजों सहित निम्नलिखित विशिष्टियां अन्तर्विष्ट होगी:–

(i) आवेदक का नाम, पता और व्यवसाय ;

(ii) गौण खनिज (खनिजों) की मात्रा जिसके लिए अनुज्ञा पत्र अपेक्षित है;

(iii) निकाले जाने वाले और निकाले गए गौण खनिज(खनिजों) का/के नाम;

(iv) विवरण, अर्थात् गांव(गावों) का/के नाम, क्षेत्र और भूमि, जहां से गौण खनिज निकाला जाना है या निकाला गया है, का खसरा नम्बर;

(v) प्रयोजन, जिसके लिए गौण खनिज का प्रयोग किया जाना है; और

(vi) नियोजित किए जाने वाले श्रमिकों की संख्या ।

(2) यदि आवेदक भूमि का स्वामी नहीं है तो आवेदन के साथ ऐसी भूमि के अधिभोगी से इस प्रभाव का पत्र संलग्न किया जाएगा कि उसे आवेदक द्वारा गौण खनिज के निकालने से कोई आपत्ति नहीं है ।

(3) प्रत्येक गौण खनिज की बाबत प्रत्येक आवेदन प्रथम अनुसूची में यथा विनिर्दिष्ट फीस सहित किया जाएगा ।

30. **गौण खनिजों को निकालने के लिए अनुज्ञा पत्र प्रदान करना** .– (1) निदेशक या इस निमित्त उसके द्वारा प्राधिकृत कोई अधिकारी, खनन क्षेत्र के अनुमोदन, संयुक्त निरीक्षण समिति द्वारा गौण खनिज के लिए उसके निर्धारण, आवश्यक स्वीकृतियों, रॉयलेटी और अग्रिम में पूर्ण रायलेटी संदाय करने के पश्चात्, आवेदक को किसी गौण खनिज के लिए प्ररूप –'ठ' में अनुज्ञा–पत्र प्रदान कर सकेगा । ऐसे अनुज्ञा पत्र प्रारम्भ में छः मास की अवधि के लिए प्रदान किए जाएंगे और तत्पश्चात् सक्षम प्राधिकारी द्वारा,उसका यह समाधान हो जाने पर कि वह/वे उन अनुज्ञा–पत्र/पत्रों के निबन्धनों और शर्तों का पालन कर रहा है /रहें है, और आगे नवीकृत किया जाएगा । अनुज्ञा पत्र की अवधि तीन वर्ष से अधिक नहीं होगी:

परन्तु निदेशक कारणों को लिखित में अभिलिखित करके ऐसे अनुज्ञा पत्र प्रदान करने से इनकार कर सकेगा :

परन्तु यह और कि निदेशक या इस निमित्त उसके द्वारा प्राधिकृत कोई अन्य अधिकारी अधिसूचित क्षेत्र में किसी व्यक्ति को केवल सम्बन्धित ग्राम सभा की सम्यक् संस्तुति प्राप्त होने के पश्चात् ही अनुज्ञा पत्र प्रदान करेगा । अधिसूचित क्षेत्रों से अन्यथा क्षेत्रों में अनुज्ञा–पत्र प्रदान करने के लिए सम्बद्ध ग्राम पंचायत से परामर्श किया जाएगा और ग्राम पंचायत के लिए आवश्यक होगा कि वह तीन मास की अवधि के भीतर अपना अनुमोदन या अस्वीकृति सूचित करे ऐसा न होने पर यह समझा जाएगा कि ग्राम पंचायत को कोई आक्षेप नहीं है । यथास्थिति, सम्बद्ध ग्राम सभा या ग्राम पंचायत द्वारा लिए गए इनकार या किए गए किसी आक्षेप की दशा में ऐसे इनकार/आक्षेप के लिए पर्याप्त कारण लिखित में अभिलिखित किए जाएंगे । संयुक्त निरीक्षण समिति के निरीक्षण करने/आक्षेप प्राप्त करने के पश्चात् मंजूरी प्राधिकारी द्वारा आक्षेप का पुनर्विलोकन/विनिश्चय किया जाएगा ।

(2) ऐसे व्यक्ति को कोई भी खनन अनुज्ञा पत्र प्रदान नहीं किया जाएगा जो भारत का नागरिक नहीं है ।

31. **शर्तें जिन पर गौण खनिज निकालने के लिए अनुज्ञा–पत्र प्रदान किया जाएगा .–** (1) नदी तल में खनन की गहराई एक मीटर या जलस्तर जो भी कम हो, से अनधिक नहीं होगी:

परन्तु जहां संयुक्त निरीक्षण समिति अपेक्षित चैनलाइजेशन के लिए कतिपय स्थानों में खनिजों के अत्यधिक जमाव या अत्यधिक अम्बार के बारे में प्रमाणित करती है तो यह नदी के निश्चित स्थलों पर दो मीटर तक हो सकती है ।

(2) इन नियमों के अधीन प्रदान किए गए गौण खनिज अनुज्ञा पत्र में ऐसी अन्य शर्तें, जैसी अधिकारी अनुज्ञा पत्र को प्रदान करने के लिए निम्नलिखित की बाबत आवश्यक समझे, हो सकेगी:–

(i) दरों और रॉयलेटियों के संदाय की सीमा पद्धति और स्थान;

(ii) अनुज्ञा पत्र के अन्तर्गत भूमि की क्षति के लिए प्रतिकर;

(iii) वृक्षों का गिरान;

(iv) किसी प्राधिकरण द्वारा प्रतिषिद्व किसी क्षेत्र में सतही प्रचालन के लिए निर्बन्धन;

(v) किसी आरक्षित या संरक्षित वन क्षेत्र में प्रवेश करना और कार्य करना;

(vi) समस्त दुर्घटनाओं की रिर्पोट करना (रिर्पोटिंग);

(vii) तृतीय पक्षकार के दावों के विरूद्व सरकार का परित्राण;

(viii) अवधि जिसके भीतर गौण खनिज को निकाला और हटाया जाएगा तथा ऐसी अवधि के अवसान पर या खनिज की मात्रा को हटाने पर जिसके लिए अनुज्ञा पत्र विधिमान्य है, भूमि पर कब्जे का परिदान;

(ix) अनुज्ञा पत्र की शर्तो को सम्यक् रूप से पूरा करने के लिए शीर्ष– 'रैवन्यू डिपोजिट–सेक्योरिटी डिपोजिट' के अन्तर्गत प्रतिभूति जमा करना;

(x) प्राधिकारी द्वारा अनुज्ञा पत्र के जारी करने के पश्चात् यह समाधान होने पर कि अनुज्ञा पत्र धारक ने अनुज्ञा पत्र की समस्त शर्तो को संतोषजनक रूप से पूरा कर लिया है, प्रतिभूति का निर्मोचन;

(xi) जहां पर खदानें सड़क – किनारे अवस्थित है, वहां पर सड़क का समुचित अनुरक्षण और उसमें बाधा रहित निकासी;

(xii) पानी की पाईप, बिजली के खम्बे और उनके ऊपर तारें तथा अनुज्ञा पत्र के अन्तर्गत आने वाले क्षेत्र और इसके आस–पास अन्य सार्वजनिक सम्पति की सुरक्षा का उत्तरदायित्व;

(xiii) नदी/नालें के तल में यान्त्रिक खनन केवल निदेशक की अनुज्ञा से ही बैकहो के बिना 80 हॉर्स पावर तक टायर माउंटिड फ्रण्ट एण्ड लोडर की सहायता से अनुज्ञात किया जाएगा । अनुज्ञा पत्र धारक ऐसी अनुज्ञा प्राप्त करने के लिए प्रथम अनुसूची में यथा विनिर्दिष्ट प्रतिभूति रकम जमा करेगा । निदेशक निम्नलिखित निबन्धनों और शर्तो पर यान्त्रिक खनन के प्रयोग की अनुज्ञा दे सकेगा :–

(क) सतह से नीचे गड्ढे की गहराई नदी/नाले के तल की दशा में साथ लगती भूमि से एक मीटर से अधिक नहीं होगी;

(ख) जल के प्राकृतिक बहाव को बाधित नहीं किया जाएगा;

(ग) खनिज का उत्खनन वैज्ञानिक रीति में खनिज के एक समान टुकड़ों (स्ट्रीपिंग) में किया जाएगा;

(घ) सक्षम प्राधिकारी द्वारा अधिरोपित की जाने वाली कोई अन्य शर्त; और

(ङ) ऐसी अनुज्ञा प्रदान करते समय अधिरोपित निबन्धनों और शर्तो के उल्लंधन के परिणामस्वरूप अनुज्ञा पत्र का रद्दकरण और उसकी प्रतिभूति की रकम का समपहृरण हो जाएगा :

परन्तु अनुज्ञा पत्र धारक पहाड़ी ढलान खनन में किसी प्रकार के उत्खनन का प्रयोग कर सकेगा ।

32. **अनुज्ञा–पत्र को रद्द करने के पश्चात् शेष बचे गौण खनिजों का समपहरण .–** किसी भी शर्त के किसी भंग की दशा में, जिसके अध्यधीन अनुज्ञा पत्र प्रदान किया गया है, निदेशक या अनुज्ञा पत्र जारी करने वाला प्राधिकारी इसे रद्द कर सकेगा । अनुज्ञा–पत्र के रद्दकरण पर उस भूमि पर पड़ी हुई, निकाली गई/ हटाई गई सामग्री, जिससे वह निकाली गई है सरकार की निरपेक्ष सम्पति हो जाएगी ।

33. **गैर खनन कार्यकलापों के कारण उत्पादित गौण खनिजों के निपटारे के लिए अनुज्ञा** .– (1) इन नियमों में किसी बात के होते हुए भी, निदेशक या इस निमित्त उसके द्वारा प्राधिकृत कोई अन्य अधिकारी विभिन्न विकासात्मक कार्यकलापों और प्राकृतिक आपदाओं के दौरान उत्पादित गौण खनिजों को विनिर्दिष्ट प्रयोजन तथा अवधि के लिए उठाने /उनका परिवहन करने के लिए अनुज्ञा प्रदान कर सकेगा । अनुज्ञा, तहसीलदार, सहायक अभियन्ता (लोक निर्माण विभाग) और खनन अधिकारी, जो इनके भण्डार की उपलब्धता का निर्धारण भी कर सकेगा, से गठित समिति द्वारा स्थल का निरीक्षण करने के पश्चात् प्रदान की जाएगी ।

**स्पष्टीकरण**:–

(1) इस नियम के प्रयोजन के लिए विकासात्मक कार्यकलापों से जल विघुत परियोजनाओं के लिए सुरंगों का उत्खनन, सड़कों/रेलपथों और विभन्न राष्ट्रीय उच्च मार्गों/राज्य उच्च मार्गो की संयोजकता के लिए सुरंगों का सन्निर्माण, जलाशय से गाद निकालना, प्लॉटों का विकास, मतस्य पालन तालाबों का उत्खन्न और किसी अन्य प्रकार के विकासात्मक कार्यकलाप अभिप्रेत हैं ।

(2) पूर्वोक्त अनुज्ञा निम्नलिखित शर्तो को परिपूर्ण करने के अध्यधीन होगी:–

(i) विकय योग्य खनिज पर रॉयलेटी द्वितीय अनुसूची में विनिर्दिष्ट दरों के अनुसार अग्रिम में प्रभारित की जाएगी;

(ii)वन भूमि पर अनुज्ञा वन विभाग से विनिर्दिष्ट निकासी(अनापति) प्राप्त करने के पश्चात प्रदान की जाएगी;

(iii)अनुज्ञा केवल ऐसे स्टॉक को उठाने/अभिवहन के लिए प्रदान की जाएगी जिसका निर्धारण समिति द्वारा किया जा चुका है; और

(iv) ऐसी कोई अन्य शर्त जो स्वीकृति प्राधिकारी द्वारा इस निमित्त अधिरोपित की जाए ।

34. **खनिज रियायत प्रदान करने के लिए साधारण शर्तें .–** खनिज रियायत प्रदान करने के लिए निम्नलिखित साधारण शर्तें होगीं:–

(i) सरकार समय–समय पर इन नियमों के अधीन विभिन्न क्षेत्रों में खनिज रियायत अर्थात पट्टा, संविदा, अनुज्ञप्ति आदि प्रदान करने की रीति और प्रकार का विनिश्चय कर सकेगी;

(ii) जलापूर्ति/सिंचाई स्कीम के नाले के ऊपर की ओर और नीचे की ओर दो सौ मीटर और पुल के नाले के ऊपर की ओर दो सौ मीटर और नीचे की ओर पांच सौ मीटर या ऐसी दूरी, जैसी संयुक्त निरीक्षण समिति द्वारा निनिर्दिष्ट की जाए, जो भी अधिकतर हो, पर कोई खनन कार्यान्वित नहीं किया जायेगा या कार्यान्वित किया जाना अनुज्ञात नहीं किया जाएगा ;

(iii) खनिज रियायत धारक द्वारा किसी पहाड़ी ढलान खन्न की दशा में सुरक्षित क्षेत्र के रूप में साथ लगती भूमि की बाहरी परिधि से पांच मीटर के भीतर किसी स्थान तक कोई भी खदान या खनन कार्य कार्यान्वित नहीं किया जाएगा या कार्यान्वित किया जाना अनुज्ञात नहीं किया जाएगा ;

(iv) नदी–तल में खनन की गहराई एक मीटर या जल स्तर,जो भी कम हो, से अधिक नहीं होगी :

परन्तु जहां संयुक्त निरीक्षण समिति अपेक्षित सरणिकरण वाले कतिपय स्थानों में खनिजों के अत्याधिक जमाव या अधिक ढेर के सम्बन्ध में प्रमाणित करती है तो यह नदी के निश्चित स्थानों पर दो मीटर तक हो सकेगा ।

(v) खनिज स्थल को पट्टाधारक को स्थायी सीमा खम्बों द्वारा सम्यक् रूप से सीमांकित करके और सम्बन्द्ध खनन अधिकारी द्वारा प्रमाणित करने के पश्चात् ही सौंपा जाएगा;

(vi) मुख्य सड़क के साथ सम्पर्क मार्ग के संगम स्थल पर रियायत धारक द्वारा अपनी लागत पर और अधिशाषी अभियन्ता, हिमाचल प्रदेश लोक निर्माण विभाग के परामर्श से, यातायात के सुरक्षित संचलन के लिए अपेक्षित समुचित चौड़ाई और भूमितीय विकास करना होगा;

(vii) कोई भी रियायत धारक सक्षम प्राधिकरण की विनिर्दिष्ट अनुज्ञा के बिना लोक निमार्ण विभाग सड़क की अर्जित चौढ़ाई में किसी सामग्री का भण्डारण / ढेर नहीं लगाएगा ;

(viii) अपशिष्ट का क्षेपण खनन योजनाओं में प्रस्तावों के अनुसार निश्चित स्थानों पर ही किया जाएगा ;

(ix) वन विभाग के सक्षम प्राधिकारी से अनुज्ञा लिए बिना वन भूमि सहित किसी अन्य भूमि में, जिसमें वृक्ष हों, कोई खनन अनुज्ञात नहीं किया जाएगा;

(x) ऐसे क्षेत्रों में कोई खनन अनुज्ञात नहीं किया जाएगा जिससे किसी प्रसिद्व पर्यटक स्थल के समीप का सौंदर्य/दृश्य विकृत होता हो;

(xi) जहां किसी सांस्कृतिक, धार्मिक, ऐतिहासिक पुरातत्तीय, प्राकृतिक महत्व के स्थल को कोई खतरा कारित होने की संभावना है वहां कोई खनन अनुज्ञात नहीं किया जाएगा;

(xii) वास–स्थान के नजदीक, जहां विस्फोटन या मशीनरी के प्रचालन के कारण अनुज्ञेय सीमा से अधिक ध्वनि होने और कम्पन की समस्या कारित होने की संभावना है, कोई खनन अनुज्ञात नहीं किया जाएगा;

(xiii) जहां पर खान अपशिष्ट के निपटान की उचित व्यवस्था नहीं है, कोई खनन अनुज्ञात नहीं किया जाएगा;

(xiv) ऐसी शर्तें अधिरोपित की जाएगी कि जिससे रियायत धारक भूमि कटाव, मलवे के क्षरण आदि को नियन्त्रित करने और रोकने के लिए विभिन्न अभियान्त्रिक संरचनाएं बनाकर पर्याप्त पग उठाएगा;

(xv) पहाड़ी ढलान की दशा में ऐसा काई खनन पट्टा प्रदान नहीं किया जाएगा जहां अधिभार अयस्क का अनुपात मितव्ययी अर्थात 1:0:2 नहीं है अर्थात अपशिष्ट उत्पादन 20 प्रतिशत से अधिक नहीं होगा ।

(xvi) एकत्रित वस्तु की इसके गुणात्मक और मात्रात्मक निर्धारण के लिए भौगोलिक और स्थलाकृतिक रूप में समुचित मूल्यांकन किया जाएगा;

(xvii) पहाड़ी ढलान खनन की दशा में क्षेत्र, उच्चतर युक्तक, विच्छेदित या अस्थिर सतह से अर्न्तग्रस्त नहीं होगा और ढलान कोण से अवलम्ब कोण का सम्बन्ध मेटलिफेरिस माईन्ज रेग्यूलेशन, 1961 के अनुसार खनन मानकों के भीतर ही होगा ।

(xviii) ऐसे स्थान पर कोई खनन अनुज्ञात नहीं किया जाएगा जहां पर ढलान के खड़े कोण के कारण चट्टानों का धसान होने की सम्भावना है ;

(xix) खनन के दौरान कोई प्रलम्ब बनाए जाने अनुज्ञात नहीं किए जाएगें;

(xx) सम्पर्क सड़कों की ढलान, पहाड़ी की तरफ वाली हलकी ढलान, किनारों की नालियों और पैरापिट की दीवारों वाली होनी चाहिए । प्रतीक्षा और आर–पार करने वाले स्थलों की पर्याप्त संख्या यानों के सुरक्षित चालन के लिए व्यवस्था करनी होगी; और

(xxi) कोई विस्फोटन, विस्फोटन अधिनियम, 1884 के अधीन समुचित अनुज्ञा–पत्र लिए बिना नहीं किया जाएगा:

परन्तु सक्षम प्राधिकारी, उपरोक्त शर्तों में से किसी को जहां कहीं खनिज के संरक्षण और परिवृद्धि के हित में अपेक्षित हो, शिथिल कर सकेगा ।

## अध्याय–3

## खनिज का विकास और संरक्षण

35. **खनन योजना** .– (1) कोई भी खनन पट्टा या संविदा तब तक प्रदान नहीं की जाएगी जब तक कि सक्षम प्राधिकारी से खनन योजना अनुमोदित नहीं करवाई गई हो । उक्त खनन योजना प्रारूप–ड में तैयार की जाएगी ।

(2) खनन पट्टे के प्रचालन के दौरान अनुमोदित खनन योजना के उपान्तरण के लिए सक्षम प्राधिकारी का पूर्वानुमोदन भी अपेक्षित है ।

36. **खनन योजना के अनुमोदन के लिए प्राधिकृत अधिकारी** .– खनिज रियायत नियम, 1960 के नियम 22(4–ए) के उपबन्धों के अधीन प्राधिकृत अधिकारी जिसे इसमें इसके पश्चात् इस अध्याय के प्रयोजन के लिए 'उक्त अधिकारी' कहा गया है आवेदक द्वारा यथा प्रस्तुत खनिज रियायत क्षेत्र की योजना को अनुमोदित करेगा ।

37. **खनन योजना का मान्यता प्राप्त अर्हित व्यक्ति द्वारा तैयार किया जाना** .– (1) नियम 35 के उप नियम (1) और (2) के अधीन यथा अपेक्षित कोई भी खनन योजना तब तक अनुमोदित नहीं की जाएगी जब तक कि यह मान्यता प्राप्त अर्हित व्यक्ति द्वारा तैयार न की गई हो ।

(2) कोई भी व्यक्ति खन्न योजना तैयार करने के लिए मान्यता प्राप्त नहीं होगा जब तक कि वह निम्नलिखित योग्यता नहीं रखता हो:–

विश्वविद्यालय अनुदान आयोग अधिनियम, 1956 की धारा 4 के अधीन स्थापित विश्वविद्यालय अनुदान आयोग द्वारा मान्यता प्राप्त किसी संस्थान सहित केन्द्रीय अधिनियम, प्रान्तीय अधिनियम या राज्य अधिनियम के अधीन स्थापित या निगमित किसी मान्यता प्राप्त विश्वविद्यालय से खन्न इंजीनियरिंग में उपाधि या भारत से बाहर किसी विश्वविद्यालय या संस्थान द्वारा प्रदान की गई कोई समतुल्य अर्हता और उपाधि प्राप्त करने के पश्चात खन्न के क्षेत्र में पर्यवेक्षणीय क्षमता में कार्य करने का पांच वर्ष का व्यावसायिक अनुभव ।

(3) खनन योजना को तैयार करने के लिए मान्यता प्राप्त कोई व्यक्ति विद्यमान खनन योजना में उपान्तरण भी कार्यान्वित कर सकेगा ।

38. **खनन योजना तैयार करने के लिए मान्यता प्रदान करना** .– (1) नियम 37 के उप नियम(2) के अधीन यथा अपेक्षित अर्हता और अनुभव रखने वाला कोई व्यक्ति प्रथम अनुसूची में यथा विनिर्दिष्ट फीस सहित राज्य भू–विज्ञानी को मान्यता के लिए राज्य भू–विज्ञानी, हिमाचल प्रदेश के पक्ष में सम्यक् रूप से गिरवी सावधि जमा प्राप्ति (एफ, डी, आर,) के रूपये में 25000/– रूपए की प्रतिभूति रकम सहित आवेदन कर सकेगा ।

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मान्यता आरंभिक पांच वर्ष की अवधि के लिए प्रदान की जाएगी और मान्यता प्रदान करने के लिए यथा लागू नवीकरण फीस के संदाय पर एक बार में पांच वर्ष की और अवधि के लिए नवीकृत की जा सकेगी :

परन्तु राज्य भू–विज्ञानी सम्बद्ध व्यक्ति को सुनवाई का अवसर देने के पश्चात कारणों को लिखित में अभिलिखित करके मान्यता प्रदान करने या नवीकृत करने के लिए इनकार कर सकेगा ।

(2) राज्य भू–विज्ञानी मान्यता को समयपूर्व भी समाप्त कर सकेगा यदि खनन योजना विहित आरूप और क्षेत्रीय अवस्थिति के अनुसार तथा राज्य सरकार द्वारा समय–समय पर जारी किए गए मार्गदर्शक सिद्धान्तों, यदि कोई हैं, के अनुसार तैयार नहीं की गई है और प्रतिभूति निक्षेप भी समपहृत हो जाएगा ।

39. **खनन योजना को प्रस्तुत करना और उसका अनुमोदन** .– (1) निश्चित क्षेत्र के लिए खनन पट्टा या संविदा या अनुज्ञा –पत्र प्रदान करने के लिए ऐसे विनिश्चय का आशय पत्र आवेदक को संसूचित किया जाएगा और मान्यता प्राप्त अर्हित व्यक्ति ( आर,क्यू,पी,) के माध्यम से आवेदक को प्रदान किए गए निश्चित क्षेत्र की ऐसी संसूचना की प्राप्ति पर राज्य भू–विज्ञानी को आशय पत्र जारी होने की तारीख से तीन मास की अवधि या ऐसी अन्य अवधि के भीतर, जैसी सक्षम प्राधिकारी द्वारा अनुज्ञात की जाए, एक खनन योजना प्रस्तुत करेगा ।

(2) उक्त अधिकारी उप–नियम (1) के अधीन खनन योजना के लिए अपना अनुमोदन या इन्कार इसकी प्राप्ति की तारीख से नब्बे दिन के भीतर सूचित करेगा और खनन योजना में किए जाने वाले अपेक्षित परिवर्तन कार्यान्वित कर सकेगा और आवेदक ऐसे परिवर्तन कार्यान्वित करेगा और उसे पुनः प्रस्तुत करेगा ।

(3) इन नियमों के अधीन सम्यक् रूप से अनुमोदित प्रत्येक खनन योजना प्रारम्भ में अधिकतम पांच वर्ष के लिए विधिमान्य होगी और खनिज रियायत की शेष अवधि के लिए नवीकृत की जाएगी । नई

खनन योजना, खनन योजना अवधि के अवसान से केवल कम से कम 120 (एक सौ बीस) दिन पूर्व नवीकरण के लिए उक्त अधिकारी को प्रस्तुत की जाएगी ।

(4) खनन योजना के नवीकरण की दशा में यदि रियायत धारक को 90 (नब्बे) दिन की अवधि के भीतर सूचित नहीं किया जाता है तो खनन योजना अनन्तिम रूप से अनुमोदित की गई समझी जाएगी और ऐसा अनुमोदन, जब कभी संसूचित किया जाए, अंतिम विनिश्चय के अध्यधीन होगा ।

40, **अनुमोदित खनन योजना का उपान्तरण** .– (1) उक्त अधिकारी खनन योजना में रियायत धारक से ऐसे उपान्तरण करने की अपेक्षा कर सकेगा जैसे खनन योजना के प्रचालन के दौरान नियम 35 के उप–नियम (1) में यथा निर्दिष्ट है या लिखित में आदेश द्वारा ऐसी शर्तें अधिरोपित कर सकेगा जैसी वह आवश्यक समझे । यदि ऐसे उपान्तरण या शर्तों का अधिरोपित किया जाना भू–विज्ञानिकीय और स्थलाकृतिक परिस्थितियों में परिवर्तन, पर्यावरण संरक्षण तथा सुरक्षित और वैज्ञानिक खनन खनिज संरक्षण के दृष्टिगत आवश्यक समझा जाए ।

(2) अनुमोदित खनन योजना में उपान्तरण (उपान्तरणों) जो सुरक्षित और वैज्ञानिक खनन, खनन के परिरक्षण के हित में या प्यावरण के संरक्षण के लिए, समीचीन समझा जाए (समझे जाएं) की वांछा रखने वाला खनन रियायत धारक, राज्य भू–विज्ञानी को प्रथम अनुसूची में निर्दिष्ट फीस सहित, आशयित उपन्तरणों को घोषित करते हुए और उसके लिए कारणों को स्पष्ट करते हुए, आवेदन करेगा ।

(3) उक्त अधिकारी इस नियम के उप नियम (1) और (2) के अधीन ऐसे परिवर्तनों सहित, जैसे वह समीचीन समझे, उपान्तरण अनुमोदित कर सकेगा ।

41, **कार्य प्रणाली** .– (1) पहाड़ी ढलान में गौण खनिज खदानों में कार्यप्रणाली मेटलीफेरस माइन्ज रैग्यूलेशन, 1961 के अधीन किए गए उपबन्धों के अनुसार (बैन्चिज) का निमार्ण करके की जाएगी ।

(2) अपक्षीण गौण खनिज खदानों सहित गौण खनिजों के लिए ऐसी बैन्चिज प्रथकतः बनाई जाएगी और अधिभार में ऐसी बैन्चिज पहले ही पर्याप्त रूप से रखी जाएगी ताकि उनका कार्य गौण खनिजों के कार्यों में बाधा न डाले और गौण खनिजों का अधिभार खनिजों के साथ अन्त मिश्रण को रोका जा सके ।

(3) प्रत्येक गौण खनिज खदान का स्वामी, अभिकर्ता, प्रबन्धक छूट के दौरान सरकार या इस निमित्त सरकार द्वारा प्राधिकृत किसी व्यक्ति की लिखित में अनुज्ञा के सिवाय किसी गौण खनिज खदान का परित्याग या अभ्यपर्ण नहीं करेगा ।

42. **अविकेय या निम्न ग्रेड के गौण खनिजों के पृथक चट्टे लगाना** .– (1) खदान तल पर अप्रोज्य अविकेय गौण खनिजों को नियमित रूप से एकत्रित किया जाएगा और उनका सतह पर अभिवहन किया जाएगा तथा खदान फर्श को युक्तियुक्त रूप में मलबे से मुक्त रखा जाएगा ।

(2) लघु उद्योग सेक्टर द्वारा संभाव्य उपयोग के लिए उपयुक्त ऐसे अविकेय गौण खनिजों को समुचित रूप से प्रत्यादत्त किया जाएगा ।

(3) सतही मिट्टी, अधिभार, अपशिष्ट सामग्री या अविकेय गौण खनिज के क्षेपण के लिए चयनित स्थल चालू खदान से दूर होगा ।

(4) खनन या खदान का प्रचालन आरम्भ करने से पूर्व खदान की प्रत्यात्मक अंतिम सीमा अवधारित की जाएगी और क्षेपण स्थल इस प्रकार चयनित किया जाएगा कि क्षेपण, सिवाय जहां साथ–साथ पार्श्व भरान प्रस्तावित है, खदान के अंतिम आकार की सीमाओं के भीतर नहीं किया जाएगा ।

43. **पर्यावरण का संरक्षण .–** यथास्थिति, किसी खदान पट्टे या संविदा का प्रत्येक धारक पर्यावरण के संरक्षण के लिए समस्त सम्भव पूर्वावधानियां बरतेगा और खनन करते समय या उस क्षेत्र, जिसमें ऐसी रियायत प्रदान की गई है, में गौण खनिज के प्रसंस्करण के दौरान प्रदूषण पर नियन्त्रण रखेगा ।

44. **सतही मिट्टी को हटाना और उसका उपयोग .–** (1) जहां सतही (मिट्टी की ऊपरी परत) मिट्टी विद्यमान है और उसे गौण खनिज के खनन प्रचालन के लिए उत्खनित किया जाता है, तो उसे पृथकतः हटाया जाएगा ।

(2) इस प्रकार हटाई गई सतही मिट्टी भूमि के परावर्तन और पुनः स्थापन के लिए उपयोग में लाई जाएगी जो खनन प्रचालनों या बाह्य क्षेपण स्थलों के स्थिरीकरण या भू–दृश्य निर्माण के लिए और अपेक्षित नहीं है ।

(3) जहां सतही मिट्टी को साथ–साथ उपयोग में नहीं लाया जा सकता हो तो, इस बात को ध्यान में रखते हुए कि उसके जीवाणु अवयव नष्ट न हो जाएं, उसके भविष्य में उपयोग में लाए जाने के लिए पृथकतः भण्डारण किया जाएगा और उसे समीपवर्ती क्षेत्र में फैलाया जाना चाहिए ।

45. **अधिभार, अपशिष्ट चट्टान आदि का भण्डारण .–** (1) गौण खनिजों के लिए खनन प्रचालन के दौरान जनित अत्याधिक बोझ से दबे हुए बेकार पत्थर और अविक्रेय गौण खनिज का निश्चित स्थल पर समुचित रूप से बनाए गए क्षेपण स्थलों में पृथकतः भण्डारण किया जाएगा ।

(2) ऐसे क्षेपण स्थलों को, हानिकर मात्रा में सामग्री के निकास, जिससे आस–पास की भूमि का अवकमण कारित हो या जलमार्गो में गाद भर जाए, की रोकथाम द्वारा समुचित रूप से सुरक्षित रखा जाएगा ।

(3) जहां तक सम्भव हो, ऐसी अपशिष्ट चट्टान या अधिभार या अन्य अप्रोज्यों का गौण खनिज खदान के चिन्हित स्थान में पार्श्व भरान किया जाएगा, जहां पर गौण खनिज अनुकूलतम गहराई तक पाया जाता है तो वहां पर भूमि को इसके मूल उपयोग या वांछित एकान्तरिक उपयोग के लिए, परावर्तन किया जाएगा जहां तक सम्भव हो और जहां पार्श्व भरान व्यवहार्य नहीं है, अपशिष्ट क्षेपण स्थलों में पौधारोपण करके या अन्यथा स्थिरीकरण किया जाएगा ।

46. **भूमि को कृषि योग्य बनाना और उसका पुनः सुधार.–** खनन पट्टे या संविदा का प्रत्येक धारक खनन प्रचालन द्वारा प्रभावित भूमि का चरणबद्व तरीके से परावर्तन करके कृषि योग्य बनाने और पुनः स्थापन करने के लिए वचनबद्व होगा और इस कार्य को ऐसे प्रचालनों और खदान का परित्याग पूर्ण करने से पूर्व सम्पूर्ण करेगा ।

47. **समूह में परावर्तन करना, कृषि योग्य बनाना और उसका पुनर्व्यवस्थापन करना.–** जहां अधिक संख्या में लघु खदानें स्थित हैं और एक ही स्थान पर अधिक संख्या में चिन्हित की गई है तो ऐसे स्थान पर गौण खनिजों के खदान करने की व्यवस्था व्यवस्थित और वैज्ञानिक रीति में की जाएगी । खदान किए गए क्षेत्र का पुनरावर्तन करने और कृषि योग्य बनाने का कार्यक्रम तथा पुनर्व्यस्थापन गौण खनिजों के सम्पूर्ण समूह में परित्यक्त क्षेत्र में चरणबद्व रीति में संयुक्ततः किया जाएगा ।

48. **वायु प्रदूषण से पूर्वावधानी.–** गौण खनिज और सम्बन्धित कार्य कलापों के लिए खनन या प्रसंस्करण प्रंचालन के दौरान धूल, निकास उत्सर्जन या धुएं के कारण हुए वायु प्रदूषण को नियन्त्रित किया जाएगा और उसे तत्समय प्रवृत किसी भी पर्यावरणीय विधि के अधीन, विनिर्दिष्ट अनुज्ञेय सीमा में रखा जाएगा ।

49. **बहिःस्रावों का निस्सारण .–** खनन पट्टे या संविदा का प्रत्येक धारक, गौण खनिज खदान, कार्यशाला या प्रसंस्करण संयन्त्र से निकलने वाले विषैले और आपत्तिजनक द्रव भू–गर्भ जल जलाशयों और प्रयोज्य

भूमि की सतह में बहिःस्रावों के निस्सारण को रोकने और उसे कम से कम करने के लिए समस्त सम्भव पूर्वावधानियां बरतेगा । फैक्टरी से यह बहिःस्राव इस निमित्त अधिकथित मानकों के अनुरूप होंगे ।

50. **ध्वनि से पूर्वावधानी** .— खनन और प्रसंस्करण प्रचालन से उत्पन्न ध्वनि को खनन पट्टा धारक द्वारा स्त्रोत पर कम किया जायेगा या नियन्त्रित किया जाएगा ताकि इसे अनुज्ञेय सीमा में रखा जा सके ।

51. **अनुज्ञेय सीमाएं और मानक** .— इन नियमों में निर्दिष्ट समस्त प्रदूषण उत्पन्न करने वाले पदार्थ, विषैले तत्व और ध्वनि के मानक तथा अनुज्ञेय सीमा ऐसी होगी जैसी सम्बद्ध प्राधिकरणों द्वारा समय–समय पर सुसंगत परिनियमों के उपबन्धों के अधीन अधिसूचित की जाए ।

52. **वनस्पति का प्रत्यावर्तन** .–खनन पट्टे और संविदा का प्रत्येक धारक खनन प्रचालनों को ऐसी रीति में कार्यान्वित करेगा ताकि खनन रियायत के अधीन आने वाले क्षेत्र की वनस्पति को कम से कम क्षति कारित हो और खनन रियायत धारक–

(i) उसी क्षेत्र या सम्बद्ध प्राधिकारी द्वारा चयनित अन्य क्षेत्र में किसी खनन प्रचालन के कारण वृक्षों की संख्या के दुगुने से अन्यून पौधारोपण करने के लिए तुरन्त उपाय करेगा;

(ii) खनन रियायत की अवधि के दौरान उनकी देखभाल करेगा और तत्पश्चात् इन वृक्षों को राज्य वन विभाग या राज्य सरकार द्वारा नामनिर्दिष्ट किसी प्राधिकरण को सौंप देगा; और

(iii) खनन प्रचालन द्वारा क्षतिग्रस्त अन्य वनस्पति का यथा सम्भव प्रत्यावर्तन करेगा ।

53. **खान बन्द करने की योजना.**— (1) प्रत्येक खान के लिए खान बन्द करने की निम्नलिखित योजनाएं होंगी :–

(क) नवीनतम खनिज रियायत प्रदान करने या नवीकरण करने की दशा में स्वामी, अभिकर्ता या प्रबन्धक या खनन इंजीनियर प्ररूप "ड" के अनुसार पुरोगामी खनन बन्द करने की योजना उक्त अधिकारी को खनन योजना के घटक के रूप में प्रस्तुत करेगा;

