Initial Environmental Examination

September 2017

India: Himachal Pradesh Skills Development Project — City Livelihood Center at Shamshi and Sunder Nagar, and Rural Livelihood Center at Sadyana, Mandi (Package No. HPSDP-PWD/05)

Prepared by the Government of Himachal Pradesh for the Asian Development Bank. This is an initial draft available on https://www.adb.org/projects/49108-002/main#project-documents

CURRENCY EQUIVALENTS

(as of 4 September 2017)

Currency unit	−	Indian rupee/s (₹)
₹1.00	=	$0.01567
$1.00	=	₹63.8100

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, 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

WEIGHTS AND MEASURES

µg	–	microgram
dB(A)	–	weighted decibel
ha	–	hectare
km	–	kilometer
km^2	–	square kilometer
m	–	meter
m^2	–	square meter
MW	–	megawatt

NOTES

(i) The fiscal year (FY) of the Government of India ends on 31 March. "FY" before a calendar year denotes the year in which the fiscal year ends, e.g., FY2017 ends on 31 March 2017.

(ii) In this report, "$" refers to US dollars.

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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 Planning (DOP), GOHP, will be the executing agency for the proposed Himachal Pradesh Skill Development Project (HPSDP). The Himachal Pradesh *Kaushal Vikas Nigam* (HPKVN), the Department of Technical Education, Vocational & Industrial Training (DOTE), 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.

3. 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] The new facilities include construction of 7 city livelihood centers (CLCs), 7 rural livelihood centers (RLCs), and 1 Polytechnic for women. Eleven employment exchanges will be upgraded into model career centers (MCCs). On average, the CLCs and RLCs will have 3 to 4 floors, and occupy about 900 m^2. The MCCs will have 3 to 4 floors on average, and occupy around 400 m^2 each. **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**.

4. 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. The proposed project categorization has been

[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.

reconfirmed by an experienced ADB environment and social safeguards consultant, who has already visited15 sites identified by GOHP to date.[2]

5. **Three sub-projects have been planned under Mandi Zone under the advance contracting**. These sub-projects include establishment of a CLC at Shamshi in existing ITI Campus, one RLC at Shadyana and one CLC at Sunder Nagar on an unencumbered land owned by GOHP. The CLC Shamshi site is in Kullu district and CLC site at Sunder Nagar and RLC site at Sadyana are in Mandi district. The establishment of these CLCs and RLC will provide the needy urban youth of Mandi and Kullu districts with skill development opportunities for gainful employment. The CLCs at Sunder Nagar and Shamshi will be established on land owned by DOTE and RLC Sadyana on land owned by DORD. Each CLC and RLC building will be a three floor building including ground floor with a total built up area of about 800 m2. On the ground floor, there will be a reception cum display area, 2 class rooms for practical vocational training, computer laboratory, counseling cum placement room, and a staff room. On the first floor, there will be space for the CLC (or RLC) Manager's room, computer lab, and a hostel for 14 male trainees. The hostels have been planned only at Sunder Nagar and Shamshi. On the second floor, there will be a hostel for 14 female trainees, the hostel warden's room, a pantry, and an open terrace. This layout ensures that the female trainees will have an independent floor, along with the warden's room. The building is designed to cater for 24 by 7 occupancy. By locking certain doors, the hostel sections can be sealed off from the learning and administration areas. A small production center has been planned at RLC Sadyana.

6. The architectural expression of the CLCs / RLC buildings is in harmony with the local style of Himachal Pradesh - suitable for cool weather, with a long rainy season, and light snowfall. The building aims to evoke a learning-friendly atmosphere which will attract the trainees. The CLCs and RLC will be barrier-free. There will be ramps and specially designed toilets to make it easy for people with disabilities. Both CLCs and RLC Sadyana buildings 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 recharging the ground water.

7. The proposal includes for the provision of solar power panels at each of the CLC and RLC, for which a budget of $15,215 has been allocated. The system is expected to generate about 6 KVA which will meet the CLC or RLC demand for lighting and running the computer laboratories. The cost for CLC Shamshi has been estimated about INR 31.18 millions. The costs for RLC Sadyana and CLC Sunder Nagar have been estimated as INR 50.021 and INR 37.773 million respectively. 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.

8. The enclosed **initial environment examination (IEE) report** provides details about the sites of CLCs and RLC, the potential environmental impact of the civil works, and suggests ways of mitigating and addressing these.[3] Since all the three sites are near inhabited areas

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[2] In addition to the Environment and Social Safeguards consultant, other experts including an Architect, a Labor Economist / Gender specialist) plus relevant consultants from the consulting firm engaged under the project preparatory technical assistance project (IND TA 8760), have also screened these sites.

[3] Local 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 Municipal office building, district administration office. It will be disclosed to a wider audience via the ADB, DOUD, and HPKVN websites.

(CLCs Shamshi and Sunder Nagar in urban areas and RLC Sadyana in rural area), therefore there is no existence of any protected, reserved or revenue forest areas nearby. There is no natural stream or river near the sub-project sites. The sub-project sites at Shamshi and Sunder Nagar are on a plain terrain, whereas subproject site at Sadyana is on undulating terrain. There are no protected areas (national parks, bird sanctuaries, tiger reserves, etc.), wetlands, mangroves, or estuaries in or near the sub-project locations. The sites rein relatively open areas at the respective locations. Therefore, there are no ambient air quality and noise level issues.

9. Since the CLCs and RLC buildings will be in small size for vocational training and livelihood development, construction of these buildings and their operations are unlikely to cause any significant impacts. These routine and localized effects associated with construction and operation of the new buildings can be mitigated easily by following the measures laid down in the respective Environment **Management Plans (EMPs) of CLCs and RLC** included the IEE. The respective EMPs will be included in civil work bidding and contract documents. **The IEE confirms that each of sub-project 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.

10. 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 to be engaged under the proposed loan will have experienced Environment and Social Safeguards specialists. They will assist HPKVN and PWD in supervising the civil works, ensuring that the IEEs and EMPs are prepared for all sub-projects, and preparing semi-annual safeguards monitoring reports as required by ADB. HPKVN will consolidate the semi-annual reports, and submit them to ADB. ADB will post the environmental monitoring reports on its website.

INTRODUCTION

A. Background

1. **Location.** The Mandi construction package comprises of establishment of one CLC each at Sunder Nagar and Shamshi and one RLC at Sadyana. The CLCs at Sunder Nagar and Shamshi are in Mandi and Kullu districts of Himachal Pradesh. The latitude and longitude of the proposed 2CLCs and one RLC are given below:

Sl. No.	Name of Facility	Latitude	Longitude
1	CLC at Sunder Nagar	31.540333 N	76.904411 E
2	RLC at Sadyana	31.715634 N	76.908294 E
3	CLC at Shamshi	31.894985 N	77.138505 E

2. The nearest rail head at Shimla is 127 km, 157 km 207 and km away from CLC Sunder Nagar, RLC Sadyana and CLC Shamshi respectively. All the three locations are well connected to important destinations such as Shimla, Chandigarh and Delhi. The distances of important destinations is given below:

Sl. No.	CLC or RLC Location	Altitude (m)	District	Distance from site (km)
1.	CLC Sunder Nagar	865	Mandi	Sunder Nagar : 3 km Kullu Airport : 80.3 km Mandi : 8 km New Delhi : 425 km Shimla : 120 km Ambala : 210 km Manali : 130 km
2.	RLC Sadyana	1201	Mandi	Mandi : 25.5km Kullu Airport : 69.3 km Shimla : 150 km Manali : 119 km Sunder Nagar : 32.7 km New Delhi : 455 km Ambala : 240 km
3.	CLC Shamshi	1120	Kullu	Kullu : 25.5km Kullu Airport : 3 km Shimla : 200 km Manali : 47 km Sunder Nagar : 83 km New Delhi : 505 km Ambala : 290 km

3. The proposed CLC sites at Sunder Nagar and Shamshi are proposed in the vacant land of respective ITI campuses. The RLC site at Sadyana is on a vacant land owned by department of Rural Development. The Kullu district lies between the parallels of 32°25'5.1" to 31°20'26.6" North and 77°9'8" to 77°25'46.6" East. The Mandi district geographically lies between the latitude 31º13'50 and 32º04'30" North and longitude 76º37'20" and 77º-23'15" East.

4. **Present Status of Site.** The sub project sites at Shamshi and Sunder Nagar are located in plain terrain. The RLC site at Sadyana is located in an undulating terrain. The sites at

Kullu and Sunder Nagar are located in ITI campuses and these have ownership of Department of Technical Education (DOTE), Government of Himachal Pradesh. The sub project site at Sadyana has ownership of Department of Rural Development (DORD). There are no permanent or temporary structures on any of the sites. There are also no trees at these sub-project sites. The photographs of respective sites are shown below.

Photographs of CLC Site at Sunder Nagar

Photographs of CLC Site at Shamshi Kullu

Photographs of RLC Site at Sadyana

B. Compliance with India's Environmental Regulatory Framework

5. India's environmental rules and regulations, as relevant for the sub-projects of Mandi package, 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.[4]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 these sub projects under Mandi package, 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; the Wildlife (Conservation) Act, 1972, amended in 2003 and 2006; and the Forest (Conservation) Act, 1980, will also not apply to Mandi Package. Only some permissions will be required from the Himachal Pradesh State Pollution Control Board for the construction phase of the sub-projects this package.

Table 1: Environmental Regulatory Compliance

Sub-Project	Applicability of Acts/Guidelines	Compliance Criteria
Construction of CLCs at Shamshi and Mandi and RLC at Sadyana	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-projects are 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**

[4] 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 10 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

Sub-Project	Applicability of Acts/Guidelines	Compliance Criteria
	The Ancient Monuments and Archaeological Sites and Remains Act, 1958, and the rules, 1959 provide guidance for carrying out activities including conservation, construction and reuse in and around the protected monuments.	The sites of CLCs (at Shamshi and Sunder Nagar) and RLC (at Sadyana) are 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 sites. **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- projects under Mandi package. Hence, this is not applicable. **Not Applicable**

C. Asian Development Bank's Environmental Safeguard Policy Principles

11. 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.[5]Similarly, ADB's REA checklist method was followed to assess the

[5] 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**

potential impact of the proposed sub-projects under Mandi package (**Annexure-1**). As explained below, all the three the sub-projects have 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 all the three sites 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

6. 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

7. 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 impact and mitigation measures; (v) EMP; (vi) Public Consultation and information disclosure; (vii) findings and recommendations; and (viii) conclusions.

FI. A proposed project is classified as category FI if it involves investment of ADB funds to or through a FI (paras. 65-67).

I. DESCRIPTION OF THE PROJECT COMPONENTS

A. Components of the Sub-project

8. The locations of the sub-project sites and surroundings are shown in **Figures 1 and 2. Table -2** summarizes the need for the sub-project, and is proposed components.

Figure 1 (a): Location of CLC Site at Sunder Nagar

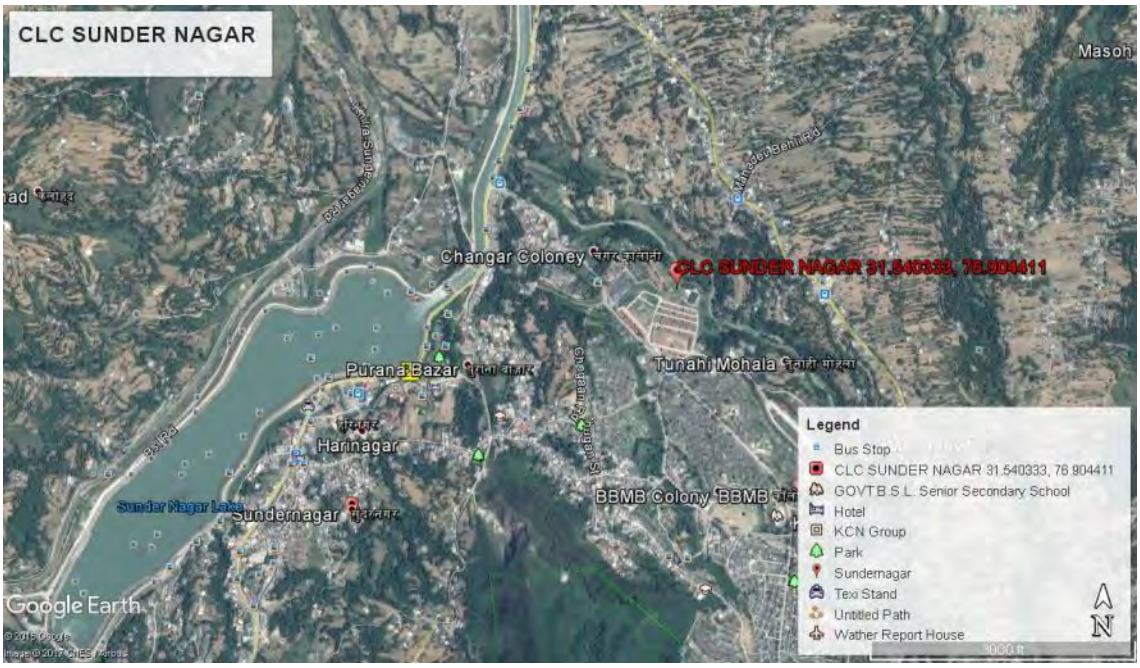


Figure 1 (b): Location of CLC Site at Shamshi

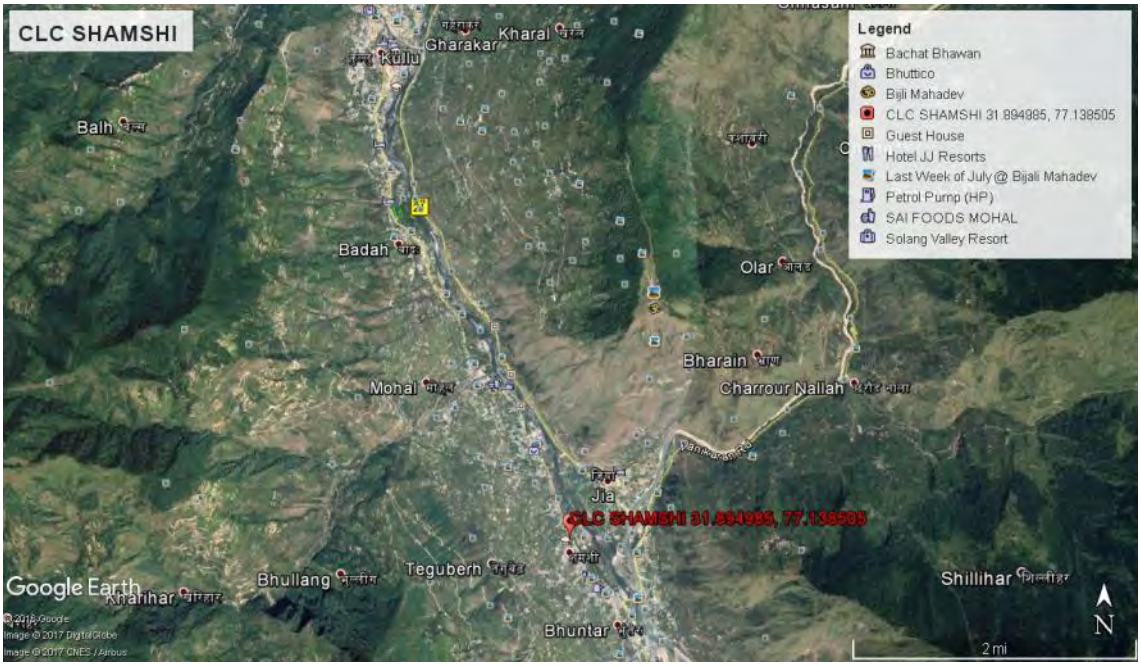
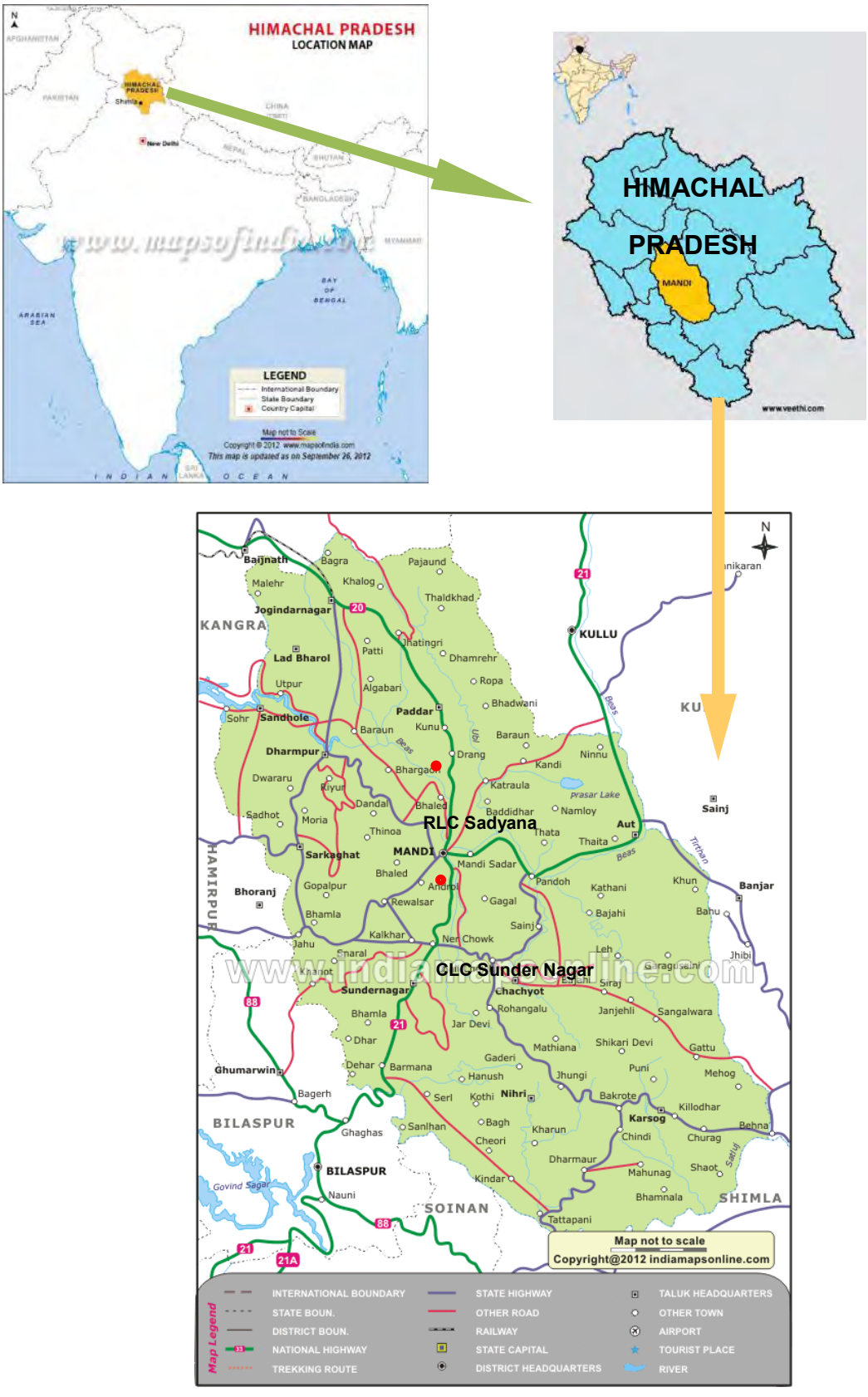
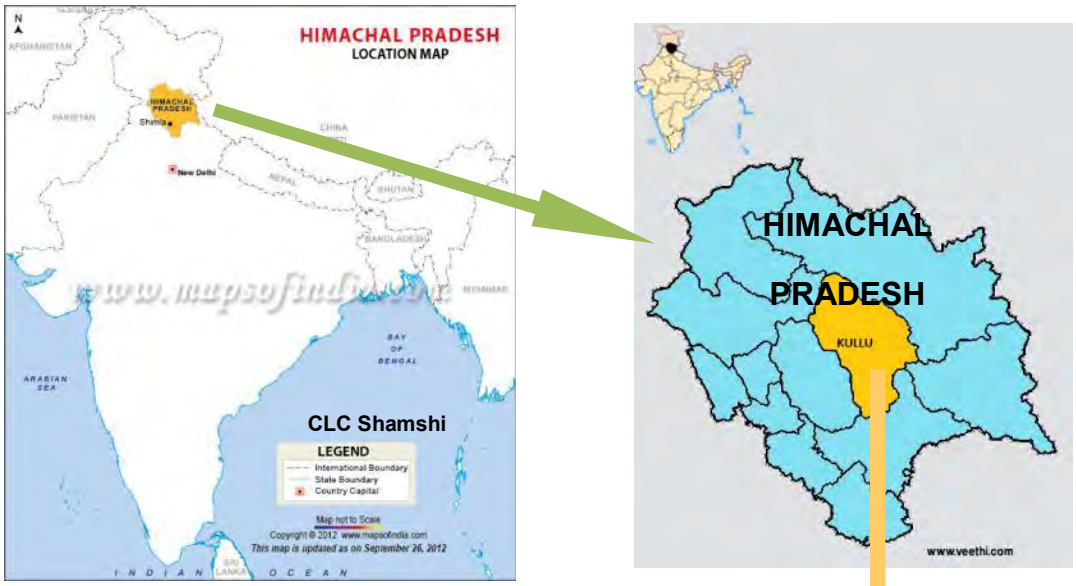


Figure 1 (c): Location of RLC Site at Sadyana

Figure 2: Locations of Sub Project Sites



Rural Livelihood Center at Sadyana and City Livelihood Center at Sunder Nagar in Mandi District



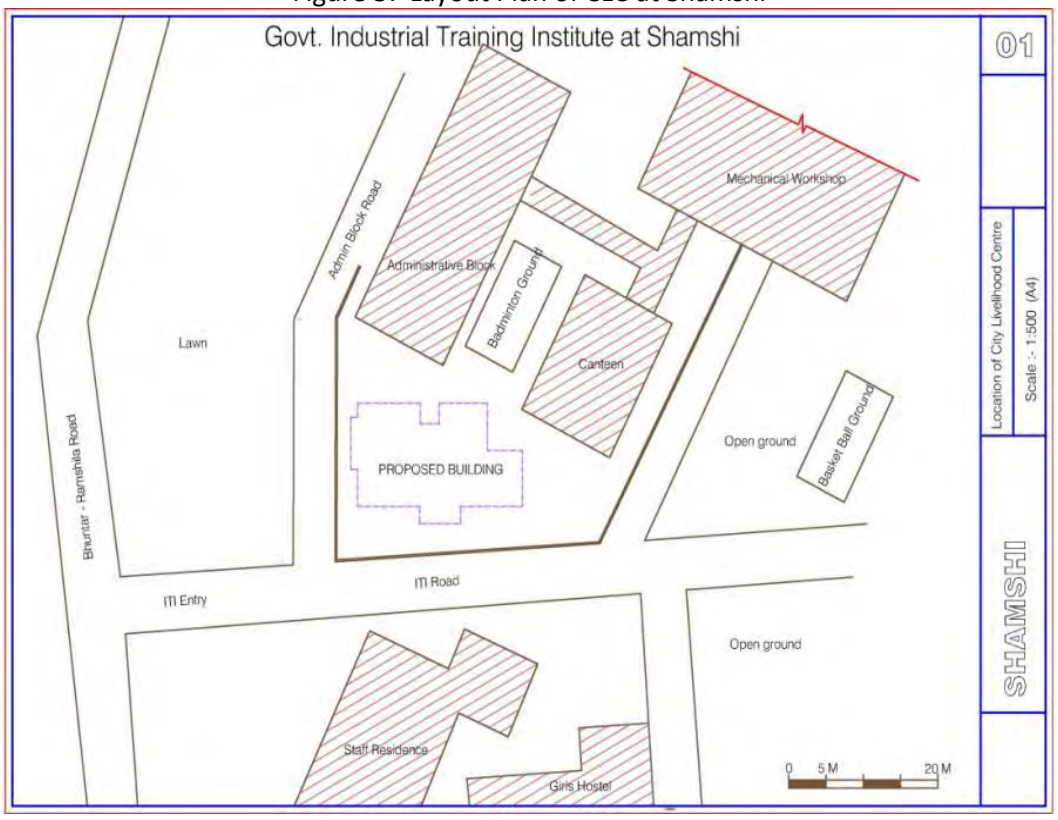
City Livelihood Center at Shamshi

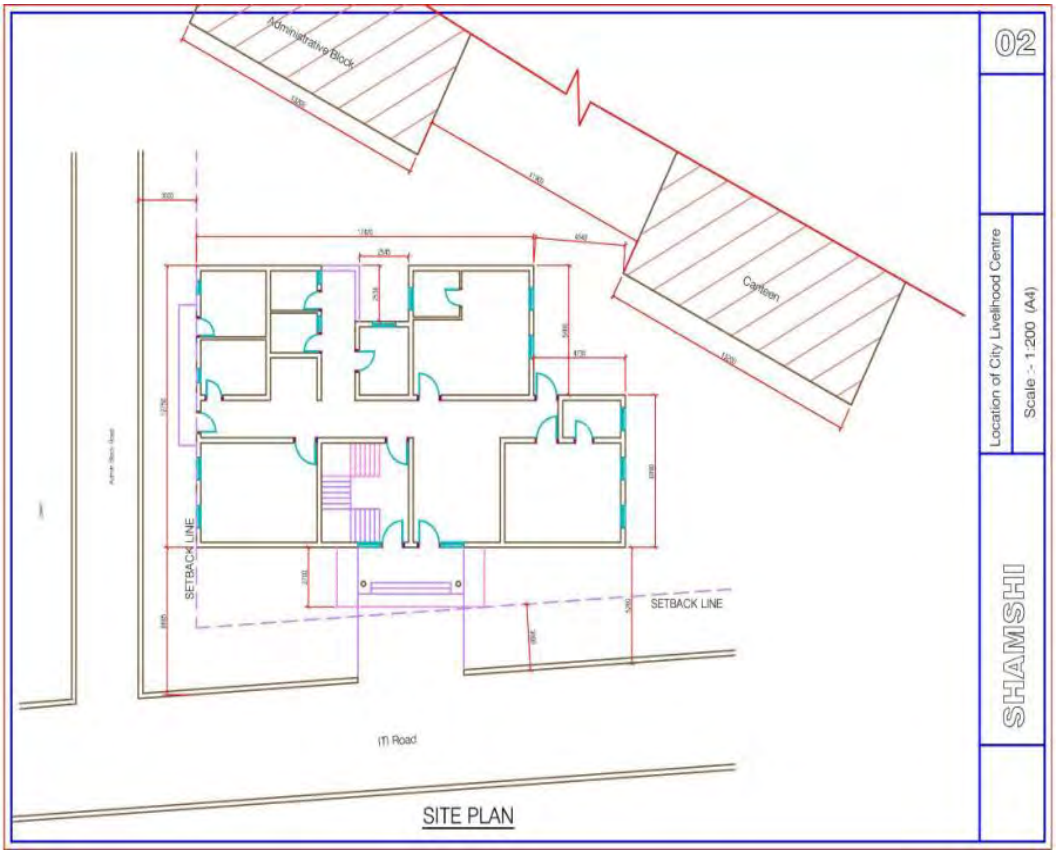
Table 2: Description of the Sub-project Components

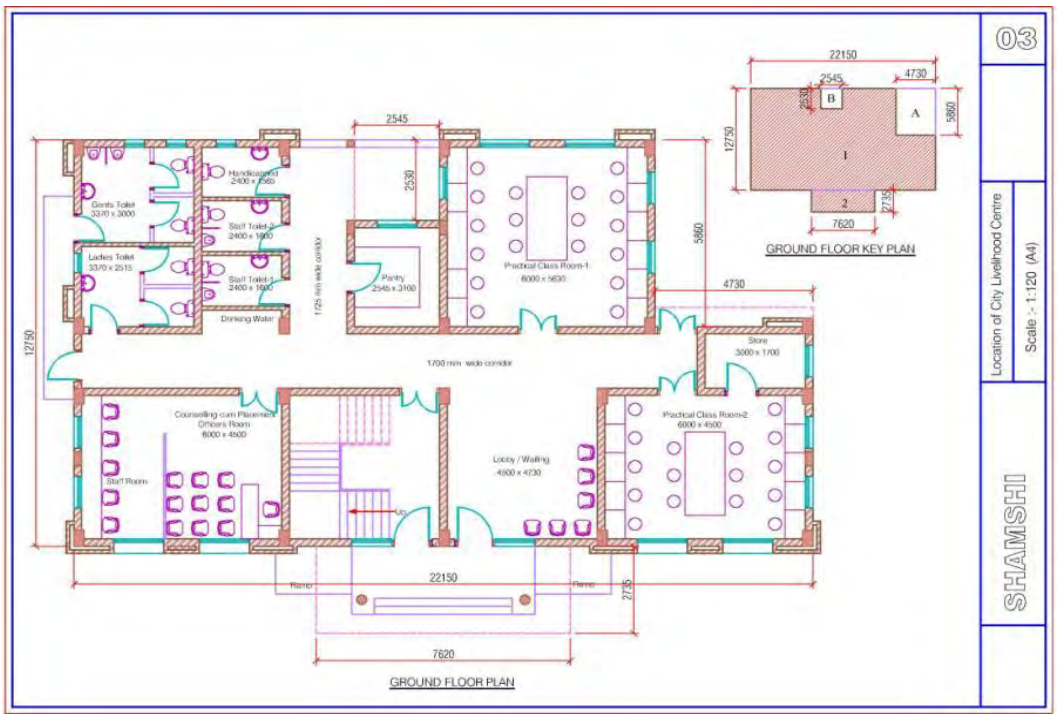
Description	Need of the Project	Proposed Components
CLCs at Sunder Nagar and Shamshi and RLC at Sadyana are proposed under the Mandi package.	✓ Himachal Pradesh lacks the required number of good quality facilities for imparting technical and vocational education training (TVET) to the *Himachali* youth. ✓ The proposed CLCs at Shamshi and Sunder Nagar and RLC at Sadyana will provide the needy urban youth of the Mandi and Kullu districts with good quality skills training and livelihood development opportunities. The hostel facilities will enable out-station trainees from small towns and remote villages to enroll for residential programs at these proposed CLCs and RLC.	Themainsub-projectcomponentsinclude: i. The CLCs and RLC will have a three storey building for accommodating training facilities. It will have a lobby cum waiting area on the ground floor ii. There will be a computer laboratory and training class rooms on the first floor iii. There will be a small production center for making saleable products from local produced fruits and vegetables at Sadyana iv. There hostel will be on the first and second floors only at Sunder Nagar. No hostel planned at Sadyana site of RLC v. Sanitation facilities have been planned on all floors. vi. A septic tank will be provided for 50 users at each location. vii. Solar panels will be installed on the roof. They will have the potential to generate a minimum of 3 kVA of power at each location. viii. The total electricity load has been estimated as 25 kW at CLCs Shamshi and Sunder Nagar and Mandi whereas electricity load at Sadyana RLC has been estimated as 40 kW. ix. Water consumption has been estimated as 8280 liters per day. Water source will be from the municipal supply. x. The solid waste generated will be integrated with the waste disposal system at the respective locations of RLC and CLCs. xi. The civil costs for CLCs Sunder Nagar and Shamshi have been estimated as INR 37.773 and INR 31.184 million respectively. The cost for RLC Sadyana has been estimated as INR 50.021 million.

