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| Initial Environmental Examination |

Project Number: 49108-002

September 2020

India: Himachal Pradesh Skill Development Project

Sub-project– Industrial Training Institute at Chhattari, Seraj Tehsil, Mandi District

Prepared by the Government of Himachal Pradesh for the Asian Development Bank

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# ABBREVIATIONS

ADB - Asian Development Bank

ASI - Archaeological Survey of India

CPCB - Central Pollution Control Board

CLC - City Livelihood Centre

CPR - Common property resources

DOLE - Department of Labor and Employment

DOTE - Department of Technical Education

DTE - Directorate of Technical Education, Vocational and Industrial Training

DOP - Department of Planning

DOT - Department of Tourism

EA - Executive Agency

DOUD - Department of Urban Development

EIA - Environmental Impact Assessment

EMP - Environmental Management Plan

FSI - Forest Survey of India

GOHP - Government of Himachal Pradesh

GOI - Government of India

HPSDP - Himachal Pradesh Skill Development Project

IEE - Initial Environmental Examination

IA - Implementing Agency

ITI - Industrial Training Institute

IUCN - International Union for Conservation of Nature

MOEFCC - Ministry of Environment, Forests and Climate Change

MCC - Model Career Center

NP - National Park

OM - Operations Manual

PA - Protected area

PD - Project director

PIU - Project Implementation Unit

PMC - Project Management Consultant

PMU - Project Management Unit

PUC - Pollution under Control

PWD - Public Works Department

RLC - Rural Livelihood Centre

REA - Rapid Environmental Assessment

SEIAA - State Environment Impact Assessment Authority

SLEC - State-level Empowered Committee

SPCB - State Pollution Control Board

SPM - Suspended Particulate Matter

SPS - Safeguard Policy Statement 2009

UNESCO - United Nations Educational Scientific and Cultural Organization

WLS - Wildlife Sanctuary

**CURRENCY EQUIVALENTS**

(As of 3 September 2020)

|  |  |  |
| --- | --- | --- |
|  |  |  |
| Currency unit | − | Indian rupee (₹) |
| Re1.00 | = | $0.01363 |  |  |
| $1.00 | = | ₹73.360 |  |  |

**WEIGHTS AND MEASURES**

|  |  |  |
| --- | --- | --- |
| μg | – | microgram |
| dB(A) | – | weighted decibel |
| km | – | kilometer |
| km2 | – | square kilometer |
| m | – | meter |
| m2 | – | square meter |

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# EXECUTIVE SUMMARY

1. At the request of the Government of India and the Government of Himachal Pradesh (GOHP), ADB will offer $80 million in loan assistance to modernize and reform Himachal Pradesh’s technical and vocational education and training (TVET) programs, and scale up training capacity. The Department of Technical Education (DOTE), GOHP, will be the executing agency for the proposed Himachal Pradesh Skill Development Project (HPSDP). The Himachal Pradesh Kaushal Vikas Nigam (HPKVN), the Directorate of Technical Education, Vocational & Industrial Training (DTE), Department of Higher Education (DOHE), and the Public Works Department (PWD) will be the implementing agencies. HPKVN will also operate as the project management unit (PMU) for HPSDP. For the civil works component, it will be assisted by PWD officials who are well aware of the state and India’s building codes and environmental regulations.
2. The impact of HPSDP will be a more productive work force in Himachal Pradesh equipped with market-relevant technical and vocational skills created, in alignment with the Himachal Pradesh Skill Development Policy (Him Kaushal), 2016. The outcome will be improved employment and livelihood development opportunities for those trained under the project. This will be achieved through the following outputs:

* Output 1: TVET in Himachal Pradesh modernized, expanded, and aligned to national standards
* Output 2: Market-aligned skills ecosystem created
* Output 3: Access to quality training institutes improved.
* Output 4. TVET institutional structure reformed and improved.

1. Output 3 of the Project will involve construction of new training facilities and upgrading of some existing buildings to improve the access of TVET programs across Himachal Pradesh[[1]](#footnote-1). The new facilities include construction of 6 city livelihood centers (CLCs), 7 rural livelihood centers (RLCs), and 1 Polytechnic for women. Nine employment exchanges will be upgraded into model career centers (MCCs). The project has also included constructing one new Industrial Training Institute (ITI) at Chhattari. The MCCs will have 3 to 4 floors on average and occupy around 400 m2 each. Similarly CLCs/RLCs will have an average built up area of around 700 m2. The planned ITI at Chhattari has a built up area of 4192.33 m2. **The Department of Urban Development (DOUD), Department of Rural Development (DORD), and the Department of Labor and Employment(DOLE) will help HPKVN in running livelihood development and counseling programs at the proposed CLCs, RLCs, and MCCs respectively.**
2. GOHP has assured ADB that the proposed new infrastructure will be built, either within premises owned by the government, or on vacant and unencumbered land owned by the government. No new land will be acquired, nor will anyone be displaced in anticipation of ADB funding. Sites located within or near environmentally-sensitive areas and tribal areas of Himachal Pradesh will not be considered. No project related activity will have any adverse impact on indigenous peoples or impede their cultural and human rights. Hence, from a safeguards perspective, the Project is categorized as 'B' for environment, 'C' for involuntary resettlement, and 'C' for indigenous peoples.
3. The ITI planned at Chhattari will have a total built up area of 4192.33 m2. The ITI site is on unencumbered GOHP owned land. The ITI will impart technical skills in Himachali youth which will be NCVT compliance and will help in getting jobs in India and abroad. The ITI will be a four-storey building Basement to third floor. On the basement there will be only canteen. On the ground floor, there will be Dispensary, Computer Laboratory, Electrician Workshop, Stores for Engineering and Non Engineering Trades and Ladies’ and Gent’s toilet. On the first floor there will be Administration Hall, Theory Room, Solar Technician Room, Staff and Principal Rooms, Wiremen Workshop, Drawing Hall and Ladies and Gents Toilets. On the second floor, there will be Theory Rooms, Library and Reading Room, Placement and Counseling Room and Record Room. On the third floor, there will be examination hall. The Sanitation facilities have been planned on all floors. In ITI building a septic tank will be provided for 300 users. Solar panels will be installed on the roof with potential to generate10 kW.

1. The architectural expression of the ITI building is in harmony with the local style of Himachal Pradesh - suitable for cool weather, with a long rainy season. The building aims to evoke a true guiding, learning and facilitation centre for Himachali youth in getting employment. The ITI building will be a barrier-free building. There will be ramps and specially designed toilets to make it easy for people with disabilities. The ITI building will have adequate number of modern sanitation and drinking water facilities. Concrete gutters at the end of steel sheeting roofs will direct the rain water to underground rain water harvesting tanks. The clean rainwater runoff can be re used for horticultural purposes and for flushing in the toilets.
2. The cost for ITI has been estimated about INR 50.0 millions. Any waste generated on account of operation and maintenance of solar PV Cell will be taken up by the supplier, who will also be maintaining the PV cell, for possible recycle and reuse.

1. The enclosed **Initial Environmental Examination (IEE)** report provides details about the ITI site, the potential environmental impacts of the civil works, and suggests ways of mitigating and addressing these[[2]](#footnote-2). Since ITI site is close to village Chhattari habitation area, therefore, there is no existence of any protected, reserved or revenue forest areas nearby. The ITI site is on a plain terrain. There are no protected areas (national parks, bird sanctuaries, tiger reserves, etc.), wetlands, mangroves, or estuaries in or near the sub-project location. The site is in a hilly state, so, there are no ambient air quality and noise level issues.
2. Since the ITI will be a small building (built-up area around 4200 m2) for conducting technical skill training programs and placement facilitation, therefore, construction of ITI building and its operations are unlikely to cause any significant impacts. These routine and localized effects associated with construction and operation of the new building can be mitigated easily by following the measures laid down in the **Environment Management Plan (EMP)** included in the IEE. The EMP will be included in civil work bidding and contract document. **The IEE confirms that ITI building construction and functioning as environment category “B”.** No further special study or detailed environmental impact assessment (EIA) needs to be undertaken to comply with ADB SPS, 2009 or Government of India EIA Notification, 2006.
3. HPKVN and PWD will be responsible for overall planning and implementation of the civil works. They will ensure that the ESMF is followed during project implementation. The Project Management Consulting (PMC) firm has an experienced Environment specialist. The EMP implementation will be monitored by the Environment specialist of PMC.

# INTRODUCTION

## Background

1. **Location.** One Industrial Training Institute (ITI) is planned at village and Panchayat Chhattari in Seraj Tehsil in Mandi district. This has also been termed as ITI Chhattari in HPSDP project. The latitude and longitude of the proposed ITI are given below:

|  |  |  |  |
| --- | --- | --- | --- |
| **Sl. No.** | **Name of Facility** | **Latitude** | **Longitude** |
| **1** | ITI at Chhattari village | 31°27'33.8544"N | 77° 17'53.88"E |

1. The nearest rail head at Joginder Nagar in Himachal Pradesh is about 153 km away from ITI site. The project site is well connected to important destinations such as Shimla, Chandigarh and Delhi. The distances of important destinations is given below:

| **Sl. No.** | **Name of Facility** | **Altitude**  **(m)** | **District** | **Distance from ITI site** | |
| --- | --- | --- | --- | --- | --- |
|  | ITI Chhattari | 1770 | Mandi | Kullu Airport : : 120 km  Dharmshala Airport : 228 Km  Mandi : 96  Kullu : 129 km  Palampur : 190 km  Shimla : 132 km  Manali : 170 km  Sunder Nagar : 101 km  Hamirpur : 164 Km  New Delhi : 483 km  Ambala : 276 km |  |

1. The proposed ITI site is a vacant and unencumbered land in the ownership of Department of Himachal Pradesh Electricity Board Limited (HPSEBL), Government of Himachal Pradesh. The Mandi district geographically lies between the latitude 31o13’50 and 32o04’30" North and longitude 76o37’20" and 77o-23’15" East.

1. **Present Status of ITI Site:** The ITI site at Chhattari is located in an undulating terrain. The site ownership is with HPSEBL. There are no permanent or temporary structures on the site. There are also no trees at site. The photographs of the sub-project site are shown below. Some more photographs of site have been given in **Annexure-1**.

|  |
| --- |
| ITI Chhattari Site View.jpg |
| **ITI Chhattari Site View** |
| ITI Chhattari Site View.jpg |
| **Another view of ITI Chhattari Site** |

## Compliance with India’s Environmental Regulatory Framework

1. India’s environmental rules and regulations, as relevant for the ITI Chhattari, are shown in **Table 1**. The Environmental Impact Assessment (EIA) notification, 2006 by the Ministry of Environment, Forests and Climate Change (MOEFCC, GOI) specifies the requirements for mandatory environmental clearances. All projects and activities are broadly categorized into two categories—category 'A' and category 'B', based on the spatial extent of potential impacts on the environment, human health, and natural and man-made resources[[3]](#footnote-3). However, MOEFCC’s Office Memorandum (F. No. 19-2/2013-IA- III), dated June 09, 2015, and exempts all educational and training institutes from obtaining prior environmental clearance. Since all the training facilities to be constructed or upgraded under HPSDP, including this ITI subproject, are meant for educational and training purposes, they will not require any prior environmental clearances according to the environmental rules and regulations of India. Further, as shown in **Table 1**, most other rules pertaining to India’s regulatory framework such as  [Ancient Monuments and Archaeological Sites and Remains Act, 1958](http://asi.nic.in/pdf_data/6.pdf); the Wildlife (Conservation) Act, 1972, amended in 2003 and 2006; and the Forest (Conservation) Act, 1980, will also not apply to ITI subproject. Only some permission will be required from the Himachal Pradesh State Pollution Control Board for the construction phase of the sub-project.

Table-1: Environmental Regulatory Compliance

| **Sub-Project** | **Applicability of Acts/Guidelines** | **Compliance Criteria** |
| --- | --- | --- |
| Construction of Industrial Training Institute at Chhattari | The EIA notification, 2006 (and its subsequent amendments till date) provides for categorization of projects into category 'A' and 'B', based on extent of impacts. | The sub-project is not covered in the ambit of the EIA notification (amended till date), either as a Category 'A' or Category' B' project. As per the Office Memorandum dated June 09, 2015 of MOEFCC, educational and training institutions are exempted from prior environmental clearance. As a result, the categorization, and the subsequent environmental assessment and clearance requirements, either from the state or the GOI, are not triggered.  **Not Applicable** |
| [The Ancient Monuments and Archaeological Sites and Remains Act, 1958](http://asi.nic.in/pdf_data/6.pdf), and the rules, 1959 provide guidance for carrying out activities including conservation, construction and reuse in and around the protected monuments. | The ITI site is not close to any monument which is protected by the Archaeological Survey of India (ASI). Hence, no clearance is needed from ASI.  **Not Applicable** |
| Water (Prevention and control of pollution) Act, 1974 and Air (prevention and control of pollution) Act, 1981 | Consent for Establishment (CFE) and Consent for Operation (CFO) from the State Pollution Control Board will be required during construction for installation of diesel generator set, hot mix plant, and concrete batching plant. For the operation phase, no CFO will be required.  **Applicable only for Construction Phase** |
| The Wildlife Conservation Act, 1972, amended in 2003 and 2006, provides for protection and management of Protected Areas. | No wildlife protected areas within 25 km aerial distance from the sub project site.  **Not Applicable** |
|  | Forest (Conservation) Act, 1980 | This act provides guidelines for conservation of forests and diversion of forest land for non-forest use. It describes the penalties for contravention of the provisions of the Act. If forest land has to be acquired for the project, clearance is required from the Forest Department. No forest land is required for sub- project for the ITI construction. Hence, this is not applicable.  **Not Applicable** |

# 

## Asian Development Bank’s Environmental Safeguard Policy Principles

1. Since the proposed HPSDP is being funded by the ADB, it has to comply with ADB’s SPS, 2009, in addition to the India’s own environmental laws and regulations. The environmental safeguard policy principles embodied in SPS, 2009 aim to avoid adverse impacts on the environment and on affected people or communities; minimize, mitigate and/or compensate for adverse project impacts, if unavoidable; help borrowers to strengthen their safeguard systems and to develop their capacity in managing the environmental and social risks. The SPS, 2009 categorizes all projects into 3 environmental categories (A, B or C) based on their potential impacts[[4]](#footnote-4). Similarly, ADB’s REA checklist method was followed to assess the potential impact of the proposed sub-project **(Annexure-2)**. As explained in Annexure-1, this subproject has been categorized as 'B'. Accordingly, this IEE has been prepared to address the potential impacts in line with the requirements for category B projects. The IEE was based mainly on baseline data generation on environmental parameters and secondary sources of information and field reconnaissance surveys. Stakeholder consultations at subproject site are an integral part of the IEE. An Environmental management plan (EMP) outlining the specific environmental measures to be adhered to during implementation of the sub-projects is included in the IEE.

## D. Review and Approval Procedure

1. For Category 'B' projects, the draft environmental status report is reviewed by the relevant ADB Departments and the Executing Agency. Additional comments are incorporated into the final documents as relevant. These are reviewed by the Executive Agency and ADB safeguards team. The Executing Agency then officially submits the IEE report to ADB for consideration by the Board of Directors. The final report is made available worldwide by ADB, via the depository library system and the ADB website.

## E. Report Structure

1. This Report contains eight sections including this introductory section: (i) Introduction; (ii) description of sub-project components; (iii) description of the existing environment around the sub-projects; (iv) environmental impacts and mitigation measures; (v) EMP; (vi) public consultation and information disclosure; (vii) findings and recommendations; and (viii) conclusions.

# DESCRIPTION OF THE PROJECT COMPONENTS

## 

## 

## Components of the Sub-project

1. The location of the ITI site and surroundings has been shown in **Figures 1 and 2. Table -2** summarizes the need for the sub-project and brief description of its components.

|  |
| --- |
| **Figure-1: Location of ITI Chhattari site**  Figure 1.jpg |

|  |
| --- |
| **Figure-2: Location of ITI Subproject Site**  Figure 2.jpg |

Table-2: Description of the Sub-project Components

|  |  |  |
| --- | --- | --- |
| **Description** | **Need of the Sub-project** | **Proposed Components** |
| An Industrial Training Institute is proposed at Chhattari village, in Seraj Tehsil of Mandi district in the State of Himachal Pradesh | * The ITI site located in Chhattari village of Seraj Tehsil in Mandi district. The Seraj Tehsil area is remote area and students of this area find it difficult to peruse job oriented technical courses as educational institutes are not available. For this they need to go Mandi or other urban centers in Himachal and neighboring Punjab state. The establishment of ITI will help in getting technical education in a cost effective and homely environment. * The subproject will also be very helpful for female students as it is difficult for them travel longer distances for the education. | The main sub-project components include:  1. The ITI will be a four-storey building Basement to third floor. On the basement there will be only canteen. 2. On the ground floor, there will be Dispensary, Computer Laboratory, Electrician Workshop, Stores for Engineering and Non Engineering Trades and Ladies’ and Gent’s toilet. 3. On the first floor there will be Administration Hall, Theory Room, Solar Technician Room, Staff and Principal Rooms, Wiremen Workshop, Drawing Hall and Ladies and Gents Toilets. 4. On the second floor, there will be Theory Rooms, Library and Reading Room, Placement and Counseling Room and Record Room. 5. On the third floor, there will be examination hall. 6. A septic tank will be provided for 300 users. 7. Solar panels will be installed on the roof with potential to generate 5 kW. 8. The total electricity load has been estimated as 30 kilowatts 9. Water consumption has been estimated as 15000 liters per day. Water source will be from the irrigation channel. 10. For solid waste disposal, either location will be identified close to ITI or it will be integrated with Chhattari village disposal system in consultation with Panchayat. 11. The civil cost for ITI has been estimated as INR 50.0 millions. |

1. The layout plans of all floors (basement, ground, first, second and third floor) along with 3D perspective view of ITI have been shown below in **Figure-3.**

|  |
| --- |
| **Figure-3: Layout Plan and Other Drawings of ITI Chhattari**  **Figure 3 Layoutplan and other Drawings of ITI Chhattari_Page_1.jpg**  **Figure 3 Layoutplan and other Drawings of ITI Chhattari_Page_1.jpg** |
| **Figure 3 Layoutplan and other Drawings of ITI Chhattari_Page_1.jpg** |
| **Figure 3 Layoutplan and other Drawings of ITI Chhattari_Page_1.jpg** |
| **Figure 3 Layoutplan and other Drawings of ITI Chhattari_Page_1.jpg** |
| **Figure 3 Layoutplan and other Drawings of ITI Chhattari_Page_1.jpg** |

## Executing and Implementing Agencies

1. The Department of Technical Education (DOTE), GOHP, is the executing agency for the HPSDP. The *Himachal Pradesh* *Kaushal Vikas Nigam* (HPKVN), the Directorate of Technical Education, Vocational & Industrial Training (DTE), Department of Higher Education (DOHE), and the Public Works Department (PWD) are the implementing agencies. HPKVN also operates as the project management unit (PMU) for the overall project implementation. For the civil works components, it is being assisted by PWD officials who are well aware of the states and India’s building codes and environmental rules and regulations. HPKVN and PWD are responsible for overall planning and implementation of the civil works. They will ensure that the ESMF is adhered to during project implementation. The Project Management Consulting (PMC) firm engaged under the loan has experienced Environment and Social Safeguards specialists. They assist PWD and HPKVN in supervising the civil works, ensuring that the IEEs and EMPs are prepared for all future sub-projects, and in preparing semi-annual safeguards monitoring reports also. HPKVN consolidates the semi-annual reports, and submits to ADB. ADB posts the environmental monitoring reports on its website.

