
Initial Environmental Examination

Project Number: 49108-002
February 2019

India: Himachal Pradesh Skill Development Project

Name of the subproject: Rural Livelihood Center at Garola Panchayat, Bharmour, Chamba District (Himachal Pradesh)

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

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ABBREVIATIONS

ADB	–	Asian Development Bank
ASI	–	Archaeological Survey of India
CHC	–	community health center
CLC	–	city livelihood center
CFE	--	Consent for Establishment
CFO	---	Consent for Operation
CPCB	–	Central Pollution Control Board
DOHE	–	Department of Higher Education
DOLE	–	Department of Labor and Employment
DOP	–	Department of Planning
DOTE	–	Department of Technical Education, Vocational & Industrial Training
DOUD	–	Department of Urban Development
DORD	–	Department of Rural Development
EIA	–	environmental impact assessment
EMP	–	environmental management plan
ESMF	–	environmental and social management framework
FSI	–	Forest Survey of India
GOHP	–	Government of Himachal Pradesh
GRC	–	Grievance Redress Committee
HPKVN	–	Himachal Pradesh Kaushal Vikas Nigam
HPSDP	–	Himachal Pradesh Skill Development Project
IEE	–	initial environmental examination
MCC	–	model career center
MOEFCC	–	Ministry of Environment, Forests and Climate Change
PHC	–	primary health center
PIU	–	Project Implementation Unit
PMC	–	project management consultant
PMU	–	Project Management Unit
PWD	–	Public Works Department
RLC	–	rural livelihood center
SPS	–	Safeguard Policy Statement
TVET	–	technical and vocational education and training

CURRENCY EQUIVALENTS

(As of 3 September 2017)

Currency unit	–	Indian rupee (₹)
Re1.00	=	\$0.01429
\$1.00	=	₹71.000

WEIGHTS AND MEASURES

µg	–	microgram
dB(A)	–	weighted decibel
km	–	kilometer
km ²	–	square kilometer
m	–	meter
m ²	–	square meter

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EXECUTIVE SUMMARY

1. At the request of the Government of India and the Government of Himachal Pradesh (GoHP), the Asian Development Bank (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) in Himachal Pradesh will be the executing agency for the proposed Himachal Pradesh Skill Development Project (HPSDP). The Himachal Pradesh Kaushal Vikas Nigam (HPKVN); Department of Technical Education, Vocational and Industrial Training (DOTE); Department of Higher Education (DOHE); and Public Works Department (PWD) will be the implementing agencies. The HPKVN will also function as the project management unit (PMU) for HPSDP.

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 seven city livelihood centres (CLCs), seven rural livelihood centres (RLCs), and one polytechnic for women to be constructed in Rehan, district of Kangra. Eleven employment exchanges will be upgraded into model career centres (MCCs) and one new MCC will also be constructed. On an average, the CLCs and RLCs will have three to four floors, and occupy about 900 square meters (m²). The MCCs will also have three to four floors on an average, and occupy around 400 m² each. The current subproject, RLC planned at Bharmour will also be a four floor building. The total built up area of this RLC will be around 465.67 m². The Department of Urban Development (DOUD), Department of Rural Development (DORD), and the Department of Labor and Employment (DOLE) will help HPKVN in running livelihood development and counselling programs at the proposed CLCs, RLCs, and MCCs constructed at their respective premises.

4. GOHP has assured the Asian Development Bank (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 reconfirmed by an experienced ADB environment and social safeguards consultant, who has already visited the proposed RLC site.

¹ A detailed Environmental and Social Management Framework (ESMF) has been prepared in line with ADB's Safeguard 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.

5. The RLC proposed at Bharmour will provide facilities to the rural youth of Chamba district for skill development. The RLC will offer training program and courses as per industry needs so that locals get gainful employment after completion of training courses. The proposed RLC is planned on a vacant and unencumbered plot owned by DORD at the Garola Panchayat near Bharmour. The RLC will be a four-floor building including the ground floor, with a total built-up area of 465.67 m². On ground and first Floor, there will be hostels for male and female students. The hostels will have independent access from ground. On second and third floors, there will be practical class rooms and computer laboratories. On third floor, there will be Centre Manager's Room also. Sanitation facilities have been planned on all floors. A septic tank will be provided for 100 users.

6. The architectural expression of the RLC building is in harmony with the local style of Himachal Pradesh—suitable for cool weather, long rainy season, and snowfall. The building aims to evoke a friendly education and training atmosphere that will attract the jobs providers and jobs seekers. The RLC will be barrier-free. There will be ramps and specially designed toilets to make it easy for people with disabilities. The RLC will have adequate number of modern sanitation and drinking water facilities.

7. The proposal includes for the provision of solar power panels, for which a budget of \$13,400 has been allocated. The system is expected to generate about 3 kilovolt-amperes to meet the light and water heating. A preliminary estimate has been approved by the state government for a sum of \$502,562, inclusive of taxes, contingencies, and administrative charges. The construction period will be 2 years. The preliminary estimate also budgets for a 10.5% cost escalation on this basis.

8. This initial environment examination (IEE) report provides details about the site, the potential environmental impact of the civil works, and ways of mitigating and addressing these.² Since the site is at the outer skirts of Garola Panchayat, there is no protected or reserved forest area nearby. There is no natural stream or river near the site. The subproject site is on a plain terrain. There are no protected areas (national parks, bird sanctuaries, tiger reserves, etc.); wetlands; mangroves; or estuaries in or near the subproject location. The site is in a relatively open area. Therefore, there are no ambient air quality and noise level issues.

9. Since the RLC will be a relatively small building for theory classes, practical computer laboratories, and separate small hostel floors for girls and boys, therefore, its construction and operation are unlikely to cause any significant impacts. These routine and localized effects associated with construction and operation of the RLC building can be mitigated easily by following the measures laid down in the environment management plan (EMP) included in the IEE. The EMP will be included in civil work bidding and contract documents. The IEE confirms that the subproject as environment category "B". No further special study or detailed environmental impact assessment (EIA) needs to be undertaken to comply with the ADB SPS or Government of India EIA Notification, 2006.

10. The PWD (one of the implementing agencies as mentioned earlier) will be responsible for overall planning and implementation of the civil works under the HPSPDP including this subproject. It will ensure that EMP prepared is implemented. The project management consulting (PMC) firm to be engaged under the proposed loan will have experienced environment and social safeguards experts. These experts will assist PWD in the smooth implementation of EMP. The PMC will also assist PWD and HPKVN in preparing semi-annual safeguards monitoring reports as required by ADB.

² Local stakeholders were involved in developing the IEE through on-site discussions and public consultation. Their views were incorporated into the IEE and the design of the subproject. The IEE will be made available at public locations in the town such as municipal office building, employment exchange building and district administration office. It will be disclosed to a wider audience via the ADB, DORD, DOP, and HPKVN websites.

I. INTRODUCTION

A. Background

1. **Location** The subproject site for the Rural Livelihood Center (RLC) at Bharmour is situated near Bharmour town in the Chamba district of Himachal Pradesh. The latitude and longitude of the sub-project site are 32°26'27.1"N and 76°28'06.3"E, respectively. The nearest rail head is at Pathankot and it is about 170 kilometers (km) and Airport is Dharmshala Gaggal Airport which is 196 away from subproject site. Subproject site is near Garola Panchayat and is well connected by roads with all the important places in Himachal Pradesh like Chamba (52 km) Kangra (207 km), Dharmshala (206 km) Shimla (414 km), Pathankot (171 km), and Manali (436 km). The site is between Ravi and Chenab Valley. The elevation of project site is about 1475 m above mean sea level. Chamba district shares borders with the neighboring districts of Laddakh area of Jammu and Kashmir to North West and West, Lahaul and Bara Banghal to North- East and East, Kangra to South East and Pathankot district of Punjab to South. The district lies between the parallels of north latitude 32° 11'30" and 33° 13' 06", and east longitude 75° 49' 00" and 77° 03' 30" .