(ख) स्वामी, अभिकर्ता, प्रबन्धक या खनन इंजीनियर खान के प्रस्तावित बन्द करने से एक वर्ष पूर्व अनुमोदन के लिए उक्त अधिकारी को खान को बन्द करने की अंतिम योजना प्रस्तुत करेगा और उक्त अधिकारी, यथास्थिति, स्वामी, अभिकर्ता, प्रबन्धक या खनन इंजीनियर को इसकी प्राप्ति की तारीख से नब्बे दिन के भीतर खान बन्द करने की अंतिम योजना के अपने अनुमोदन या इनकार को सूचित करेगा । यदि खान बन्द करने की अंतिम योजना के अनुमोदन या इनकार को, नियम 39 के उप–नियम (4) में यथा निर्दिष्ट अवधि के भीतर, यथास्थिति, खान के स्वामी, अभिकर्ता, प्रबन्धक या खनन इंजीनियर को सूचित नहीं किया जाता है तो खान बन्द करने की अंतिम योजना अनन्तिम रूप से अनुमोदित समझी जाएगी और ऐसा अनुमोदन जब कभी संसूचित किया जाए, अंतिम विनिश्चय के अध्यधीन होगा ।

(2) यथास्थिति, स्वामी, अभिकर्ता, प्रबन्धक या खनन इंजीनियर यह सुनिश्चित करने के लिए उत्तरदायी होगा कि पुनरावर्तन और पुनर्व्यवस्थापन सहित इन नियमों में निर्दिष्ट खान को बन्द करने की योजना में अन्तर्विष्ट सुरक्षात्मक उपाय अनुमोदित खान बन्द करने की योजना के अनुसार कार्यान्वित किए गए हैं ।

(3) यथास्थिति, स्वामी, अभिकर्ता, प्रबन्धक या खनन इंजीनियर राज्य भू–विज्ञानी को अनुमोदित खान बन्द करने की योजना में यथा परिकल्पित सुरक्षात्मक और पुनर्व्यवस्थापन कार्यों की सीमा व्यक्त करने की प्रत्येक वर्ष की प्रथम जुलाई से पूर्व एक वार्षिक रिपोर्ट प्रस्तुत करेगा और यदि इसमें कोई विचलन है तो उसके कारण देगा ।

54. **वित्तीय आश्वासन** .—(1) प्रत्येक खनिज रियायत धारक को वित्तीय आश्वासन देना होगा । वित्तीय आश्वासन की रकम प्रथम अनुसूची में विनिर्दिष्ट रकम के अनुसार होगी :

परन्तु वित्तीय आश्वासन की रकम पांच लाख रूपए से अधिक नहीं होगी ।

(2) वित्तीय आश्वासन किसी अनुसूचित बैंक से सावधि जमा प्राप्ति (एफ.डी.आर.) के रूप में दिया जाएगा ।

(3) खनिज रियायत धारक पट्टे या संविदा के निष्पादन से पूर्व राज्य भू–विज्ञानी को वित्तीय आश्वासन प्रस्तुत करेगा ।

(4) उस/उन पट्टाधारक/धारकों की दशा में जिसने/जिन्होंने हिमाचल प्रदेश माइनर मिनरल (कन्सेशनस)रिवाईज्ड रूल्ज, 1971 के अधीन पट्टा निष्पादित किया है तो ऐसे पट्टाधारक/पटटाधारकों उक्त वित्तीय आश्वासन को पट्टा विलेख नवीनीकरण के समय प्रस्तु करेगा/करेंगे ।

(5) वित्तीय आश्वासन की निर्मुक्ति सम्बद्व जिला के खनन अधिकारी द्वारा सत्यापित खान बन्द करने की योजना में अन्तर्विष्ट उपबंधों की समाधानप्रद अनुपालन के लिए खनिज रियायत धारक द्वारा आवेदन प्रस्तुत करने की तारीख से प्रभावी होगी और राज्य भू–विज्ञानी द्वारा निर्मुक्त किया जाएगा ।

(6) यदि राज्य भू–विज्ञानी के पास विश्वास करने का युक्तियुक्त आधार है कि अनुमोदित खान बन्द करने की योजना में यथा परिकल्पित सुरक्षात्मक, पुनरावर्तन और पुनर्व्यवस्थापन उपाय जिसकी बाबत वित्तीय आश्वासन दिया गया था या नहीं दिया गया है या खान बन्द करने की योजना के अनुसार पूर्णतः या भागतः कार्यान्वियत नहीं किया

गया है तो राज्य भू–विज्ञानी वित्तीय आश्वासन की रकम को इस पर प्रोद्भूत ब्याज सहित आदेश को जारी करने की तारीख से कम से कम तीस दिन पूर्व समपहृत करने का अपने आशय का लिखित नोटिस देगा ।

(7) उप नियम (5) में निर्दिष्ट नोटिस की प्राप्ति के तीस दिन की अवधि के भीतर यदि खनिज रियायत धारक से लिखित में कोई समाधानप्रद उत्तर प्राप्त नहीं होता है तो राज्य भू–विज्ञानी वित्तीय आश्वासन की रकम को उस पर प्रोदभूत ब्याज सहित समपहृत करने के आदेश पारित करेगा ।

55. **तकनीकी व्यक्तियों का नियोजन.–** (1) अनुमोदित खान योजना के अनुसार खनन प्रचालन कार्यन्वित करने के प्रयोजन के लिए प्रत्येक खनिज रियायत धारक निम्न विनिर्दिष्ट वर्गीकरण के अनुसार परामर्शदाता नियोजित/प्रतिधारित करेगा:–

(i) पूर्णकालिक खनन इंजीनियर या कोई व्यक्ति जो महानिदेशक, खान सुरक्षा, जो खनन प्रचालन गहरे सुराख करने, उत्खनन, लदान करने और परिवहन करने के लिए भारी खनन मशीनरी के अभिनियोजन द्वारा कार्यान्वित किया गया है या जहां औसत नियोजन प्रतिदिन एक सौ से अधिक है या खदान क्षेत्र 50 हैक्टेयर या इससे अधिक है, द्वारा जारी सक्षमता का द्वितीय श्रेणी का खान प्रबन्धक का प्रमाण–पत्र रखता हो;

(ii) यदि खदान क्षेत्र 25 हैक्टेयर से अधिक और 50 हैकटेयर से कम है तो ऐसा व्यक्ति जो खनन प्रचालन में दस वर्ष के अनुभव सहित खनन में डिप्लोमा रखता हो या ऐसा व्यक्ति जो महानिदेशक, खान सुरक्षा द्वारा जारी सक्षमता का अग्रणी प्रमाण–पत्र रखता हो या कोई भू–विज्ञानी जिसके पास भू–विज्ञान में स्नातकोत्तर की उपाधि सहित पर्यवेक्षणीय हैसियत में 10 वर्ष का अनुभव हो; और

(iii) यदि खदान का क्षेत्र 25 हैक्टेयर से कम किन्तु 2 हैक्टेयर से कम नहीं है, जहां खनन कार्यकलाप केवल शारीरिक श्रम से ही किए जाते हैं तो खण्ड (i) और (ii) में वर्णित अर्हता रखने वाला व्यक्ति अधिकतम दस खनन पट्टे या संविदा के लिए कार्य कर सकेगा परन्तु यह कि समस्त ऐसी खाने/खदानें सौ किलोमीटर की परिधि में अवस्थित हों ।

(2) यदि किसी खान का धारक उप–नियम (1) में यथा वर्णित अर्हता रखता है तो वह उप–नियम (1) के प्रयोजन के लिए स्वयं को तकनीकी व्यक्ति के रूप में नियुक्त कर सकेगा ।

(3) खनन इंजीनियर या भू–विज्ञानी जिसे खान धारक द्वारा परामर्शदाता के रूप में नियोजित/प्रतिधारित किया गया है तो वह तकनीकी व्यक्ति के रूप में नीचे विनिर्दिष्ट अर्हताएं रखेगा:–

**भू–विज्ञानी**

विश्वविद्यालय अनुदान आयोग अधिनियम, 1956 की धारा 4 के अधीन स्थापित विश्वविद्यालय अनुदान आयोग द्वारा मान्यता प्राप्त किसी संस्थान सहित किसी केन्द्रीय अधिनियम या राज्य अधिनियम के अधीन या द्वारा स्थापित या निगमित किसी विश्वविद्यालय द्वारा प्रदान की गई भू–विज्ञान में स्नातकोत्तर उपाधि या कोई समतुल्य अर्हता;

**खनन इंजीनियर**

विश्वविद्यालय अनुदान आयोग अधिनियम, 1956 की धारा 4 के अधीन स्थापित विश्वविद्यालय अनुदान आयोग द्वारा मान्यता प्राप्त किसी संस्थान सहित किसी केन्द्रीय

अधिनियम या राज्य अधिनियम के अधीन या द्वारा स्थापित या निगमित किसी विश्वविद्यालय से खनन इंजीनियर में उपाधि या कोई समतुल्य अर्हता या राज्य तकनीकी शिक्षा बोर्ड द्वारा खनन इंजीनियर में प्रदान किया गया तीन वर्षीय पूर्णकालिक डिप्लोमा या प्रमाण–पत्र ।

(4) खनन रियायात धारक अर्हित व्यक्ति, जो उसने नियोजित किया है, ऐसे व्यक्ति की सहमति सहित उसके व्यौरे सम्बंद्व खनन अधिकारी को सूचित करेगा ।

56. **तकनीकी व्यक्ति के कर्त्तव्य** .– (1) नियम 55 के अधीन नियोजित या प्रतिधारित तकनीकी व्यक्ति का यह कर्त्तव्य होगा कि वह खनन प्रचालन का संचालन करने के लिए योजना को बनाने और उसे सुकर बनाने के लिए समस्त अनिवार्य पग उठाए ताकि खनिजों का परिरक्षण, खनिज भण्डार के कमबद्व विकास और इन नियमों के अनुसार खनन क्षेत्र के आस–पास पर्यावरण संरक्षण को सुनिश्चित किया जा सके ।

(2) वहः–

(क) इन नियमों के अनुसार योजनाओं, प्रभागों, रिपोर्टों और स्कीमों को बनाने और उनका अनुरक्षण करने के लिए उत्तरदायी होगा;

(ख) सम्बद्व चट्टानों और खनिजों के अध्ययन को कार्यान्वित करने के लिए और उनकी पहचान करने तथा उत्पादित विभिन्न खनिजों के पृथक्तः ढेर लगवाने के लिए दायी होगा;

(ग) समस्त ऐसे आदेशों और निर्देशों, जो उसे इन नियमों के अधीन किसी प्राधिकृत अधिकारी द्वारा लिखित में दिए जाएं, की अनुपालना के लिए प्रभावी कदम उठाएगा और ऐसे आदेशों या निर्देशों की एक प्रति खान धारक को अग्रेषित करेगा;

(घ) यह सुनिश्चित करेगा कि इन नियमों के उपबन्धों और तद्धीन जारी आदेशों को कार्यान्वित करने के प्रयोजन के लिए खान स्थल पर हर समय समुचित सामग्री, उपस्करों और प्रसुविधाओं की पर्याप्त व्यवस्था है और जहां खान का स्वामी उपलब्ध नहीं है तो वह पूर्वोक्त प्रयोजन के लिए अपेक्षित किसी वस्तु के लिए स्वामी से लिखित में मांग करेगा । प्रत्येक ऐसी मांग की एक प्रति इस प्रयोजन के लिए रखी गई जिल्दबद्व पुस्तक में लगाएगा; और

(ङ) खण्ड (घ) के अधीन मांग की प्राप्ति पर स्वामी यथाशक्य शीघ्र अर्हित व्यक्ति द्वारा मांगी गई सामग्री और प्रसुविधाएं उपलब्ध करवाएगा ।

57. **खनन प्रचालन का वैज्ञानिक और व्यवस्थित रीति में होना और उसके लिए शास्ति.**– (1) खनन प्रचालन अनुमोदित खनन योजना और पट्टा और करार विलेख के निबन्धनों और शर्तो के अनुसार वैज्ञानिक और व्यवस्थित रीति में करना होगा ।

(2) यदि खन्न प्रचालन उप–नियम (1) के अधीन यथा निर्दिष्ट खनन योजना या पट्टा विलेख या करार विलेख के अनुसार कार्यान्वित नहीं किया गया है तो, यथास्थिति, राज्य भू–विज्ञानी या भू–विज्ञानी या सहायक भू विज्ञानी या खनन अधिकारी समस्त या किन्हीं खनन प्रचालनों के स्थगन करने के लिए आदेश परित कर सकेगा और केवल ऐसे प्रचालनों के अनुज्ञा–पत्र प्रवर्तन में रहेगें जो उक्त खनन योजना या पट्टा विलेख या करार विलेख के अधीन खान में परिकल्पित शर्तो को पूर्व स्थिति में लाने के लिए आवश्यक हों ।

(3) कोई व्यक्ति जो खनन योजना या पट्टा विलेख या करार विलेख के निबंधनों या शर्तो का उल्लंघन करता है, दोषसिद्वि पर, करावास से जो एक वर्ष तक का हो सकेगा या जुर्माने से जो 50000/– (पचास हजार)केवल रूपये तक का हो सकेगा या दोनों से दण्डनीय होगा और उल्लंघन जारी रहने की दशा में प्रथम ऐसे उल्लंघन के लिए दोषसिद्वि के पश्चात् प्रत्येक दिन के लिए जिसके

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दौरान ऐसा उल्लंघन जारी रहता है, अतिरिक्त जुर्माने से जो 5000/– (पांच हजार )केवल रूपए तक का हो सकेगा, दण्डनीय होगा :

परन्तु इस अधिनियम के अधीन दण्डनीय किसी उपराध का, या तो अभियोजन को संस्थित किए जाने से पूर्व या पश्चात, ऐसे अपराध की बाबत न्यायालय को लिखित में परिवाद करने के लिए प्राधिकृत व्यक्ति द्वारा, ऐसी रकम का, जैसी अधिकारी विनिर्दिष्ट करे, सरकार के खाते में जमा करने के लिए उस अधिकारी को संदाय करने पर, शमन किया जा सकेगा:

परन्तु यह और कि कोई अपराध जो केवल जुर्माने से दण्डनीय है तो उसकी रकम जुर्माने की अधिकतम रक्म से अधिक नहीं होगी जो उस अपराध के लिए अधिरोपित की जा सकेगी ।

## अध्याय–4

## पुनर्विलोकन और शक्तियों का प्रत्यायोजन

58. **प्रत्यायोजन .–** सरकार, राजपत्र में अधिसूचना द्वारा निर्देश दे सकेगी कि इन नियमों के अधीन इसके द्वारा प्रोक्तव्य कोई शक्ति, ऐसे मामलों के सम्बन्ध में और ऐसी शर्तो के अध्यधीन, जो अधिसूचना में विनिर्दिष्ट की जाए, ऐसे अधिकारी या प्राधिकारी द्वारा प्रोक्तब्य होगी जैसा अधिसूचना में विनिर्दिश्ट किया जाए:

परन्तु सरकार, राजपत्र में अधिसूचना द्वारा निर्देश दे सकेगी कि इन नियमों के अधीन निदेशक द्वारा प्रोक्तव्य शक्तियां ऐसे मामलों और शर्तो के अध्यधीन, जो अधिसूचना में विनिर्दिष्ट की जाएं, उद्योग निदेशालय के किसी अधिकारी द्वारा जो अधिसूचना में विनिर्दिष्ट किया जाए, प्रयोग की जा सकेगी ।

59. **अपील.**– (1) निदेशक के आदेश से व्यथित कोई व्यक्ति ;

(i) खनन पट्टे या संविदा को रद्द करने या समाप्त करने या तद्धीन किसी निक्षेप के पूर्णतः या भागतः समपहरण करने ; या

(ii) खनन पट्टे के अनुज्ञा–पत्र के अन्तरण से इनकार करने की तारीख से दो मास के भीतर ऐसे आदेश के विरूद्व सरकार को अपील कर सकेगा:

परन्तु ऐसा कोई आवेदन दो मास की उक्त अवधि के पश्चात् भी स्वीकार किया जा सकेगा यदि आवेदक द्वारा सरकार का समाधान कर दिया जाता है कि उसके पास समय के भीतर आवेदन न करने के पर्याप्त कारण थे ।

जहां निदेशक के कृत्य नियम 58 के अधीन उसके अधीनस्थ किसी अन्य अधिकारी को प्रत्यायोजित किए गए हैं तो उप नियम (1) में विनिर्दिष्ट प्रकार के ऐसे किसी अधिकारी के आदेश से व्यथित कोई व्यक्ति निदेशक को अपील कर सकेगा:

परन्तु अपील ऐसे आदेश, जिसके विरूद्व अपील की जानी है, की तारीख से दो मास के भीतर की जा सकेगी ।

60. **अपील और पुनर्विलोकन के लिए फीस** .– अपील का ज्ञापन या पुनर्विलोकन हेतु आवेदन प्रत्येक मामले में, प्रथम अनुसूची में यथाविनिर्दिष्ट फीस, शीर्ष–0853–फेरस माइनिंग एण्ड मेटलर्जिकल इण्डस्ट्रज़, 102–मिनरल कन्सेशन्ज फीस, रेंट एण्ड रॉयलटीज–01 रिसीट फ्रॉम मिनरल कन्सेशन फीस आदि के अधीन सरकार के खाते में जमा सहित किया जाएगा ।

61. **पुनर्विलोकन** .– ऐसे आवेदन की प्राप्ति पर, यथास्थिति, सरकार या निदेशक सुसंगत अभिलेख और अन्य सूचना मंगवाएगा/मंगवा सकेगा और उसके स्पष्टीकरण पर विचार करने तथा अपीलार्थी को सुनावाई का अवसर देने और किसी टिप्पणी, जो अधिकारी द्वारा दी गई है, पर विचार करने के पश्चात् आदेश, जिसके

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विरूद्व अपील की गई है, रद्द कर सकेगा या उसका पुनर्विलोकन कर सकेगा । इस नियम के अधीन, यथास्थिति, सरकार या निदेशक का आदेश अंतिम होगा ।

**अध्याय–5**

**प्रकीर्ण**

62. **दृष्यमान भूल को सुधारने (परिशोधित करने) की शक्ति .–** सरकार इन नियमों के अधीन इसके द्वारा पारित आदेश की तारीख से छः मास के भीतर, किसी भी समय, स्वप्रेरणा से अभिलेख को देखते ही दृष्यमान किसी भूल या गलती को सुधार सकेगी और उसी अवधि के भीतर किसी ऐसी भूल या गलती जो गौण खनिज रियायत प्रदान करने हेतु किसी आवेदक द्वारा इस के ध्यान (नोटिस) में लाई गई है, का सुधार करेगी :

परन्तु कोई भी ऐसा सुधार (परिशोधन) जिससे पट्टा प्रदान करने हेतु किसी अन्य आवेदक पर प्रतिकूल प्रभाव पड़ता हो या पड़ना तात्पर्यित हो, तब तक नहीं किया जाएगा जब तक ऐसे आवेदक को सरकार द्वारा इसके ऐसा करने के आशय की सूचना न दे दी गई हो और उसे सुनवाई का युक्तियुक्त अवसर प्रदान न कर दिया गया हो ।

63. **सरकारी देयों की भू–राजस्व के बकाया के रूप में वसूली .–** इन नियमों के अधीन या किसी खनन पट्टे या संविदा या अनुज्ञा पत्र के निबन्धनों और शर्तों के अधीन सरकार को देय कोई भाटक (किराया), रॉयलेटी फीस, संविदा धन या अन्य राशि को सरकार द्वारा साधारण या विशेष आदेश द्वारा इस निमित्त विनिर्दिष्ट किसी अधिकारी द्वारा जारी प्रारूप– 'ढ' में प्रमाण पत्र पर, उसी रीति में वसूल किया जाएगा जैसे भू–राजस्व का बकाया ।

64. **भूमि के स्वामी द्वारा खनन प्रचालन पर किसी निर्बन्धन आदि का अधिरोपित न किया जाना .–** खनिज रियायत के अन्तर्गत आने वाली भूमि में किसी धारिता में अधिकार रखने वाले किसी व्यक्ति को ऐसी भूमि के

खनिज रियायत के धारक द्वारा खनन प्रचालन पर कोई प्रतिषेध या निर्बन्धन अधिरोपित करने या उसमें से गौण खनिज को निकालने के लिए प्रीमियम अधिमुल्य या रॉयलेटी के रूप में किसी राशि की मांग करने का हकदार नहीं होगा:

परन्तु ऐसा व्यक्ति उक्त रियायत धारक से सतह के उपयोग हेतु प्रतिकर जैसा उनके मध्य सहमत पाया जाए, प्राप्त करने का हकदार होगा । किसी विवाद की दशा में प्रतिकर की रकम क्लक्टर द्वारा अवधारित की जाएगी और उसका आदेश अंतिम होगा ।

65. **तृतीय पक्षकार की भूमि का अर्जन और उसके लिए प्रतिकर .—** भूमि, जिस की बाबत गौण खनिज के अधिकार सरकार में निहित है, के अधिभोगी या स्वामी की दशा में, सरकार के पास आरक्षित अधिकार और शक्तियों को प्रयोग करने में अपनी सहमति देने से इनकार कर देता है और यथास्थिति, पट्टेदार या संविदाकार को पट्टातंरण करता है तो पट्टेदार या संविदाकार इसकी रिर्पोट सरकार को करेंगे और प्रतिकर के रूप में प्रस्तावित रकम इसके पास जमा करेंगे और यदि सरकार का समाधान हो जाता है कि प्रस्तावित प्रतिकर की रकम उचित और युक्तियुक्त है या यदि उसका समाधान नहीं होता है और पट्टेदार या संविदाकार ने सरकार के पास ऐसी और रकम जमा कर दी हो जिसे सरकार उचित और युक्तियुक्त समझे, तो सरकार पट्टेदार या संविदाकार को भूमि में प्रवेश करने और ऐसे प्रचालन को कार्यान्वित करने का आदेश देगी जैसे प्रयोजन हेतु आवश्यक हो । ऐसे प्रतिकर की रकम का निर्धारण करने में सरकार, भूमि अर्जन, पुनर्वासन और पुनर्व्यवस्थापन में उचित प्रतिकर और पारदर्शिता अधिकार अधिनियम, 2013 (2013 का 30) के सिद्धातों द्वारा मार्गदर्शित होगी ।

66. **खनिज रियायत प्रदान करने के लिए आवेदक की मृत्यु होने पर अनुदान की प्रास्थिति .—** (1) जब संविदा प्रदान करने या खनन पटटे के नवीकरण हेतू किसी आवेदक को संविदा प्रदान करने या खनन पटटा प्रदान करने या खनन पट्टे का नवीकरण करने के आदेश पारित करने से पूर्व, उसकी मृत्यु हो जाती है तो

संविदा करने या खनन पट्टा प्रदान करने या खनन पट्टे के नवीकरण के लिए आवेदन उसके विधिक प्रतिनिधि द्वारा किया गया समझा जाएगा ।

(2) उस आवेदक की दशा में जिस की बाबत संविदा प्रदान करने या खनन पट्टा प्रदान करने या खनन पट्टे का नवीकरण करने का कोई आदेश पारित किया गया है, किन्तु करार विलेख या पट्टा विलेख को निष्पादित करने के पूर्व मृत्यु हो जाती है, तो आदेश मृतक के विधिक प्रतिनिधि के नाम से पारित किया गया समझा जाएगा और ऐसा विधिक प्रतिनिधि अपेक्षित करार विलेख या पट्टा विलेख और उसके नवीकरण को निष्पादित करेगा ।

**अध्याय–6**

**स्टोन कशरों का रजिस्ट्रीकरण, अवस्थिति, प्रतिष्ठापन और कार्य चालन .–**

67. **स्टोन कशर के परिचालन के लिए खनन पट्टे की अनिवार्यता .–** स्टोन कशर के परिचालन हेतु गौण खनिज की विधिक और नियमित आपूर्ति सुनिश्चित करने के लिए खनन पट्टा आवश्यक है:

परन्तु जल विद्युत परियोजनाओं सड़कों और सुरगों, सर्न्निर्माण की दशा में ऐसे सर्न्निर्माण कियाकलापों के दौरान उत्पादित सामग्री के आधार पर स्टोन कशर खनन पट्टा के बिना भी प्रतिष्ठापित किया जाना अनुज्ञात किया जा सकेगा:

परन्तु यह और कि पिसी हुई सामग्री ऐसे जल विद्युत परियोजनाओं, सड़कों और सुरगों के सर्न्निर्माण के परियोजन हेतु उपयोग की जाएगी ।

68. **स्टोन कशर की अंतिम रजिस्ट्रीकरण हेतु अपेक्षा .–** (1) स्टोन कशर के प्रतिष्ठापन हेतु मशीनरी/संयत्र लगाने और इसके आनुषगिंक कियाकलापों जैसे कि अपरिष्कृत माल/परिष्कृत उत्पाद के ढेर लगाने, यानों की पार्किंग, कार्यालय श्रमिकों की झौंपड़ियों आदि हेतु न्यूनतम दो से पांच बीघा कार्य चालन क्षेत्र अपेक्षित होगा जहां तक संभव हो यह क्षेत्र एक ही स्थान पर संहत क्षेत्र होगा:

परन्तु अपेक्षित भूमि एक स्थान पर उपलब्ध न होने की दशा में अपेक्षित कुल भूमि निम्नलिखित शर्तों के अध्याधीन विभिन्न स्थानों पर पूरी की जा सकती है :–

(i) स्टोन क्रशर का मुख्य संघटक अर्थात मशीनरी/संयत्र और परिष्कृत उत्पाद के ढेर लगाने की व्यवस्था एक ही स्थान पर की जा सकेगी जहां से निशिचित प्राचल को अधिसूचना संख्या एस टी.ई–ई(3)–1/2012 तारीख 29–5–2014 पर्यावरण, विज्ञान एवं प्रौद्योगिकी विभाग द्वारा समय–समय पर यथा संशोधित निबंधनों के अनुसार परिमाप किया जा सकेगा;

(ii) अन्य आनुषगिंक कियाकलापों जैसे कि कच्ची सामग्री का ढेर लगाने, यानों की पार्किंग, कार्यालय, श्रमिक झौंपड़ियों आदि हेतु विभिन्न स्थानों पर भूमि अपेक्षा पर विचार किया जा सकेगा; परन्तु उपरोक्त उप–खण्ड(i) के अधीन प्रस्तावित स्टोन क्रशर स्थल से ऐसे स्थान की दूरी पांच सौर मीटर के भीतर है; और

(iii) खनन पट्टा का क्षेत्र स्टोन क्रशर की पांच किलो मीटर की परिधि के भीतर होगा ।

(2) राज्य के भीतर किसी क्षेत्र में स्टोन क्रशर प्रतिष्ठापित करने हेतु आवेदक द्वारा प्रथम अनुसूची में यथा विनिर्दिष्ट अपेक्षित फीस सहित प्ररूप–'ण' में आवेदन प्रस्तुत किया जाएगा ।

(3) उप–नियम(2) के अधीन आवेदन प्रस्तुत करने के पश्चात् मामला, विज्ञान एवं प्रौद्योगिकी विभाग द्वारा अधिसूचना संख्या एस.टी.ई–ई(3)–17/2012 तारीख 29–5–2014 द्वारा गठित संयुक्त निरीक्षण समिति को भेज दिया जाएगा और स्टोन क्रशर स्थल का संयुक्त निरीक्षण, पूर्वोक्त अधिसूचना के उपबंधों के अनुसार किया जाएगा ।

(4) अंतिम रजिस्ट्रीकरण, भू वैज्ञानिक खण्ड, उद्योग विभाग द्वारा स्थल की संयुक्त निरीक्षण समिति द्वारा अनुमोदित करने और खनन पट्टा विलेख निष्पादित करने के पश्चात् प्ररूप–'त' पर जारी

किया जाएगा । अंतिम रजिस्ट्रीकरण, हिमाचल प्रदेश राज्य प्रदूषण नियंन्त्रण बोर्ड से स्टोन कशर को स्थापित करने के लिए, राज्य विद्युत बोर्ड से विद्युत कनेक्शन प्राप्त करने के लिए तथा अन्य सरकारी विभागों से पूर्व उत्पादन स्वीकृति समाशोधन हेतु सहमति अभिप्राप्त करने का आधार होगा ।

69. **स्टोन कशर का स्थायी रजिस्ट्रीकरण** .– (1) हिमाचल प्रदेश राज्य प्रदूषण नियन्त्रण बोर्ड से स्टोन कशर स्थपित करने और परिचालन की सहमति और सम्बन्धित विभागों से अन्य अपेक्षित स्वीकृति समाशोधन अभिप्राप्त करने के पश्चात् स्टोन कशर का स्वामी प्रथम अनुसूची में यथा विनिर्दिष्ट फीस सहित प्ररूप–थ में स्टोन कशर का स्थायी रजिस्ट्रीकरण अभिप्राप्त करने हेतु आवेदन करेगा और इसे स्टोन कशर के स्वामी को प्ररूप–द पर जारी किया जाएगा जो दो साल की अवधि के लिए विधिमान्य होगा ।

(2) यदि स्टोन कशर का स्वामी स्थायी रजिस्ट्रीकरण के नवीकरण का आशय रखता हो तो उसे स्थायी रजिस्ट्रीकरण के अवसान के कम से कम तीन मास पूर्व नवीकरण हेतु आवेदन करना होगा, ऐसा न होने पर स्थायी रजिस्ट्रीकरण के अवसान की तारीख से जब तक वह उसके लिए आवेदन नहीं करता है, तब तक विलम्ब फीस के रूप में प्रतिदिन एक सौ रूपये प्रभारित किए जाएगें ।

(3) उधोग विभाग का भू–वैज्ञानिक खण्ड स्थायी रजिस्ट्रीकरण को और दो वर्ष की अवधि के लिए, स्टोन कशर की उचित कार्यकरण के अध्यधीन रहते हुए, स्थायी रजिस्ट्रीकरण के निबंधनों और शर्तों के अनुसार और समस्त देयों के समाशोधन पर नवीकृत कर सकेगा ।

(4) स्थायी रजिस्ट्रीकरण के नवीकरण हेतु प्रस्तुत किया आवेदन, यदि रजिस्ट्रीकरण की अवधि के अवसान से पूर्व नहीं निपटाया जाता है तो उसे और अवधि हेतु विस्तारित किया गया समझा जाएगा ।

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70. **स्टोन कशर के परिचालन के लिए शर्तें .–** (1) कोई भी व्यक्ति, राज्य के भीतर किसी क्षेत्र में कोई स्टोन कशर तब तक नहीं परिचालित करेगा (चलाएगा) जब तक वह उधोग विभाग के भू–वैज्ञानिक खंड से अपेक्षित रजिस्ट्रीकरण प्राप्त नहीं कर लेता है ।

(2) प्रत्येक स्टोन कशर का स्वामी निम्नलिखित उपबन्धों का पालन करेगाः–

(क) वायु (प्रदूषण निवारण और नियंत्रण) अधिनियम, 1981 और तद्धीन बनाए नियम;

(ख) जल (प्रदूषण निवारण और नियंत्रण) अधिनियम, 1974 और तद्धीन बनाए नियम;

(ग) पर्यावरण (संरक्षण) अधिनियम, 1986 और तद्धीन बनाए नियम;

(ध) ध्वनि प्रदूषण(विनियमन तथा नियंत्रण) नियम, 2000;

(ङ)कानून और तद्धीन बनाए नियमों के अनुसार और सरकार की अधिसूचना तारीख 29–5–2014 द्वारा यथा अधिसूचित उत्सर्जन मानक; और

(च) सरकार की अधिसूचना तारीख 29–5–2014 या समय–समय पर यथा संशोधित के अनुसार प्रदूषण नियंत्रण उपाय;

(3) उधोग विभाग का भू–वैज्ञानिक खण्ड, पर्यावरण के संरक्षण, खनिजों के संरक्षण तथा विकास हेतु कोई अन्य शर्तें जैसे यह उचित समझे अधिरोपित कर सकेगा ।

(4) स्टोन कशर का स्वामी, पिसे हुए (कशड) खनिजों की कुल मात्रा, उपमुक्त विद्युत/बिजली, केपटिव पॉवर जनरेटिड रन कशर की दशा में पैदा की गई बिजली, डीजल से चलने वाले कशर की दशा में तेल की खपत, नियोजित श्रमिकों की संख्या और संदत्त मजदूरी आदि के ब्यौरे देते हुए प्रत्येक मास की दस तारीख तक विवरणी प्रस्तुत करेगा ।

(5) स्टोन कशर का स्वामी, निरीक्षण करने वाले कर्मचारिवृन्द को कशर तक पहुंचने के लिए अनुज्ञात करेगा और कशर के प्रचालन और गौण खनिजों तथा स्टाकों की विधिक आपूर्ति के स्त्रोत के सत्यापन से सम्बन्धित समस्त अभिलेखों को उपलब्ध करवाएगा ।

(6) स्टोन क्रशर का स्वामी, खनन पट्टा विलेख और कच्ची सामग्री की मांग को पूरा करने हेतु उसे दी गई किसी अन्य अनुज्ञा के निबन्धनों और शर्तों का पालन करेगा ।

71. **शास्ति** .– कोई व्यक्ति जो इस अध्याय के किसी उपबन्ध का उल्लंधन करेगा, दोषसिद्धि पर कारावास से, जिसकी अवधि एक वर्ष तक की हो सकेगी या जुर्माने से, जो 50,000/– रूपये (पच्चास हजार रूपये) तक का हो सकेगा या दोनों से दण्डनीय होगा और उल्लंघन जारी रहने की दशा में, अतिरिक्त जुर्माने से, जो प्रथम ऐसे उल्लंधन के लिए दोषसिद्धि के पश्चात् प्रत्येक दिन के लिए, जिसके दौरान ऐसा उल्लंधन जारी रहता है, 5000:–रूपये (पांच हजार रूपये) तक का हो सकेगा:

परन्तु इस अध्याय के अधीन दण्डनीय किसी अपराध का या तो अभियोजन संस्थित किए जाने से पूर्व या उसके पश्चात् अपराध की बाबत न्यायालय को शिकायत करने के लिए प्राधिकृत अधिकारी द्वारा, सरकार के खाते में जमा करने के लिए ऐसी रकम जैसी वह अधिकारी विहित करे, का उस अधिकारी को संदाय करने पर, शमन किया जा सकेगा:

परन्तु यह और कि केवल जुर्माने से दण्डनीय किसी अपराध की दशा में ऐसी रकम, जुर्माने की अधिकतम रकम जो उस अपराध के लिए अधिरोपित की जा सकेगी से अधिक नहीं होगी ।

## अध्याय–7
## खनिजों के अवैध खनन, भण्डारण तथा परिवहन को रोकना .–

72. **अवैध खनन को रोकना** .– कोई भी व्यक्ति किसी क्षेत्र में इन नियमों के निबंधनों और शर्तों के अनुसार और अर्न्तगत के सिवाए, कोई खनन प्रचालन नहीं करेगा ।

73. **अवैध खनन के लिए शास्ति के उपबन्ध** .– नियम 72 का कोई उल्लंधन कारावास से, जो दो वर्ष तक का हो सकेगा या जुर्माने से, जो 25,000/–रूपये (पच्चीस हजार रूपये केवल) तक का हो सकेगा, या दोनों से, दण्डनीय होगा:

परन्तु नियम 72 के प्रथम और द्वितीय बार उल्लंधन का अधिनियम की धारा 22 के अधीन सरकार द्वारा प्राधिकृत किसी अधिकारी द्वारा शमन किया जा सकेगा और पश्चातवर्ती उल्लंधन के सम्बन्ध में मामला, इस प्रकार प्राधिकृत अधिकारी द्वारा, विधि के समक्ष न्यायालय में दायर किया जा सकेगा । अपराध के शमन की रीति निम्नलिखित होगी:–

(i) हाथ से (शारीरिक श्रम द्वारा) किए गये अवैध खनन की दशा में, प्रशमन फीस की रकम दस हजार रूपये से कम नहीं होगी यदि निकाला गया खनिज पच्चीस मीट्रिक टन तक है;

(ii) यदि किए गये अवैध खनन की मात्रा पच्चीस मीट्रिक टन से अधिक हो जाती है तो चार सौ रूपये प्रति मीट्रिक टन की दर से अतिरिक्त प्रशमन फीस प्रभारित की जाएगी;

(iii) द्वितीय उल्लंधन की दशा में पच्चीस हजार रूपये की न्यूनतम प्रशमन फीस प्रभारित की जाएगी;

(iv) यदि नदी/नाला तल में अवैध खनन यांत्रिक तौर पर किया गया है तो प्रशमन फीस की रकम पच्चीस हजार रूपये के कम नहीं होगी ।