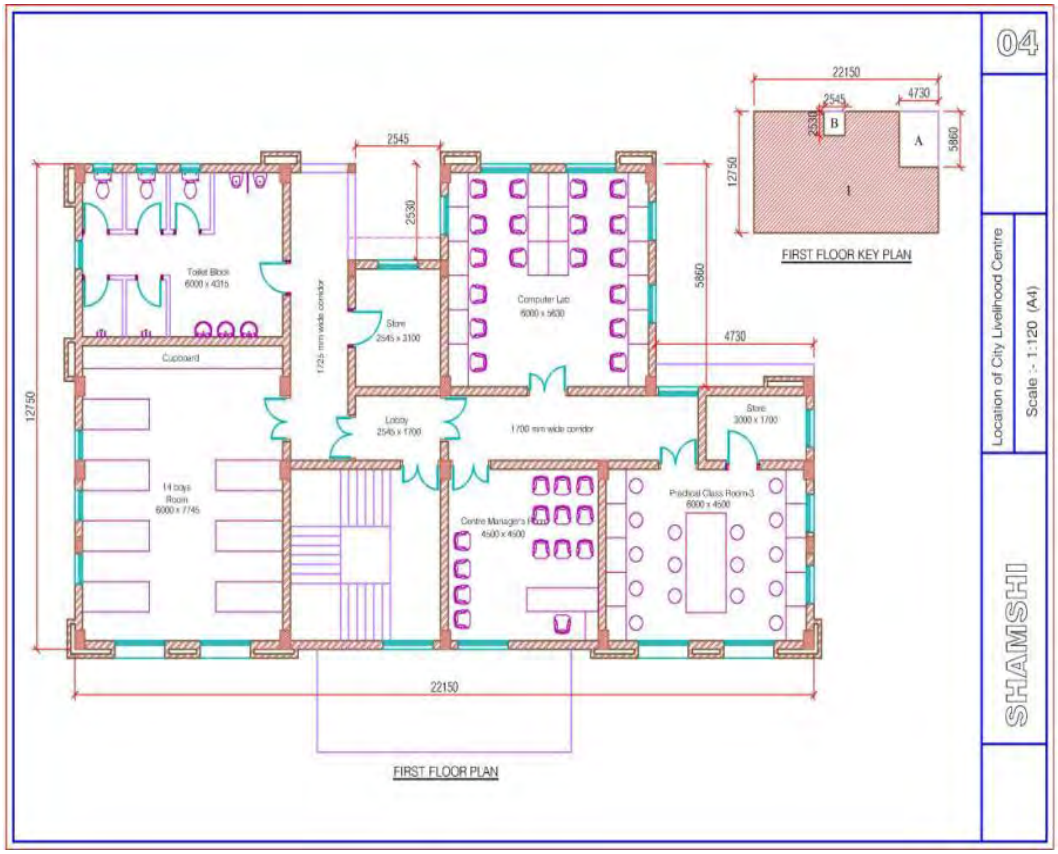
9. The layout plans of CLCs at Shamshi and Sunder Nagar are shown below in **Figure-3 and 4**. The layouts of RLC at Sadyana have been shown in **Figure -5.** respectively.

Figure 3: Layout Plan of CLC at Shamshi






03
22150
2545
4730
2530
B
A
5860
12750
1
2
2730
7620
GROUND FLOOR KEY PLAN
2545
2530
5860
4730
12750
Gents Toilet
3370 x 3000
Handicapped
2400 x 2580
Staff Toilet-2
2400 x 1900
Ladies Toilet
3370 x 2515
Staff Toilet-1
2400 x 1900
Drinking Water
1725 mm wide corridor
Pantry
2545 x 3100
Practical Class Room-1
6000 x 5630
1700 mm wide corridor
Store
3000 x 1700
Counselling cum Placement
Officers Room
6000 x 4500
Staff Room
Lobby / Waiting
4500 x 4730
Up
Practical Class Room-2
6000 x 4500
Ramp
22150
Ramp
2730
7620
GROUND FLOOR PLAN
Location of City Livelihood Centre
Scale :- 1:120 (A4)
SHAMSHI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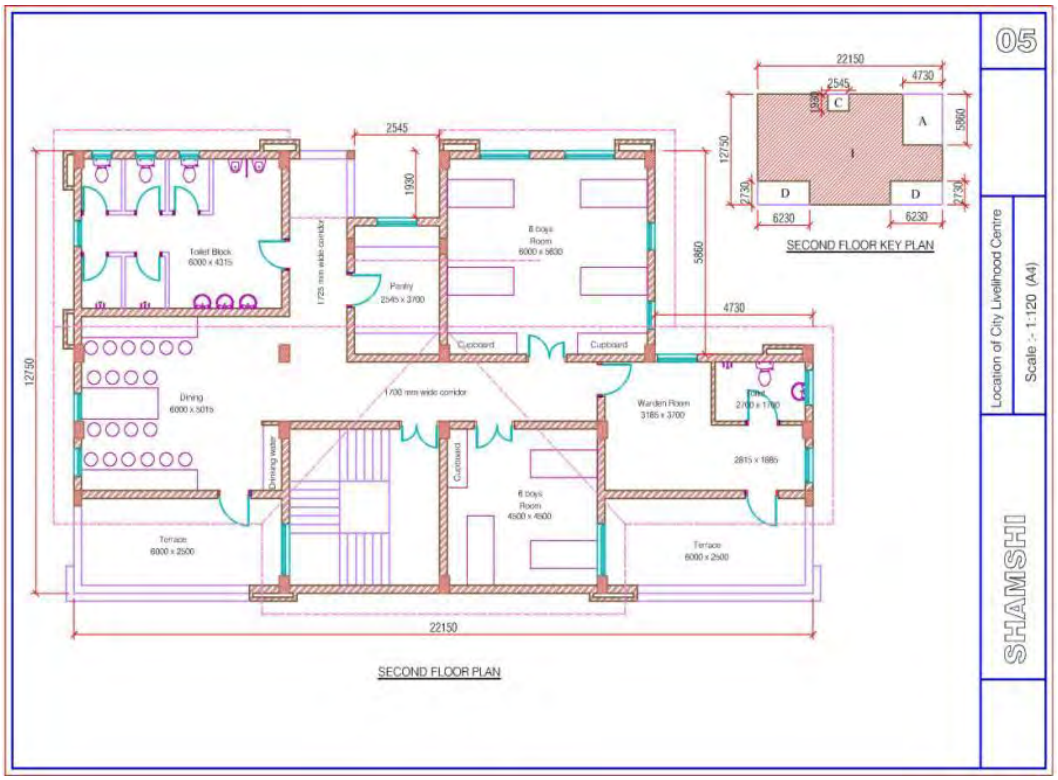
5860
12750
1
FIRST FLOOR KEY PLAN
2545
2530
5860
4730
12750
Toilet Block
6000 x 4315
Cupboard
1725 mm wide corridor
Store
2545 x 3100
Computer Lab
6000 x 5630
Lobby
2545 x 1700
1700 mm wide corridor
Store
3000 x 1700
14 bays
Room
6000 x 7745
Centre Manager's Room
4500 x 4500
Practical Class Room-3
6000 x 4500
22150
FIRST FLOOR PLAN
Location of City Livelihood Centre
Scale :- 1:120 (A4)
SHAMSHI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2545
1930
C
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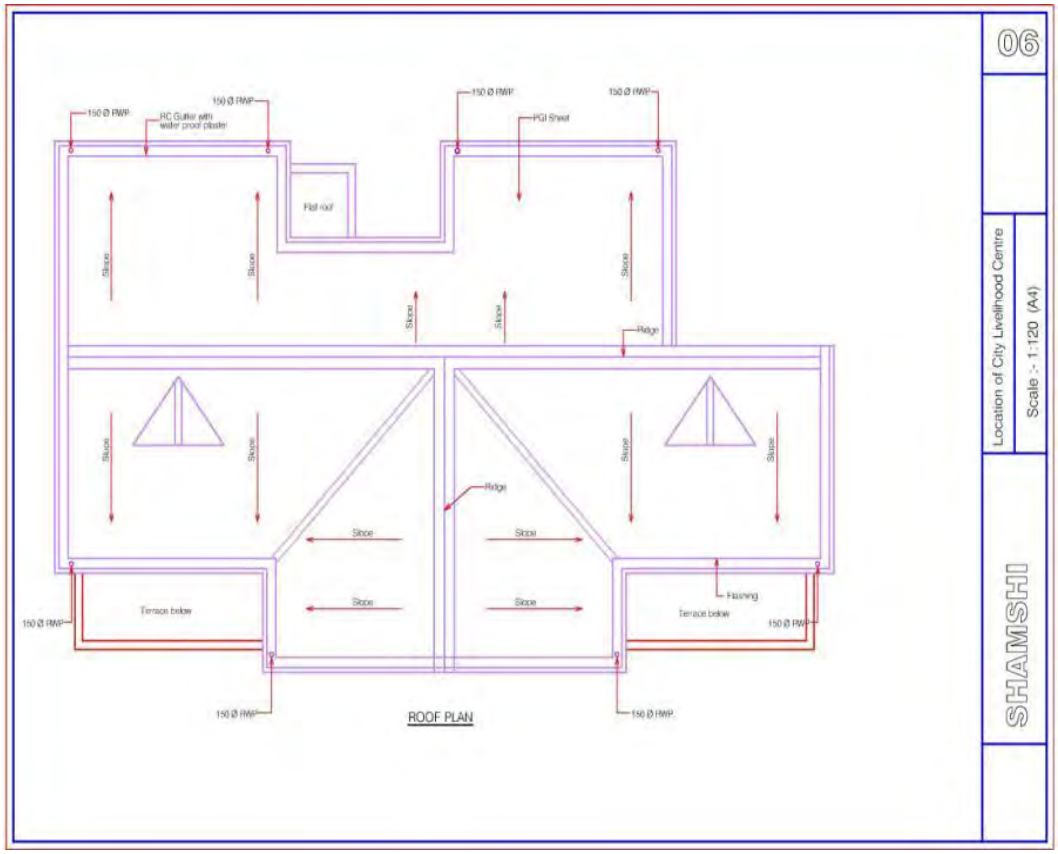
I
D
D
5860
12750
2730
2730
6230
6230
SECOND FLOOR KEY PLAN
2545
1930
Toilet Block
6000 x 4315
1725 mm wide corridor
Pantry
2545 x 3700
8 boys
Room
6000 x 5830
5860
4730
12750
Cupboard
Cupboard
1700 mm wide corridor
Dining
6000 x 5015
Warden Room
3185 x 3700
2815 x 1885
Drinking water
Cupboard
6 boys
Room
4500 x 4500
Terrace
6000 x 2500
Terrace
6000 x 2500
22150
SECOND FLOOR PLAN
Location of City Livelihood Centre
Scale :- 1:120 (A4)
SHAMSHI


06
150 Ø RWP
150 Ø RWP
RC Gutter with
water proof plaster
150 Ø RWP
PGI Sheet
150 Ø RWP
Flat roof
Slope
Slope
Slope
Slope
Slope
Ridge
Slope
Slope
Ridge
Slope
Slope
Slope
Slope
Slope
Slope
Flashing
Terrace below
Terrace below
150 Ø RWP
150 Ø RWP
150 Ø RWP
150 Ø RWP
ROOF PLAN
Location of City Livelihood Centre
Scale :- 1:120 (A4)
SHAMSHI

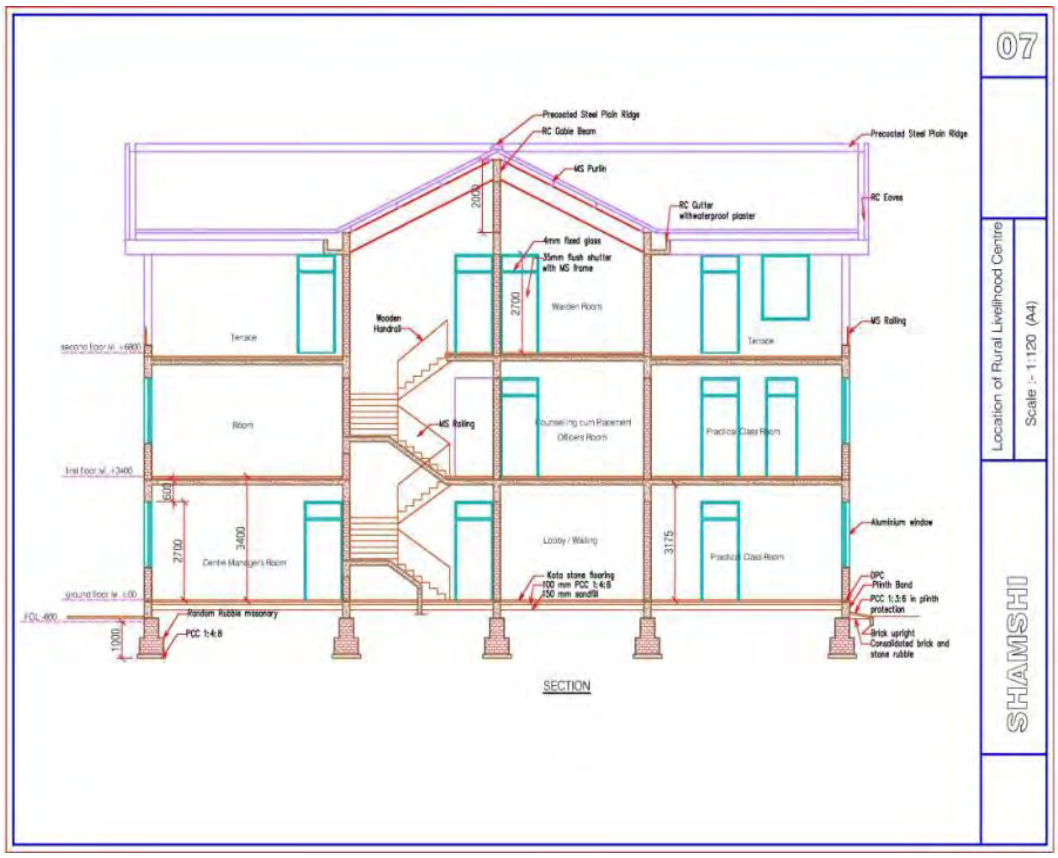
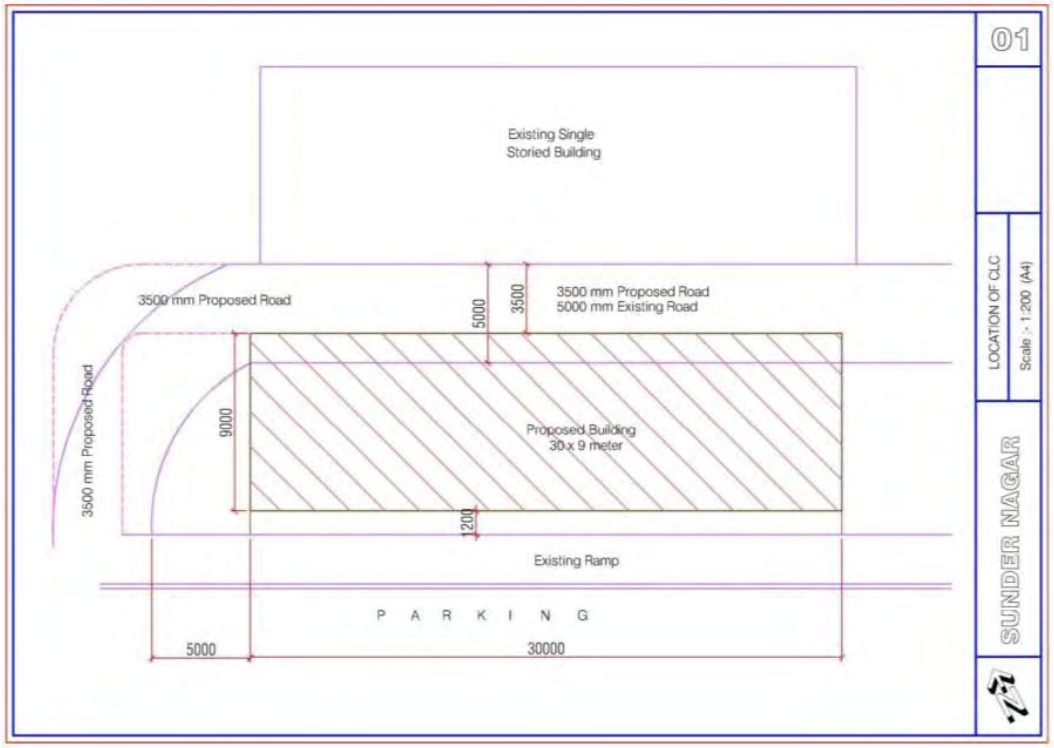
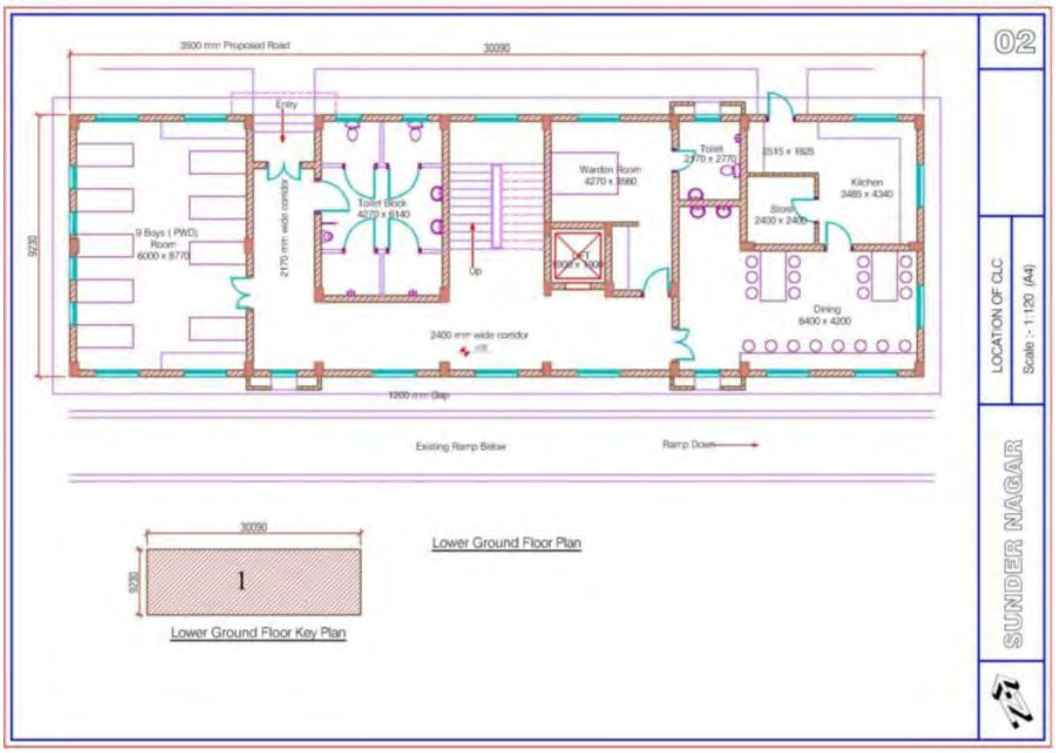
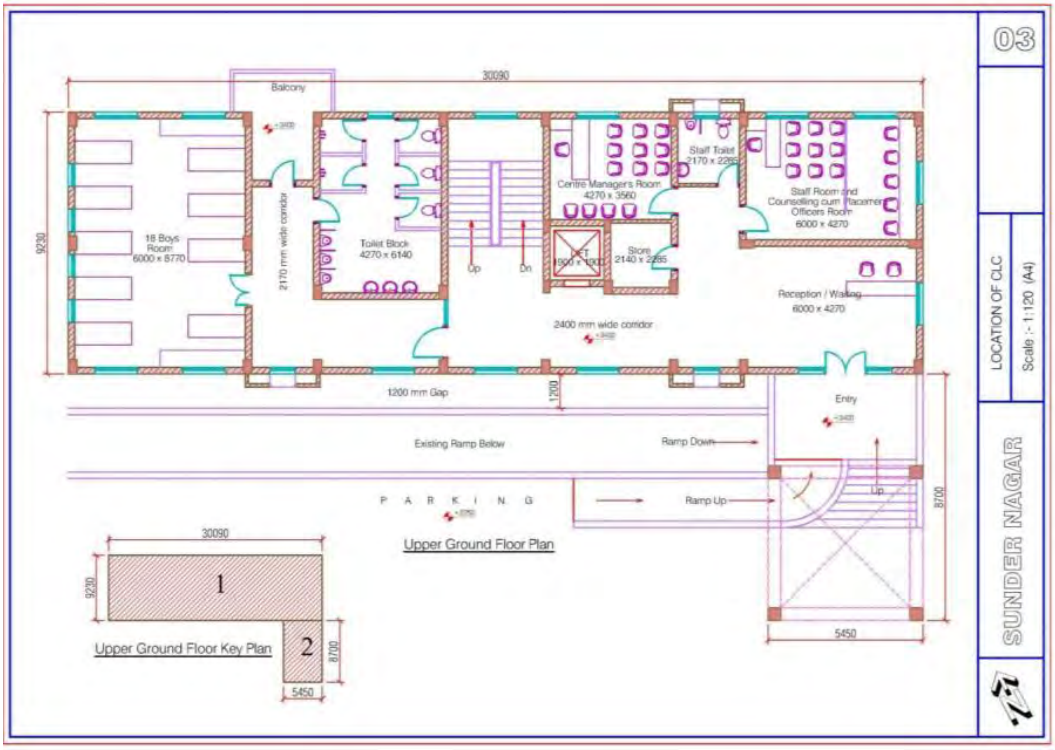
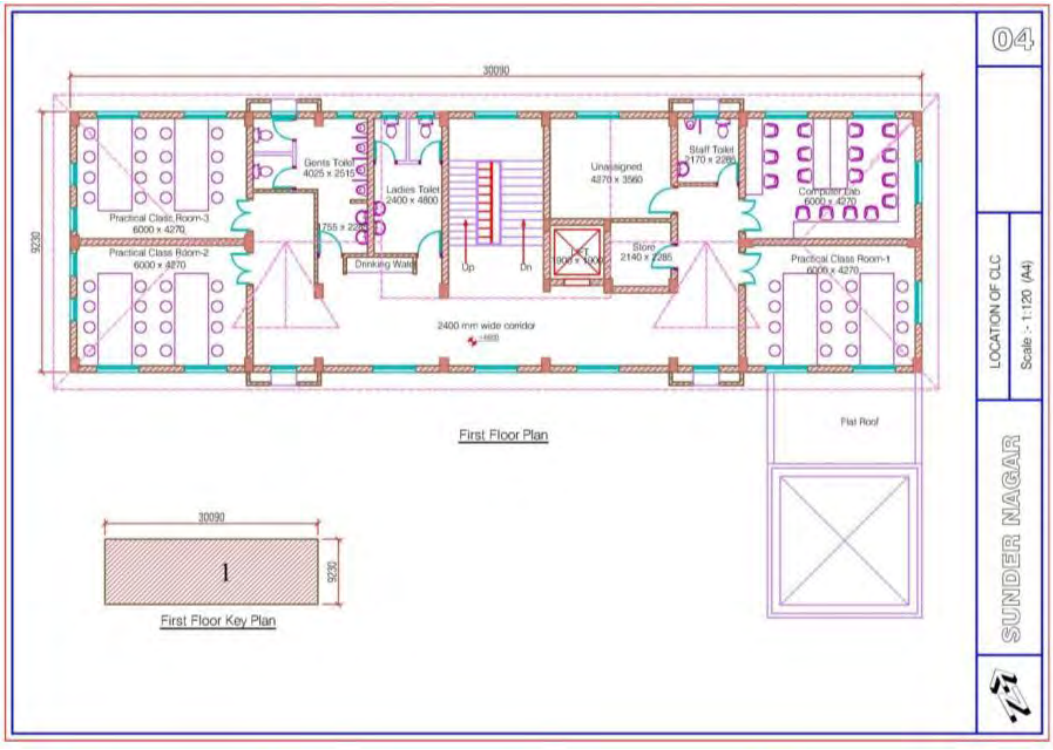

07
Precoated Steel Plain Ridge
RC Gable Beam
MS Purlin
RC Eaves
RC Gutter withwaterproof plaster
4mm fixed glass
35mm flush shutter with MS frame
Wooden Handrail
Warden Room
Terrace
MS Railing
Room
Counseling cum Placement Officers Room
Practical Class Room
Centre Manager's Room
Lobby / Waiting
Aluminium window
Kota stone flooring
100 mm PCC 1:4:8
150 mm sandfill
DPC
Plinth Band
PCC 1:3:6 in plinth protection
Brick upright
Consolidated brick and stone rubble
Random Rubble masonary
PCC 1:4:8
SECTION
Location of Rural Livelihood Centre
Scale :- 1:120 (A4)
SHAMSHI

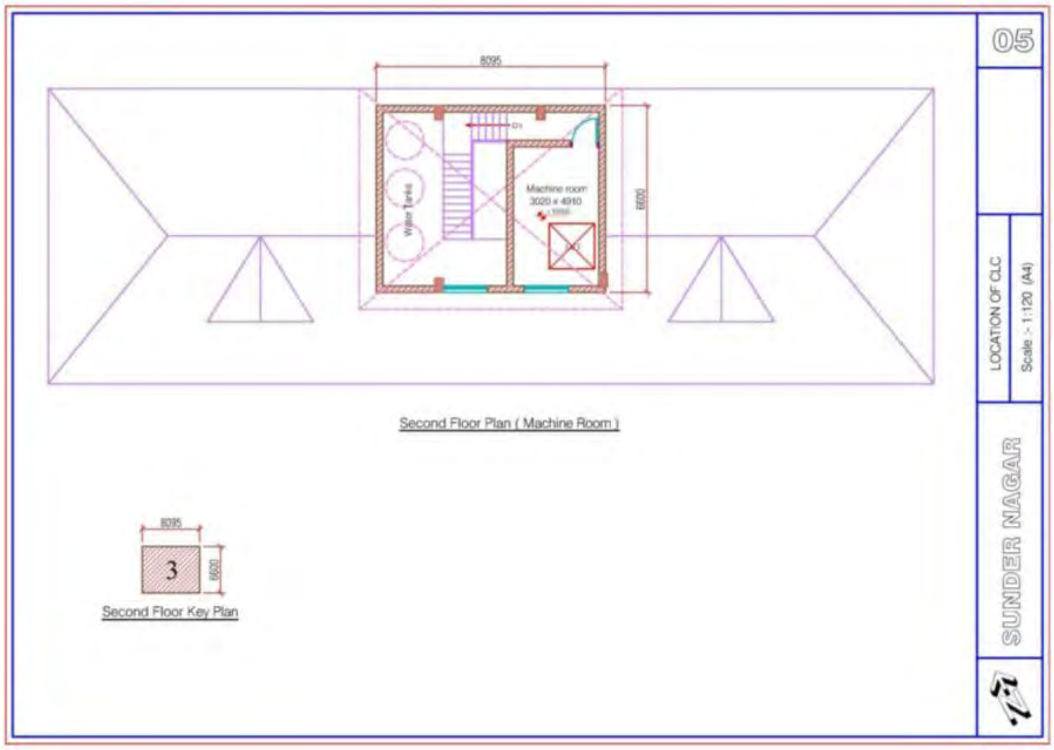
Figure 4: Layout Plan of CLC at Sunder Nagar