2. **Present status of site.** The sub-project site at Bharmour is on an undulating terrain. The site belongs to the Department of Rural Development (DORD), Government of Himachal Pradesh. There are no permanent or temporary structures on the site. Since the site has been lying vacant and unused, small shrubs have grown over time. There are also no trees at the site. Close to the sub-project site, there are residential houses. Some photos of the site are shown in **Figure 1**.

Figure-1: Site Photographs of RLC Bharmour



View of Site Photographs



Another View of Site Photograph

B. Compliance with India's Environmental Regulatory Framework

3. India's environmental rules and regulations, as relevant for this proposed sub-project, are shown in **Table 1**. The Environmental Impact Assessment (EIA) notification, 2006 by the Ministry of Environment, Forests and Climate Change (MOEFCC), Government of India 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 human-made resources.³ However, MOEFCC's Office Memorandum (F. No. 19-2/2013-IA-III), dated 9 June 2015, exempts all educational and training institutes from obtaining prior environmental clearance. Since all the training facilities to be constructed or upgraded under HPSPDP, including this proposed subproject at Bharmour, are meant for educational, training purposes and skills development, 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 Ancient Monuments and Archaeological Sites and Remains Act, 1958; the Wildlife (Protection) Act, 1972, amended in 2003 and 2006; and the Forest (Conservation) Act, 1980, will not apply to this subproject. Only some clearances will be required from the Himachal Pradesh State Pollution Control Board for the construction phase of the sub-project.

Table-1: Environmental Regulatory Compliance

Subproject	Applicability of Acts and Guidelines	Compliance Criteria
Construction and operation of Rural Livelihood Center at Bharmour in Chamba district	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 subproject is not covered in the ambit of the EIA notification (amended till date), either as a category A or Category B project. As per the Office Memorandum dated 9 June 2015 of Ministry of Environment, Forests and Climate Change, 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 Government of India, are not triggered. – Not Applicable
	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 RLC site at Bharmour is not close to any monument which is protected by the 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	CFE and 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 or CFE will be required. – Applicable for construction phase
	The Wildlife Conservation Act, 1972, amended in 2003 and	No wildlife protected areas nearby. – Not Applicable

³ All projects or activities included as category A in the schedule, including expansion and modernization of existing projects or activities and change in product mix, will require prior environmental clearance from MOEF, Government of India based on recommendations of an expert appraisal committee 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 subparagraph (ii) of paragraph 2; or change in product mix as specified in subparagraph (iii) of paragraph 2, but excluding those that fulfill the general conditions stipulated in the schedule, *will* require prior environmental clearance from the state or union territory Environment Impact Assessment Authority, which shall base its decision on the recommendations of a state or union territory-level expert appraisal committee to be constituted for this notification. In addition, general condition of the notification specifies that any project or activity specified in category B will be treated as category A, if located in whole or in part **within 5 km** from the boundary of (i) protected areas notified under the Wild Life Protection) Act, 1972; (ii) critically polluted areas as notified by the Central Pollution Control Board from time to time; (iii) notified eco-sensitive areas; and (iv) interstate boundaries and international boundaries.

Subproject	Applicability of Acts and Guidelines	Compliance Criteria
	2006, provides for protection and management of Protected Areas.	
	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 this subproject. Hence, this is not applicable. – Not Applicable

ASI = Archaeological Survey of India, CFE = consent for establishment, CFO = consent for operation, EIA = environmental impact assessment.

C. Asian Development Bank's Environmental Safeguard Policy Principles

4. Since the proposed HPSPDP is being funded by the ADB, it has to comply with its Safeguard Policy Statement (SPS), in addition to India's own environmental laws and regulations. The environmental safeguard policy principles embodied in the SPS aim to avoid adverse impacts on the environment and on affected people and/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 categorizes all projects into three environmental categories (A, B or C) based on their potential impacts.⁴ The categorization form for the current subproject has been completed and given in **Appendix-1**. Similarly, ADB's Rapid Environmental Assessment checklist method was followed to assess the potential impact of the proposed sub-project at Garola Panchayat near Bharmour (**Appendix 2**). As will be explained below, the sub-project has been categorized as B. Accordingly; this IEE has been prepared to address the potential impacts in line with the requirements for category B projects. The IEE was based mainly on baseline data generation on environmental parameters and secondary sources of information and field reconnaissance surveys. Stakeholder consultation was 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-project is included in the IEE.

⁴ As per the SPS, projects are assigned to one of the following four categories: (i) **Category A.** A proposed project is classified as category A if it is likely to have significant adverse environmental impacts that are irreversible, diverse, or unprecedented. These impacts may affect an area larger than the sites or facilities subject to physical works. An environmental impact assessment is required. (ii) **Category B.** A proposed project is classified as category B if its potential adverse environmental impacts are less adverse than those of category A projects. These impacts are site-specific, few if any of them are irreversible, and in most cases mitigation measures can be designed more readily than for category A projects. An initial environmental examination is required. (iii) **Category C.** A proposed project is classified as category C if it is likely to have minimal or no adverse environmental impacts. No environmental assessment is required although environmental implications need to be reviewed (iv) **Category FI.** A proposed project is classified as category FI if it involves investment of ADB funds to or through a financial institution.

D. Review and Approval Procedure

5. 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 executing 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

6. This report contains eight sections: (i) introduction; (ii) description of sub-project components; (iii) description of the existing environment around the subproject; (iv) environmental impacts and mitigation measures; (v) EMP; (vi) public consultation and information disclosure; (vii) findings and recommendations; and (viii) conclusions.

II. DESCRIPTION OF THE PROJECT COMPONENTS

A. Components of the Subproject

7. The location of the RLC site and its surroundings are shown in **Figures 2 and 3**. **Table 2** summarizes the need for the sub-project, and its proposed components.