74. **खनिज के भण्डारण हेतु रजिस्ट्रीकरण प्रदान करना** .–(1) व्यौहारी के रूप में रजिस्ट्रीकरण करने या उसका नवीकरण करने की इच्छा रखने वाला कोई व्यक्ति खनन अधिकारी को प्ररूप– 'ध' में आवेदन करेगा । आवेदन चार प्रतियों में उसके कार्यालय में प्रस्तुत किया जाएगा ।

(2) उप–नियम(1) के अधीन किए गये प्रत्येक आवेदन के साथ निम्नलिखित संलग्न किया जाएगा ।

(क) निम्नलिखित लेखा शीर्ष के अधीन खजाना चालान के माध्यम से संदेय प्रथम अनुसूची में यथा विनिर्दिष्ट फीस:–

'0853–नॉन फेरस माइनिंग एण्ड मेटालर्जिकल इन्डस्ट्रीज,

102– मिनरल कन्सैशन फीस एण्ड रायॅल्टीज

81– अदर रिसिटस;

(ख) इस प्रभाव का शपथ पत्र कि वह खनिजों के अवैध निकालने या उसके (परिवहन से सम्बन्धित किसी अपराध का सिद्धदोष नहीं पाया गया; और

(ग) खनिज आधारित फैक्टरी, बेनीफिसिऐशन प्लान्ट या किसी उद्योग, यदि कोई है की स्थापना के लिए उधोग विभाग या सरकार के किसी अन्य विभाग द्वारा जारी किए गये प्रमाण पत्र की एक प्रति ।

(3) रजिस्ट्रीकरण हेतु आवेदन की प्राप्ति पर खनन अधिकारी का कार्यालय, प्ररूप–न में एक सप्ताह के भीतर अभिस्वीकृति रसीद देगा ।

75. **अवैध भण्डारण को रोकना .–** (1) कोई भी व्यक्ति इन नियमों के उपबन्धों के अनुसार उद्योग विभाग हिमाचल प्रदेश के साथ व्यौहारी के रूप में विधिमान्य अनुज्ञा या रजिस्ट्रीकरण के लिए किसी भी स्थान पर किसी साधन द्वारा किसी भी खनिज का भण्डारण नहीं करेगा या भण्डारण नहीं करवाएगा ।

(2) समस्त व्यौहारी, इन नियमों में अधिकथित प्रकिया के अनुसार उद्योग विभाग, हिमाचल प्रदेश के पास स्वंय को व्यौहारी के रूप में रजिस्ट्रीकृत करवाएंगें:

परन्तु यथास्थिति, खनन पट्टा या संविदा या निविदा धारक या अनुज्ञा पत्र धारक को उस खनिज की बाबत जिसके लिए उसे खनिज रियायत दी गई है, स्वयं को पृथकतः व्यौहारी के रूप में रजिस्ट्रीकृत करवाना अपेक्षित नहीं होगा:

परन्तु यह और कि जहां खनिज का स्टॉक पच्चास मीटर टन से कम है तो व्यक्ति को स्वंय का व्यौहारी के रूप में रजिस्ट्रीकृत करवाना अपेक्षित नहीं होगा यदि उक्त खनिज का भण्डारण उसने अपने वास्तविक उपयोग के लिए किया है ।

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76. **खनन अधिकारी द्वारा आवेदन का प्रसंस्करण** .– (1)खनन अधिकारी अपने कार्यालय में प्ररूप–प में एक रजिस्टर बनाए रखेगा जिसमें वह आवेदन की बाबत इसकी प्राप्ति के तुरन्त पश्चात् आवश्यक प्रविष्टियां करेगा और सम्यक अनुक्रम में इसका निपटारा करेगा।

(2) खनन अधिकारी व्यौहारी को आवेदन की प्राप्ति की तारीख से तीस दिन के भीतर पांच वर्ष की अवधि के लिए प्ररूप–फ में रजिस्ट्रीकरण प्रमाण पत्र प्रदान करेगा । आवेदन के इंकार या रद्द करने की दशा में कारणों को लिखित में अभिलिखित किया जाएगा और आवेदन की प्राप्ति की तारीख से तीस दिन की अवधि के भीतर उन्हें आवेदक को संसूचित किया जाएगा ।

(3) खनन अधिकारी को नवींकरण हेतु आवेदन, विद्यमान रजिस्ट्रीकरण के अवसान की तारीख से नब्बे दिन पूर्व प्ररूप–ध में किया जाएगा । यदि नवींकरण का आदेश अवसान से पूर्व पारित नहीं किया जाता है तो यह आगामी अवधि के लिए अंतिम निर्णय जब कभी भी संसूचित किया जाए के अध्यधीन, नवीकृत किया गया समझा जाएगा ।

77. **रजिस्ट्रीकरण जारी करने हेतु शर्तें** .– रजिस्ट्रीकरण निम्नलिखित शर्तों के अध्यधीन प्ररूप–'फ' में प्रदान किया जाएगा, अर्थातः–

(i) व्यौहारी, रजिस्ट्रीकरण के निबंधनों और शर्तों के सम्यक् अनुपालन हेतु प्रतिभूति के रूप में, खनन अधिकारी के पक्ष में सम्यक् रूप से गिरवी रखी गई सावधि जमा प्राप्ति (एफ0डी0आर) के रूप में, प्रथम अनुसूची में यथा विनिर्दिष्ट राशि जमा करेगा;

(ii) व्यौहारी, उपाप्त किए गये संसाधित और विभिन्न गंतब्यों को परिवहन किए गये अयस्क तथा खनिज के सही और सुपाठ्य मासिक लेखे रखेगा;

(iii) कोई व्यक्ति, जो खनिज का परिवहन करता है और जिसे प्ररूप–'ब' में अभिवहन पास या प्ररूप–'भ' में अनुपूरक पास धारण करना अपेक्षित है वह मांग पर, ऐसे पास को इस निमित्त किसी प्राधिकृत अधिकारी को प्रस्तुत करेगा;

(iv) प्रत्येक व्यौहारी, उत्तरवर्ती मास की दस तारीख तक खनन अधिकारी को प्ररूप–'म' में विवरणी प्रस्तुत करेगा;

(v) व्यौहारी, भण्डारों या कारखानों से अयस्क या खनिजों को ले जाते समय सम्बद्ध प्राधिकृत अधिकारी से अनुज्ञा प्राप्त करेगा और उसके कार्यालय से अभिप्राप्त अभिवहन पास प्ररूप–'ब' या अनुपूरक पास प्ररूप–'भ' के अधीन अयस्क या खनिज का परिवहन करेगा;

(vi) प्रत्येक व्यौहारी, खनिजों के स्टॉक को सत्यापित करने के लिए भण्डारों तथा कारखानों का निरीक्षण करने और उस द्वारा अनुरक्षित अभिलेखों से नमूने सार लेने के लिए निदेशक उधोग या राज्य भू विज्ञानी या भू विज्ञानी तथा सहायक भू–विज्ञानी या खनन अधिकारी या खनन निरीक्षक को अनुज्ञात करेगा; और

(vii) यदि व्यौहारी ने इस नियम की किसी शर्त का भंग किया है तो नोटिस की तामील के पश्चात् रजिस्ट्रीकरण रद्द कर दिया जाएगा।

78. **अवैध भण्डारण हेतु शास्तिक उपबंध .–** नियम 75 के उप–नियम (1) और (2) का कोई उल्लंधन कारावास से जिसकी अवधि दो वर्ष तक की हो सकेगी या जुर्माने से जो 25000/– रूपये (पच्चीस हजार रूपये) तक का हो सकेगा या दोनों से दण्डनीय होगा:

परन्तु नियम 75 के उप–नियम(1) और (2) के प्रथम और द्वितीय उल्लंघन का अधिनियम की धारा 22 के अधीन सरकार द्वारा प्राधिकृत किसी अधिकारी द्वारा प्रशमन किया जा सकेगा और पश्चात्वर्ती उल्लंधन के सम्बन्ध में मामला इस प्रकार प्राधिकृत अधिकारी द्वारा सक्षम न्यायालय में दायर किया जा सकेगा :

परन्तु यह और कि प्रशमन फीस की रकम कम से कम 25000/– रूपये जमा स्थल पर अवैध रूप से भण्डार की गई कुल सामग्री के बाजार विक्रय मूल्य से कम नहीं होगी ।

79. **खनिजों का परिवहन** .– (1) कोई भी व्यक्ति इन नियमों के उपबंधों के अनुसार से अन्यथा किसी खनिज का परिवहन नहीं करेगा या परिवहन नहीं करवाएगा ।

(2) खनन पट्टा या संविदा या अनुज्ञापत्र या अनुज्ञा या भण्डार का धारक या इस निमित्त उस द्वारा प्राधिकृत कोई व्यक्ति, यान, पशु या परिवहन के किसी अन्य ढंग द्वारा गौण खनिज परेषण धारक प्रत्येक व्यक्ति को सम्बद्ध खनन अधिकारी या इस निमित्त उस द्वारा प्राधिकृत अन्य किसी अधिकारी द्वारा सम्यक् रूप से प्रतिहस्ताक्षरित, यथास्थिति, प्ररूप–'व' में अभिवहन पास या प्ररूप–'भ' में अनुपूरक पास जारी करेगा ।

(3) किसी भी स्थान को किसी खनिज के परिवहन हेतु अभिवहन पास जारी करने के लिए व्यौहारी या खनन पट्टा या संविदा अथवा अनुज्ञा का धारक प्राधिकृत अधिकारी को आवेदन करेगा ।

(4) अभिवहन पास तीन प्रतियों में होगा । जिस की दो प्रतियां प्रेषक को दी जाएगी जबकि तीसरी प्रति व्यौहारी या खनन पट्टा या संविदा या अनुज्ञापत्र या अनुज्ञा धारक के पास रहेगी और प्राधिकृत अधिकारी के समक्ष उसे प्रस्तुत किया जाएगा । जब भी उसके द्वारा मांग की जाए अभिवहन पास की एक प्रति चैक पोस्ट के निरीक्षण अधिकारी और साधक द्वारा अपने पास रखी जाएगी जो दूसरी प्रति को पृष्ठांकित करेगा जो परिवहन के दौरान वाहक के पास रहेगी और उसे, यथास्थिति, व्यौहारी या क्रेता को सौंप देगा :

परन्तु यदि खनिज अन्य राज्य से लाया जा रहा है तो प्रेषक के पास उस राज्य की फर्म या प्रदायकर्ता जो उस खनिज का प्रदायकर्ता है का स्थान और पता उपदर्शित करते हुए उचित दस्तावेज होना चाहिए ।

(5) किसी गौण खनिज को वहन करने वाला प्रत्येक व्यक्ति, चैक पोस्ट/बैरियर सहित किसी स्थान पर इस निमित्त प्राधिकृत राज्य सरकार के किसी अधिकारी द्वारा मांग पर प्ररूप–'व' में उक्त अभिवहन पास या प्ररूप–'भ' में अनुपूरक पास को ऐसे अधिकारी को दिखाएगा और उसे गौण खनिज की मात्रा के सम्बन्ध में प्ररूप–'व' में या प्ररूप–'भ' में अभिवहन पास या अनुपूरक पास की विशिष्टियां की शुद्धता को सत्यापित करना अनुज्ञात करेगा ।

(6) प्रत्येक व्यौहारी, इस निमित्त प्राधिकृत अधिकारी को, खनिज के स्टॉक और लेखों और उनसे सम्बन्धित अन्य दस्तावेजों का निरीक्षण सत्यापन तथा जांच करने की युक्तियुक्त प्रसुविधा प्रदान करेगा ।

**80. अभिवहन में खनिजों को तोलने तथा उनके निरीक्षण हेतु चैक पोस्टों/वैरियरों की स्थापना .–**

(1) यदि सरकार, विधिपूर्ण प्राधिकार के बिना निकाले गये खनिजों के परिवहन तथा भण्डारण की जांच करने की दृष्टि से ऐसा करना आवश्यक समझती है तो यह राजपत्र में अधिसूचित करके राज्य में किसी स्थान या किन्हीं स्थानों पर चैक पोस्टों या बैरियरों या दोनों को स्थापित करने का निर्देश दे सकेगी ।

(2) कोई भी प्राधिकृत अधिकारी, किसी स्थान पर खनिज ले जा रहे किसी भी यान को चैक कर सकेगा और वाहक(कैरियर) का भार साधक व्यक्ति, यथास्थिति, वैध अभिवहन पास प्ररूप–'व' में या अनुपूरक पास प्ररूप–'भ' में और अन्य विशिष्टियां जैसे कि बिल या रसीद या परिदान नोट उस अधिकारी द्वारा मांग पर प्रस्तुत करेगा ।

(3) प्रत्येक चैक पोस्ट या बैरियर पर या किसी अन्य स्थान पर, चैक पोस्ट या बैरियर का भार–साधक प्राधिकारी या किसी अन्य प्राधिकृत अधिकारी द्वारा जब कभी इस प्रकार अपेक्षित हो तब वाहक (कैरियर) का भार–साधक व्यक्ति अभिवहन में खनिज के परीक्षण हेतु उसे रोकेगा और खनिज से सम्बंधित समस्त अभिलेखों और दस्तावेजों का निरीक्षण करने के लिए पूर्वोक्त अधिकारी को

अनुज्ञात करेगा । वाहक का भार–साधक व्यक्ति, चैक पोस्ट या वैरियर के भार साधक अधिकारी द्वारा या किसी अन्य प्राधिकृत अधिकारी द्वारा यदि ऐसा करना अपेक्षित है को अपना नाम और पता और वाहक के स्वामी का भी नाम और पता तथा माल भेजने वाले या परेषिती दोनों का नाम और पता देगा । खनिज और वाहक की जांच करने के पश्चात्, चैक पोस्ट या वैरियर का भार–साधक अधिकारी या यथाशक्ति कोई अन्य प्राधिकृत अधिकारी, अभिवहन पास पर अपने हस्ताक्षर करेगा ।

(4) यदि प्रेषण, अभिवहन पास के अनुरूप नहीं है तो चैक पोस्ट या वैरियर के भार साधक अधिकारी या प्राधिकृत अधिकारी को अभिवहन में खनिज सहित वाहक को अभिग्रहण करने की शक्ति होगी ।

(5) कोई अधिकारी, जो इन नियमों के अधीन, यथास्थिति, वाहक(कैरियर) या खनिज या दोनों के अभिग्रहण के लिए कार्रवाई प्रारम्भ करता है, तो वह ऐसे अभिग्रहण की सूची तैयार करेगा और उसके द्वारा हस्ताक्षरित उसकी एक प्रति उस व्यक्ति को, जिसके कब्जे से ऐसा अभिग्रहण किया गया है, परिदान करेगा । वह ऐसी सम्पति को, प्ररूप–'य' में उचित कार्यालय मुहर तथा विस्तृत सूचना सहित, अपनी अभिरक्षा में रखेगा ।

(6) यथास्थिति चैक पोस्ट या बैरियर का भार साधक अधिकारी या प्राधिकृत अधिकारी वाहक के भार–साधक व्यक्ति को खनिज को निकटतम पुलिस थाना या सम्बन्धित विभाग की चैक पोस्ट या वैरियर तक ले जाने का निर्देश दे सकेगा :

परन्तु यदि भार–साधक व्यक्ति खनिज तथा वाहक को निकटतम पुलिस थाना या विभाग की चैक पोस्ट या वेरियर तक ले जाने से इंकार करता है तो भार–साधक अधिकारी या उप–नियम(4) के अधीन कोई अन्य प्राधिकृत अधिकारी वाहक को अभिगृहित कर सकेगा और उसे अपने कब्जे मे ले सकेगा ।

(7) जब कभी, इन नियमों के अधीन खनिज सहित कोई वाहक किसी प्राधिकृत अधिकारी द्वारा अभिगृहीत किया जाता है तो ऐसा अधिकारी इन नियमों के अधीन यथा उपबंधित अपराध के

प्रशमन हेतु ऐसे अभिग्रहण के बदले में स्वामी या वाहक के भार–साधक को विकल्प देगा । स्वामी या वाहक के भार–साधक व्यक्ति के ऐसे विकल्प का प्रयोग करने में असफल रहने की दशा में, इस निमित्त प्राधिकृत अधिकारी द्वारा उसके विरूद्व विधिक कार्रवाई प्रारम्भ की जाएगी ।

81. **अवैध परिवहन हेतु शास्तिक उपबन्ध** .– नियम 79 और 80 का कोई उल्लंघन कारावास से, जिसकी अवधि दो वर्ष हो सकेगी या जुर्माने से जो 25,000/–रूपये (पच्चीस हजार रूपये) तक का हो सकेगा या दोनों से दण्डनीय होगा:

परन्तु नियम 79 और 80 के प्रथम और द्वितीय उल्लंधन के लिए अधिनियम की धारा 22 के अधीन सरकार द्वारा प्राधिकृत किसी अधिकारी द्वारा प्रशमन किया जा सकेगा और पश्चातवर्ती उल्लंघन के सम्बन्ध में मामला इस प्रकार प्राधिकृत अधिकारी द्वारा सक्षम न्यायलय में दायर किया जा सकेगा । अपराध के प्रशमन की रीति निम्न होगी:–

ट्रैक्टर के लिए प्रशमन फीस की रकम 4500/– रूपये (चार हजार और पांच सौ रूपये केवल) से कम नहीं होगी, 7 मीटर टन तक की क्षमता वाले मध्यम ट्रक/टिप्पर के लिए 7000/–रूपये (सात हजार रूपये केवल), 10 मीटर टन तक की क्षमता वाले ट्रक्कों के लिए 15,000/– रूपये (पन्द्रह हजार रूपये केवल), दस मीटर टन से अधिक की क्षमता वाले ट्रक्कों के लिए 25,000/– रूपये (पच्चीस हजार रूपये केवल) और खच्चर/घोड़ा के लिए 200/–रूपये (दौ सौ रूपये केवल) ।

82. **अभिग्रहण तथा अधिहरण** .– (1) जब कभी कोई व्यक्ति किसी विधिपूर्ण प्राधिकार के बिना किसी भूमि से कोई खनिज निकालता है या निकलवाता है और उस प्रयोजन हेतु किसी औजार, उपस्कर या किसी अन्य वस्तु का उपयोग करता है तो वह अधिनियम की धारा 21 की उप–धारा(4) के अधीन सरकार द्वारा इस निमित्त विशेषतः सशक्त किसी प्राधिकारी द्वारा अभिगृहीत किए जाने के लिए दायी होंगे ।

(2) उप–नियम (1) के अधीन अभिगृहीत कोई खनिज, औजार, उपस्कर या कोई अन्य वस्तु नियम 73 और 78 के अधीन अपराध का संज्ञान लेने में सक्षम न्यायलय के आदेश द्वारा अधिहृत किए जाने के लिए दायी होगी और ऐसे न्यायालय के निर्देशों के अनुसार व्ययनित की जाएगी ।

83. **लिखित शिकायत पर ही अपराधों का संज्ञेय होना** .– कोई भी न्यायालय इन नियमों के अधीन, दण्डनीय किसी अपराध का निदेशक या इस निमित्त उस द्वारा प्राधिकृत किसी अन्य अधिकारी द्वारा लिखित में की गई शिकायत के सिवाय संज्ञान नहीं लेगा ।

84. **विशेष मामलों में छूट** .– सरकार की यदि यह राय है कि राष्ट्रीय महत्व की परियोजनाओं के हित में या राष्ट्रीय सुरक्षा के हित में या खनिज विकास के हित में ऐसा करना आवश्यक है तो वह लिखित में आदेश द्वारा और कारणों को अभिलिखित करके इन नियमों में यथा अधिकथित से भिन्न निबन्धनों और शर्तों पर किसी खनन पट्टे का प्रदान करना या खनन और खनिज के प्रयोजन के लिए किसी खान का कार्यकरण या स्टोन क्रशर का स्थापित करना और उसका कार्यकरण किसी भी मामले में प्राधिकृत कर सकेगी ।

85. **निरसन और व्यावृतियां** .– (1) दी हिमाचल प्रदेश माइनर मिनरलज(कनसेशन) रिवाइजड रूल्ज, 1971 और दी हिमाचल प्रदेश मिनरलज(प्रीवेनशन ऑफ इलीगल माइनिंग, ट्रांसपोटेशन एण्ड स्टोरेज) रूल्ज, 2004 का एतद् द्वारा निरसन किया जाता है ।

(2) ऐसे निरसन के होते हुए भी निरसित नियमों के उपबंधों के अधीन की गई कोई बात या की गई कोई कार्रवाई इन नियमों के तत्स्यानी उपबन्धों के अधीन विधिमान्य रूप में की गई समझी जाएगी ।

## प्रथम अनुसूची

## नियमों की अधीन अपेक्षित फीस

| क्रम संख्या | नियम | विशिष्टियां | फीस(रूपयो में) |
|---|---|---|---|
| 1 | 5(1) | अनुमोदन प्रमाण पत्र के लिए आवेदन फीस | 2500/-- पांच वष की अवधि के लिए |
| 2 | 7(ज)(झ) और 16(2) | खनन पटटे/खनन पट्टे के नवीकरण हेतु आवेदन फीस | 5000/--(अप्रतिदेय) |
| 3 | 15(1) | 5 हैक्टेयर तक प्रतिभूति निक्षेप/अतिरिक्त क्षेत्र हेतु यथानुपात आधारित अतिरिक्त प्रतिभूति | 25,000/--(सक्षम प्राधिकारी के पक्ष में सम्यक् रूप से गिरवी रखी गई सावधिजमा प्राप्ति (एफ डी आर) के रूप में |
| 4 | 19(15), 23(6) और 31(2) (xiii) | यांत्रिक खनन हेतु प्रतिभूति | दो लाख रूपये |
| 5 | 21(1) | खनन पटटे के अंतरण हेतु फीस | 50,000/--(अप्रतिदेय) |
| 6 | 21(2) | आशय पत्र और ग्रान्ट आर्डर /अनुदान (प्रदान किए जाने वाले आदेश) के अन्तरण के लिए फीस | 10,000/--(अप्रतिदेय) |
| 7 | 29(3) | अनुज्ञापत्र हेतु आवेदन फीस | 25,00/--(अप्रतिदेय) |
| 8 | 38(1) | आर क्यू पी के रूप में मान्यता के लिए आवेदन फीस | 5,000/--(अप्रतिदेय) |
| 9 | 40(2) | खनन योजना के उपान्तरण हेतु फीस | 10,000/-- |
| 10 | 54 | यथानुपात आधारित प्रति हैक्टेयर वित्तीय बीमा | 5,000/-- |
| 11 | 60 | अपील करने के लिए फीस | 1,000/--(अप्रतिदेय) |
| 12 | 68 | स्टोन क्रशर स्थल का संयुक्त निरीक्षण करने हेतु आवेदन फीस | 25,00/--(अप्रतिदेय) |
| 13 | 69 | स्टोन क्रशर के स्थायी रजिस्ट्रीकरण हेतु आवेदन फीस | 25,00/--(अप्रतिदेय) |
| 14 | 74 | व्यौहारी के रूप में रजिस्ट्रीकरण हेतु आवेदन फीस | 1000/--(अप्रतिदेय) |
| 15 | 77 | व्यौहारी के रजिस्ट्रीकरण हेतु प्रतिभूति | 10,000/-- |

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## द्वितीय अनुसूची

## रॉयलेटी की दरें

(नियम 4(1), 18(1) और 19(1)(क) देखें )

| क्रम संख्या | खनिज का नाम | रॉयलेटी की दरें/नियमों के अधीन अपेक्षित अन्य फीस (प्रति टन) |
|---|---|---|
| 1 | शिला खण्ड और समुद्री कंकड़ सहित चिनाई पत्थर, इमारती पत्थर । | 60.00 रूपये |
| 2 | चूना पत्थर | 80.00 रूपये |
| 3 | **संगमरमरः**<br>(क) चूना दहन के लिए प्रयुक्त<br>(ख) परिष्कृत नक्काशी की हुई और खुरदरी संगमरमर की पट्टियॉं<br>(ग) संगमरमर के टुकड़े, बारीक चूर्ण खंडाज<br>(घ) बीस मैश से अनधिक अपरिष्कृत चूर्ण (कोर्स पाउडर) | <br>80.00 रूपये<br>450.00 रूपये<br>80.00 रूपये<br>80.00 रूपये |
| 4 | बजरी | 60.00 रूपये |
| 5 | साधारण बालू/प्रस्तर चूर्ण | 60.00 रूपये |
| 6 | साधारण मिट्टी/स्लेटी पत्थर | 30.00 रूपये |
| 7 | (क) खुरदरी स्लेट पट्टी<br>(ख) स्लेट<br>(ग) स्फटिक स्लेट | 140.00 रूपये<br>340.00 रूपये<br>340.00 रूपये |
| 8 | कंकर, रोड़ी ब्लास्ट और रोड़ी | 60.00 रूपये |
| 9 | रंगों और अन्य शैड वाली चट्टानों सहित ग्रेनाइट तथा टैपस/व सॉल्ट के काटे हुए या परिष्कृत शिलाखण्ड (180x80x50 सै.मी. और अधिक आकार के) | 500.00 रूपये |
| 10 | ईंट मिट्टी | एक लाख ईंटों पर यथानुपात आधार पर 5000/– रूपये |
| 11 | समस्त अन्य गौण खनिज जो यहां विनिर्दिष्ट नहीं किए गये है । | गड्ढे के मुहाने पर विक्रय मूल्य का 25 प्रतिशत |

## तृतीय अनुसूची

(नियम 18(2) और 19(1)(घ) देखें )

**क. अनिवार्य भाटक की रूपयों में दर–प्रति हैक्टेयर–प्रतिवर्ष**

| क्रम संख्या | गौण खनिज का नाम | अनिवार्य भाटक की दर | |
|---|---|---|---|
| 1 | गौण खनिज के रूप में चूना पत्थर | प्रति हैक्टेयर और उसके भाग के लिए 25,000/–रूपये प्रतिवर्ष | |
| 2 | स्लेट/कट स्टोन | प्रति हैक्टेयर और उसके भाग के लिए 2,000/–रूपये प्रतिवर्ष | |
| 3 | अन्य गौण खनिज | **(i) प्राईवेट भूमि** | |
| | | खनन पट्टे का क्षेत्र | प्रति हैक्टेयर और उसके भाग के लिए 10,000/–रूपये प्रतिवर्ष |
| | | **(ii) सरकारी भूमि** | |
| | | पांच हैक्टेयर तक खनन पटटा क्षेत्र | प्रति हैक्टेयर और उसके भाग के लिए 10,000/–रूपये प्रतिवर्ष |
| | | पांच हैक्टेयर से दस हैक्टेयर तक खनन पटटा क्षेत्र | प्रति हैक्टेयर और उसके भाग के लिए 15,000/–रूपये प्रतिवर्ष |
| | | दस हैक्टेयर से बीस हैक्टेयर तक खनन पटटा क्षेत्र | प्रति हैक्टेयर और उसके भाग के लिए 20,000/–रूपये प्रतिवर्ष |
| | | बीस हैक्टेयर से अधिक खनन पटटा क्षेत्र | प्रति हैक्टेयर और उसके भाग के लिए 20,000/–रूपये प्रतिवर्ष |

**ख. सतही भाटक की रूपयों में दरे प्रति हैक्टेयर प्रतिवर्ष**

**(नियम 19(1(घ) देखें)**

| क्रम संख्या | गौण खनिज का नाम | अनिवार्य भाटक की दर |
|---|---|---|
| 1 | सरकारी भूमि के लिए सतही भाटक | प्रति हैक्टेयर 1000/–रूपये |

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## चौथी अनुसूची

**हिमाचल प्रदेश गौण खनिज (रियायत) और खनिज (अवैध खनन, उसके परिवहन और उसके भण्डारण का निवारण) नियम, 2015 के विभिन्न उपबंधो के अधीन शक्तियों का प्रत्यायोजन**

| नियम | सीमा | प्राधिकृत अधिकारी | सीमा |
|---|---|---|---|
| 5(1) | अनुमोदन के प्रमाण पत्र हेतू, आवेदन पत्र प्राप्त करने की शक्ति | निदेशक उद्योग/राज्य भू–विज्ञानी/खनन अधिकारी | उनकी अपनी –अपनी आधिकारिता में |
| 5(3) और 5(4) | अनुमोदन का प्रमाण पत्र प्रदान करने/नवीकरण करने की शक्ति | निदेशक उद्योग/राज्य भू–विज्ञानी/खनन अधिकारी | उनकी अपनी –अपनी आधिकारिता में |
| 7 और 16(2) | खनन पट्टा प्रदान करने/नवीकरण करने के लिए आवेदन को प्राप्त करने की शक्ति | राज्य भू–विज्ञानी | समस्त हिमाचल प्रदेश राज्य में |
| 8(3) | आवेदन की अभिस्वीकृति की शक्ति | राज्य भू–विज्ञानी | समस्त हिमाचल प्रदेश राज्य में |
| 9 | खनन पट्टे हेतू, प्राथमिकता समनुदेशित करने की शक्ति | राज्य भू–विज्ञानी | समस्त हिमाचल प्रदेश राज्य में |
| 9(4) | खनन पट्टे हेतू, आवेदित क्षेत्र के सम्पूर्ण या उसके किसी भाग के लिए इनकार करने की शक्ति | 1.5 हैक्टेयर तक के क्षेत्र हेतू, राज्य भू–विज्ञानी और 1.5 हेक्टेयर क्षेत्र से 3.0 हेक्टेयर क्षेत्र तक के लिए निदेशक उद्योग | समस्त हिमाचल प्रदेश राज्य में |
| 17 | आशय पत्र जारी करने और खनन पट्टा प्रदान करने की शक्ति | 1.5 हैक्टेयर तक के क्षेत्र हेतू, राज्य भू–विज्ञानी और 1.5 हेक्टेयर क्षेत्र से 3.0 हेक्टेयर क्षेत्र तक के लिए निदेशक उद्योग | समस्त हिमाचल प्रदेश राज्य में |
| 23(2) 26(6) 27(7) | आशय पत्र जारी करने और संविदा प्रदान करने की शक्ति | दस लाख रूपए के मूल्य तक राज्य भू–विज्ञानी, पच्चीस लाख रूपए के मूल्य तक, निदेशक उद्योग | समस्त हिमाचल प्रदेश राज्य में |
| 30 | गौण खनिज को निकालने हेतू, अनुज्ञा पत्र प्रदान करने की शक्ति | निदेशक उद्योग | समस्त हिमाचल प्रदेश राज्य में |
| 33 | खनिज को उठाने/उसका परिवहन करने हेतू, अनुज्ञा प्रदान करने की शक्ति | प्रति मास बीस हजार मीट्रिक टन तक के लिए राज्य भू–विज्ञानी, बीस हजार मीट्रिक टन से अधिक के लिए निदेशक उद्योग | समस्त हिमाचल प्रदेश राज्य में |
| 57 (3) और 71 | शिकायत दर्ज करने की शक्ति | राज्य भू–विज्ञानी/खनन अधिकारी | उनकी अपनी –अपनी आधिकारिता में |
| 63 | प्रारूप 'ढ' हस्ताक्षरित करने की शक्ति | खनन अधिकारी | उनकी अपनी –अपनी आधिकारिता में |

प्ररूप –क

(नियम 5(1) देखें)

अनुमोदन के प्रमाण पत्र के लिए आवेदन

सेवा में,

निदेशक उद्योग,
हिमाचल प्रदेश ।

_____के माध्यम से

महोदय,

मैं/हम _____निवेदन करते हैं कि हिमाचल प्रदेश गौण खनिज (रियायत) और खनिज (अवैध खनन, उसके परिवहन और भण्डारण का निवारण) नियम, 2015 के अधीन मुझे/हमें उक्त नियमों के अधीन खनन पट्टा अर्जित करने का प्रमाण पत्र प्रदान किया जाए ।

1. प्रमाण पत्र प्रदान करने के लिए संदेय 2500/–रूपए की फीस, मांगदेय ड्राफ्ट संख्या_____तारीख _____बैंक का नाम _____के माध्यम से प्रेषित है या सरकार खजाना में शीर्षः 0853 नॉन फेरस मांइनिंग एण्ड मैटालार्जिकल इन्डस्ट्रीज–102 मिनरल्ज कन्सेशन फीस, रेन्ट और रॉयलेटी के अधीन जमा किए गए हैं और अभिप्राप्त किए गए चालान की पावती संलग्न है ।

2. अपेक्षित विशिष्टियां नीचे दी गई हैं :–

   i) पहचान के सबूत सहित व्यष्टि/
   फर्म/कम्पनी का नाम और पता,.....:

   ii) सुसंगत दस्तावेजों सहित फर्म/कम्पनी के
   व्यष्टि सदस्य की राष्ट्रीयता,.....:

   iii) फर्म/कम्पनी के निगमन के रजिस्ट्रीकरण का स्थान,.....:

   iv) व्यष्टि का व्यवसाय या फर्म/कम्पनी के
   कारोबार का स्वरूप,.....:

   v) व्यष्टि, फर्म/कम्पनी की तकनीकी अर्हता
   और अनुभव, यदि कोई हो ;.....:

   vi) पूंजी की रकम, ताकि व्यष्टि, फर्म/कम्पनी खनन
   प्रचालन को सुनियोजित तौर पर कार्यान्वित कर सके .....:

   vii) बैंक का संदर्भ, यदि कोई है;.....:

   viii) प्रतिवर्ष संदत्त किए जाने वाली आयकर की रकम या भू–राजस्व, यदि कोई हो;

   ix) कोई अन्य विशिष्टियां, जिन्हें आवेदक देने की वांछा रखता हो:.....:

भवदीय

स्थानः
तारीखः

आवेदक के हस्ताक्षर

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**प्ररूप ख**

**(नियम 5(3) और (4) और 7(ज) (ii)देखें)**

**हिमाचल प्रदेश सरकार**

**उद्योग विभाग**

संख्या_____ तारीख_____

## अनुमोदन का प्रमाण पत्र

प्रमाणित किया जाता है कि _____को व्यक्ति/फर्म/कम्पनी के रूप में अनुमोदित किया जाता है, जो हिमाचल प्रदेश गौण खनिज (रियायत) और खनिज (अवैध खनन, उसके परिवहन और भण्डारण का निवारण) नियम, 2015 के अधीन गौण खनिज के खनन पट्टों/संविदा/निविदा प्राप्त करने के लिए अर्हित है ।

यह प्रमाण पत्र, ऐसे प्रमाण पत्र को प्रदान किये जाने की तारीख से पांच वर्ष की अवधि या खनिज रियायत की अवधि तक, जो भी पूर्वतर हो, के लिए विधिमान्य होगा ।

प्रदान किया गया प्रमाण पत्र, जो _____ को समाप्त हो जाएगा को _____तक नवीकृत किया जाता है ।

जारी करने वाला प्राधिकारी
हिमाचल प्रदेश ।

प्ररूप –ग

[नियम 7 और 16(2) देखें]

**खनन पट्टा प्रदान करने/उसका नवीकरण करने के लिए आवेदन**

_____(स्थान पर)_____(समय) _____को प्राप्त किया गया ।

प्रेषक:

_____

_____

_____

_____के माध्यम से

सेवा में,

राज्य भू–विज्ञानी,
हिमाचल प्रदेश ।

I. मैं/हम अनुसूची में विनिर्दिष्ट क्षेत्र में _____हैक्टेयर भूमि में से _____वर्ष की अवधि के लिए _____ को निकालने/एकत्र करने हेतु खनन पट्टा प्रदान करने/नवीकरण के लिए आवेदन करता हूँ/करते हैं ।

II. हिमाचल प्रदेश गौण खनिज (रियायत) और खनिज (अवैध खनन, उसके परिवहन और भण्डारण का निवारण) नियम, 2015 के नियम 7 या 16 (2) के अधीन, संदेय आवेदन फीस के रूप में पांच हजार रूपए की राशि सरकारी खजाना में जमा कर दी गई है और इसके लिए रसीदी चालान संलग्न है ।

III. अपेक्षित विशिष्टियां नीचे दी गई हैं :

विशिष्टियां

(1) सबूत सहित आवेदक व्यष्टि (यों) फर्म, कम्पनी या सोसायटी का नाम :

(2) सुसंगत दस्तावेजों सहित व्यष्टि (यों) की राष्ट्रीयता या रजिस्ट्रीकरण का स्थान या फर्म, कम्पनी या सोसायटी का निगमन :

(3) व्यष्टि (यों) का व्यवसाय, फर्म या कम्पनी के कारोबार का स्वरूप और कारोबार का स्थान :

(4) सबूत सहित व्यष्टि (यों) फर्म, कम्पनी या सोसायटी का पता :

(5) क्या आवेदन नया पट्टा प्रदान करने के लिए या पूर्वतर प्रदान किए गए पट्टे के नवीकरण हेतु है :

(6) गौण खनिज जिसका आवेदक खनन करने का आशय रखता है:

(7) अवधि जिसके लिए पट्टा अपेक्षित है:

(8) प्रथम वर्ष के दौरान निकाले जाने वाले संभाव्य गौण खनिज की अनुमानित मात्रा:

(9) रीति जिसमें निकाले गए गौण खनिज का भी प्रयोग किया जाएगा:

(क) स्टोन क्रशर हेतु;

(ख) खुली बिक्री हेतु

(ग) किसी अन्य प्रयोजन के लिए

किसी अन्य प्रयोजन की दशा में, जिसके सम्बन्ध में प्रयोजन अपेक्षित है, स्पष्टतया विनिर्दिष्ट होना चाहिए ।

(10) भूमि जिसकी बाबत पट्टा अपेक्षित है उसकी अवस्थिति, सीमाएं और क्षेत्र को दर्शाने वाले स्थल योजना/साईट प्लान (तीन प्रतियों में) द्वारा दृष्टांतस्वरूप दिया गया विवरण, क्षेत्र की अवस्थिति, स्थायी भौतिक विशिष्टताओं, अर्थात् सड़कों, टैंकों, राष्ट्रीय उच्च मार्ग, राज्य उच्च मार्ग, गाँव/नगर, जल आपूर्ति स्कीमों और पुलों आदि को, आवेदित क्षेत्र से उनकी दूरी इंगित करते हुए, दर्शाया जाना चाहिए ।

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(11) सरकार की अधिकारिता के भीतर आवेदित/प्रदान किए गए क्षेत्रों को दर्शाते हुए विवरणी–

(i) गौण खनिजों के नामों को विनिर्दिष्ट करते हुए मेरे/हमारे नाम/नामों (और अन्यों के साथ संयुक्ततः) मेरे/हमारे द्वारा पहले से ही धारित ।

(ii) पहले से ही आवेदित परन्तु अभी तक प्रदान नहीं की गई है; और

(iii) इस राज्य के अन्य जिलों में साथ–साथ ही आवेदन किया है या आवेदन किया जा रहा है, साथ संलग्न है

(12) नवीकरण की दशा में, क्या नवीकरण धारित पट्टे के सम्पूर्ण भाग के लिए आवेदित है या उसके किसी भाग के लिए ।

(13) साधन जिसके द्वारा गौण खनिज निकाला जाना है, अर्थात् शारीरिक या यांत्रिकी या विद्युत शक्ति द्वारा ।

(14) कोई अन्य विशिष्टियाँ, जिन्हें आवेदक देना चाहता है ।

## अनुसूची

आवेदित क्षेत्र का विवरण

(1) नाम _____

(क) गाँव/नगर _____

(ख) डाकघर _____

(ग) तहसील _____

(घ) जिला _____हिमाचल प्रदेश

(2) वन भूमि की दशा में:

(क) परिक्षेत्र का नाम_____ उप–परिक्षेत्र का नाम

(ख) कार्यशील वृत्त (वर्किंग सर्कल)_____

(3) खनन पट्टे हेतु आवेदित किए गए क्षेत्र का ब्यौरा:

_____

(क) खसरा संख्या (ख) मौजा/मोहाल (ग) क्षेत्र हैक्टेयर में

_____

_____

(राजस्व अभिलेख मूल रूप में संलग्न होना चाहिए)

(4) आवेदित क्षेत्र का, इसके प्राकृतिक विशेषताओं की बाबत, पूरा विवरण:

_____

_____

भवदीय,

स्थान: _____

तारीख:_____ (आवेदक के हस्ताक्षर)

टिप्पण:

I. कोई भी आवेदन तब तक प्रतिकर्ता के प्रयोजन के लिए पूर्ण नहीं समझा जाएगा जब तक इसे सही रूप में प्रस्तुत न किया गया हो । अपेक्षित समस्त विशिष्टियां समुचित रूप से हस्ताक्षरित और स्टांपित होनी चाहिए ।

II. यदि आवेदन, आवेदक के किसी प्राधिकृत अभिकर्ता द्वारा हस्ताक्षरित किया गया है, तो मुख्तारनामा संलग्न होना चाहिए ।

प्रारूप –घ

(नियम 8(3) देखें)

## खनन पट्टे या नवीकरण के लिए आवेदन की प्राप्ति

## हिमाचल प्रदेश सरकार

क्रम संख्या _____ दिनांक _____

श्री/सर्वश्री_____

_____

से (गौण खनिज(जों ) का/के नाम) _____ के खनन के लिए गाँव/वन खण्ड, परिक्षेत्र

_____ तहसील _____जिला _____में

अवस्थित भूमि के कुल रकबा _____ हैक्टेयर क्षेत्र के लिए खनन पट्टे को प्रदान करने/करने के लिए उसका

निम्नलिखित संलग्नकों सहित आवेदन को (पूर्वाहन/अपराहन) प्राप्त हुआ है:–

स्थान: _____

तारीख:_____

राज्य भू–विज्ञानी

हिमाचल प्रदेश

संलग्नक:

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प्रारूप –ड.