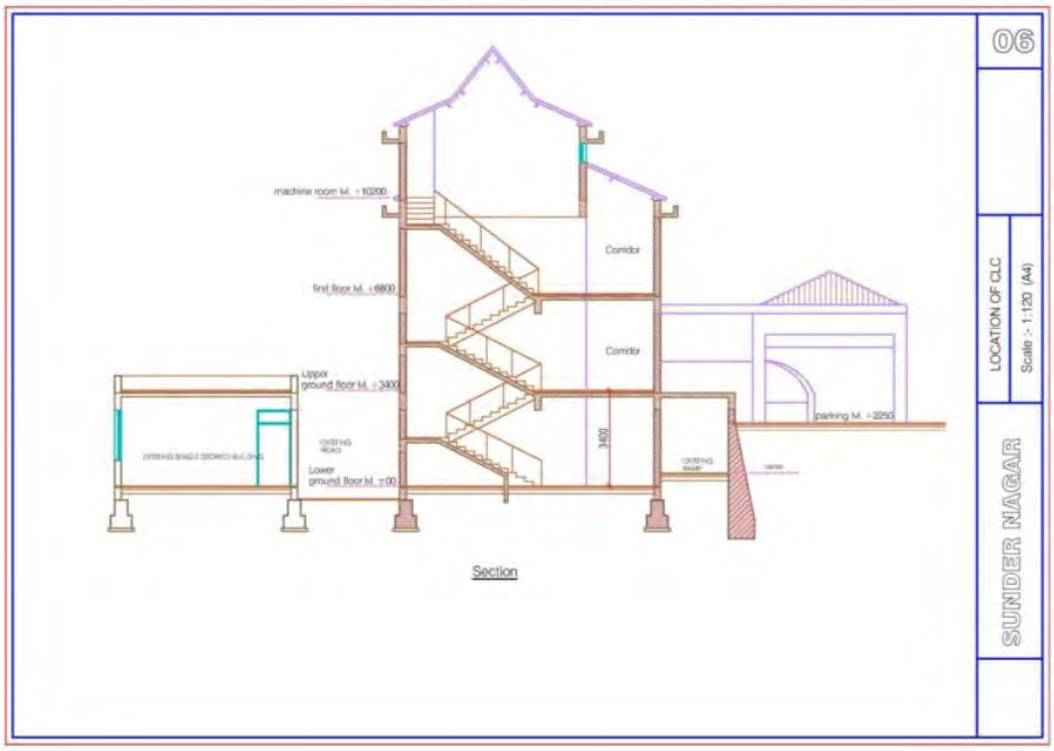





03
30090
Balcony
18 Boys Room 6000 x 8770
2170 mm wide corridor
Toilet Block 4270 x 6140
Centre Manager's Room 4270 x 3560
Staff Toilet 2170 x 2285
Staff Room and Counselling cum Placement Officers Room 6000 x 4270
Store 2140 x 2285
Reception / Waiting 6000 x 4270
2400 mm wide corridor
1200 mm Gap
Entry
Existing Ramp Below
Ramp Down
P A R K I N G
Ramp Up
Up
Dn
9230
8700
5450
Upper Ground Floor Plan
Upper Ground Floor Key Plan
1
2
LOCATION OF CLC
Scale :- 1:120 (A4)
SUNDER NAGAR


04
30090
Gents Toilet 4025 x 2515
Ladies Toilet 2400 x 4800
Drinking Water
Unassigned 4270 x 3560
Staff Toilet 2170 x 2285
Computer Lab 6000 x 4270
Practical Class Room-3 6000 x 4270
Practical Class Room-2 6000 x 4870
Practical Class Room-1 6000 x 4270
Store 2140 x 2285
2400 mm wide corridor
Up
Dn
9230
Flat Roof
First Floor Plan
First Floor Key Plan
1
LOCATION OF CLC
Scale :- 1:120 (A4)
SUNDER NAGAR

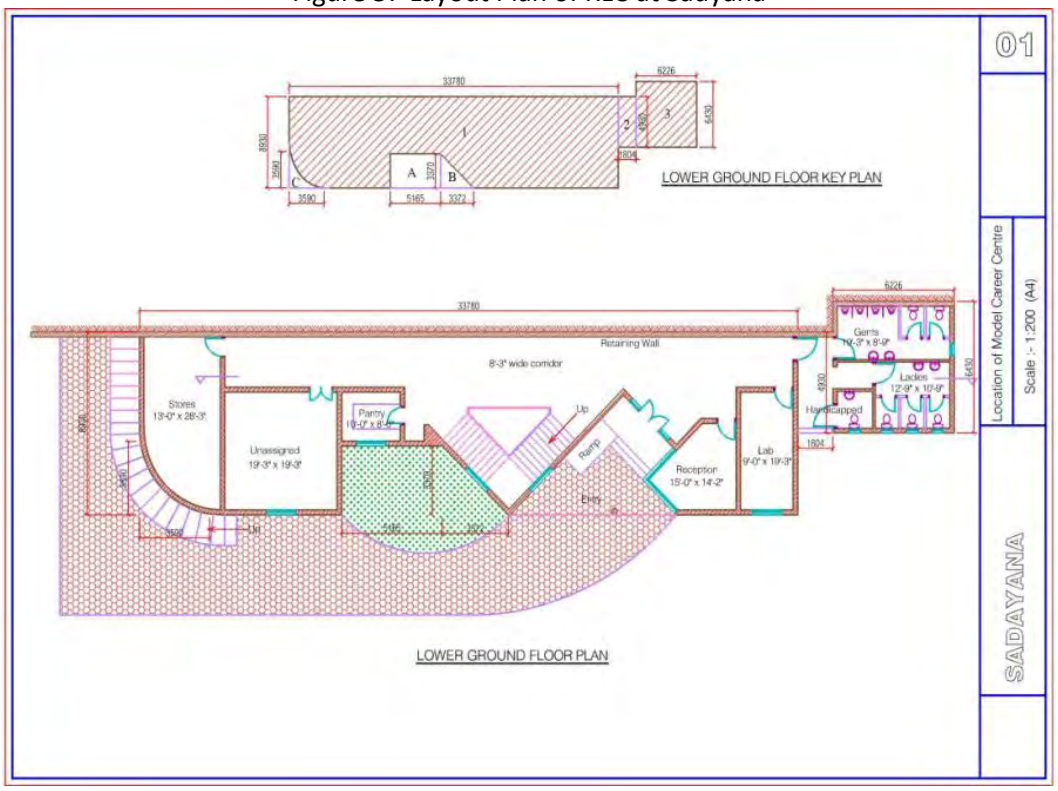

8095
Machine room
3020 x 4910
6600
Water Tanks
Second Floor Plan (Machine Room)
8095
3
6600
Second Floor Key Plan
05
LOCATION OF CLC
Scale :- 1:120 (A4)
SUNDER NAGAR

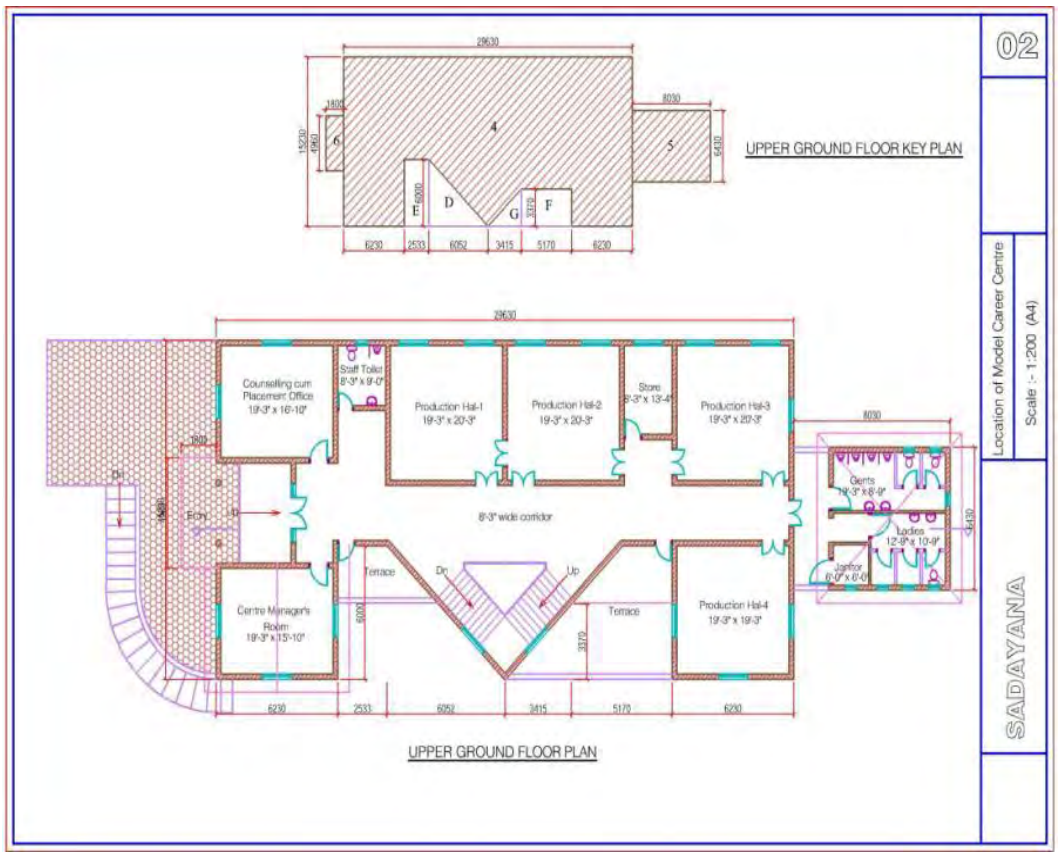

machine room lvl. +10200
first floor lvl. +6800
Upper
ground floor lvl. +3400
Lower
ground floor lvl. ±00
Corridor
Corridor
3400
parking lvl. +2250
Section
06
LOCATION OF CLC
Scale :- 1:120 (A4)
SUNDER NAGAR

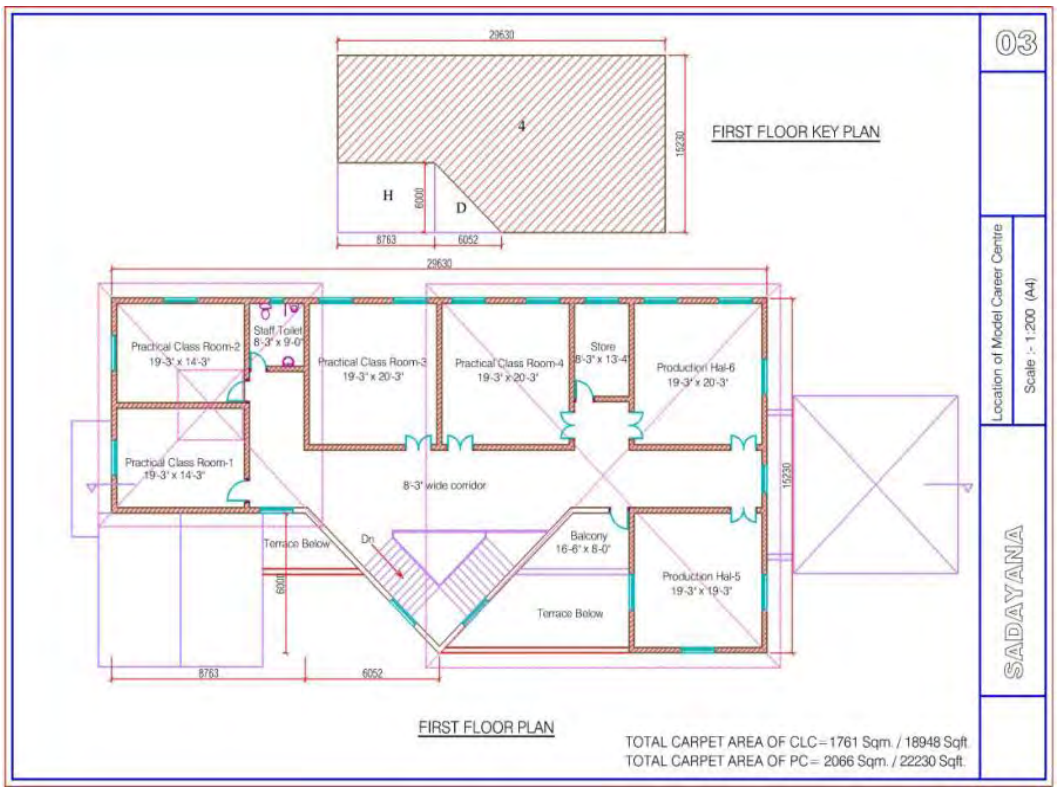
CLC 3D VIEW

CLC 3D VIEW

Figure 5: Layout Plan of RLC at Sadyana






03
FIRST FLOOR KEY PLAN
29630
4
15230
H
6000
D
8763
6052
Practical Class Room-2
19-3" x 14-3"
Staff Toilet
8-3" x 9-0
Practical Class Room-3
19-3" x 20-3"
Practical Class Room-4
19-3" x 20-3"
Store
8-3" x 13-4"
Production Hal-6
19-3" x 20-3"
Practical Class Room-1
19-3" x 14-3"
8-3" wide corridor
Terrace Below
Dn
Balcony
16-6" x 8-0"
Production Hal-5
19-3" x 19-3"
Terrace Below
FIRST FLOOR PLAN
TOTAL CARPET AREA OF CLC = 1761 Sqm. / 18948 Sqft.
TOTAL CARPET AREA OF PC = 2066 Sqm. / 22230 Sqft.
Location of Model Career Centre
Scale :- 1:200 (A4)
SADAYANA


04
Precoated Steel Plain Ridge
MS purlin
RC gutter with waterproof plaster
Wooden handrail
Corridor
Practical Class Room-1
First floor M. +3600
MS railing
Corridor
Entrance
Upper ground floor M. +00
Brick bat koba
Lower ground floor M. -3600
Corridor
Kota stone flooring
Stores
Plinth band
DPC
100 mm PCC 1:4:8
150 mm sand fill
PCC 1:4:8
Random Rubble Masonary
SECTION-A
Location of Model Career Centre
Scale :- 1:200 (A4)
SADAYANA

B. Executing and Implementing Agencies

10. The Department of Planning (DOP), GOHP, will be the executing agency for the proposed HPSDP. The *Himachal Pradesh Kaushal Vikas Nigam* (HPKVN), the Department of Technical Education, Vocational & Industrial Training (DOTE), 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 the overall project. For the civil works component, it will be assisted by PWD officials who are well aware of the states and India's building codes and environmental rules and regulations. HPKVN and PWD will be 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 to be engaged under the proposed loan will have experienced Environment and Social Safeguards specialists. They will assist PWD and HPKVN in supervising the civil works, ensuring that the IEEs and EMPs are prepared for all sub-projects, and preparing semi-annual safeguards monitoring reports. HPKVN will consolidate the semi-annual reports, and submit them to ADB. ADB will post the environmental monitoring reports on its website.

C. Implementation Schedule

11. The implementation period for each of the proposed sub-projects is 24 months. The preliminary drawings for RLC Sadyana and both CLCs have been prepared for approval and these have been approved. The bidding process for the sub-projects will be started by June 2017. The sub-projects will be awarded for construction by September 2017. The contractor(s) is expected to be mobilized to site by October 2017 and construction works of sub-projects will begin in October /November 2017 and work will be completed by November 2019.

II. DESCRIPTION OF THE EXISTING SUB-PROJECT ENVIRONMENT

12. This section presents a brief description of the existing environment around the sub-project sites under the Mandi package, 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-projects 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.

A. Environmental Profile

Air and Noise Quality

13. No major air pollution sources have been seen in the surroundings of influence area of all three sub- project sites. The CLCs sites at Shamshi and Sunder Nagar are located in ITI campuses at Shamshi and Sunder Nagar. The CLCs have been proposed in vacant land in the campuses. The proposed location is near the entrance gates at both the locations. The CLC Shamshi is close to National Highway and vehicular air emissions may have impacts on CLC. The RLC site at Sadyana is not close to any State Highway or National Highway. There are no industrial emissions in the surroundings of CLCs and RLC sites. The locations of sub- project sites 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 and Central Pollution Control Board has been referred. This data is available for Sunder Nagar and Manali relevant for the sub-project sites. 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 SO_2 and NO_x, but PM_{10} levels are exceeding the limits. At sub-project sites PM_{10} is also expected to be within the limits as sites are away for commercial areas as these monitored values are at busy commercial locations of Sunder Nagar and Manali.

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

Sl. No.	Location	Date	Parameter		
			SO2	NOx	PM_{10}
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	Manali at Nehru Park	Minimum	2	5	7
		Maximum	2	36	380
		Average	14	13	112
4	Manali at Hadimba Road	Minimum	2	5	7

		Maximum	14	36	180
		Average	4	10	57
5	**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	Date	Parameter (ug/m3)		
			SO2	NOx	PM_{10}
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	Manali at Nehru Park	Minimum	2	4.5	12.31
		Maximum	2	21.64	111.52
		Average	2	9.56	53.09
4	Manali at Hadimba Road	Minimum	2	4.5	10.45
		Maximum	2	17.66	75.27
		Average	2	6.33	41.60
5	**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					

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			

14. Noise levels data is not available for the sub project site locations. 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 sites as there are no sources of air or noise pollution near the sites.

15. In order to have site specific Ambient air quality monitoring and noise levels data, monitoring will be conducted by the contractor(s) prior to start of construction works with the aim of establishing baseline conditions.

16. **Climate.** The sub- projects sites fall in Kullu and Mandi districts of Himachal Pradesh. The climate of Kullu district is cool and dry and the year unfolds three broad seasons viz. cold season from October to February, hot season from March to June and rainy season from July to September. Snowfall generally occurs in December and January at higher elevations and most of the areas are cut off from the district headquarter since the mountain passes are closed. The district receives moderate rainfall and bulk of it is generally received during June to September and January-February. August is the wettest month throughout the district. The average annual rainfall of the district is 1405.7 mm, out of which 57% occurs during June to September.

17. 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 sites at Sunder Nagar and Mandi get are quite warm.

18. **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 raises to about 35°C all three locations of sub-project sites and the minimum temperature falls to about -1.0°C at Shamshi and about 6.0 °C at Sunder Nagar and Sadyana. The **Table-6** below shows month wise weather in Sunder Nagar, whereas **Table-7** below shows month wise weather at Kullu.

Table 6: Climatic Conditions at Sunder Nagar

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
Average Temp °C	11.3	13.7	18.2	23.3	27.8	29	25.9	25.2	24.7	21.5	16.8	13	11.3
Minimum °C	6.2	8.2	12.5	17	21.6	23.6	22.4	21.9	20.5	15.9	10.6	7.4	6.2
Maximum °C	16.4	19.2	23.9	29.6	34.1	34.5	29.5	28.5	28.9	27.1	23.1	18.7	16.4
Average Precipitation (mm)	80	59	78	31	42	125	426	322	172	45	17	34	1431
Average snowy days	0	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	0	0
Source: India Meteorological Department													

Table 7: Climatic Conditions in Kullu District

Climate data for Manali (1971–2000)													
Month	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Year**
Record high	19.5 (67.1)	23.5 (74.3)	27.0 (80.6)	30.0 (86)	35.0 (95)	33.2 (91.8)	32.6 (90.7)	30.6 (87.1)	29.2 (84.6)	30.0 (86)	25.6 (78.1)	21.5 (70.7)	35.0 (95)

Climate data for Manali (1971–2000)													
Month	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Year**
°C (°F)													
Average high °C (°F)	10.6 (51.1)	11.6 (52.9)	15.9 (60.6)	21.9 (71.4)	24.9 (76.8)	27.2 (81)	25.9 (78.6)	25.4 (77.7)	25.0 (77)	22.5 (72.5)	18.4 (65.1)	13.7 (56.7)	20.4 (68.7)
Average low °C (°F)	−1.6 (29.1)	−0.7 (30.7)	2.3 (36.1)	5.8 (42.4)	8.5 (47.3)	12.4 (54.3)	15.4 (59.7)	14.9 (58.8)	11.2 (52.2)	5.5 (41.9)	1.5 (34.7)	−0.1 (31.8)	6.5 (43.7)
Record low °C (°F)	−11.6 (11.1)	−11.0 (12.2)	−6.0 (21.2)	−1.0 (30.2)	1.0 (33.8)	4.4 (39.9)	7.4 (45.3)	7.0 (44.6)	3.0 (37.4)	−1.5 (29.3)	−5.0 (23)	−10.0 (14)	−11.6 (11.1)
Average rainfall mm (inches)	108.4 (4.268)	133.5 (5.256)	202.3 (7.965)	108.0 (4.252)	78.9 (3.106)	88.0 (3.465)	215.1 (8.469)	221.7 (8.728)	100.4 (3.953)	52.3 (2.059)	43.0 (1.693)	59.5 (2.343)	1,411.1 (55.555)
Average rainy days	6.6	8.2	9.3	6.2	5.7	7.3	14.7	15.0	8.5	3.4	2.8	3.5	80.1
Source: India Meteorological Department (record high and low up to 2010)													

19. **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 snow fall has not been observed at the sub-project sites in last 5 years. The monthly average rainfall in both districts where sub-project sites are located is around 1400 mm. The climatic conditions for Sunder Nagar have been depicted in **Figure-6** below:

20.

Figure 6: Climatic Conditions in Sunder Nagar

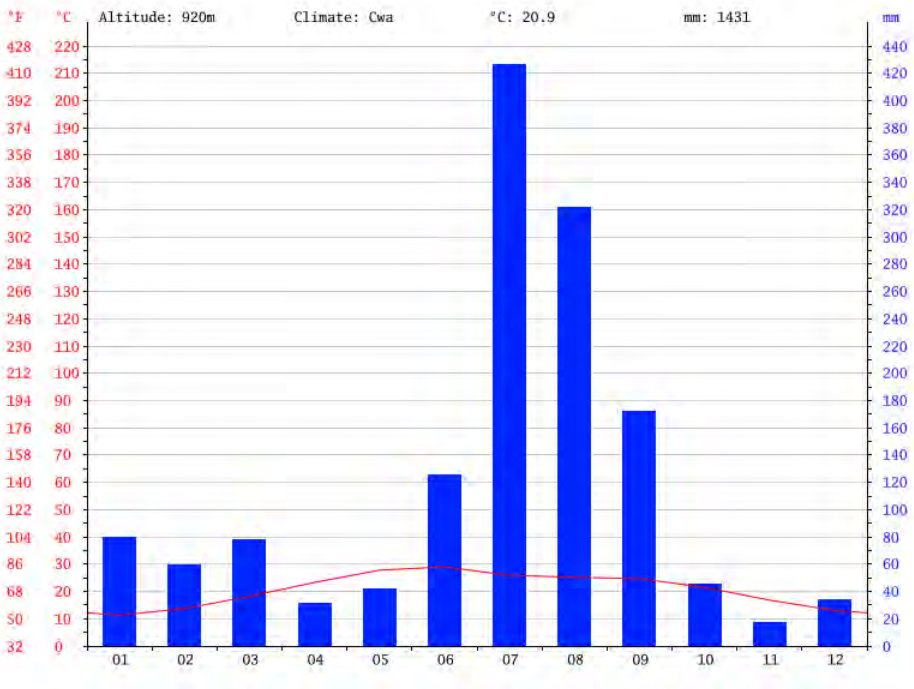
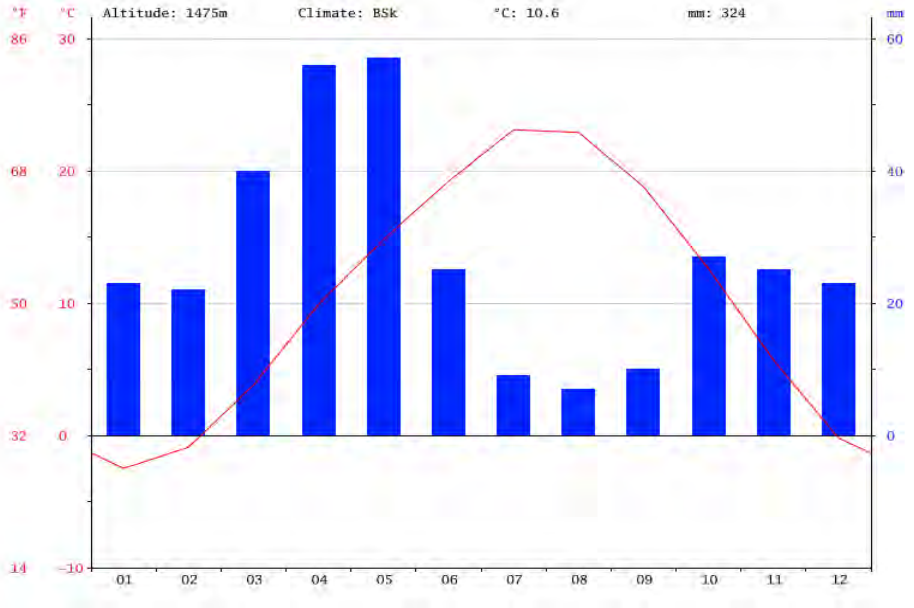


Figure 7: Climatic Conditions in Kullu District



21. It is clear from **Figures-6** and **Figure-7** that rainfall at Sunder Nagar is higher than Kullu

and monthly average temperatures are also higher at Sunder Nagar.

22. **Humidity**. Based on long-term climatologically data of the Mandi and Kullu districts, 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.

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

(a) Wind Pattern during Pre-Monsoon Season

830 -Hours

- A review of the wind persistent data indicates that predominant winds occurring mostly from N and NE direction.

1730- Hours

- A review of the wind persistent data indicates that predominant wind occurring mostly from SW direction followed by SW and W directions.

(b) Wind Pattern during Monsoon Season

0830- Hours

- A review of the wind persistent data indicates that predominant winds occurring mostly from NE direction followed by E direction.

1730- Hours

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

(c) Wind Pattern during Post-Monsoon Season

0830- Hours

- A review of the wind persistent data indicates that predominant winds occurring mostly from NE direction followed by N direction.

1730- Hours

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

(d) Wind Pattern during Winter Season

0830- Hours

- A review of the wind persistent data indicates that predominant winds occurring mostly from NE direction followed by N direction

1730- Hours

- A review of the wind indicates that predominant winds occurring mostly from SW direction followed by W.

Topography and Soils

24. 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 sub-project site at Sunder Nagar is in plain terrain, whereas sub-project site at Sadyana is in an undulating terrain.

25.

26. The Kullu district topography can be described in the following sub -sections.

- **Mountainous area-** Dhauladhar and Pir-Panjal ranges trend NW-SE and peaks ranging in height between 4200-5000m above mean sea level.
- **Snow covered area-** northern and northeastern parts of Kullu district are covered with snow and snow line exists in this area.
- **Denuded hills-** The presence of residual ridges along the intermountain valleys suggest that these ridges are the remnants of High Relief Mountains and formed active erosion.

- **Valley area -** Fluvial processes and structural disturbances in the area form intermountain valleys. Kullu valley is elongated and broadly v-shaped in cross-section and denuded hills along the sides.
- **Terrace area-** Number of terraces are formed along the river valleys in Kullu district. Terraces are generally noticed on the western bank of the Beas River. Two levels of terraces are demarcated near Bhunter, which are covered with thick vegetation. The sub project at Shamshi in Kullu district is located in Kullu valley.The elevation of sub-project sites are as follows:

Table 8: Elevation of Sub-Project Sites

Sl. No.	Name of Sub- Project Site	Elevation(m)
1	CLC Shamshi	1120
2	CLC Sunder Nagar	865
3	RLC Sadyana	1201

27. Two types of soils are mainly observed in Mandi district viz. Sub-Mountainous Soil occurring in Seraj 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 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. At the sub project sites at Sunder Nagar and Sadyana, the soils are mountainous and brown in color.

28. In the Kullu district also, soils are mountainous. The texture of soil ranges from sandy loam to clay loam and the color of the soil also vary from brown to dark brown. Generally the soils are acidic in nature. Depth of the soil varies from 50 to 100 cm. But despite this, all the agro climatic conditions provide a range of potentialities for growing cash crops like, off season vegetables, seed potatoes, pulses and temperate fruits.

Surface water and Ground water

29. The CLC site at Shamshi and RLC site at Sadyana are in Beas River catchment whereas CLC site at Sunder Nagar is in Satluj River catchment. There is no river or local stream in the close vicinity of Sadyana site. The Beas River is at about 500 m distance from Shamshi

site. A local stream or Nallah flows at about 200 m distance from CLC Shamshi site. To establish baseline scenario, ground water quality data was obtained from the Central Ground Water Board. The water quality data for the sub -project sites is given below in **Table-9** for Mandi district and **Table-10** for Kullu district:

Table 9: 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: Central Ground Water Board.