Figure-2: Location of RLC Bharmour Site

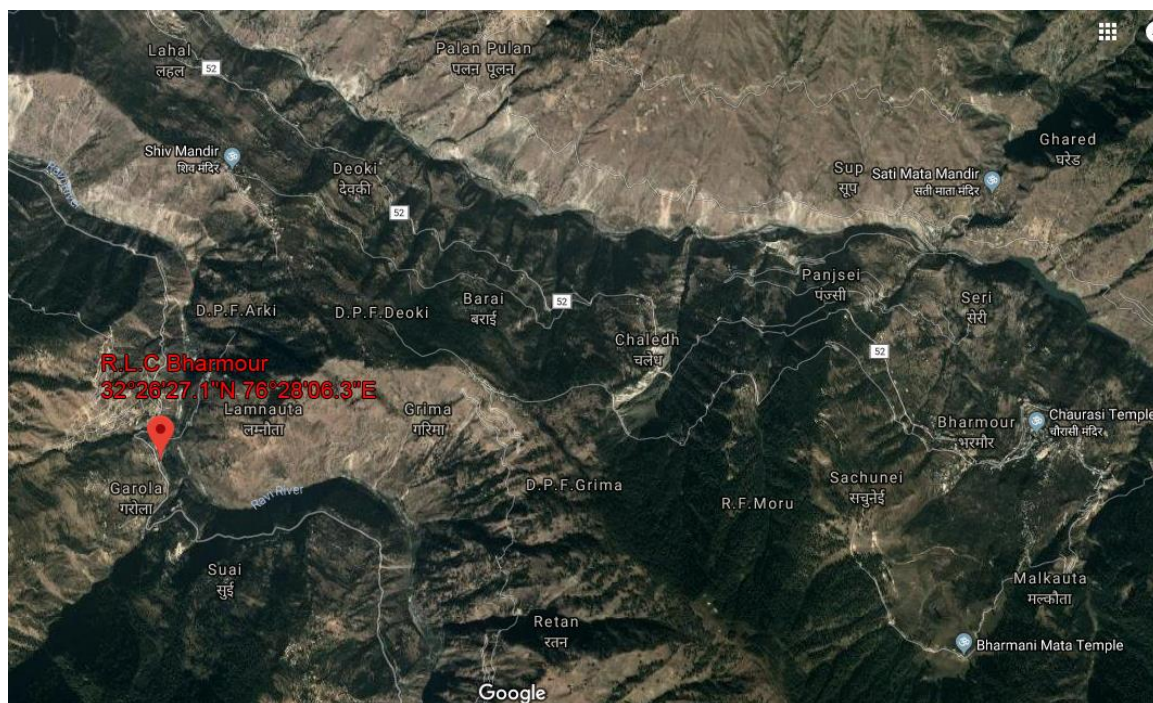


Figure-3: Location of Sub Project Site



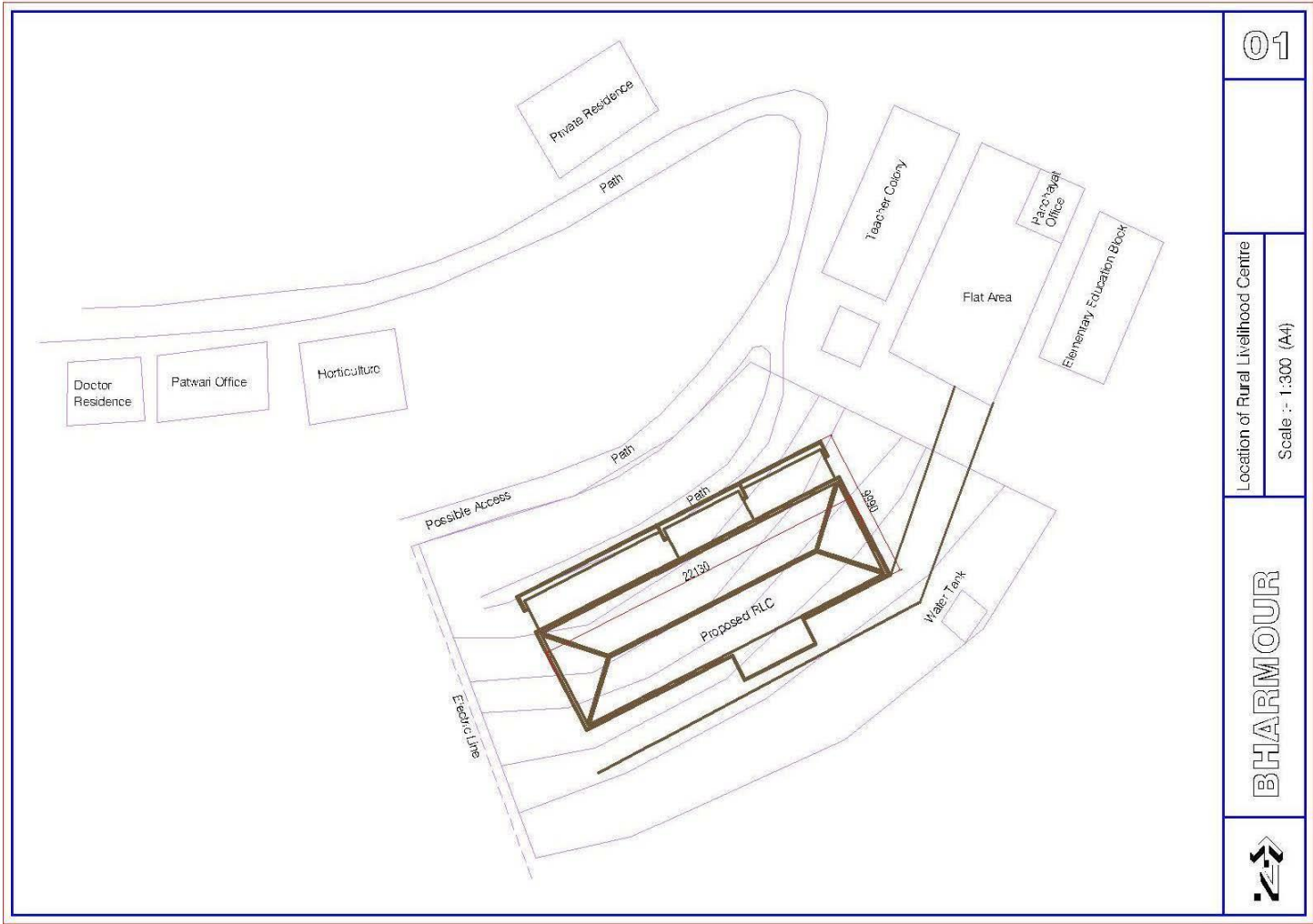
Table-2: Description of the Subproject Components