(नियम 11 देखें)

## खनन पट्टा रजिस्टर

1. क्रम संख्या:
2. आवेदक का नाम और पता:
3. भूमि की अवस्थिति और सीमाएँ:
4. खनन पट्टे के अन्तर्गत खनिज:
5. कुल क्षेत्र:
6. पट्टा निष्पादित करने की तारीख:
7. अवधि जिसके लिए पट्टा प्रदान किया गया है, नवीकृत किया गया है या विस्तारित किया गया है:
8. पट्टे के अंतरण की तारीख, यदि कोई है और उसके पक्षकारों के नाम:
9. पट्टे के अवसान या त्यजन या रद्दकरण की तारीख:
10. अनुप्रमाणन के प्रमाणस्वरूप, प्रभारी अधिकारी के हस्ताक्षर:

**प्ररूप–च**

**(नियम 17 (3) देखें)**

**गौण खनिजों के लिए खनन पट्टा विलेख का प्ररूप**

यह करार एक पक्ष कार कें रूप में, के माध्यम से राज्यपाल, हिमाचल प्रदेश, जिन्हें इसमें आगे सरकार कहा गया है और इस पद के अन्तर्गत, जहां सन्दर्भ के अनुकूल है, उनके उत्तरवर्ती और समनुदेशिती भी है और दूसरे पक्षकार के रूप मे.....

जब पट्टेदार एक व्यष्टि है।

.....(पते और व्यवसाय सहित व्यक्ति का नाम) (जिसे इसमें आगे पट्टेदार कहा गया है, और इस पद के अन्तर्गत, जहां सन्दर्भ के अनुकूल है, इसके वारिस निष्पादक, प्रशासक, प्रतिनिधि और अनुज्ञात समनुदेभिती भी है)

जब पट्टेदार एक व्यष्टि से अधिक हैं

..... (पते और व्यवसाय सहित व्यक्ति का नाम) और अन्य पक्षकार (पते और व्यवसाय सहित व्यक्ति का नाम) (जिसे इसमें आगे पट्टेदार कहा गया है और इस पद के अन्तर्गत, जहां सन्दर्भ के अनुकूल है, इसके वारिस, निष्पादक, प्रशासक और अनुज्ञात समनुदेभिती भी हैं।)

जब पट्टेदार एक रजिस्ट्रीकृत फर्म हैं

.....में सभी भागीदार के रूप में कारबार कर रहे है (पते और व्यवसाय सहित व्यक्ति का नाम और अभिनाम के अर्न्तगत फर्म का पता)(जिसे इसमें आगे पट्टेदार कहा गया है और इस पद के अन्तर्गत जहां सन्दर्भ के अनुकूल है, इसके वारिस निष्पादक, प्रशासक, प्रतिनिधि और अनुज्ञात समनुदेभिती भी है)

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जब पट्टेदार एक रजिस्ट्रीकृत कम्पनी है .....(कम्पनी का नाम) कम्पनीद्वारा सम्यक रूप से प्राधिकृत.....के माध्यम से कम्पनी अधिनियम,2013 के अधीन एक निगमित कम्पनी और जिसका रजिस्ट्रीकृत कार्यालय .....(पता) में है। (जिसे इसमें आगे पट्टेदार कहा गया है और इस पद के अन्तर्गत जहां सन्दर्भ के अनुकूल है, इसके वारिस, निष्पादक, प्रशासक, प्रतिनिधि और अनुज्ञात समनुशिती भी है)

.....के मध्य आज तारीख.....को किया गया,

पट्टेदार ने हिमाचल प्रदेश गौण खनिज (रियायत) और खनिज (अवैध खनन, उसके परिवहन और भण्डारण का निवारण) नियम, 2015 (जिन्हें इसमें इसके पश्चात उक्त नियम कहा गया है) के अनुसार भूमि (जिसे इसमें इसके पश्चात खण्ड (ख) में वर्णित किया गया है) की बावत के खनन पटटे के लिए सरकार को आवेदन किया है और सरकार के पास प्रतिभूति के रूप में रूपए की राशि जमा कर दी है। (और पट्टेदार के पास अनुमोदन का विधिमान्य पत्र भी है ) और अतः अब इस विलेख के साक्ष्यस्वरूप पक्षकारों ने एतद द्वारा निम्न प्रकार से करार पाया है:–

1. (क) इसमें इसके पश्चात अन्तर्विष्ट और पटटेदार की ओर से संदन्त निष्पादित और अनुमन्त किए जाने वाले भाटको और रायलेटी प्रसंविदा और करार पर विचार करने पर सरकार एतद द्वारा भूमि में / अधीन स्थित ————————(जिन्हें इसमें इसके पश्चात "उक्त गौण खनिज ") कहा गया है के उन समस्त खानों तलों शिराओं एवं संस्तरों जो खण्ड (ख) में निर्दिष्ट हैं; इसके सम्बन्ध में प्रयोग किए जाने या उपभोग किए जाने वाली स्वतंन्त्र शक्तियों, और विशेषाधिकारों, जो इसमें इसके पश्चात भाग–1 में वर्णित हैं के साथ–साथ, निर्बन्धनों (पाबंदी) और शर्तों के अध्यधीन तथा ऐसे अधिकारों, शक्तियों और विशेषाधिकारों, जो इसमें इसके पश्चात भाग– ।। में वर्णित है, का प्रयोग किए जाने और उपभोग किए जाने हेतु और इस पटटे के अन्य उपबन्धों के अध्यधीन, पटटेदार को पट्टांतरण प्रदान करती है।

   (ख).उक्त भूमि का क्षेत्र निम्न प्रकार से है: गांव/मौजा/मोहाल ————————तहसील———————— जिला ————————हिमाचल प्रदेश में स्थित खसरा नम्बर————————के————————क्षेत्र से अन्तर्गस्त भूमि के समस्त भू–भागों को या इससे संलग्न राजस्व नक्शे (ततीमा) या स्थल योजना पर उसके सम्बन्ध में अंकित कर दिया गया है और उसे निम्न प्रकार से सीमांकित कर दिया है:–

   उत्तर में————————द्वारा

दक्षिण में————————द्वारा

पूर्व में————————द्वारा और

पश्चिम में————————द्वारा

(जिसे इसमें इसके पश्चात " उक्त भूमि "या" पटटा क्षेत्र कहा गया है) ।

(ग) पटटेदार, एत्द द्वारा प्रदत्त और पटटांतरित परिसर को आगामी ————वर्ष की अवधि के लिए———— के————तारीख से धारण करेगा।

**भाग–1**

पटटेदार द्वारा प्रयोग किया जाने वाला स्वातन्त्रय और विशेषाधिकार पटटेदार (रों) द्वारा, इस पटटा विलेख के अन्य उपबन्धों के अध्यधीन, निम्नलिखित शक्तियों का प्रयोग किया जा सकेगा और निम्नलिखित स्वातन्त्रय तथा शक्ति का उपभोग किया जा सकेगा:–

1. **भूमि मे प्रवेश करने और अभिमूत कार्य आदि के लिए तलाश:** उक्त भूमि में प्रवेश करने और बोर करने,खनन करने, खुदाई करने निकासी कार्य हेतु ड्रिल करने, तैयार करने, प्रसंस्करण करने, परिवर्तित करने ले जाने तथा उक्त गौण खनिजों के निपटारे के लिए एतद द्वारा पटटान्तरण अवधि के दौरान समस्त समय पर स्वातन्त्रय और अधिकार।
2. **शाफ्ट और प्रवणों आदि को वसाने, ढकेलने और गडढा बनाना:** इस खण्ड में वर्णित किसी भी प्रयोजन के सम्बन्ध में या के लिए उक्त भूमि में घसान, ढकेलने बनाने, गडढे, शाफ्ट प्रवणों, स्तरों, जलमार्गों, वायुमार्गों और अन्य कार्यो और (उक्त भूमि मे इसी प्रकार के किन्हीं विद्यमानकार्यों के उपयोग, अनुरक्षण करने, गहरा करने और विस्तार करने) को करने, उनका अनुरक्षण करने के लिए और उनके उपयोग के लिए स्वातन्त्रय और अधिकार।
3. **मशीनरी और अपकरणों को लाना और उनका उपयोग:** इस खण्ड में वर्णित किसी भी प्रयोजनों के सम्बन्ध में या के लिए उक्त भूमि के अन्तर्गत या में किसी इंजन,मशीनरी,संयन्त्र,फर्मों की दरेसी करने, भट्टियां, कोयले के चूल्हे, ईंट भटठे, कर्मशालाओं,भण्डार गृह बंगलो,गोदामों और शैड और अन्य भवनों की स्थापना करने, विनिमार्ण करने अनुरक्षण करने और उनका उपयोग करने तथा उक्त भूमि के अन्तर्गत या में इसी प्रकार के अन्य संकर्म करने तथा सुख–सुविधाओं की स्वातन्त्र और अधिकार।

4. **झरनों आदि से पानी का उपयोग करना:** इस खण्ड में वर्णित किसी भी प्रयोजनों के सम्बन्ध में या के लिए किन्तु विद्यमान या भावी पटटादारियों के अधिकारों के अध्यधीन और कलक्टर की लिखित अनुज्ञा से उक्त भूमि में या पर किसी झरने, जलमार्ग, जल स्त्रोत या किसी अन्य स्त्रोत से जल का समुचित उपयोग और किसी ऐसी नदी या जलमार्ग को बदलना, बढाना या बांध बनाना और किसी ऐसे जल को एकत्रित करना और रोकना तथा किसी जल मार्ग, कृष्ट भूमि,गांव के भवनों को बनाने,सनिमार्ण करने और अनुरक्षण करने या किसी झरने या चश्में को किसी भी प्रकार से गंदा या प्रदूषित किए बिना पशुओं के लिए प्रचलित पानी पीने के स्थानों को पर्याप्त जलापूर्ति की स्वातन्त्रय और अधिकार।

परन्तु पट्टेदार किसी भी नाव्य नदी में नौ परिवहन में बाधा नहीं डालेगा और न ही सरकार की पूर्व लिखित अनुज्ञा के बिना ऐसी नदी के बहाव को बदलेगा।

5. **झाड़–झंकाड़ को काटना और इमारती लकड़ी और वृक्षों आदि का उपयोग:** इस पटटा विलेख में वर्णित किसी प्रयोजन के सम्बन्ध में या के लिए झाड़–झंकाड़ और झाड़–जंगल के साफ करने का स्वातन्त्रय और अधिकार। पटटादारी वन क्षेत्र की दशा में, वन संरक्षण अधिनियम,1980 की अपेक्षाओं के अनुसार उक्त भूमि पर खड़े या पाए गए किन्हीं वृक्षों या इमारती लकड़ी के सम्बद्व सक्षम प्राधिकारी से लिखित में पूर्व अनुज्ञा प्राप्त किए बिना नहीं गिराएगा।

6. **भवन निर्माण और सड़क के लिए सामग्री आदि प्राप्त करना:** इस पटटा विलेख में वर्णित किसी प्रयोजन के सम्बन्ध मे या के लिए खदान करने और पत्थर,कंकड और अन्य भवन निर्माण और सड़क सामग्री तथा साधारण मिटटी प्राप्त करने और उसका उपयोग करने और उसे काम में लाने तथा ऐसी मिटटी के ईटों या टाइलों के विनिर्माण करने और ऐसी ईटों और टाइलों का प्रयोग करने का स्वातन्त्रय और अधिकार, किन्तु ऐसी किसी सामग्री, ईटों और टाइलों के विक्रय का नहीं का स्वातन्त्रय और अधिकार।

7, **चटटा लगाने के प्रयोजन के लिए भूमि का उपयोग करना:** चटटा लगाने, भण्डारण करने या खान के किसी उत्पाद को उस में एकत्रित करने और किए जा रहे संकर्मो और औजारों,उपकरणों तथा खनन प्रचालन के लिए आवश्यक अन्य सामग्री के प्रयोजनों के लिए उक्त भूमि में प्रवेश करने और सतह के किसी पर्याप्त भाग का उपयोग करने की स्वतन्त्रता और अधिकार।

## भाग–।।

## पटटेदार द्वारा स्वातन्त्रय के प्रयोग करने के सम्बन्ध में निर्बन्धन

भाग–। के अधीन प्रदत्त स्वातन्त्रय, शक्तियां और विशेषाधिकार निम्नलिखित निर्बन्धनों और इस पट्टा विलेख के अन्य उपबन्धों के अध्यधीन होंगे:–

1. **सार्वजनिक संकर्मो आदि की सीमा के भीतर कोई खनन प्रचालन नहीः** पट्टादार किसी भी स्थल पर किसी रेलवे लाइन से, रेलवे प्रशासन की पूर्व लिखित अनुज्ञा के अनुसार और के अन्तर्गत के सिवाय, सौ मीटर की दूरी नगर निगम/ नगरपालिका की सीमा से दो किलोमीटर नगर पंचायत की सीमा से एक किलोमीटर के भीतर या राष्ट्रीय उच्च मार्ग/एक्सप्रैस वे से सौ मीटर या राज्य उच्च मार्ग से पच्चीस मीटर या अन्य मार्गो से दस मीटर या किसी जलाशय, नहर या भवन या आवासीय स्थलों से सक्षम प्रधिकारी की पूर्व अनुज्ञा के अनुसार और के अन्तर्गत के सिवाय, 50 मीटर,के भीतर कोई खनन प्रचालन नहीं किया जाएगा या किया जाना अनुज्ञात नहीं होगा। रेलवे प्रशासन या संयुक्त निरीक्षण समिति ऐसी अनुज्ञा प्रदान करते समय,ऐसी शर्ते अधिरोपित कर सकेगी जैसी वह उचित समझे।
2. **भूमि, जो पहले से उपयोग में नहीं है, में सतही प्रचालन के लिए नोटिसः** किसी भूमि, जिसे ऐसे प्रचालन के लिए पहले उपयोग नहीं किया गया है, पर सतही प्रचालन के लिए उपयोग करने से पूर्व पट्टादार, निदेशक, उद्योग, हिमाचल प्रदेश और खनन अधिकारी को, इस प्रकार उपयोग किए जाने के लिए प्रस्तावित भूमि की अवस्थिति और उसका विस्तार विनिर्दिष्ट करते हुए तथा प्रयोजन जिसके लिए यह अपेक्षित है,लिखित में दो कलैण्डर मास का पूर्व नोटिस देगा।
3. **भूमि का अन्य प्रयोजनों के लिए उपयोग न करनाः** पट्टादार, पटट्ा विलेख में विनिर्दिष्ट से अन्य या प्रयोजनों के लिए न तो भूमि की जुताई करेगा और न ही उसका उपयोग करेगा।
4. **खनन के लिए यान्त्रिक उत्खनक का प्रयोगः** नदी/ नाले के तल पर निदेशक उद्योग की अनुज्ञा से बिना बैकहो के 80 हार्स पावर के टायर मांउटिड फ्रन्ट एण्ड लोडर की सहायता से किया जाएगा।
5. **खनन योजनाः** पट्टेदार अनुमोदित खनन योजना के अनुसार खनन प्रचालन करेगा/करेगें।

## भाग–।।।

## पट्टेदार की प्रसविदांए

पट्टादार एतद्द्वारा सरकार के साथ निम्नलिखित प्रसंविदा (एं) करेगा,–

1. **स्वामित्व (रॉयलेटी) की दरः–**

(क) पट्टेदार, द्वितीय अनुसूची में विनिर्दिष्ट दर पर, पटटा क्षेत्र से निकाले गए खनिज की मात्रा पर, अग्रिम में रॉयलेटी संदत्त करेगा। तथापि जब कभी पटटेदार द्वारा उद्योगों को, चूना भटटी से अन्यथा, चूना पत्थर की आपूर्ति की जाती है तो पट्टेदार द्वारा चूना पत्थर के लिए रॉयलेटी जो भी अधिकतर हो, मुख्य खनिज के रूप में संदत्त की जाएगी।

(ख) **गडढे के मुहाने पर विकय मूल्य के अवधारण की पद्धतिः** गडढे के मुहाने पर गौण खनिजों के विकय मूल्य, उसी ग्रेड के खनिज के लिए, निम्न कम करके वर्तमान बाजार मूल्य होगा।

(i) खान के स्थल से समीपवर्ती रेलपथ तक परिवहन प्रभारः

(ii) रेल पथ से बाजार तक का रेल भाड़ा; और

(iii) बाजार मूल्य के पांच प्रतिशत से अनधिक अनुमानित चढाई–उतराई प्रभार और अन्य आनुषंगिक व्यय।

(ग) रॉयलेटी की संगणना के लिए पटटेदार खनन कार्यालय के पूर्ववर्ती कलैण्डर मास में पटटा क्षेत्र से निकाले गए और भेजे गए गौण खनिज (जों) की कुल मात्रा और इसका मूल्य और खनिज आधारित उद्योग की दशा में मासिक विघुत उपभोग बिल तथा अन्य अपेक्षित ब्यौरे दर्शाते हुए प्ररूप–'ड' में एक विवरणी प्रत्येक मास की दस तारीख तक प्रस्तुत करेगा। यदि पट्टेदार पूर्ववर्ती मास के लिए देय रायलेटी के मास की दस तारीख तक जमा नहीं करता है, तो मास की दस तारीख के पश्चात व्यतिकम अवधि के लिए प्रतिवर्ष 24 प्रतिशत साधारण ब्याज प्रभारित किया जाएगा।

2. **सतही भाटक(किराया)** :– पट्टेदार, अर्धवार्षिक दो किश्तों में प्रति हैक्टेयर————————/– रूपए की दर पर, उसके द्वारा अधिभोग किए गए क्षेत्र लिए, सतही भाटक संदत्त करेगा। प्राइवेट भूमि के लिए कोई सतही भाटक प्रभावित नहीं किया जाएगा।

3. **अनिवार्य भाटक,**– पटटादारी प्रतिवर्ष————रूपए प्रति हैक्टेयर की दर से वार्षिक अनिवार्य भाटक भी संदत्त करेगाः

परन्तु पटटादारी प्रत्येक खनिज की बाबत अनिवार्य भाटक रॉयलेटी, जो भी अधिकतर होगी, के संदाय के लिए भी दायी होगा किन्तु दोनों के लिए नहीं।

4. **नए प्रकट हुए खनिजों का खदानः** यदि कोई गौण खनिज, जो पटटे में विनिर्दिष्ट नहीं है, पटटा क्षेत्र में प्रकट होता है (खोजा गया है) पट्टाधारी सरकार को बिना विलम्ब के गौण खनिज के प्रकटन की रिपोर्ट करेगा और उसके लिए पटटा अभिप्राप्त किए बिना ऐसे गौण खनिज को अभिभूत या उसका निपटान नहीं करेगा। यदि वह गौण खनिज के प्रकटन से छह मास के भीतर ऐसे पटटे के लिए आवेदन करने में असफल रहता है, तो सरकार या प्राधिकृत अधिकारी ऐसे खनिज की बाबत पटटा किसी अन्य व्यक्ति को दे सकेगा।

5. **एक वर्ष के भीतर खनन प्रचालन आरम्भ करना और उन्हें समुचित रूप से कार्यान्वित करनाः** जब तक कि सरकार पर्याप्त हेतुक से अन्यथा अनुज्ञात न करें, पटटादारी पटटा विलेख के निष्पादन की तारीख से एक

वर्ष के भीतर खनन प्रचालन आरम्भ करेगा और तत्पश्चात ऐसे प्रचालन, समुचित, दक्षतापूर्ण और कौशलपूर्ण रीति में संचालित करेगा।

**स्पष्टीकरण**: इस खण्ड के प्रयोजन के लिए खनन प्रचालन के अन्तर्गत मशीनरी की स्थापना, ट्राम वे बिछाना या खान के खदान के सम्बन्ध में सड़क का सन्निर्माण भी होगा।

6. **सीमा के खम्बों आदि की स्थापना और उनका अनुरक्षण**: पटटादारी अपने खर्चे पर पटटे से संलग्न राजस्व नक्शे के अनुसार सीमा चिन्ह और खम्बों की स्थापना करेगा और सभी समयों पर उनका अनुरक्षण करेगा तथा उन्हें अच्छी स्थिति में रखेगा।

7. **लेखे**: पट्टेदार खान से अभिप्राप्त समस्त खनिजों की मात्रा और अन्य विशिस्टियों और उसमें नियोजित व्यक्तियों की संख्या और खान की पूर्ण योजना को दर्शाते हुए सही लेखा रखेगा तथा इस निमित्त हिमाचल प्रदेश सरकार या केन्द्रीय सरकार द्वारा प्राधिकृत किसी भी अधिकारी को उसके द्वारा अनुरक्षित किसी लेखे या अभिलेख का किसी भी समय परीक्षण करने की अनुज्ञा देगा, और हिमाचल प्रदेश सरकार या केन्द्रीय सरकार को ऐसी सूचना और विवरणीयां, जैसी यह अपेक्षा करे,पस्तुत करेगा।

8. **अन्य पट्टेदारों आदि को प्रसुविधाएं अनुज्ञात करना**: पट्टादार किसी भूमि के जो पट्टादार द्वारा धारित भूमि में समाविष्ट है या उसके साथ लगती है या जिसके लिए उसके द्वारा पहुँच है, के विद्यमान और भावी अनुज्ञाति धारियों या पटटादार को/संविदाकारों को उस तक पहुँच के लिए युक्तियुक्त प्रसुविधाएं अनुज्ञात करेगा।

9. **अधिकारियों के प्रवेश की अनुज्ञा देना**: पट्टेदार हिमाचल प्रदेश सरकार और केन्द्रीय सरकार द्वारा प्राधिकृत किसी भी अधिकारी को पटटे में समाविष्ट किसी भवन, उत्खनन स्थल या भूमि में खानों के निरीक्षण के प्रयोजन के लिए प्रवेश करने की अनुज्ञा देगा।

10. **विवरणियां**:—पट्टादार,—

(क) रॉयलेटी की संगणना के लिए पट्टेदार खनन अधिकारी को पूर्ववर्ती कलैण्डर मास में पट्टा क्षेत्र से निकाले गए और भेजे गए गौण खनिज (जों) की कुल मात्रा और इसका मूल्य और खनिज आधारित उद्योग की दशा में मासिक विधुत उपभोग बिल तथा अन्य अपेक्षित ब्यौरे दर्शाते हुए, प्ररूप———'छ' में प्रत्येक मास की दस तारीख तक एक विवरणी प्रस्तुत करेगा। यदि पट्टादार पूर्ववर्ती मास के लिए देय रॉयलेटी को मास की दस तारीख तक जमा नहीं करता है, तो मास की दस तारीख के पश्चात व्यतिकम अवधि के लिए प्रतिवर्ष 24 प्रतिशत ब्याज प्रभारित किया जाएगा।

(ख) पट्टेदार, निदेशक और पटटा विलेख में विनिर्दिष्ट अन्य अधिकारी (अधिकारियों) को प्रत्येक वर्ष के दौरान अभिप्राप्त गौण खनिज (जों) की मात्रा और मूल्य, नियोजित नियमित श्रमिकों की संख्या (पुरूषों और

महिलाओं की पृथकता), दुर्घटनाओं की संख्या, संदत्त प्रतिकर और कार्य दिवसों की संख्या तथा उन्हें पृथकतया संदत्त मजदूरी की बावत सूचना देते हुए प्ररूप–'ज' मे एक विवरणी भी प्रस्तुत करेगा।

11. **खानों को सुदृढ़ करना और अवलम्ब (सपोर्ट) देना**:– पट्टेदार, राज्य सरकार के समाधान प्रद खान के किसी भाग को, जो उसकी राय मे, किसी रेल–पथ, पुल,राष्ट्रीय उच्च मार्ग, जलाशय,टैंक,नहर,सड़क या किसी सार्वजानिक संकर्म या भवनों के लिए ऐसी सुदृढ़ता प्रदान करना या अवलम्ब (सपोर्ट) अपेक्षित हो, सुदृढ़ बनाएगा और उसकी सहायता करेगा।

12. **विस्फोटक का प्रयोग करने के लिए सूचना**: पट्टेदार विस्फोटक के उपयोग के लिए प्ररूप–'झ' में तत्काल सूचना देगा, जैसे ही

(क) खनन में कार्य उपरिवर्ती तल से नीचे विस्तृरित होता है,

(ख) किसी खुले ढलवां उत्खनन की इसके उच्चतम बिन्दू से न्यूनतम बिन्दू तक मापी गई गहराई छः मीटर तक पहुंच गई हो,

(ग) किसी दिवस को नियोजित व्यक्तियों की संख्या 50 (पचास) से अधिक हो गई हो, और

(घ) विसफोटक प्रयोग में लाए गये हों ।

13. **स्वच्छता की परिस्थितियों का अनुरक्षण**: पट्टादार पटटे के अन्तर्गत उसके द्वारा धारित क्षेत्र में स्वच्छता परिस्थितियों का अनुरक्षण करेगा।

14. **नुकसान के लिए प्रतिकर संदत्त करना और सरकार को क्षतिपूरित करना**: पटटेदार समस्त नुकसान, क्षति या विध्न जो उसके/उनके द्वारा इस पटटे द्वारा प्रदान की गई शक्तियों का प्रयोग करते हुए, पैदा किए जाएं, के लिए, ऐसा युक्तियुक्त समाधान करेगा/करेंगे और ऐसा प्रतिकर संदत्त करेगा/करेंगे, जैसा इस विषय पर प्रवत्त विधि के अनुसार, किसी विधिपूर्ण प्राधिकारी द्वारा निर्धारित किया जाए और समस्त दावों, जो ऐसे नुकसान, क्षति या विध्न की बावत किसी व्यक्ति या व्यक्तियों द्वारा किए जाएं के लिए और उससे सम्बन्धित समस्त लागतों और व्ययों के लिए राज्य सरकार का क्षतिपूर्ति करेगा/करेंगे तथा इसे पूर्णतया और सम्पूर्ण रूप से क्षतिपूरित रखेगा/रखेंगे।

15. **नियमों का पालन**: पट्टादार, भारत सरकार या हिमाचल प्रदेश सरकार द्वारा प्रवर्तित समस्त विद्यमान विधियों (अधिनियमों) और तदधीन बनाए गए नियमों और खान की कार्यप्रणाली और पट्टेदार के कर्मचारियों या जनसाधारण की सुरक्षा, स्वास्थ्य और सुविधा को प्रभावित करने वाले अन्य मामलों की बावत

समस्त ऐसी अन्य विधियों (अधिनियमों) या नियमों, जो समय–समय पर प्रवर्तित किए जाएं, का पालन करेगा।

16. **दुर्घटना की रिपोर्ट करना:** पट्टेदार, सम्बद्ध जिला के उपायुक्त और खनन अधिकारी या उसके द्वारा प्राधिकृत किसी अधिकारी को, किसी दुर्घटना, जो पटटा क्षेत्रों में या पर घटित हुई हो, की अविलम्ब रिपोर्ट करेगा।

17. **पटटे के अभ्यपर्ण या उससे पहले पर्यवसान पर भूमि और खानों के कब्जे का परिदान:** पटटे के अन्त में या उससे पहले पर्यवसान (समाप्ति) या अभ्यपर्ण के समय पट्टादार समुचित और खुदाई योग्य स्थिति में उक्त भूमि और समस्त खानों (यदि कोई उसमें खोदी गई हैं) का सिवाय किसी खुदाई की बावत जिसे सरकार ने परित्यक्त करना मंजूर किया हो परिदान करेगा।

18. **तुलाई मशीन की व्यवस्था करना:** पट्टेदार, गडढे के मुहाने के पास या के नजदीक जहां पर उक्त खनिज किनारे पर लाया जाएगा, समस्त समय समुचित रूप से निर्मित और कार्यक्षम तुलाई मशीन की व्यवस्था करेगा और समय–समय पर किनारे पर लाए गए, विक्रय किए गए निर्यात किए गए समस्त उक्त गौण खनिज और परिवर्तित उत्पादों की उस पर तुलाई करेगा या तुलाई करवाएगा तथा प्रत्येक दिन की समाप्ति पर पूर्ववर्ती चौबीस घंटे के दौरान निकाले गए, विक्रय किए गए, निर्यात किए गए और परिवर्तित किए गए उक्त गौण खनिजों, अयस्कों, उत्पादों का ऐसे साधनों द्वारा अभिनिश्चित कुल भार लेखा बहियों में दर्ज करेगा। पट्टेदार उक्त अवधि के दौरान, सभी समयों पर, यथापूर्वोक्त उक्त गौण खनिजों की तुलाई स्थल पर सरकार द्वारा नियोजित किसी व्यक्ति या व्यक्तियों का उपस्थित रहना अनुज्ञात करेगा और उसके लेखे रखेगा तथा पट्टादार द्वारा रखे गए लेखों की जांच करेगा/करेंगे। पट्टेदार प्रत्येक ऐसे माप या तोल का इस आशय से सम्बद्ध खनन अधिकारी को लिखित में 15 (पन्द्रह) दिन का पूर्व नोटिस देगा कि वह स्वयं उसकी ओर से कोई अन्य अधिकारी वहां पर उपस्थित रहे।

19. **गडढों, शाफ्टों को सुरक्षित रखना और उन्हें न भरना:** पट्टेदार गड़ढों और शाफ्टों को अच्छी तरह और समुचित रूप से सुरक्षित रखेगा और लिखित अनुज्ञा के बिना किसी खान या शाफ्ट के जानबूझ कर न तो बन्द करेगा, न ही उसे भरेगा या न ही उसे चोक करेगा।

20. **वन भूमि में प्रवेश या प्रचालन प्रारम्भ न करना:** पट्टादार, पटटा क्षेत्र में समाविष्ट वन भूमि में, सिवाय सक्षम प्राधिकारी की लिखित में पूर्वतर अभिप्राप्त की अनुज्ञा के पश्चात प्रवेश नहीं करेगा या किसी खनन प्रचालन को प्रारम्भ नहीं करेगा।

21. **जलाधिकारों का ध्यान रखना और साथ लगती सम्पती को क्षति न पहुँचाना:** पट्टादार किसी जल स्त्रोत, ऊर्जा (विद्युत) या जलापूर्ति को क्षति नहीं पहुँचाएगा या विकृत करना कारित नहीं करेगा और किसी अन्य

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प्रकार से किसी चश्में या पानी के नाले को उपयोग के लिए अनुपयुक्त नहीं बनाएगा या साथ लगती भूमि, गांवों या मकानों को क्षति पहुँचाने के लिए कोई कार्य नहीं करेगा।

22. **पटटे की समाप्ति पर शेष स्टॉक:** पट्टेदार, पट्टे के समान या समयपूर्ण, पर्यवसान (समाप्ति) पर पटटा क्षेत्र परिसरों से तीन मास की अवधि के भीतर निकाले गए समस्त खनिजों को हटाएगा और तत्पश्चात उक्त भूमि से पटटे के समापन या समय पूर्व पर्यवसान (समाप्ति) के पश्चात शेष बचे अव्ययनीत समस्त निकाले गए खनिज सरकार की सम्पत्ति समझी जाएगी।

23. **करों का संदाय:** पटटेदार, पटटा क्षेत्र की बावत समुचित प्राधिकरण को समस्त करों, उपकरों और स्थानीय देयों को सम्यक और नियमित रूप से संदाय करेगा।

**भाग–4**

**राज्य सरकार के अधिकार:–**

1. पटटे की समयपूर्व समाप्ति: जहां राज्य सरकार की यह राय हो कि खानों और खनिजों के विकास को विनियमित करने, प्राकृतिक पर्यावरण के परिरक्षण, बाढ़ नियन्त्रण, प्रदूषण नियन्त्रण या जन स्वास्थ्य के खतरे का निवारण या संसूचना या भवनों या स्मारकों या अन्य अवसंरचनाओं की सुरक्षा सुनिश्चित करने या ऐसे अन्य प्रयोजनों, जिन्हें राज्य सरकार उचित समझे के हित में समीचीन है, तो यह किसी गौण खनिज की बाबत आदेश द्वारा, ऐसे पटटे के अन्तगर्त आने वाले क्षेत्र या उसके किसी भाग की बाबत खनन पटटे को समयपूर्व समाप्त कर सकेगी:

परन्तु खनन पटटे को समयपूर्व समाप्त करने का कोई आदेश, पटटा धारक को सुनवाई का युक्तियुक्त अवसर दिए बिना नहीं किया जाएगा।

2. **सरकार पट्टे के पर्यवसित (समाप्त) कर सकेगी:** सरकार को पट्टेदार को नोटिस की प्राप्ति की तारीख से तीस दिन के भीतर देयों के संदाय का नोटिस तामिल करने के पश्चात पटटा समाप्त करने का अधिकार होगा। यदि पट्टादार द्वारा अनिवार्य भाटक या रॉयलेटी या आरक्षित या संदेय सतही भाटक, जिसके संदाय के लिए पटटे में नियत तारीख के पश्चात आगामी 15 (पन्द्रह) दिन के भीतर संदाय नहीं करता है, तो सरकार या इस निमित्त इस द्वारा प्राधिकृत कोई अन्य अधिकारी पूर्वोक्त नोटिस की तमील के पश्चात किसी भी समय उक्त परिसरों मे प्रवेश कर सकेगा और उसमें समस्त या किन्हीं खनिजों या चल सम्पति या उसका इतना भाग जो भाटक या देश स्वामिस्व रॉयलेटी और इसके असंदाय के कारण कारित समस्त लागतों और व्ययों के समाधानप्रद इसके लिए पर्याप्त है, को करस्थम कर सकेगा और इस प्रकार करस्थम की गई सम्पति को ले जा सकेगा, निरोध कर सकेगा या उसके विकय के आदेश कर सकेगा।

3. **लोक हित में पटटे का पर्यावसान (समाप्ति)** :सरकार लिखित में छह मास का पूर्व नोटिस देकर पटटे को पर्यवसित (समाप्त) कर सकेगी यदि सरकार यह समझती है कि सरकारी भूमि की दशा में पटटे के अन्तर्गत क्षेत्र लोकहित में औद्योगिक प्रसुविधा स्थापित करने के लिए अपेक्षित है:

परन्तु राष्ट्रीय आपातकाल या युद्ध की दशा में पटटा ऐसा नोटिस दिए बिना पर्यवसित (समाप्त) किया जा सकेगा।

4. **अग्रक्रय का अधिकार**: सरकार को समय–समय पर और पटटे की अवधि के दौरान सभी समयों पर, पटटादारों के नियन्त्रणाधीन एतदद्वारा पट्टांतरित या अन्यत्र उक्त भूमि पर या में पट्टेदार को उक्त खनिजों और उसके पड़े हुए समस्त उत्पादों के अग्रक्रय का पटटादारों को लिखित में नोटिस देकर अग्रक्रय का अधिकार होगा और पट्टादार समस्त खनिजों या उसके उत्पादों को उक्त अधिकार का प्रयोग करने के नोटिस में विनिर्दिष्ट स्थल पर ऐसी मात्रा और रीति में प्रचलित बाजार दरों पर सरकार को परिदान करेगा।

5. **अधिकारियों को प्रवेश अनुज्ञात न करने लिए शास्ति**: यदि पट्टेदार या उसका अंतरिति या समनुदेशिती, भाग– ।। ।के खण्ड (9) के अधीन किसी प्रवेश या निरीक्षण के लिए अनुज्ञा नहीं देता है, तो सरकार पटटे को रदद कर सकेगी और हिमाचल प्रदेश गौण खनिज (रियायत)और खनिज (अवैध खनन,उसके परिवहन और भण्डारण का निवारण) नियम, 2015 के अधीन पट्टेदार द्वारा संदत्त जमा प्रतिभूति को संपूर्णतया या उसके किसी भाग को समपहृत कर सकेगी।

6. **तृतीय पक्षकार की भूमि का अर्जन और उसके लिए प्रतिकर**: भूमि के अधिभोगी या स्वामी जिसकी बाबत गौण खनिज के अधिकार सरकार में निहित हैं की दशा में सरकार के आरक्षित अधिकार और शक्तियों के प्रयोग करने और, यथास्थिति, पट्टेदार या संविदाकार के पट्टान्तरित करने की अपनी सहमति देने से इन्कार करता है, तो पट्टेदार या संविदाकार सरकार के रिपोर्ट करेगा और प्रतिकर के रूप में प्रस्तावित रकम इसके पास जमा करेगा तथा यदि सरकार का समाधान हो जाता है कि प्रस्तावित प्रतिकर की रकम उचित और युक्तियुक्त है या यदि वह उससे सहमत नहीं है और पट्टेदार और संविदाकार ने ऐसी और रकम इसके पास जमा कर दी है जिसे सरकार उचित और युक्तियुक्त समझती है तो सरकार अधिभोगी को पट्टेदार या संविदकार को भूमि में प्रवेश करने को अनुज्ञात करने के लिए तथा ऐसे प्रचालन कार्यान्वित करेगी आदेश देगी जो प्रयोजनों के लिए आवश्यक हैं। ऐसे प्रतिकर की रकम का निर्धारण करने में सरकार भूमि अर्जन, पुनर्वासन और पुनःव्यवस्थापन में उचित प्रतिकर और पारदर्शिता अधिकार अधिनियम, 2013 (2013 का अधिनियक संख्यांक 30) के सिद्धान्तों द्वारा मार्गदर्शित होगी।

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## भाग–5

## साधारण

1. **रददकरणः** पटटा सरकार द्वारा रदद किए जाने के लिए दायी होगा यदि पट्टेदार लगातार छह मास की अवधि के लिए सक्षम प्राधिकारी की लिखित मंजूरी प्राप्त किए बिना खान का कार्य बन्द कर देता है।

2. **नोटिसः** इन विलेखों द्वारा पट्टेदार को दिए जाने के लिए अपेक्षित प्रत्येक नोटिस उक्त भूमि के ऐसे निवासी व्यक्ति को, जिसे पट्टेदार ऐसे नोटिसों को प्राप्त करने के लिए नियुक्त करे, लिखित में दिया जाएगा और यदि ऐसी नियुक्ति नहीं की गई है तो ऐसा प्रत्येक नोटिस पट्टेदार को पट्टे में अभिलिखित पते पर पट्टेदार के सम्बोधित रजिस्ट्रीकृत डाक द्वारा या भारत में ऐसे अन्य पते पर, जैसा पट्टेदार सरकार के लिखित में समय–समय पर नोटिस प्राप्त करने के लिए निर्दिष्ट करे भेजा जाएगा और ऐसी प्रत्येक सेवा पट्टेदार पर पर्याप्त और विधिमान्य तामिल समझी जाएगी और उसे उसके/उनके द्वारा प्रश्नगत या आक्षेपित नहीं किया जाएगा।

3. **वसूलीः** इस पटटे या किसी अन्य विधि के उपबन्ध द्वारा प्राधिकृत वसूली की किसी अन्य पद्धति पर प्रतिकूल प्रभाव डाले बिना पटटे के विरूद्ध इसके अधीन देय होने वाली समस्त रकम ऐसी वसूली के लिए प्रवृत विधि के अधीन पट्टेदार से भू–राज्स्व के बकाया के रूप में वसूल की जा सकेगी।

4. **सम्पति का समपहरणः** पटटेदार उक्त भूमि पर पड़ी अपनी सम्पति को, यथास्थिति, पटटे के अवसान या उसके पूर्व पर्यवसान (समापन) के पश्चात तीन मास की अवधि के भीतर या ऐसी तारिख के पश्चात जिसको उक्त भूमि के पटटेदार द्वारा हिमाचल प्रदेश गौण खनिज रियायत और खनिज (अवैध खनन,उसके परिवहन और भण्डारण का निवारण) नियम, 2015 के नियम 22 के अधीन कोई अभ्यपूर्ण प्रभाव होता है, हटाया जाएगा। तीन मास की उपरोक्त अवधि के पश्चात शेष बची सम्पति समस्त विल्लंगमों से रहित सरकार में निहित हो जाएगी और ऐसी रीति में विकीत या व्ययनीत की जा सकेगी जैसी सरकार, पट्टेदार से इसके लिए प्रतिकर संदत्त करने के दायित्व के बिना उचित समझे।

5. **प्रतिभूति और उसका सम्पहरणः** (क) सरकार इस पटटा विलेख के अधीन पट्टेदार द्वारा निष्पादित की जाने वाली प्रसंविदा के भंग होने पर पट्टेदार द्वारा जमा———रूपए प्रतिभूति की समस्त रकम या उसके किसी भाग के समपहृत कर सकेगी।

(ख) इस खण्ड द्वारा प्रदत्त अधिकार इस पटटे के किसी अन्य उपबंध द्वारा या किसी विधि द्वारा राज्य सरकार के प्रदत्त अधिकारों पर प्रतिकूल प्रभाव डाले बिना होंगे।

(ग) यदि इस पट्टा विलेख के निबन्धन और शर्तो का कोई उल्लंघन नहीं होता है तो इस पटटे के सम्बन्ध में संदत्त जमा प्रतिभूमि की रकम, इस पटटे के अवसान के पश्चात ऐसी तारीख के, जैसी सरकार

बारह कलैण्डर मास के भीतर नियत करे, पट्टेदार को प्रतिदाय करेगा। निक्षिप्त प्रतिभूति पर कोई व्याज नहीं लगेगा।

6. **क्षेत्र का सर्वेक्षण और निशानदेही**: जब सरकार द्वारा खनन पटटा प्रदान किया जाता है, तो पटटे के अन्तर्गत प्रदान किए गए क्षेत्र के सर्वेक्षण और निशानदेही के लिए, पट्टेदार के खर्चे पर, यदि आवश्यक हो, व्यवस्था की जाएगी। पट्टेदार कार्य के लिए प्रतिनियुक्त कर्मचारिवृन्द के वास्तविक व्ययों को वहन करेगा। वास्तविक व्ययों में यात्रा भत्ता और दैनिक भत्ता तथा कर्मचारिवृन्द के वेतन सहित उपकरण प्रभार के रूप में दस प्रतिशत अतिरिक्त सम्मिलित होगा।

7. **पटटेदार का पटटे पर्यवसित (समाप्त) करने का अधिकार**: पट्टेदार सरकार के समस्त परादेय देयों का संदाय करने के पश्चात सरकार को लिखित में कम से कम छह कलैण्डर मास का नोटिस देकर किसी भी समय पट्टे को पर्यवसित कर सकेगा।

8. **नियमों का लागू होना**: पट्टेदार, खान और खनिज (विकास और विनियमन) अधिनियम, 1957, मेटलिफेरस माइनज रैग्यूलेशन,1960, खान अधिनियम, 1952, हिमाचल प्रदेश गौण खनिज (रियायत) और भण्डारण (अवैध खनन,उसके परिवहन का निवारण ) नियम, 2015 तथा हिमाचल प्रदेश माइनर मिनरल पॉलिसी, 2013 सहित समय–समय पर लागू विधि के अन्य नियमों के अनुसार कार्य करेगा। अधिनियम या इसके अधीनस्थ विधान के किसी उपबंध के उल्लघन संविदा रदद समझी जाएगी।

इसके साक्ष्य स्वरूप, उपर सर्वप्रथम उल्लिखित

तारीख को इस विलेख को निम्न दर्शाई गई रीति में निष्पादित किया गया।

| | |
|---|---|
| पट्टादार के लिए और उसकी ओर से | राज्यपाल, हिमाचल प्रदेश के लिए और उनकी ओर से |
| साक्षी: | |
| 1. ———————— | 1. ———————— |
| 2. ———————— | 2. ———————— |

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**प्ररूप–छ**

**[नियम 19 (1) (ख) और 23(7) देखें]**

———— मास के लिए मासिक विवरणी

1. पट्टाधारक का नाम व पता.....

2. खान की अवस्थितिः

   (क) ग्रामः————

   (ख) तहसीलः————

   (ग) जिलाः————

3. निकाले गए गौण खनिज (जों) का नामः

4. प्रतिदिन नियोजित व्यक्तियों की औसत संख्याः

   (क) पुरूष (ख) महिला (ग) कुल

5. कार्य दिवसों की औसत संख्याः

6. उत्पादन और रायलेटी का ब्यौराः

   (क) खनिज (जों) का नाम'

   (ख) पूर्ववर्ती मास से अग्रनीत शेष (बन्द) स्टॉक (टन में)

   (ग) मास के दौरान उत्पादन (टन में)

   (घ) मास के दौरान प्रेषण (टन में)

   (ङ) कुल स्टॉक (टन में) (ख+ग)

   (च) शेष (बन्द) स्टॉक (टन में) (ङ–घ)

   (छ) रॉयलेटी का ब्यौराः

      1. देय रॉयलेटी :

      2. संदत्त रॉयलेटी :

      3. अतिशेष रॉयलेटी

   (ज) टिप्पणियां

कृपया ध्यान दें (1) कृपया इस प्ररूप के पिछली ओर उत्पादन, प्रेषण और नियोजित श्रमिकों आदि की पूर्ववर्ती मास की तुलना में हुई बढौतरी या कमी के कारण दें।

पट्टेदार या उसके प्राधिकृत अभिकर्ता के हस्ताक्षर

तारिखः————

**प्ररूप–ज**

**[नियम 19 (1) और (ग) देखें]**

.....को समाप्त होने वाले वित्तीय वर्ष के लिए अभिप्राप्त गौण खनिज, नियोजित श्रमिकों आदि का वार्षिक विवरण————————————————————

1. पट्टेदार का नाम और पता————————
2. पट्टा क्षेत्र ————————————

   ग्राम ————————————

   तहसील————————————

   जिला————————————
3. निकाले गए गौण खनिज (जों) का नाम।
4. मीट्रिक टन (एम0 टी0 ) में उत्पादनः
5. मूल्यः
6. श्रमिकों, कार्य दिवसों और संदत्त मजदूरी की दैनिक औसत संख्या

   | | (संख्या) | (संदत्त मजदूरी) |
   |---|---|---|
   | पुरूष | | |
   | महिला | | |

7. संदत्त किए गए देय भाटक (ख) सतही भाटक

   (क) रॉयलेटी/अनिवार्य/भाटक (ख) सतही भाटक
8. कोई परादेय रकम, यदि कोई है।
9. टिप्पणियां

तारीखः————— पट्टेदार या उसके प्राधिकृत अभिकर्ता के हस्ताक्षर

यह विवरणी पूर्ववर्ती वित्तीय वर्ष अर्थात एक अप्रैल से 31 मार्च तक के लिए, प्रत्येक वर्ष के 15 अप्रैल तक, निदेशक उद्योग और सम्बन्द्ध खनन अधिकारी को प्रस्तुत की जाएगी।

**प्रारूप–झ**

**[नियम 19 (12) देखें]**

**विस्फोटकों का प्रयोग करने के लिए सूचना**

1. पट्टेदार का नाम और पता————
2. पटटा क्षेत्र————————

   ग्राम————————

   तहसील————————

   जिला————————
3. निकाले गए गौण खनिज (जों) का नाम:
4. तारीख, जिस को कार्य प्रारम्भ किया गया:
5. (क) वर्तमान स्वामी का नाम और डाक पता:

   (ख) अभिकर्ता, यदि कोई है,का नाम और डाक पता
6. प्रबन्धक, यदि कोई है, का नाम और डाक पता

   (क) आयु

   (ख) अर्हता

   (ग) खनन में अनुभव
7. क्या खुदाई आधार से उर्ध्ववर्ती बढाने की सम्भावना है।
8. (क) विवृत उत्खनन की अधिकतम गहराई इसके निम्नतर बिन्दु से मापी जाएगी।

   (ख) तारीख, जिसको गहराई प्रथमतः छह मीटर से अधिक हुई है।
9. (क) उपयोग किए गए विस्फोटक की प्रकृति मात्रा और किस्म, यदि कोई हो।

   (ख) तारीख जिसको विस्फोटको का प्रथमतः प्रयोग किया गया।
10. तारीख, जिस दिन नियोजित व्यक्तियों की संख्या पचास से अधिक थी

    तारीख:

स्वामी/अभिकर्ता/प्रबंन्धक के हस्ताक्षर

निम्नलिखित को प्रेषित है–

1. मुख्य खान निरीक्षक, भारत सरकार,धन्बाद (ई0 आर0)।

2. निदेशक, भारतीय खान ब्यूरो, भारत सरकार, नागपुर।
3. जिले का जिला मजिस्ट्रेट, जहां खान अवस्थित है।
4. निदेशक उद्योग, हिमाचल प्रदेश, शिमला–1
5. सम्बद्ध खनन अधिकारी।

प्ररूप–'ञ'

(नियम 21 (3) देखें)

खनन् पटटा् के अन्तरण हेतु प्ररूप

जब अंतरक एक व्यष्टि है..... । यह करार स्वयं पक्षकार के रूप में श्री.....

(पते और व्यवसाय सहित व्यक्ति का नाम) (जिसे इसमें इसके पश्चात् अंतरक कहा गया है और इस पद के अन्तर्गत जहां संदर्भ के अनुकूल है इसके वारिस, प्रशासक, प्रतिनिधि और अनुज्ञेय समनुदेशिती समझे जायेगें)

जब अन्तरक एक व्यष्टि से अधिक है .....(पते और व्यवसाय सहित व्यक्ति का नाम) जिसे इसमें इसके पश्चात् "अंतरक" कहा गया है और इस पद के अन्तर्गत, जहां संदर्भ के अनुकूल है, इनके अपने अपने वारिस, निष्पादक, प्रशासक, प्रतिनिधि और अनुज्ञेय समनुदेशिती भी समझे जायेगें।

जब अन्तरक एक रजिस्ट्रीकृत फर्म है..... । (समस्त भागीदारों के पते सहित व्यक्ति का नाम) भारतीय भागीदारी अधिनियम, 1932 (1932 का 9) के अधीन रजिस्ट्रीकृत फर्म के नाम और अभिनाम के अधीन भागीदारों में कारोबार करने वाली.....(फर्म का नाम) और..... .....में अपना रजिस्ट्रीकृत कार्यालय रखनें वाली (जिसे इसमें इसके पश्चात् "अन्तरक" कहा गया है और इस पद के अन्तगर्त, जहां संदर्भ के अनुकूल है उक्त समस्त भागीदार इनके अपने–अपने वारिस, निष्पादक, विधिक प्रतिनिधि और अनुज्ञेय समनुदेशिती भी समझे जायेगें)

जब अन्तरक एक रजिस्ट्रीकृत कम्पनी है..... (कम्पनी का नाम) कम्पनी द्वारा सम्मयक रूप से प्राधिकृत जिसका रजिस्ट्रीकृत कार्यालय.....(पता) में है..... .....के माध्यम से कम्पनी अधिनियम, 2013 के अधीन नियमित और प्रथम पक्षकार के रूप में कम्पनी (जिसे इसमें इसके पश्चात् "अन्तरक" कहा गया है और इसके अन्तर्गत जहां संदर्भ के अनुकूल, इसके उत्तराधिकारी और अनुज्ञेय समनुदेशिती भी है समझे जायेगें और जब अंतरिती एक व्यष्टि है ..... । (पते और व्यवसाय सहित व्यष्टि का नाम) (जिसे इसके इसके पश्चात् "अंतरिती" कहा गया है और इस पद

के अन्तर्गत, जहां सदर्भ मे अनुकूल है इसके वारिस, निष्पादक, प्रशासक, प्रतिनिधि और अनुज्ञेय समनुदेशिती भी समझे जायेगें।

जब अन्तरिती एक व्यष्टि से अधिक है .....(पते और व्यवसाय सहित व्यक्ति का नाम) (जिसे इसमें इसके पश्चात् "अंतरिती" कहा गया है और इस पद के अन्तर्गत, जहां संदर्भ के अनुकूल है, इनके अपने अपने वारिस, निष्पादक, प्रशासक, प्रतिनिधि और अनुज्ञेय समनुदेशिती भी समझे जाएंगें)।

जब अन्तरिती एक रजिस्ट्रीकृत फर्म है .....। (समस्त भागीदारों के पते सहित व्यक्ति का नाम) भारतीय भागीदारी अधिनियम, 1932 (1932 का 9) के अधीन रजिस्ट्रीकृत और जिसका रजिस्ट्रीकृत कार्यालय है फर्म के नाम और अभिनाम के अधीन भागीदारी में कारबार करने वाली .... .....(फर्म का नाम) (जिसे इसमें इसके पश्चात् "अंतरिती" कहा गया है और इस पद के अन्तगर्त, जहां संदर्भ के अनुकूल है उक्त समस्त भागीदार उनके अपने–अपने वारिस, निष्पादक, विधिक प्रतिनिधि और अनुज्ञेय समनुदेशिती भी समझे जायेंगें।

जब अन्तरिती एक रजिस्ट्रीकृत कम्पनी है.....। (कम्पनी का नाम) अधिनियम जिसके अधीन निगमित है ) के अधीन रजिस्ट्रीकृत और जिसका रजिस्ट्रकृत कार्यालय..... (पता) में है कम्पनी द्वितीय पक्षकार के रूप में कम्पनी(जिसे इसमें इसके पश्चात् "अंतरिती" कहा गया है और इस पद के अन्तर्गत, जहां के अनुकूल है , इसके उत्तराधिकारी और अनुज्ञेय समनुदेशिती भी समझे जायेगें) दूसरे पक्षकार के रूप में कम्पनी और तीसरे पक्षकार के रूप में राज्यपाल के माध्यम से इसके पश्चात्.....(जिन्हे इसमें "राज्य सरकार" कहा गया है और इस पद के अन्तर्गत पक्षकार जहां संदर्भ के अनुकूल है उत्तराधिकारी और समनुदेशिती भी समझे जायेंगें) के बीच आज तारीख.....को किया गया।

राज्य सरकार (जिसे इसमें पटटा कर्ता, कहा गया है) और अन्तरक (जिसे इसमें पटटेदार कहा गया हैं) के मध्य सब–रजिस्ट्रार के कार्यालय..... में (स्थान) और जिसकी मूल प्रति इसके साथ संलग्न है और जो क चिन्हित की गई है, तारीख.....को हुए और .....(तारीख) को.....संख्या के रूप में रजिस्ट्रीकृत पटटे के करार के आधार पर, अन्तरक, उसकी अनुसूची में और इससे संलग्न अनुसूची में भी वर्णित भूमि में .....(खनिज) (खनिजों) का नाम) की बाबत अवधि के लिए और भाटक और रॉयलेटी के संदाय और संरक्षित और अन्तग्रस्त पट्टा के उक्त विलेख में पट्टेदार

की प्रसंविदा और शर्तों के अनुपालन और निष्पादन के अध्यधीन तथा राज्य सरकार की पूर्व स्वीकृति के बिना उसके अधीन पटटे या किसी हित को समनुदेशित न करने की प्रसंविदा सहित खानों और खनिजों का अनुसंधान करने , प्राप्त करने और संकर्म करने का हकदार है।

अंतरक अब अंतरिती को पटटे का अंतरण करने और समनुदेशित करने का इच्छुक है और राज्य सरकार ने, अंतरक के अनुरोध पर ,(राज्य सरकार के पूर्वानुमोदन के साथ) अंतरक को आदेश संख्या.....तारीख.....द्वारा अंतरिती के साथ करार करते हुए अंतरिती की शर्तों के आधार पर पट्टे का ऐसा अन्तरण और समनुदेशन करने की अनुज्ञा प्रदान कर दी है और इसके पश्चात् इसमें निम्नलिखित निबन्धन और शर्तें तय करके अन्तर्विष्ट की गई है।

यह विलेख इस बात का साक्षी है कि:–

1. अंतरिती, राज्य सरकार के साथ एतद् द्वारा प्रसंविदा करता है कि पटटे के अन्तरण और समनुदेशन से और इसके पश्चात्, अतंरिती, इसमें इसके पूर्व परिवर्णित उक्त पटटे में अंतविष्ट समस्त प्रसंविदाओं, अनुबंधो और शर्तों के समस्त उपबन्धों के अध्यधीन होगा और उनके निष्पादन, अनुपालन और अनुरूप के लिए उसी रीति में सभी प्रकार से बाध्य और दायी होगा, मानों अंतरिती को पट्टा उसके अधीन पट्टेदार के तौर पर प्रदान किया गया है और उसने इसे मूल रूप से इस प्रकार निष्पादित किया है
2. इसके अतिरिक्त एक पक्षकार के रूप में अंतरक द्वारा और दुसरे पक्षकार के रूप में अंतरिती द्वारा एतद्, द्वारा यह भी करार पाया गया है और घोषित किया जाता है कि–
   (i) अंतरक और अंतरिती घोषणा करते हैं कि उन्होंने सुनिश्चित किया है कि उस क्षेत्र पर, जिसके लिए खनन् पट्टा अंतरित किया जा रहा है, खनिज अधिकार राज्य सरकार में निहित है।
   (ii) अंतरक एतद्द्वारा घोषणा करता है कि उसने खनन् पट्टा जो अब अंतरित किया जा रहा है, को समनुदेशित, सबलेट, बंधक या किसी अन्य रीति में अन्तरित नहीं किया है और यह कि अन्तरित किए जा रहे विद्यमान खनन् पटटे के अधीन किसी अन्य व्यक्ति या व्यक्तियों का कोई अधिकार, हक या हित नहीं है।
   (iii) अंतरक यह भी घोषणा करता है कि उसने ऐसे कोई करार, संविदा या समझौता नहीं किया है जिसके द्वारा वह प्रत्यक्षत : अथवा अप्रत्यक्षत : किसी स्थायी विस्तार तक वित्तपोषित हो या जिसके अन्तर्गत अन्तरक का परिचालन अथवा समझौते, अन्तरक से अथवा किसी व्यक्ति द्वारा या व्यक्तियों के समूह द्वारा स्थायी रूप से नियन्त्रित किए जा रहे थे/किए जा रहे हैं।

(iv) अंतरिती एतद् द्वारा घोषणा करता है कि उसने उन समस्त शर्तों और दायित्वों को स्वीकार कर लिया है जो ऐसे खनन् पटटे् की बावत अंतरक के पास थे।

(v) अंतरिती यह भी घोषणा करता है कि वह वित्तीय रूप से समर्थ है और खनन परिचालनों को प्रत्यक्षत : जिम्मा लूगा ।

(vi) अंतरिती यह भी घोषणा करता है कि उसने यह कथन करते हुए शपथ–पत्र दाखिल कर दिया है कि उसने अद्यतन आय कर विवरणियां दाखिल कर दी हैं।

(vii) अंतरक ने अंतरिती को क्षेत्र में संकर्मों की समस्त योजनाओं की मूल या अनुप्रमाणित प्रतियां दे दी है।

(viii) अंतरक ने इस पट्टे की बाबत आज की तारीख तक सरकार को समस्त भाटक, रायलेटी और अन्य देय संदत्त कर दिए हैं।

इसके साक्ष्यस्वरूप पक्षकारों ने उपरोक्त लिखित तारीख और वर्ष को इस पर अपने–अपने हस्ताक्षर कर दिए हैं।

अनुसूची

पटटे् की अवस्थिति और क्षेत्र

.....(परगना).....रजिस्ट्रीकरण जिला.....उप जिला..... और थाना.....में.....(क्षेत्र या क्षेत्रों का विवरण) पर स्थित भूकर सर्वेक्षण संख्याओं .....वाली.....क्षेत्र से अंतर्ग्रस्त भूमि के समस्त भू–भागों को इससे संलग्न योजना पर उसके सम्बन्ध में अंकित कर दिया गया है और उसे निम्न प्रकार से रंगीन और सीमांकित कर दिया है:–

उत्तर में.....द्वारा

दक्षिण में.....द्वारा

पूर्व में.....द्वारा और

पश्चिम में.....द्वारा

साक्षियों की उपस्थिति में हिमाचल प्रदेश के राज्यपाल के लिए और उनकी ओर से हस्ताक्षर किए

साक्षी

1.

2.

साक्षियों की उपस्थिति में अंतरक के हस्ताक्षर

1.

2.

साक्षियों की उपस्थिति में अंतरिती के हस्ताक्षर

1.

2.

प्ररूप–'ट'

(नियम 23 (4), 26 (8) एवं 27(9) देखें)

करार विलेख

यह करार एक पक्षकार के रूप में .....हिमालच प्रदेश सरकार (जिसे इसमें इसके पश्चात् "सरकार" कहा गया है जिसके अन्तर्गत, जब संदर्भ ऐसा करना अनुज्ञात करे, उसके उत्तराधिकारी और समनुदेशिती भी समझे जाएंगें) के माध्यम से राज्यपाल हिमाचल प्रदेश और तारीख .....को किया गया है।

जब संविदाकार

एक व्यष्टि है .....(पते और व्यवसाय सहित व्यक्ति का नाम).....जिसे इसमें इसके पश्चात् "संविदाकार" कहा गया है और इस पद के अन्तर्गत, जहां संदर्भ के अनुकूल है, इनके अपने अपने वारिस, निष्पादक, प्रशासक और प्रतिनिधि भी समझें जाएंगे।

जब संविदाकार

एक रजिस्ट्रीकृत

फर्म है .....(भागीदार का नाम और पता) सपुत्र श्री..... भारतीय भागीदारी अधिनियम, 1932 (1932 का 9) के अधीन रजिस्ट्रीकृत फर्म के नाम और अभिनाम के अधीन.....(फर्म का नाम) फर्म द्वारा सम्यक रूप से प्राधिकृत.....के माध्यम से भागीदारों में समस्त कारबार करने वाली और.....शहर में .....पर अपना रजिस्ट्रीकृत कार्यालय रखने वाली.....(फर्म का नाम) (जिसे इसमें इसके पश्चात् संविदाकार (रों) कहा गया है इस पद के अन्तर्गत जहां संदर्भ के अनुकूल है उक्त समस्त भागीदार, इनके अपने–अपने वारिस, निष्पादक विधिक प्रतिनिधि और अनुज्ञेय समनुदेशिती भी समझे जाएंगे।

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जब संविदाकार एक

रजिस्ट्रीकृत कम्पनी है .....(कम्पनी का नाम) कम्पनी द्वारा सम्यक रूप से प्राधिकृत. .....के माध्यम से कम्पनी अधिनियम, 2013 के अधीन निगमित एक कम्पनी और.....(पता) में इसके रजिस्ट्रीकृत कार्यालय वाली दूसरे पक्षकार के रूप में, (जिसे इसके पश्चात संविदाकार कहा गया है और इस पद के अन्तर्गत, जहां संदर्भ के अनुकूल है इनके वारिस निष्पादक, प्रशासक, प्रतिनिधि और अनुज्ञेय समनुदेशिती भी हैं)

के बीच आज तारीख.....को किया गया। रियायत हिमाचल प्रदेश गौण खनिज और खनिज (अवैध खनन् उसके परिवहन और भण्डारण के निवारण नियम, 2015 (जिन्हें इसमें इसके पश्चात "उक्त नियम" कहा गया है) के अनुसार.....(गौण खनिज का नाम) के उत्खनन के लिए संविदाकार (रों) की .....(स्थान का नाम) पर .....की गई निविदा रकम..... रूपये (रूपये.....केवल) को सरकार द्वारा, इसके नीचे लिखित युक्तिका के भाग–। में वर्णित भूमि की बावत.....से.....वर्षो तक के लिए स्वीकृत किया गया है तथा इसके अंन्तर्विष्ट प्रसंविदाओं की सम्यक पूर्ति हेतु (रूपये.....केवल) की रकम प्रतिभूति के रूप में राज्य सरकार के पास जमा कर दी गई है । सरकार ऐसी प्रतिभूति राशि में से किसी रकम की कटौती करने हेतु सशक्त है जो संविदाकार (रों) से, या तो संविदा राशि की बावत या इसके अधीन उस द्वारा सरकार को संदेय किसी अन्य रकम की बावत देय हों ।

यदि इस संविदा के उपबन्धों के अधीन प्रतिभूति राशि या उसके ऐसे अतिशेष को प्रतिसंहृत न किए जाने पर और उपरोक्त वर्णित कटौतियों को करने के पश्चात, शेष बची राशि को इस संविदा की अवधि के अवसान के पश्चात और सरकार का अपना समाधान हो जाने के पश्चात, कि इस संविदा की अवधि का संविदाकार (रों) द्वारा सम्यक रूप से और आदरपूर्वक निर्वहन किया गया है, संविदाकार (रों) को वापिस किया जाएगा।

इसके साक्ष्यस्वरूप संविदा राशि, प्रसंविदाओं और करारों और इन प्रस्तुतियों में और इसके अधीन लिखित, आरक्षित और अंतर्विष्ट युक्तिका पर विचार करते हुए तथा संविदाकार (रों) के

पक्ष में संदत्त, अनुमत और कार्यान्वित किए जाने के पश्चात, सरकार एतद् द्वारा संविदाकार (रों) को स्वीकृति प्रदान करती है/संविदा समाप्त करती है।

भूमि के अधीन स्थित.....(जिन्हें इनमें इसके पश्चात् और युक्तिका में उक्त खनिज कहा गया है) के उन समस्त खानों, तलों, शिराओं एवं संस्तरों, जो उक्त युक्तिका के भाग–। में निर्दिष्ट किए गए हैं, का प्रयोग इनके सम्बन्ध में उपयोग किए जाने या उपभोग किए जाने वाले (स्वातत्र्य) शक्तियों और विशेषाधिकारों के साथ–साथ, उक्त नियमों में वर्णित सरकार में निहित अधिकारों (स्वातत्र्य) , शक्तियों और विशेषाधिकारों के सिवाय और इस पटटान्तरण आरक्षित रहने पर ऐसे अधिकारों (स्वातत्र्य) शक्तियों और विशेषाधिकारों के प्रयोग करने और उपभोग करने पर पाबन्दी और शर्तों के अध्यद्यीन किया जाएगा।

संविदाकार इसके द्वारा प्रदत्त और अन्तरित परिसर को .....वर्ष की अवधि के लिए.....की .....तारीख से धारण करेगा/करेगे।

संविदाकार, एतद् द्वारा सरकार के साथ प्रसंविदा (एं) करता है/करते हैं और सरकार एतद् द्वारा संविदाकार (रों) के साथ प्रसंविदा करती है जैसाकि उक्त नियमों में अभिव्यक्त किया गया है।

और एतद् द्वारा दोनों पक्षकारों के मध्य पारस्परिक रूप से करार पाया जाता है जैसा कि उक्त युक्तिका के भाग–।।। में अभिव्यक्त किया गया है।

## युक्तिका

## भाग–।

## खान के क्षेत्र की अवस्थिति और विवरण

खनन के प्रयोजन के लिए इससे उपाबन्द राजस्व नक्शे (ततीमा) स्थल योजना पर अंकित ..... के क्षेत्र से अन्तर्विष्ट .....खसरा नम्बर वाले, गावं.....तहसील.....जिला.....में स्थित भू–भाग या भूमि, (जिसे इसमें इसके पश्चात उक्त भूमि के रूप में कहा गया है।

भाग– ।।

**संविदा राशि की रकम और संदाय की रीति**

1. संविदाकार, संविदा के अस्तित्व के दौरान.....(खदान का नाम) बावत की उसे/उन्हें..... .....अवधि से.....वर्ष तक.....(किस्तों की रकम की संख्या) के लिए, दी गई संविदा पर नीचे वर्णित संविदा राशि को सरकार को संदत्त करेगा/करेंगें। तारीख जिसको किस्त संदत्त की जानी है।

**कार्रवाई, यदि संविदा राशि समय पर संदत्त नहीं की जाती है:**

2. इन विलेखों के निबन्धन और शर्तों के अधीन सरकार को देय संविदा राशि की किसी किस्त को यदि संविदाकार (रों)द्वारा नियत समय के भीतर संदत्त नहीं किया जाता है तो उसे ऐसे अधिकारी के ऐसे प्रमाण पत्र, जैसा सरकार द्वारा साधारण या विशेष आदेश द्वारा विनिर्निष्ट किया जाए, पर प्ररूप–'ढ' में उसी रीति में वसूल किया जा सकेगा, जैसे भू–राजस्व का बकाया ।
3. संविदाकार खनन स्थल से, खान से निकाले गए स्लेटों/लघु खनिजों को तब तक न तो हटाएगा और न ही निर्यात करेगा जब तक कि उसने, इस भाग के खण्ड (1) में अधिकथित संविदा राशि की किस्त संदत्त न कर दी हो।
4. (क) निदेशक उद्योग/राज्य भू–विज्ञानी/खनन अधिकारी अपने विवेक पर प्रतिवर्ष 12% (बारह प्रतिशत) की दर से ब्याज के संदाय पर किसी विशिष्ट किस्त के संदाय की अवधि को विस्तारित कर सकेगा।