Table 10: Ground Water quality in Sub-Project Area for Kullu District

Sl. No.	Parameter	Drinking Water Quality Standards	Range (Spring/Dug Well)		Range (Hot Spring)	
			Min	Max	Min	Max
1	pH	6.5-8.5	7.69	8.65	8.05	8.21
2	EC (umhos/cm)	No limit specified	34	1040	560	2400
3	HCO3 (mg/l)	No limit specified	21	350	171	720
4	Cl (mg/l)	1000	3.5	202	96	561
5	F (mg/l)	1.5	0.10	0.79	0.88	8.20
6	Ca (mg/l)	200	6	156	10	46
7	Mg (mg/l)	100	0.75	34	1.2	4.2
8	Na (mg/l)	No limit specified	0.40	134	70	600
9	K (mg/l)	No limit specified	0.10	48	13	41
10	Total Hardness as CaCO3 (mg/l)	600	18.0	530	30	133

Source: Central Ground Water Board.

30. Due to the absence of any water polluting sources in the sub project sites and surroundings, it is clear that all parameters of water quality are within the permissible limits, specified by Bureau of Standards (BIS), for drinking and irrigation except for hot spring water in Kullu district. For hot spring water all parameters exceed the permissible limits. The water quality monitoring will be conducted by the contractor(s) prior to the start of construction works. The maps showing hydrogeology of Kullu and Mandi districts have been given in **Figure -8** and **Figure -9** respectively.

31. 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 water table depth in Kullu district ranged from 1.62 to 31.45 below ground level. The stage of ground water development in Mandi district is only 15.36 % and this falls in safe category. For Kullu district ground water

development has not been assessed by the Central Ground Water Board.

32. Since Beas is the only river of significance in the subproject 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-11**. 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-11: Beas River Water quality in Sub-Projects 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 Kullu)	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					

Figure-8: Hydrogeology and Ground water Depth Map for Kullu District

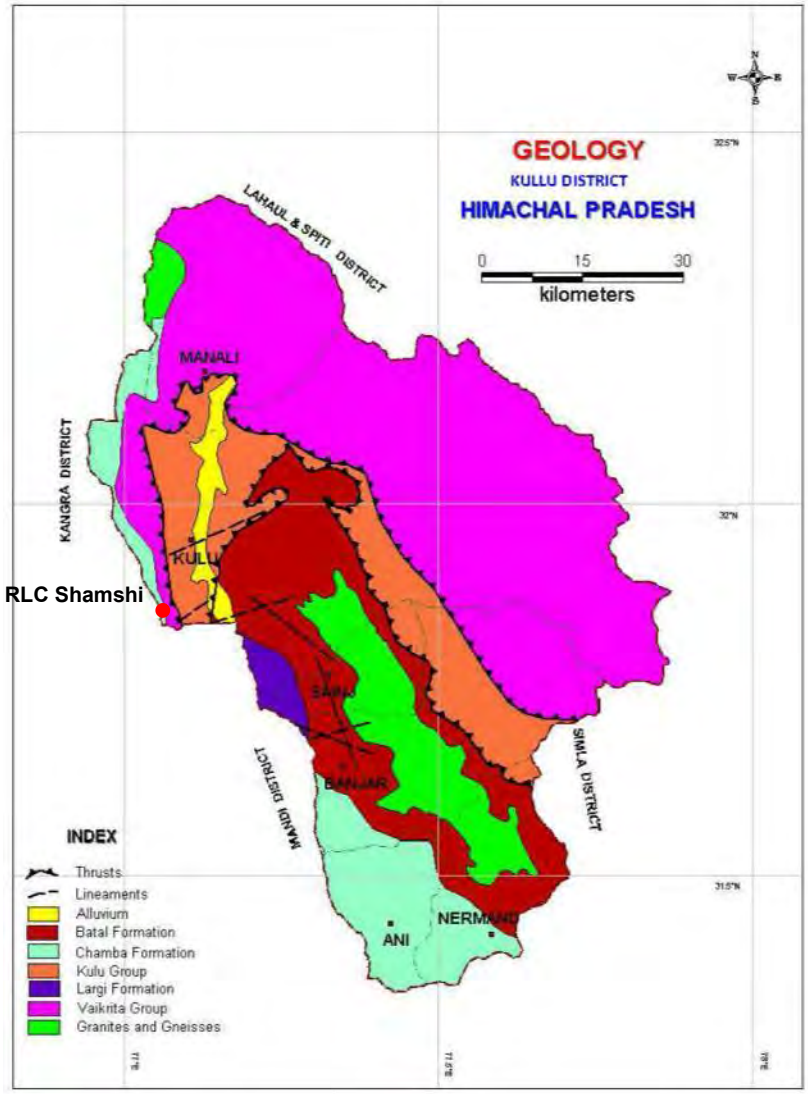
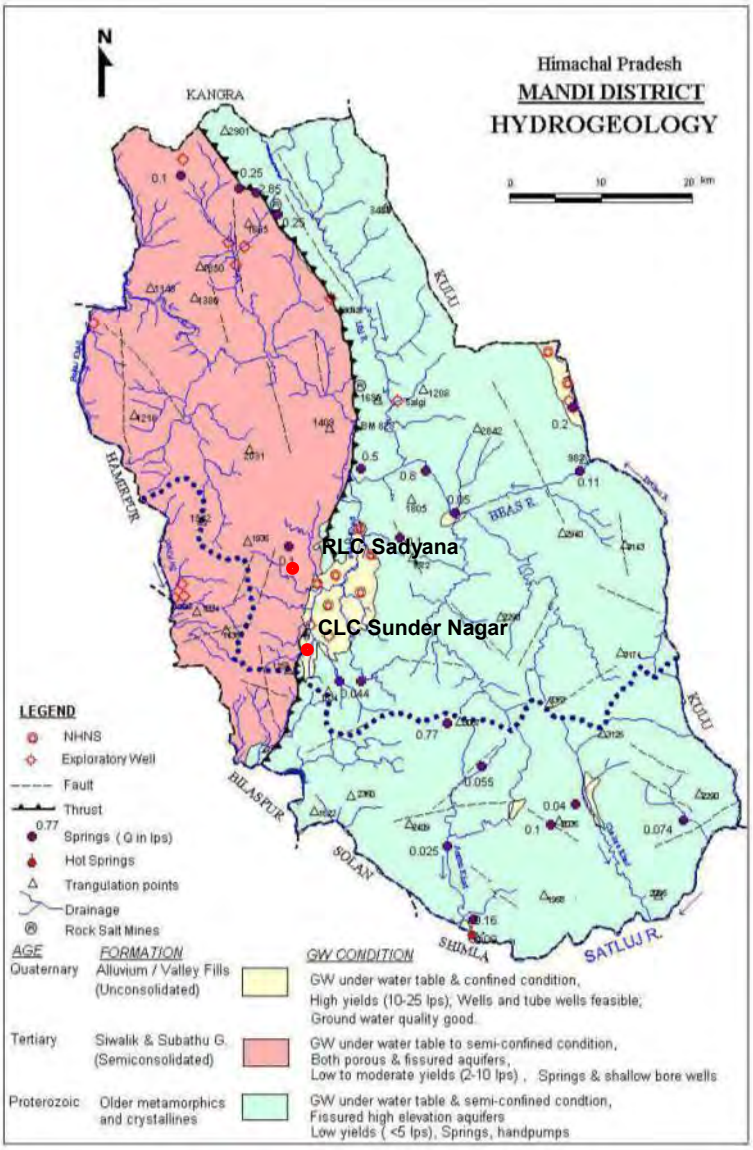


Figure-9: Hydrogeology and Ground water Depth Map for Mandi District



Geology and Seismology

33. 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 -12**. 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 Dharamshala/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-12: Geological Description of Mandi District

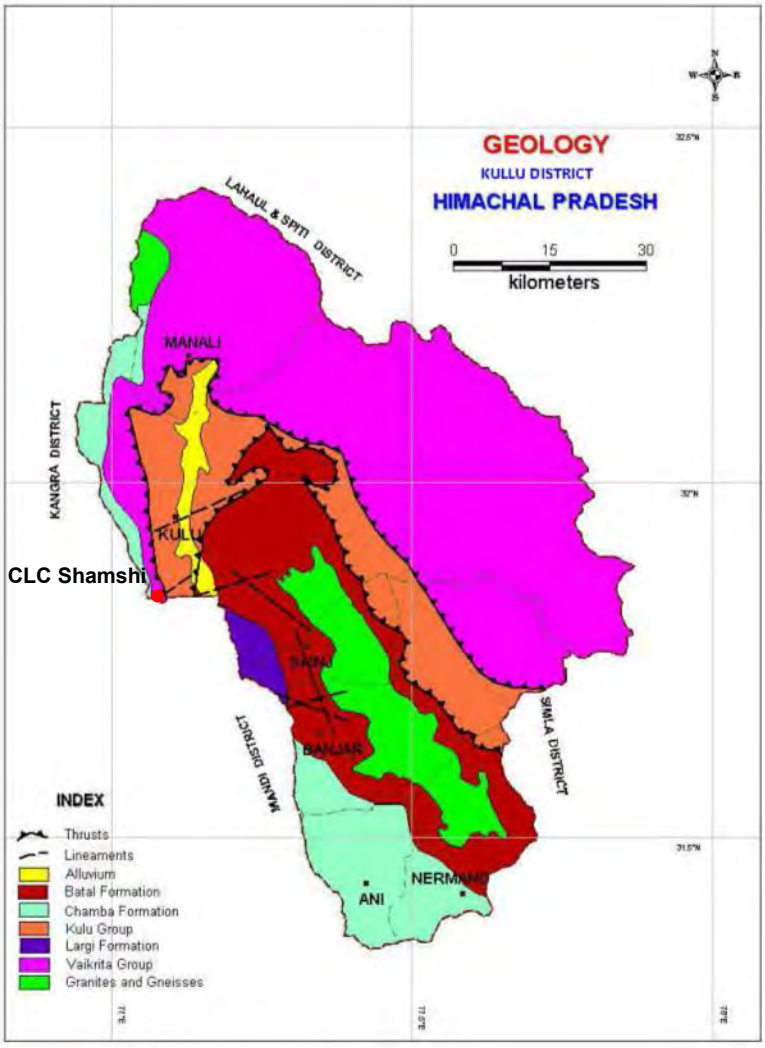
Age	Formation	Composition (Lithology)
Quaternary	Alluvium terrace and fluvial deposits	Alluvium, clay, sands, gravels, pebbles, boulders and cobbles
Lower Pleistocene to Middle Miocene	Siwalik Group	Clay, siltstones, sandstones, and boulder beds
Oligocene to Lower Miocene	Dharamsala/ Kasauli Formation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

34. Geological sequence observed in Kullu district is described in **Table-13**. Hydro geologically the entire area of Kullu district can be divided into porous and fissured formations. Porous formation includes the unconsolidated sediments. These sediments include fluvial channel deposits, valley fill deposits, terrace deposits and alluvial fans. These sediments form the potential aquifers. Unconsolidated sediments underlie Kullu valley, Garsa valley, Manikaran valley, Lag valley and longitudinal valley all along the major rivers and khads. Fissured formation includes the semi-consolidated to consolidated sediments exposed in the district and are of sedimentary, metamorphic and igneous in origin. These form low to high hill ranges throughout the district. The geological maps Kullu district has been given in **Figure- 10.** The geological formations for Mandi district have been shown in Figure-9 above.

Table-13: Geological Description of Kullu District

Era	Period	Formation	Description / Composition
Quaternary	Recent to sub recent	Alluvium; fluvial, terrace, piedmont	Sand, silt, clay, boulders, pebble and cobble etc.
Proterozoic	Neoproterozoic	Batal Formation Chamba Formation	Dark gray carbonaceous Slates and phyllites with quartzites Slate, phyllites, siltstones and Greywacke
	Mesoproterozoic	Kullu Group	Slate, Phyllites , Quartzites and Schist
	Precambrian	Largi formation	Slate, Phyllites and Quartzite with dolomites and conglomerates
		Vaikrita Group	Slate, Phyllites and Quartzites
		Granite & Gneiss	Granite, schist and gneisses

Figure 10: Geological Map of Kullu District



35. 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

36. The sub-project sites at Shamshi and Sadyana are drained by Beas river as these are in the catchment area of Beas. The CLC site at Sunder Nagar is drained by Satluj River. No flooding issues have been reported at the subproject sites as these are away from perennial

streams or river. Further, being in hilly region all sites have swift drainage.

B. Ecological Resources

(i) Forests

37. Forests in Himachal Pradesh currently cover an area of nearly 37,691 square kilometers (14,553sq.miles), 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. Kullu and Mandi districts have about 35.60% and 42.41 % forest of their geographic areas. 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:

Table-14: Different Categories of Forests in Kullu and Mandi Districts

District	Very Dense Forest Area (km^2)	Moderately Dense Forest Area (km^2)	Open Forest Area (km^2)
Kullu	586	785	588
Mandi	373	735	567
Source : State Forest Department			

38. The forests of both the districts 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 -11**.

Figure 11: Forest cover Map of Himachal Pradesh

Source: State Forest Department

39. The sub-project sites do 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.

40. 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.

41. 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.

42. ***(ii) Flora and Fauna around Subproject Sites*** Since the sub project sites are near urban / rural habitations, therefore, there are no protected areas within 20 km radius. Around the sub-project sites, 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, Safeda, 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 are no endangered or rare species flora at all three subproject sites as these are located either within inhabited areas (CLCs Shamshi and Sundernagar) or close to habitations (RLC Sadyana).

43. The fauna in the surroundings of sub-project sites 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 at all three subproject sites as these are located either within inhabited areas (CLCs Shamshi and Sundernagar) or close to habitations (RLC Sadyana).

44. 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 sites.

(iii) *Protected Areas*

45. The list of protected areas (National Parks and Wildlife Sanctuaries) in Himachal Pradesh is given in **Table 15**. Two protected areas are there in each Shimla and Kinnaur districts, but they are located more than 20 km away from the proposed sub -project sites.

Table 15: Protected Areas in Himachal Pradesh

Sl. No.	Sanctuaries	District	Area (km²)
1	Bandli	Mandi	32.11
2	Chail	Solan	16
3	Chandra Tal	Lahaul & Spiti	38.56 +(11.53 for Consideration)
4	Churdhar	Sirmour	55.52
5	Daranghati	Shimla	171.50
6	Dhauladhar	Kangra	982.86
7	Gamgul-Siyabehi	Chamba	108.40
8	Kais	Kullu	12.61
9	Kalatop-Khajjiar	Chamba	17.17
10	Kanawar	Kullu	54.27
11	Khokhan	Kullu	14.94

Sl. No.	Sanctuaries	District	Area (km²)
12	Kibber	Lahaul & Spiti	2220.12
13	Kugti	Chamba	379
14	Lipa Asrang	Kinnaur	31
15	Majathal	Solan	30.86
16	Manali	Kullu	29
17	Nargu	Mandi	278
18	Pong Dam Lake	Kangra	207.59
19	Rakchham-Chitkul	Kinnaur	304
20	Renuka	Sirmour	4
21	Rupi-Bhaba	Kinnaur	503
22	Sechu-Tuan Nalla	Chamba	390.29
23	Sainj	Kullu	90
24	Shikari Devi	Mandi	29.94
25	Shimla Water Catchment	Shimla	10
26	Simbalbara	Sirmour	27.88
27	Talra	Shimla	46.48
28	Tirthan	Kullu	61
29	Tundah	Chamba	64
30	Water Supply Catchment	Shimla	10
National Parks			
1	Great Himalayan National Park	Kullu	765
2	Pin Valley National Park	Lahaul & Spiti	675
Conservation Areas			
1	Shilli Conservation Reserve	Solan	1.49
2	Shri Naina Devi Conservation Reserve	Bilaspur	17.01
3	Darlaghat Conservation Reserve	Solan	0.67

Source: Himachal Pradesh State Forest Department

C. Economic Resources

Industries

46. Being a hilly state, Himachal Pradesh has few large industrial units. As shown in **Table-16** for Mandi district and **Table -17** for Kullu district below, both the project districts have micro, small, and medium enterprises focusing on agro-products, leather, textiles, wood, etc.:

Table 16: 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

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: DIC, Mandi

Table 17: Details of Existing Micro and Small Enterprises and Artisan Units in Kullu District

NIC Code No	Type of Industry	Number of Units	Investment (Lakh Rs.)	Employment
20	Agro based	229	698.12	625
22	Soda water	8	412	163
23	Cotton textile	22	16.50	66
24	Woolen, silk & artificial Thread based clothes.	637	2175.52	6229
25.	Jute & jute based	0	0	0
26.	Ready-made garments & embroidery	111	33.53	450
27.	Wood/wooden based furniture	279	192.45	1116
28.	Paper & Paper products	37	246.03	164
29.	Leather based	11	0.82	26
31.	Chemical/Chemical based	12	33.21	57
30.	Rubber, Plastic & petro based	9	72.0	28
32.	Mineral based	32	305.00	345
33.	Metal based (Steel Fab.)	90	45	236
35.	Engineering units	19	9.56	76

NIC Code No	Type of Industry	Number of Units	Investment (Lakh Rs.)	Employment
36.	Electrical machinery and transport equipment	3	6.05	11
97.	Repairing & servicing	96	64.12	288
01.	Others	245	1093.46	696

Source: DIC, Kullu

Transportation

47. All the three sub- project sites are well connected with Shimla, Chandigarh, and other destinations in Himachal Pradesh through various national highways and state highways. The nearest rail head for all three sub-project sites is Kiratpur Sahib in Punjab. The distances from Shamshi, Sadyana and Sunder Nagar are 198.80, 133 and 108.3 km respectively. The nearest operating airport is near Kullu city at Bhuntar from the all three sub -project sites. The distances of airport from Shamshi, Sadyana and Sunder Nagar are 3.0 , 69.3 and 89.3 km respectively. No clearance or permission from Airport Authority of India (AAI) is needed as all three subprojects are of low height buildings (Ground plus two) and at sufficiently away distances.

Land Use

48. A study of the land use (**Table-18**) shows that majority of the area of both the districts is under forest cover and none agriculture use. The land under permanent pastures and grazing is also significant. The barren land area in both districts is quite low. The land uses of Sunder Nagar and Shamshi CLC sites is urban area and at Sadyana under none agriculture uses. If land use of sub project sites is to be seen in terms of classification of **Tables 18**, it will fall 'Land put to none agriculture uses'.

Table 18: Land Use Pattern of Project Districts

Land use	Area (In 000' hectare)	
	Kullu	Mandi
Geographical Area by Village Papers	54.8	397.80
Forest land	0.9	175.2
Misc. Tree Crops, Groves (Not included in Net Area Sown)	1.8	0.40
Permanent Pastures and Other Grazing Land	1.4	96.3
Culturable Waste land	2.5	4.5
Land put to None Agriculture Uses	5.8	16.20
Barren and Uncultivated land	2.0	8.9
Current Fallows	2.8	9.5
Other Fallows	0.3	0.3

Source: District Census Handbooks 2011

49. **Agricultural Development**. Agriculture is the main occupation of the people in both districts. However, intensive cultivation is not possible as significant part of both districts 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

50. The Rural Electrification in Mandi and Kullu districts is 99.72 (2842 villages out of 2850 inhabited villages) and 99.04 % (311 villages out of 314 inhabited villages) respectively.

Social and Cultural Resources

Population and Communities

51. 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 (73.7per cent) is rural population, comprised of 4,66,050 males and 4,71,090 females and remaining 62,637 (6.3per cent) 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 1.3per cent, 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 29.94per cent & 1.32per cent and in urban areas these proportions are 21.01per cent & 0.68 per cent 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.

52. According to Census 2011, the total population of Kullu district is 4,37,903 comprising 2,25,452 males and 2,12,451 females. This population of the district forms 6.38 per cent of the state population and ranks at 9th place among the districts. Out of the total population of the district 90.5 per cent lives in rural areas while 9.5 per cent lives in urban areas. Rural population of the district is distributed among 6 tehsils, sub-tehsils and urban population is spread over in 4 towns and one newly created census town namely, Shamshi. The total urban population in the district is 41,391 persons comprising 22,183 males and 19,208 females. The total rural population in this district comprises 3,96,512 persons with 2,03,269 males and 1,93,243 females as per Census 2011. In the district due to enforcement of jurisdictional changes number of villages has been increased from 172 to 326, where 12 villages are uninhabited, 314 villages are inhabited and the majority of villages are of large size consisting of several hamlets. The concentration of villages is mainly along the valleys of rivers and streams. The density of

population in Kullu district is 80 persons per Sq. Km. against the state average of 123 persons. There are 942 females for every thousand males in Kullu district. The sex ratio figures for rural and urban areas of the district are 951 and 866, respectively. It is also observed that, the proportion of females in rural areas is higher than that of urban areas. Sex-ratio in age-group 0-6 comes to 962 in the district as a whole. In rural areas, this proportion is 968 while in urban areas the sex-ratio of Child population works out to 891. During Census 2011 out of the total population of 4,37,903 persons of the district 4,15,669 (94.92 per cent) persons have reported their religion as Hindu followed by 15,377 (3.51 per cent) persons as Buddhist, 2,974 (0.68 per cent) persons as Muslim, 1,568 (0.36 per cent) persons as Christian and 1,396 (0.32 per cent) persons as Sikh. Remaining 94 persons are Jain, 83 persons have Other Religions and 742 persons have not stated any religion. Of the 4,37,903 total population of the district 28.0 per cent of the total population belong to Scheduled Castes and 3.8 per cent to Scheduled Tribes

Health facilities

53. There are good health facilities in both the districts in which sub projects are proposed. The Mandi district has 6 allopathic hospitals, 2 Ayurvedic hospitals, 9 community health centers, 59 public health centers and 311 sub health centers. The health facilities in Kullu district include 3 allopathic hospitals, 1 Ayurvedic hospital, and 5 community health centers, 17 primary health centers, 65 Ayurvedic Dispensaries and 99 sub health centers. In addition to above mentioned government run health facilities, there are many privately owned facilities available in both the districts.

Education facilities

54. Both the districts have good educational facilities. In Kullu district there are 749 primary schools, 127 Middle Schools, 104 Senior Secondary Schools and 4 colleges whereas 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 in both the districts. The current HSDP project will also contribute towards skills development and employability of Himachali youth.

Archaeological Resources

55. 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 by the proposed sub-projects.

III. ENVIRONMENTAL IMPACT AND MITIGATION MEASURES

A. Environmental Impacts

56. 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 all the three sub-projects proposed in Mandi and Kullu districts, including:

(i) **Location impacts:** Impact associated with site selection including effect on the environment and resettlement or livelihood related impacts on communities;
(ii) **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.;
(iii) **Construction impacts:** Impact resulting from construction activities including site clearance, earthworks, civil works, etc.; and
(iv) **Operation and Maintenance impacts:** Impact associated with the operation and maintenance of the infrastructure built in the sub-project.

57. ADB's REA checklist for Buildings was used while screening the site and recommending mitigation measures.

B. Location Impacts

58. All the three sub-project sites are located on unencumbered land owned by the Government of Himachal Pradesh. The CLC sites at Shamshi and Sunder Nagar are located in the respective ITI campuses, whereas RLC site at Sadyana is on the land owned by Department of Rural Development (**Annexure- 2**). No new land has been acquired for any of the sub-projects, nor has anyone been displaced in anticipation of the proposed ADB project. There are no significant ecological resources in the surroundings sub projects sites as these are located close to habitations. There are no heritage sites notified by Archaeological Survey of India (ASI) or state archaeological department within the respective sub- project areas or in the immediate surroundings. No significant impacts can arise due to sub-project location as CLC and RLC buildings components will not impinge upon any area of ecological, archaeological or historical importance. None of the sub- project sites will require change in land use as two are proposed within the existing ITI campuses (CLCs at Shamshi and Sunder Nagar) and third one for RLC Sadyana is located on land owned by DORD, and this site also does not need change in land use as some project in the surrounding is already under implementation for the DORD. The RLC Sadyana and CLC Sunder Nagar sites are not in the immediate vicinity of national highway or state highway. However, CLC Shamshi site is close to National Highway and vehicular air and noise pollution may have impacts on CLC . The distance of CLC site being about 40 m, so impacts on account of air and noise are not anticipated significant.

59. All three sub- project sites are located within seismic zone V and even a small magnitude earthquake may damage CLCs and RLC buildings.

C. Impacts during Design and Pre-Construction Phase

60. As noted above, the proposed sites are owned by GOHP. There are no issues arising due to land acquisition or involuntary resettlement. No tree cutting is anticipated at any of the sites except clearing of the shrubs. Based on the environmental screening of the respective sites, there are no significant adverse environmental impacts during the design and Pre-

construction phases.

D. Impacts during Construction Phase

61. All construction activities to be undertaken at the respective sites of sub- projects 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(s) and supervised by the PWD and PIUs. The key potential impacts are covered in the following paragraphs.

62. **Impact due to stock piles of construction materials.** Improper stockpiling of construction materials in and around the sites could obstruct movement along access roads and functioning of ITIs at Shamshi and Sunder Nagar. At Sadyana site being in open area, no such issue is anticipated. Hence, due consideration will be given for proper materials storage on construction sites especially at Shamshi and Sunder Nagar. Stockpiles will be covered to protect from dust and erosion. Waste materials will be disposed off at identified and approved locations.

63. **Disposal of construction waste.** The construction waste could lead to untidy conditions at sites and may find its way to local drains and smaller local streams and siltation and obstruction to natural flow in these drains and streams. In the proposed sub-projects, it shall be mandatory for the contractor(s) to ensure proper disposal of the construction waste at the disposal site(s) as designated by the PWD.

64. **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 building material from quarries.

65. **Increase in noise levels.** Noise levels in the immediate proximity of sub- project sites are expected to increase somewhat during construction. However, these will be largely imperceptible as civil works will be confined to relatively small areas. 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 5 - 10 % of ambient noise levels. This increase will be felt up to a distance of 200-300 m only. This noise will be intermittent in nature, and will last only during the construction phase. The construction noise will be felt by the residential houses and ITIs facilities located close to CLC sites at ITIs at Shamshi and Sunder Nagar. Close to RLC site at Sadyana, there are no habitations so no such impact is anticipated. It may be mentioned 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.

66. **Impacts on biodiversity during construction phase.** No major impacts are expected on the biodiversity during the construction phase as the sites of sub-projects are open, and no trees will have to be cut. There will be removal of some shrubs for the construction of CLC and RLCs buildings. These shrubs are not endangered or critically endangered.There are no endangered or rare species of flora and fauna at all three subproject sites.

67. **Disturbance to traffic during construction phase.** At the time of construction, there will be some temporary inconvenience due to transportation of building materials and clearance

of debris by trucks. However, since the scale of civil works is relatively small, the inconvenience caused will be relatively minor and limited only to the construction phase. A sample Traffic Management plan is attached in **Annexure- 3.**

68. **Impact on cultural properties.** The proposed sub-projects will not have any impact on any religious structure or any other structure of historical and/or cultural significance.

69. **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.

70. **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 (NO_X, SO_2, 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.

71. All vehicles and construction equipment operating for the contractor(s) 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 contractors will submit emission monitoring results as a compliance with environmental monitoring plan. At Shamshi construction site, there will also be impacts due to vehicular pollution of National Highway, if site is not properly screened with barricades. At sunder Nagar site air pollution related construction impacts will also be felt at neighboring residential area and ITI campus if CLC site is not properly barricaded.

72. **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 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(s). All construction zones used and affected by the sub-projects will be left clean and tidy, at the contractors' expense as per the satisfaction the Engineer.

73. The contractors are 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.

E. Environmental Impacts during Operation Phase

74. Since only vocational training and counseling, along with small production facilities at Sadyana, will be undertaken at the proposed RLC and CLCs, there will not be any adverse environmental impact during operation as production facilities will be of very small scale and based on local produce. The CLCs and RLC designs provide 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 respective designs of CLCs and RLC. The solid waste generated at CLCs and RLC during operation phase will be segregated. Its disposal will be integrated with Sunder waste disposal for CLC Sunder Nagar, Shamshi town waste disposal for CLC Shamshi and Sadyana waste disposal system for RLC Sadyana. The Sadyana production center waste will be organic in nature. This waste will be used for making compost for use in local farming. 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 CLCs and RLC operations at the three subproject sites. 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.

75. Given the relatively small size of the CLC and RLCs, there will not be any significant vehicular traffic increase on account of their operations at their respective locations. Most students and staff will be using public transport. 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. Since CLC Shamshi site is located close to National Highway so there is need to provide protection measures to mitigate impacts due vehicular pollution and vehicular noise on Shamshi CLC. For this plantation towards NH side boundary of CLC and boundary wall are to be maintained throughout the project life.
76.

77. **Safety Measures.** The designs of the CLCs and RLC include structural and seismic safety measures required by India's latest building codes (in seismic zone V). The other safety features are explained below:

- The CLCs and RLC 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 CLC and RLC buildings 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 will be provided at the CLCs and RLC building.

78. **Socioeconomic Impacts.** Sadyana RLC and both CLCs will have a positive development impact since it will provide market-relevant vocational training to the needy urban youth, and help them in improving their livelihoods and / or getting formal jobs.

79. **Flora and Fauna.** Since the CLCs will be located within the habitation areas of Sunder Nagar and Shamshi within the existing ITI campuses so no adverse impact on fauna and flora is anticipated due to operations of both CLCs. The RLC building at Sadyana is also planned near Paprahal village on a GoHP owned open plot. On this plot there are no trees and shrubs that need to be cut. Hence no impact on flora and fauna is anticipated as site is surrounded by

agriculture plots. Further, to enhance the natural look of the CLCs and RLC buildings 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 all the three sub-project sites.