## Implementation Schedule

1. The implementation period for the proposed sub-project is 24 months. The preliminary drawings for ITI have been prepared and approved. The bidding process for the sub-project has been started in September 2020. The sub-project will be awarded for construction by December 2020. The contractor is expected to be mobilized to site by January/February 2021and construction works of sub-project will begin in February 2020 and work will be completed by January 2023.

# DESCRIPTION OF THE EXISTING SUB-PROJECT ENVIRONMENT

1. This section presents a brief description of the existing environment around the sub-project site, including its physical resources, ecological resources, socio-economic development and social and cultural resources. Broad aspects on various environmental parameters such as geography, climate and meteorology, physiographic, geology, seismology, ecology, socio-cultural and economic development parameters that are likely to be affected by the proposed sub-project are presented. Secondary information was collected from relevant government agencies like the Forest Department, State Environment Department, and State Pollution Control Board, and Meteorological Department.

## Environmental Profile

### 

### Air and Noise Quality

1. No air pollution sources have been seen in the surroundings of ITI site as site is in open area near Chhattari village. The site is about 1.0 km from Thunag- Sunargad road. Hence, there are no chances of any vehicular emission impacts. The locations of sub- project site being in clean hilly areas have a better quality than northern plains. In order to record baseline ambient air quality, data published by Himachal Pradesh State Pollution Control Board (SPCB) and Central Pollution Control Board (CPCB) has been referred. This data is available for Sunder Nagar (at about 101 km from site) relevant for the sub-project site. No ambient air quality data is available for project site. The data for ambient air quality has been given in **Table-3** and **Table-4**. It is clear from these tables that ambient air quality is well within the limits in respect of SO2 and NOx, but PM10 levels are exceeding the limits. At sub-project site PM10 is also expected to be within the limits as site is away from commercial areas.

Table-3: Ambient Air Quality Data for Project Area Published by Central Pollution Control Board

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Sl. No.** | **Location** | **Range** | **Parameter (µg/m3) Value** | | |
| **SO2** | **NOx** | **PM10** |
| 1 | HPSPCB, BBMB Colony, Sunder Nagar | Minimum | 2 | 5 | 32 |
| Maximum | 2 | 21 | 328 |
| Average | 2 | 9 | 87 |
| 2 | Municipal Council Office on NH-21, Sunder Nagar | Minimum | 2 | 5 | 28 |
| Maximum | 2 | 23 | 195 |
| Average | 2 | 13 | 102 |
| **3** | **Applicable National Ambient Air Quality Standards** |  | **80** | **80** | **100** |
| *\* BDL- Below Detection Limit*  *Source: Ambient Air Quality , Published by CPCB for the year 2012* | | | | | |

Table-4: Ambient Air Quality Data for Project Area Published by Himachal Pradesh State Pollution Control Board for January 2017

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Sl. No.** | **Location** | **Range** | **Parameter (µg/m3)** | | |
| **SO2** | **NOx** | **PM10** |
| 1 | HPSPCB, BBMB Colony, Sunder Nagar | Minimum | 2 | 4.5 | 30 |
| Maximum | 2 | 20.84 | 220 |
| Average | 2 | 14.35 | 85 |
| 2 | Municipal Council Office on NH-21, Sunder Nagar | Minimum | 2 | 4.5 | 44 |
| Maximum | 2 | 32.75 | 211 |
| Average | 2 | 14.35 | 104 |
| **3** | **Applicable National Ambient Air Quality Standards** |  | **80** | **80** | **100** |
| *\* BDL- Below Detection Limit*  *Source: Ambient Air Quality and Noise Levels, Published by Himachal Pradesh State Pollution Control Board (Year 2017)* | | | | | |

**Table-5: Ambient Noise Levels in Project Area**

|  |  |  |  |
| --- | --- | --- | --- |
| **Sl. No.** | **Location** | **Noise Levels dB(A)** | |
| **Day** | **Night** |
| 1 | Kullu | 54 | 66 |
| **2** | **Applicable Noise Level Standards** | **55** | **45** |
| *Source: Ambient Air Quality and Noise Levels, Published by CPCB for 2014 for Kullu city* | | | |

1. Noise levels data is not available for the subproject site. The data available for the nearest location Kullu has been referred. This data has been given in **Table-5** above. It is clear from this table that night time levels are exceeding the limits. The night time levels are higher as these measurements for noise levels were conducted by the CPCB during festival time. However, the noise levels are expected to be well within the stipulated limits at sub-project site as there are no sources of air or noise pollution near the ITI site.
2. In order to have site specific Ambient air quality monitoring and noise levels data, monitoring will be conducted by the contractor prior to start of construction works with the aim of establishing baseline conditions.

1. **Climate.** The climate of the Mandi district is sub-tropical in the valleys and tends to be temperate near the hilltops. In the higher region, the climate remains cold throughout the year. In winter snow often comes down to 1300 m above mean sea level. Normally, it starts melting from the end of March from places lying below 3300 m. In summer sub project site is quite warm. The meteorological data for subproject site is not available, so data for Mandi city has been described.
2. **Temperature.** The temperature exhibits seasonal variation with minimum during the winter and higher during the summer. April, May, June and July are the hottest months while January, February and December are the cold months. The maximum temperature rises to about 28°C in summer and the minimum temperature falls to about 4°C in winter months. The **Table-6** below shows month wise weather data at Mandi. At subproject site temperature is lower than Mandi city as it on a higher elevation than Mandi city.

**Table-6: Climatic Conditions at Mandi**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Month** | **Jan** | **Feb** | **Mar** | **Apr** | **May** | **Jun** | **Jul** | **Aug** | **Sep** | **Oct** | **Nov** | **Dec** | **Year** |
| **Average high °C (°F)** | 16.8 (62.2) | 16.6 (61.9) | 21 (70) | 27.6 (81.7) | 26.6 (79.9) | 27.7 (81.9) | 25.5 (77.9) | 25.6 (78.1) | 25.3 (77.5) | 23.1 (73.6) | 21.6 (70.9) | 17.4 (63.3) | 22.9 (73.2) |
| **Average low °C (°F)** | 4 (39) | 4.1 (39.4) | 7.2 (45) | 10.5 (50.9) | 14.7 (58.5) | 15.2 (59.4) | 12.7 (54.9) | 12.3 (54.1) | 11.7 (53.1) | 10 (50) | 6.4 (43.5) | 3.8 (38.8) | 9.4 (48.9) |
| **Average rainfall mm (inches)** | 30 (1.18) | 30 (1.18) | 22 (0.87) | 15 (0.59) | 15 (0.59) | 85 (3.35) | 240 (9240.45) | 220 (8.66) | 130 (5.12) | 25 (0.98) | 10 (0.39) | 10 (0.39) | 832 (32.75) |
| **Average snowy days** | 0 | 0 | 0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0 | 0 | 0 |
| *Source: 'https://www.worldweatheronline.com/' title='Historical average weather'>Data (Year 2018)* | | | | | | | | | | | | | |

1. **Rainfall.** The sub-project area experiences maximum rainfall during Monsoon season from June to September while as least Rainfall is received in November and December. As per local enquiry, subproject site does not receive snowfall. Average annual rainfall at Mandi is around 900 mm.

1. **Humidity**. Based on long-term climatologically data of the Mandi (India Meteorological Department -1980-2010), it is found that relative humidity increases rapidly with the onset of monsoon and reaches maximum (around 85% in the morning and 84% in the evening) during August, when peak monsoon period sets in. Relative humidity is the minimum during the summer months (from April to June) with May being the driest month (40% in morning and 33% in evening). Skies are heavily clouded during the monsoon months and for short spells when the project area is affected by Western Disturbances.

1. **Wind Speed and Directions.** Generally, light to moderate winds prevail throughout the year with speed ranging from 1 to 19 kmph. Winds are light and moderate particularly during the morning hours, while during the afternoon hours the winds are stronger. The season wise wind pattern is explained below:

**(a) Wind Pattern during Pre-Monsoon Season**

1. **-Hours**

* A review of the wind persistent data indicates that predominant winds are blowing mostly from N and NE direction.

**1730- Hours**

* A review of the wind persistent data indicates that predominant winds direction is mostly from SW direction followed by W.

**(b) Wind Pattern during Monsoon Season**

* The wind persistence is same as explained for pre-monsoon season.

**(c) Wind Pattern during Post-Monsoon Season**

**0830- Hours**

* A review of the wind persistent data indicates that predominant winds are mostly blowing from NE direction followed by N direction.

**1730- Hours**

* A review of the wind persistent data indicates that predominant winds are mostly blowing from SW direction followed by W direction.

**(d) Wind Pattern during Winter Season**

* The wind persistence is same as explained for post monsoon season.

**Topography and Soils**

1. Mandi district presents an intricate mosaic of mountain ranges, hills and valleys. It is primarily a hilly district with altitudes ranging from 550 m near Sandhol where the Beas River leaves the district, to about 3960 m above mean sea level near Kullu border. There is a general increase in elevation from west to east and from south to north. Master slope is south- westerly. The south western part consists of Siwalik ranges having scarped slopes. There are few small intermountain valleys; prominent among them is the Balh valley, located in the lesser Himalayan ranges, having an average altitude of about 790 m above mean sea level and have a general slope towards NNE. The valley floor is undulating and is marked by low hillocks and terraces fringing the hills and intervening low alluvial plain. The elevation of subproject site is 2075 m above mean sea level.

1. Two types of soils are mainly observed in Mandi district viz. Sub-Mountainous Soil occurring in Seraj (subproject area) and Karsog blocks and Mountainous Soil occurring in remaining eight blocks of the district. The sub-mountainous soil is high in organic carbon, low in available phosphorous and medium in potash, whereas the mountainous soil is brown in color, medium in available nitrogen & potash and deficient in available phosphorous. The project area has sub-mountainous soil. The soil reaction is slightly acidic to neutral and texture in general varies from loam to sandy loam, except in low valley areas being heavy textured.

**Surface water and Ground water**

1. The ITI site at Chhattari is located in Beas river catchment. A local stream is flowing at a distance of about 200 m from the sub-project site. To establish baseline scenario, ground water quality data was obtained from the Central Ground Water Board. The ground water quality data for Mandi is given below in **Table-7.** The water quality data of Beas River at Mandi is given in **Table-8.**

**Table-7: Ground Water quality in Sub-Project Area for Mandi District**

| **Parameter** | **pH** | **EC µS/cm at 25°C** | **HCO3** | **Cl** | **NO3** | **F** | **Ca** | **Mg** | **Na** | **K** | **Total Hardness as CaCO3** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **in ( mg/l)** | | | | | | | | | |
| Min | 7.38 | 180 | 67 | 4 | 0.9 | 0 | 14 | 6 | 11 | 2.2 | 108 |
| Max | 7.89 | 1320 | 214 | 255 | 98 | 0.30 | 66 | 54 | 102 | 1.6 | 292 |
| **Drinking Water Quality Standards** | **6.5-8.5** | **No limit specified** | **No limit specified** | **1000** | **45** | **1.5** | **200** | **100** | **No limit specified** | **No limit specified** | **600** |

*Source: Ground Water Information Booklet Mandi District Himachal Pradesh -Central Ground Water Board (Year-2013)*

1. Due to the absence of any water polluting sources in the sub project site and surroundings, it is clear that all parameters of ground water quality are within the permissible limits, specified by Bureau of Standards (BIS), for drinking and irrigation. The water quality monitoring will be conducted by the contractor prior to the start of construction works. The map showing hydrogeology of Mandi district has been given in **Figure -4.**

1. Based on 2012 data, the depth of water level during pre-monsoon months, in Mandi district ranged from 0.86 to 9.92 m below ground level (bgl). The stage of ground water development in Mandi district is only 15.36 % and this falls in safe category.
2. Since Beas is the only river of significance in the sub-project region so water quality data of this river was obtained from Himachal Pradesh State Pollution Control Board. This data has been given below in **Table-8**. It is clear from this table that it meets 'A' class category requirements (river water fit for drinking without treatment) upstream of Mandi and it meets category 'B' (fit for outdoor bathing) and ‘C’ (suitable for drinking after conventional treatment) at other three locations.

**Table-8: Beas River Water quality in Sub-Project Region**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Sl. No.** | **Location** | **Parameters** | | | |
| **pH** | **D.O. (mg/l)** | **BOD(mg/l)** | **Total Coliform (MPN/SPC per 100 ml** |
| 1 | Beas River (upstream of Kullu) | 7.58 | 9.2 | 0.30 | 1600 |
| 2 | Beas River (Downstream of Kullu) | 7.4 | 9.5 | 0.40 | >2400 |
| 3 | Beas River (upstream of Mandi) | 7.83 | 8.3 | 0.20 | 33 |
| 4 | Beas River (Downstream of Mandi) | 7.81 | 8.3 | 2.9 | 1600 |
| **5** | **CPCB Water Quality Criteria for (A to C Classes ) for Surface Water** | **6.5-8.5** | **4-6** | **2-3** | **50-5000** |
| Note : 1- Designated Best Use -Class A: Fit for Drinking Water without Conventional Treatment but after disinfection  2-Designated Best Use -Class B: Fit for Bathing (Organized)  3- Designated Best Use -Class C: Fit for Drinking Water with Conventional Treatment and disinfection | | | | | |
| *Source: Himachal Pradesh State Pollution Control Board (Year 2017)* | | | | | |

|  |
| --- |
| **Figure-4: Hydrogeology and Ground water Depth Map for Mandi District** *­­­F:\Other Data\My Data\Sushil Project\Mr. S. N. Verma_Safeguard Environment\May 2017\IEE Report Mandi package\Mandi CGWB Report\Mandi CGWB Report_Page_12.jpg* |

*Source: Ground Water Information Booklet Mandi District Himachal Pradesh -Central Ground Water Board (Year-2013)*

**Geology and Seismology**

1. The rock formations occupying the Mandi district range from pre-Cambrian to Quaternary period. The generalized geological succession in the district is given below in **Table -9**. Hard formations, form hilly and mountainous terrain and mainly comprises of igneous and metamorphic rocks, belonging to the Jutogh, Shali/ Largi and Shimla group and occupy the major part of the area in the northern, central and eastern part. Granites and gneisses are intruded in the meta-sediments of Shali/Largi and Shimla group. In the western and southern parts sediments comprising of sandstone, shale, siltstone, conglomerate, etc of Dharmshala/Sabathu group and Siwalik group of Tertiary age are observed. Alluvium, terrace deposits, fluvial deposits of Quaternary period occur in the intermountain valleys, viz., Balh valley, Sarkaghat valley etc., and constitute an important unit from ground water point of view.

**Table-9: Geological Description of Mandi District**

|  |  |  |
| --- | --- | --- |
| **Age** | **Formation** | **Composition (Lithology)** |
| Quaternary | Alluvium terrace and fluvial deposits | Alluvium, clay, sands, gravels, pebbles, boulders and cobbles |
| Lower Pleistocene to Middle Miocene | Siwalik Group | Clay, siltstones, sandstones, and boulder beds |
| Oligocene to Lower Miocene | Dharmshala/ Kasauli Formation (Sabathu Group) | Grey/green sandstones, splintery shale, clay etc |
| Permian | Basic Volcanic intrusive | - |
| Proterozoic | Shimla Group | Phyllites, Quartzite, limestone, shale and dolomite |
| Shali / Sunder Nagar / Kullu Formation | Phyllites, Quartzite, dolomite conglomerate and limestone |
| Jutogh Group | Quartzite, Schists and phyllites and Dalhousie / Kullu granites and gneisses |

*Source: Ground Water Information Booklet Mandi District Himachal Pradesh -Central Ground Water Board (Year-2013)*

1. India’s seismic code divides the country into five seismic zones (I to V).The sub-project stretch comes under seismic zone V as defined by Urban Earthquake Vulnerability Project (UEVP) and the Atlas prepared by the Building Materials Promotion and Technology Council (BMTPC), Government of India and UNDP [IS 1893 (Part I : 2002)]. All structures have been designed considering seismic zone V. It may be mentioned that intensity of earthquake increases from Zone I to V. The Zone V mainly covers Himalayan region in India and Himachal Pradesh being a hilly state lies in Himalayan region. Zones I, II and III mainly cover Central and Southern parts of Indian peninsula. It may be mentioned that after an earthquake of 7.8 intensity on Richter scale in Kangra district in 1905 no major earthquake has occurred in Himachal Pradesh.

**Drainage**

1. The sub-project site drained by Beas River tributary. No flooding issues have been reported at the subproject as site is on a hilly terrain and has a swift drainage pattern.