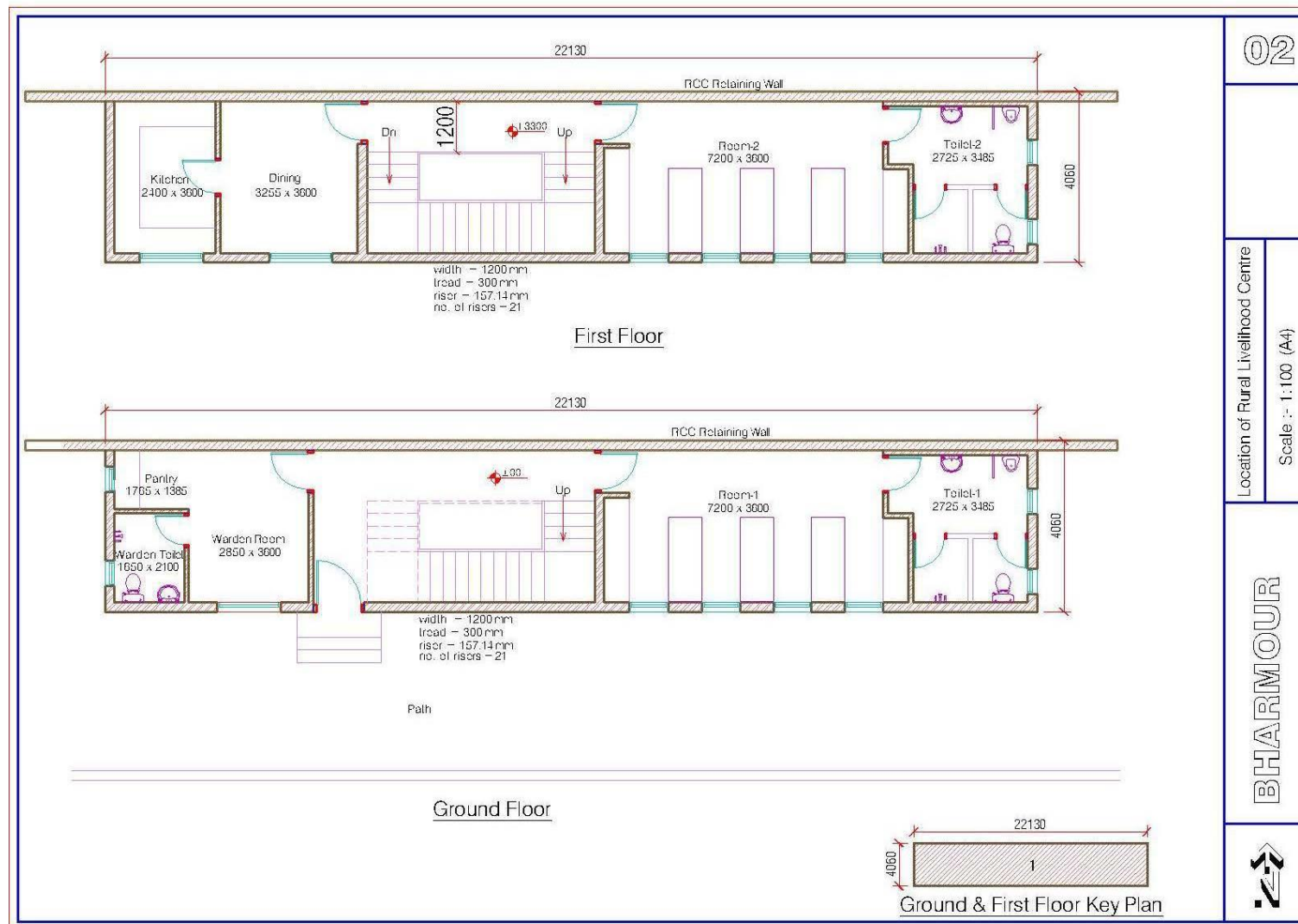
Description	Need of the Sub Project	Proposed Components
A RLC is proposed at Garola Panchayat near Bharmour town in Chamba district of Himachal Pradesh	<ul style="list-style-type: none"> • There is need for the Rural Livelihood Centers in Himachal Pradesh to train the rural Himachali youth for market oriented skills. • These imparted skills will help some of the youth to start their own enterprises also. 	<p>The main subproject components include:</p> <ul style="list-style-type: none"> • The RLC will be a four-storey building On Ground and First Floor, there will be hostel. The hostel will have independent access from ground. • On second and third floors, there will be practical class rooms and computer laboratories. • On third floor, there will be Center Manager's Room also. • Sanitation facilities have been planned on all floors. • A septic tank will be provided for 100 users. • Solar panels will be installed on the roof with potential to generate 5 kW. • The total electricity load has been estimated as 25 kilowatts • Water consumption has been estimated as 4500 liters per day. Water source will be from the municipal supply. • The solid waste generated will be integrated with the waste disposal system of Bharmour City.

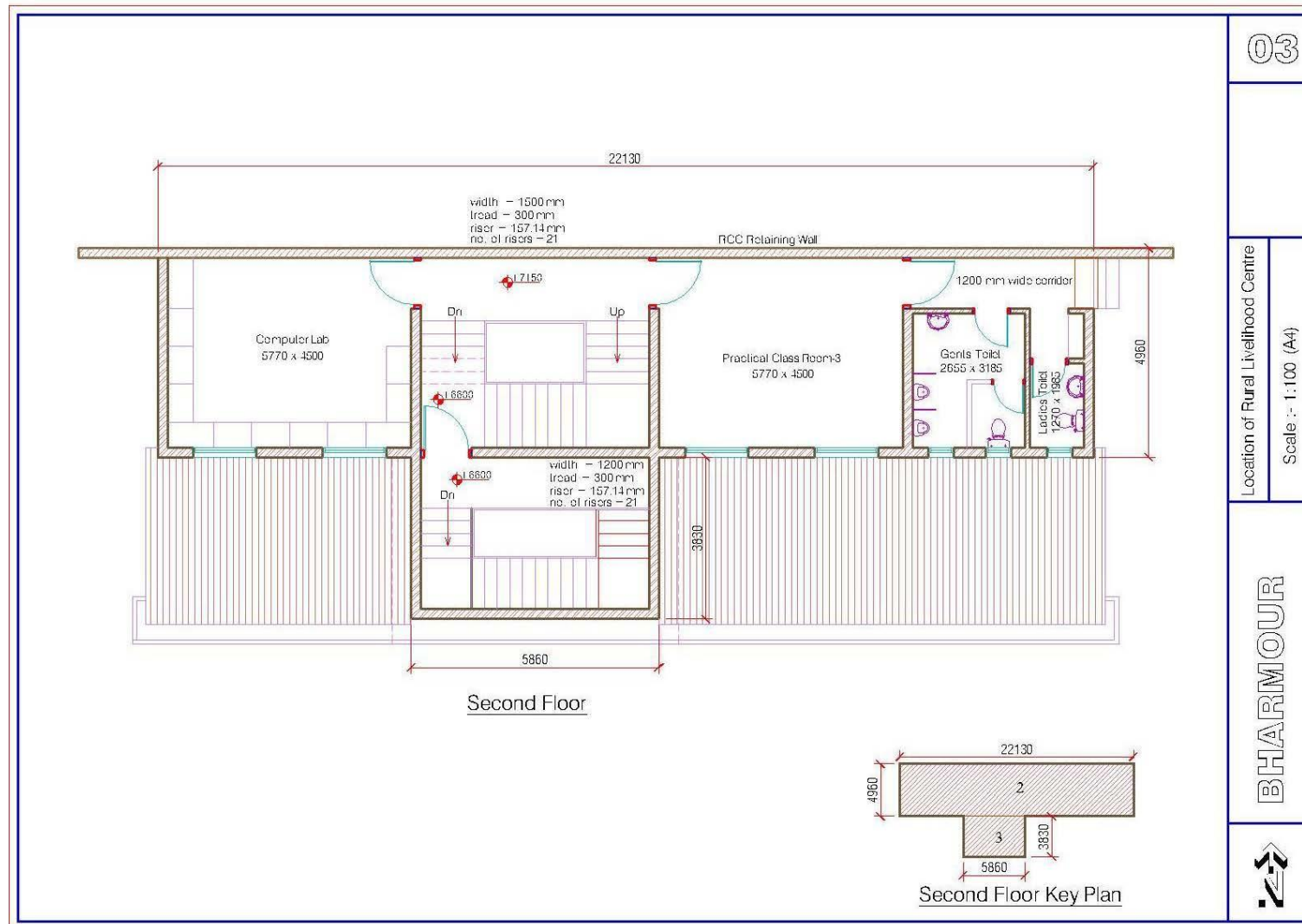
RLC =rural livelihood center.