80. **Emergency Plan for Accident and Natural Hazards-** For operation phase onsite emergency plan will be prepared by the managers of respective CLCs and RLC for minor accidents and fire. For natural calamities the Disaster Management Plan prepared by DOUD for CLCs at Shamshi and Sunder Nagar and DORD for RLC at Sadyana 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.

F. Description of Planned Mitigation Measures

81. Screening of environmental impacts is based on the magnitude and duration of the impact. **Table-19** provides the potential environmental impacts and the mitigation measures including the institutional responsibilities for implementing the same. The sub-project sites are 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 lands.

Table 19: 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 CLCs and RLC buildings and ensure protection specially from earthquake and other natural disasters	Permanent	Major	The designs of CLCs and RLC buildings have been completed considering earthquake coefficient of zone V. The sites of planned CLCs and RLC in Mandi construction package are not on the banks of any river or major streams.	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 on all obtained consents, permits, clearance, NOCs, etc. Include in detailed design drawings and documents all conditions and provisions if necessary	PIU and PWD

Sl. No.	Potential Environmental Issues	Duration or Extent	Magnitude	Proposed Mitigation Measures	Institutional Responsibilities
2.2	Layout of components to avoid impact on the aesthetics of the sites	Permanent	Major	The sub-projects components at respective locations will not have any adverse impacts on aesthetics of sites as these involve construction of buildings within existing ITI campuses at Shamshi and Sunder Nagar and in an open area at Sadyana. Hence, no mitigation measures are warranted.	Not Applicable
2.3	Slope stability related issues	Permanent	Minor	All the three subproject sites are planned on plain areas. No slope stability issue is involved in the construction of sub- project buildings.	Not applicable PMU and PWD
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 CLCs and RLC will allow efficient drainage at the sites and maintain natural drainage patterns.	PMU and PWD
2.5	Integration of energy efficiency and energy conservation programs in design of CLCs and RLC	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
3	**Construction Impacts**				
3.1	Construction Camps - Location, Selection, Design and Layouts	Temporary	Moderate	Construction camps at the respective locations of sub-projects will be located within the sites as far as possible. These construction camps at the respective locations of sub- projects will not affect	Contractor and PIU

Sl. No.	Potential Environmental Issues	Duration or Extent	Magnitude	Proposed Mitigation Measures	Institutional Responsibilities
				the day-to-day activities of local residents and functioning of ITIs at Sunder Nagar and Shamshi. Adequate sanitation facilities shall be provided at camp sites and no waste water will be discharged outside.	
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 contractors will get these plans approved from the PWD (the Engineer), The contractor will disseminate the traffic circulation plan around the sub- project site(s).	Contractor, and PWD
3.3	Impacts on flora and fauna	Temporary	Moderate	Conduct site induction and environmental awareness programs at the respective locations of sub-projects sites. Limit activities within the work areas. Storage of construction materials within the sub-project site limits. Prepare site specific landscape and shrubs and tree plantation plans 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(s) clearance activities will be undertaken with due permission from the Environment Specialist of the PWD/ PMU to minimize environmental impacts.	Contractor and PWD

Sl. No.	Potential Environmental Issues	Duration or Extent	Magnitude	Proposed Mitigation Measures	Institutional Responsibilities
				All areas used for temporary construction operations will be subject to complete restoration to their former condition with appropriate rehabilitation procedures.	
3.5	Drinking water availability	Temporary	Major	Sufficient supply of potable water will be provided and maintained at the respective sites of sub-projects. 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 each sub-project 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 at Sadyana 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	Temporary	Moderate	The fuel storage and vehicle cleaning area at each sub-project site will be stationed	Contractor and PWD

Sl. No.	Potential Environmental Issues	Duration or Extent	Magnitude	Proposed Mitigation Measures	Institutional Responsibilities
	lubricants, construction waste			such that water discharge does not drain into the local drain. Soil and water pollution parameters will be monitored as per monitoring plan.	
3.10	Siltation of water bodies due to spillage of construction wastes	Temporary	Moderate	No disposal of construction wastes will be carried out into any streams near the sub-project sites. 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(s) will take every precaution to reduce the levels of dust at construction sites of sub-projects. The sites will be properly barricaded with prefabricated MS sheets at all three subproject sites as two sites are within ITI campuses, at Sunder Nagar a residential area exists along one boundary of CLC and in the vicinity of Sadyana site some Government building is under construction, although this site is in open area.	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 Standard (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 sites will be properly barricaded with prefabricated MS sheets at all three subproject sites as	Contractor and PWD

Sl. No.	Potential Environmental Issues	Duration or Extent	Magnitude	Proposed Mitigation Measures	Institutional Responsibilities
				two sites are within ITI campuses, a residential colony close to CLC Sunder Nagar site and in the surroundings of Sadyana site, one Government building is under construction.	
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(s).	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 (s) 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	Contractor and PWD

Sl. No.	Potential Environmental Issues	Duration or Extent	Magnitude	Proposed Mitigation Measures	Institutional Responsibilities
				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.	
3.17	Clearing of Construction of Camps and Restoration	Temporary	Major	Contractor at the respective sub-project sites will prepare site restoration plans for approval by the Engineer. 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 Dissater 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, dissater management plan prepared by the PWD under the provisions of Disaster Management Act 2005 will be followed.	Contractor (s)
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 and plantation towards National Highway will be maintained at CLC Shamshi to screen vehicular air pollution and noise.	DoUD for CLC Shamshi, and Sunder Nagar and DORD for RLC Sadyana
4.2	Safety risks	Temporary	Major	All safety features provided as part of CLCs and RLC buildings constructions will be maintained.	DOUD for CLC Shamshi, and Sunder Nagar and DORD for

Sl. No.	Potential Environmental Issues	Duration or Extent	Magnitude	Proposed Mitigation Measures	Institutional Responsibilities
					RLC Sadyana
4.3	Unhygienic conditions due to poor maintenance of sanitation facilities and irregular solid waste collection	Temporary	Severe	The implementing agencies will carry out maintenance of the toilets, and carry out the regular collection and disposal of wastes to the local disposal sites. The septic tanks will be maintained and emptied regularly.	DOUD for CLC Shamshi, and Sunder Nagar and DORD for RLC Sadyana
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 Managers of respective RLC (at Sadyana) and CLCs (Shamshi and Sunder Nagar) will prepare on site emergency plan for possible minor accidents and mishaps during operation phase. For natural calamities, the dissater management plan prepared by DOUD will be followed at CLCs Shamshi and Sunder Nagar and dissater management plan prepared by DORD will be followed at RLC Sadyana..	Manger CLC/RLC for Onsite Emergency Plan DOUD/DORD for Dissater Management Plan
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

G. Land Aquisition and Resettlement

82. The proposed CLCs at Shamshi and Sunder Nagar are planned on ITI campuses and RLC Sadyana is planned on the land owned by DORD. All the three sub- projects are on the land owned by GOHP. The revenue records showing ownership of GOHP for all three sub-project sites have been given in **Annexure-2**. Hence, there will not be any acquisition of private land. Since all the three proposed sites have unencumbered land, therefore, there is no acquisition any private assets. At the sub-project sites, there are no squatters or encroachers. Hence, there is no requirement of any rehabilitation and resettlement for constructing the CLCs and RLC.

IV. ENVIRONMENT MANAGEMENT PLANs (EMPs)

A. Institutional Arrangements for Project Implementation

83. The Government of Himachal Pradesh through DOP is the executing agency. The executing agency (i) assumes overall responsibility for the execution of the project and reporting; (ii) engage adequate permanent or fixed-term staff to implement the Project; (iii) setup 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.

84. The implementing agencies in the project are HPKVN, DOTE, 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.

85. A State-level empowered committee (SLEC) has been established in Himachal Pradesh, chaired by State's Chief Secretary, with Principal Secretary/Secretary of the Department of Planning as Member Secretary and comprised of Secretaries from relevant line departments (PWD, DOUD, DORD, DOLE, HPKVN MD). 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.

86. DOP will establish 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 will also have safeguards expert (social and environment). The PMU will be supported by the Project Management Consultants (PMC). The PMU will be the nodal agency for overall management of all program activities and will be 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.

87. The sub-projects will be implemented by the Project Implementation Units (PIUs) at local level, comprising of personnel drawn from relevant line departments on deputation and outside of government and will be headed by a Project manager. The PIUs 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 to be 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.

88. The Project Management Consultant (PMC) is proposed to be engaged to provide support to the PMU in overall planning, risk management, implementation, monitoring and evaluation of projects under the HPSDP. The PMC will also assist the PMU and PIUs in meeting the relevant requirements of ADB, GOHP, and GOI for project implementation. The PMC will report to and work under the overall guidance of the PMU. The scope of services of the PMC's will include but not necessarily be 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.

89. 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.

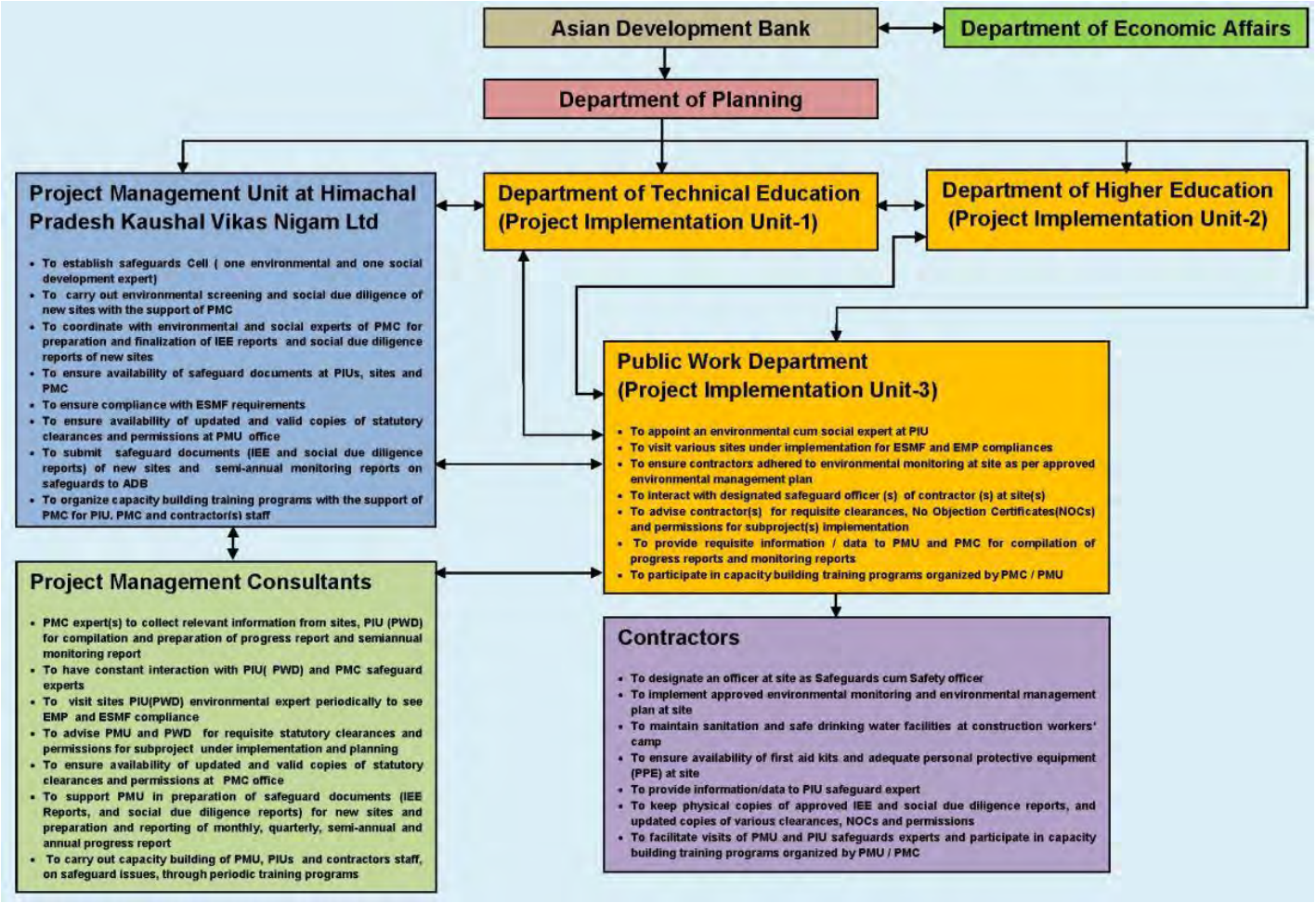
90. In order to ensure effective implementation of safeguard related components in the project PIU at PWD will include a safeguard expert (an environmental cum social expert) in the team. This safeguard expert will ensure compliance with ESMF requirements, and implementation of environmental management plans of sub-projects at sites through contractor(s).

91. The PMC will 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(s). The PMU at HPKVN will establish a safeguard cell comprising of an environmental expert, and a social development expert.

92. The contractor(s) at sub-project site(s) will designate one officer as safeguard cum safety officer for the implementation of IEE and EMP requirements at sites. The project implementation arrangement for safeguard compliance has been shown below in **Figure -12**.

93. The EMPs for respective CLCs and RLC site for Pre construction, construction and operation phases are given in Tables-20 to 22 for CLC Shamshi, Tables 23 to 25 for CLC Sunder Nagar and Tables 26 to 28 for RLC Sadyana.

Figure 12: Project implementation arrangement for safeguard compliance



B. Responsibility for updating IEE during Pre-Construction and Construction

94. **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.

95. **Responsibility for Reporting.** PMU at HPKVN 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 20: Pre-Construction Phase Environmental Management Plan CLC Shamshi

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 Shamshi sub-project 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 Shamshi and	The site and layout of Shamshi have been finalized at vacant and isolated land parcel in ITI campus to avoid impacts on the aesthetics of ITI buildings. The	CLC Shamshi building's exteriors	PIU and PWD	PMU and PMC	Review after completion of detailed design	Part of PWD and PMC Professional Fee

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
	surroundings	exterior of CLC building will well mix with the existing buildings.					
3	Slope stability related issues	The CLC site at Shamshi 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 CLC building at Shamshi enables efficient drainage of the CLC plot. The drainage of CLC building has been integrated with existing ITI building. The storm water generated will be diverted to local drains through a properly constructed drainage system. Since CLC 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 respective site and during establishment of construction camps at CLC site.	Incidental to construction cost
5	Integration of energy efficiency and energy conservation programs in design of sub-	The detailed design for the proposed CLC at Shamshi has ensured the environmental sustainability principles,	Specifications of rain water harvesting structures, electrical fixtures, details of	PIUs and PWD	PMU and PMC	During finalization of detailed design	Part of project cost

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
	projects components	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.	water heating system				
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	PMU	check consent for establishment of construction camp at CLC site, approval from civic authorities and DOTE for CLC construction at ITI Shamshi campus	Project cost
7	Establishment of baseline environme	1-Conduct documentation of location of components,	Records and Photographs, baseline	Contractor	PIU and PWD	Once prior to start of construction works	Contractor

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
	ntal conditions prior to start of civil works	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 CLC Shamshi site for ambient air quality, water quality and noise levels to establish baseline environmental monitoring for the parameters indicated in the monitoring plan	environmental monitoring results				
8	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	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	PIUs and PWD	Pre-Construction Phase	Contractor

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
		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.		be shifted; (ii) contingency plan			
9	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 CLC site although no such potential is seen. • Consider alternatives, if the CLC site, is found to be of medium or high risk. Include state and local archaeological, cultural and historical authorities, and interest groups in consultation	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

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
		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.					
10	Construction Camp-Locations, Selection, Design and Layout	Sitting of the construction Camps, at the respective sub-project sites, 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	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

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
		environment will be approved by the PWD and PMU. As far as possible, construction camp and labor camp will be established at vacant land near the CLC within ITI premises to avoid impact on private land outside Shamshi ITI. Locations for storage of construction materials shall be identified at the site or at any suitable buildings close to CLC site. Sanitation facilities at construction camps shall be adequately planned.					
11	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	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

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
		on a monthly basis documentation of sources of materials.					
12	Access for Construction material transportation	Plan transportation routes so that heavy vehicles do not use narrow local roads, except in the immediate vicinity of CLC Shamshi. 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
13	Occupational health and safety	Comply with IFC EHS Guidelines	Health and safety (H&S) plan	Contractor	PMU and PMC, PIU and	During construction phase	Contractor

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
		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 CLC 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			PWD		

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
		accidents. Provide medical insurance coverage for workers.					
14	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 21: Construction Phase Environmental Management Plan for CLC Shamshi

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 of CLC Shamshi	The contractor shall provide sanitation facilities at the camp site. These facilities will include dust bins in adequate numbers for	Construction camp sanitation and drinking water facilities	Contractor	PWD and PIU	Regularly during construction phase	Contractor

Sl. No.	Environmental Issues	Mitigation Measures	Parameter (Indicators for Compliance)	Responsible Implementation	Responsible Supervision	Frequency for Monitoring	Sources of Fund for Implementing Mitigation Measure
		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.					
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 inconvenienc	Safe movement of Traffic	Contractor	PWD and PIU	Every day during construction phase	Contractor

Sl. No.	Environmental Issues	Mitigation Measures	Parameter (Indicators for Compliance)	Responsible Implementation	Responsible Supervision	Frequency for Monitoring	Sources of Fund for Implementing Mitigation Measure
		e. The Contractor(s) with support of the PIU will carry out dissemination of these information and circulation plan at Shamshi site and at key access roads to the Shamshi ITI.					
3	Site clearance activities, including delineation of construction areas	Only ground cover/shrubs 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	Pre-construction records of site and vegetation in area of construction	Contractor	PWD and PIU	Duration of site preparation	PWD and PIU

Sl. No.	Environmental Issues	Mitigation Measures	Parameter (Indicators for Compliance)	Responsible Implementation	Responsible Supervision	Frequency for Monitoring	Sources of Fund for Implementing Mitigation Measure
		temporary sites used for construction. These will help in proper restoration.					
4	Drinking water availability at Construction camp and construction sites	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	Waste Disposal sites, waste management plan	Contractor	PWD and PIU	Regularly during construction phase	Contractor

Sl. No.	Environmental Issues	Mitigation Measures	Parameter (Indicators for Compliance)	Responsible Implementation	Responsible Supervision	Frequency for Monitoring	Sources of Fund for Implementing Mitigation Measure
		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 natural streams in the surroundings of site and along the access path.					
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 CLC Shamshi 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	Water availability at identified water source locations	Contractor	PWD and PIU	Regularly during construction phase	Contractor

Sl. No.	Environmental Issues	Mitigation Measures	Parameter (Indicators for Compliance)	Responsible Implementation	Responsible Supervision	Frequency for Monitoring	Sources of Fund for Implementing Mitigation Measure
		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.					
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	Sub-project site	Contractor	PIU and PWD	Regularly during construction phase	Contractor

Sl. No.	Environmental Issues	Mitigation Measures	Parameter (Indicators for Compliance)	Responsible Implementation	Responsible Supervision	Frequency for Monitoring	Sources of Fund for Implementing Mitigation Measure
		prevent entering of wastewater into any local stream during construction.					
10	Water Pollution from Fuel and Lubricants	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 streams. 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. Waste water from vehicle parking, fuel	Vehicle parking, refueling sites, Oil interceptor functioning	Contractor	PIU and PWD	Regularly during construction phase	Contractor

Sl. No.	Environmental Issues	Mitigation Measures	Parameter (Indicators for Compliance)	Responsible Implementation	Responsible Supervision	Frequency for Monitoring	Sources of Fund for Implementing Mitigation Measure
		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.					
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 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	Water bodies specially natural streams	Contractor	PIU and PWD	Regularly during construction phase	Contractor

Sl. No.	Environmental Issues	Mitigation Measures	Parameter (Indicators for Compliance)	Responsible Implementation	Responsible Supervision	Frequency for Monitoring	Sources of Fund for Implementing Mitigation Measure
		disposal.					
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 ITI teaching activities, the CLC 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	PUC certificates of vehicles and machinery	Contractor	PIU and PWD	Regularly during construction phase	Contractor

Sl. No.	Environmental Issues	Mitigation Measures	Parameter (Indicators for Compliance)	Responsible Implementation	Responsible Supervision	Frequency for Monitoring	Sources of Fund for Implementing Mitigation Measure
		shall be strictly adhered to. The silent/quiet equipment available in the market shall be used in the CLC 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.					
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	Certificates of vehicles conforming noise standards, noise monitoring results	Contractor	PWD and PIU	Regularly during construction phase	Contractor

Sl. No.	Environmental Issues	Mitigation Measures	Parameter (Indicators for Compliance)	Responsible Implementation	Responsible Supervision	Frequency for Monitoring	Sources of Fund for Implementing Mitigation Measure
		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 CLC site will be properly barricated with MS Sheets of adequate height to avoid impacts of noise generated due to construction activities as vehicular noise from National Highway.					
16	Impacts on flora and fauna	Minimize impacts on flora and fauna during construction phase by limiting site clearance bare minimum	Environmental monitoring reports, Trees and shrubs planted at CLC site	Contractor	PWD and PIU	Regularly during construction phase	Contractor

Sl. No.	Environmental Issues	Mitigation Measures	Parameter (Indicators for Compliance)	Responsible Implementation	Responsible Supervision	Frequency for Monitoring	Sources of Fund for Implementing Mitigation Measure
		and limiting all types of pollution generation					
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	Data on available personal protective equipment	Contractor	PWD and PIU	Regularly during construction phase	Contractor

Sl. No.	Environmental Issues	Mitigation Measures	Parameter (Indicators for Compliance)	Responsible Implementation	Responsible Supervision	Frequency for Monitoring	Sources of Fund for Implementing Mitigation Measure
		to date by the 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 of around the CLC Shamshi and ITI Shamshi 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 proposed CLC site will	Records of availability of personal protective equipment, availability of first aid kits	Contractor	PIU and PWD	Regularly during construction phase	Contractor

Sl. No.	Environmental Issues	Mitigation Measures	Parameter (Indicators for Compliance)	Responsible Implementation	Responsible Supervision	Frequency for Monitoring	Sources of Fund for Implementing Mitigation Measure
		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.					
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	Restoration plan, and records of pre-construction of temporary sites	Contractor	PIU and PWD	End of construction phase	Contractor

Sl. No.	Environmental Issues	Mitigation Measures	Parameter (Indicators for Compliance)	Responsible Implementation	Responsible Supervision	Frequency for Monitoring	Sources of Fund for Implementing Mitigation Measure
		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					

Table 22: Operation Phase Environmental Management Plan Shamshi

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. Necessary	Monitoring results and relevant standards	DOUD through Pollution Monitoring Agency	PIU	As per monitoring Plan	DOUD and PMU

Sl. No.	Environmental Issues	Mitigation Measures	Parameter (Indicators for Compliance)	Responsible Implementation	Responsible Supervision	Frequency for Monitoring	Sources of Fund for Implementing Mitigation Measure
		boundary wall and plantation towards National Highway will be maintained to screen vehicular air pollution and vehicular noise to CLC Shamshi					
2	Unhygienic conditions due to poor maintenance of sanitation facilities and irregular solid waste collection	The DOUD will carry out maintenance of the toilets at CLC Shamshi and carry out the regular collection and disposal of wastes to a designated waste treatment sites. The solid waste disposal will be integrated with the Shamshi city waste disposal system. Septic tanks will be maintained and regularly emptied.	Maintenance schedule of CLC building and facilities created	DOUD	PIU	Every Quarter	DOUD and PMU
3	Natural Disasters	Necessary procedures to be followed by the visitors, CLC staff and trainees 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
4	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	Waste generated from operation and maintenance of Solar	Supplier and Operator of Solar PV Cell	CLC Shamshi Manager	As per schedule of maintenance	Fee of Solar PV Cell Supplier

Sl. No.	Environmental Issues	Mitigation Measures	Parameter (Indicators for Compliance)	Responsible Implementation	Responsible Supervision	Frequency for Monitoring	Sources of Fund for Implementing Mitigation Measure
		possible recycle/reuse/disposal as operations will be maintained by the supplier.	PV Cell				
5	Onsite emergency plan for minor accidents and mishaps and Disaster Management Plan for Natural Calamities	The Manager of CLC Shamshi will prepare onsite emergency plan for possible minor accidents and mishaps for operational phase. For natural calamities, the disaster management plan prepared by DOUD will be followed.	Onsite Emergency plan document and Disaster Management Plan document	Manager CLC Shamshi	DOUD	Mock Drills every quarter	CLC operation cost

Table 23: Pre-Construction Phase Environmental Management Plan for CLC Sunder Nagar

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	Verification of site specific design parameters	PWD	PMU and PMC	Review after completion of DPR	Part of PWD and PMC Professional Fee

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
		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 Sunder Nagar sub-project site.					
2	Layout of components to avoid impacts on the aesthetics of the of the ITI Sunder Nagar and surroundings	The site and layout of CLC Sunder Nagar have been finalized at vacant land parcel in ITI campus (close to gate) to avoid impacts on the aesthetics of ITI buildings. The exterior of CLC building will well mix with the existing buildings in the surroundings which include residential flats and ITI for People with Disability (PWD). .	CLC Sunder Nagar 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 CLC site at Sunder Nagar is flat, however, during construction any	Slope protection measures on side slopes of	PIU and PWD	PMU and PMC	Review of recommended slope protection measures	Part of PWD and PMC Professional Fee

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
		exposed slopes at excavated areas will be covered and slope protection measures will be provided specially at side slopes of internal roads.	access path, internal roads, etc.				
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 CLC building at Sunder Nagar enables efficient drainage of the CLC plot. The drainage of CLC building has been integrated with existing ITI building and surrounding area. The storm water generated will be diverted to local drains through a properly constructed drainage system. Since CLC 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 and during establishment of construction camps at site	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 CLC at Sunder Nagar has ensured the environmental sustainability principles, including energy efficiency, resource recycling, waste minimization, etc. The design considers the	Specifications of rain water harvesting structures, electrical fixtures, details of water heating system	PIUs and PWD	PMU and PMC	During finalization of detailed design	Part of project cost

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
		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.					
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	PMU	check consent for establishment of construction camp at CLC site, approval from civic authorities and DOTE for CLC construction at ITI Sunder Nagar	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	Records and Photographs, baseline environmental monitoring results	Contractor	PIU and PWD	Once prior to start of construction works	Contractor

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
		(within direct impact zones). Include photos and GPS coordinates 2- Carry out environmental monitoring at CLC Sunder Nagar site for ambient air quality, water quality and noise levels to establish baseline environmental monitoring for the parameters indicated in the monitoring plan					
8	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 PIU and / or	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	PIUs and PWD	Pre-Construction Phase	Contractor

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
		PWD the list of affected utilities and operators; • If relocations are necessary; contractor will coordinate with the providers to relocate the utility.					
9	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 CLC site although no such potential is seen. • Consider alternatives, if the CLC 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	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

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
		available. • Develop a protocol for use by the contractor in conducting any excavation work, to ensure that any chance finds are recognized and measures are taken to ensure they are protected and conserved.					
10	Construction Camp-Locations, Selection, Design and Layout	Sitting of the construction Camp, at the respective sub-project 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	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

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
		and labor camp will be established at vacant land near the CLC within ITI premises to avoid impact on private land outside Sunder Nagar ITI. Locations for storage of construction materials shall be identified at the site or at any suitable buildings close to CLC site. Sanitation facilities at construction camps shall be adequately planned.					
11	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	PMC and PWD as part of consultancy fee
12	Access for	Plan	Traffic	Contractor	PIU and	During	Contractor

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
	Construction material transportation	transportation routes so that heavy vehicles do not use narrow local roads, except in the immediate vicinity of CLC Sunder Nagar. 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.	management plan		PWD	Delivery of construction materials	
13	Occupational health and safety	Comply with IFC EHS Guidelines on Occupational Health and Safety. Develop comprehensive	Health and safety (H&S) plan	Contractor	PMU and PMC, PIU and PWD	During construction phase	Contractor

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
		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 CLC 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					

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
		workers.					
14	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 24: Construction Phase Environmental Management Plan for CLC Sunder Nagar

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 of CLC Sunder Nagar	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	Construction camp sanitation and drinking water facilities	Contractor	PWD and PIU	Regularly during construction phase	Contractor

Sl. No.	Environmental Issues	Mitigation Measures	Parameter (Indicators for Compliance)	Responsible Implementation	Responsible Supervision	Frequency for Monitoring	Sources of Fund for Implementing Mitigation Measure
		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.					
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	Safe movement of Traffic	Contractor	PWD and PIU	Every day during construction phase	Contractor

Sl. No.	Environmental Issues	Mitigation Measures	Parameter (Indicators for Compliance)	Responsible Implementation	Responsible Supervision	Frequency for Monitoring	Sources of Fund for Implementing Mitigation Measure
		dissemination of these information and circulation plan at Sunder Nagar site and at key access roads to the Sunder Nagar ITI.					
3	Site clearance activities, including delineation of construction areas	Only ground cover/shrubs 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	Pre-construction records of site and vegetation in area of construction	Contractor	PWD and PIU	Duration of site preparation	PWD and PIU