(ख) यदि संविदाकार, नियत तारीख तक सक्षम प्राधिकारी की लिखित अनुज्ञा के बिना संविदा राशि की किसी किस्त या उसके किसी भाग को संदत्त करने में असफल रहता है/रहतें हैं, तो वे, सक्षम प्राधिकारी के विवेक पर विस्तारण के एक सप्ताह के व्यतीत होने के पश्चात प्रतिवर्ष 24% (चौबीस प्रतिशत) की दर से शास्ति के रूप में संदत्त करने हेतु दायी होगें, जिसका संदाय उसके/उनके स्लेटों/गौण खनिजों के अभिग्रहण और निरोध द्वारा, इससे पूर्व वर्णित प्रतिभूति राशि में से वसूल किया जाएगा। यदि ऐसी निष्फलता 30 दिन तक बढ़ जाती तो केता, स्लेट/गौण खनिज खदान या स्लेटों/गौण खनिजों के समस्त दावे से वंचित होने और उनकी ओर से केता द्वारा परिनिर्धारित नुकसानी के रूप में करार के निबन्धनों के अधीन पहले से संदत्त समस्त राशि को खनन अधिकारी द्वारा रोके जाने हेतु दायी होगा और खनन अधिकारी, सक्षम प्राधिकारी के अनुमोदन के अध्यधीन, संविदा को निरस्त कर सकेगा।

भाग–3

**सधारण शर्तें** : (1) **अन्य खनिजों का पता चलना**

(क) संविदाकार किसी खनिज के जो संविदा में विनिर्दिष्ट नहीं हैं, खनन क्षेत्र में पता चलने पर उसकी रिपोर्ट राज्य सरकार को इसके पता चलने (प्रकटीकरण) के तीस दिन के भीतर देगा;

(ख) यदि कोई खनिज का, जो संविदा में विनिर्दिष्ट नहीं है, खनन क्षेत्र में पता चलता (प्रकट होता) है तो संविदाकार तब तक ऐसे खनिज की छँटाई और उसका निपटारा नहीं करेगा जब तक कि इसके लिए सक्षम प्राधिकारी से अनुज्ञा अभिप्राप्त न कर ली गई हो।

(2) **विदेशी नागरिक को नियोजित नहीं करना** : संविदाकार राज्य सरकार के पूर्व अनुमोदन के सिवाय, खनन प्रचालन के सम्बन्ध में किसी व्यक्ति को, जो भारत का नागरिक नहीं है, नियोजित नहीं करेगा।

(3) **सीमांकन चिन्हों को स्थापित करना और उनको बनाए रखना**: संविदाकार , संविदा से संलग्न योजना में दर्शाए गए सीमांकन के उपदर्शित करने के लिए अपने खर्चे पर आवश्यक सीमांकन चिन्हों और खम्बों की स्थापना करेगा और सभी समयों पर उनको बनाए रखेगा तथा उन्हें अच्छी स्थिति में रखेगा।

(4) **खनिजों के सही लेखों का अनुरक्षण**: संविदाकार खान से अभिप्राप्त और प्रेषित समस्त खनिजों का परिमाण मात्रा और विशिष्टियां दर्शाते हुए परिवहन की पद्वति, यान की रजिस्ट्रीकरण संख्या, यान या पशु के प्रभारी व्यक्ति और वहन किए जा रहे खनिज की प्रकृति और परिमाण (मात्रा), विक्रय मुल्य , उसमें नियोजित व्यक्तियों की संख्या और उनकी राष्ट्रीयता तथा खान की पूर्ण योजना, दर्शाते हुए सही लेखे रखेगा और इस निमित केन्द्रीय या राज्य सरकार द्वारा प्राधिकृत किसी अधिकारी के उसके द्वारा रखे गए (अनुरक्षित) किसी लेखे, योजना और अभिलेख को किसी भी समय परीक्षण करने के लिए अनुज्ञात करेगा तथा केन्द्रीय सरकार या राज्य सरकार का इस निमित दोनों में से किसी प्राधिकृत अधिकारी को , ऐसी सूचना, जैसी अपेक्षित हो, देगा।

(5) **खाईयों, गडढों आदि के अभिलेख का अनुरक्षण**: संविदाकार, संविदा के अन्तर्गत, उसके द्वारा किए गए खनन प्रचालन के क्रम में उसके द्वारा खोदी गई खाईयों, गडढों और ड्रिलिगंज का सही अभिलेख रखेगा और केन्द्र या राज्य सरकार द्वारा प्राधिकृत किसी अधिकारी को उसका निरीक्षण करना अनुज्ञात करेगा। ऐसे अभिलेख में निम्नलिखित विशिष्टियां अन्तर्विष्ट होगी, अर्थात:–

(क) अवमृदा और स्तर (स्ट्रेटा) जिसमें ऐसी खाईयां, गडढे बनाए गए हैं और जिसके माध्यम से ड्रिलिगंज गुजरती हैं,

(ख) कोई खनिज पाया जाता है,

(ग) ऐसी अन्य विशिष्टियां, जिसकी केन्द्रीय या राज्य सरकार समय–समय पर अपेक्षा करे।

(6) **निर्बन्धनः** संविदाकार, किसी रेल पथ से, रेल प्रशासन की पूर्व लिखित अनुज्ञा के अनुसार और के अन्तर्गत के सिवाय, 100 मीटर की दूरी के भीतर या सक्षम प्राधिकारी की पूर्व अनुज्ञा के अनुसार के अन्तर्गत के सिवाय राष्ट्रीय उच्च मार्ग से 100 मीटर की दूरी या राज्य उच्च मार्ग से 25 मीटर की दूरी या अन्य सड़कों से 10 मीटर की दूरी या किसी जलशय, नहर या भवन या आवासीय स्थलों से 50 मीटर तक किसी स्थल पर खनन प्रचालन कार्यान्वित नहीं करेगा या उसे कोई खनन प्रचालन कार्यान्वित करना अनुज्ञात नहीं किया जाएगा। रेल प्रशासन या संयुक्त निरीक्षण समिति, ऐसी अनुज्ञा प्रदान करने में ऐसी शर्तें, जैसी यह उचित समझें, आधिरोपित कर सकेगा/सकेगी।

(7) **पंहुच के लिए प्रसुविधाएः** (क) संविदाकार किसी भूमि, जो पट्टेदार द्वारा धारित भूमि में समाविष्ट है या उसके साथ लगती है, या उस द्वारा उसके के लिए पंहुच है, के विद्यमान और भावी अनुज्ञप्ति–धारियों धारियो या पटटाधारकों या संविदाकारों के उसके लिए पंहुच हेतु युक्तियुक्त प्रसुविधा अनुज्ञात करेगा।

(ख) संविदाकार, सरकार या केन्द्रीय सरकार द्वारा प्राधिकृत किसी अधिकारी को, खान के निरीक्षण के प्रयोजन के लिए पटटे में समाविष्ट किसी भवन या भूमि में प्रवेश करने के लिए अनुज्ञात करेगा और ऐसे अनुदेशों का पालन करेगा जैसे निरीक्षण अधिकारी द्वारा, खनिजों के वैज्ञानिक खुदान और परिरक्षण के लिए समय समय पर जारी किए जाएं:

परन्तु यदि संविदाकार भाग–।।। के खण्ड 7 (ख) के अन्तर्गत प्रवेश करना या निरीक्षण करना अनुज्ञात नहीं करता है तो सरकार संविदा को रद्द कर सकेगी और संविदाकार द्वारा जमा, संदत्त प्रतिभूति का पूर्णतया : या भागतः समपहरण कर सकेगी।

(8) **लोक उपयोगिताओं की सुरक्षाः** संविदाकार, यथास्थिति , रेल प्रशासन या राज्य सरकार के समाधानप्रद, खान के किसी भाग जिसका उसकी राय में किसी रेल पथ, पुल, राष्ट्रीय उच्च मार्ग जलाशय टैंक, नहर, सड़क या किन्ही अन्य लोक संकर्मों या भवनों की सुरक्षा के लिए सुदृढ़ीकरण या अवलम्ब देना अपेक्षित है, सुदृढ़ीकरण करेगा या उसको अवलम्ब देगा।

(9) **विस्फोटक का प्रयोग करने लिए सूचनाः** पट्टेदार विस्फोटक के उपयोग के लिए प्ररूप–'झ' में तत्काल सूचना देगा, जैसे ही

(क) खनन में कार्य उपरिवर्ती तल से नीचे विस्तृरित होता है,

(ख) किसी खुले ढलवां उत्खनन की इसके उच्चतम बिन्दू से न्यूनतम बिन्दू तक मापी गई गहराई छः मीटर तक पहुंच गई हो,

(ग) किसी दिवस को नियोजित व्यक्तियों की संख्या 50 (पचास) से अधिक हो गई हो, और

(घ) विसफोटक प्रयोग में लाए गये हों ।

10. **संविदाकार द्वारा वहन किये जाने वाले व्ययः** जब सरकार द्वारा संविदा प्रदान की जाती है, तो संविदा के अन्तर्गत प्रदान किए गए क्षेत्र के सर्वेक्षण और निशानदेही के लिए संविदाकार के खर्चे पर, यदि आवश्यक हो, व्यवस्था की जाएगी। संविदाकार कार्य के लिए प्रतिनियुक्त कर्मचारीवृन्द के वास्तविक व्यय को वहन करेगा। वास्तविक व्ययों में यात्रा भत्ता, दैनिक भत्ता और कर्मचारीवृन्द के वेतन सहित उपकरण प्रभार के रूप में दस प्रतिशत सम्मिलित होगा।

**भाग–4**

**संविदा का नियमों प्रसविदाओं और उनकी शर्तों के भंग पर पर्यवसान समाप्त किया जा सकेगा**

(1) यदि संविदाकार (रों) उक्त नियमों और इस संविदा की किसी प्रसंविदा (ओं) शर्त (शर्तों) को कोई भंग करता है या करतें है तो सरकार संविदा का पर्यवसान (समाप्त) कर सकेगी जौर जमा प्रतिभूति का पूर्णता : या भागतः समपहरण करेगी :

परन्तु संविदाकार (से) को संविदा का पर्यवसान (समाप्त) करने से पूर्व भंग को स्पष्ट करने का युक्तियुक्त अवसर प्रदान किया जाएगा।

(2) यदि संविदा उपरोक्त खण्ड (1) के अधीन रद्द या पर्यवसित (समाप्त) की गई है तो संविदाकार ऐसे रद्दकरण या उससे पहले पर्यवसान (समापन) के समय तक देय संविदा राशि के लिए दायी रहेगा। और सरकार उक्त भूमि की पुन : नीलामी/पुन : निविदा कर सकेगी।

(3) **संविदाकार (रों) का संविदा के अवसान पर अपनी/उनकी सम्पत्तियों का हटानाः** संविदाकार, इन विलेखों के फलस्वरूप पहले से संदेय संविदा राशि के संदत्त करने पर वह/वे अपनी सम्पत्ति आदि जैसे ईजन, मशीनरी, संयन्त्र, भवन, अवसंरचना और अन्य संकर्म, स्थापन और सुविधाएं जो संविदाकार द्वारा उक्त भूमि में या उस पर सृजित की गई है, स्थापित की गई है या रखी गई है ,उक्त संविदा के अवसान या पूर्व पर्यवसान, (समापन) पर तीन मास की अवधी के भीतर ले जा सकेगा/जा सकेगें या उन्हें हटा सकेगा/या हटा सकेगें।

(4) **संविदा के अवसान या पूर्व पर्यवसान (समापन) के पश्चात् शेष रही सम्पत्ति का समपहरणः** यदि उक्त संविदा के अवसान या पूर्व पर्यवसान (समापन) के अन्त में उक्त भूमि में या उस पर कोई ईंजन, मशीनरी, संयन्त्र, भवन, अवसंरचना और संकर्म स्थापन तथा सुविधाएं या अन्य सम्पत्ति रह जाती है तो खनन अधिकारी द्वारा संविदाकार को लिखित में दिए गए नोटिस के पश्चात तीन कलैण्डर मास के भीतर यदि संविदाकार द्वारा नहीं हटाया जाता है तो यह सरकार की सम्पत्ति समझी जाएगी और उसका ऐसी रीति में, जैसी सरकार संविदाकार, (रों) को किसी प्रकार के प्रतिकर के संदाय के दायित्व के बिना उचित समझे विक्रय किया जा सकेगा या उसका व्ययन किया जा सकेगा।

(5) **नोटिस**–इन विलेखों द्वारा संविदाकार (रों) को दिए जाने के लिए अपेक्षित प्रत्येक नोटिस उक्त भूमि के ऐसे निवासी व्यक्ति को, जिसे संविदाकार (रों) ऐसे नोटिसों को प्राप्त करने के लिए नियुक्त करें, लिखित में दिया जाएगा और यदि ऐसी नियुक्ति नहीं की गई है तो ऐसा प्रत्येक नोटिस संविदाकार (रो) को इस करार में अभिलिखित पते पर संविदाकार (रों ) को सम्बोन्धित द्वारा या भारत में ऐसे अन्य पते पर, जैसा संविदाकार सरकार को लिखित में समय समय पर नोटिस प्राप्त करने के लिए निर्दिष्ट करे रजिस्ट्रीकृत डाक द्वारा भेजा जाएगा और प्रत्येक ऐसी तामील संविदाकार पर प्रर्याप्त और विधिमान्य तामील समझी जाएगी और उसे उसके/उनके द्वारा उसे प्रश्नगत या उसके बारे में कोई आक्षेप नहीं किया जाएगा।

(6) संविदाकार खान स्थल पर आवश्यक दवाईयों से समावेशित दो प्राथमिक उपचार पेटिकाओं की व्यवस्था करेगा/करेगें।

(7) संविदाकार अनुमोदित खनन योजना के अनुसार खनन प्रचालन कार्यान्वित करेगा/करेगें।

(8) संविदाकार खान के लिए कम से कम तीन मीटर चौड़ा रास्ता बनाएगा/बनाएगें और इसे अच्छी स्थिति में अनुरक्षित रखेगा/रखेगें।

(9) संविदाकार 18 वर्ष से कम आयु के किसी व्यक्ति को नियोजित नहीं करेगा/करेगें।

(10) संविदाकार श्रमिकों के नियोजन, उत्पादन और प्रयोग किए गए विस्फोटकों आदि के अभिलेख, और ऐसा अन्य अभिलेख, जैसा सम्बद्व खनन् अधिकारी द्वारा विनिर्दिष्ट किया जाए, अनुरक्षित करेगा/करेगें।

(11) इस संविदा के किन्ही निबन्धनों और शर्तों के अधीन इस विलेख के रद्दकरण की दशा में सरकार के पास खदान की पुन : नीलामी करने या पुन : निविदा करने का अधिकार एतद्द्वारा अभिव्यक्त रूप से आरक्षित है।

(12) संविदाकार, इस विलेख के निबन्धनों और शर्तों के स्वयं द्वारा या उसके अभिकर्ताओं या सेवकों द्वारा सम्यक् अनुपालना हेतु स्वयं/उन्हें उत्तरदायी समझेगा/समझेगें।

(13) संविदाकार को न तो खदान से हटाने न ही खदान से निकाले गए स्लेटों/गौण खनिजों के निर्यात के लिए तब तक अनुज्ञात नहीं किया जाएगा जब तक कि उसने इस युक्तिका के भाग–2 के खण्ड (1) में अधिकथित समय पर संविदा राशि संदत्त न कर दी हो।

(14) यह भी करार किया जाता है कि यह विलेख, भारतीय संविदा अधिनियम, 1872 की धारा 74 के अर्थान्तर्गत, उन कार्यों को करने के लिए है जिनमें जनता की अभिरूचि है ।

(15) **संविदा को समनुदेशित करना, उप पटटे पर देना या उसका अन्तरण करना।**

संविदाकार किसी व्यक्ति के ,सरकार से लिखित में पूर्व अनुज्ञा अभिप्राप्त किए बिना संविदा को समनुदेशित नहीं करेंगा/करेंगें, उप पट्टे पर नहीं देगा/देंगें या अन्तरण नहीं करेगा/करेंगें।

(16) **कार्य स्थल की घेराबन्दी (फेनसिंग) करना**

यदि कार्यस्थल असुरक्षित प्रतीत होता है तो संविदाकार समस्त व्यक्तियों को खतरनाक क्षेत्र से तुरन्त हटा लेगा और ऐसे कार्यस्थल की समस्त पंहुंच को, सिवाय खतरे के निवारण या जीवन रक्षा के प्रयोजन के लिए, उसकी/उनकी अपनी लागत पर स्थल के समस्त प्रवेश द्वारों की पूरी चौड़ाई की सुरक्षित घेराबन्दी द्वारा निवारित करेगा/करेंगें। संविदात्मक संकर्मों पर संविदाकार द्वारा नियोजित श्रमिक को कर्मकार प्रतिकर अधिनियम, 1923 के अधीन, किसी प्रतिकर का संदाय करने के लिए संविदाकार दायी होगा/होंगें न कि सरकार।

(17) **तृतीय पक्षकार के दावों से सरकार को क्षतिपूरित रखना**

संविदाकार किसी तृतीय पक्षकार के दावे से सरकार को क्षतिपूरित रखेगा/रखेंगें और ऐसे दावों का परिनिर्धारण उसकी/उनकी अपनी सहमति से करेगा/करेंगें।

(18) **भू–स्वामियों के प्रतिकर का संदाय**

संविदाकार भूमि, जिसमें से गौण खनिज निकाले जाएंगें/खोदे जाएंगें के स्वामियों को भूमि अर्जन, पुनर्वासन और पुनर्व्यस्थापन में उचित प्रतिकर और पारदर्शिता अधिकार अधिनियम, 2013 (2013 का 30) के अधीन कलक्टर द्वारा नियत दर पर नुकसान का प्रतिकर संदत्त करेगा/करेंगें।

(19) **वृक्षों का गिरान**

संविदाकार भूमि, जहां खदान अवस्थित है , पर खड़े वृक्षों को सक्षम प्राधिकारी से उन वृक्षों की बावत लिखित में पूर्व अनुज्ञा अभिपाप्त किए बिना न तो गिराएगा और न ही काटेगा।

(20) **प्रतिबंन्धित क्षेत्रों में सतही प्रचालन कार्यान्वित न करना**

संविदाकार किसी प्राधिकरण द्वारा प्रतिबन्धित किसी क्षेत्र में सम्बद्व प्राधिकरण से लिखित में पूर्व अनुज्ञा अभिप्राप्त किए बिना कोई सतही प्रचालन कार्यान्वित नहीं करेगा।

(21) **नदी या नाले के तल में यान्त्रिक उत्खनन पर निर्बन्धन**

नदी या नाले के तल में यान्त्रिक उत्खनन सक्षम प्राधिकारी अर्थात निदेशक, उद्योग की अनुज्ञा से, बिना बेकहो के 80 हार्स पावर तक के टायर माउंटिड फ्रन्ट एण्ड लोडर की सहायता से ही किया जाएगा।

(22) **आरक्षित और संरक्षित वन क्षेत्रों में प्रवेश और कार्य न करना**

संविदाकार सक्षम प्राधिकारी से लिखित में पूर्व अनुज्ञा अभिप्राप्त किए बिना किसी वन भूमि में न तो प्रवेश करेगा/करेंगें और न ही उसमें कोई कार्य करेगा/करेंगें।

(23) **इस संविदा को समस्त विधियों, नियमों और विनियमों का लागू होना**

यह संविदा उन समस्त विधियों, नियमों और विनियमों के अध्यधीन है जो सरकार द्वारा खानों के कार्यो और संविदाकार, कर्मचारियों या जनसाधारण की सुरक्षा, स्वास्थ्य और प्रसुविधा, चाहे भारतीय खान अधिनियम या अन्यथा के अधीन हो, को प्रभावित करने वाले विषयों को विनियमित करने के लिए समय–समय पर जारी किए जा सके।

(24) दुर्घटना की रिपोर्ट करना

इस संविदा के प्रचालन के दौरान संविदाकार किसी भी समय जीवन हानि या गंभीर शारीरिक क्षति कारित करने वाली या जीवन या सम्पत्ति को गंभीर रूप से प्रभावित करने वाली या संकटापन्न किसी दुर्घटना, जो उक्त भूमि में या उस पर घटित हो की अविलम्ब रिर्पोट सम्बद्व कलक्टर और खनन अधिकारी को भेजेगा/भेजेंगें।

(25) रिपोर्ट और विवरणियां प्रस्तुत करना

संविदाकार उत्पादन और अन्य मामलों से सम्बन्धित रिपोर्ट और विवरणियॉं उक्त नियमों से संलग्न प्ररूप–छः में प्रस्तुत करेगा

(26) व्यतिकय के लिए शास्ति

संविदाकारों या सेवकों द्वारा इस संविदा के किसी निबन्धन या शर्त के भंग की दशा में, समस्त ऐसे मामलों में संविदाकार, उक्त नियमों के उपबन्धों के अनुसार शास्ति का संदाय करने के लिए दायी होगा।

(27) संविदा के निबंन्धनों और शर्तो की सम्यक अनुपालना में या देय तारीख को संविदा राशि के संदाय में व्यतिकय की दशा में सरकार द्वारा या इस निमित्त सरकार द्वारा प्राधिकृत किसी अधिकारी द्वारा एक मास का नोटिस देकर, जमा प्रतिभूति सहित अग्रिम में संदत्त किस्त, यदि कोई है, के समपहरण सहित संविदा को पर्यवसित (समाप्त) किया जा सकेगा।

(28) राज्य सरकार द्वारा लोकहित में संविदा का पर्यवसान (समाप्ति)

जहॉं राज्य सरकार की यह राय है कि खानों के विनियमन और खनिजों के विकास, प्राकृतिक पर्यावरण के परिरक्षण, बाढ़ नियन्त्रण और प्रदूषण नियन्त्रण या जनस्वास्थ्य के खतरे के निवारण के लिए या संसूचना या भवनों, स्मारकों या अन्य अवसंरचानाओं की सुरक्षा के हित में यह समीचीन है या अन्य ऐसे प्रयोजनों के लिए, जिन्हें राज्य सरकार उचित समझें, ऐसी संविदा के अन्तर्गत ऐसे किसी क्षेत्र या उसके किसी भाग की बावत खनन पटटे का पूर्व पर्यवसान (समापन) कर सकेगी:

परन्तु राष्ट्रीय आपातकाल या युद्व की स्थिति में संविदा ऐसा नोटिस दिए बिना पर्यवसित (समाप्त) की जा सकेगी।

(29) **प्रतिभूति निक्षेप**

संविदाकार (रों) द्वारा जमा की गई प्रतिभूति, सक्षम प्राधिकारी के नाम में सम्यक रूप से गिरवी सावधि जमा प्राप्ति (एफडीआर) के रूप में होगी।

(30) **संचालनीय स्थिति में खान के कब्जे का परिदान**

संविदाकार (रों) संचालनीय स्थिति में खान का कब्जा खनन अधिकारी को प्ररिदत करेगा/(गें)। यदि वह/वे इसे मलवे से भरता है/भरते हैं तो मलवे को संविदाकार (रों) की लागत पर साफ करवाया जाएगा और इस प्रकार खर्च की गई रकम उसके/उनके प्रतिभूति निक्षेप से काटी जाएगी।

(31) **राज्य सरकार का संविदाकार (रों) को हुई हानि के लिए उत्तरदायी न होना**

सरकार , संविदाकार को हुई किसी भी प्रकार की हानि के लिए उत्तरदायी नहीं होगी।

(32) **स्टॉम्प शुल्क और रजिस्ट्रीकरण प्रभार**

इस विलेख पर स्टॉम्प शुल्क या रजिस्ट्रीकरण प्रभार, यदि कोई है, संविदाकार द्वारा वहन किया जाएगा।

श्री.....सुपुत्र श्री.....जाति.....ग्राम..... तहसील.....जिला.....हिमाचल प्रदेश ने .....(संविदाकार) और राज्यपाल, हिमाचल प्रदेश के निमित और उसकी ओर से कार्य कर रहे हिमाचल प्रदेश सरकार के .....ने उपरोक्त तारीख को इसके निबंधनों की स्वीकृति के प्रमाण–स्वरूप इस विलेख पर इसको साक्ष्य स्वरूप उपर लिखित तारीख को अपने–अपने हस्ताक्षर कर दिए है। (यदि संविदाकार एक रजिस्ट्रीकृत फर्म है) भारतीय भागीदारी अधिनियम, 1932 के अधीन रजिस्ट्रीकृत फर्म और अभिनाम.....(फर्म का नाम) के अधीन भागीदारी के रूप में भागीदार श्री.....सुपुत्र श्री.....जाति.....ग्राम..... .....तहसील.....जिला..... कारबार करने वाली फर्म की ओर से

और उसके निमित कार्य कर रहा है, ने और हिमाचल प्रदेश के राज्यपाल की ओर से और उसके निमित तथा उसके प्राधिकार के अधीन कार्यरत.....हिमाचल प्रदेश सरकार..... विभाग ने उपरोक्त तारीख को इसके निबंधनों की स्वीकृति के प्रमाण स्वरूप इस विलेख पर इसके साक्ष्यस्वरूप उपर लिखी तारीख को अपने अपने हस्ताक्षर कर दिए है। (यदि संविदाकार एक रजिस्ट्रीकृत कम्पनी है).....नाम और अभिनाम के अधीन रजिस्ट्रीकृत कम्पनी की ओर से निमित श्री.....सुपुत्र श्री.....जाति.....ग्राम..... .....तहसील.....जिला.....इस निमित सम्यक रूप से प्राधिकृत या उक्त कम्पनी को निगमित करने वाले परिनियम के अधीन और राज्यपाल , हिमाचल प्रदेश सरकार के निमित और उसकी ओर से कार्य कर रहे हिमाचल प्रदेश सरकार के ..... ने उपरोक्त तारीख को इसके निबन्धनों की स्वीकृति के प्रमाणस्वरूप इस विलेख पर इसके साक्ष्यस्वरूप ऊपर लिखित तारीख को अपने अपने हस्ताक्षर कर दिए हैं।

राज्यपाल, हिमाचल प्रदेश के लिए और उनकी ओर से.....

द्वारा हस्ताक्षरित

पता.....

(संविदाकार) के लिए और उसकी ओर से

.....

(फर्म या कम्पनी का नाम)

पता.....

साक्षी

1.....

पता.....

साक्षी

2.....

पता.....

887

प्ररूप–'ठ'

[नियम 30 देखें]

अनुज्ञा–पत्रों के लिए प्ररूप

संख्या.....तारीख.....श्री.....सुपुत्र श्री.....

गांव.....डाकघर.....तहसील.....जिला.....

हिमाचल प्रदेश ने हिमाचल प्रदेश गौण खनिज (रियायत) और खनिज (अवैध खनन्, उसके परिवहन और भण्डारण का निवारण) नियम, 2015 के नियम 29 के अधीन खसरा नम्बर.....मौजा.....

.....तहसील.....जिला.....कुल रकबा.....हैक्टेयर/बीघा से .....

मिट्रिक टन के उत्खनन और हटाने के लिए अनुज्ञा–पत्र के लिए आवेदन किया है, आवेदन फीस (रूपये.....

संदत कर दी है और अग्रिम में.....रूपए रॉयलेटी के रूप और.....रूपए प्रतिभूति के रूप में संदत्त कर दिए हैं। उपरोक्त खसरा नम्बर से ..... मिट्रिक टन के हटाने के लिए एतद्द्वारा अनुज्ञा नीचे दी गई शर्तों के अध्यधीन प्रदान की जाती है ।

1. श्री.....

उद्योग विभाग हिमाचल प्रदेश

के निदेशक या प्राधिकृत अधिकारी

शर्तें

1. अनुज्ञापत्र धारक, सरकार को किसी तृतीय पक्षकार के दावे के लिए क्षतिपूरित रखेगा/करेगा और ऐसे दावे को अपने स्तर पर इसके प्रोदभूत होने पर यथाशक्यशीघ्र सुलझाएगा।
2. अनुज्ञापत्र धारक, गौण खनिज का ऐसी रीति में उत्खनन करेगा ताकि इससे किसी सड़क, सार्वजनिक मार्गों, भवनों, सार्वजनिक मैदानों परिसर को विघ्न न हो या उन्हें कोई नुकसान न पहुँचें।
3. अनुज्ञा पत्र धारक, अनुज्ञापत्र के अवसान पर या तो उत्खनन की भराई करेगा या सुरक्षा के लिए बाड़ा लगाएगा जैसा निदेशक या सम्बद्ध खनन् अधिकारी द्वारा निर्देशित किया गया हो।

4. अनुज्ञापत्र धारक, भूमि, जहाँ से गौण खनिज निकाला जाएगा/खोदा जाएगा,के स्वामी को , भूमि अर्जन, पुनर्वासन और पुनर्व्यस्थापन में उचित प्रतिकर और पारदर्शिता अधिनियम 2013 (2013 का 30) के अधीन कलक्टर द्वारा नियत दर पर, अग्रिम में नुकसान के प्रतिकर का संदाय करेगा।
5. अनुज्ञापत्र धारक, वन क्षेत्रों के साथ–साथ अन्य क्षेत्र की बाबत, सक्षम प्राधिकारी से लिखित में पूर्व अनुज्ञा प्राप्त किए बिना कोई भी वृक्ष नहीं गिराएगा/काटेगा।
6. अनुज्ञापत्र धारक किसी प्राधिकरण द्वारा प्रतिषिद्व किसी क्षेत्र में ,सम्बद्व प्राधिकारी से लिखित में पूर्व अनुज्ञा प्राप्त किए बिना, सतही प्रचालन नहीं करेगा।
7. अनुज्ञापत्र धारक उपायुक्त और सम्बद्व खनन अधिकारी को सभी दुर्घटनाओं की तुरन्त रिर्पोट देगा।
8. नदी तल में खनन की गहराई एक मीटर या जल स्तर, जो भी कम हो, से अधिक नहीं होगी:
   परन्तु जहां नहरीकरण के लिए अपेक्षित कतिपय स्थलों में खनिजों के अत्यधिक जमाव या अधिक अम्बार के बारे में संयुक्त निरीक्षण समिति प्रमाणित करती है तो यह नदी के निश्चित स्थलों पर दो मीटर तक हो सकेगी।
9. अनुज्ञापत्र के अवसान पर या रद्दकरण के तत्काल पश्चात खान के किनारे पड़ी हुई सामग्री, जहां से वे निकाली गई है, पूर्णतया सरकार की सम्पति हो जाएगी।
10. व्यतिक्रम की दशा में उसके द्वारा जमा की गई प्रतिभूति सरकार को समपहृत हो जाएगी।
11. नदी/नाले के तल पर अभियान्त्रिक खनन केवल बिना बैकहो 80 हार्स पावर तक के टायर माउंटिड फ्रन्ट एण्ड लोडर की सहायता से सक्षम प्राधिकारी अर्थात निदेशक उद्योग की अनुज्ञा से किया जाएगा।
12. कोई अन्य शर्त जो अनुज्ञापत्र प्रदान करने वाले प्राधिकारी द्वारा अधिरोपित की जाए।

अनुज्ञापत्र.....तक विधिमान्य होगा।

प्ररूप–'ड'

{नियम 35 देखें}

खनन योजना के लिए प्ररूप

**प्रस्तावना**

**1. साधारण**

1.1 आवेदक का नाम और पता.....

आवेदक का नाम.....

आवेदक का पता.....

डाकघर.....

तहसील.....

जिला.....

पिन .....

दूरभाष.....

ईमेल.....

1.2 आवेदक की प्रास्थिति

(प्राईवेट वैथेष्टिक/प्राईवेट कम्पनी या कोई अन्य)

1.3 खनिज जिनका आवेदक खनन करना चाहता है:

1.4 अवधि जिसके लिए खनन पट्टा/संविदा प्रदान की गई है। आशय पत्र का संन्दर्भ (छाया प्रति संलग्न की जाए):

1.5 खनन योजना तैयार करने वाले रजिस्ट्रीकृत अर्हित व्यक्ति का नाम और पता (जिसे इसमें इसके

पश्चात आर.क्यू.पी. निर्दिष्ट किया गया है):

आर.क्यू.पी. का पता.....

नाम.....

गांव.....

डाकघर.....

तहसील.....

जिला.....

पिन.. .....

दूरभाष.....

ईमेल.....

आर.क्यू.पी. की रजिस्ट्रीकरण संख्या.....तक विधिमान्य।

1.6 पूर्वक्षेण अभिकरण का नाम और पता

नाम.....

गांव.....

डाकघर.....

तहसील.....

जिला.....

पिन.....

दूरभाष.....

ईमेल.....

**2. क्षेत्र की अवस्थिति और पहुँच (अवस्थिति नक्शा संलग्न किया जाए)**

2.1 टोपोशीट नम्बर

क्षेत्र का अक्षांश और रेखांश.....

क्षेत्र का अवस्थिति नक्शा.....

2.2 क्षेत्र की अवस्थिति का ब्यौरा

2.2 क. क्षेत्र का ब्यौरा, राजस्व अभिलेख निम्नलिखित आरूप में संलग्न किया जाए।

| क्रम संख्या | क्षेत्र का ब्यौरा | | | | | |
|---|---|---|---|---|---|---|
| | खसरा नम्बर | क्षेत्र | स्वामी | किस्म | मौजा | पंचायत |
| | | | | | | |

पते का ब्यौरा

गांव.....

पटवार वृत.....

डाकघर.....

तहसील.....

जिला.....

2.3 उपमण्डल कार्यालय (नागरिक).....

उपमण्डल कार्यालय (वन).....परिक्षेत्र कार्यालय.....

उपमण्डल कार्यालय सिंचाई एवं जनस्वास्थ्य.....

उपमण्डल कार्यालय लोक निर्माण विभाग.....

2.4 महत्वपूर्ण स्थानों से किलोमीटर में दूरी

1.

2.

3.