## Ecological Resources

### 

### *(i) Forests*

1. Various types of forests in [Himachal Pradesh](https://en.wikipedia.org/wiki/Himachal_Pradesh) currently cover an area of nearly 37,691 km2, which is about 38.3% of the total land area of the state. The variation in the landscape has created great diversity of flora and fauna. From the snowbound peaks of the Himalayas to the moist Alpine scrub, sub Alpine forests, dry - temperate and moist- temperate forests to moist deciduous forests, the state possesses a wide biodiversity that in return nurtures a large multiplicity of floral and faunal forms. Reserve Forests constitute 71.11%, Protected Forests 28.52% and Un-classed forests constitute 0.35% of the total forest area. Mandi district has about 42.41 % forest of geographic area. The most portions of these forest areas are managed by the Forest Department. The forest areas under very dense, moderately dense and open category are presented below in **Table-10**:

**Table-10: Different Categories of Forests Mandi District**

|  |  |  |  |
| --- | --- | --- | --- |
| **District** | **Very Dense Forest Area (km2)** | **Moderately Dense Forest Area (km2)** | **Open Forest Area ( km2)** |
| Mandi | 373 | 735 | 567 |
| *Source : State Forest Department (Year 2017)* | | | |

1. The forests of subproject district can be classified into six main categories namely: (1) the tropical dry deciduous forests, (2) the sal forests (3) the chir forests, (4) the oak forests, (4) the deodar, fir and spruce forests, and (5) the Alpine pastures. Forest cover map for Himachal Pradesh is shown in **Figure -5**.

|  |
| --- |
| **Figure-5: Forest cover Map of Himachal Pradesh**  **image006.jpg** |

*Source: Forest Survey of India­­*

1. The ITI sub-project site does not fall within any reserved, protected, or revenue forest areas. The complete vegetation of Himachal Pradesh relies on two factors - height and rainfall. The southernmost part of the state is at a lower altitude level and it contains both humid and subtropical dry broadleaf woodlands, along with subtropical moist broadleaf forests. The majority of area is covered by Himalayan subtropical broadleaf forests. Apart from this, the state has some of the vegetation which is abundant with sal, sisham, and chirpine, dry deciduous and moist broad-leafed forests. The landscape which falls in temperate regions has trees like oak, deodar, blue pine, fir and spruce. The trees found in higher elevations include Alders, birches, rhododendrons and moist alpine scrubs.
2. Himachal Pradesh has abundant growth of fruits like apple, peaches, plums and berries. It is rightly called the ‘fruit bowl of India’. There are plenty of fruit orchards and fruits and these fruits are transported to various parts of the country and exported abroad also. The pleasant climate also helps numerous flower varieties like gladiolas, lilies, chrysanthemums, roses, marigolds, carnations, etc. to grow in abundance.
3. Himachal Pradesh is home to approximately 1200 birds along with 359 animal species. This includes leopards, ghoral, snow leopard, musk deer (state animal), and Western Tragopan (state bird). The state is an ideal tourist destination for animal lovers as it hosts 12 main national parks and sanctuaries. It has two major national sanctuaries -the Great Himalayan National Park and the Pin Valley National Park.

**(ii) Flora and Fauna around Sub-project Site**

1. Since the sub project site is within the Panchayat limits of Chhattari village, therefore, there are no protected areas within 20 km radius. Around the sub-project site, one only finds domesticated fauna. The common trees in the surroundings of sub-project sites are West Himalayan Fir, Deodar, West Himalayan Spruce, Tree of heaven, White Siris tree, Silk Cotton Tree, Bill Toon, Indian Rosewood, Bakli, Crepe myrtle, Persian Lilac, Chir pine, Black Poplar, Behara, Harada, Toon, etc.. The medicinal and fruit trees include Bengal quince, Horse Chestnut, West Himalayan Alder, Indian Spindle Tree, Laurel, Beleric Myrobalan and Chebulic Myrobalan. Other fruit yield plants are Nettle tree, Himalayan Strawberry Tree, Wild fig, Silver Oak, Mango, Box myrtle, Indian Olive, Indian gooseberry, Armenian plum, Wild Himalayan cherry, Himalayan Bird Cherry, Wild pears, Himalayan Pears, Soap nut tree and Indian plum. There is no endangered or rare species flora at sub-project site. There are no trees at the subproject site.

1. The fauna in the surroundings of sub-project site includes- Birds such as Bagula, Tota, Koel, Crow, and Mayna. Among the mammals main animals are Jungel Rat, common squirrel, Moles, Shrews, cow, goat, etc. The main reptiles found are Girgit, Dhaman, etc. There are no endangered or rare species fauna as ITI site is located close to village Chhattari.
2. The water bodies around sub project sites are seasonal in nature because of swift flow. There is not much presence of aquatic life in the water bodies close to the sub-project site.

**(iii) *Protected Areas***

1. The list of protected areas (National Parks and Wildlife Sanctuaries) in Himachal Pradesh is given in **Table 11**. Three protected areas are there in Mandi district, but these are located more than 25 km away from the proposed ITI site.

**Table-11: Protected Areas in Himachal Pradesh**

| **Sl. No.** | **Sanctuaries** | **District** | **Area (km² )** |
| --- | --- | --- | --- |
| 1 | [Bandli](http://hpforest.nic.in/files/BandliWildLifeSanctuary_A1b.pdf) | Mandi | 32.11 |
| 2 | [Chail](http://hpforest.nic.in/files/ChailWildLifeSanctuary_A1b.pdf) | Solan | 16 |
| 3 | [Chandra Tal](http://hpforest.nic.in/files/Chandratal%20wildlife%20sanctuary.pdf) | Lahaul & Spiti | 38.56 +(11.53 for Consideration) |
| 4 | [Churdhar](http://hpforest.nic.in/files/ChurdharWildLifeSanctuary_A1b.pdf) | Sirmour | 55.52 |
| 5 | [Daranghati](http://hpforest.nic.in/files/DrangGhatiWildLifeSanctuary_A1b.pdf) | Shimla | 171.50 |
| 6 | [Dhauladhar](http://hpforest.nic.in/files/DhauladharWildLifeSanctuary_A1b.pdf) | Kangra | 982.86 |
| 7 | [Gamgul-Siyabehi](http://hpforest.nic.in/files/GamgulSiyabehlWildLifeSanctuary_A1b.pdf) | Chamba | 108.40 |
| 8 | [Kais](http://hpforest.nic.in/files/KaisWildLifeSanctuary_A1b.pdf) | Kullu | 12.61 |
| 9 | [Kalatop-Khajjiar](http://hpforest.nic.in/files/KalatopKhajiarWildLifeSanctuary_A1b.pdf) | Chamba | 17.17 |
| 10 | [Kanawar](http://hpforest.nic.in/files/Kanawar.pdf) | Kullu | 54.27 |
| 11 | [Khokhan](http://hpforest.nic.in/files/KhokhanWildLifeSanctuary_A1b.pdf) | Kullu | 14.94 |
| 12 | [Kibber](http://hpforest.nic.in/files/KibberWildLifeSanctuary_A1b.pdf) | Lahaul & Spiti | 2220.12 |
| 13 | [Kugti](http://hpforest.nic.in/files/Kugti.pdf) | Chamba | 379 |
| 14 | [Lipa Asrang](http://hpforest.nic.in/files/LippaAsrangWildLifeSanctuary_A1b.pdf) | Kinnaur | 31 |
| 15 | [Majathal](http://hpforest.nic.in/files/MajathalWildLifeSanctuary_A1b.pdf) | Solan | 30.86 |
| 16 | [Manali](http://hpforest.nic.in/files/ManaliWildLifeSanctuary_A1b.pdf) | Kullu | 29 |
| 17 | [Nargu](http://hpforest.nic.in/files/Nargu.pdf) | Mandi | 278 |
| 18 | [Pong Dam Lake](http://hpforest.nic.in/files/PongDamLakeWildLifeSanctuary_A1b.pdf) | Kangra | 207.59 |
| 19 | [Rakchham-Chitkul](http://hpforest.nic.in/files/RakchhamChitkulWildLifeSanctuary_A1b.pdf) | Kinnaur | 304 |
| 20 | Renuka | Sirmour | 4 |
| 21 | [Rupi-Bhaba](http://hpforest.nic.in/files/RupiBhabaWildLifeSanctuary_A1b.pdf) | Kinnaur | 503 |
| 22 | [Sechu-Tuan Nalla](http://hpforest.nic.in/files/SechuTuanNallaWildLifeSanctuary_A1b.pdf) | Chamba | 390.29 |
| 23 | Sainj | Kullu | 90 |
| 24 | [Shikari Devi](http://hpforest.nic.in/files/ShikariDeviWildLifeSanctuary_A1b.pdf) | Mandi | 29.94 |
| 25 | [Shimla Water Catchment](http://hpforest.nic.in/files/ShimlaWaterCatchmentWildLifeSanctuary_A1b.pdf) | Shimla | 10 |
| 26 | [Simbalbara](http://hpforest.nic.in/files/SimbalbaraNationalPark_A1b.pdf) | Sirmour | 27.88 |
| 27 | [Talra](http://hpforest.nic.in/files/TalraWildLifeSanctuary_A1b.pdf) | Shimla | 46.48 |
| 28 | Tirthan | Kullu | 61 |
| 29 | [Tundah](http://hpforest.nic.in/files/TundahWildLifeSanctuary_A1b.pdf) | Chamba | 64 |
| 30 | Water Supply Catchment | Shimla | 10 |
| **National Parks** | | | |
| 1 | [Great Himalayan National Park](http://greathimalayannationalpark.org/) | Kullu | 765 |
| 2 | Pin Valley National Park | Lahaul & Spiti | 675 |
| **Conservation Areas** | | | |
| 1 | [Shilli Conservation Reserve](http://hpforest.nic.in/files/ShilliConservationReserve_A1b_2.pdf) | Solan | 1.49 |
| 2 | [Shri Naina Devi Conservation Reserve](http://hpforest.nic.in/files/SriNainaDeviConservationReserve_A1b_1.pdf) | Bilaspur | 17.01 |
| 3 | [Darlaghat Conservation Reserve](http://hpforest.nic.in/files/DarlaghatConservationReserve_A1b_1.pdf) | Solan | 0.67 |

*Source: Himachal Pradesh State Forest Department (Year 2017)*

## Economic Resources Industries

1. Being a hilly state, Himachal Pradesh has few large industrial units. As shown in **Table-12** for Mandi district, there are micro, small, and medium enterprises focusing on agro-products, leather, textiles, wood, etc.:

**Table-12: Details of Existing Micro and Small Enterprises and Artisan Units in Mandi District**

| **NIC Code No** | **Type of Industry** | **Number of Units** | **Investment (Lakh Rs.)** | **Employment** |
| --- | --- | --- | --- | --- |
| 20 | Agro based | 1009 | 2835.29 | 4036 |
| 22 | Soda water | 3 | 8.43 | 12 |
| 23 | Cotton textile | - | - | - |
| 24 | Woolen, silk & artificial Thread based clothes. | 477 | 1340.37 | 1908 |
| 25. | Jute & jute based | - | - | - |
| 26. | Ready-made garments & embroidery | 37 | 103.97 | 148 |
| 27. | Wood/wooden based furniture | 399 | 1121.19 | 1596 |
| 28. | Paper & Paper products | 90 | 252.9 | 360 |
| 29. | Leather based | 11 | 30.91 | 44 |
| 31. | Chemical/Chemical based | 25 | 70.25 | 100 |
| 30. | Rubber, Plastic & petro based | 51 | 143.31 | 204 |
| 32. | Mineral based | - | - | - |
| 33. | Metal based (Steel Fab.) | 92 | 258.52 | 368 |
| 35. | Engineering units | - | - | - |
| 36. | Electrical machinery and transport equipment | 29 | 81.49 | 116 |
| 97. | Repairing & servicing | 138 | 387.78 | 552 |
| 01. | Others | 644 | 1809.64 | 32540 |

*Source: Brief Industrial Profile of Mandi District, Ministry of MSME, Government of India (Year 2011-2012)*

**Transportation**

1. The subproject site is well connected with Shimla, Chandigarh, and other destinations in Himachal Pradesh through various national highways and state highways. The nearest rail head is Joginder Nagar in Himachal. The distance from subproject site is 153 km. The nearest operating airport is close to Kullu city at Bhuntar from the ITI site and its distance is about 120 km. No clearance or permission from Airport Authority of India (AAI) is needed for ITI construction as proposed building for ITI is of low height (Ground plus three) and at sufficiently away distance.

**Land Use**

1. A study of the land use (**Table-13**) shows that majority of the area Mandi district is under forest cover and none agriculture use. The land under permanent pastures and grazing is also significant. The barren land area is quite low. The land use of subproject site is urban residential. If land use of sub project sites is to be seen in terms of classification of **Tables 13**, it will fall 'Land put to none agriculture uses'.

**Table-13: Land Use Pattern of Mandi District**

|  |  |
| --- | --- |
| **Land use** | **Area (In 000' hectare)** |
| Geographical Area by Village Papers | 397.80 |
| Forest land | 175.2 |
| Misc. Tree Crops, Groves (Not included in Net Area Sown) | 0.40 |
| Permanent Pastures and Other Grazing Land | 96.3 |
| Culturable Waste land | 4.5 |
| Land put to None Agriculture Uses | 16.20 |
| Barren and Uncultivated land | 8.9 |
| Current Fallows | 9.5 |
| Other Fallows | 0.3 |

*Source: District Census Handbooks 2011*

1. **Agricultural Development**. Agriculture is the main occupation of the people in Mandi district. However, intensive cultivation is not possible as significant part of Mandi district is mountainous. Agricultural activities are common on the gentle hill slopes and in relatively plain, broad river valleys. Fruits and cash crops are a major source of income. The chief food crops cultivated include wheat, maize, rice, barley, seed-potato, ginger, vegetables, vegetable seeds, mushrooms, chicory seeds, hops, and fig.

**Electrification**

1. The Rural Electrification in Mandi district is 99.72 (2842 villages out of 2850 inhabited villages (as per Census 2011)).

## Social and Cultural Resources

### 

### Population and Communities

1. In district Mandi as per Census 2011, total population has been registered as 9,99,777, which is consisted of 4,98,065 males and 5,01,712 females. Out of the total population in the district, 9, 37,140 (73.7 percent) is rural population, comprised of 4,66,050 males and 4,71,090 females and remaining 62,637 (6.3 percent) is urban population, consisted of 32015 males and 30,622 females. In terms of total population at district level Mandi ranks second, while Kangra has highest population in the state. Total population of the district forms 14.56 per cent share of total population of the state. The rural population is distributed in its 17 Tehsil/Sub-tehsils and urban population resides in total 4 towns of the district. Amongst total 3,338 villages of the district, 2,850 villages are inhabited and remaining 488 are uninhabited. Concentration of population is thicker in the areas having lower elevations and it is comparatively thinner in the higher areas. Tehsil Mandi Sadar has the highest population at tehsil/sub-tehsil level in the state. According to Census 2011, density of population or the number of persons per sq. km. has turned out as 253 in district Mandi, which is more than double against the state average figure of 123. Sex ratio or the number of females per 1,000 males in the district is 1,007, which is much above the state average of 972. According to 2011 Census, Scheduled Castes population in Mandi district is 3,93,739 and Scheduled Tribes population has turned out as 12,787, forms 29.4 percent and 1.3 percent, respectively, proportion of the total population. The share of Scheduled Castes population and Scheduled Tribes population in total population in rural areas is higher than the urban areas of the district, these rates in rural areas are 29.94 percent & 1.32 percent and in urban areas these proportions are 21.01 percent & 0.68 percent only. As per 2011 Census data, in total population of 9, 99,777 in the district. 9,81,412 (98.16 percent ) have stated their religion as Hindu , 9,460 (0.95 percent ) Muslims , 4,081 (0.41 percent ) are Sikhs, 2,628 (0.26 percent ) Buddhists while 1,191 (0.12 percent )persons have not stated any religion .Christians are only 876 (0.09 percent ) and the district has only 43 persons of Jain religions. 86 persons are from the category of other religion and persuasions.

**Health facilities**

1. There are good health facilities in Mandi district. The Mandi district has 6 allopathic hospitals, 2 Ayurvedic hospitals, 9 community health centers, 59 public health centers and 311 sub health centers. In addition to above mentioned government run health facilities, there are many privately owned facilities available in major urban centers of the district.

**Education facilities**

1. Mandi district has good educational facilities. In Mandi district has 1699 primary schools, 369 Middle Schools, 334 Senior Secondary Schools and 8 colleges. There is many a number technical education training institutes. The current HSDP project will also contribute towards skills development and employability of Himachali youth.

## 

**Archaeological Resources**

1. There are no heritage sites notified by Archaeological Survey of India (ASI) within or near the sub-project area. Similarly, no common property resources such as public wells, water tanks, play grounds, common grassing grounds or pastures, market areas and community buildings will be affected due to construction of ITI building.

# ENVIRONMENTAL IMPACT AND MITIGATION MEASURES

## 

## Environmental Impacts

1. Any project creating physical infrastructure will cause some minor impacts on the environment. This IEE examines the potential impacts anticipated during the construction and operation of the ITI including:
2. **Location impacts:** Impact associated with site selection including effect on the environment and resettlement or livelihood related impacts on communities;
3. **Design impacts and Pre-Construction Impacts:** Impact arising from project design, including the technology used, scale of operations, discharge standards, topographic survey, geotechnical survey, etc.;
4. **Construction impacts:** Impact resulting from construction activities including site clearance, earthworks, civil works, etc.; and
5. **Operation and Maintenance impacts:** Impact associated with the operation and maintenance of the infrastructure built in the sub-project.
6. ADB’s REA checklist for Buildings was used while screening the site and recommending mitigation measures.

## Location Impacts

1. The ITI site is located on unencumbered land owned by HPSEBL, Government of Himachal Pradesh. The HPSEBL has given NOC to DTE (**Annexure-3**). The ITI building will be constructed on a vacant plot near village Chhattari in Seraj Tehsil of Mandi district. No new land has been acquired for the proposed ITI building, nor has anyone been displaced in anticipation of the proposed ADB project. There are no significant ecological resources in the surroundings ITI site. as it was already in possession of HPSEBL. There are no heritage sites notified by ASI or State Archaeological Department within the delineated subproject area or in the immediate surroundings. No significant impacts can arise due to sub-project location as ITI building components will not impinge upon any area of ecological, archaeological or historical importance. The subproject site will also not require change in land use as being possession for HPSEBL for electricity supply and distribution. The ITI site is not in the immediate vicinity of national highway or state highway. The distance from Thunag- Sunargad road is about 1.0 km, so air and noise pollution impacts on ITI not anticipated on account of vehicular traffic.
2. The subproject site is located within seismic zone V and even a small magnitude earthquake may damage ITI building.

## Impacts during Design and Pre-Construction Phase

1. As noted above, the proposed ITI site is owned by GOHP. There are no issues arising due to land acquisition or involuntary resettlement. There are no issues pertaining to tree cutting also. Based on the environmental screening of the site, it is concluded that there are no significant adverse environmental impacts during the design and Pre-construction phases.