Sl. No.	Environmental Issues	Mitigation Measures	Parameter (Indicators for Compliance)	Responsible Implementation	Responsible Supervision	Frequency for Monitoring	Sources of Fund for Implementing Mitigation Measure
		help in proper restoration.					
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.	Waste Disposal sites, waste management plan	Contractor	PWD and PIU	Regularly during construction phase	Contractor

Sl. No.	Environmental Issues	Mitigation Measures	Parameter (Indicators for Compliance)	Responsible Implementation	Responsible Supervision	Frequency for Monitoring	Sources of Fund for Implementing Mitigation Measure
		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 natural streams in the surroundings of site and along the access path.					
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 CLC Sunder Nagar 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	Water availability at identified water source locations	Contractor	PWD and PIU	Regularly during construction phase	Contractor

Sl. No.	Environmental Issues	Mitigation Measures	Parameter (Indicators for Compliance)	Responsible Implementation	Responsible Supervision	Frequency for Monitoring	Sources of Fund for Implementing Mitigation Measure
		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.					
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 wastewater into any local	Sub-project site	Contractor	PIU and PWD	Regularly during construction phase	Contractor

Sl. No.	Environmental Issues	Mitigation Measures	Parameter (Indicators for Compliance)	Responsible Implementation	Responsible Supervision	Frequency for Monitoring	Sources of Fund for Implementing Mitigation Measure
		stream during construction.					
10	Water Pollution from Fuel and Lubricants	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 streams. 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. Waste water from vehicle parking, fuel storage areas, workshops, wash down and refueling	Vehicle parking, refueling sites, Oil interceptor functioning	Contractor	PIU and PWD	Regularly during construction phase	Contractor

Sl. No.	Environmental Issues	Mitigation Measures	Parameter (Indicators for Compliance)	Responsible Implementation	Responsible Supervision	Frequency for Monitoring	Sources of Fund for Implementing Mitigation Measure
		areas shall be treated in an oil interceptor before discharging it on land or into surface water bodies or into other treatment system.					
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 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	Sub-project site, air quality	Contractor	PIU and PWD	Regularly during constructi	Contractor

Sl. No.	Environmental Issues	Mitigation Measures	Parameter (Indicators for Compliance)	Responsible Implementation	Responsible Supervision	Frequency for Monitoring	Sources of Fund for Implementing Mitigation Measure
		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 ITI Sunder Nagar teaching activities as well as on neighboring residential area, the CLC site will be properly barricaded with prefabricated MS sheets of adequate height (3-4 m).	monitoring results			on phase	
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	PUC certificates of vehicles and machinery	Contractor	PIU and PWD	Regularly during construction phase	Contractor

Sl. No.	Environmental Issues	Mitigation Measures	Parameter (Indicators for Compliance)	Responsible Implementation	Responsible Supervision	Frequency for Monitoring	Sources of Fund for Implementing Mitigation Measure
		Act, 1986 shall be strictly adhered to. The silent/quiet equipment available in the market shall be used in the CLC 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.					
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	Certificates of vehicles conforming noise standards, noise monitoring results	Contractor	PWD and PIU	Regularly during construction phase	Contractor

Sl. No.	Environmental Issues	Mitigation Measures	Parameter (Indicators for Compliance)	Responsible Implementation	Responsible Supervision	Frequency for Monitoring	Sources of Fund for Implementing Mitigation Measure
		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). .In order to minimize impacts on ITI teaching activities as well on neighboring residential areas due to construction activities noise, CLC site will be properly barricaded with prefabricated MS sheets of adequate height (3-4 m).					
16	Impacts on flora and fauna	Minimize impacts on flora and	Environmental monitoring	Contractor	PWD and PIU	Regularly during constructi	Contractor

Sl. No.	Environmental Issues	Mitigation Measures	Parameter (Indicators for Compliance)	Responsible Implementation	Responsible Supervision	Frequency for Monitoring	Sources of Fund for Implementing Mitigation Measure
		fauna during construction phase by limiting site clearance bare minimum and limiting all types of pollution generation	reports, Trees and shrubs planted at CLC site			on phase	
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	Data on available personal protective equipment	Contractor	PWD and PIU	Regularly during construction phase	Contractor

Sl. No.	Environmental Issues	Mitigation Measures	Parameter (Indicators for Compliance)	Responsible Implementation	Responsible Supervision	Frequency for Monitoring	Sources of Fund for Implementing Mitigation Measure
		toxic chemicals delivered to the site will be kept and maintained up to date by the 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 of around the CLC Sunder Nagar and ITI Sunder Nagar	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	Adequate safety measures for	Records of availability of personal	Contractor	PIU and PWD	Regularly during constructi	Contractor

Sl. No.	Environmental Issues	Mitigation Measures	Parameter (Indicators for Compliance)	Responsible Implementation	Responsible Supervision	Frequency for Monitoring	Sources of Fund for Implementing Mitigation Measure
	Construction	workers during handling of materials at the proposed CLC 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.	protective equipment, availability of first aid kits			on phase	
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	Restoration plan, and records of pre-construction of temporary sites	Contractor	PIU and PWD	End of construction phase	Contractor

Sl. No.	Environmental Issues	Mitigation Measures	Parameter (Indicators for Compliance)	Responsible Implementation	Responsible Supervision	Frequency for Monitoring	Sources of Fund for Implementing Mitigation Measure
		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					

Table 25: Operation Phase Environmental Management Plan for CLC Sunder Nagar

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	DOUD through Pollution Monitoring Agency	PIU	As per monitoring Plan	DOUD and PMU
2	Unhygienic	The DOUD will	Maintenan	DOUD	PIU	Every	DOUD

Sl. No.	Environmental Issues	Mitigation Measures	Parameter (Indicators for Compliance)	Responsible Implementation	Responsible Supervision	Frequency for Monitoring	Sources of Fund for Implementing Mitigation Measure
	conditions due to poor maintenance of sanitation facilities and irregular solid waste collection	carry out maintenance of the toilets at CLC Sunder Nagar and carry out the regular collection and disposal of wastes to a designated waste treatment sites. The solid waste disposal will be integrated with the Sunder Nagar city waste disposal system. Septic tanks will be maintained and regularly emptied.	ce schedule of CLC building and facilities created			Quarter	and PMU
3	Natural Disasters	Necessary procedures to be followed by the visitors, CLC staff and trainees 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
4	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	CLC Sunder Nagar Manager	As per schedule of maintenance	Fee of Solar PV Cell Supplier
5	Onsite emergency plan for minor	The Manager of CLC Sunder Nagar will prepare on site	Onsite Emergency plan document	Manager CLC Sunder Nagar	DOUD	Mock Drills every quarter	CLC operation cost

Sl. No.	Environmental Issues	Mitigation Measures	Parameter (Indicators for Compliance)	Responsible Implementation	Responsible Supervision	Frequency for Monitoring	Sources of Fund for Implementing Mitigation Measure
	accidents and mishaps and Disaster Management Plan for Natural Calamities	emergency plan for possible minor accidents and mishaps for operational phase. For natural calamities, the disaster management plan prepared by DOUD will be followed.	and Disaster Management Plan document				

Table 26: Pre-Construction Phase Environmental Management Plan for RLC Sadyana

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	Verification of site specific design parameters	PWD	PMU and PMC	Review after completion of DPR	Part of PWD and PMC Professional Fee

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
		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 Sadyana sub-project site.					
2	Layout of components to avoid impacts on the aesthetics of the Sadyana site and surroundings	The site and layout of RLC Sadyana have been finalized at vacant land parcel in an open area close to Paprahal Mandi village so impacts on aesthetics not anticipated. But a building of DORD is under construction and RLC building exterior will be matched with the DORD building under construction.	RLC Sadyana building 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 RLC site at Sadyana is flat, however, during construction any exposed slopes at excavated areas will be covered and	Slope protection measures on side slopes of access path, internal	PIU and PWD	PMU and PMC	Review of recommended slope protection measures	Part of PWD and PMC Professional Fee

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
		slope protection measures will be provided specially at side slopes of internal roads.	roads, etc.				
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 RLC building at Sadyana enables efficient drainage of the RLC Plot. RLC Sadyana site is in an open area. The storm water generated will be diverted to local drains through a properly constructed drainage system. Since CLC 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 and during establishment of construction camps at site	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 RLC at Sadyana 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.	Specifications of rain water harvesting structures, electrical fixtures, details of water heating system	PIUs and PWD	PMU and PMC	During finalization of detailed design	Part of project cost

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
		• Installation of BEE certified equipment • Usage of energy efficient lighting fixtures (LED) • Provision of P-V cells on roof top for solar power.					
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	PMU	check consent for establishment of construction camp at RLC site, approval from civic authorities for RLC construction	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 RLC Sadyana site for	Records and Photographs, baseline environmental monitoring results	Contractor	PIU and PWD	Once prior to start of construction works	Contractor

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
		ambient air quality, water quality and noise levels to establish baseline environmental monitoring for the parameters indicated in the monitoring plan					
8	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 PIU 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	PIUs and PWD	Pre-Construction Phase	Contractor

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
9	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 RLC site although no such potential is seen. • Consider alternatives, if the RLC 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 contractor in conducting any excavation work, to ensure that any chance finds are	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

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
		recognized and measures are taken to ensure they are protected and conserved.					
10	Construction Camp-Locations, Selection, Design and Layout	Sitting of the construction Camp, at the respective sub-project 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 near the RLC site as enough vacant land is available. Locations for storage of construction materials shall be	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

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
		identified at the site or in an open area close to RLC plot. Sanitation facilities at construction camps shall be adequately planned.					
11	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	PMC and PWD as part of consultancy fee
12	Access for Construction material transportation	Plan transportation routes so that heavy vehicles do not use narrow local roads. The State Highway and National Highway are available for site access. Schedule transport and hauling activities	Traffic management plan	Contractor	PIU and PWD	During Delivery of construction materials	Contractor

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
		during non-peak hours. Locate entry and exit points in areas where there is risk 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.					
13	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	Health and safety (H&S) plan	Contractor	PMU and PMC, PIU and PWD	During construction phase	Contractor

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
		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 RLC 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.					
14	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	PMU and Contractor

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
						EMP • Prior to start of construction • During construction	

Table 27: Construction Phase Environmental Management Plan for RLC Sadyana

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 of RLC Sadyana	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	Construction camp sanitation and drinking water facilities	Contractor	PWD and PIU	Regularly during construction phase	Contractor

Sl. No.	Environmental Issues	Mitigation Measures	Parameter (Indicators for Compliance)	Responsible Implementation	Responsible Supervision	Frequency for Monitoring	Sources of Fund for Implementing Mitigation Measure
		emptied and waste from camp site shall be disposed off at designated locations.					
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 RLC site and at access roads to RLC sites	Safe movement of Traffic	Contractor	PWD and PIU	Every day during construction phase	Contractor
3	Site clearance activities, including delineation	Only ground cover/shrubs that impinge directly on the permanent	Pre-construction records of site and vegetation	Contractor	PWD and PIU	Duration of site preparation	PWD and PIU

Sl. No.	Environmental Issues	Mitigation Measures	Parameter (Indicators for Compliance)	Responsible Implementation	Responsible Supervision	Frequency for Monitoring	Sources of Fund for Implementing Mitigation Measure
	of construction areas	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.	in area of construction				
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	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

Sl. No.	Environmental Issues	Mitigation Measures	Parameter (Indicators for Compliance)	Responsible Implementation	Responsible Supervision	Frequency for Monitoring	Sources of Fund for Implementing Mitigation Measure
		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.					
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	Waste Disposal sites, waste management plan	Contractor	PWD and PIU	Regularly during construction phase	Contractor

Sl. No.	Environmental Issues	Mitigation Measures	Parameter (Indicators for Compliance)	Responsible Implementation	Responsible Supervision	Frequency for Monitoring	Sources of Fund for Implementing Mitigation Measure
		disposed off near natural streams in the surroundings of site and along the access path.					
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 CLC Sunder Nagar 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	Water availability at identified water source locations	Contractor	PWD and PIU	Regularly during construction phase	Contractor

Sl. No.	Environmental Issues	Mitigation Measures	Parameter (Indicators for Compliance)	Responsible Implementation	Responsible Supervision	Frequency for Monitoring	Sources of Fund for Implementing Mitigation Measure
		other water users, the Contractor shall arrange water from market or from local municipality and consult PWD before finalizing the source.					
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 wastewater into any local stream during construction.	Sub-project site	Contractor	PIU and PWD	Regularly during construction phase	Contractor
10	Water Pollution from Fuel and Lubricants	The Contractor shall ensure that all construction vehicle parking locations, fuel/ lubricants storage sites, vehicle, machinery and equipment maintenance	Vehicle parking, refueling sites, Oil interceptor functioning	Contractor	PIU and PWD	Regularly during construction phase	Contractor

Sl. No.	Environmental Issues	Mitigation Measures	Parameter (Indicators for Compliance)	Responsible Implementation	Responsible Supervision	Frequency for Monitoring	Sources of Fund for Implementing Mitigation Measure
		and refueling site shall be located at least 500 m away from the natural streams. 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. 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.					
11	Soil Pollution due to fuel and lubricants, construction	The fuel storage and vehicle cleaning area will be stationed such	Vehicle maintenance and parking area, soil quality	Contractor	PIU and PWD	Regularly during construction phase	Contractor

Sl. No.	Environmental Issues	Mitigation Measures	Parameter (Indicators for Compliance)	Responsible Implementation	Responsible Supervision	Frequency for Monitoring	Sources of Fund for Implementing Mitigation Measure
	wastes	that spillage of fuels and lubricants does not contaminate the ground. Soil and pollution parameters will be monitored as per monitoring plan.	monitoring results				
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 neighboring Government	Sub-project site, air quality monitoring results	Contractor	PIU and PWD	Regularly during construction phase	Contractor

Sl. No.	Environmental Issues	Mitigation Measures	Parameter (Indicators for Compliance)	Responsible Implementation	Responsible Supervision	Frequency for Monitoring	Sources of Fund for Implementing Mitigation Measure
		Building under construction, the RLC site will be properly barricaded with prefabricated MS sheets of adequate height (3-4 m).					
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 CLC construction. The Contractor shall maintain a record of PUC for all vehicles and machinery used during	PUC certificates of vehicles and machinery	Contractor	PIU and PWD	Regularly during construction phase	Contractor

Sl. No.	Environmental Issues	Mitigation Measures	Parameter (Indicators for Compliance)	Responsible Implementation	Responsible Supervision	Frequency for Monitoring	Sources of Fund for Implementing Mitigation Measure
		the contract period which shall be produced for verification whenever required.					
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	Certificates of vehicles conforming noise standards, noise monitoring results	Contractor	PWD and PIU	Regularly during construction phase	Contractor

Sl. No.	Environmental Issues	Mitigation Measures	Parameter (Indicators for Compliance)	Responsible Implementation	Responsible Supervision	Frequency for Monitoring	Sources of Fund for Implementing Mitigation Measure
		equipment used in this project will not exceed 75 dB (A).					
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	Environmental monitoring reports, Trees and shrubs planted at CLC site	Contractor	PWD and PIU	Regularly during construction phase	Contractor
17	Material Handling at RLC 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	Data on available personal protective equipment	Contractor	PWD and PIU	Regularly during construction phase	Contractor

Sl. No.	Environmental Issues	Mitigation Measures	Parameter (Indicators for Compliance)	Responsible Implementation	Responsible Supervision	Frequency for Monitoring	Sources of Fund for Implementing Mitigation Measure
		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.					
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 of around RLC Sadyana site	Disposal site	Contractor	PIU and PWD	Regularly during construction phase	Contractor
19	Safety Measures During Construction	Adequate safety measures for workers during handling of materials at the proposed CLC site will be taken up. The contractor has to comply with all regulations for the safety of workers. Precaution will	Records of availability of personal protective equipment, availability of first aid kits	Contractor	PIU and PWD	Regularly during construction phase	Contractor

Sl. No.	Environmental Issues	Mitigation Measures	Parameter (Indicators for Compliance)	Responsible Implementation	Responsible Supervision	Frequency for Monitoring	Sources of Fund for Implementing Mitigation Measure
		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 PWD.					
20	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
21	Clearing of Construction of Camp and Restoration	Contractor to prepare site restoration plans for approval by the Engineer (PWD). The	Restoration plan, and records of pre-construction of temporary	Contractor	PIU and PWD	End of construction phase	Contractor

Sl. No.	Environmental Issues	Mitigation Measures	Parameter (Indicators for Compliance)	Responsible Implementation	Responsible Supervision	Frequency for Monitoring	Sources of Fund for Implementing Mitigation Measure
		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	sites				

Table 28: Operation Phase Environmental Management Plan for RLC Sadyana

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 results and relevant standards	DORD through Pollution Monitoring Agency	PIU	As per monitoring Plan	DORD and PMU

Sl. No.	Environmental Issues	Mitigation Measures	Parameter (Indicators for Compliance)	Responsible Implementation	Responsible Supervision	Frequency for Monitoring	Sources of Fund for Implementing Mitigation Measure
		monitoring agency.					
2	Unhygienic conditions due to poor maintenance of sanitation facilities and irregular solid waste collection	The DORD will carry out maintenance of the toilets at RLC Sadyana and carry out the regular collection and disposal of wastes to a designated waste treatment sites. The solid waste disposal will be integrated with the Mandi city waste disposal system. Septic tanks will be maintained and regularly emptied.	Maintenance schedule of RLC building and facilities created	DOUD	PIU	Every Quarter	DORD and PMU
3	Natural Disasters	Necessary procedures to be followed by the visitors, RLC staff and trainees 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
4	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	RLC Sadyana Manager	As per schedule of maintenance	Fee of Solar PV Cell Supplier
5	Onsite emergency	The Manager of RLC Pragati	Onsite Emergenc	Manager RLC	DORD	Mock Drills	RLC operation

Sl. No.	Environmental Issues	Mitigation Measures	Parameter (Indicators for Compliance)	Responsible Implementation	Responsible Supervision	Frequency for Monitoring	Sources of Fund for Implementing Mitigation Measure
	plan for minor accidents and mishaps and Disaster Management Plan for Natural Calamities	Nagar will prepare on site emergency plan for possible minor accidents and mishaps for operational phase. For natural calamities, the disaster management plan prepared by DORD will be followed.	y plan document and Disaster Management Plan document	Sadyana		every quarter	cost

C. Environmental Monitoring Plan

96. Environmental monitoring will be undertaken during construction at three levels. The Environment and Social Safeguards Specialists of the PMC will ensure that IEEs and EMPs are prepared for each construction package in accordance with ADB's and GOHP's requirements. These PMC staff will also coordinate between PWD, HPKVN, and the user department – DORD in the case of the Sadyana RLC, and DOUD in the case of Shamshi and Sunder Nagar CLCs – to ensure that all the provisions of the EMP are being adhered to by the contractors. Relevant staff from the PWD will monitor the contractors and ensure that the EMP and all of GOHP's rules with respect to the environment, and handling of solid and liquid waste are being followed.

97. To ensure the effective implementation of mitigation measures and EMP during construction and operation phase of the sub-projects, it is essential that an effective Environmental Monitoring Plan be followed as given in **Table 29**. 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 29: Monitoring Plan for Sub-Projects (CLCs at Shamshi and Sunder Nagar and RLC at Sadyana) in Mandi Zone Construction Package 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	CO, NOx, PM_{10},	CLCs constructi	Once in the pre-construction	Contractor(s), PWD,	INR390,000/ US $

Sl. No.	Field (Environmental Attribute)	Phase	Parameters to be Monitored	Locations	Frequency	Responsibility	Cost (INR/US$)
		phase	$PM_{2.5}$, and SO_2	on sites at Shamshi and Sunder Nagar and RLC construction site at Sadyana	phase to establish baseline	PMU, DOUD (for CLCs at Shamshi and Sunder Nagar) and DORD(for RLC Sadyana) through approved Monitoring Agency	6000
		During Construction Phase			Once in every three months (except monsoon season) during construction phase (24 months construction phase)		
		Operation Phase			Once in season except monsoon season for initial 2 years		
2	Water quality	During pre-construction phase	TDS, TSS, pH, Hardness, BOD, Faecal Coli form	Ground water close to CLCs and RLC construction sites	Once in pre-construction phase to establish baseline	Contractor(s), PWD, PMU, DOUD (for CLCs at Shamshi and Sunder Nagar) and DORD(for RLC Sadyana) through approved Monitoring Agency	INR390,000/ US $6000
		During Construction Phase			Once in every three months (except monsoon season) during construction phase		
		Operation Phase			Once in season except monsoon season for initial 2 years		
3	Noise Levels	During pre-construction phase	Noise quality as per National Ambient Noise Standards on dB(A) scale	Noise levels at CLCs Shamshi and Sunder Nagar and RLC Sadyana construction sites	Once in pre-Construction phase to establish baseline	Contractor(s), PWD, PMU, DOUD (for CLCs at Shamshi and Sunder Nagar) and DORD(for RLC Sadyana) through approved Monitoring Agency	INR 117,000/ US $ 1800
		During Construction Phase			Once in every three months (except monsoon season) during construction phase		
		Operation Phase			Once in season except monsoon season for initial 2 years		

Summary of Site- and Activity-Specific Plans as per respective CLCs and RLC EMPs

98. **Table-30** summarizes site- and activity-specific plans to be prepared as per EMP tables.

Table 30: Site- and Activity-Specific Plans/Programs as per respective CLCs and RLC EMPs

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(s)
Pre-Construction phase	List and maps showing utilities to be shifted	Utilities shifting	PWD during preliminary design and pre construction phase	Contractor(s)
Pre-Construction Phase	Contingency plan for interruption of services	Mitigate impacts due to interruption of services during utilities shifting	Contractor(s)	Contractor(s)
Pre-Construction	Chance find protocol	Address archaeological or historical chance finds	PMU and PMC	Contractor(s)
Pre-Construction Phase	List of pre-approved sites for construction camp, stockpiles, and waste disposal sites	Location/s for construction camp at each site of the Mandi package, areas for stockpile, storage and disposal for minimization of impacts	PMC, PMU, PWD and PIU	Contractor(s)
Pre-Construction phase	Waste/Spoil management plan	Mitigate impacts due to waste generation	Contractor(s)	Contractor(s)
Pre-Construction phase	Spill prevention and containment plan	Mitigate impacts of accidental spills of oil, lubricants, fuels, concrete, and other hazardous materials	Contractor(s)	Contractor(s)
Construction phase	Traffic management plan	Mitigate impacts due to transport of materials and project related traffic movement	Contractor(s)	Contractor(s)
Construction phase	Health and Safety (H&S) plan	To comply with IFC EHS Guidelines on Occupational health and safety	Contractor (s)	Contractor(s)
Construction phase	Erosion control and re-vegetation plan	Mitigate impacts due to erosion and vegetation removal at sub-project sites	Contractor(s)	Contractor(s)
Construction Phase	Environmental Monitoring Plan Implementation	To check efficacy of mitigation measures	PMC, PMU, and PWD	Contractor(s)
Operation Phase	Maintenance of sub- project	To maintain CLCs and RLC plantation and to	PMU,DORD (for RLC site at	DOUD for CLCs Shamshi and

To be Prepared During	Specific Plan/Program	Purpose	Responsible for Preparation	Responsible for Implementation
	sites landscape, and plantation and environmental monitoring plan	carry out environmental monitoring to check environmental conditions at site	Sadyana and) and DOUD (for CLCs Shamshi and Sunder Nagar)	Sunder Nagar and DORD for RLC at Sadyana

99. The guidelines for preparation of site specific traffic management plans have been provided in **Annexure-3.**

D. Capacity Building

100. In addition to the primary objective of skills enhancement of Himachali youth, the CLCs and RLC sub-projects 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.

101. 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 31** below.

Table 31: 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	DOUD and DORD officials, Environmental specialist of PWD and other Engineering staff associated with the 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	All PIUs, HPKVN, and PWD Staff associated with sub projects at Shamshi, Sunder Nagar and Sadyana	½ Working Day	Safeguards Specialist of the PMC

Program	Description	Participants	Duration	Training Conducting Agency
	practices to be integrated into contract documents			
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, PIUs, 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 (including the ES)	¼ Working Day	Safeguards Specialist of PMU

DOUD = Department of Urban Development, DORD= Department of Rural Development, 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.

E. Environmental Budget

102. Most of the mitigation measures require the contractors 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-projects under Mandi Zone construction package is presented in **Table 32.**

Table 32: Environmental Management and Monitoring costs (INR)

Monitoring Component	Rate	Amount (INR)	Source of Fund
Pre-Construction and Construction Phase			
Air Quality - one location at each construction site (CLC Shamshi, CLC Sunder Nagar and RLC Sadyana), thrice a year (one sample pre construction and 6 samples during construction phase; total 21 samples)	10,000	210,000	Contractor(s)
Water Quality- One ground water sample from each construction site (CLC Shamshi, CLC Sunder Nagar and RLC Sadyana), thrice a year (one sample pre construction and 6 samples during construction phase; total 21 samples)	10,000	210,000	Contractor(s)
Noise Quality-One location at project site (CLC Shamshi, CLC Sunder Nagar and RLC Sadyana), thrice a year (one sample	3000	63,000	Contractor(s)

Monitoring Component	Rate	Amount (INR)	Source of Fund
pre construction and 6 samples during construction phase; total 21 samples)			
Training for Capacity Building of stakeholders	Covered in the consultancy cost of PWD and PMC		
Total Construction Phase Monitoring Cost (A)		**483,000**	**Contractor(s)**
O & M Phase			
Air Quality -one location at CLC Shamshi, CLC Sunder Nagar and RLC Sadyana thrice a year at each location, for initial 2 years (3 samples per site per annum, total 18 samples)	10,000	180,000	PMU, DOUD for CLCs Shamshi and Sunder Nagar and DORD for RLC at Sadyana
Water Quality -one ground water sample at CLC Shamshi, CLC Sunder Nagar and RLC Sadyana, thrice a year at each location, for initial 2 years (3 samples per site per annum, total 18 samples)	10,000	180,000	PMU, DOUD for CLCs Shamshi and Sunder Nagar and DORD for RLC at Sadyana
Noise Quality- one location at CLC Shamshi, CLC Sunder Nagar and RLC Sadyana, thrice a year at each location, for initial 2 years (3 samples per site per annum, total 18 samples)	3000	54,000	PMU, DOUD for CLCs Shamshi and Sunder Nagar and DORD for RLC at Sadyana
Total O&M Phase Monitoring Cost (B)		**414,000.00**	PMU, DOUD for CLCs Shamshi and Sunder Nagar and DORD for RLC at Sadyana
Total Cost (A+B)		**897,000.00**	
Contingencies @ 5 %		**44,850.00**	
Total Budgeted Cost (INR)		**941,850 (Say 1,000,000)**	

F. Environmental Monitoring and Reporting

103. 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 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 (DORD and DOUD), who will take follow-up actions, if necessary. PWD will also submit quarterly, semiannual 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.

104. 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.

V. PUBLIC CONSULTATION AND INFORMATION DISCLOSURE

A. Process For Consultations Followed

105. These sub-projects do 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 the sub-projects can be characterized as innocuous.

106. 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 visits in sub-projects areas. Residents of the areas were informed about the proposed sub-project in their area and their views were obtained. During the preparation of this IEE, consultations have been held with the officials of Department of Planning, HPKVN, Forest Department, DOUD, DORD and other stakeholders such as DoTE and ITI faculties at Shamshi and Sunder Nagar. The local villagers and elected Panchayat representatives were also consulted at Sadyana (Paprahal) village during visits to the RLC site.

107. The process of consultations was taken up, as an integral part of the sub-projects 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 sub-projects activities;
- To familiarize the people with technical and environmental issues of the sub-projects 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.