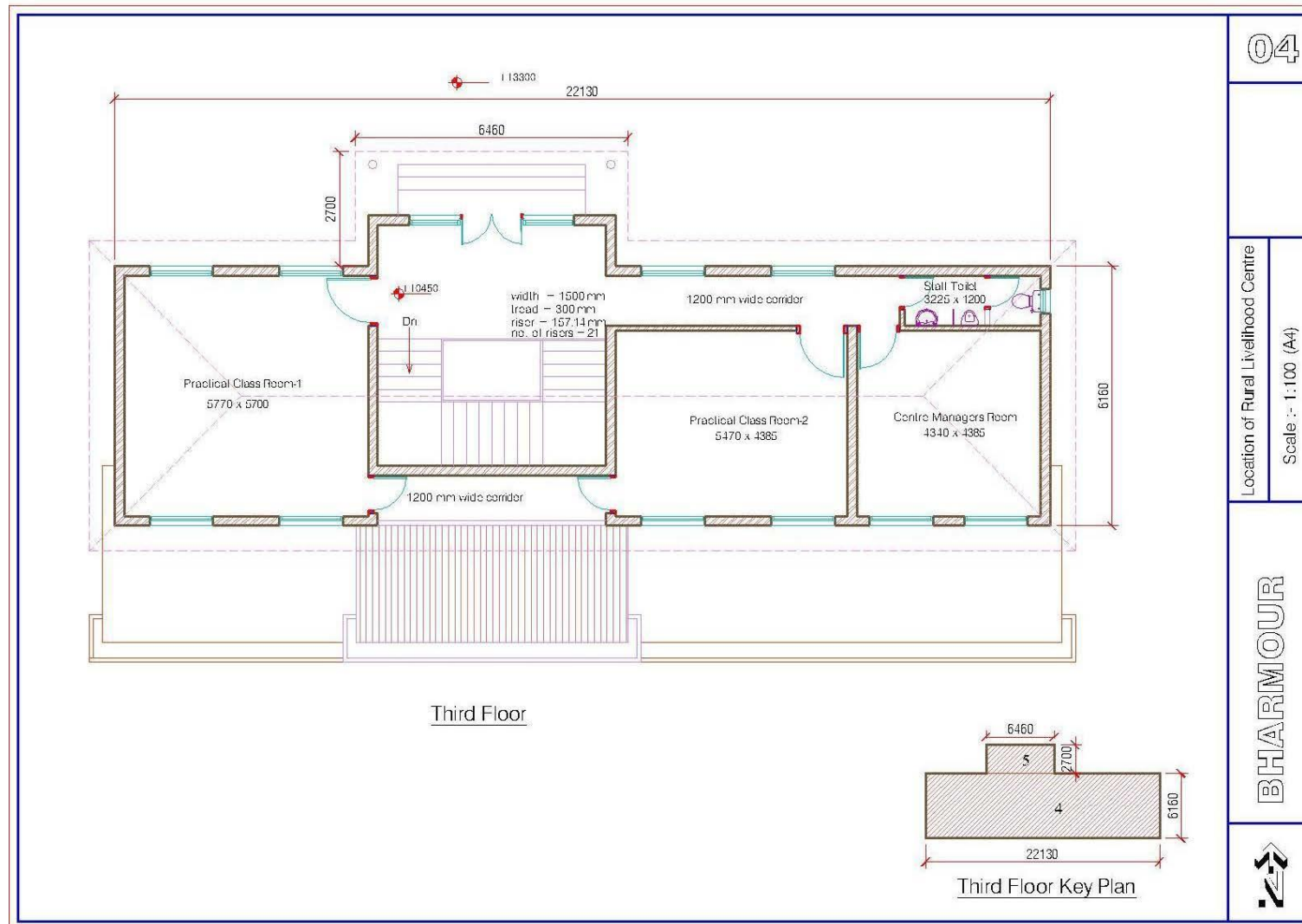
8. The layout plan of RLC for ground floor, first, second, third and roof floors plans along with 3D perspective view of RLC building is shown below in **Figure 4**.