## Impacts during Construction Phase

1. All construction activities to be undertaken at the subproject site will be approved by the PMU. The construction stage impacts due to the proposed project components are generic to the construction activities. The EMP emphasizes on the construction impacts and necessary mitigation measures to be strictly followed by the contractor and supervised by the PWD and PIU. The key potential impacts are covered in the following paragraphs.
2. **Impact due to stock piles of construction materials.** Improper stockpiling of construction materials in and around the ITI could obstruct movement along access road. Hence, due consideration will be given for proper materials storage at construction site. Stockpiles will be covered to protect from dust and erosion. Waste materials will be disposed off at identified and approved locations.
3. **Disposal of construction waste.** The construction waste could lead to untidy conditions at site and may find its way to local drains of residential area where ITI is located. In the proposed sub-project, it shall be mandatory for the contractor to ensure proper disposal of the construction waste at the disposal site as designated by the PWD.
4. **Quarry and Borrow pits operations.** Since the civil works are of a small size, all construction material will be procured from market. There will not be any need for direct procurement of stone dust and sand and other building materials from quarries.
5. **Increase in noise levels.** Noise levels in the immediate proximity of ITI construction site are expected to increase somewhat during construction. However, these will be largely imperceptible as civil works will be confined to relatively small area and site will be well fenced with MS Sheet. The duration of construction will also be relatively brief. Transportation of construction materials will be confined to day-time, depending upon extent of construction activity. The increase in noise levels is expected to be between 3-5 dB (A). This increase will be felt up to a distance of 100-200 m only. This noise will be intermittent in nature, and will last only during the construction phase. The construction noise will not be felt by the Chhattari village as residential houses are at distance of more than 200m. As mentioned earlier that construction noise will be intermittent in nature and at these locations noise levels are not anticipated to exceed the stipulated limits of Residential areas. But necessary monitoring of noise levels will be taken up as part of environmental monitoring plan.
6. **Impacts on biodiversity during construction phase.** No major impacts are expected on the biodiversity during the construction phase as ITI site is in an open area and already in possession of GOHP for usage. There are no endangered or rare species of flora and fauna in the surroundings of proposed ITI site.

1. **Disturbance Due to traffic during construction phase.** At the time of construction, inconvenience to locals is not anticipated as site is located on a wide road and away from habitation. Further, the scale of civil works being relatively small, the inconvenience, if at all caused, will be relatively minor and limited only to the construction phase. A sample Traffic Management plan is attached in **Annexure- 3.**
2. **Impact on cultural properties.** The proposed ITI subproject of HPSDP will not have any impact on any religious structure or any other structure of historical and/or cultural significance.
3. **Ground Water**. Ground water will not be extracted and used for construction purposes. The contractor will arrange for water from the market. It will be supplied by the authorized water tankers. The problem of ground water contamination is also not anticipated during the construction phase since there will be proper disposal of the waste water.
4. **Ambient Air Quality.** Generation of dust is anticipated during transportation, excavation, and construction activities. Some dust and gaseous emissions will also be generated during the construction period from machines such as mixers, and vehicles engaged in transportation of construction materials. Pollutants of primary concern at this stage include respirable and suspended particulate matter (RSPM) and gaseous emissions (NOX, SO2, CO, etc.). However, transportation of construction materials will be confined to a few trips per day depending upon extent of construction activity. Therefore, impact at this stage will be temporary and restricted to the close vicinity of the construction sites only.
5. All vehicles and construction equipment operating for the contractor and the consultant will obtain and maintain “Pollution under Control” (PUC) certificates. To control dust emissions, vehicles deployed for borrow materials, sand and aggregate haulage, will be covered with tarpaulins to be prevent spillage. Regular sprinkling of water during excavations, loading, unloading, vehicular movement, and raw material transport will prevent spread of dust and other contaminants. Periodic air quality monitoring will be conducted to ensure that emissions to comply with the vehicle emission standards specified by the Government of India and ambient air quality standards specified by the Central Pollution Control Board. The contractor will submit emission monitoring results as a compliance with environmental monitoring plan.
6. **Construction Waste.** Some waste will be generated due to excavated earth material and waste from construction. Debris and excavated earth material can be reused subject to the approval of the PWD Engineer during the construction. Waste generated during construction and demolition will be disposed off as per law and to the satisfaction of the Engineer. The clean-up and restoration operations will be implemented by the contractor(s) prior to demobilization. The contractor will clear all temporary structures and dispose off all garbage from construction site. Entire construction site and surrounding vacant area will be left tidy, at the contractors' expense as per the satisfaction the Engineer.
7. The contractor is likely to engage local labor for various construction activities. However, in case of migrant labor has to be engaged, the contractor will establish properly designed labor camps with all basic amenities such as potable drinking water supply and sanitation facilities (septic tanks and soak pit). Dust bins will be placed in adequate numbers. The EMP lays down some measures to address likely adverse impacts associated with the labor camps. Since the site is in Rural area so contractor is quite likely to establish construction camp at ITI site only.

## Environmental Impacts during Operation Phase

1. Since only vocational training and counseling will be undertaken at the ITI, there will not be any adverse environmental impact during operation. The ITI design provides for adequate parking, accommodation, and safe disposal for waste water and solid waste. Toilet blocks with septic tank and soak pits have been included in the building design of ITI. The solid waste generated at ITI during operation phase will be segregated. Its disposal location will be finalized in consultation with village Chhattari members and probably at a location where Chhattari village solid waste is being disposed off. Since septic tanks have been proposed for disposal of waste water, therefore, regular maintenance and cleaning of these needs to be undertaken as part of ITI operations. There may be some waste on account of operation and maintenance of solar PV cell. The supplier of PV cell will be responsible for collection of waste for possible recycle and reuse.

1. The vehicular traffic is not expected to be significant as local students are expected to be enrolled. The road connecting ITI has only local traffic. A diesel generator will be required, but only during power cuts. The generator will be of the silent type, and will comply with the levels stipulated by Central Pollution Control Board.
2. **Safety Measures.** The design of ITI includes structural and seismic safety measures required by India’s latest building codes (in seismic zone V). The other safety features are explained below:

* The ITI will be equipped with fire-fighting systems with portable fire extinguishers and smoke detectors. The staircase will have adequate width to allow for people to exit the ITI building during any fire-related or other eventuality.
* During natural calamities, the operations will be stopped. The trainees and staff will be safely evicted as per Disaster Management plan of Himachal Pradesh.
* Necessary first aid facilities and a dispensary will be provided at the ITI building.

1. **Socioeconomic Impacts.** The ITI functioning will have a positive socio-economic impact since it will provide technical training to the local students which will help in getting employment.
2. **Flora and Fauna.** Since ITI will be constructed on the land that was already in use by the HPSEBL, so no adverse impact on fauna and flora is anticipated due to ITI construction and functioning as no tree and vegetation removal is required. Hence flora and fauna impacts are not anticipated. Further, to enhance the natural look of the ITI building and premises, plantation of shrubs and landscaping will be taken up along the pathways and vacant space. There is no existence of any wild life park, bird sanctuary, national park or any other area notified by the GoHP or MoEFCC for ecological importance within an aerial distance of 25 km from the ITI site.
3. **Emergency Plan for Accident and Natural Hazards-**  For operation phase onsite emergency plan will be prepared by the Principal of the ITI. For natural calamities the Disaster Management Plan prepared by DTE will be followed. The Disaster Management Plans have been prepared by the respective departments of GoHP as per provisions of Disaster Management Act 2005 of Government of India.

## Description of Planned Mitigation Measures

1. Screening of environmental impacts is based on the magnitude and duration of the impact. **Table-14** provides the potential environmental impacts and the mitigation measures including the institutional responsibilities for implementing the same. The sub-project site is located sufficiently away from protected areas and the components proposed will not impact any environmentally sensitive or protected areas. All sub-project activities including construction and operation will take place within available government land.

**Table-14: Summary of Environmental Impacts and Planned Mitigation Measures**

| **Sl. No.** | | **Potential Environmental Issues** | | **Duration or Extent** | **Magnitude** | **Proposed Mitigation Measures** | **Institutional Responsibilities** |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **1** | | **Location Impacts** | | | | | |
| **1.1** | | Lack of sufficient planning to assure long term sustainability of the ITI building and ensure protection specially from earthquake and other natural disasters | | Permanent | Major | The design of ITI building has been completed considering earthquake coefficient of zone V.  The ITI site is not on the bank of any River or stream, so any slope stability; flooding or other issues related to building stability are not anticipated. | PMU and PWD |
| **2** | | **Design and Pre-construction Impacts** | | | | | |
| **2.1** | | Consents, permits, clearances, no objection certificates (NOC), etc. | | Permanent | Major | Obtain all necessary consents, permits, clearance, NOCs, etc. prior to start of civil works.  Acknowledge in writing and provide report on compliance with all the obtained consents, permits, clearance, NOCs, etc.  Include in detailed design drawings and documents all conditions and provisions, if necessary | PIU and PWD |
| **2.2** | | Layout of components to avoid impact on the aesthetics of the ITI site | | Permanent | Major | The ITI components will not have any adverse impacts on aesthetics of site as these involve construction of building within the existing residential area of building. Hence, no mitigation measures are warranted. | Not Applicable |
| **2.3** | | Slope stability related issues | | Permanent | Minor | The ITI is planned on plain area. No slope stability issue is involved in the construction of sub- project building. | Not Applicable |
| **2.4** | | Increased storm water runoff from alterations of the site’s natural drainage patterns due to landscaping, excavation works, construction of parking lots, and addition of paved surface. | | Permanent | Moderate | Design of proposed ITI building will allow efficient drainage at the site and maintain natural drainage patterns. | PMU and PWD |
| **2.5** | | Integration of energy efficiency and energy conservation programs in design of ITI building | | Permanent | Moderate | Following measures have been included in the design to enhance energy efficiency:   * Usage of recyclable materials like wood substitutes. * Installation of BEE certified equipment * Usage of energy efficient lighting fixtures (LED and solar). * Provision of Solar power generation | PMU and PWD |
| **2.6** | | Impacts on Flora and Fauna | | Permanent | Minor | The construction of ITI does not require cutting of trees and also no removal of vegetation as site was in use by the HPSEBL. Hence no impact on flora and fauna anticipated. Further, a positive impact is expected as there will be plantation of shrubs on side slopes of internal roads of ITI as well as tree plantation in the vacant space along the boundary. | PMU and PWD |
| **3** | | **Construction Impacts** | | | | | |
| **3.1** | | Construction Camps - Location, Selection, Design and Layouts | | Temporary | Moderate | Construction camp at the ITI site will be located within the vacant space of plot, as far as possible. The construction camp will not affect the day-to-day activities of local residents. Adequate sanitation facilities shall be provided at camp site and no waste water will be discharged outside. | Contractor and PIU |
| **3.2** | | Traffic circulation plan during construction | | Temporary | Moderate | Prior to commencement of site activities and mobilization on ground, the contractor will prepare a traffic circulation plan for safe passage of local traffic during construction stage. This will include alternative access routes, traffic regulations, Signages, etc. The contractor will get these plans approved from the PWD (the Engineer),  The contractor will disseminate the traffic circulation plan around the sub- project site. | Contractor, and PWD |
| **3.3** | | Impacts on flora and fauna | | Temporary | Moderate | The PMC will conduct site induction and environmental awareness programs at the ITI site.  The construction related activities will be limited within the work areas.  Storage of construction materials will be within the sub-project site limits.  ITI site specific landscape and shrubs and tree plantation plans will be prepared at the end of construction period and necessary landscaping, tree plantation and shrubs plantation should be carried out as per this plan. | Contractor and PWD |
| **3.4** | | Site clearance activities, including delineation of construction areas | | Temporary | Moderate | The commencement of site clearance activities will be undertaken with due permission from the Environment Specialist of the PWD/ PMU to minimize environmental impacts.  All areas used for temporary construction operations will be subject to complete restoration to their former conditions with appropriate rehabilitation procedures. | Contractor and PWD |
| **3.5** | | Drinking water availability | | Temporary | Major | Sufficient supply of potable water will be provided and maintained at the construction site and construction camp. If the drinking water is obtained from an intermittent public water supply, then storage tanks will be provided. | Contractor and PWD |
| **3.6** | | Waste disposal | | Permanent | Major | Location of disposal site for construction waste will be finalized by the Environmental Specialist of the PWD and PMU for the ITI site. He will confirm that disposal of the material will not impact the water body or environmentally sensitive areas. He will also ensure that no endangered or rare flora is impacted by such materials. | Contractor and PWD |
| **3.7** | | Stockpiling of construction materials | | Temporary | Moderate | Stockpiling of construction materials should not impact or obstruct the local drainage and Stockpiles will be covered to protect from dust and erosion. | Contractor and PWD |
| **3.8** | | Soil Erosion | | Temporary | Moderate | There may be requirement for temporary slope protection during construction at the excavated areas. These requirements should be met. The slope protection measures for the current finalized ITI site should be assessed and if need is felt, detailed drawings should be prepared. Adequate measures will be taken up at this site so that there is no soil erosion causing risks in the vicinity. | Contractor and PWD |
| **3.9** | | Soil and Water Pollution due to fuel and lubricants, construction waste | | Temporary | Moderate | The vehicle cleaning and storage of fuel should be avoided at ITI site as far as possible. In case of unavoidable circumstances, fuel storage and vehicle cleaning area at ITI site will be stationed such that water discharge does not drain into the local drain. Soil and water pollution parameters will be monitored as per monitoring plan. | Contractor and PWD |
| **3.10** | | Siltation of water bodies due to spillage of construction wastes | | Temporary | Moderate | No disposal of construction wastes will be carried out into natural stream in the vicinity of site. Extraneous construction wastes will be transported to the pre-identified disposal sites for safe disposal. | Contractor and PWD |
| **3.11** | | Generation of dust | | Temporary | Moderate | The contractor will take every precaution to reduce the levels of dust at construction site. The site will be properly barricaded with prefabricated MS sheets. | Contractor and PWD |
| **3.12** | | Emission from Construction Vehicles, Equipment and Machinery | | Temporary | Moderate | Vehicles, equipment and machinery used for construction will conform to the relevant Standards (vehicular emission standards of Government of India and CPCB specified standards for equipment and machinery) and will be regularly maintained to ensure that pollution emission levels comply with the relevant requirements. | Contractor and PWD |
| **3.13** | | Noise Pollution | | Temporary | Moderate | Noise limits for construction equipment used in this project will not exceed 75 dB (A). The site will be properly barricaded with prefabricated MS sheets to avoid noise impacts on surrounding residential houses. | Contractor and PWD |
| **3.14** | | Material Handling at Site | | Temporary | Moderate | Workers employed on mixing cement, lime mortars, concrete, etc., will be provided with protective footwear and protective goggles.  Workers, who are engaged in welding works, will be provided with welder’s protective eye-shields.  Workers engaged in stone breaking activities will be provided with protective goggles and clothing.  The use of any toxic chemical will be strictly in accordance with the manufacturer’s instructions. The Engineer will be given at least 6 working days’ notice of the proposed use of any chemical. A register of all toxic chemicals delivered to the site will be kept and maintained up to date by the Contractor. | Contractor and PWD |
| **3.15** | | Disposal of Construction Waste | | Temporary | Moderate | Safe disposal of the construction waste will be ensured in the pre-identified disposal locations. In no case, any construction waste will be disposed off around the sub-project site and especially in vacant plots in the locality. | Contractor and PWD |
| **3.16** | | Safety Measures During Construction | | Temporary | Moderate | Adequate safety measures for workers during handling of materials at the sub-project sites will be taken up.  The contractor has to comply with all regulations for the safety of workers. Precaution will be taken to prevent danger of the workers from fire, accidental injury, etc. First aid treatment will be made available for all injuries likely to be sustained during the course of work.  The Contractor will conform to all anti-malaria instructions given to him by the Engineer. | Contractor and PWD |
| **3.17** | | Clearing of Construction of Camps and Restoration | Temporary | Major | Contractor at the sub-project site will prepare site restoration plan for approval by the Engineer (PWD). These camp site restoration plans are to be implemented by the contractor prior to demobilization.  On completion of the works, all temporary structures will be cleared away, all rubbish burnt, excreta or other disposal pits or trenches filled in and effectively sealed off and the site left clean and tidy, at the Contractor’s expense, to the entire satisfaction of the Engineer | Contractor and PWD |
| **3.18** | | Onsite emergency plan for minor accidents and mishaps and Disaster Management Plan for Natural Calamities | Temporary | Major in case of natural calamity and minor in case of accidents or mishaps at construction site | The onsite emergency plan will be prepared by the contractor in consultation with PWD and PMC.  For natural calamities, disaster management plan prepared by the PWD under the provisions of Disaster Management Act 2005 will be followed. | Contractor |
| **4** | | **Operation and Maintenance impacts** | | | | |
| **4.1** | | Environmental Conditions | | Temporary | Moderate | Air, water, and noise levels will be monitored periodically as per the Environmental Monitoring Plan prepared. Adequate height boundary wall shall be constructed around ITI for the building safety. | DOTE |
| **4.2** | | Safety risks | | Temporary | Major | All safety features provided as part of ITI building construction will be maintained. | DOTE |
| **4.3** | | Unhygienic conditions due to poor maintenance of sanitation facilities and irregular solid waste collection | | Temporary | Severe | The ITI will carry out maintenance of the toilets, and carry out the regular collection and disposal of wastes to the local disposal site. The septic tanks will be maintained and emptied regularly. | DOTE |
| **4.4** | | Onsite emergency plan for minor accidents and mishaps and Disaster Management Plan for Natural Calamities | | Temporary | Major in case of natural calamity and minor in case of accidents or mishaps at construction site | The Principal ITI with the assistance of team working under him will prepare on site emergency plan for possible minor accidents and mishaps during operation phase.  For natural calamities, the disaster management plan prepared by DOTE will be followed. | Principal ITI Chhattari |
| **4.5** | | Waste from operation and maintenance of Solar PV Cell | | Occasionally | Minor | The supplier of Solar PV cell will collect any waste generated on account of operation and maintenance for possible recycle/reuse/disposal as operations will be maintained by the supplier. | Operator Solar PV Cell |

## Land Aquisition and Resettlement

1. The proposed ITI building is planned on the land owned by GoHP. The revenue records showing ownership of GOHP for the proposed ITI site have been given in **Annexure-3**. Hence, there will not be any acquisition of private land. The proposed plot for ITI building construction is unencumbered land; therefore, there is no acquisition any private assets. At the ITI site, there are also no squatters or encroachers. Hence, there is no requirement of any rehabilitation and resettlement for constructing ITI building.