108. During the consultations local residents opined that there is need to develop skills of local youth as there are limited employment opportunities in the state. The sub-project building construction will lead to infrastructure creation for skill development. They demanded fast implementation of the sub-project. The dates of consultations and stakeholders consulted have been summarized below in **Table 33**. The views, comments and suggestions of stakeholders and their incorporation in project design are presented in **Tables 34 and 35.** The records of consultations (list of participants with signatures) and consultation photographs are given in **Annexure- 4.**

Table 33: Dates and Stakeholders Consulted

Sl. No.	Stakeholders Consulted	Dates of Consultations
1	Himachal Pradesh Forest department	23 December 2015
2	Department of Rural Development, Department of Labor and Employment and Department of Higher Education	21 December 2015, May 10, 2016
3	Himachal Pradesh Pollution Control Board	23 December 2015
4	State Department of Environment, GOHP, HPKVN and	14 and 15 March 2016

Sl. No.	Stakeholders Consulted	Dates of Consultations
	DOP	
5	Department of Technical Education, GOHP	12 December 2015 and, 16 and 17 March 2016
6	Local Public at RLC Sadyana Site	30 June 2016
7	Local Public at CLC Shamshi Site	16 March 2016
8	Local Public at RLC Sunder Nagar Site	12 December 2015, and 16 and 17 March 2016

109. It is clear that most of the suggestions of stakeholders have been taken care in the project design.

Table 34: Views, Comments, and Suggestions of Stakeholders at sub-Project Sites and Addressed in Project Design

Sl. No.	Place	Date	Consultations held with	Issues discussed	Outcome of discussions and consideration in project design and Implementation
1	CLC Site, Shamshi at ITI campus Shamshi	16/3/2016	With local Shamshi town residents, students at ITI Shamshi and ITI Officials	CLC proposal, project benefits, implementation schedule, environmental and social impacts during project implementation, etc.	1. Participants welcomed the project and told the consultants that there will be a good response from neighboring Lahaul Spiti district also for the enrolment in skills development courses. . 2. The students of ITI suggested that courses to be offered should be such that placement should not be a problem. The consultants replied that an aspiration survey is being taken up and based on the outcome of this aspiration survey and local demand, the courses will be designed. These courses are being finalized in consultation with local industry. 3. The ITI officials suggested that if need is arose institute hostel can be shared the students anticipating in the skill development courses at CLC. The consultants replied that as part of CLC construction, hostel is planned, both for girls and boys. 4. The participating ITI faculty members and officials suggested that activities of ITI should not be affected due to functioning of CLC in ITI campus. The consultants replied that CLC site has been finalized close to the entrance gate, so this will ensure minimum interference with ITI activities. 5. Local participants demanded that

Sl. No.	Place	Date	Consultations held with	Issues discussed	Outcome of discussions and consideration in project design and Implementation
					they should preference in the employment during the construction of CLC. The consultants replied that the contractor to be appointed for CLC construction will hire manpower on merit and locals have possibility to get employment opportunities. 6. The CLC site being in ITI Campus under ownership of one of the IAs (DOTE), so no issue of any rehabilitation and resettlement or land transfer.
2	RLC Site Sadyana	30/06/2016	Village Panchayat elected representatives, local villagers , DORD and revenue officials	RLC proposal, project benefits, implementation schedule, environmental and social impacts during project implementation, potential for production centre, etc.	1. The local villagers welcomed the project and requested the Rural Department Officials to initiate construction works of CLC as early as possible. 2. The locals suggested that for plantation, locally grown trees should be planted in the vacant space of RLC. They also suggested that small production center organic waste should be used to make compost. The consultants noted the above suggestion for inclusion in the project design. 3. The participants welcomed the establishment of RLC and suggested that Skill Development at RLC should focus on enterprises development based on agriculture produces. 4. The locals told the consultants that as such there is no land slide or bad weather conditions in the project area so there will not be any problem in the round year operations of RLC. 5. The consultants enquired about air and water pollution problems in the project area. The locals replied that no air pollution or water pollution problems exist in the area. However, they suggested that waste water generated from RLC should be taken care properly as surroundings are open area and

Sl. No.	Place	Date	Consultations held with	Issues discussed	Outcome of discussions and consideration in project design and Implementation
					agriculture fields. The consultants replied that septic tanks and soak pits are planned in RLC building. 6. The participants enquired about expected date of commencement of construction works for RLC. The consultants replied that bidding process for the project will start after completion of RLC design and its approval by the DORD. It will take about a year to complete all formalities. 7. The consultants enquired about potential for production centre establishment at RLC so that locals can benefit. The participating villagers suggested that production centre should be based on local produce such as fruits and agro products. The consultants noted the suggestion.
3	CLC Site, Sunder Nagar	17/3/2016	ITI Officials, residents, and DOTE officials	CLC proposal, project benefits, implementation schedule, environmental and social impacts during project implementation, etc.	1. The ITI officials at Sunder Nagar suggested that ITI design should be such that persons with disabilities (PWD) should be able to move and use CLC facilities as Sunder Nagar ITI is totally dedicated to PWD students. The consultants noted the suggestion assured the participants that design of CLC will consider PWD requirements also. 2. Locals told the consultants that there is a local drain at about 30 m from site. Necessary protection measures for slope protection should be taken into consideration in the project design. The consultants told the participants that enough margins from drain site have been left while delineating the CLC site. 3. The local residents suggested that while constructing CLC, the movement of locals and ITI students should not be restricted. The consultants replied that an Environmental Management Plan will be prepared and this EMP will be part of contract document. The implementation of EMP will

Sl. No.	Place	Date	Consultations held with	Issues discussed	Outcome of discussions and consideration in project design and Implementation
					ensure no inconvenience to the locals. 4. The DOTE officials informed that CLC site is in possession of DOTE and ownership of land is also with DOTE. They provided supporting revenue document. The site is also from encroachment so no issues of rehabilitation and resettlement.

Table 35: **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	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

Sl. No.	Place and date	Consultations held with	Issues discussed	Outcome of discussions and consideration in project design and Implementation
				Polytechnic at Rehan in Kangra district is also completed. The land has been transferred by the revenue department in the name of DOTE.
2	Shimla, 23/12/2016	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

Sl. No.	Place and date	Consultations held with	Issues discussed	Outcome of discussions and consideration in project design and Implementation
				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.
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, Dharamsala, 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.

B. Future Consultation And Information Disclosure

110. To ensure continued public and stakeholder participation in the sub-projects 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 the sub-projects proposals to the stakeholders and the communities in the vicinity of the individual sub-project locations, an extensive project awareness campaign will be carried out.

Information disclosure

111. Electronic version of the IEE will be placed in the official website of the DORD, DOUD, 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.

112. The PMU will issue notification on the disclosure mechanism in local newspapers, ahead of the initiation of implementation of the CLC and RLC sub-projects, 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.

C. Grievance Redress Mechanism

113. 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.

114. 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.

115. Further, person(s) / aggrieved party who are, or may be, adversely affected by the subproject(s) 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

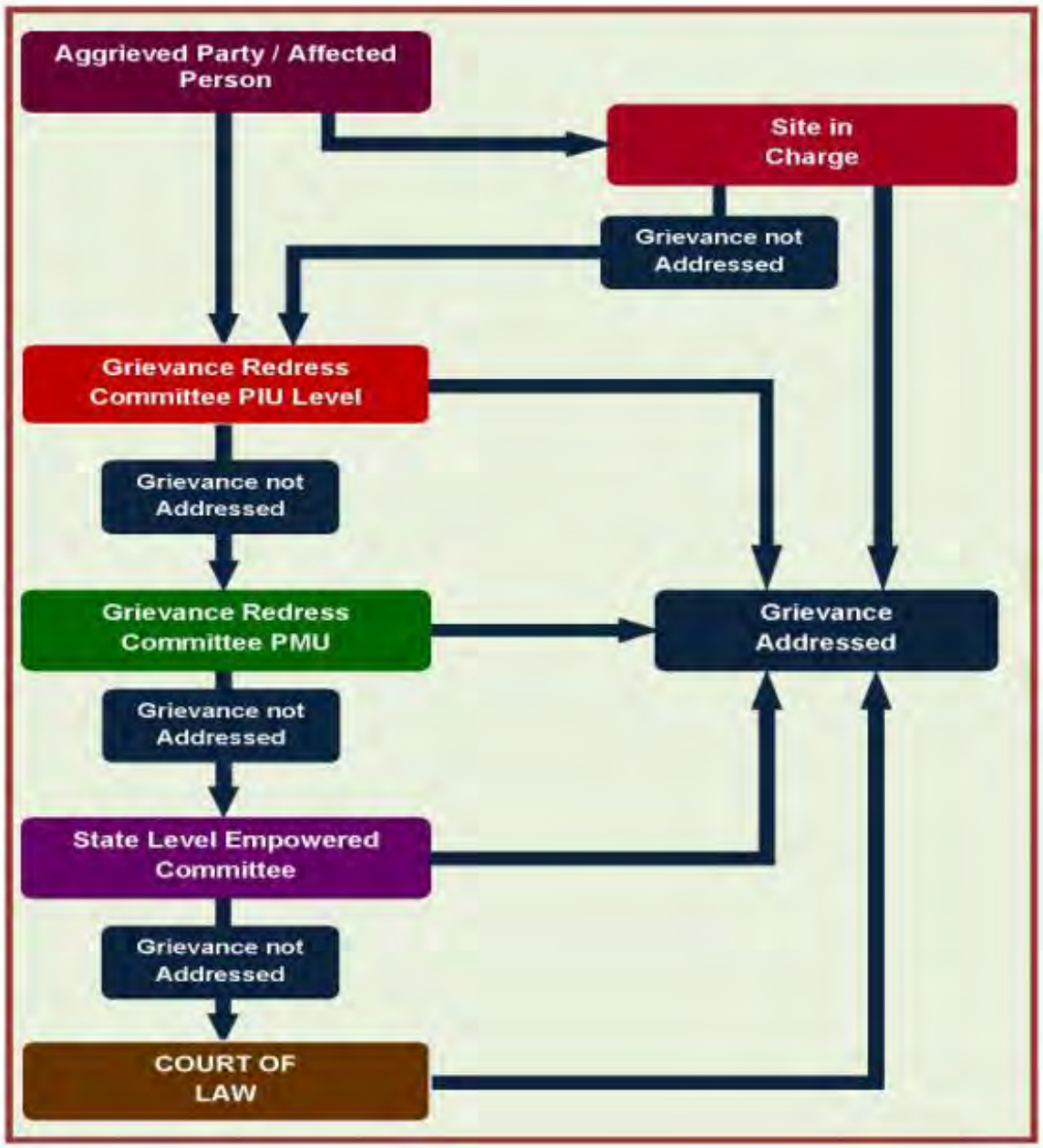
116. PIU Level Grievance Redress Committee (GRC- PIU) – This committee will comprise of Project Manager, Site In charge and one officer from contractor team. The GRC- PIU will be headed by Project Manager (PIU). It will meet at least once a month. The agenda of the meeting will be circulated to all the 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. If the grievance is not resolved within this time period, then it will be referred to GRC at PMU.

117. **GRC at PMU.** There shall be one GRC in PMU. The matters not resolved by the GRC at PIU level within one month shall come under GRC at PMU. GRC at PMU will include the Managing Director, HPKVN, and Project Manager PIU (PWD), safeguard specialists (Environmental and Social) of the PMU, and one representative from concerned Department (DOTE/DOLE/DOHE). 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. In case grievance is not readdressed by the SLEC, then complainant can reach to the court of law. It may also be mentioned that aggrieved party / or person is free to reach court of law any time.

118. **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 (s) sub projects 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
- Construction site. The grievance redress mechanism for the HPSDP for safeguards related issues has been shown below in **Figure-13**:

Figure 13: Grievance Redress Mechanism (HPSDP Project)



VII. FINDINGS AND RECOMMENDATIONS

119. The proposed sub-projects 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-projects will enhance economic growth and employability of local Himachali youth through development of skills.

120. 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-projects execution. The overall environmental quality of sub-projects surroundings will not be affected as a result of operating the CLC as adequate sanitation facilities have been planned.

121. The specific management measures laid down in the IEE will effectively address any adverse environmental impacts due to the sub-projects. 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 plans provide adequate opportunities towards course correction to address any residual impacts during construction or operation stages.

VIII. CONCLUSIONS

122. On the basis of the IEE, it is expected that the proposed sub-projects 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-projects. 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: 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.

Country/Project Title: India/ Supporting Skill Development in Himachal Pradesh

Sector Division: SAHS

Screening Questions	Yes	No	Remarks
A. Project Siting Is the project area adjacent to or within any of the following areas:			Under the Mandi Zone construction package, there is proposal to establish one CLC at Shamshi ITI Campus, One CLC at Sunder Nagar ITI campus and one RLC, at Sadyana near Mandi town. The sites of all the three sub-projects are located beyond 25 km distance from the (a) core and buffer zones of national parks, sanctuaries, tiger reserves, and biosphere reserves, etc. There are no structures or monuments of archaeological importance in the vicinity of proposed sub- project sites.
▪ Underground utilities		√	All the three sub projects are proposed on vacant land owned by GOHP. There are no underground utilities at any of the sub-project sites.

Screening Questions	Yes	No	Remarks
▪ Cultural heritage site		√	No cultural heritage site within 25 km distance from the sub-project sites.
▪ Protected Area		√	No protected areas within 25 km distance from the sub-project sites.
▪ Wetland		√	
▪ Mangrove		√	
▪ Estuarine		√	
▪ Buffer zone of protected area		√	
▪ Special area for protecting biodiversity		√	
▪ Bay		√	
B. Potential Environmental Impacts Will the Project cause…			
▪ Encroachment on historical/cultural areas?		√	
▪ Encroachment on precious ecology (e.g. sensitive or protected areas)?		√	
▪ Impacts on the sustainability of associated sanitation and solid waste disposal systems?		√	The sanitation facilities will be self-sustained (septic tanks planned at respective CLCs and RLC locations) and solid waste collection and disposal will be integrated with the respective localities waste disposal facilities.
▪ Dislocation or involuntary resettlement of people?		√	The proposed sites for CLCs and RLC are on Government owned land(CLCs at Shamshi and Sunder Nagar in ITI campuses, RLC Sadyana on DORD owned land) so no Involuntary Resettlement issues.
▪ Disproportionate impacts on the poor, women and children, Indigenous Peoples or other vulnerable groups?		√	No such impact anticipated.

Screening Questions	Yes	No	Remarks
▪ Accident risks associated with increased vehicular traffic, leading to loss of life?		√	The proposed CLCs sites at Shamshi and Sunder Nagar are within inhabited areas and on well-connected roads. The RLC site at Sadyana is close to Sadyana village and this site is also located on well connected road. Since all the three sub-projects involve construction of buildings in <1000 m2 area, therefore, traffic increase during construction will be insignificant. During operation also traffic increase is not anticipated as students will be local and hostel facilities are planned at CLC locations. At the RLC Sadyana hostel facilities will be available in the adjacent DORD building under construction. However, to rule out any accident due to project related vehicular traffic, if required, flagmen will be deployed near the sub-projects construction sites 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 CLCs and RLC activities 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

Screening Questions	Yes	No	Remarks
▪ 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 respective Environmental Management Plans (EMPs).
▪ Requirements for disposal of fill, excavation, and/or spoil materials?	√		The proposed sites for CLCs and RLC are 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 sites. The sites 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 any of the sub-project sites. None of the sub-project site is sub-merged under the 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 CLCs and RLC is around 900 m2 and this small area will not cause any impact on local hydrology. Further, sites are already close to inhabited areas. So construction of buildings of CLCs and RLC is of no consequence from hydrology point of view.

Screening Questions	Yes	No	Remarks
▪ 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 CLCs and RLC buildings to be constructed are small in size, so construction force will not exceed 50 at any of the sub-project site. The construction workers will be mainly locals so no influx in anticipated during the construction. During operation phase also all trainees will be accommodated in Hostels at the respective locations of CLCs and RLC under the package, 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 CLCs and RLC buildings are 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(s) 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 and other solid waste generated. The waste disposal will be integrated with the local disposal systems.

Screening Questions	Yes	No	Remarks
▪ 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 CLCs and RLC sites are within the built-up areas of respective localities. Specific community risks are not foreseen due to operation as such as all the three sub project sites have good connectivity through National and State Highways. The CLCs and RLC buildings are being designed following applicable seismic coefficient for Himachal Pradesh to build safety in structural design. There will be periodic maintenance of buildings during the operation phase.

A Checklist for Preliminary Climate Risk Screening

Country/Project Title:

Sector:

Subsector:

Division/Department:

Screening Questions		Score	Remarks[6]
Location and Design of project	Is siting 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 CLCs and RLC buildings are 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 proposed sites of CLCs and RLC do not demand usage of any specific construction material to counteract 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 sites 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)	0	Not Applicable

[6] 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 siting/routing of project, the selection of construction material and/or scheduling, performances and/or the maintenance cost/scheduling of project outputs.

	of project output(s) (e.g. hydro-power generation facilities) throughout their design life time?		

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.

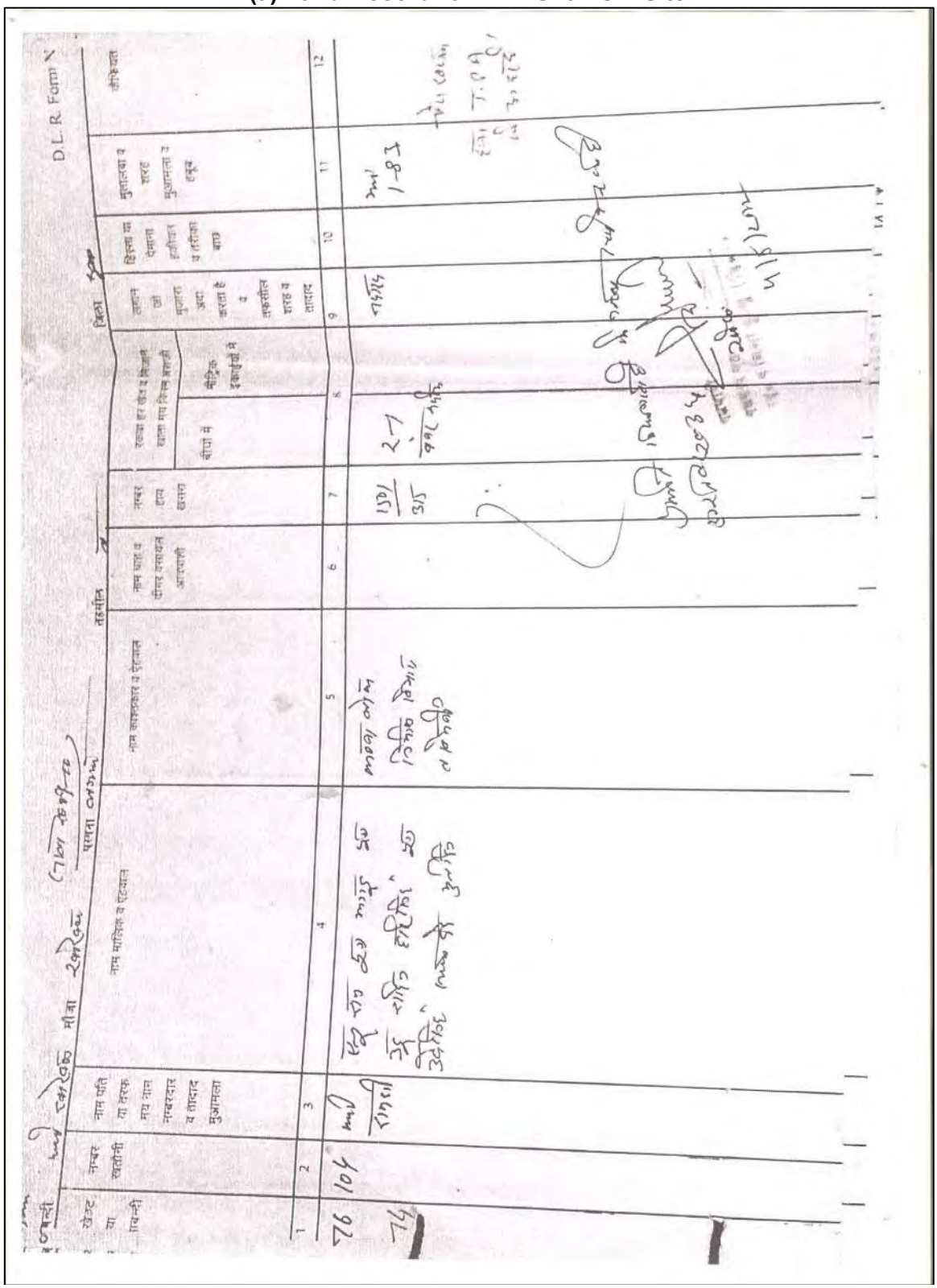
Result of Initial Screening (Low, Medium, High): Low Risk

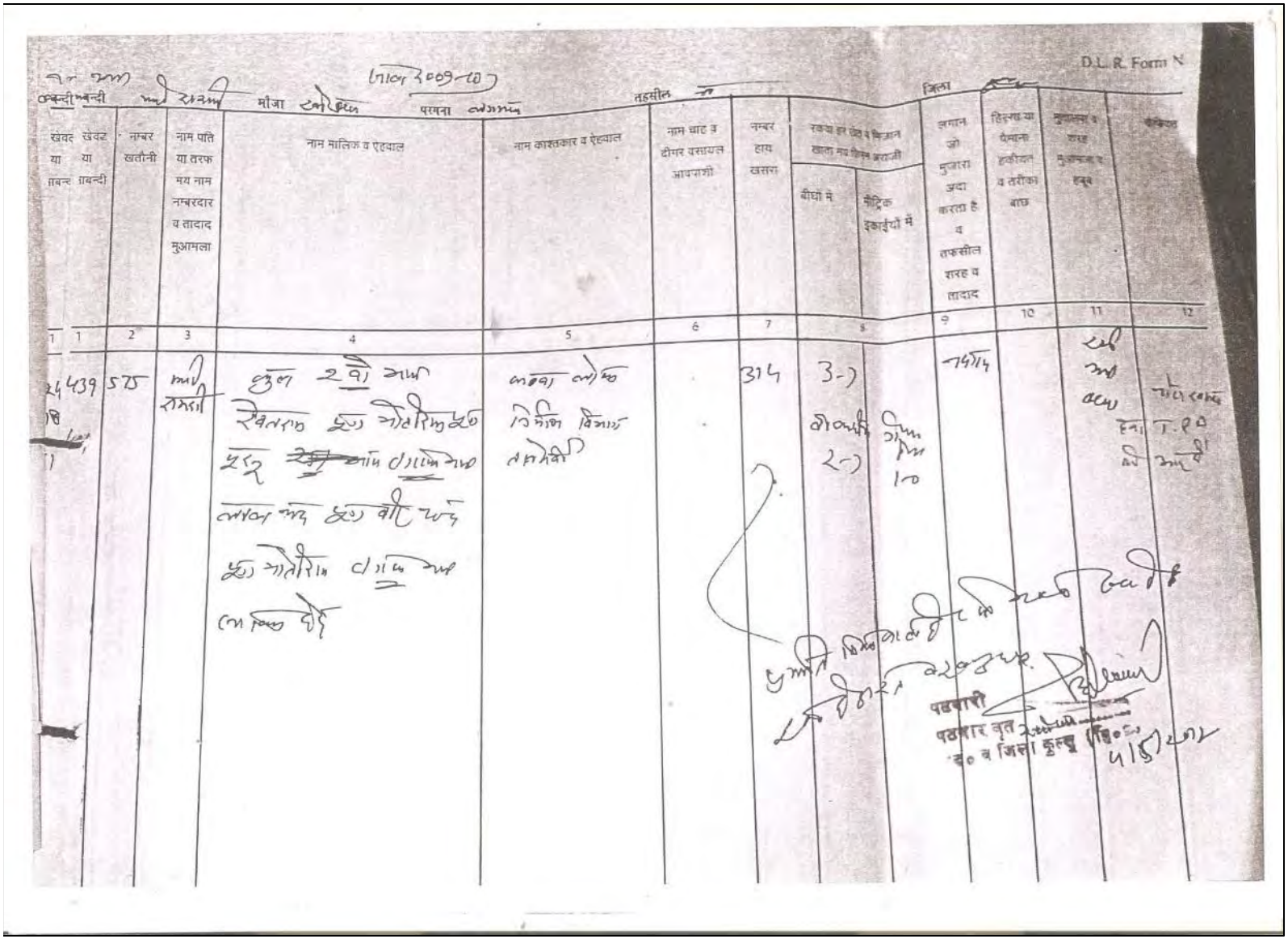
Other Comments: None

Prepared by: Shreeniwas Verma, Environmental Safeguard Specialist

Annexure -2 (a) : Land Records Certified by the Revenue Department Officials Showing GOHP Ownership