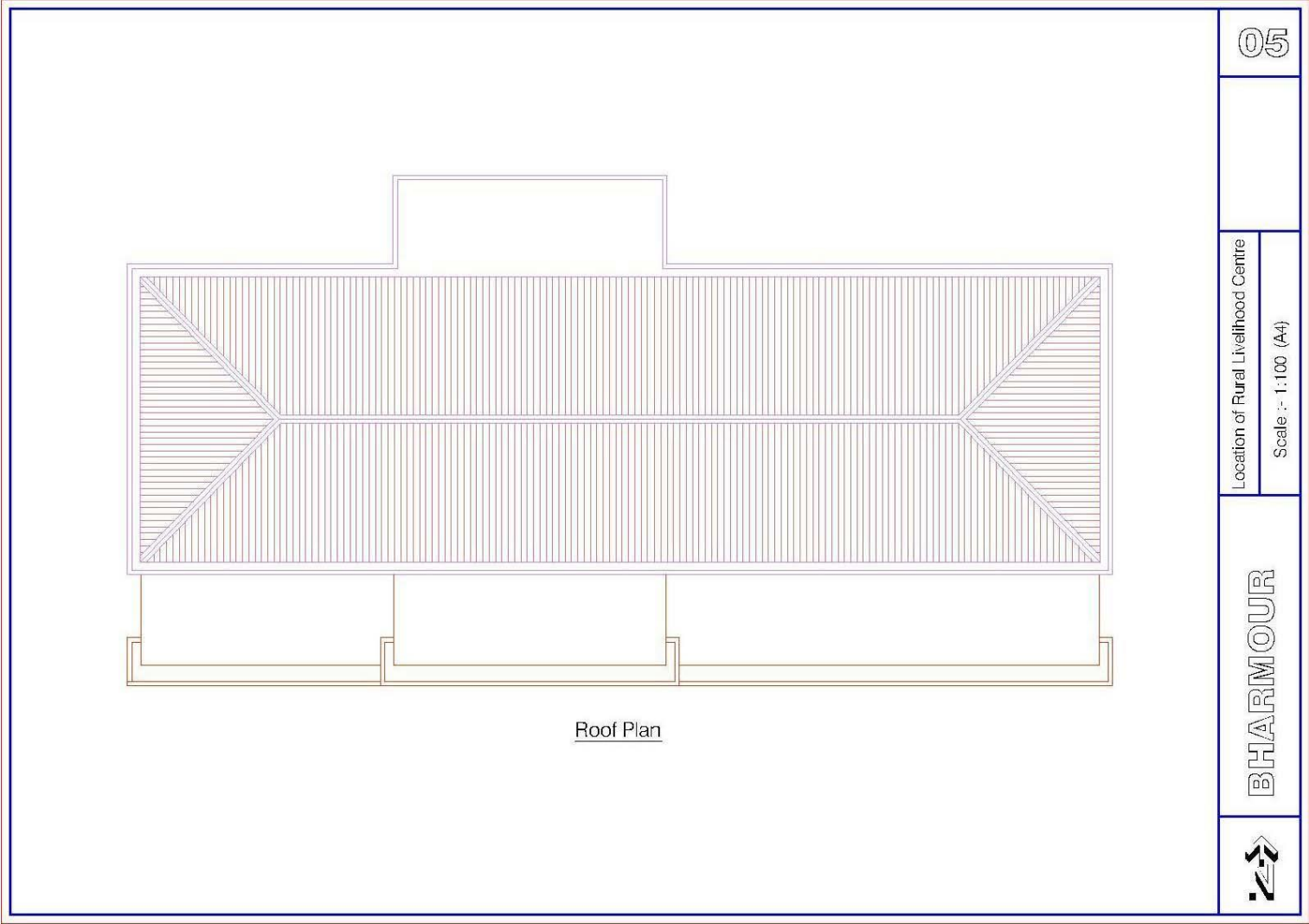
Figure-4: Layout Plan of RLC Building



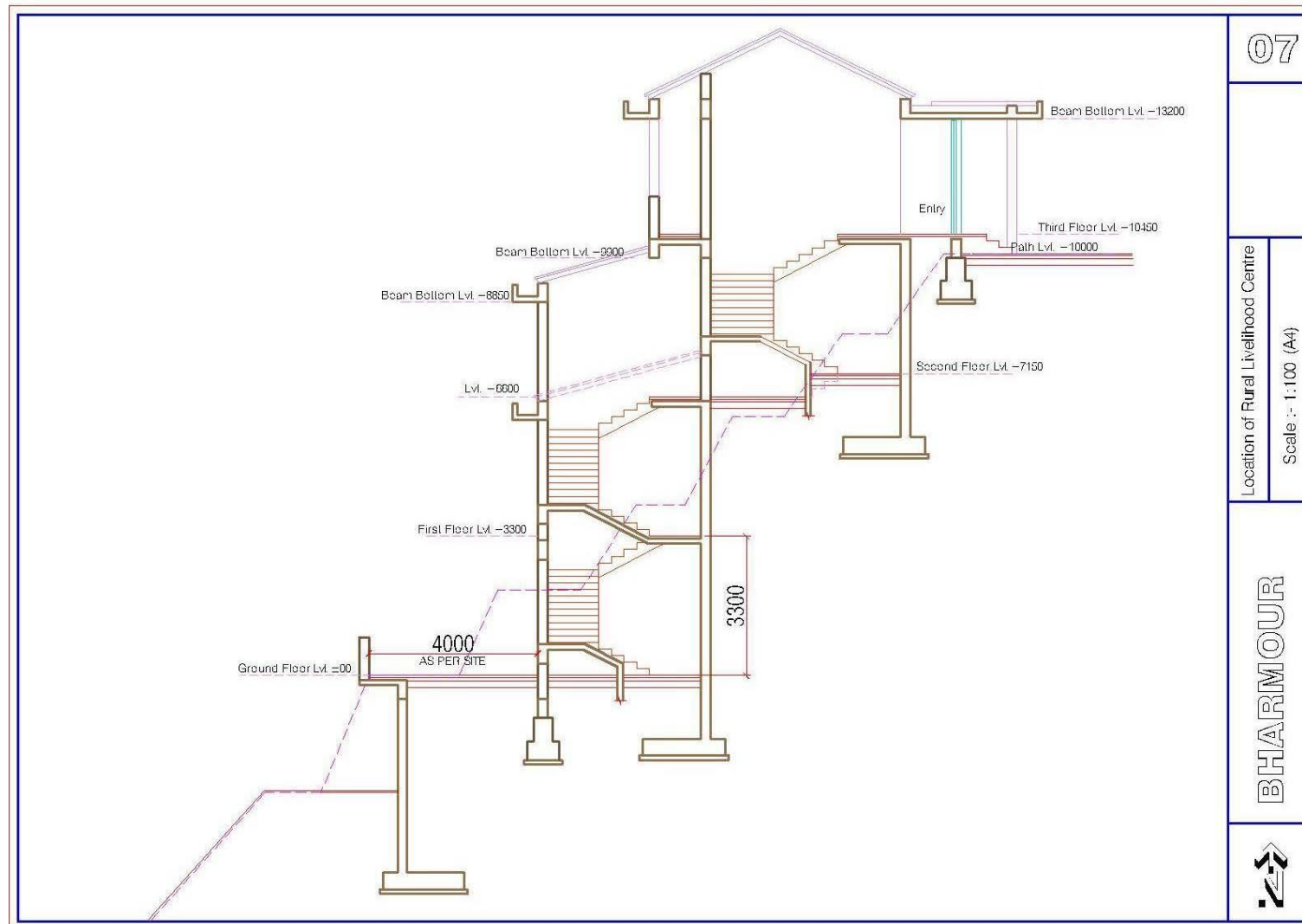


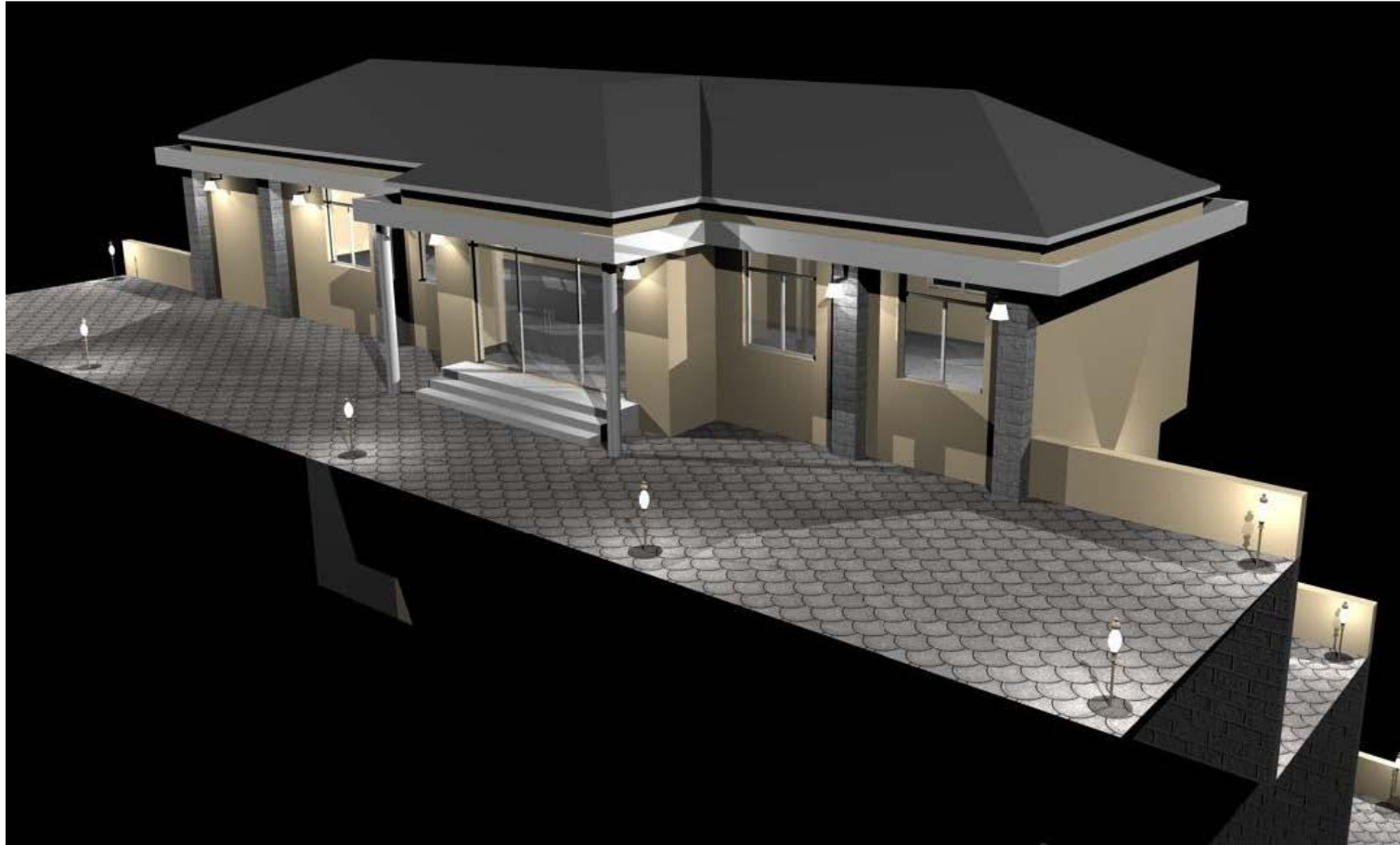




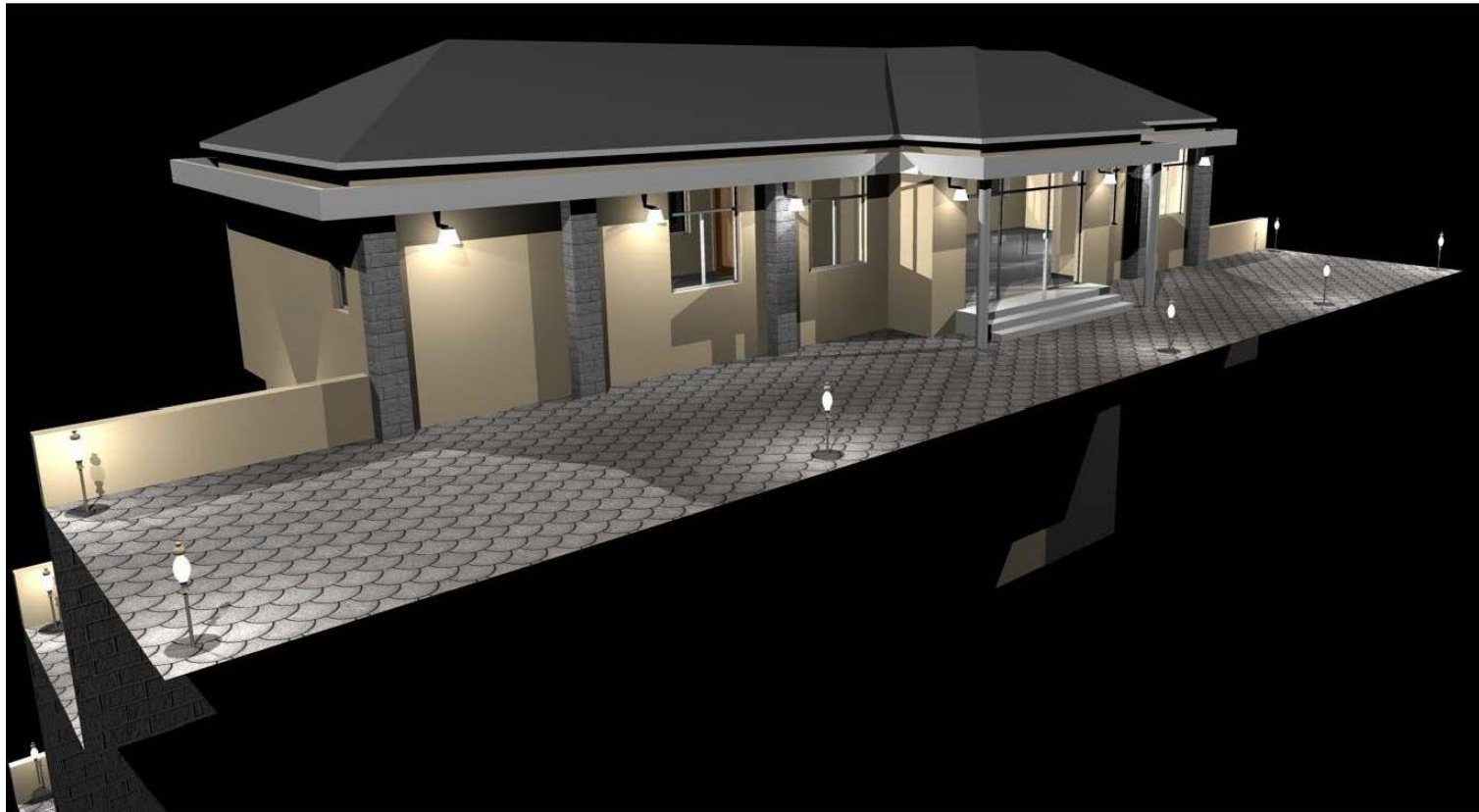








3D VIEW



3D VIEW



3D VIEW



3D VIEW

B. Executing and Implementing Agencies

9. At the request of the Government of India and the Himachal Pradesh government, ADB will offer \$80 million in loan assistance to modernize and reform Himachal Pradesh's TVET programs, and scale up training capacity. The Department of Planning (DOP) of Himachal Pradesh will be the executing agency for the proposed Himachal Pradesh Skill Development Project (HPSDP). The Himachal Pradesh Kaushal Vikas Nigam (HPKVN); Department of Technical Education, Vocational and Industrial Training (DOTE); Department of Higher Education (DOHE); and Public Works Department (PWD) of the Government of Himachal Pradesh will be the implementing agencies. HPKVN will also function as the project management unit (PMU) for the project. The PWD will be responsible for overall planning and implementation of the civil works under the HPSDP. They will ensure that IEEs and EMPs are prepared for all subprojects and the ESMF is adhered to during project implementation. The project management consulting firm to be engaged under the proposed loan will have experienced environment and social safeguards experts. The PMC will assist PWD and HPKVN in preparing semi-annual safeguards monitoring reports. HPKVN will consolidate these safeguard reports and submit them to ADB semiannually.

C. Implementation Schedule

10. The implementation period for the proposed subproject is 24 months. The preliminary drawings for RLC have been prepared for approval. The bidding process for the sub project is expected to start in March 2019. The sub-project will be awarded for construction by June/July 2019. The contractor is expected to be mobilized by August 2019. The construction work is expected to be completed by August 2021.

III. DESCRIPTION OF THE EXISTING SUBPROJECT ENVIRONMENT

11. This section presents a brief description of the existing environment around the subproject site, including its physical resources, ecological resources, socioeconomic 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 subproject are presented. Secondary information was collected from relevant government agencies like the Forest Department, State Environment Protection, and Pollution Control Board, and Meteorological Department.

A. Environmental Profile

1. Air Quality and Noise Levels