# ENVIRONMENT MANAGEMENT PLAN (EMP)

## Institutional Arrangements for Project Implementation

1. The Government of Himachal Pradesh through DOTE is the executing agency. The executing agency (i) assumes overall responsibility for the execution of the project and reporting; (ii) engages adequate permanent or fixed-term staff to implement the Project; (iii) sets up a state-level project management unit (PMU) and project implementation units (PIUs) at local sub-project level; (iv) provides overall strategic guidance on technical supervision and project execution; and (v) ensures overall compliance with the loan covenants.
2. The implementing agencies in the project are HPKVN, DTE, DOHE and PWD. The implementing agency responsibilities include (i) project planning and budgeting; (ii) day-to-day assistance, supervision and guidance for the project implementation units and their consultants; (iii) review sub-projects for due diligence requirements and approve sub-project proposals; (iv) bidding, evaluation and contract award; (v) managing and disbursing funds; (vi) review compliance with loan covenants, contract specifications, work plans and quality control; and (vii) consolidate and submit progress reports, finance and accounting / audit reports, and matters requiring higher level decision to state-level empowered committee (SLEC) and ADB.
3. A State-level empowered committee (SLEC) has been established in Himachal Pradesh. This committee is chaired by State’s Chief Secretary, with Principal Secretary/Secretary of the Department of Planning as Member Secretary and Secretaries from relevant line departments (PWD, DOUD, DORD and DOLE) and HPKVN Managing Director as members. The SLEC has been empowered to take all decisions on behalf of the State and will (i) act as a policy making body, (ii) provide overall advice and guidance to the State’s executing agency and PMU, and (iii) accord all approvals under the project.
4. DOP has established a PMU, headed by a full-time Project Director (PD) at HPKVN, and consisting of personnel drawn from relevant line departments and market. This PMU also have safeguards expert (social and environment). The PMU is supported by the Project Management Consultants (PMC). The PMU is the nodal agency for overall management of all program activities and is responsible for: (i) project planning and budgeting; (ii) providing day-to-day assistance, supervision and guidance for the PIUs and PWD; (iii) reviewing sub-projects to satisfy ADB’s due diligence requirements and approving sub-project proposals submitted by PIUs and line departments; (iv) bidding, evaluation and contract award; (v) managing and disbursing funds; (vi) reviewing compliance with loan covenants, contract specifications, work plans and quality control; (vii) consolidating and submitting progress reports, finance and accounting/audit reports, and matters requiring higher-level decision, to the SLEC and ADB.
5. The sub-project will be implemented by the Project Implementation Unit (PIU) at Mandi, comprising of personnel drawn from PWD and outside of government and will be headed by an Executive Engineer rank official of PWD. The PIU will be responsible for: (i) prioritizing and preparing sub-project proposals; (ii) providing day-to-day assistance, supervision and guidance to the PWD and an agency hired for quality check; (iii) conducting detailed assessments and surveys including public consultation and input from stakeholders; (iv) preparing detailed designs, specifications, schedule of quantity, bidding documents, and related documentation; (v) implementing civil works and related activities; (vi) reporting to PMU; (vii) preparing regular progress reports for the SLEC, the executing agency and ADB through PMU; and (viii) supervising construction, conducting quality control, approving progress payments to contractors; and (ix) maintaining records and accounts on an up-to-date basis and making these available to ADB, its missions, or auditors for inspection.
6. The Project Management Consultant (PMC) has been engaged to provide support to the PMU in overall planning, risk management, implementation, monitoring and evaluation of projects under the HPSDP. The PMC also assists the PMU and PIUs in meeting the relevant requirements of ADB, GOHP, and GOI for project implementation. The PMC reports to and work under the overall guidance of the PMU. The scope of services of the PMC’s include but not necessarily limited to: (i) planning, reporting, and communication; (ii) establishment of procedures and systems; (iii) review and preparation of plans, manuals and reports; (iv) overall project management, monitoring and implementation of MIS; and (v) social, environmental, archaeological, occupational health and safety, community participation and gender action compliance monitoring.
7. The executing agency will engage one agency for the quality check and to meet timeline requirements. This agency will work under the PMU. The scope of services of the agency will include but not necessarily be limited to: (i) surveys, verification of feasibility studies and base maps; (ii) project planning and management support to the PIU; (iii) finalization of design criteria, preparation of manuals, guidelines and systems; (iv) preparation of detailed design and bid documents; and (v) construction management and contract administration.
8. In order to ensure effective implementation of safeguard related components in the project PIU at PWD will include a safeguard expert (an environmental cum social expert) in the team. This safeguard expert will ensure compliance with ESMF requirements, and implementation of environmental management plan of ITI site through selected contractor.
9. The PMC also have safeguard experts in their team to support PMU in reporting, safeguards related documents preparation, disclosure and capacity building of PIUs, PMU and contractor. The PMU at HPKVN has established a safeguard cell comprising of an environmental expert, and a social development expert.
10. The contractor in the current ITI sub-project site will designate one officer as safeguard cum safety officer for the implementation of IEE and EMP requirements at site. The project implementation arrangement for safeguard compliance has been shown below in **Figure -6**.
11. The EMP for ITI Chhhattari for Pre construction, a construction and operation phase is given in **Tables**-**15 to 17**.

|  |
| --- |
| **Figure-6: Project implementation arrangement for safeguard compliance**  **image007.jpg** |

## Responsibility for updating IEE during Pre-Construction and Construction

1. **Responsibility for monitoring.** During construction, the Environmental Specialist of the Safeguards cell at PMU (at HPKVN) and the designated representative engineer of the PWD will monitor the contractor’s performance. During the operation phase, monitoring will be the responsibility of the PMU. The Environmental specialist PMU will prepare semi-annual reports.
2. **Responsibility for Reporting.** PMU atHPKVN will submit semi-annual reports on the implementation of the EMP to ADB. It will permit ADB to field environmental review missions to examine in detail, the environmental aspects of the project. Any major lapses in adhering to the ESMF and IEE and / or EMPs for specific sub-projects should be reported to ADB immediately. The PMC’s Environment Safeguard Specialist will assist the PMU in finalizing the semi-annual and annual progress reports. For any none compliance observed corrective actions will be taken in a time bound manner. The cost for mitigating none compliance will be borne by the contractor as per contract provisions. In case of mitigation costs not coming in scope of contract, these will be met out of contingencies built in EMP cost and in overall project cost.

**Table-15: Pre-Construction Phase Environmental Management Plan for ITI Chhattari**

| **Sl. No.** | **Environmental Issues** | **Mitigation Measures** | **Parameters (Indicators for Compliance)** | **Responsible for Implementation** | **Responsible for Supervision** | **Frequency for Monitoring** | **Sources of Fund for Implementing Mitigation Measure** |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **1** | Lack of sufficient planning to assure long term sustainability of the improvements and ensure protection of the assets created. | Design has included provisions for ensuring effective maintenance and protection of the assets to be created so as to ensure the long term sustainability. The long term sustainability has been ensured by taking into consideration appropriate Bureau of Indian Standards Codes (BIS) for design, Seismic Zone V coefficient, appropriate wind load factor (corresponding to 39 m/s wind speed), and detailed design after carrying geotechnical investigations and topographic survey at ITI Chhattari site. | Verification of site specific design parameters | PWD | PMU and PMC | Review after completion of DPR | Part of PWD and PMC Professional Fee |
| **2** | Layout of components to avoid impacts on the aesthetics of the of the ITI site and surroundings | The site and layout of ITI have been finalized at vacant land under the ownership of HPSEBL, GOHP. The HPSEBL has given NOC to DOTE for the construction and operation of ITI. The exterior of ITI building will well mix with the existing buildings. | ITI Chhattari building's exteriors | PIU and PWD | PMU and PMC | Review after completion of detailed design | Part of PWD and PMC Professional Fee |
| **3** | Slope stability related issues | The ITI Chhattari site is flat, however, during construction any exposed slopes at excavated areas will be covered and slope protection measures will be provided specially at side slopes of internal roads. | Slope protection measures on side slopes of access path, internal roads, etc. | PIU and PWD | PMU and PMC | Review of recommended slope protection measures | Part of PWD and PMC Professional Fee |
| **4** | Increased storm water runoff from alterations of the site’s natural drainage patterns due to landscaping, excavation works, construction of parking lot, and addition of paved surfaces | Design of proposed ITI building at Chhattari enables efficient drainage of the plot. The storm water generated will be diverted to local drain through a properly constructed drainage system. Since ITI site is in hilly region, therefore, there is swift flow and drainage is not an issue. | Arrangement for proper diversion of storm water runoff | PIU and PWD | PMU and PMC | After mobilization of contractor at the ITI site and during establishment of construction camp. | Incidental to construction cost |
| **5** | Integration of energy efficiency and energy conservation programs in design of sub-project components | The detailed design for the proposed ITI at Chhattari has ensured the environmental sustainability principles, including energy efficiency, resource recycling, waste minimization, etc. The design considers the following energy efficiency measures:   * Usage of recyclable materials like wood substitutes. * Installation of BEE certified equipment * Usage of energy efficient lighting fixtures (LED ) * Provision of P-V cells on roof top for solar power. | Specifications of rain water harvesting structures, electrical fixtures, details of water heating system | PIU and PWD | PMU and PMC | During finalization of detailed design | Part of project cost |
| **6** | Consents, permits, clearances, no objection certificate (NOC), etc. | Obtain all necessary consents, permits, clearances, NOCs, etc. prior to start of civil works.  Acknowledge in writing and provide report on compliance all obtained consents, permits, clearances, NOCs, etc. | Consents, permits, clearance and NOCs  Records and communications | PIU and DOTE | PMU | Check consent for establishment of construction camp at ITI site, approval of ITI drawings from civic authorities any other local permission required. | Project cost |
| **7** | Establishment of baseline environmental conditions prior to start of civil works | 1-Conduct documentation of location of components, areas for construction zone (Camp, staging, storage, stockpiling, etc.) and surroundings (within direct impact zones). Include photos and GPS coordinates  2- Carry out environmental monitoring at ITI site for ambient air quality, water quality and noise levels to establish baseline environmental monitoring for the parameters indicated in the monitoring plan | Records and Photographs, baseline environmental monitoring results | Contractor | PIU and PWD | Once prior to start of construction works | Contractor |
| **8** | Finalization of landscaping and tree plantation plan | Landscaping and tree plantation plan is to be prepared based on finalized and approved layout of ITI. In this plan locations of tree plantation and landscaping should be clearly marked. | Locations of tree plantation and shrubs plantation plan preparation | PIU | PMU | After finalization and approval of layout | Project cost |
| **9** | Utilities | * The locations and operators of utilities to be impacted should be identified and documented in detailed design documents to prevent unnecessary disruption of services during the construction phase. * Require contractor to prepare a contingency plan to include actions to be done in case of unintentional interruption of services. * Obtain from the PIUs and/or PWD the list of affected utilities and operators; * If relocations are necessary; contractor will coordinate with the providers to relocate the utility. | List and maps showing utilities to be shifted  Contingency plan for services disruption | * PWD will prepare preliminary list and maps of utilities to be shifted * During detailed design phase, contractor to (i) prepare list and operators of utilities to be shifted; (ii) contingency plan | PIU and PWD | Pre-Construction Phase | Contractor |
| **10** | Social and Cultural Resources | * Consult Archaeological Survey of India (ASI) or Himachal Pradesh State Archaeology Department to obtain an expert assessment of the archaeological potential of ITI site although no such potential is seen. * Consider alternatives, if the ITI site, is found to be of medium or high risk.   Include state and local archaeological, cultural and historical authorities, and interest groups in consultation forums as project stakeholders so that their expertise can be made available.   * Develop a protocol for use by the contractors in conducting any excavation work, to ensure that any chance finds are recognized and measures are taken to ensure they are protected and conserved. | Chance find protocol | * PMC to consult ASI or HP State Archaeology Department * PMC to develop protocol for chance finds | PMU | Prior to start of construction activities | PMC |
| **11** | Construction Camp- Locations, Selection, Design and Layout | Sitting of the construction Camp at ITI site shall be as per the guidelines below and details of layout to be approved by PWD.  The potential sites for labor camp and construction camp shall be identified by the contractor and this identified site shall be visited by the environmental expert of PMU safeguards cell along with environmental expert of PWD and one having least impacts on environment will be approved by the PWD and PMU. As far as possible, construction camp and labor camp will be established at vacant land in ITI plot or adjoining vacant land to avoid impact on private land. Locations for storage of construction materials shall be identified at the site or at the adjacent plot to the site. Sanitation facilities at construction camps shall be adequately planned. | Construction Camp sites, and locations of material storage areas, sanitation facilities | Contractor | PWD and PIU | At the time of construction camps establishment and finalization of storage areas | Contractor |
| **12** | Sources of construction materials | Use quarry sites and sources licensed by the GOHP.  Verify suitability of all material sources and obtain approvals from PIU.  If additional quarries are required after construction has started, obtain written approval from PIU.  Submit to PWD on a monthly basis documentation of sources of materials. | Permits issued to quarries and sources of materials | Contractor  PMC and PWD to verify sources (including permits) if additional is requested by contractor | PMU and PIU | Upon submission by contractor(s) | PMC and PWD as part of consultancy fee |
| **13** | Access for Construction material transportation | Plan transportation routes so that heavy vehicles do not use narrow local roads, except in the immediate vicinity of ITI site.  Schedule transport and hauling activities during non-peak hours.  Locate entry and exit points in areas where there is low potential for traffic congestion.  Keep the sites free from all unnecessary obstructions.  Drive vehicles in a considerate manner.  Coordinate with the Traffic Police Department for temporary road diversions and for provision of traffic aids if transportation activities cannot be avoided during peak hours. | Traffic management plan | Contractor | PIU and PWD | During Delivery of construction materials | Contractor |
| **14** | Occupational health and safety | Comply with IFC EHS Guidelines on Occupational Health and Safety.  Develop comprehensive site-specific health and safety (H&S) plans. The overall objective is to provide guidance to contractor on establishing a management strategy and applying practices that are intended to eliminate, or reduce, fatalities, injuries and illnesses for workers performing activities and tasks associated with the project.  Include in H&S plan measures such as: (i) type of hazards at ITI construction site; (ii) corresponding personal protective equipment for each identified hazard; (iii) H&S training for all site personnel; (iv) procedures to be followed for all site activities; and (v) documentation of work-related accidents.  Provide medical insurance coverage for workers. | Health and safety (H&S) plan | Contractor | PMU and PMC, PIU and PWD | During Pre construction phase | Contractor |
| **15** | Stakeholder consultations | Continue information dissemination, stakeholder consultations, and involvement/participation of stakeholders during project implementation. | -Disclosure records  - Consultations | PMU,PMC  PIU,PWD and  Contractor | PMU and PMC | * During updating of IEE Report * During preparation of site- and activity-specific plans as per EMP * Prior to start of construction * During construction | PMU and  Contractor |