2.5 क्षेत्र तक पहुँच

3. **क्षेत्र की भौताकृतिक अवस्थिति**

3.1 साधारण :

3.2 ऊंचाई : खान क्षेत्र सम्मिलित करने के लिए नक्शे और परिरेखा सहित साधारण भूभाग का विवरण

3.3 क्षेत्र की जलवायु

3.4 क्षेत्र की वर्षा

3.5 कोई अन्य महत्वपूर्ण भौतिक विशेषता

3.6 खनन क्षेत्र का विवरण

**भाग– I**

**भू–आकृति विज्ञान और खान विकास का विवरण**

**क. नदी के तल खनन की दशा में:–**

(खनन योजना हिमाचल प्रदेश गौण खनिज (रियायत) और खनिज (अवैध खनन, उसके परिवहन और भण्डारण का निवारण) नियम, 2015 मेटलीफेरस मांईनिग रेगुलेशन, 1961 और समय–समय पर जारी अन्य मार्गदर्शक सिन्द्धातों के अनुसार ही तैयार की जाए)।

1. **नदी/नाला के तल जिस पर खान अवस्थित है, का विवरण**

   1.1 साधारण

   1.2 नदी/नालों का नाम जिस पर खान अवस्थित है

   1.3 जल–विकास प्रणाली

   1.4 जल–विकास का प्रभार

   1.5 नदी/नाले का उदगम

   1.6 उदगम पर ऊंचाई (ऐल्टिच्यूड)

   1.7 नदी के जलागम क्षेत्र की भूमिती जो तलछट की पुन : पूर्ति का समाघात करती है जलागम का कुल क्षेत्र।

   खनन स्थल तक जलागम का क्षेत्र।

उदगम से संगम तक नदी तल की रूपरेखा, खनन स्थल से नदी तल तक की रूपरेखा, खनन स्थल के नजदीक नदी तल के ढाल का कोण।

खनन स्थल पर कटाव का आवर्तन (आरम्भिक यूथफुल विकसित या पुरानी)

खनन के स्थान पर नदी की चौड़ाई :

1.8 नदी/नाले के तल पर वार्षिक जमाव

1.9 खनन स्थल पर नदी/नाले में भण्डारण की सक्षमता (अर्थात सबसे बड़े भाग का भार जिसका नाले द्वारा अभिवहन किया गया है)

(खान की सीमाओं, साथ लगता क्षेत्र, क्षेत्र/नजदीक के क्षेत्र में लोक उपयोगिता के स्थल (ग्राम पथ, सड़क, विद्यालय, आवासीय घर, अस्पताल, पशुशाला, पूर्त भवन, जलमार्ग, कब्रिस्तान/शमशान–भूमि, पूजा के स्थान आदि क्षेत्र में वन विभाग के कोई कार्यकलाप जैसे कि भूमि परिक्षण कार्य, नर्सरी रोपण चैक डैम, नालों/नदी को उपयोगी बनाना इत्यादि, सड़कों के प्रकार जैसे राष्ट्रीय उच्चमार्ग, राज्य उच्चमार्ग, सम्पर्क सड़क, ग्राम सड़क, कोई पुल, कोई जलापूर्ति स्कीम जैसे कि जलापूर्ति टैंक, जलापूर्ति कुँआ, सिचांई नहर, जलापूर्ति स्कीम, गैलरीज आदि, समीपवर्ती खान क्षेत्र की सीमा, यदि कोई है, भूक्षरण के लिए अतिसंवेदनशील क्षेत्र और कोई अन्य महत्वपूर्ण विशेषता को दर्शाने वाला नक्शा संलग्न किया जाए।

1.10 निम्नलिखित सहित खनन स्थल के नजदीक नदी का घुमावदार रूपः–

उच्चतर बाढ़ का स्तर

निम्नतर बाढ़ का स्तर

घुमाव में अति गहरे पानी का रास्ता(थ्रेड)

1.11 खनन क्षेत्र की ऊंचाई (उच्चतम और निम्नतम परिरेखा स्तर दें)

1.12 खनन क्षेत्र में मानसून से पहले और बाद का भूगर्भ जल सारणी का विविरण

(2) भूविज्ञान :

2.1 जलागम क्षेत्र का भूविज्ञान :

2.2 क्षेत्र का स्थानीय भूविज्ञान :

2.3 शिलाखण्डों, बजरी (कंकड़), बालू आदि की प्रकृति :

2.4 तट की चट्टानों की प्रकृति और उनकी स्थिति :

2.5 जलागम क्षेत्र के भूविज्ञान से सम्बन्धित बार्षिक जमाव का विवरण और अन्य कारक

3. **संरक्षित अनुमान :**

3.1 खनन क्षेत्र में पत्थर, बजरी (कंकड़) और बालू आदि का प्रतिशतता–बार वितरण (गड्ढे और खाई आदि की स्थिति को दर्शाते हुए मानचित्रण को समुचित परिमाप के साथ संलग्न किया जाए)

3.2 प्रत्येक खनिज अर्थात बालू, पत्थर और नदी से निकाली गई बजरी (कंकड़) का भूवैज्ञानिक संरक्षित अनुमान :

3.3 पटटा् क्षेत्र में बालू, पत्थर और नदी से निकाली गई बजरी (कंकड़) के खनन योग्य संरक्षित अनुमान।

3.4 नदी तल में बालू, पत्थर और नदी से निकाली गई बजरी (कंकड़) खनिज के अनुमानित वार्षिक जमाव : यह दर्शाने के लिए कि खनन पट्टा क्षेत्र में बालू और सम्बद्व खनिजों की वार्षिक पुनः पूर्ति पांच वर्ष की अवधि के लिए पुरोगामी खनन हेतु बनाई गई योजना के अनुसार उस सतह तक खनन प्रचालन जारी रखने के लिए प्रर्याप्त है।

4. **खान विकास और पुरोगामी खनन योजना :**

**कार्य प्रणाली का संक्षिप्त विवरण, खान का विकास, (हाथ से किया गया, अर्ध यान्त्रिक, यान्त्रिक)**

4.1 लापरवाही से किए गए उत्खनन, अधिक दोहन, अपशिष्ट का विखराव, यदि कोई हो, को रोकने के लिए पूर्वावधानी बरतने के साथ पहले पांच वर्ष की अवधि के लिए विकास और उत्पादन प्रोग्राम।

4.2 वर्षवार उत्पादन, खनिजों, खान अपशिष्ट और हटाई गई मिट्टी के विक्रय/उपयोग्य का चार्टस और ग्राफस के साथ ब्यौरा दें।(उत्खनन की वर्षवार योजनाएं संलग्न की जाएं)

4.3 खनिज का अंतिम उपयोग। केपटिव कशर और मुफ्त विक्रय के लिए सामग्री के उपयोग के वर्षवार ब्यौरे।

4.4 (क). औद्योगिक ईकाई और बाजार के लिए खनिजों के सडक परिवहन के ब्यौरे। सड़क अवसंरचना की पर्याप्तता के ब्यौरे दें।

**(ख) पहाड़ी ढंलान खनन की दशा में :–**

(खनन योजना हिमाचल प्रदेश गौण खनिज (रियायत) और खनिज (अवैध खनन, उसके परिवहन और भण्डारण का निवारण नियम, 2015 मेटलीफेरस मॉईनज रेगुलेशन, 1961 और समय–समय पर जारी मार्गदर्शक सिन्द्धातों के अनुसार तैयार की जाए)।

(1) **क्षेत्र का विवरण जिसमें खान अवस्थित है**

1.1 साधारण,

1.2 ढलान कोणः चोटियों एवं घाटियों के विवरण,

1.3 क्षेत्र में जल–निकास का रूख, यदि कोई है, और क्षेत्र के जल–निकास का विवरण (क्षेत्र में नदी/नाले के ब्यौर ) यदि कोई है,

1.4 क्षेत्र में भू–स्खलन की संभावना, यदि कोई है,

1.5 क्षेत्र में झरने, यदि कोई है,

1.6 कोई अन्य ब्यौरे

(खान की सीमाओं, साथ लगता क्षेत्र, क्षेत्र/नजदीक के क्षेत्र में लोक उपयोगिता के स्थल (ग्राम, पथ, सड़क, विद्यालय, आवासीय घर, अस्पताल, पशुशाला, पूर्त भवन, जलमार्ग, कब्रिस्तान/शमशान–भूमि, पूजा के स्थान आदि क्षेत्र में वन विभाग के कोई कार्यकलाप जैसे कि भूमि परिक्षण कार्य, नर्सरी रोपण चैक डैम, नालों/नदी को उपयोगी बनाना आदि सड़को के प्रकार जैसे राष्ट्रीय उच्चमार्ग, राज्य उच्चमार्ग, सम्पर्क सड़क, ग्राम संड़क, कोई पुल, कोई जलापूर्ति स्कीम जैसे कि जलापूर्ति टैंक, जलापूर्ति कुँआं, सिंचाई नहर, जलापूर्ति स्कीम, गैलरीज आदि, सीमावर्ती पट्टा क्षेत्र की सीमा, यदि कोई है, भूक्षरण के लिए अतिसंवेदनशील क्षेत्र और कोई अन्य महत्वपूर्ण विशेषता, को दर्शाने वाला नक्शा संलग्न किया जाए।

2. **भूविज्ञान :**

2.1 क्षेत्र का क्षेत्रीय भूविज्ञान

2.2 क्षेत्र का स्थानीय भूविज्ञान

2.3 खनन क्षेत्र में किए जाने वाले भावी कार्य के ब्यौरे।

2.4 चट्टानों की प्रकृति और उनकी स्थिति।

चट्टान की विशेषता और स्थिति का विवरण

**(चट्टान की ढाल, प्रकृति, मिश्रित प्रकार, कठोरता, निश्चित घनत्व आदि)(गड्ढे और खाई आदि की स्थिति को दर्शाते हुए समुचित मानचित्रण परिमाप के साथ क्षेत्र का भूविज्ञानिक नक्शा संलग्न है)**

3. **संरक्षितः**

3.1 प्रमाणित, समाव्य और संभव श्रेणी और विश्लेषनात्मक रिपोर्टो द्वारा समर्थित प्रमाणन की मानक पद्वति द्वारा संरक्षित खनन योग्य ग्रेड सहित प्रत्येक खनिज के भू–वैज्ञानिकीय संरक्षण के अनुमान।

3.2 खनन के लिए बाध्यकारी विचारण (सार्वजनिक सड़के, साथ लगती प्राईवेट भूमि,वन, भू–स्खलन ग्रस्त क्षेत्र, विद्युत खम्बे या लोक उपयोगिता के अन्य स्थल) और उनकी सुरक्षा के लिए प्रस्तावित पूर्वविधानियां।

3.3 खनन क्षेत्र का अनुमानित खनन योग्य जमाव।

3.4 खनन की प्रत्यात्मक स्कीम और खान का आयुष्य।

4. **खान विकास और पुरोगामी खनन की योजनाः**

**खान प्रकिया के लिए हाथ से किया गया कार्यप्रणाली का संक्षिप्त विवरण (अर्ध–यान्त्रिक, यान्त्रिक और/या यदि विस्फोटन किया जाना है)**

4.1 समस्त पैरामीटर/प्रतिफलों सहित विकास की पद्वति जमाव की कार्य प्रणाली विद्यमान/प्रस्तावित का संक्षिप्त विवरण दें।

4.2 अव्यवस्थित उत्खनन, खनिज का अत्याधिक दोहन, फिसलने वाले अपशिष्ट पत्थरों के विखराव, यदि कोई है, को रोकने के लिए अपनाई जाने वाली पूर्वविधानी सहित प्रथम पांच वर्ष के लिए विकास और उत्पादन प्रोग्राम।

4.3 वर्षवार उत्पादन , अतिविदोहन वाली खान, चालू खान, विकय खनिज/परित्यक्त खनिज/अपशिष्ट खनिज का ब्यौरा चार्टस और ग्राफस सहित दिया जाए (उत्खनन की वर्षवार योजनाएं संलग्न की जाए)

4.4 जब खान पूर्णतया विकसित है तो उत्पादन की प्रस्तावित दर प्रदर्शित करें और इसके चालू होने के पश्चात खान का प्रत्यायित आयुष्य।

4.5 पुरोगामी खनन के पांच वर्ष के पश्चात खान क्षेत्र में उपलब्ध अतिशेष सामग्री और खान बन्द करने का अनूमानित वर्ष।

4.6 कार्य–पद्वति की मुख्य विशिष्टतांए संक्षिप्तया वर्णित की जाएं (हाथ से किया गया, अर्ध–यान्त्रिक, यान्त्रिक और विस्फोटकों के प्रयोग द्वारा)

4.7 यन्त्रीकरण का विस्तार : प्रयोग की जाने वाली मशीनरी/उपस्कर के प्रकार का ब्यौरे सहित विवरण दें।

4.8 विस्फोट करना: व्यापक पैरामीटर जैसे प्रति छिद्र चार्ज, विस्फोटन पद्वति, प्रति विलम्ब चार्ज, रीति और आग लगाने का कम, उपयोग किए जाने वाले विस्फोटक का प्रकार, विस्फोटकों के लिए भण्डारण की क्षमता, मैगजीन आदि के प्रकरण का विवरण दें।

4.9 खनन निकासी : जल सारणी की संभाव्य गहराई, जल सारणी के ऊपर/नीचे किए जाने वाला कार्य, क्षेत्र में सतही जल की निकासी, भूगर्भ/सतही जल नालियों की व्यवस्था।

4.10 अपशिष्ट प्रबन्धन : ऊपरी सतही मिट्टी की प्रकृति और मात्रा, खनिज का अत्याधिक दोहन, क्षेपण स्थलों के ब्यौरे सहित पांच वर्ष की योजनाबद्व अवधि के दौरान संभाव्य उत्पादित होने वाले खान अपशिष्ट/परित्यक्त खनिज के संक्षिप्ततयां दर्शाएं।

4.11 खनिजों के अंतिम उपयोग का वर्णन: केपटिव उपयोग, अन्तर्मध्यथी/उपभोक्ताओं आदि को मुफ्त विक्रय।

4.12 औद्योगिक ईकाई और बाजार को खनिजों के सड़क परिवहन घनत्व के ब्यौरे। सड़क अवसंरचना के पर्याप्तता के ब्यौरे दें।

**(ग) ईंट की मिट्टी के खनन की दशा में :–**

**(1) भू–विज्ञान**

1.1 क्षेत्र का स्थानीय भू–विज्ञान :

**(गड्ढे/खाई आदि की स्थिति को दर्शाते हुए मानचित्रण के समुचित परिमाप सहित क्षेत्र का भू–विज्ञानिक नक्शा संलग्न किया जाए।)**

(2) **संरक्षित :**

2.1 भू–वैज्ञानिक संरक्षण के प्रत्येक खनिज का प्रमाणित और संमाव्य प्रभावित किए जाने वाले ग्रेड सहित अनुमान।

2.2 खनन क्षेत्र के खनन योग्य जमाव का अनुमान।

2.3 खनन की प्रत्ययात्मक स्कीम और खान का आयुष्य।

(3) **खान का विकास और पुरोगामी खनन की योजना**

**खान के विकास की कार्य प्रणाली की पद्धति का संक्षिप्त विविरण।**

3.1 वर्षवार उत्पादन, विक्रय/उपयोग योग्य खनिजों के ब्यौरे सहित चालू खान योजना, खान अपशिष्ट और सतही भूमि को हटाया जाना चार्टो और ग्राफ सहित दिया जाए।

3.2 खनिज का अंतिम उपयोग

3.3 पुरोगामी खनन में उपलब्ध अतिशेष सामग्री और खान को बन्द करने का अनुमानित वर्ष।

(4) **अपशिष्ट निपटान योजनाः**

पंच वर्ष में उत्पादित होने वाले अपशिष्ट के ब्यौरे और इसके निपटान की पद्धति।

(5) **खान बन्द करना और परावर्तन योजना :**

प्रस्तावित पौधरोपण योजना और अन्य निराकरण के उपाय दर्शाते हुए वर्षवार परावर्तन योजना का वर्णन करें।

(6) **मानवशक्ति विकासः**

औसत दैनिक नियोजन (कुशल, अर्धकुशल और अकुशल ) बताएं।

**भाग–2**

**पर्यावरण प्रबन्धन**

**(1) बेस लाईन डाटा (भूमि उपयोग का विवरण और क्षेत्र की सामाजिक अवस्थिति)**

1.1 जनसंख्या व्याप्ति का ब्यौरा

1.2 गांवों/जनसंख्या की सामाजिक–आर्थिकी

1.3 पांच किलोमीटर परिधि नक्शे सहित भूमि उपयोग का ब्यौरा

1.4 कृषि

1.5 उद्यान

1.6 पशुपालन

1.7 मत्स्यपालन

1.8 क्षेत्र की वनस्पति और जीवजन्तु

1.9 जलवायु

(2) **पर्यावरण प्रबन्धन योजना** :

क्षेत्र के पर्यावरण पर खनन के सम्भाव्य प्रभाव का वर्णन दें और इसके न्यूनीकरण के लिए उठाए जाने वाले पग

2.1 वायु पर प्रभाव

2.2 जल पर प्रभाव (सतह के साथ–साथ भूगर्भ जल पर)

2.3 ध्वनि स्तर पर प्रभाव

2.4 अपशिष्ट निपटान प्रबन्धन, यदि कोई है,

2.5 सामाजिक आर्थिक प्रसुविधाएं।

2.6 निकाली गई सामग्री का अभिवहन (उपभोग करने वाले केन्द्र/केन्द्रों के लिए खनिजों की ढुलाई के लिए नियोजित किए जाने वाले परिवहन के साधन का ब्यौरा दें और विद्यमान सड़क/रेलवे प्रणाली पर इसके प्रभाव)

**भाग–3**

**पुरोगामी खान बन्द करने की योजना/पुनरावर्तन योजना**

(1) पांच वर्ष के दौरान परित्यक्त और खाली खदानों/गड्ढों द्वारा प्रभावित भूमि का वर्षवार पुनरावर्तन और उसका पुनर्व्यस्थापन, पुनरावर्तन की अनुमानित लागत सहित सुंसंगत नक्शे पर चिन्हित किए गए प्रस्तावित पिछली सतह में भराई और पौधरोपण कार्यक्रम का ब्यौरा देते हुए संक्षिप्ततया वर्णन किया जाए।

1.1 खान अपशिष्ट निपटान:

(क) खान अपशिष्ट और मिट्टी आवरण की वर्षवार उत्पति।

(ख) अपशिष्ट और मिट्टी आवरण का वर्षवार निपटान ।

(ग) खान अपशिष्ट निपटान स्कीम की लागत।

1.2 अपशिष्ट निपटान की मात्रा, जिसकी पांच वर्ष में उत्पादित होने की संभावना है, सहित नक्शे पर अवस्थिति दर्शाते हुए, ऊपरी सतह उपयोग, यदि कोई हो, के लिए की जाने वाली व्यवस्था का संक्षिप्त विवरण दिया जाए।

1.3 निवारक चैक डैम (जहां कहीं आवश्यक है )

(क) निर्मित किए जाने वाले चैक डैमों का वर्षवार ब्यौरा।

(ख) चैक डैमों के सन्निर्माण की वर्षवार लागत।

1.4 पौधरोपण कार्य (अवस्थिति नक्शे सहित विवरण दे)

(क) पौधरोपण के अन्तर्गत आने वाला वर्षवार क्षेत्र।

(ख) रोपित किए जाने वाले पौधों की वर्षवार संख्या (प्रजातियों का नाम दें)

(ग) पौधारोपण कार्य की वर्षवार लागत।

(घ) वर्षवार पौधों की जीवित शेष दर।

(2) **लोक उपयोगिता आदि के स्थल के संरक्षण के लिए योजना (यदि कोई हो)**

खनन और इसके आसपास के क्षेत्रों में लोक उपयोगिता के स्थलों जैसे ग्राम पथ, संड़क, विद्यालय, आवासीय घर, अस्पताल,पशुशाला, पूर्त भवन, जलमार्ग, कब्रिस्तान/शमशान–भूमि पूजा के स्थान सहित क्षेत्र में वन विभाग के कोई कार्यकलाप जैसे कि भूमि परिरक्षण कार्य, नर्सरी रोपण चैक डैम/दिवारों, नालों/नदी को उपयोगी बनाना आदि सड़को के प्रकार जैसे राष्ट्रीय उच्चमार्ग, राज्य उच्चमार्ग, सम्पर्क सड़क, ग्राम सड़क, कोई पुल, कोई जलापूर्ति स्कीम जैसे कि जलापूर्ति टैंक, जलापूर्ति कुआँ (बोर बैल) सिंचाई नहर, जलापूर्ति स्कीम गैलरी आदि, समीपवर्ती पटटा क्षेत्र की सीमा, यदि कोई है, भूक्षरण के लिए अति संवेदनशील क्षेत्र और कोई अन्य महत्वपूर्ण विशेषता जो सुसंगत नक्शे पर दर्शित की जाएगी, में लोक उपयोगिता के स्थान के संरक्षण के लिए संक्षिप्ततः वर्णन करें।

(3) **मानवशक्ति विकास** :

औसत दैनिक नियोजन का ब्यौरा दें। ((कुशल, अर्धकुशल और अकुशल )

(4) **खनिज का उपयोग** :

खनिज के उपयोग का विवरण दें और अनुप्रवाह उद्योग।

(5) **कोई अन्य सुसंगत सूचना**

## भाग–4

## प्रमाण पत्र

प्रमाणित किया जाता है कि खसरा नंबर_____कुल रकबा_____ हैक्टेयर/बीघा, मौजा_____ तहसील_____ जिला_____ में आने वाली खान (खनिज का नाम) मैसर्ज_____के लिए खनन योजना को तैयार करने के लिए, हिमाचल प्रदेश गौण खनिज (रियायत) और खनिज (अवैध खनन, उसके परिवहन और भण्डारण का निवारण) नियम, 2015 मेटलीफेरस माइनज रेगुलेशन, 1961 के उपबन्धों और इस बाबत समय–समय पर जारी किए गए अन्य निर्देशों का पालन किया गया है ।

पुरोगामी खान बंद करने की योजना सहित खनन योजना को तैयार करते समय राज्य या केन्द्रीय सरकार के सक्षम प्राधिकरणों द्वारा बनाए गए समस्त कानूनी नियमों, विनियमों, आदेशों और न्यायालयों द्वारा पारित आदेशों पर विचार कर लिया गया है ।

इस खनन योजना में उपलब्ध करवाई गई सूचना और प्रस्तुत किया गया डाटा मेरी जानकारी के अनुसार सही है ।

तारीख:
स्थान:

एच.पी.आर.क्यू.पी. के हस्ताक्षर
रजिस्ट्रीकरण संख्या

एच.पी.आर.क्यू.पी. का पता

## घोषणा

यह घोषणा की जाती है कि खसरा नम्बर_____ कुल रकबा_____ हैक्टेयर/बीघा/कनाल/मौजा_____ तहसील_____ जिला_____ हिमाचल प्रदेश में अवस्थित खान (खनिज/खनिजों के नाम) के लिए पुरोगामी खान बन्द करने की योजना सहित खनन योजना मेरी सहमति और अनुमोदन से तैयार कर ली गई है और मैं/हम तद्धीन समस्त वचनबद्धता का पालन करूँगा/करेंगे ।

खनन योजना और पुरोगामी खान बन्द करने की योजना राज्य या केन्द्रीय सरकार के सक्षम प्राधिकरणों द्वारा बनाए गए समस्त कानूनी नियमों, विनियमों, आदेशों और न्यायालायों द्वारा पारित आदेशों पर विचार कर लिया गया है और जहाँ कहीं भी विशेष अनुज्ञा अपेक्षित है, प्राप्त कर ली जाएगी ।

हम समयबद्ध रीति में इस खनन योजना और पुरोगामी खान बन्द करने की योजना में प्रस्तावित समस्त उपायों को कार्यान्वित करने के लिए वचनबद्ध हैं ।

हमने_____ रूपए की राशि उसकी वित्तीय प्रत्याभूति के रूप में सावधि जमा प्राप्ति के रूप में राज्य सरकार के सक्षम प्राधिकारी के पास जमा कर दी है ।

मेरी/हमारी ओर से किसी व्यतिक्रम की दशा में खनन योजना के लिए अनुमोदन प्रत्याहृत किया जा सकेगा और उपरोक्त प्रत्याभूति राशि समपहृत की जा सकेगी ।

तारीख:

स्थान:

आवेदक के हस्ताक्षर

नाम और पता ।

**प्ररूप –'ढ'**

**(नियम 63 देखें)**

# भू –राजस्व के बकायों का प्रमाण पत्र

हिमाचल प्रदेश गौण खनिज (रियायत) और खनिज (अवैध खनन, उसके परिवहन और भण्डारण का निवारण) नियम, 2015 के नियम 63 द्वारा प्रदत्त शक्तियों का प्रयोग करते हुए, मैं _____ एतद्द्वारा प्रमाणित करता हूँ कि _____ रूपए की राशि श्री/मैसर्ज _____ निवासी _____ से गौण खनिज नामतः _____से पट्टा या संविदा या अनुज्ञप्ति पत्र या अन्य देय राशि की बाबत निम्नलिखित के लेखे भू–राजस्व के बकाया के रूप में वसूलीय हैं ।

(i) स्वामित्व/भाटक विलेख

(ii) सतही भाटक

(iii) संविदा धन

(iv) कोई अन्य देय राशि

कुल

स्थानः

तारीखः

जारी करने वाले प्राधिकारी के पदनाम सहित हस्ताक्षर

**प्ररूप –'ण'**

**(नियम 68(2) देखें)**

| | | | |
|---|---|---|---|
| स्टोन क्रैशर स्थल के संयुक्त निरीक्षण के लिए आवेदन | | | |
| सेवा में,<br>राज्य भू–विज्ञानी,<br>हिमाचल प्रदेश,<br>शिमला–171001 | | | |
| 1. | आवेदक का नाम | | |
| 2. | आवेदक/फर्म का नाम | पिन कोड _____ | |
| 3. | फर्म के रजिस्ट्रीकरण का स्थान | | |
| 4. | आवेदक की नागरिकता | | |
| 5. | दूरभाष नम्बर | कार्यालय | आवास |
| 6. | जमा की गई फीस की विशिष्टियां | | 2500/– रूपए |
| | | ट्रेजरी चालान/प्राप्ति (टी.आर. –5) नम्बर | नम्बर _____<br>तारीख _____ |
| | | जमा करने का स्थान .....हिमाचल प्रदेश | |
| 7. | क्रश किए जाने वाले गौण खनिज का नाम | | |
| 8. | क्षेत्र का ब्यौरा जहाँ पर क्रैशर प्रतिस्ठापित किया जाता है | खसरा नम्बर | |
| | | स्वामित्व | |
| | | किस्म | |
| | | क्षेत्र | |
| | | मौजा | |
| | | ग्राम पंचायत | |
| | | तहसील एवं जिला | |
| 9. | यदि पट्टे के लिए आवेदन किया है तो आवेदित किए गए क्षेत्र की विशिष्टियाँ | स्वामित्व | |
| | | किस्म | |
| | | क्षेत्र | |
| | | मौजा | |
| | | ग्राम पंचायत | |
| | | तहसील एवं जिला | |
| | | आवेदन की तारीख | |
| | | पट्टे से क्रैशर स्थल की दूरी | |

| | | |
|---|---|---|
| 10. | अन्य स्त्रोत की दशा में उसका ब्यौरा | |
| 11. | कोई अन्य सूचना जिसे आवेदक देना चाहता है | |
| | तारीख | |
| | | हस्ताक्षर |

**प्ररूप –'त'**

**(नियम 68(4) देखें)**

**अंनतिम रजिस्ट्रीकरण**

**उद्योग विभाग**

**राज्य भू–विज्ञानी कार्यालय**

**शिमला–1**

_____ क्रैशर (प्रतिष्ठापित किए जाने वाले) के स्वामी श्री/मैसर्ज _____ ने खसरा नम्बर _____ मौजा _____ कुल रकवा _____ ग्राम _____ पंचायत _____ डाकघर _____ तहसील _____ जिला _____ में स्टोन क्रैशर को प्रतिष्ठापित करने के लिए आवेदन किया है । श्री/मैसर्ज _____ को निम्नलिखित शर्तों के अध्यधीन अंनतिम रजिस्ट्रीकरण एतद्द्वारा प्रदान किया जाता है:–

1. हिमाचल प्रदेश राज्य प्रदूषण नियंत्रण बोर्ड (एच.पी.एस.पी.सी.बी.) से स्थापित करने की सहमति स्टोन क्रैशर इकाई को प्रतिष्ठापित करने से पूर्व प्राप्त करनी होगी ।
2. आवेदक हिमाचल प्रदेश राज्य प्रदूषण नियंत्रण बोर्ड से सी.ओ.पी.(कसेंट टू ऑपरेट) और उद्योग विभाग के भू–वैज्ञानिक खण्ड से अंनतिम रजिस्ट्रीकरण प्राप्त करने के पश्चात् ही अपनी स्टोन क्रैशर इकाई को प्रचालित करेगा ।
3. अनुमोदित खनन योजना में अवधारित खनिज सम्भावयता के आधार पर स्टोन क्रैशर स्वामी क्रैशर मशीनरी तद्नुसार स्थापित करेगा ।

जारी करने की तारीख _____

राज्य भू–विज्ञानी
हिमाचल प्रदेश ।

**प्ररूप –'थ'**

**(नियम 69(1) देखें)**

## स्टोन क्रैशर के स्थायी रजिस्ट्रीकरण को प्रदान करने/नवीकरण करने के लिए आवेदन

सेवा में,

राज्य भू–विज्ञानी
हिमाचल प्रदेश,
शिमला–171001

| | | | |
|---|---|---|---|
| 1. | आवेदक का नाम | | |
| 2. | आवेदक/फर्म का नाम | पिन कोड _____ | |
| 3. | फर्म के रजिस्ट्रीकरण का स्थान | | |
| 4. | आवेदक की नागरिकता | | |
| 5. | दूरभाष नम्बर | कार्यालय | आवास |
| 6. | जमा की गई फीस की विशिष्टियां | | 2500/– रूपए |
| | | ट्रेजरी चालान/प्राप्ति (टी.आर. –5) नम्बर | नम्बर _____<br>तारीख _____ |
| | | ज्मा करने का स्थान _____हिमाचल प्रदेश | |
| 7. | क्रश किए जाने वाले खनिज का नाम | | |
| 8. | क्षेत्र का ब्यौरा जहाँ पर स्टोन क्रैशर प्रतिष्ठापित किया जाता है | खसरा नम्बर | |
| | | स्वामित्व | |
| | | किस्म | |
| | | क्षेत्र | |
| | | मौजा | |
| | | ग्राम पंचायत | |
| | | तहसील | |
| | | जिला | |
| | | प्रतिष्ठापन की तारीख | |
| 9. | प्रतिष्ठापित की गई मशीनरी का ब्यौरा अर्थात् मशीन का पंजा/रोलर,मशीन का पंजा/रोलर आदि के समुच्चय और संयोजन | | |
| 10. | भूमि, भवन और मशीनरी पर कुल निवेश | | |
| 11. | नियोजित किए जाने वाले कर्मकारों की कुल संख्या | कुशल _____<br>अर्धकुशल _____ | |
| 12. | स्टोन क्रैशर में खनिजों का लगभग वार्षिक | | |

| | | | |
|---|---|---|---|
| | उत्पादन | | |
| 13. | खनिज का स्रोत<br>(क) खनन पट्टा<br>(ख) अन्य स्रोत | | |
| (क) | पट्टे की विशिष्टियां | खसरा नम्बर | |
| | | स्वामित्व | |
| | | किस्म | |
| | | क्षेत्र | |
| | | मौजा | |
| (ख) | अन्य स्रोत का ब्यौरा | | |
| 14. | स्टोन क्रैशर पर प्राथमिक उपचार प्रसुविधा का ब्यौरा | | |
| 15. | जल (प्रदूषण निवारण तथा नियंत्रण) अधिनियम, 1974, वायु (प्रदूषण निवारण तथा नियंत्रण) अधिनियम, 1981 और पर्यावरण (संरक्षण) अधिनियम, 1986 और तद्धीन बनाए गए या जारी की गई अधिसूचना के अनुपालन को सुनिश्चित करने के लिए उठाए जाने वाले कदमों का ब्यौरा | | |
| 16. | जल आपूर्ति का स्रोत | | |
| 17. | सहमतियों का ब्यौरा | स्थापित करने की सहमति की तारीख | |
| | | प्रचालित करने की सहमति की तारीख | |
| | | सहमति नवीकरण की तारीख | |
| 18. | कोई अन्य सूचना, जिसे आवेदक देना चाहता है | | |

तारीख

आवेदक के हस्ताक्षर

**प्ररूप –'द'**

**(नियम 69(1) देखें)**

स्थायी रजिस्ट्रीकरण

उद्योग विभाग

राज्य भू–विज्ञानी कार्यालय,

शिमला–171001

श्री/मैसर्ज _____ क्रैशर के स्वामी ने अपने आवेदन तारीख _____ द्वारा खसरा नम्बर _____ मौजा _____ कुल रकबा _____ ग्राम पंचायत _____ डाकघर _____ तहसील _____ जिला _____ में प्रतिष्ठापित स्टोन क्रशर के स्थायी रजिस्ट्रीकरण के लिए आवेदन किया है ।

श्री/मैसर्ज का निम्नलिखित शर्तों के अध्यधीन एतद्द्वारा स्थायी रजिस्ट्रीकरण किया जाता है:–

1. स्टोन क्रैशर का स्वामी,
   - i) वायु (प्रदूषण निवारण तथा नियंत्रण) अधिनियम, 1981 और तद्धीन बनाए गए नियम;
   - ii) जल (प्रदूषण निवारण तथा नियंत्रण) अधिनियम, 1974, और तद्धीन बनाए गए नियम;
   - iii) पर्यावरण (संरक्षण) अधिनियम, 1986 और तद्धीन बनाए गए नियम;
   - iv) ध्वनि प्रदूषण (विनियमन और नियंत्रण) नियम, 2000;

   के उपबन्धों का पालन करेगा
2. स्टोन क्रैशर का विस्तार तब तक अनुज्ञात नहीं होगा जब तक कि भू–विज्ञानी खण्ड, उद्योग विभाग, हिमाचल प्रदेश द्वारा अनुमोदित न कर दिया गया हो ।
3. स्टोन क्रैशर के स्वामी को यह सुनिश्चित करना होगा कि उत्सर्जन के मानक, सरकार की अधिसूचना संख्या एस टी ई –ई (3) –17/2012 तारीख 29.05.2014 द्वारा यथा अधिसूचित या समय–समय पर संशोधित परिनियमों के अनुसार उनका अनुसरण किया गया है और
4. स्टोन क्रैशर का स्वामी सरकार की अधिसूचना संख्या एस टी ई –ई (3) –17/2012 तारीख 29.05.2014 या समय–समय पर यथा संशोधित परिनियमों के अनुसार प्रदूषण नियंत्रण उपायों को अंगीकार करेगा ।
5. स्टोन क्रैशर का स्वामी सम्बध खनन अधिकारी को प्रत्येक मास के 10वें दिन तक पिसे हुए खनिजों की कुल मात्रा, उपयोग की गई विद्युत केपटिव पावर जेनिरेटिड रन क्रैशर की दशा में उत्पादित की गई ऊर्जा, डिज़ल चलाने वाले क्रैशर की दशा में ईंधन उपयोग, नियोजित किए गए श्रमिकों की संख्या, संदेय की गई मज़दूरी आदि के ब्यौरे देते हुए विवरणी प्रस्तुत करेगा
6. भू–विज्ञानी खण्ड, उद्योग विभाग हिमाचल प्रदेश के अधिकारियों/कर्मचारियों को संयंत्र एवं मशीनरी, कच्ची सामग्री के स्रोत/आपूर्ति, कच्ची सामग्री और परिष्कृत माल के विक्रय अभिलेख और स्टॉक के सत्यापन के लिए अबाध पहुँच देनी होगी ।
7. स्टोन क्रैशर का स्वामी किसी दुर्घटना जो पिसाई, प्रचालन (क्रशिंग ऑपरेशन) के दौरान घटित हुई हो जिसके परिणामस्वरूप गम्भीर शारीरिक क्षति पहुँची हो, के बारे में सम्बन्ध जिला के उपायुक्त और खनन अधिकारी को तुरन्त रिपोर्ट करेगा ।
8. स्टोन क्रैशर का स्वामी पिसाई करने वाली इकाई में नियोजित कर्मकारों को न्यूनतम मज़दूरी अधिनियम, 1948 के अधीन केन्द्रीय या राज्य सरकार द्वारा समय–समय पर विहित न्यूनतम मज़दूरी से कम संदाय नहीं करेगा ।
9. स्टोन क्रैशर का स्वामी तृतीय पक्षकार के दावे के विरूद्ध राज्य सरकार को क्षतिपूर्ति करेगा ।
10. स्टोन क्रैशर का स्वामी प्रारूप–थ में रजिष्ट्रीकरण के अवसान से कम से कम तीन मास पूर्व नवीकरण के लिए आवेदन करेगा ।

रजिष्ट्रीकरण _____ तक विधिमान्य है ।

जारी करने की तारीख

राज्य भू–विज्ञानी

हिमाचल प्रदेश ।

**प्ररूप –'ध'**

**(नियम 74(1) एवं 76(3) देखें)**

## ब्यौहारी के रूप में रजिस्ट्रीकरण के लिए आवेदन

1. आवेदक का नाम _____
   (फर्म की दशा में भागीदारों और
   फर्म की ओर से कार्य
   करने के लिए मुख्तारनामा धरण करने
   वाले व्यक्तियों के नाम और पता दें)

   फोटोग्राफ
2. पिता का नाम _____
3. व्यवसाय _____

   पत्राचार के लिए पताः _____ पिन _____ मोबाइल नम्बर _____स्थायी पता _____पिन _____फोन (दूरभाष) _____
4. कारबार का स्थान _____
5. विनिर्दिष्ट प्रयोजन जिसके रजिष्ट्रीकरण के लिए आवेदन किया है (प्रसंस्करण/छंटाई/विक्रय/व्यापार) करने कि लिए _____
6. खनिज/कच्ची धातु का नाम जिसके लिए रजिष्ट्रीकरण अपेक्षित है _____
7. आवेदन फीस और संदाय प्राप्ति का ब्यौरा _____
8. अवधि जिसके लिए रजिष्ट्रीकरण अपेक्षित है _____
9. नवीकरण की दशा में मूल रजिष्ट्रीकरण की संख्या एवं तारीख _____
10. आवेदक के पक्ष में रजिष्ट्रीकरण प्रदान करने के लिए कोई विशेष आधार _____

**घोषणा:**

मैं/हम एतद्द्वारा घोषणा करता हूँ/करते हैं कि मैंने/हमने हिमाचल प्रदेश गौण खनिज (रियायत) और खनिज (अवैध खनन, उसके परिवहन और भण्डारण का निवारण) नियम, 2015 के समस्त उपबन्धों और तद्धीन बनाए गई रजिष्ट्रीकरण की शर्तों को पढ़ लिया है और उन्हें समझ लिया है/समझ गए हैं और मैं/हम उसका/उनका पालन करने के लिए सहमत हूँ/हैं ।

आवेदन की तारीखः

स्थानः

आवेदक के हस्ताक्षर

911

**प्ररूप –'न'**

**(नियम 74(3) देखें)**

ब्यौहारी के रूप में रजिस्ट्रीकरण करने के लिए आवेदन की अभिस्वीकृति

श्री/श्रीमति _____निवासी _____डाकघर _____तहसील _____ जिला _____हिमाचल प्रदेश से _____(खनिज/कच्ची धातु का नाम) के प्रसंस्करण/छंटाई/विक्रय/व्यापार करने के लिए रजिस्ट्रीकरण प्रदान करने के लिए आवेदन निम्नलिखित संलग्नकों के साथ प्राप्त किया है:–