12. No air pollution sources (point or nonpoint) have been seen in the surroundings of subproject influence area as project site is in hilly terrain. The subproject site is not on any national or state highway. Traffic on the road connecting to the site is low. Hence, insignificant vehicular emission is expected. There are no industrial establishments near the subproject site. The ambient air quality and noise level data for the subproject site are not available. However, data from secondary sources has been obtained from substation of HP Power Transmission Corporation Limited substation at Bharmour. The data has been given below in **Table-3**:

Table-3: Ambient Air Quality in Subproject Site Surroundings

S. No.	Parameter	Monitored Value ($\mu\text{g}/\text{m}^3$)		AAQ Standard
		Outside Substation	Inside Substation	
1	SO ₂	BDL	7	80
2	NO _x	7	10	80
3	PM ₁₀	61	74	100
4	PM _{2.5}	25	31	60
5	CO	1600	1700	4000
6	Lead	BDL	BDL	1
7	O ₃	BDL	BDL	180

Note: BDL- Below Detection Limit

Source: Himachal Pradesh Clean Energy Development Investment Program (Tranche-2 IEE Report-May 2018)

13. It is clear that values are well within limits specified in AAQ standards. At subproject site values of parameters is expected in the same range. Ambient air quality monitoring will be conducted by the contractor prior to start of construction works with the aim of establishing baseline conditions.

14. It was observed that ambient noise scenario in the RLC is quite low in general. There are no industrial establishments around the subproject site. As the traffic density is very low, the noise either from point or nonpoint sources is not expected in the project area. Moreover, there will be not much rise in the noise due to the proposed RLC activities since it only includes counseling activities, and class room and computer based training program. There is no noise baseline data available for the subproject site. The data from secondary sources has been for location close to RLC site. This data has been given below in **Table-4**:

Table-4: Ambient Noise Levels in Subproject Surroundings

S. No.	Location	Monitoring Date	Measured Values (dB(A))		Standards (dB(A))	
			Day	Night	Day	Night
1	33/220/400 KV Sub Station, Lahal, Bharmour (Main Gate)	16/3/2018	53.1	48.3	75.0*	70.0*
2	33/220/400 KV Sub Station, Lahal, Bharmour Substation Colony	16/3/2018	53.0	50.1	55.0	45.0

*Noise Ambient Standards for Industrial Area

Source: Himachal Pradesh Clean Energy Development Investment Program (Tranche-2 IEE Report-May 2018)

15. It is clear that noise levels are well within limits for day time at both locations, but night noise level is little higher at residential area. At subproject site noise levels are expected to be below these levels and within stipulated standards as there are no community noise generation activities and site is away from road. Noise level monitoring will be conducted by the contractor prior to start of construction to establish baseline conditions.