**Table-16: Construction Phase Environmental Management Plan for ITI Chhattari**

| **Sl. No.** | **Environmental Issues** | **Mitigation Measures** | **Parameter (Indicators for Compliance)** | **Responsible Implementation** | **Responsible Supervision** | **Frequency for Monitoring** | **Sources of Fund for Implementing Mitigation Measure** |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **1** | Sanitation and drinking water facilities at construction Camp at ITI Chhattari site | The contractor shall provide sanitation facilities at the camp site. These facilities will include dust bins in adequate numbers for solid waste collection, drinking water facilities, and separate toilets for male and females. These toilets facilities shall be maintained and septic tanks/soak pits shall be provided at the toilets. The dust bins shall be regularly emptied and waste from camp site shall be disposed off at designated locations. | Construction camp sanitation and drinking water facilities | Contractor | PWD and PIU | Regularly during construction phase | Contractor |
| **2** | Traffic Circulation plan during construction phase | Prior to commencement of site activities and mobilization on ground ,the Contractor will prepare and get approved from the Engineer (PWD), circulation plan during construction for safe passage of public vehicles so that locals are not at inconvenience. The Contractor with support of the PIU will carry out dissemination of these information and circulation plan at ITI site | Safe movement of Traffic | Contractor | PWD and PIU | Every day during construction phase | Contractor |
| **3** | Site clearance activities, including delineation of construction area | Only ground cover shrubs, if any, that impinge directly on the permanent works or necessary temporary works shall be removed with prior approval from the Environmental Experts of PWD and PMC.  All areas used for temporary construction operations will be subjected to complete restoration to their former conditions with appropriate rehabilitation procedures. The photographic records shall be maintained for the temporary sites used for construction. These will help in proper restoration. | Pre-construction records of site and vegetation in area of construction | Contractor | PWD and PIU | Duration of site preparation | PWD and PIU |
| **4** | Drinking water availability at Construction camp and construction site | Sufficient supply of cold potable water to be provided and maintained. If the drinking water is obtained from an intermittent public water supply then storage tanks will be provided. For this contractor will submit plans how availability of drinking water shall be assured. In case it is obtained from the natural spring then permission from local authorities shall be obtained. | Water supply source and availability of water , permission of local authority if obtained from local spring | Contractor | PWD and PIU | During Construction phase regularly | Contractor |
| **5** | Waste disposal | The pre-identified disposal location shall be part of Comprehensive Waste Disposal Plan. Solid Waste Management Plan to be prepared by the Contractor in consultation with local civic authorities.  The Environmental Specialist of PWD shall approve these disposal sites after conducting a joint inspection on the site with the Contractor.  Contractor shall ensure that waste shall not be disposed off near water stream in the surroundings of site and along the access path. | Waste Disposal sites, waste management plan | Contractor | PWD and PIU | Regularly during construction phase | Contractor |
| **6** | Stockpiling of construction materials | Stockpiling of construction materials will be done in such a way that it does not impact and obstructs the drainage. The stockpiles will be covered to protect from dust and erosion. | Stockpiling sites at ITI construction site | Contractor | PWD and PIU | Regularly during construction phase | Contractor |
| **7** | Arrangement for Construction Water | (i) The Contractor shall provide a list of locations and type of sources from where water for construction shall be acquired.  (ii)The contractor shall use ground/surface water as a source of water for the construction with the written consent from the concerned Department.  (iii)To avoid disruption/ disturbance to other water users, the Contractor shall arrange water from market or from local municipality and consult PWD before finalizing the source. | Water availability at identified water source locations | Contractor | PWD and PIU | Regularly during construction phase | Contractor |
| **8** | Soil Erosion | Slope protection measures will be undertaken as per design to control soil erosion especially on side slopes of access and internal roads. | Locations of slope protection | Contractor | PIU and PWD |  | Contractor |
| **9** | Water Pollution from Construction Wastes | The Contractor shall take all precautionary measures to prevent entering of waste water into local stream during construction. | Sub-project site | Contractor | PIU and PWD | Regularly during construction phase | Contractor |
| **10** | Water Pollution from Fuel and Lubricants | 1-The Contractor shall ensure that all construction vehicle parking locations, fuel/ lubricants storage sites, vehicle, machinery and equipment maintenance and refueling site shall be located at least 500 m away from the natural stream.  2-Contractor shall ensure that all vehicle/machinery and equipment operation, maintenance and refueling shall be carried out in such a manner that spillage of fuels and lubricants does not contaminate the ground.  3- Waste water from vehicle parking, fuel storage areas, workshops, wash down and refueling areas shall be treated in an oil interceptor before discharging it on land or into surface water bodies or into other treatment system.  4-The monitoring of ground and surface water quality will be taken up as per monitoring plan. | Vehicle parking, refueling sites, Oil interceptor functioning | Contractor | PIU and PWD | Regularly during construction phase | Contractor |
| **11** | Soil Pollution due to fuel and lubricants, construction wastes | The fuel storage and vehicle cleaning area will be stationed such that spillage of fuels and lubricants does not contaminate the ground. Soil and water pollution parameters will be monitored as per monitoring plan. | Vehicle maintenance and parking area, soil quality monitoring results | Contractor | PIU and PWD | Regularly during construction phase | Contractor |
| **12** | Siltation of water bodies due to spillage of construction wastes | No disposal of construction wastes will be carried out into the surface water bodies. Extraneous construction wastes will be transported to the pre-identified disposal sites for safe disposal. | Water bodies specially natural streams | Contractor | PIU and PWD | Regularly during construction phase | Contractor |
| **13** | Generation of dust | The contractor will take every precaution to reduce the levels of dust at construction site.  All filling works to be protected/ covered in a manner to minimize dust generation. In order to minimize impacts on habitation, the ITI site will be properly barricaded with prefabricated MS sheets of adequate height (3-4 m). | Sub-project site, air quality monitoring results | Contractor | PIU and PWD | Regularly during construction phase | Contractor |
| **14** | Emission from Construction Vehicles, Equipment and Machinery | All vehicles, equipment and machinery used for construction shall conform to the relevant Bureau of India Standard (BIS) norms. The discharge standards promulgated under the Environment Protection Act, 1986 shall be strictly adhered to. The silent/quiet equipment available in the market shall be used in the ITI construction.  The Contractor shall maintain a record of PUC for all vehicles and machinery used during the contract period which shall be produced for verification whenever required. | PUC certificates of vehicles and machinery | Contractor | PIU and PWD | Regularly during construction phase | Contractor |
| **15** | Noise Pollution | The Contractor shall confirm that all Construction equipment used in construction shall strictly conform to the MoEFCC and CPCB noise standards and all vehicles and equipment used in construction shall be fitted with exhaust silencers.  At the construction sites noisy construction work such as crushing, operation of DG sets, use of high noise generation equipment shall be stopped during the night time between 10.00 pm to 6.00 am.  Noise limits for construction equipment used in this project will not exceed 75 dB (A). The ITI site will be properly barricaded with MS Sheets of adequate height to avoid impacts of noise generated due to construction activities. | Certificates of vehicles conforming noise standards, noise monitoring results | Contractor | PWD and PIU | Regularly during construction phase | Contractor |
| **16** | Impacts on flora and fauna | Minimize impacts on flora and fauna during construction phase by limiting site clearance bare minimum and limiting all types of pollution generation. Take compensatory plantation works and shrubs plantation works at the end of construction as per landscape plan and tree plantation prepared in pre construction phase. | Environmental monitoring reports,  Trees and shrubs planted at ITI site | Contractor | PWD and PIU | Regularly during construction phase | Contractor |
| **17** | Material Handling at Sub-Project site | Workers employed on mixing cement, lime mortars, concrete, etc., will be provided with protective footwear and protective goggles.  Workers, who are engaged in welding works, will be provided with welder’s protective eye-shields.  The use of any toxic chemical will be strictly in accordance with the manufacturer’s instructions. The PWD will be given at least 6 working days’ notice of the proposed use of any chemical. A register of all toxic chemicals delivered to the site will be kept and maintained up to date by the Contractor. | Data on available personal protective equipment | Contractor | PWD and PIU | Regularly during construction phase | Contractor |
| **18** | Disposal of Construction Waste, and Debris | The Contractor shall confirm that safe disposal of the construction waste will be ensured in the pre-identified disposal locations. In no case, any construction waste will be disposed off around the ITI site | Disposal site | Contractor | PIU and PWD | Regularly during construction phase | Contractor |
| **19** | Onsite emergency plan for minor accidents and mishaps and Disaster Management Plan for Natural Calamities | The onsite emergency plan will be prepared by the contractor in consultation with PWD and PMC.  For natural calamities, disaster management plan prepared by the PWD under the provisions of Disaster Management Act 2005 will be followed. | Onsite emergency plan document and Disaster Management Plan document of PWD | Contractor | PWD | Mock Drill every quarter | Contractor |
| **20** | Safety Measures During Construction | Adequate safety measures for workers during handling of materials at the ITI site will be taken up.  The contractor has to comply with all regulations for the safety of workers. Precaution will be taken to prevent danger of the workers from accidental injuries, fire, etc. First aid treatment will be made available for all injuries likely to be sustained during the course of work.  The contractor will conform to all anti-malaria instructions given to him by the Engineer. | Records of availability of personal protective equipment, availability of first aid kits | Contractor | PIU and PWD | Regularly during construction phase | Contractor |
| **21** | Clearing of Construction of Camp and Restoration | Contractor to prepare site restoration plans for approval by the Engineer (PWD). The plan is to be implemented by the contractor prior to demobilization.  On completion of the works, all temporary structures will be cleared away, all rubbish burnt, excreta or other disposal pits or trenches filled in and effectively sealed off and the site left clean and tidy, at the Contractor’s expense, to the entire satisfaction of the PWD | Restoration plan, and records of pre-construction of temporary sites | Contractor | PIU and PWD | End of construction phase | Contractor |

**Table-17: Operation Phase Environmental Management Plan for ITI Chhattari**

| **Sl. No.** | **Environmental Issues** | **Mitigation Measures** | **Parameter (Indicators for Compliance)** | **Responsible Implementation** | **Responsible Supervision** | **Frequency for Monitoring** | **Sources of Fund for Implementing Mitigation Measure** |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **1** | Environmental Conditions | The periodic monitoring of the ambient air quality, noise levels, and water quality will be taken up as per monitoring plan through an approved monitoring agency. | Monitoring results and relevant standards | DOTE through Pollution Monitoring Agency | PIU | As per monitoring Plan | DOTE and PMU |
| **2** | Unhygienic conditions due to poor maintenance of sanitation facilities and irregular solid waste collection | The DOTE through hired agency and/or staff will carry out maintenance of the toilets at ITI and carry out the regular collection and disposal of wastes to a designated waste treatment site. For solid waste disposal suitable site will be identified or waste will be disposed off at location where Chhattari village waste is being disposed off. Septic tanks will be maintained and regularly emptied. | Maintenance schedule of ITI building and facilities created | DOTE | PIU | Every Quarter | DOTE and PMU |
| **3** | Maintenance of compensatory plantation and shrubs plantation | For first three years survival rate of compensatory plantation and shrubs planted shall be monitored. New saplings will be planted for the numbers identified for non survival. This shall be done before onset of monsoon. | Saplings and shrubs not survived. | DOTE | PIU | Every year before onset of monsoon for first 3 years. | DOTE and PMU |
| **4** | Natural Disasters | Necessary procedures to be followed by the visitors, ITI Teaching and support staff and students during the natural disasters shall be written at prominent locations. | Warnings of disasters by Meteorological Department | District Administration | PIU | During Disasters | Government of Himachal Pradesh |
| **5** | Waste from operation and maintenance of solar PV Cell | The supplier of Solar PV cell will collect any waste generated on account of operation and maintenance for possible recycle/reuse/disposal as operations will be maintained by the supplier. | Waste generated from operation and maintenance of Solar PV Cell | Supplier and Operator of Solar PV Cell | Principal ITI | As per schedule of maintenance | Fee of Solar PV Cell Supplier |
| **6** | Onsite emergency plan for minor accidents and mishaps and Disaster Management Plan for Natural Calamities | The Principal ITI Chhattari will prepare onsite emergency plan for possible minor accidents and mishaps for operational phase.  For natural calamities, the disaster management plan prepared by DOTE will be followed. | Onsite Emergency plan document and Disaster Management Plan document | Principal ITI Chhattari | DOTE | Mock Drills every quarter | ITI operation cost |

## Environmental Monitoring Plan

1. Environmental monitoring will be undertaken during construction at three levels. Environmental monitoring (covers EMP implementation and compliance with all of the Government of Himachal Pradesh’s rules with respect to the environment, and handling of solid and liquid waste) at site will be undertaken by the contractor during preconstruction and construction Phases, and will be supervised by PWD and PMU(through PMC). Environmental monitoring during operation phase will be undertaken by the DOTE and will be monitored by HPKVN. The Environment and Social Safeguards Specialists of the PMC will ensure that IEE and EMP are updated for any changes in design in accordance with ADB’s and GOHP’s requirements. These PMC staff will also coordinate between PWD, HPKVN and DOTE to ensure that all the provisions of the EMP are being adhered to by the contractor.
2. To ensure the effective implementation of mitigation measures and EMP during construction and operation phase of the ITI, it is essential that an effective Environmental Monitoring Plan is followed as given in **Table 18**. The proposed monitoring of all relevant environmental parameters, with a description of the sampling stations, frequency of monitoring, applicable standards and responsible agencies are presented in this table.

**Table-18: Environmental Monitoring Plan for ITI Chhattari for Preconstruction, Construction and Operation Phases**

| **Sl. No.** | **Field (Environmental Attribute)** | **Phase** | **Parameters to be Monitored** | **Locations** | **Frequency** | **Responsibility** | **Cost**  **(INR/US$)** |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **1** | Air Quality | During pre-construction phase | CO, NOx, PM10, PM2.5, and SO2 | ITI Construction site | Once in the pre-construction phase to establish baseline | Contractor, PWD, PMU and DOTE through approved Monitoring Agency | INR130,000/ US $ 1900 |
| During Construction Phase | Once in a season (except monsoon season) during construction phase (24 months construction phase) |
| Operation Phase | Once in a season except monsoon season for first 2 years of operation phase |
| **2** | Water quality | During pre-construction phase | TDS, TSS, pH, Hardness, BOD, Faecal Coli form | Ground water source close to ITI construction site | Once in pre-construction phase to establish baseline | Contractor, PWD, PMU, and DOTE through approved Monitoring Agency | INR130,000/ US $1900 |
| During Construction Phase | Once in a season (except monsoon season) during construction phase |
| Operation Phase | Once in a season except monsoon season for first 2 years of operation phase |
| **3** | Noise Levels | During pre-construction phase | Noise quality as per National Ambient Noise Standards on dB(A) scale | Noise levels at ITI Site | Once in pre-Construction phase to establish baseline | Contractor, PWD, PMU, and DORD through approved Monitoring Agency | INR 39,000/  US $ 600 |
| During Construction Phase | Once in a season (except monsoon season) during construction phase |
| Operation Phase | Once in a season except monsoon season for first 2 years of operation phase |

*Note: For first year of operation phase (under defect liability period) contractor will organize monitoring and for remaining one year DOTE will organize monitoring through approved monitoring agency.*

Summary of Site- and Activity-Specific as per ITI EMP

1. **Table-19** summarizes site- and activity-specific plans to be prepared as per EMP tables.

Table-19: Site- and Activity-Specific Plans/Programs as EMP

| **To be Prepared During** | **Specific Plan/Program** | **Purpose** | **Responsible for Preparation** | **Responsible for Implementation** |
| --- | --- | --- | --- | --- |
| Pre-Construction phase | Environmental monitoring program as per detailed design | Indicate sampling locations, methodology and parameters to the contractor | PMU, PIU, PMC and PWD | Contractor |
| Pre-Construction phase | List and maps showing utilities to be shifted | Utilities shifting | PWD during preliminary design and pre construction phase | Contractor |
| Pre-Construction Phase | Contingency plan for interruption of services | Mitigate impacts due to interruption of services during utilities shifting | Contractor | Contractor |
| Pre-Construction | Chance find protocol | Address archaeological or historical chance finds | PMU and PMC | Contractor |
| Pre-Construction Phase | List of pre-approved sites for construction camp, stockpiles, and waste disposal sites | Location/s for construction camp for ITI site, areas for stockpile, storage and disposal for minimization of impacts | PMC, PMU, PWD and PIU | Contractor |
| Pre-Construction phase | Waste/Spoil management plan | Mitigate impacts due to waste generation | Contractor | Contractor |
| Pre-Construction phase | Spill prevention and containment plan | Mitigate impacts of accidental spills of oil, lubricants, fuels, concrete, and other hazardous materials | Contractor | Contractor |
| Construction phase | Traffic management plan | Mitigate impacts due to transport of materials and project related traffic movement | Contractor | Contractor |
| Construction phase | Health and Safety (H&S) plan | To comply with IFC EHS Guidelines on Occupational health and safety | Contractor | Contractor |
| Construction phase | Erosion control and re-vegetation plan | Mitigate impacts due to erosion and vegetation removal at construction site | Contractor | Contractor |
| Construction Phase | Environmental Monitoring Plan Implementation | To check efficacy of mitigation measures | PMC, PMU, and PWD | Contractor |
| Operation Phase | Maintenance of sub- project sites landscape, and plantation and environmental monitoring plan | To maintain ITI plantation and to carry out environmental monitoring to check environmental conditions at site | PMU, and DOTE | DTE |

1. The guidelines for preparation of site specific traffic management plans have been provided in **Annexure-4.**

## Capacity Building

1. In addition to the primary objective of skills enhancement of Himachali youth and guidance to them for proper selection career, the HPSDP sub-project will also raise awareness about environmental conservation amongst trainees, implementing agencies, and local communities. The project will have the opportunity to build capacity in environment protection for the above mentioned stakeholders.
2. The Environmental Specialists at PMC and safeguards cell at PMU will provide the basic training required for environmental awareness. Specific modules customized for the available skill set will be devised after assessing the capabilities of the members of the Training Program and the requirements of the project. The training would cover basic principles of environmental assessment and management; mitigation plans and programs, implementation techniques, monitoring methods and tools. The proposed training program along with the frequency of sessions is presented in **Table 20** below.

**Table-20: Training Modules for Environmental Management**

| **Program** | **Description** | | **Participants** | **Duration** | **Training Conducting Agency** |
| --- | --- | --- | --- | --- | --- |
| **A. Pre-Construction Stage** | | | | | |
| Sensitization Workshop on Environment | Introduction to Environment: environmental assessment and social due diligence requirements in the project, Regulatory Clearances, and permission requirements in the project, and EMP Implementation, Introduction of ADB SPS 2009, and ADB Guidelines on Environmental considerations in planning, design and implementing projects | | DOTE and DTE officials, Environmental specialist of PWD and other Engineering staff associated with the HPSDP sub- projects, PIU staff and HPKVN PMU staff | ½ Working Day | Environmental Specialist of the PMC |
| Session 1 | Environmental impacts due to sub-projects in construction and operation phases, pollution generation activities during pre-construction and construction phases  Environmental Management, Environmental Mitigation Provisions in the Contract, Implementation Arrangements, Methodology of Assessment Good engineering practices to be integrated into contract documents | | All PIU, HPKVN, DOTE and PWD Staff associated with ITI Chhattari | ½ Working Day | Safeguards Specialist of the PMC |
| **B. Construction Stage** | | | | | |
| Session 2 | **Roles and Responsibilities**- Roles and Responsibilities of Implementing Agencies officials, associated contractors and consultants towards protection of environment. Implementation. Arrangements for EMP and Environmental Monitoring during construction phase | Engineers and staff of line departments of the Government of GOHP-DORD, DOUD, and DOTE and PMC, PMU and HPKVN | | ½ Working Day | Safeguards Specialist of the PMU |
| Session 3 | Monitoring and Reporting System | Engineers and staff of implementing agencies , and PMU/PIU | | ¼ Working Day | Safeguards Specialist of PMU |

DOLE= Department of Labor and Employment, DOUD = Department of Urban Development, DORD= Department of Rural Development, DOTE= Department of Technical Education, ES = Environment Specialist, HPKVN= Himachal Pradesh Kaushal Vikas Nigam Limited, PIU = Project Implementation Unit, PMC = Project Management Consultant, PMU = Project Management Unit, PWD = Public Works Department.

## Environmental Budget

1. Most of the mitigation measures require the contractor to adopt good site practices, which should be part of their normal procedures already, so there are unlikely to be major costs associated with compliance. Only those items not covered under budgets for construction are included in the IEE budget. The IEE costs include mitigation, monitoring and capacity building costs. The summary budget for the environmental management costs for the sub-project is presented in **Table 21.**

**Table-21: Environmental Management and Monitoring costs (INR)**

| **Monitoring Component** | **Rate** | **Amount (INR)** | **Source of Fund** |
| --- | --- | --- | --- |
| **Pre-Construction and Construction Phase** | | |  |
| Air Quality - one location at ITI site , thrice a year (one sample pre construction and 6 samples during construction phase; total 7samples) | 10,000 | 70,000 | Contractor |
| Water Quality- One ground water sample from ITI construction site , thrice a year (one sample pre construction and 6 samples during construction phase; total 7 samples) | 10,000 | 70,000 | Contractor |
| Noise Quality-One location at subproject site , thrice a year (one sample pre construction and 6 samples during construction phase; total 7 samples) | 3000 | 21,000 | Contractor |
| Training for Capacity Building of stakeholders | Covered in the consultancy cost of PWD and PMC | |  |
| Total Pre Construction and Construction Phase Monitoring Cost (A) |  | **161,000** | Project for plantation and contactor for monitoring |
| **O & M Phase** | | |  |
| Air Quality -one location at ITI site thrice a year for first 2 years (3 samples per annum, total 6 samples) | 10,000 | 60,000 | PMU, and DOLE |
| Water Quality -one ground water sample at ITI thrice a year, for first 2 years (3 samples per annum, total 6 samples) | 10,000 | 60,000 | PMU, and DOLE |
| Noise Quality-one location at ITI, thrice a year for first 2 years (3 samples per annum, total 6 samples) | 3000 | 18,000 | PMU, and DOLE |
| Total O&M Phase Monitoring Cost (B) |  | **138,000.00** | PMU, and DOLE |
| Total Cost (A+B) |  | **299,000.00** |  |
| Contingencies @ 5 % |  | **14,950.00** |  |
| **Total Budgeted Cost ( INR)** |  | **313,950 (Say 350,000)** |  |

## Environmental Monitoring and Reporting

1. The PMU with the assistance of PMC will monitor and measure the progress of EMP implementation during construction phase. During operation phase PMU safeguard cell will take care of EMP implementation. PWD environmental cum social expert will undertake site inspections and document review to verify compliance with the EMP and progress toward the final outcome. PWD will submit monthly monitoring and implementation reports to PMU at HPKVN and to the concerned departments (in present case to DOTE), who will take follow-up actions, if necessary. PWD will also submit quarterly, semi-annual and annual monitoring and implementation reports to PMU. The PMU will submit semi-annual monitoring reports to ADB. Monitoring reports will be posted in a location accessible to the public.
2. ADB will review project performance against the EA’s commitments as agreed in the legal documents. The extent of ADB's monitoring and supervision activities will be commensurate with the Project’s risks and impacts. Monitoring and supervising of social and environmental safeguards will be integrated into the project performance management system. ADB will monitor projects on an ongoing basis until a project completion report is issued.