(a) Land Record for CLC Shamshi Site





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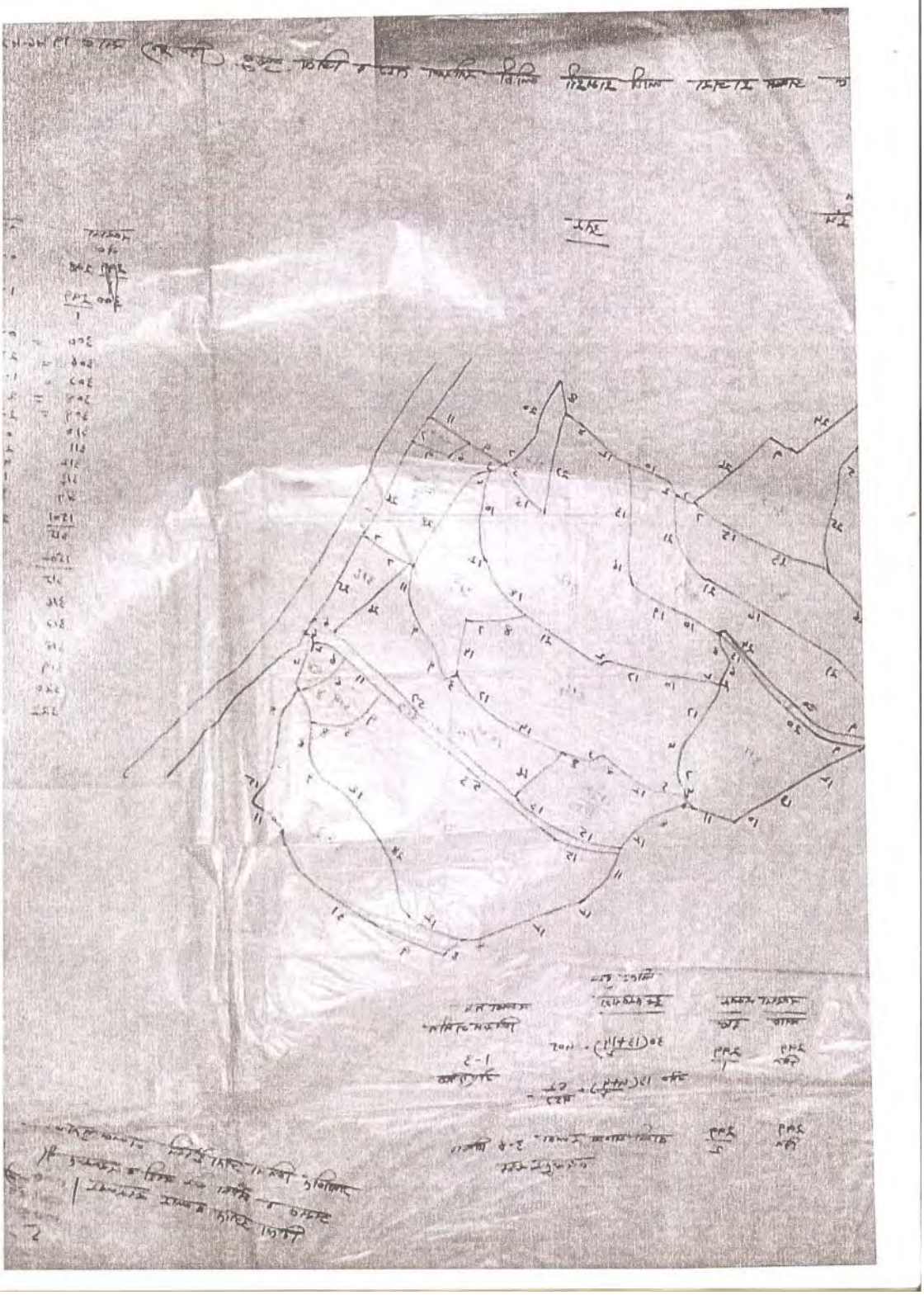
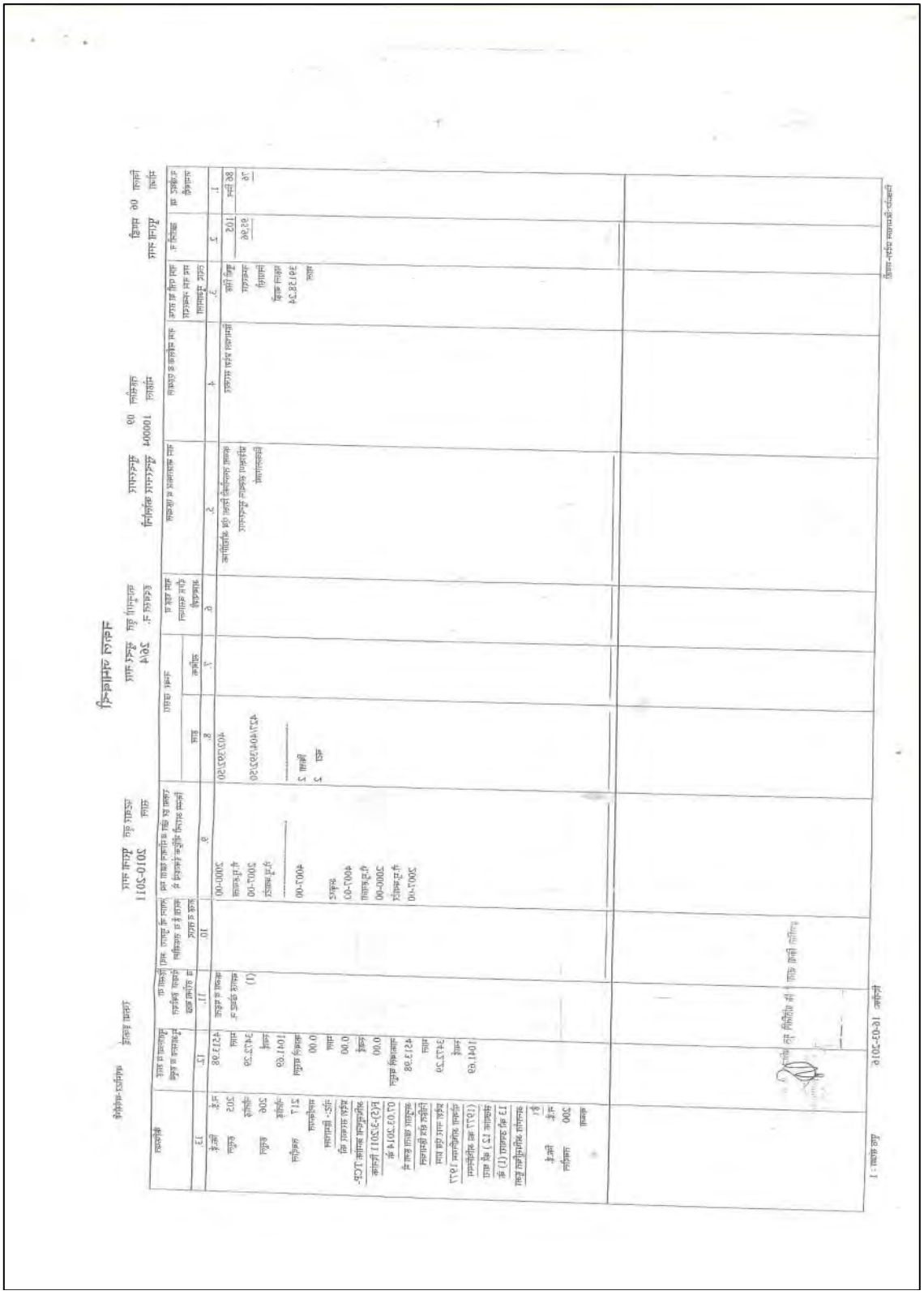
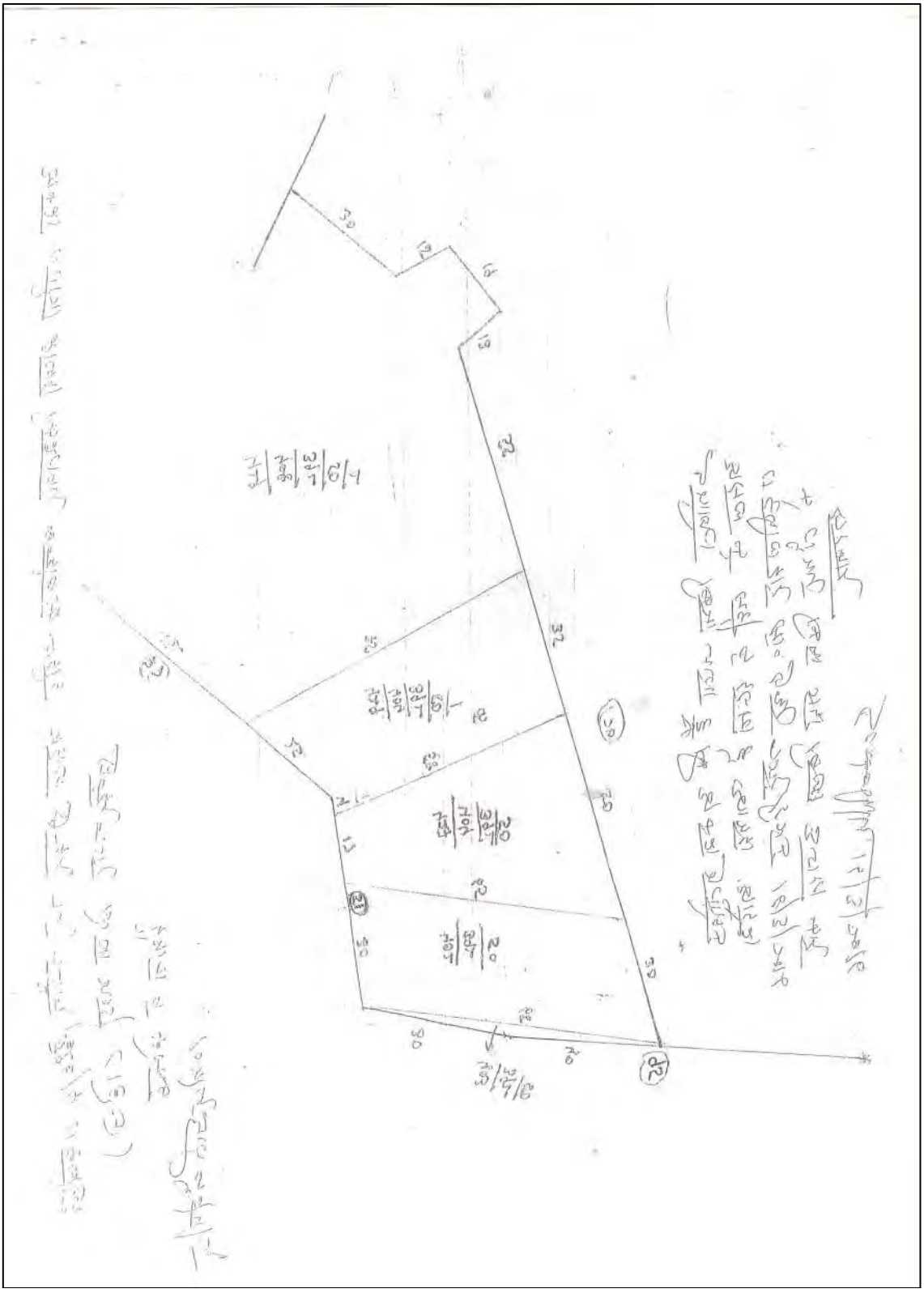
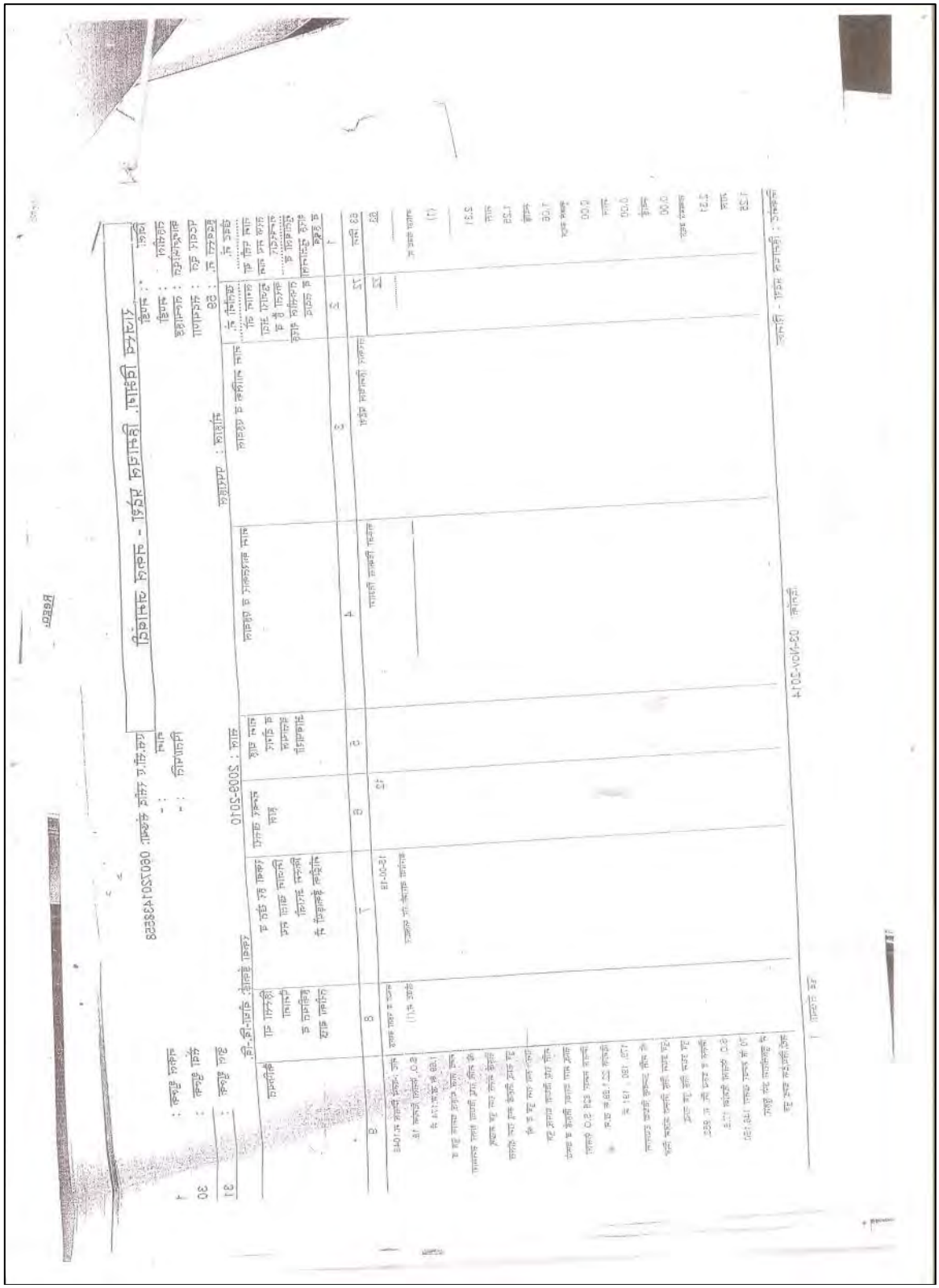


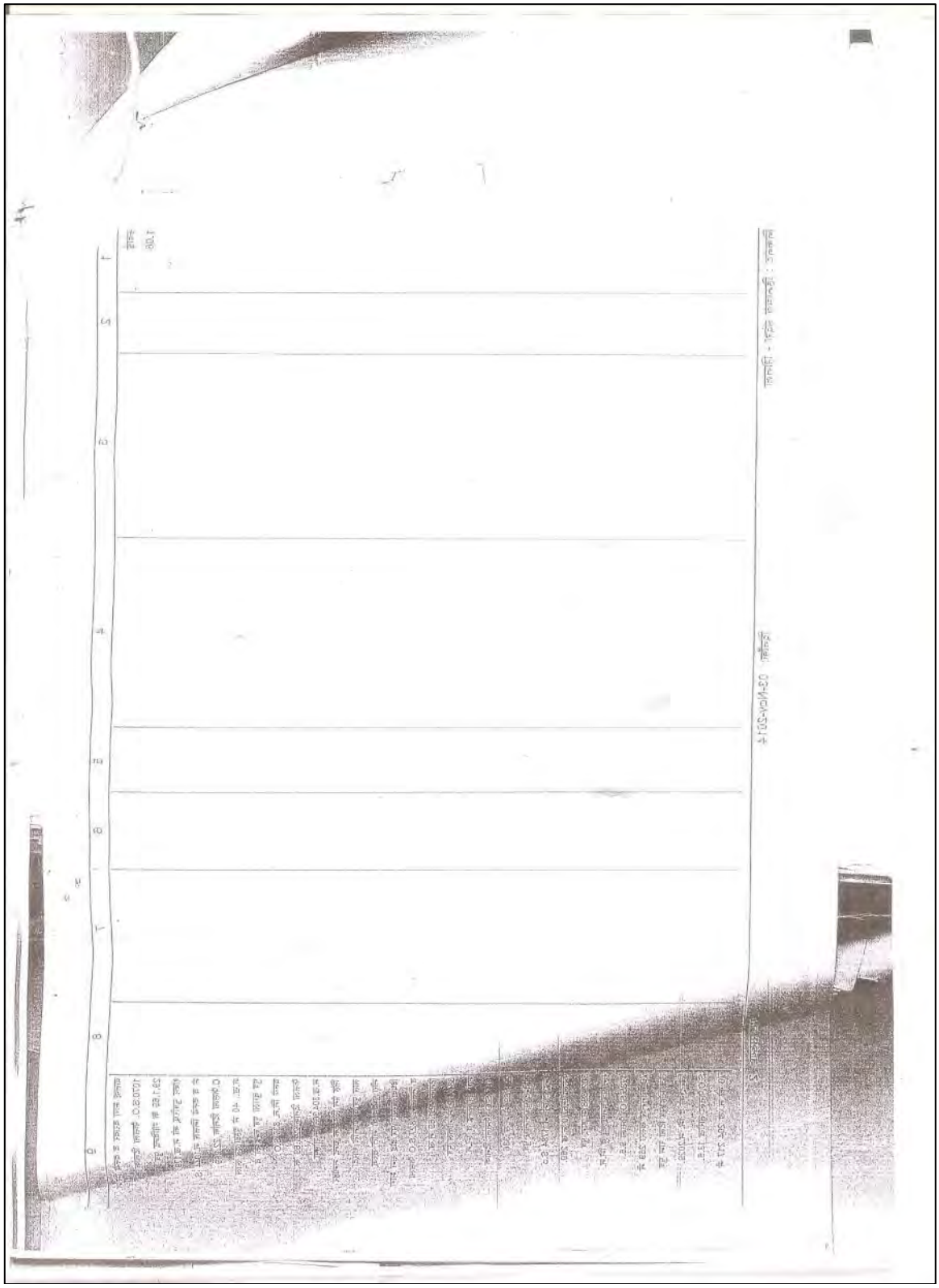
(b) Land Record for CLC Sunder Nagar Site

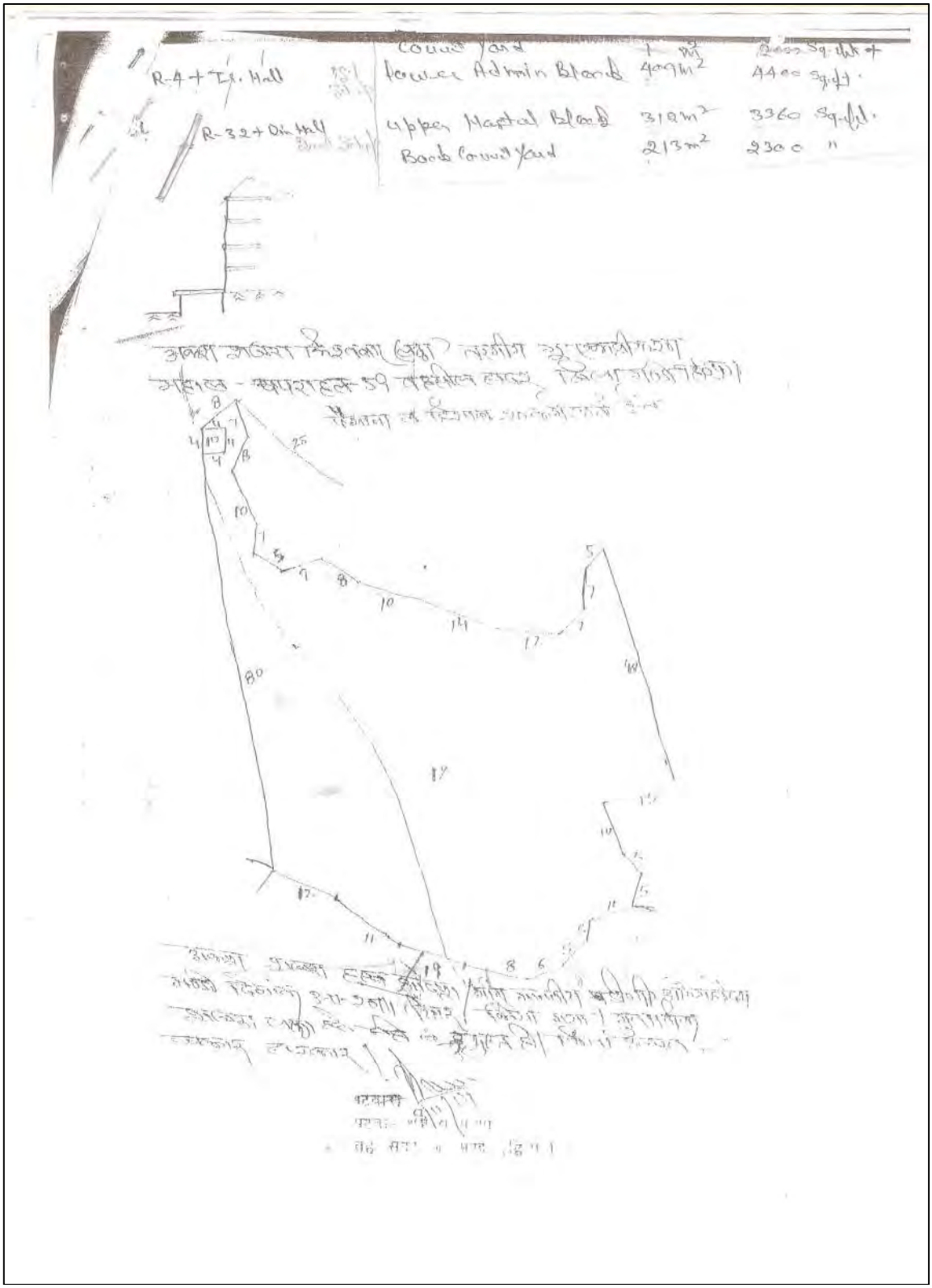




(c) Land Record for RLC Sadyana Site






R-4 + Lg. Hall
R-32 + Oh. Hall
Lower Admin Block 409 m²
Upper Hostal Block 319 m²
Back Court Yard 213 m²

Annexure -2 (b): Certification of Land Ownerships by the Department of Technical Education, Vocational and Industrial Training and Department of Rural Development

**DIRECTORATE OF TECHNICAL EUDCATION,
VOCATIONAL & INDUSTRIAL TRAINING,
HIMACHAL PRADESH, SUN DERNAGAR.**

NO. STV(IT) H-G(1)Civil Works/ADB-2015- 47177 Dated:- 04/7/2017

To

The Managing Director,
HPKVN, SDA Complex, Block No. 24,
Kasumpati. Distt. Shima, HP.

Subject:- **Land Ownership letter in English Language.**

Sir,

Kindly refer to your E-mail dated 01.07.2017 and letter No. HPKVN/1-1/Technical Education/2016-924 dated 03.07.2017, on the subject cited above. In this connection the desired information is as under:-

Name of Instutions	Land details	Remarks
1. Govt. ITI (PWD) Sundernagar, Distt. Mandi.	Khasra Nos. 429/404/392/50/1, 429/404/392/50/2/1, 402/392/50 & 427/404/392/50 total area measuring 0-80-11 hectare.	Ownership of land is in the name of Deptt. and is in the possession of this Deptt.
2. (i) Govt. ITI Nagrota Bagwan, Distt. Kangra.	Khasra Nos. 126/2 & 127/3, total area measuring 0-75-66 hectare (at Serathana).	-do-
(ii) State of the Art ITI Nagrota Bagwan, Distt. Kangra.	Khasra No. (Bandobast hall) 4, area measuring 1-01-12 hectare (at Baldhar)	land has been selected for the construction of State of the Art ITI Nagrota Bagwan.
3. Govt. ITI Garnota, Distt. Chamba.	Khasra No. 507, Area measuring 1-95-60 hectare.	Ownership of land is in the name of Deptt. and is in the possession of this Deptt.
4. (i) Govt. ITI Nadaun at Rail, Distt. Hamirpur.	Khasra No. 52, Area measuring 2-14-07 hectare.	-do-

Cont. P-2

(ii) State of the Art ITI Hamirpur at Nadaun.	Khasra No. 405/2/2, area measuring 00-73-48 hectare (at Kitpal).	The land transfer case is under process with DC, Hamirpur and at last stage for transfer to DoTE.
5. Govt. ITI Sunni, Distt. Shimla.	Khasra Nos. 86,87,89,90,91 & 96, total area measuring 2-63-78 hectare.	Ownership of land is in the name of Deptt. and is in the possession of this Deptt.
6. Govt. ITI Gagret at Bhaderkali, Distt. Una.	Khasra Nos. 927/1, 930, 931/1, area measuring 1-84-65 hectare.	-do-
7. State of the Art ITI Dharampur, Distt. Solan.	Khasra Nos. 573/1, 565/1, 574/1, total area measuring 0-80-40 hectare.	-do-
8. Govt. ITI Nahan, Distt. Sirmour.	Khasra Nos. 255, 256, 257, 261, 262, 263, 264,, 265, 266, 267, 268, 269, 270, 271, 272, 273, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 228,229, 230, 231, 232, 233, 234, 235, 236, 237, 238, 239, 240, 241, 242, 243, 244, 244/1, 245, 246, 247, 248, 249, 250, 251, 252, 253, 254, 258, 259 & 260 total area measuring 1-97-50 hectare.	-do-
9. Govt. ITI Shamshi, Distt. Kullu.	Khasra Nos. 298, 299/1, 300, 306, 307, 308, 309, 310,311, 312, 313, 314, 1501/315, 1502/315, 316, 317, 318, 319, 320 & 322 total area measuring 2-80-00 hectare	The ownership of this land is in the name of HP Govt. and the possession of this land with the Technical Education Deptt. since 1962.

Cont. P-3

10. Atal Bihari Vajpayee Govt. Institute of Engg. & Technology Pragtinagar, Distt. Shimla.	Khasra Nos. 223, 224, 225, 226, 237, 238, 239, 240, 241, 242, 243, 244, 245, 246, 247, 248, 249, 250, 251, 252, 253, 254, 255, 256, 257, 258, 259, 260, 261, 262, 263, 264, 265, 266, 267, 669/279, 307, 308, 309, 394, 463, 465, 475, 499, 502, 506, 507, 511/1, 520, 571, 572, 575, 581, 584 & 591, total area measuring 9-85-60 hectare.	Ownership of land is in the name of Deptt. and is in the possession of this Deptt.

This is for your kind information and further necessary action please.

Yours faithfully,

Director
Technical Education
Vocational & Industrial Training
Himachal Pradesh Sundernagar

TO WHOME SO EVER IT MAY CONCERN.

It is certified that as per available record in this office the 15-00-19 land with Khasra No 59 in Mohal Paplaahal at Sadyana District Mandi H.P. belongs to Himachal Pradesh Government and is currently under the Possession of Rural Development Department.

District Panchayat Officer,
Mandi Distt. Mandi (H.P.)

(Girish Sammta)
District Panchayat Officer
Mandi, District Mandi H.P.

Annexure-3: Sample Traffic Management Plan

A. Principles

1. Since the scale of construction work at the sub-projects sites 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:

(i) The safety of pedestrians, bicyclists, and motorists travelling through the construction zone;
(ii) Protection of work crews from hazards associated with moving traffic;
(iii) Avoiding traffic congestion and
(iv) Maintenance of access to adjoining properties.

B. Operating Policies for TMP

2. 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.

(i) Make traffic safety and temporary traffic control an integral and high-priority element of every project from planning through design, construction, and maintenance.
(ii) Inhibit traffic movement as little as possible.
(iii) Provide clear and positive guidance to drivers, bicyclists, and pedestrians as they approach and travel through the temporary traffic control zone.
(iv) Inspect traffic control elements routinely, both day and night, and make modifications when necessary.
(v) Pay increased attention to roadside safety in the vicinity of temporary traffic control zones.
(vi) Keep the public well informed.
(vii) 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

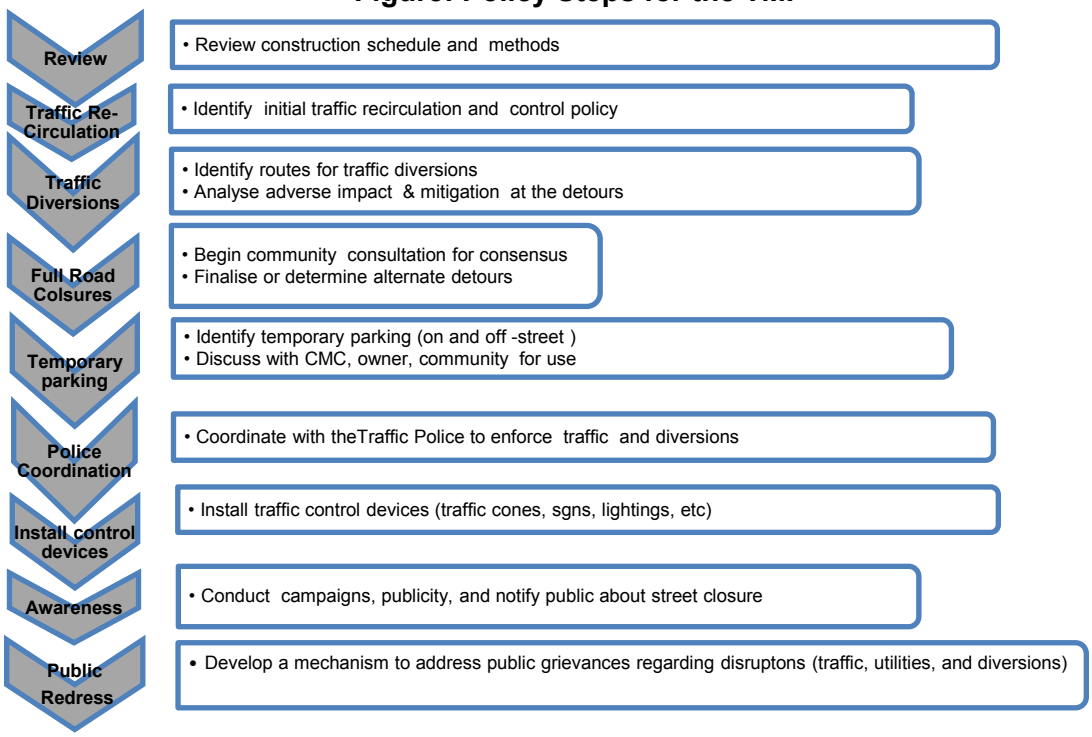
3. A final decision to close a particular street and divert the traffic should involve the following steps:

(i) approval from the PIU and local administration to use alternative local streets as detours;
(ii) 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;
(iii) determining of the maximum number of days allowed for road closure, and incorporation of such provisions into the contract documents;

(iv) determining if additional traffic control or temporary improvements are needed along the detour route;
(v) considering how access will be provided to the worksite;
(vi) contacting emergency service, school officials, and transit authorities to determine if there is any effect on their operations; and
(vii) 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.

4. 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:

(i) Road blockages and alternative routes along with the duration (as applicable)
(ii) Traffic control devices placed around the construction zones (signs, traffic cones, barriers, etc.);
(iii) 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:

(i) Explain why the brochure was prepared, along with a brief description of the project;
(ii) Advise the public to expect the unexpected;
(iii) Educate the public about the various traffic control devices and safety measures adopted at the work zones;
(iv) Educate the public about the safe road user behaviour to emulate at the work zones;
(v) 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
(vi) 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(s). The contractor(s) 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 4 Photographs and AttendanceSheetsof consultations

Attendance Sheet of the meeting held on 18-3-2016 at 11.00 AM in Conference Hall Yojna Bhawan, Shimla-2 with ADB consultants regarding Himachal Pradesh Skill Development Project.

Sr, No.	Name of the Officer and Designation	Mobile No. / e-mail address.	Signature
1	Krishan Sharma Deputy Dio Employment	94184-50437 dde-lep-hp@nic.in	
2.	Dr. D.K. Sharma, Sr. Env. Engineer	9418027098 pcbseeshimla@gmail.com	
3.	Dr. H.C. Gupta, IFS Chief Scientific officer Deptt. of Env. Sci & Tech at Science & Technology	9418020469 hcmarkgifs@gmail.com	
4.	Er. Umesh Pathania Technical officer & Estate Offr State council Scien Tech & Env. & DEST.	9418510231 umeshpathania@hotmail.com	
5.	Dr. Bhuwan Sharma. Project Director HPSLLM. Deptt of Rural Development (H.P)	94186-70335. mllm hp@gmail.com	
6	S N Verma ADB Consultant	09418224458	
7	Rajesh Kher I.F.S.	9418007151	
8	J Balasubramanian Prominent	9600044487	
9	Basab Baneyee TVET Expert	7838577785	
10.	DEEPAK ANGRA HOD(CE) DTE Sundernagar	9418107688 angradeepak@yahoo.co.in	

Photographs of consultations of Sadyana

Photographs of consultations of Shamshi

Attendance Sheets of consultations at Sunder Nagar

IND 49108-002: Supporting Skill Development in Himachal Pradesh
Stakeholder Consultations

Date : 30/6/2016 **Location:** Paprahal, Mandi (Sadyana)

Planned Facility: RLC

S. No.	Name	Designation	Phone Number	Signature
1	Gopal Singh	Retd TGT	98571 25501	Gopal Singh
2	Rupesh Me	Ammed H.H.H	86797	Rupesh
3	हंसा देवी Hansa Devi	Mahila Mandal President	98163	Hansa Devi
4	Meena Devi	Ward Member	8985333 -474	Meena Devi
5	Hem Raj	Up Pradhan	94182-628no	
6	Jyoti			9418189039
7	Hans Raj	Ward. Panch	9857167513	
8	चम्पा देवी			Champa Devi
9	Meena Devi		8628990002	Meena Devi
10	इन्द्रा देवी			
11	गुड्डी देवी			गुड्डी देवी
12	कृष्णा देवी			
13	रजनी देवी		98577 68674	Rajni Devi
14	मीरा देवी			मीरा देवी

15	नीला देवी			नीला देवी
16	PINKI THAKUR		9418164004	PINKI THAKUR
17	देवा		8988289374	Deva
18	रमा देवी			रमा देवी
19	सावित्री देवी			
20	सत्या देवी			
21	कुसमा देवी			सैला देवी
22	नैना देवी			
23	तारा देवी			तारा देवी
24	Girish Sharma	DPO-Mandi	9418050854	
25	Shreenivas Vare	ADB Consultant	9811224488	
26				