(1)
(2)
(3)
(4)
(5)
(6)

खनन अधिकारी के कार्यालय
के पदधारी के हस्ताक्षर

तारीख: _____

**प्ररूप –'प'**

**(नियम 76(1) देखें)**

## ब्यौहारी के लिए आवेदनों का रजिस्टर

| क्रम संख्या | आवेदन की प्राप्ति की तारीख | आवेदक का नाम | आवेदक का पता | खनिज/ कच्ची धातु का नाम | प्रसंस्करण/छँटाई/विक्रय/व्यापार करने का स्थान | रजिस्ट्रीकरण के प्रदान करने/इनकार करने की तारीख | अपील की तारीख, यदि कोई हो | अपील के निपटान की तारीख | अपील पर संक्षिप्त आदेश | रजिस्ट्रीकरण के अवसान की तारीख, यदि प्रदान की गई है | प्रदान करने/नवी करण करने की अवधि | टिप्पणियां |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) | (13) |
| | | | | | | | | | | | | |

## प्ररूप –'फ'

**(नियम 76(2) देखें)**

1. ब्यौहारी का नाम (पूरे अक्षरों में _____
   (फर्म की दशा में भागीदारों और
   फर्म की ओर से कार्य करने के लिए
   मुख्तारनामा धारण करने
   वाले व्यक्तियों के नाम एवं पता)
2. पिता का नाम _____
3. पता_____ पिन _____ मोबाइल नम्बर _____
4. ब्यौहारी का व्यवसाय _____
5. विनिर्दिष्ट स्थान या कारबार का स्थान_____
6. विनिर्दिष्ट प्रयोजन जिसके लिए रजिस्ट्रीकरण प्रदान किया गया है_____
7. रजिस्ट्रीकरण के अन्तर्गत आने वाले खनिज/कच्ची धातु का नाम _____
8. आवेदन फीस के संदाय को दर्शाने वाला चालान नम्बर _____
9. निक्षेप प्रतिभूति की विशिष्टियाँ _____
10. रजिस्ट्रीकरण की अवधि _____
11. यदि ये नवीकरण का मामला है तो मूल रजिस्ट्रीकरण को प्रदान करने की संख्या और तारीख _____
12. रजिस्ट्रीकरण के लिए आवेदन की संख्या और तारीख_____
13. रजिस्ट्रीकरण_____तक विधिमान्य है ।

फोटोग्राफ

जारी करने की तारीख_____

खनन अधिकारी के
हस्ताक्षर और मोहर

**उद्योग विभाग**

**(भूवैज्ञानिक खण्ड)**

**हिमाचल प्रदेश**

**प्ररूप– 'ब'**

**तीन प्रतियों में पारगमन (ट्रैंजिट) पास**

**{नियम 77(iii) एवं 79(2) देखें}**

जारी करने की तारीख _____ जारी करने वाले प्राधिकारी की मोहर एवं हस्ताक्षर

1. संविदाकार/पट्टेदार/अनुज्ञापत्र/अनुज्ञा धारक का नाम:_____
2. खान का नाम और अवस्थिति:_____
3. स्थान जहाँ खनिज भेजा जा रहा है:_____
4. व्यक्ति/पक्षकार का नाम जिसे खनिज प्रेषित किया जा रहा है:_____
5. खनिज का नाम:_____
6. खनिज की मात्रा/परिमाण:_____
7. परिवहन का साधन _____ यान संख्या:_____
8. यान के स्वामी का नाम:_____
9. चालक का नाम:_____
10. उत्पादन रजिस्टर की पृष्ठ संख्या जिस पर पारगमन पास (प्ररूप–'ब') दर्ज किया गया है:_____
11. प्रेषण की तारीख:_____
12. प्रेषण का समय: _____

चालक के हस्ताक्षर

खनन स्वामी/प्रबन्धक के हस्ताक्षर

निबन्धन और शर्तें:

1. प्ररूप–'ब' के समस्त स्तम्भ, विशेषतया क्रम संख्या 11 और 12 जो खनन स्थल से प्ररूप–'ब' के जारी करने की तारीख और समय से सम्बन्धित हैं, समुचित रूप से भरे जाने चाहिएं।
2. प्ररूप–'ब' केवल एक फेरे के लिए ही विधिमान्य है ।
3. प्ररूप–'ब' केवल तभी विधिमान्य है यदि इस पर जारी करने वाले प्राधिकारी की मोहर और हस्ताक्षर है।
4. कोई व्यक्ति जो उपरोक्त का उल्लंघन करता हुआ पाया जाता है तो वह दोषसिद्धि पर, या तो कारावास की ऐसी अवधि के लिए, जो दो वर्ष तक की हो सकेगी या जुर्माने से जो 25000/– रूपए तक का हो सकेगा, या दोनों से दण्डनीय होगा ।
5. खनन और खनिज (विकास और विनियमन) अधिनियम, 1957 के नियम 21(4) के अधीन किसी भी प्रकार का यान प्ररूप–'ब' के बिना सामग्री को वहन करने/परिवहन करने में सन्निहित है तो उसे जब्त किया जाएगा और ऐसा यान परिबद्ध किया जाएगा और सामग्री की नीलामी कर दी जाएगी ।

**प्ररूप– 'भ'**

**{नियम 77(iii) एवं 79(2) देखें)}**

**उद्योग विभाग**

**(भूवैज्ञानिक खण्ड)**

**हिमाचल प्रदेश**

**(तीन प्रतियों में)**

**अनुपूरक पारगमन/ट्रैंजिट पास**

क्रम संख्या.....

जारी करने वाले प्राधिकारी की
मोहर एवं हस्ताक्षर

जारी करने की तारीख

अवसान की तारीख

1. संविदाकार/पट्टेदार/अनुज्ञापत्र/अनुज्ञा धारक का नाम:_____
2. स्टोन क्रशर/स्टॉक यार्ड का नाम और अवस्थिति:_____
3. परिवहन किए जाने वाले परिष्कृत उत्पाद के नाम और उसकी मात्रा:_____
4. स्थान जहां खनिज के परिष्कृत उत्पाद को भेजा जा रहा है:_____
5. परिवहन का साधन _____ यान संख्या:_____
6. यान के स्वामी का नाम और पता:_____
7. चालक का नाम और पता:_____
8. परिष्कृत उत्पाद का भार/मात्रा: _____
9. प्रेषण रजिस्टर की पृष्ठ संख्या जिस पर अनुपूरक पारगमन पास (प्ररूप–'भ') दर्ज किया गया है:_____
10. प्रेषण की तारीख और समय:_____

चालक के हस्ताक्षर

स्टोन क्रशर स्वामी/
प्रबन्धक के हस्ताक्षर

निबन्धन और शर्तें:

1. अनुपूरक पारगमन पास प्ररूप–'भ' के समस्त स्तम्भ, विशेषतया क्रम संख्या 8 जो स्टोन क्रशर स्थल से अनुपूरक पारगमन पास प्ररूप–'भ' के जारी करने की तारीख और समय से सम्बन्धित हैं, समुचित रूप से भरे जाने चाहिए।
2. यह अनुपूरक पारगमन पास प्रारूप–'भ' केवल एक फेरे के लिए ही विधिमान्य है ।
3. यह अनुपूरक पारगमन प्ररूप–'भ' केवल तभी विधिमान्य होगा यदि इस पर जारी करने वाले प्राधिकारी की मोहर और हस्ताक्षर है।
4. कोई व्यक्ति जो उपरोक्त का उल्लंघन करता हुआ पाया जाता है तो वह दोषसिद्धि पर, या तो कारावास की ऐसी अवधि के लिए, जो दो वर्ष तक की हो सकेगी या जुर्माने से जो 25000/– रूपए तक का हो सकेगा, या दोनों से दण्डनीय होगा ।
5. खनन और खनिज (विकास और विनियमन) अधिनियम, 1957 के नियम 21(4) के अधीन किसी भी प्रकार का यान अनुपूरक पारगमन पास प्ररूप–'भ' के बिना सामग्री को वहन करने/परिवहन करने में सन्निहित है तो उसे जब्त किया जाएगा और ऐसा यान परिबद्ध किया जाएगा और सामग्री नीलाम कर दी जाएगी ।

**प्ररूप– 'म'**

**{नियम 77(iv) देखें)}**

ब्यौहारी द्वारा क्रय किए गए और विक्रय किए गए खनिज/कच्ची धातु की मासिक विवरणी

1. ब्यौहारी का नाम एवं पता: _____
2. ब्यौहारी की रजिस्ट्रीकरण संख्या: _____
3. अथ शेष स्टॉक (खनिज–वार): _____

1. _____एम टी
2. _____एम टी
3. _____एम टी

| क्रम संख्या | व्यक्ति/फर्म का नाम और पता जिससे खनिज क्रय किया गया है | क्रय किए गए खनिज की कुल मात्रा | पारगमन पासों की संख्या | खनिज/कच्ची धातु का नाम |
|---|---|---|---|---|
| | | | | |

4. मास में कुल क्रय (खनिज वार)

1. _____एम टी
2. _____एम टी
3. _____एम टी

5. मास में कुल विक्रय (खनिज वार)

1. _____एम टी
2. _____एम टी
3. _____एम टी

इतिशेष स्टॉक/अथ शेष स्टॉक + कुल क्रय – कुल विक्रय (खनिज वार)

1. _____एम टी
2. _____एम टी
3. _____एम टी

**प्रारूप– 'य'**

**{नियम 80(5) देखें)}**

## जब्त किये गए खनिज/कच्ची धातु की सूची

1. सम्पत्ति को जब्त करने वाले अधिकारी का नाम: _____
2. अधिकारी का पदनाम और पता: _____
3. जब्त की गई सम्पत्ति के ब्यौरे: _____

   (क) तारीख और समय सहित जब्त करने का स्थान: _____

   (ख) प्रत्येक सम्पत्ति का विवदण: _____
4. नियम, जिसके अधीन सम्पत्ति जब्त की गई है : _____
5. व्यक्ति का नाम और पता जिससे सम्पत्ति जब्त की गई है : _____
6. जब्त की गई सम्पत्ति के लिए किसी अन्य दावेदार का नाम और पता: _____
7. व्यक्ति, जिसकी अभिरक्षा में जब्त की सम्पत्ति रखी गई है का नाम और पता: _____
8. अभिरक्षक के हस्ताक्षर: _____
9. जब्त की गई सम्पत्ति का अनुमानित मूल्य: _____
10. टिप्पणियां: _____
11. साक्षियों के नाम और पता उनके हस्ताक्षरों सहित:

    (i) _____

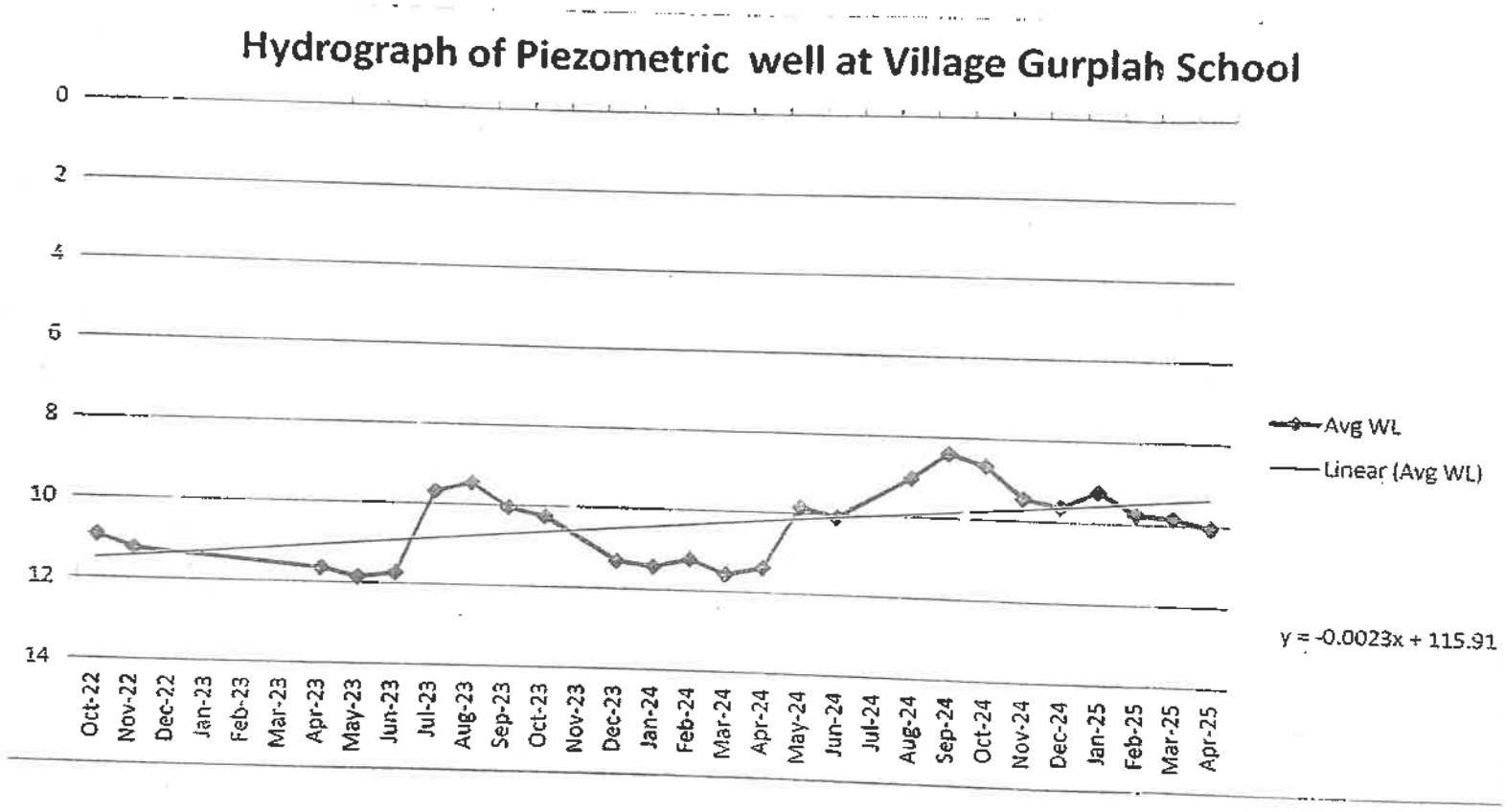
    (ii) _____

तारीख

सम्पत्ति को जब्त करने वाले अधिकारी के
पदनाम बारे पते सहित हस्ताक्षर

आदेश द्वारा
प्रधान सचिव (उद्योग)
हिमाचल प्रदेश सरकार

Annexure-V

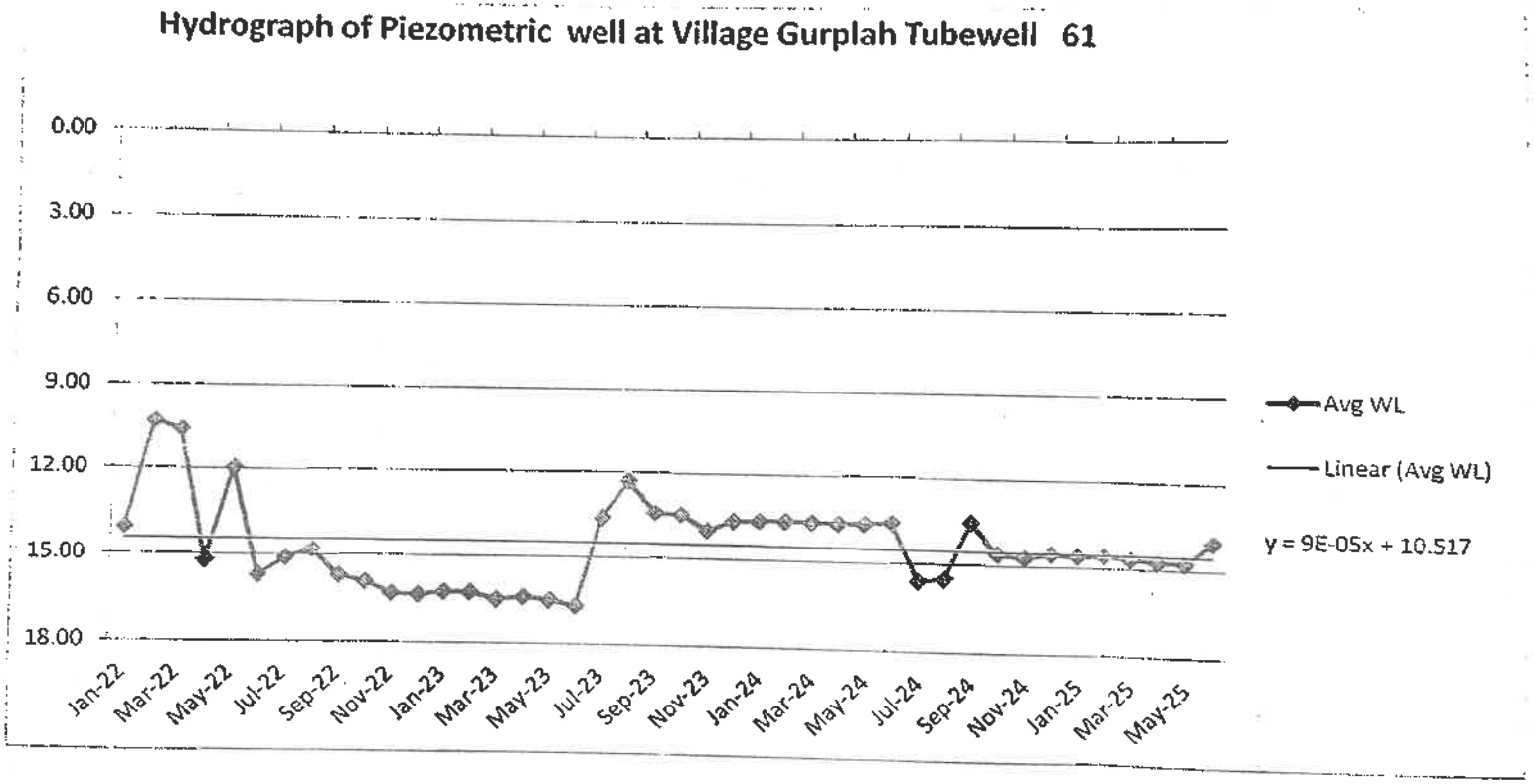



Senior Hydrogeologist
Ground Water Organisation
Jal Shakti Vibag Unit (H.P.)-17430.

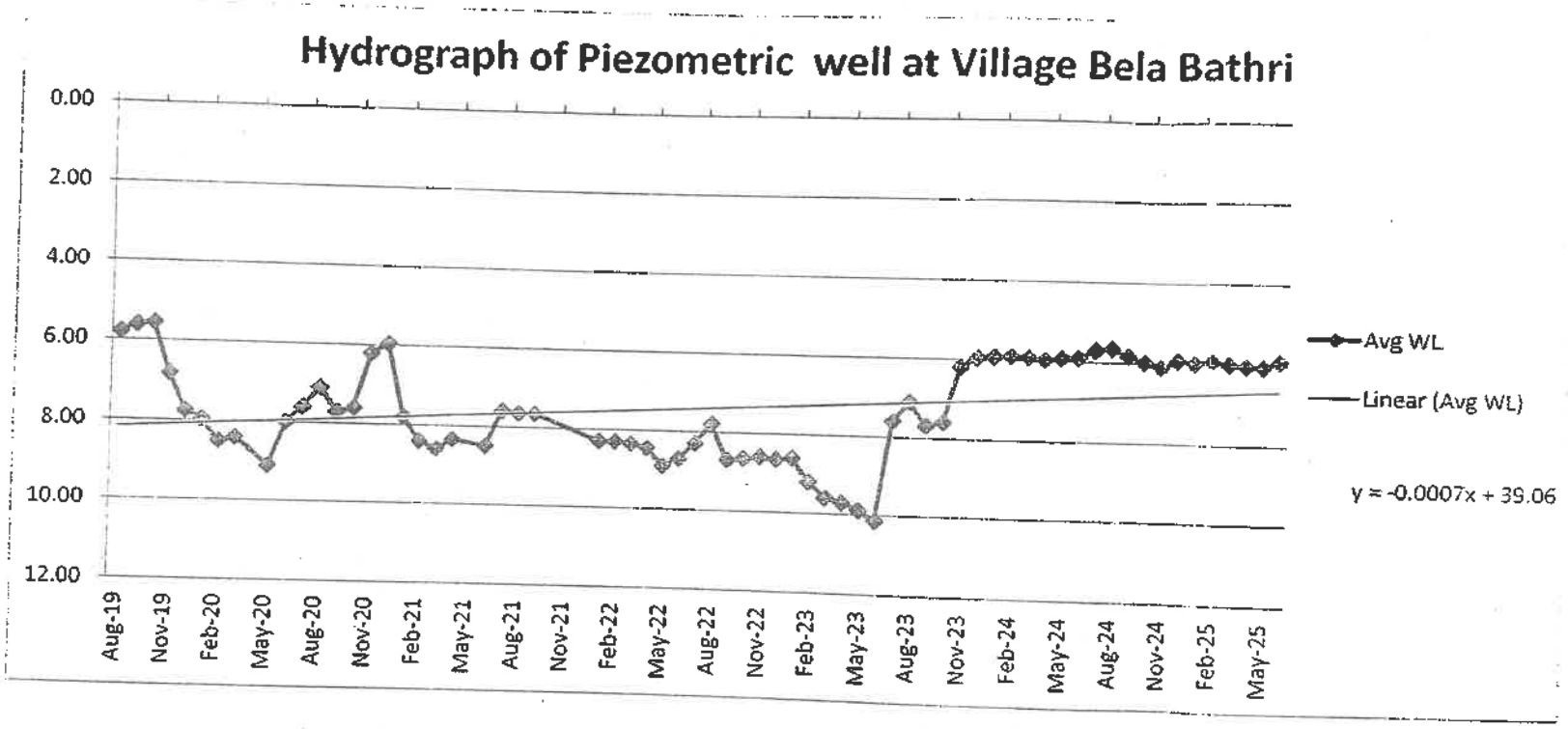
918

Annexure R2/1229

Annexure- VI


Hydrograph of Piezometric well at Village Gurplah Tubewell 61
0.00
3.00
6.00
9.00
12.00
15.00
18.00
Jan-22
Mar-22
May-22
Jul-22
Sep-22
Nov-22
Jan-23
Mar-23
May-23
Jul-23
Sep-23
Nov-23
Jan-24
Mar-24
May-24
Jul-24
Sep-24
Nov-24
Jan-25
Mar-25
May-25
Avg WL
Linear (Avg WL)
y = 9E-05x + 10.517

Annexure-VII




Senior Hydrogeologist
Ground Water Organisation
Jal Shakti Vibhag Una (H.P.)-174303

921

Annexure R-22

No.: Udyog (Bhu)-Laghu-UNA- – 2269.
Office of the Mining Officer, Una
Distt. Una(H.P.)

Una Dated: 22.07.2025

To

The Deputy Commissioner,
Una ,District Una (H.P)

Subject: (OA)Original Application No 148/2025 titled as Rohit Vs Ministry of Environment Forest and climate change & Ors .

Reference: 366-374/DRO/DRA dated 07.07.2025 & 466-472 DRO/DRA dated 19.07.2025

Sir

In compliance to the directions contained in letter No 366-374/DRO/DRA dated 07.07.2025 regarding (OA)Original Application No 148/2025 titled as Rohit Vs Ministry of Environment Forest and climate change & Ors. It is submitted that the "contents of the para 5 of OA are wrong and hence denied as the same are hypothetical in nature, no information of depletion of water table due to mining activities is ever reported by respective department, Moreover as per the Rule 10 of The Himachal Pradesh Minor Minerals (Concession) and Minerals (Prevention of Illegal Mining, Transportation and Storage) Rules, 2015 IPH departments is one of the member in joint inspection Committee and after carefully study of the schemes and water regime ,the NOC is issued by the department. In Haroli subdivision, the Government of Himachal Pradesh has granted 45 mineral concessions for collection /extraction of stone, sand and Bajri for use in 30 stone crusher units. All the mineral concessions are granted in accordance with the provisions contained in The Himachal Pradesh Minor Minerals (Concession) and Minerals (Prevention of Illegal Mining, Transportation and Storage) Rules, 2015 like obtaining NOC from Local Gram Panchayat, Joint inspection by subdivisional level Committee, preparation of mining plan, environmental clearance, consent from pollution control board etc."

This is for your information & consideration, please.

DRO/DRA
23.07.25 – 2440648
23/07/25

Yours faithfully,

(Neeta) Kaul
Mining Officer, Una
Mobile No +91-9816519502
e.mail: miningofficeruna@gmail.com

405
24/7/25

**Annexure R-23**

# Certificate from the Department of Forest (Government of Himachal Pradesh)

No. 6086
H.P. Forest Department

Dated Una, the 21/9/2020

From: - Divisional Forest Officer,
Una Forest Division Una (HP)

To: - The General Manager,
District Industry Centre,
Una, HP.

Subject:- Certificate stating the distance of proposed Bulk Drug Park to the nearest Eco-sensitive Zone.

Sir,

Please refer to your office letter No. IDU/U/Dev/BDP/- dated 21.09.2020 & in-continuation to this office letter No. 6021 dated 17.09.2020 and 6063 dated 18.09.2020.

2. In this connection it is submitted that the nearest eco-sensitive Zone to the proposed Bulk Drug Park going to be set up in village Mulluwal, Polian Beet, Tibbian, Jodian & Kuthar Beet, Tehsil Haroli, Distt. Una (HP) is Pong Dam Wild Life Sanctuary and Dhauladhar Wild Life Sanctuary. The road distance of the said Eco-sensitive Zones from the proposed Bulk Drug Park is approximately 80 KM & 140 KM respectively. This is for further necessary action please.

Divisional Forest Officer,
Una Forest Division Una (HP)

1234

923 Annexure R 24

OFFICE OF THE CHIEF MEDICAL OFFICER, UNA DISTRICT.UNA HP

No.HFW-Una (Court Case)/2025- 9251 Dated, 01-08-2025

To

The Deputy Commissioner,
Una Distt. Una Himachal Pradesh,

Subject: - OA No.148/2025 titled as Rohit Vs Ministry of Environment Forest and Climate Change & Ors.

Sir,

Kindly refer to your office letter No. 366-374/DRO/DRA, dated 07-07-2025, on the subject cited above.

It is submitted that Point No. 08 pertains to this department and concerns the adequacy of Health Facilities in Una district currently has a well-structured and adequately functioning public health system that is capable of managing both routine and emergency healthcare needs.

The **District Hospital Una** is a 200-bedded facility equipped with emergency services, diagnostic facilities, and specialist support. In addition, a 100-bedded **Maternal and Child Health Care Centre** is fully operational, while a 50-bedded **Critical Care Block** is under construction at the District Hospital Una to further enhance healthcare delivery and emergency response capabilities.

Civil Hospitals located at **Haroli, Amb, Gagret, Bangana,** and **Shri Chintpurni,** along with **10 Community Health Centres (CHCs)** and **24 Primary Health Centres (PHCs),** are providing essential healthcare services, including deliveries, basic emergency care, and referral stabilization.

**Health and Wellness Centres (HWCs)** across the district are delivering **comprehensive primary healthcare** under the **Ayushman Arogya Mandir initiative.** Cases that require advanced super-specialty care are referred to tertiary care centres such as **PGIMER Chandigarh** or **AIIMS Bilaspur,** following standard protocols adopted across the state.

**Comparisons with other industrial areas, such as Baddi-Barotiwala, are not contextually relevant,** as healthcare preparedness in Una district is aligned with its current and projected healthcare needs.

The **PGI Satellite Centre** being established in Una is under the administrative control of **PGIMER Chandigarh,** an autonomous institution. Therefore, the district health department is not in a position to comment on its patient-handling capacity. The district remains committed to **continually strengthening its healthcare infrastructure and services** to effectively meet both current and future demands.

Yours faithfully,

DDC/DRA 04/08/25 Spoke.

20441354 04/08/25

Chief Medical Officer,
Una, District Una HP

493 05/08/25

## 10.1 Introduction

Himachal Pradesh's abundant water resources provide a strong foundation for the development of hydroelectric power, contributing to the state's energy needs and economic growth. The state has several hydroelectric power projects that harness the energy of its rivers and contribute significantly to the region's power supply. Himachal Pradesh has a large number of hydroelectric resources, about 25 per cent of the national potential 24,000 Megawatt (MW) hydroelectric power can be generated in the state by construction of various hydroelectric projects on the five perennial river basins. Out of the total hydroelectric potential of the State, 11,290 MW has been harnessed so far. This chapter offers a comprehensive overview of the power and energy sector in Himachal Pradesh.

Table 10.1 below depicts the status of consumption of Energy by the various categories of consumers in the state:

Table 10.1

**Consumption of Electricity in Million Units (MUs)**

| Sr. No. | Type of Consumer | 2023-24 | 2024-25 (Up to Dec., 2024) |
|---|---|---|---|
| 1. | Domestic | 2724.49 (24.02) | 2129.76 (23.95) |
| 2. | Non-Domestic Non Commercial | 186.00 (1.64) | 132.61 (1.49) |
| 3. | Commercial | 737.67 (6.50) | 559.11 (6.29) |
| 4. | Industrial | 6616.48 (58.32) | 5203.85 (58.53) |
| 5. | Public Lighting | 12.97 (0.11) | 9.21(0.10) |
| 6. | Agricultural | 79.40 (0.70) | 75.44 (0.85) |
| 7. | Bulk and Misc. | 192.83 (1.70) | 123.37 (1.39) |
| 8. | Government Irrigation and water supply scheme | 738.93 (6.51) | 612.05 (6.88) |
| 9. | Temporary Supply | 54.66 (0.48) | 44.01 (0.49) |
| 10. | Electric Vehicle | 1.27 (0.01) | 1.94 (0.02) |
| | **Total Consumed** | **11345 (100.00)** | **8891.34 (100.00)** |

Figures in parentheses are per cent to total consumed.
**Source:** Himachal Pradesh State Electricity Board.

Table 10.1 indicates that industries are the largest consumers of electricity in the state, closely followed by domestic consumers. This distribution of electricity consumption suggests that electric power plays a significant role in the overall development of industrial sector.

## 10.2 Directorate of Energy (DoE)

The Directorate of Energy, Government of Himachal Pradesh (GoHP) oversees the management and optimization of the state's energy resources and is the nodal

925

Annexure R26

HIMACHAL PRADESH STATE ELECTRICITY BOARD LIMITED
(A State Govt. Undertaking)

Registered Office: Vidyut Bhawan, HPSEBL, Shimla-171004 (H.P.)
Number (CIN): U40109HP2009SGC031255
GST No.: HPSEBL 02 AACCH4894EHZB
Telephone Number:
Website address: www.hpseb.com
Email: xendbaroli@hpseb.in

No.:264/CB/Court Case/2025-26- 2033-34 Dated: - 21.07.2025

To,

The Deputy Commissioner,
Una, District Una (H.P.).

**Subject:-** OA No. 148/2025 titled as Rohit Vs. Ministry of Environment Forest and Climate Change & ors.

**Reference:-** **Your office Letter no 366-374/DRO/DRA dated 07.07.2025.**

**R/Sir,**

"Jai Hind!"

With reference to the above-mentioned case, please find below our detailed response to Paragraph 9 of the application:

DRO/DRA 29/7/25 Supply 2-org 1053 29.07.25

1. At present the load requirement of Una district and its neighbouring areas is around 200 MVA (approx.) which is being fed from 220/132 KV SubStation Nehrian having four downstream substations at Amb, Gagret, Una (Rakkar) and Tahliwal (Gurplah) at 132 KV Voltage levels. To satisfy the future power requirements of Una District and the Bulk Drug Park (BDP) project, it is proposed to construct a new 220/132 kV, 2 × 100 MVA Sub-Station at Pekhubela with Double Circuit Input from 220 KV Bus-bar at Nehrian. Contrary to the applicant's statement, the new 220 kV line will originate from Nehrian as the primary source of supply, not BBMB. This addition of a high-capacity sub-station closer to Una town and its surrounding areas is proposed to enhance voltage stability and may reduce transmission losses due to shorter line distances.

2. Presently, Una town and nearby villages receive electricity via the 132/66/33/11 kV sub-station at Rakkar, which relies on just two incoming lines: 132 kV from Amb and 66 kV from Golthai. The proposed 220/132 KV Pekhubela sub-station will provide an additional incoming source for Rakkar, significantly boosting power supply reliability across the district. Moreover, after strenuous efforts by Govt. of H.P., permission has been accorded to tap the existing Bhakra-Jamalpur 220 KV Line and draw power of around 50 MVA, for which a 220/132 KV 100 MVA Capacity Power Bank is being set up at Tahliwal (Gurplah) by HPPTCL. Thus total addition of Power infrastructure capacity in Una District will be around 250 MVA (approx.).

3. To meet the Bulk Drug Park's anticipated long-term load of 100–120 MVA, which is proposed to be set up in multiple developmental phases, it has been proposed to install five 33/11 kV substations (each 2 × 10 MVA) alongside the 132/33/11 kV sub-station (3 × 50 MVA) within the BDP premises. These facilities will be energized via the new upstream 220/132 KV Sub-Station proposed at Pekhubela. Even for the initial constructional load demand of BDP, existing Electrical infrastructure has been augmented to a higher capacity such as Augmentation of 2x6.3 MVA 33/11 KV Sub-Station Gondpur Bulla to 2x10 MVA capacity has already been

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done. One no new 132/33 KV 25/31.5 MVA Power Transformer is also being set up at 132/33/11 KV Sub-Station Tahliwal (Gurpiah).

4. In summary, the proposed load requirement of Bulk Drug Park will be around 100-120 MVA, whereas additional proposed capacity enhancement of Electrical Infrastructure is around 200-250 MVA. The balance capacity available (around 120-130 MVA) shall be used to meet up the power requirement of additional settlements of Commercial/Residential nature across the district. The establishment of one 132/33/11 kV sub-station along with five 33/11 kV substations in the BDP area and the augmentation of existing Electrical Infrastructure (in progress), as above, will fully accommodate additional demand without compromising the current or future power needs of Una District.

We trust this clarification addresses the matter satisfactorily.

**Sr. Executive Engineer,**
**Electrical Division,**
**HPSEBL, Haroli.**

Copy of the above is forwarded to The Superintending Engineer (OP) Circle HPSEBL, Una (H.P.) for information please.

**Sr. Executive Engineer,**
**Electrical Division,**
**HPSEBL, Haroli.**

**No: Ind/U/Dev/BDP/-** 1751
**Office of the Joint Director (Industries),**
**District Industries Centre, Una, H.P.**
**Dated: Una, the** 28/8/2025

**To**

**The Director of Industries,**
**Himachal Pradesh,**
**Shimla-171002.**

**Subject:** **Submission of Joint Inspection Report.**

**Sir,**

Kindly find enclosed herewith Joint inspection Report of the joint inspection conducted on **28-08-2025** at the notified Bulk Drug Park site located at Village Polian Beet, Malluwal, Tibbiyan, Jodiyan, Kuthar Beet, Janani, Tehsil Haroli, District Una H.P, for kind perusal and necessary action please.

**Encl:** Joint Inspection Report

**Yours faithfully,**

**Joint Director (Industries)**
**District Industries Centre,**
**Una, District Una H.P.**

# Joint Inspection Report

In reference to O.A No. 148 of 2025 titled Rohit Singh V/s Ministry of Environment, Forest and Climate Change & Ors, a joint inspection of the notified Bulk Drug Park site at Village Polian Beet, Malluwal, Tibbiyan, Jodiyan, Kuthar Beet, Janani, Tehsil Haroli, District Una H.P site was conducted on 28-08-2025 .

During the inspection, it was found that photographs of the built-up structures shown in Annexure A/4 at page no. 186,187 (Village Polian), page no. 189 (Village Dharmpur) and page no. 190 (Village Dulehar ) are not situated within the Bulk Drug Park site for which EC is awaited.Besides this, It was also found that no development work or construction activity has been started by any department within the notified Bulk Drug Park site as the final approval of Environment Clearance is awaited from Ministry of Environment, Forest and Climate Change.

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|---|---|---|---|
| SE, Jal Shakti Vibhag, Una District Una H.P | Assistant Engineer, HPSIDC, Mehatpur District Una H.P | RO,HPPCB Una, District Una, H.P. | Joint Director Industries, Distirct Industries Centre, Una H.P |