# PUBLIC CONSULTATION AND INFORMATION DISCLOSURE

## 

## Process For Consultations Followed

1. The construction and operation of ITI does not involve any elements, which could have an adverse impact on the community. There is no deprivation of any sort for the residents or displacement of any groups. Particularly, with regard to environmental impacts, this subproject can be characterized as innocuous.
2. In view of this, the need for holding a public hearing(as defined in EIA Notification 2006 of Government of India) is not perceived at this stage. However, in compliance with the ADB’s guidelines, focused public consultations were undertaken during the site visit to ITI site. Elected Members of Chhattari village Panchayat and Chhattari village residents were informed about the ITI building construction and subsequent functioning in their area and their views were obtained. During the preparation of this IEE, consultations have been held with the officials of DOP, HPKVN, Forest Department, DOUD, DORD, and DTE, DOTE and DOLE.
3. The process of consultations was taken up, as an integral part of the sub-project design and environmental assessment, in accordance with ADB Guidelines and following objectives:

* To educate the general public, specially potentially impacted or benefited communities, individuals and stakeholders about the proposed ITI activities;
* To familiarize the people with technical and environmental issues of the ITI Chhattari subproject for better understanding;
* To solicit the opinion of the communities and individuals on environmental issues and assess the significance of impacts due to the proposed development;
* To foster co-operation among officers of EA and IAs, the community and the stakeholders to achieve a cordial working relationship for smooth implementation of the sub- project and
* To identify the environmental issues relating to the proposed activity.

1. During the consultations local residents opined that there is need to develop skills of local youth and at the same time guide them properly to select the suitable job. The subproject planned will help rural youth in attaining technical skills at ITI for job oriented fields. The local demanded fast implementation of the ITI project. The dates of consultations and stakeholders consulted have been summarized below in **Table 22**. The views, comments and suggestions of stakeholders and their incorporation in project design are presented in **Tables 23 and 24.** The records of consultations (list of participants with signatures) and consultation photographs are given in **Annexure- 5.**

**Table-22: Dates and Stakeholders Consulted**

| **Sl. No.** | **Stakeholders Consulted** | **Dates of Consultations** |
| --- | --- | --- |
| **1** | Himachal Pradesh Forest department | 23 December 2015 and 18 March 2016 |
| **2** | Department of Rural Development and Department of Higher Education | 21 December 2015 |
| **3** | Himachal Pradesh Pollution Control Board | 23 December 2016 |
| **4** | State Department of Labor and Employment | 21 December 2015 |
| **5** | Department of Technical Education, GOHP | 22 December 2015 and 14 and 15 March 2016 |
| **6** | Local Public at ITI Site | August 14, 2020 |

1. It is clear from Tables 23 and 24 that most of the suggestions of stakeholders have been taken care in the project design.

**Table-23: Views, Comments, and Suggestions of Stakeholders at ITI Chhattari Site and Considerations in Sub-Project Design**

| **Sl. No.** | **Place** | **Date** | **Consultations held with** | **Issues discussed** | **Outcome of discussions and consideration in project design and Implementation** |
| --- | --- | --- | --- | --- | --- |
| 1 | Proposed ITI Site at Chhattari | 14/08/2020 | With local Chhattari village residents, DOTE, PWD and HPKVN officials and Chhattari Village Panchayat elected representatives | ITI Building Layout and Building Components for various Activities, ITI benefits, implementation schedule, environmental and social impacts during project implementation, etc. | * 1. Participants welcomed the ITI project in their area and subsequent functioning and told the consultants that it was expected since a long time and locals have given the demand to the Government.   2. One participant suggested that access road to the site should be improved and this will also help locals. The consultants replied that access road will be improved to facilitate the construction.   3. One elected participant suggested that hostel for the ITI students should also be constructed. The consultants replied that in the current design there is no provision for hostel due to budget limitations. It will be considered in future.   4. The locals enquired about the timeline of the implementation of the project. The consultants replied that design has been completed and approved. The bidding process has started and construction will start after selection of bidder which may take 6- 8 months.   5. Consultants enquired from the participants their suggestions for the environmental protection during project implementation. The participants replied that plantation should be taken up as well as waste water should be discharged in septic tanks and soak pits. The consultants replied that landscaping and tree plantation plan has been prepared and will be implemented. For domestic waste water discharge septic tanks and soak-pits have been planned.   6. The elected representatives of Chhattari Panchayat thanked consultants, HPKVN officials, and PWD officials for the participating and for visiting the site. The consultants also thanked them for participation. |

**Table-24**: **Summary of Stake Holder Consultations at Institutional Level**

| **Sl. No.** | **Place and date** | **Consultations held with** | **Issues discussed** | **Outcome of discussions and consideration in project design and Implementation** |
| --- | --- | --- | --- | --- |
| 1 | Shimla, 23/12/2015 and 18/3/2016 | Conservator Forest Cum Nodal Officer CAMPA, State Forest Department | Clearances, permissions and No Objection Certificates  (NOCs) - requirements from the State Forest Department and suggestions for the project | 1. The ADB Environment and Social Safeguards consultant briefly explained the project concept to the state department officials. 2. It was informed by the officials that for any site falling under forest land, clearance is required either under the 'Forest (Conservation) Act, 1980 or under the 'Schedule Tribe and other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006. 3. For vocational training purposes, GOHP can give clearance up to 1.0 hectare land. If application is submitted under the Forest (Conservation) Act, 1980, then the net present value (NPV) of the land and cost for compensatory forestation are to be paid by the State Government. 4. If the application is submitted under Forest Rights Act 2006, then for educational institutes, payment of NPV and compensatory afforestation costs are exempted for the land up to 1.0 hectare. The clearance can also be issued at Divisional Forest Officer level. 5. The Forest Officials suggested that application may be made under Forest Rights Act for faster clearance if any site falls under the forest. 6. The ADB Environmental consultant assured everyone that sites on forest land will not be considered to the extent feasible. However, under unavoidable situations, applications for clearances will be submitted as suggested. 7. The land transfer for Women's Polytechnic at Rehan in Kangra district is also completed. The land has been transferred by the revenue department in the name of DOTE (This point pertains to other sub-project under HPSDP- Women’s Polytechnic at Rehan in Kangra district). |
| 2 | Shimla, 23/12/2015 | Senior Environmental Engineer, Himachal Pradesh Pollution Control Board | Clearances and Permissions required from Himachal Pradesh Pollution Control Board (HPPCB) and Department of Environment | 1. The ADB Environmental consultant provided an overview on HPSDP. 2. He enquired about the types of permissions and clearances required from the HPPCB and State Department of Environment.   The senior Environmental Engineer, Department of Environment, replied that educational and training institutes are exempted from the environmental clearance process. Therefore, there is no requirement for prior environmental clearances for CLCs, RLCs, MCCs and the Women’s Polytechnic planned under HPSDP. He explained that Consent to establish and Operate has to be obtained from HPPCB only if a residential complex is planned at any of the sites. In case hazardous waste is generated, then a management proposal has to be submitted to the HPPCB for Hazardous waste authorization and disposal.  The ADB Environment and Safeguard consultant replied that none of the planned training facilities will generate hazardous waste, either during construction or operation. |
| 3 | Sunder Nagar, 22/12/2015, 14/03/2016, and 15/03/2016 | Director, DOTE, and other officials | ITI selected for up gradation, locations of RLCs and CLCs selected at ITI campus and site of proposed Women Polytechnic at Rehan in Kangra district | 1. The ADB Environment and Safeguard consultant enquired whether any of project sites under DOTE are planned in forest areas or within buffer or core zones of national park or bird sanctuary. Director, DOTE, replied that CLC/RLC sites planned are within the vacant sites within the premises of existing industrial training institutes. Only the site for the Women’s Polytechnic in Kangra falls within revenue forest land. For this site NOC from Forest Department has been received. 2. The ADB Environment and Safeguard consultant suggested that DOTE should submit land ownership details/revenue records for all sites planned under the ADB funding for due diligence. He noted that DOTE should also start the process of getting NOC from the Forest Department and land transfer in DOTE name for the site in Rehan, Kangra, where the Women’s Polytechnic is planned (This point pertains to other sub-project under HPSDP- Women’s Polytechnic at Rehan in Kangra district). |
| 4 | Shimla, 21/12/2015 | Department of Labor and Employment (DOLE) | Locations of MCCs planned, approximate area required for MCCs | 1. The ADB Environment and Safeguard consultant enquired about the proposed locations of MCCs. The officials replied that with ADB assistance, 11 MCCs planned. The planned locations are Hamirpur, Shimla, Bilaspur, Kullu, Dharmshala, Mandi, Nahan, etc. As per Government of India guidelines, the built up area of around 3,000 sq.feet is needed for MCCs. 2. The ADB Environment and Safeguard consultant noted that the revenue record of land ownership should be provided to the ADB team for due diligence. |
| 5 | Shimla, 21/12/2015 | Department of Rural Development (DoRD) | Locations of proposed RLCs, environmental and social safeguard issues, tree cutting, etc. | 1. The ADB Environment and Safeguard consultant enquired about probable locations of RLCs planned. 2. The environmental expert suggested that no sites with temporary or permanent occupation should be identified and revenue records showing ownership details should be provided for the social due diligence. Further, any site involving tree cutting, necessary tree cutting permission should be obtained. 3. The environmental expert also suggested that sites should be at least 300 m away from buildings/monuments of heritage importance and those declared as protected monuments by the State Archaeological Department or by the Archaeological Survey of India (ASI). The officials noted the suggestions. |

## Future Consultation And Information Disclosure

1. To ensure continued public and stakeholder participation in the sub-project life cycle, periodic consultations and focus group discussion should be continued. A grievance reddressal committee will be formed within the PIU (at PWD) and also at PMU Level to register grievances of the people regarding technical, social and environmental issues. This participatory process will ensure that all views of the people are adequately reviewed and suitably incorporated in the design and implementation process. Further, to ensure an effective disclosure of this ITI subproject proposal to the stakeholders and the communities in the vicinity of site, an extensive project awareness campaign will be carried out.

**Information Disclosure**

1. Electronic version of this IEE will be placed in the official websites of the DOTE, HPKVN, GOHP and the website of ADB after approval of the documents by the GOHP and ADB. On demand, any person seeking information can obtain a hard copy of the complete IEE document by paying cost of photocopy from the office of the PMU and PIU, on a written request.
2. The PMU will issue notification on the disclosure mechanism in local newspapers, ahead of the initiation of implementation of ITI construction at Chhattari, providing information on the project, as well as the start dates, etc. The notice will be issued by the PMU in local newspapers one month ahead of the implementation works. This will create awareness of the project implementation among the public.

## Grievance Redress Mechanism

1. The affected person(s)/aggrieved party can give their grievance verbally or in written to the local site office(s) of sub-project(s). Grievances of affected person will first be brought to the attention of the site in charge, who can resolve the issue at the site level. If the matter is not solved within 7 days period by the site in charge, it will be brought to the Grievance Redress Committee constituted for the purpose in PIU (PWD). This GRC shall discuss the issue in its monthly meeting and resolve the issues within one month of time after receiving the grievance. If the matter is not resolved by GRC at PIU level within stipulated time, it shall be referred to GRC at PMU level by Project Manager of PIU.
2. GRC at PMU shall discuss the issue and try to resolve it and inform the PIU accordingly. If the matter is not resolved by the GRC at PMU level within one month of time the matter will be referred to State Level Empowered Committee (SLEC), who will resolve the compliant within one month. However, the aggrieved person/party can bring the matter to the Court of Law any time after filing the complaint either at PIU level or PMU level. The PIU and sub-project site office shall keep records of all grievances received including contact details of complainant, date of receiving the complaint, nature of grievance, agreed corrective actions and the date these were affected and final outcome. For this a complaint register will be maintained at each sub-project site. The grievance redress process is shown below. The cost for functioning of Grievance Redress Mechanism will be accounted for in project cost as part of PMU or PIU functioning.
3. Further, person(s) / aggrieved party who are, or may be, adversely affected by the subproject may submit complaints to ADB’s Accountability Mechanism. The accountability mechanism provides an independent forum and process whereby people can voice, and seek a resolution of their problems, as well as report alleged violations of ADB’s operational policies and procedures. Before submitting a complaint to the Accountability Mechanism, affected person(s) / aggrieved party should first make a good faith effort to solve their problems by working with the ADB South Asia operations department including the India Resident Mission.

## Composition and functions of GRC

1. PIU Level Grievance Redress Committee (GRC- PIU) – This committee will comprise of Project Manager, Site In charge and one officer from contractor team. The GRC- PIU will be headed by Project Manager (PIU). It will meet at least once a month. The agenda of the meeting will be circulated to all the members and the affected persons/aggrieved party along with venue, date and time at least a week prior to the meeting. The matters shall remain with GRC at PIU level for one month.
2. **GRC at PMU.** There shall be one GRC in PMU. GRC at PMU will include the Managing Director, HPKVN, and Project Manager PIU (PWD at Shimla Head Quarters); safeguard specialists (Environmental and Social) of the PMU, and one representative from concerned Department (DOTE/DOLE/DOHE/DORD). The Committee shall be headed by the Managing Director, HPKVN. This committee shall look into the matters, which are referred to and not resolved by GRC at PIU level. If the matter is not resolved by the GRC at PMU level within one month of time, then the aggrieved person or party can bring the matter to State Level Empowered Committee (SLEC) which is in-charge of the overall HPSDP.

1. **Approach to GRC.** Affected person or aggrieved party can approach the GRC for redress of his/their grievances through any of the following modes:

* Web based: A separate corner will be developed at the HPKVN website so that public and affected person can register their complaints in the online column.
* Telecom based: A telephone number will be displayed at the web site of HPKVN and the construction site of sub project so that general public can register their complaint through telephone and mobile phone to the PIU and PMU office. One complaint register will also be maintained at sub-project site.
* Construction site. The grievance redress mechanism for the HPSDP for safeguards related issues has been shown below in **Figure-7**:

# 

|  |
| --- |
| **Figure-7: Grievance Redress Mechanism (HPSDP Project)** image008.jpg |

# FINDINGS AND RECOMMENDATIONS

1. The proposed, ITI subproject components do not involve any interventions in and around the natural and cultural heritage destinations and have less significant (direct and indirect) environmental impacts. It is expected that the proposed sub-project will provide necessary support by providing technical training and certificate of training. This training will help them in getting gainful employment in Himachal Pradesh, outside Himachal Pradesh in other States and abroad.
2. This IEE has identified minor likely impacts on water, air and noise during construction and operation period and has defined mitigation measures. Those mitigation measures will be implemented and monitored during the sub-project execution. The overall environmental quality of ITI site and surroundings will not be affected as a result of functioning of ITI as adequate sanitation facilities have been planned.
3. The specific management measures laid down in the IEE will effectively address any adverse environmental impacts due to the sub-project. The effective implementation of the measures proposed will be ensured through the building up of capacity towards environmental management within the PMU supplemented by the technical expertise of Safeguards Specialists of the PMC. Further, the environmental monitoring plan provides adequate opportunities towards course correction to address any residual impacts during construction or operation stages.

# CONCLUSIONS

1. On the basis of the IEE, it is expected that the proposed ITI subproject components have only minor, localized, temporary and insignificant environmental impacts. These can be easily mitigated through adequate mitigation measures and regular monitoring during the design, construction and post construction phases of the sub-project. Negative impacts on water, air quality and noise levels during civil works & operation phase, which will be appropriately monitored and adequately mitigated. This report has not identified any comprehensive, broad, diverse or irreversible adverse impacts caused by the sub project. Based on the findings of the IEE, the classification of the sub-project as Category “B” is confirmed. No further special study or detailed EIA needs to be undertaken to comply with ADB SPS (2009).

# Annexure-1: ITI SITE PHOTOGRAPHS

|  |  |
| --- | --- |
| ITI Chhattari Site View.jpg | ITI Chhattari Site View.jpg |
| **ITI Chhattari Site View** | **Another View of ITI Chhattari Site** |
| **ITI Chhattari Site View.jpg** | **ITI Chhattari Site View.jpg** |
| **Site photograph showing no Presence of Trees** | **Trees Seen Beyond Site Boundary** |
| **View of Site showing no encumbarance, squatters and encroachers.jpg** | |
| **Panoramic View of Site showing no encumbarance, squatters and encroachers** | |

# Annexure-2: Rapid Environmental Assessment (REA) Checklist

|  |
| --- |
| **Instructions:** (i) The project team completes this checklist to support the environmental classification of a project. It is to be attached to the environmental categorization form and submitted to the Environment and Safeguards Division (RSES) for endorsement by Director, RSES and for approval by the Chief Compliance Officer. (ii) This checklist focuses on environmental issues and concerns. To ensure that social dimensions are adequately considered, refer also to ADB's (a) checklists on involuntary resettlement and Indigenous Peoples; (b) poverty reduction handbook; (c) staff guide to consultation and participation; and (d) gender checklists.  (iii) Answer the questions assuming the “without mitigation” case. The purpose is to identify potential impacts. Use the “remarks” section to discuss any anticipated mitigation measures. |

India/ Supporting Skill Development in Himachal Pradesh

**Country/Project Title:**

SAHS

**Sector Division:**

| **Screening Questions** | **Yes** | **No** | **Remarks** |
| --- | --- | --- | --- |
| A. Project Sitting  Is the project area adjacent to or within any of the following areas? |  |  | The subproject involves construction of building for ITI at Chhattari village in Seraj Tehsil of Mandi district. This ITI once established will provide job oriented technical training courses to the Himachali youth.  The ITI site is located beyond 15 km distance from the (a) core and buffer zones of national parks, sanctuaries, tiger reserves, and biosphere reserves, etc. There are no protected structures or monuments of archaeological importance within the aerial distance of 1 km from the proposed ITI site. |
| * Underground utilities |  | √ | The ITI site is under the ownership of HPSEBL -GOHP. The HPSEBL has provided NOC to DOTE for the construction of ITI. There are no underground utilities at the subproject site. The site is in rural area. |
| * Cultural heritage site |  | √ | No cultural heritage site within 15 km distance from the proposed ITI site. |
| * Protected Area |  | √ | No protected areas within 15 km distance from the ITI site. |
| * Wetland |  | √ | No wet land within 15 km aerial distance of ITI Chhattari site. |
| * Mangrove |  | √ | Since site of ITI site is away from coastal area and in hilly terrain, so no question of Mangroves. |
| * Estuarine |  | √ | Site is in hilly area and away from shore. |
| * Buffer zone of protected area |  | √ | The site is in open area near rural habitation and away from protected areas. |
| * Special area for protecting biodiversity |  | √ | Since site is rural habitation (Chhattari village), so there is no existence of any special areas for bio-diversity protection. |
| * Bay |  | √ | The ITI site is away from coastal line and bay. |
| B. Potential Environmental Impacts  Will the Project cause… |  |  |  |
| * Encroachment on historical/cultural areas? |  | √ | The ITI site is beyond 1 km distance from archaeologically protected historical and cultural areas. |
| * Encroachment on precious ecology (e.g. sensitive or protected areas)? |  | √ | The proposed ITI site is in close proximity of rural habitation and away from sensitive or protected areas. |
| * Impacts on the sustainability of associated sanitation and solid waste disposal systems? |  | √ | The sanitation facilities will be self-sustained as septic tanks have been planned at ITI location and solid waste collection and disposal will be integrated either with the Chhattari village waste disposal system or a new site will be identified. |
| * Dislocation or involuntary resettlement of people? |  | √ | The proposed site for ITI is on Government owned land. The land ownership is in the name of HPSEBL-GOHP. |
| * Disproportionate impacts on the poor, women and children, Indigenous Peoples or other vulnerable groups? |  | √ | No such impacts are anticipated. |
| * Accident risks associated with increased vehicular traffic, leading to loss of life? |  | √ | The proposed ITI site at Chhattari is away from road and in open area, there for traffic related accident risk is not anticipated. The connecting road to site has almost nil traffic. During operation also traffic increase is not anticipated as locals will be coming to ITI and adequate parking has been planned as part of ITI building design.  However, to rule out any accident due to project related vehicular traffic, if required, flagmen will be deployed near the sub-project construction site to regulate the traffic. Traffic Management Plan will be prepared for the construction phase. |
| * Increased noise and air pollution resulting from increased traffic volume? |  | √ | Since increase in the traffic is not anticipated, therefore, no increase in air and noise pollution. |
| * Occupational and community health and safety risks? |  | √ | The ITI activities during operation and construction phases will not cause any occupational and community health and safety risks. |
| * Risks and vulnerabilities related to occupational health and safety due to physical, chemical, biological, and radiological hazards during project construction and operation? |  | √ | No such risks are anticipated |
| * Generation of dust in sensitive areas during construction? | √ |  | No generation of dust during the operation phase. Minor dust generated during construction activities will be controlled through dust suppression measures and through implementation of Environmental Management Plan (EMP). |
| * Requirements for disposal of fill, excavation, and/or spoil materials? | √ |  | The proposed site for ITI is on plain land. No filling is required. Minor excavations for foundations will be done. Any spoil generated will be utilized in construction and remaining, if any, will be disposed off at the identified site. The site for disposal will be identified during the construction phase. |
| * Noise and vibration due to blasting and other civil works? |  | √ | No blasting is planned. The noise due to construction activities will be controlled within the stipulated limits through implementation of EMP. |
| * Long-term impacts on groundwater flows as result of needing to drain the project site prior to construction? |  | √ | No requirement for draining of water from ITI site is needed as site is plain and having no accumulated water. |
| * Long-term impacts on local hydrology as a result of building hard surfaces in or near the building? |  | √ | The proposed built up area of ITI is around 4200 m2 and this small area will not cause any impact on local hydrology. Further, ITI site was already in HPSEBL. So construction of ITI building is of no consequence from hydrology point of view. |
| * Large population influx during project construction and operation that causes increased burden on social infrastructure and services (such as water supply and sanitation systems)? |  | √ | Since ITI building to be constructed is of small in size, so construction force will not exceed 50 at any time at the sub-project site. The construction workers will be mainly locals as site is in remote area of Himachal Pradesh so no influx in anticipated during the construction.  During operation phase also most of the students will be from the State of Himachal Pradesh (mostly locals) so no influx and impacts on social infrastructure are anticipated. |
| * Social conflicts if workers from other regions or countries are hired? |  | √ | Preference will be given to locally available labor. The construction activities are limited in nature. In case workers are hired from other regions, requisite awareness programs and consultations with the locals will be organized to avoid social conflicts. |
| * Risks to community safety caused by fire, electric shock, or failure of the buildings safety features during operation? |  | √ | Since proposed ITI building is new, the safety measures are being planned in the building design as per national and state level requirements. |
| * Risks to community health and safety caused by management and disposal of waste? |  | √ | During construction phase waste collection and disposal system will be planned by the contractor and it will be approved by the implementing agency (PWD). For operation phase adequate provisions have been made in the building design to take care disposal of waste water (septic tanks) and other solid waste generated. The waste collection and disposal will be integrated; either with the Chhattari village waste disposal system or a new site will be identified. |
| * Community safety risks due to both accidental and natural hazards, especially where the structural elements or components of the project are accessible to members of the affected community or where their failure could result in injury to the community throughout project construction, operation and decommissioning? |  | √ | The proposed ITI site is in an open area near Chhattari village. Specific community risks are not foreseen due to operation as such ITI site has good connectivity through National and State Highways. The ITI building has been designed following applicable seismic coefficient for Himachal Pradesh to build safety in structural design. There will be periodic maintenance of building during the operation phase. |

**A Checklist for Preliminary Climate Risk Screening**

**Country/Project Title: India/Himachal Pradesh Skill Development Project (Sub-Project- ITI Building at Chhattari)**

**Sector: Social Development**

**Subsector:**

**Division/Department: SAHS**

|  |  |  |  |
| --- | --- | --- | --- |
| **Screening Questions** | | **Score** | **Remarks**[[5]](#footnote-5) |
| **Location and Design of project** | Is sitting and/or routing of the project (or its components) likely to be affected by climate conditions including extreme weather related events such as floods, droughts, storms, landslides? | 0 | The proposed ITI building is on plain land, away from river and streams and not likely to be affected by floods, drought, storms and landslides. |
| Would the project design (e.g. the clearance for bridges) need to consider any hydro-meteorological parameters (e.g., sea-level, peak river flow, reliable water level, peak wind speed etc.)? | 0 | Not Applicable |
| **Materials and Maintenance** | Would weather, current and likely future climate conditions (e.g. prevailing humidity level, temperature contrast between hot summer days and cold winter days, exposure to wind and humidity hydro-meteorological parameters likely affect the selection of project inputs over the life of project outputs (e.g. construction material)? | 0 | Weather conditions at ITI site do not demand usage of any specific construction material to counter act weather phenomenon. |
| Would weather, current and likely future climate conditions, and related extreme events likely affect the maintenance (scheduling and cost) of project output(s)? | 0 | No, weather conditions at selected site do not require specific scheduling for maintenance. |
| **Performance of project outputs** | Would weather/climate conditions and related extreme events likely affect the performance (e.g. annual power production) of project output(s) (e.g. hydro-power generation facilities) throughout their design life time? | 0 | Not Applicable |

Options for answers and corresponding score are provided below:

|  |  |
| --- | --- |
| Response | Score |
| Not Likely | 0 |
| Likely | 1 |
| Very Likely | 2 |

Responses when added that provide a score of 0 will be considered low risk project. If adding all responses will result to a score of 1-4 and that no score of 2 was given to any single response, the project will be assigned a medium risk category. A total score of 5 or more (which include providing a score of 1 in all responses) or a 2 in any single response will be categorized as high risk project.

**Result of Initial Screening (Low, Medium, High): Low Risk**

**Other Comments**: None

**Prepared by:**

# Annexure-3: NO Objection Certificate Provided by the Himachal Pradesh State Electricity Board Ltd.

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| --- |
| Annexure 3 NOC Part 1.jpg |
| Annexure 3 NOC Part 2.jpg |
| Annexure 3 NOC Part 2.jpg |

# Annexure-4: Sample Traffic Management Plan

**A. Principles**

1. Since the scale of construction work at the sub-projects site is relatively small, there will not be any major or prolonged disruption of local traffic. Nevertheless, it is good to prepare a traffic management plan (TMP) to minimize and avoid public inconvenience to the extent feasible. This indicative TMP will ensure the safety of all the road users along the work zone and minimize public inconvenience. It addresses the following issues:
2. The safety of pedestrians, bicyclists, and motorists travelling through the construction zone;
3. Protection of work crews from hazards associated with moving traffic;
4. Avoiding traffic congestion and
5. Maintenance of access to adjoining properties.

**B. Operating Policies for TMP**

1. The following principles will help to promote safe and efficient movement for all road users (motorists, bicyclists, and pedestrians, including persons with disabilities) through and around work zones while reasonably protecting workers and equipment.
2. Make traffic safety and temporary traffic control an integral and high-priority element of every project from planning through design, construction, and maintenance.
3. Inhibit traffic movement as little as possible.
4. Provide clear and positive guidance to drivers, bicyclists, and pedestrians as they approach and travel through the temporary traffic control zone.
5. Inspect traffic control elements routinely, both day and night, and make modifications when necessary.
6. Pay increased attention to roadside safety in the vicinity of temporary traffic control zones.
7. Keep the public well informed.
8. Make appropriate accommodation for abutting property owners, residents, businesses, emergency services, railroads, commercial vehicles, and transit operations.

**C. Analyze the impact due to street closure, if required**

1. A final decision to close a particular street and divert the traffic should involve the following steps:
2. approval from the PIU and local administration to use alternative local streets as detours;
3. consultation with businesses, community members, traffic police, PWD, etc, regarding the mitigation measures necessary at the detours where the road is diverted during the construction;
4. determining of the maximum number of days allowed for road closure, and incorporation of such provisions into the contract documents;
5. determining if additional traffic control or temporary improvements are needed along the detour route;
6. considering how access will be provided to the worksite;
7. contacting emergency service, school officials, and transit authorities to determine if there is any effect on their operations; and
8. Developing a notification program to keep the public informed. As part of this program, the public should be advised of alternate routes that commuters can take or will have to take as result of the traffic diversion.
9. If full road-closure of certain streets within the area is not feasible due to inadequate capacity of the detour streets or public opposition, then full closure can be restricted to weekends with the construction commencing on Saturday night and ending on Monday morning prior to the morning rush hour traffic.

**Figure: Policy Steps for the TMP**

**D. Public awareness and notifications**

5. The PWD and the contractors will issue timely notifications to inform the public about the following issues:

1. Road blockages and alternative routes along with the duration (as applicable)
2. Traffic control devices placed around the construction zones (signs, traffic cones, barriers, etc.);
3. Reduced speed limits to be enforced at the work zones and traffic diversions.

8. It may be necessary to conduct an awareness campaign on road safety during construction. It will target relevant groups i.e. children, adults, and drivers. Therefore, these campaigns will be conducted in schools and community centers. In addition, the project will publish a brochure for public information. These brochures will be widely circulated around the area and will also be available at the PIU, and the contractors' site office. The text of the brochure should be concise to be effective, with a lot of graphics. It will serve the following purpose:

1. Explain why the brochure was prepared, along with a brief description of the project;
2. Advise the public to expect the unexpected;
3. Educate the public about the various traffic control devices and safety measures adopted at the work zones;
4. Educate the public about the safe road user behaviour to emulate at the work zones;
5. Tell the public how to stay informed or where to inquire about road safety issues at the work zones (name, telephone, mobile number of the contact person; and
6. Indicate the office hours of relevant offices.

**E. Vehicle Maintenance and Safety**

10. A vehicle maintenance and safety program shall be implemented by the construction contractor. The contractor should ensure that all the vehicles are in proper running condition, and comply with roadworthy and meet certification standards of GOHP. All vehicles should be in good condition and meet the pollution standards of Government of India and GOHP. The drivers will follow the special code of conduct and road safety rules of GOHP. They will ensure that all loads are covered and secured. Vehicles will be cleaned and maintained in designed places.

**F. Install traffic control devices at the work zones and traffic diversion routes**

10. The purpose of installing traffic control devices at the work zones is to delineate these areas to warn, inform, and direct the road users about a hazard ahead, and to protect them as well as the workers. As proper delineation is key for achieving the above objective, it is important to install good traffic signs at the work zones. The following traffic control devices will be used in work zones:

* Signs
* Pavement Markings
* Channelizing Devices
* Arrow Panels
* Warning Lights

11. Procedures for installing traffic control devices at any work zone vary depending on road configuration, location of the work, construction activity, duration, traffic speed and volume, and pedestrian traffic. Work will take place along major roads, and the minor internal roads. As such, the traffic volume and road geometry vary. However, regardless of where the construction takes place, all the work zones should be cordoned off, and traffic shifted away at least with traffic cones, barricades, and temporary signs (temporary “STOP” and “GO”).

12. The work zone should take into consideration, the space required for a buffer zone between the workers and the traffic (lateral and longitudinal) and the transition space required for delineation, as applicable. For the works, a 30 cm clearance between the traffic and the temporary STOP and GO signs should be provided. In addition, at least 60 cm is necessary to install the temporary traffic signs and cones.

13. Traffic police should regulate traffic away from the work zone and enforce the traffic diversion result from full street closure in certain areas during construction. Flaggers or personnel should be equipped with reflective jackets at all times and have traffic control batons (preferably the LED type) for regulating the traffic during night time.

14 In addition to the delineation devices, all the construction workers should wear fluorescent safety vests and helmets in order to be visible to the motorists at all times. There should be provision for lighting beacons and illumination for night constructions. The PIU and contractor will coordinate with the local administration and traffic police regarding the traffic signs, detour, and any other matters related to traffic. The contractor will prepare the traffic management plan in detail and submit it along with the EMP for the final approval.

# Annexure-5: Photographs and Attendance Sheets of consultations

## Photographs

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| Discussion with Stakeholders at Site.jpg |
| **Discussion with Stakeholders at Site** |
| Discussion with Stakeholders at Site.jpg |
| **Another Photograph of consultations** |

## Attendance Sheets

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| --- |
| Stake Holder Consultation Signature Sheet_Page_1.jpg |
| Stake Holder Consultation Signature Sheet_Page_1.jpg |

1. A detailed Environmental and Social Management Framework (ESMF) has been prepared in line with ADB’s Safeguards Policy Statement (SPS), 2009, to guide the executing agency and implementing agencies in mainstreaming environmental and social concerns into the design and implementation phases of HPSDP. [↑](#footnote-ref-1)
2. 2Local stakeholders were involved in developing the IEE through discussions on-site and public consultation. Their views were incorporated into the IEE, and the design of the sub-project. The IEE will be made available at public locations in the town such as Panchayat office building, district administration office. It will be disclosed to a wider audience via the ADB, DOUD, and HPKVN websites. [↑](#footnote-ref-2)
3. All projects or activities included as Category ‘A’ in the Schedule, including expansion and modernization of existing projects or activities and change in product mix, will require prior environmental clearance from the Central Government in the Ministry of Environment, Forests and Climate Change (MoEFCC) on the recommendations of an Expert Appraisal Committee (EAC) to be constituted by the Central Government for the purposes of this notification; All projects or activities included as Category ‘B’ in the Schedule, including expansion and modernization of existing projects or activities as specified in sub paragraph (ii) of paragraph 2, or change in product mix as specified in sub paragraph (iii) of paragraph 2, but excluding those which fulfill the General Conditions stipulated in the Schedule, *will* require prior environmental clearance from the State/Union territory Environment Impact Assessment Authority (SEIAA). The SEIAA shall base its decision on the recommendations of a State or Union territory level Expert Appraisal Committee (SEAC) as to be constituted for in this notification. In addition, General Condition (GC) of the notification specifies that any project or activity specified in Category ‘B’ will be treated as Category A, if located in whole or in part within 5 km from the boundary of: (i) Protected Areas notified under the Wild Life (Protection) Act, 1972, (ii) Critically Polluted areas as notified by the Central Pollution Control Board from time to time, (iii) Notified Eco-sensitive areas, (iv) inter-State boundaries and international boundaries [↑](#footnote-ref-3)
4. As per SPS 2009, projects are assigned to one of the following four categories: (i) **Category A.** A proposed project is classified as category A if it is likely to have significant adverse environmental impacts that are irreversible, diverse, or unprecedented. These impacts may affect an area larger than the sites or facilities subject to physical works. An environmental impact assessment is required. (ii) **Category B.** A proposed project is classified as category B if its potential adverse environmental impacts are less adverse than those of category a projects. These impacts are site-specific, few if any of them are irreversible, and in most cases mitigation measures can be designed more readily than for category a projects. An initial environmental examination is required. (iii) **Category C.** A proposed project is classified as category C if it is likely to have minimal or no adverse environmental impacts. No environmental assessment is required although environmental implications need to be reviewed (iv) **Category FI.** A proposed project is classified as category FI if it involves investment of ADB funds to or through a FI (paras. 65-67). [↑](#footnote-ref-4)
5. If possible, provide details on the sensitivity of project components to climate conditions, such as how climate parameters are considered in design standards for infrastructure components, how changes in key climate parameters and sea level might affect the sitting/routing of project, the selection of construction material and/or scheduling, performances and/or the maintenance cost/scheduling of project outputs. [↑](#footnote-ref-5)