16. **Climate** There are four broad seasons. Winter normally starts from mid-November and continues till mid-March. December, January, and February are severe cold months, when the winter season is at its peak. The upper reaches, have snow and sleet while the rains are frequent in the lower areas and snowfall may occur as early as the beginning of October but usually the areas have snowfall from the later part of December and continues until mid March. The higher peaks experience heavier snowfall and snow melting starts from March onwards. From mid-March to mid-May, climate in most parts of the district is at its bloom because of the spring time. The climate is comparatively hot from mid-May to mid-July and varies from semi-tropical to semi-arctic. The places situated in the lower reaches on the banks of rivers and streams are as hot as plains. Rainy season generally starts from mid-July and extends up to the mid-September. Autumn season is generally very small from mid-September to mid-November. The extended rainy season and early setting of winter are the reasons for its short duration. The climatic data of Chamba is given below in **Table-5**:

Table-5: Climatological Data of Chamba District

Parameter	January	February	March	April	May	June	July	August	September	October	November	December
Avg. Temperature (°C)	10.6	13.3	17.7	22.7	27.5	29.3	26.4	25.4	24.5	21.3	16.4	12.8
Min. Temperature (°C)	5.9	8.3	12.5	16.8	21.6	23.7	22.5	21.8	20.2	15.9	10.5	7.6
Max. Temperature (°C)	15.3	18.4	23	28.6	33.5	35	30.3	29	28.9	26.8	22.4	18.1
Precipitation / Rainfall (mm)	141	109	124	61	60	118	609	561	277	65	21	6

Source: Government of India, Ministry of Earth Sciences, Indian Meteorological Department, New Delhi (Duration 1980-2010)

17. **Temperature:** The subproject is located in Chamba district. This district of Himachal Pradesh is located on the right bank of the Ravi river valley, built on successive flat terraces. The temperatures in summer vary between 35°C (max) and 16°C (min) and in winter: 18 °C (max) and 6 °C (min).

18. **Rainfall** The area received 1500-2000 mm yearly rainfall over this 90% rainfall constitutes during the period middle of June to end of September.

19. **Humidity.** Based on long-term climatology data (1980-2010) of the Chamba district, it is found that relative humidity increases rapidly with the onset of monsoon and reaches a maximum (100% in the morning and 70% in the evening) in the peak of the monsoon period. Relative humidity is minimum during the summer months (April–June) with May being the driest month (10% in morning and 19% in evening). Skies are heavily clouded during the monsoon months and for short spells when the district is affected by western disturbances.

20. **Wind speed and direction.** Two broad wind patterns are observed in the district, the southeast to northwest (January–May), and south westerly to north easterly (June–October). The average wind speed is minimum (5kmph) in winter months and maximum (12kmph) in summer months.

2. Topography, Relief, Slope and Soils

21. The Chamba District is situated between north latitude 32° 11' 30" and 33° 13' 6" and east longitude 75°49' 0.00" and 77° 3' 30" with an estimated area of 6528 square kilometers and is surrounded on all sides by lofty hill ranges. The topography of the area is rugged with high mountains and deep dissected by river Ravi and its tributaries. Physiographically the district can be divided in to two units- viz.

- i. High hills, which cover almost entire district, and
- ii. Few valley fills.

22. The relief map of Chamba district has been shown in Figure-5 below. It is clear that project is located in 1000-3000 m elevation zone. The slope map of Chamba district is shown in Figure-6. It is clear that subproject is located in zone having slope 250-400 m per km. Three types of soils observed in the district area. Sandy Loam b. Loam c. Sandy Clay Loam. The subproject surroundings are totally in a hilly area.

Figure-5: Relief Map of Chamba District

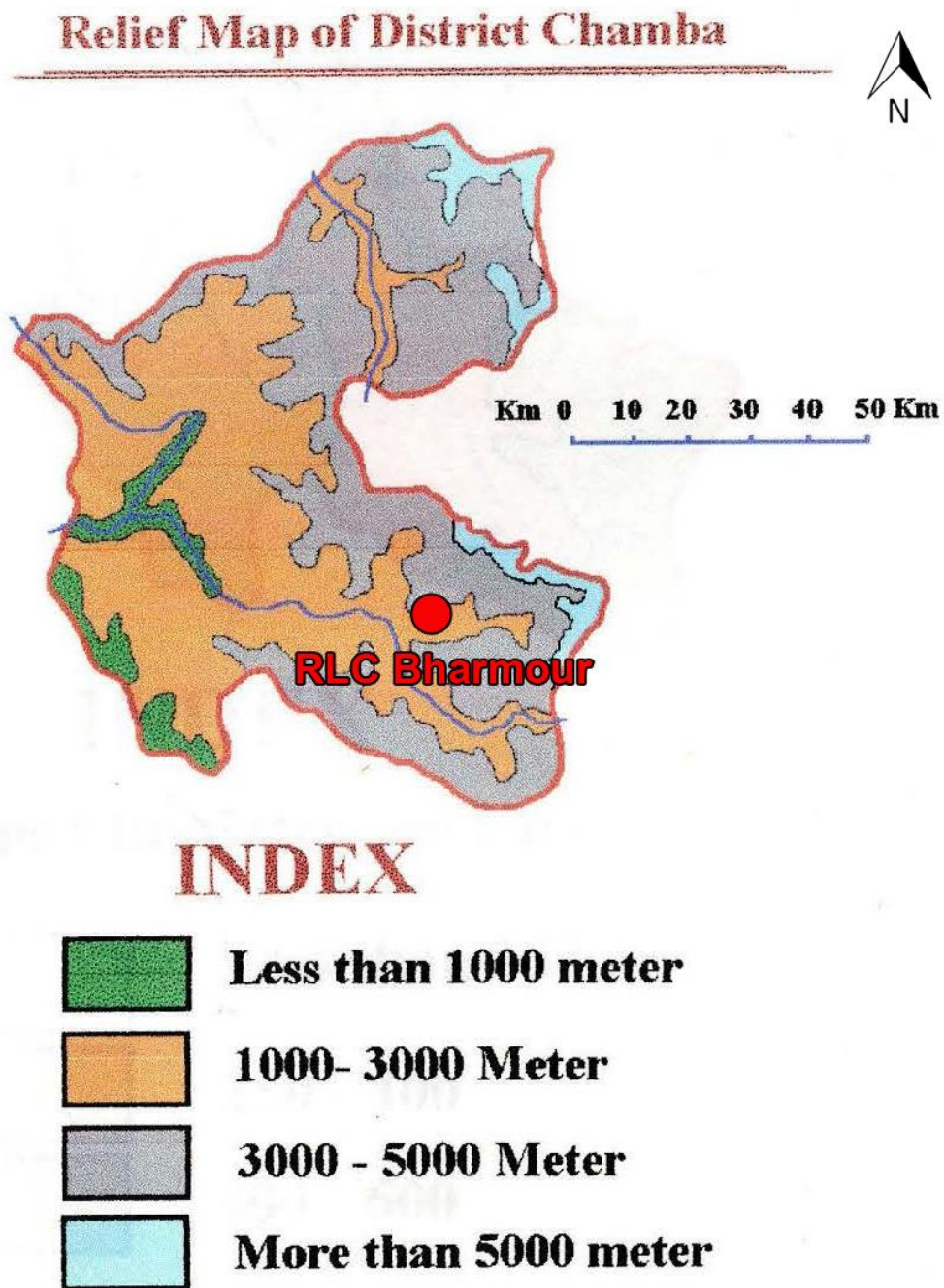
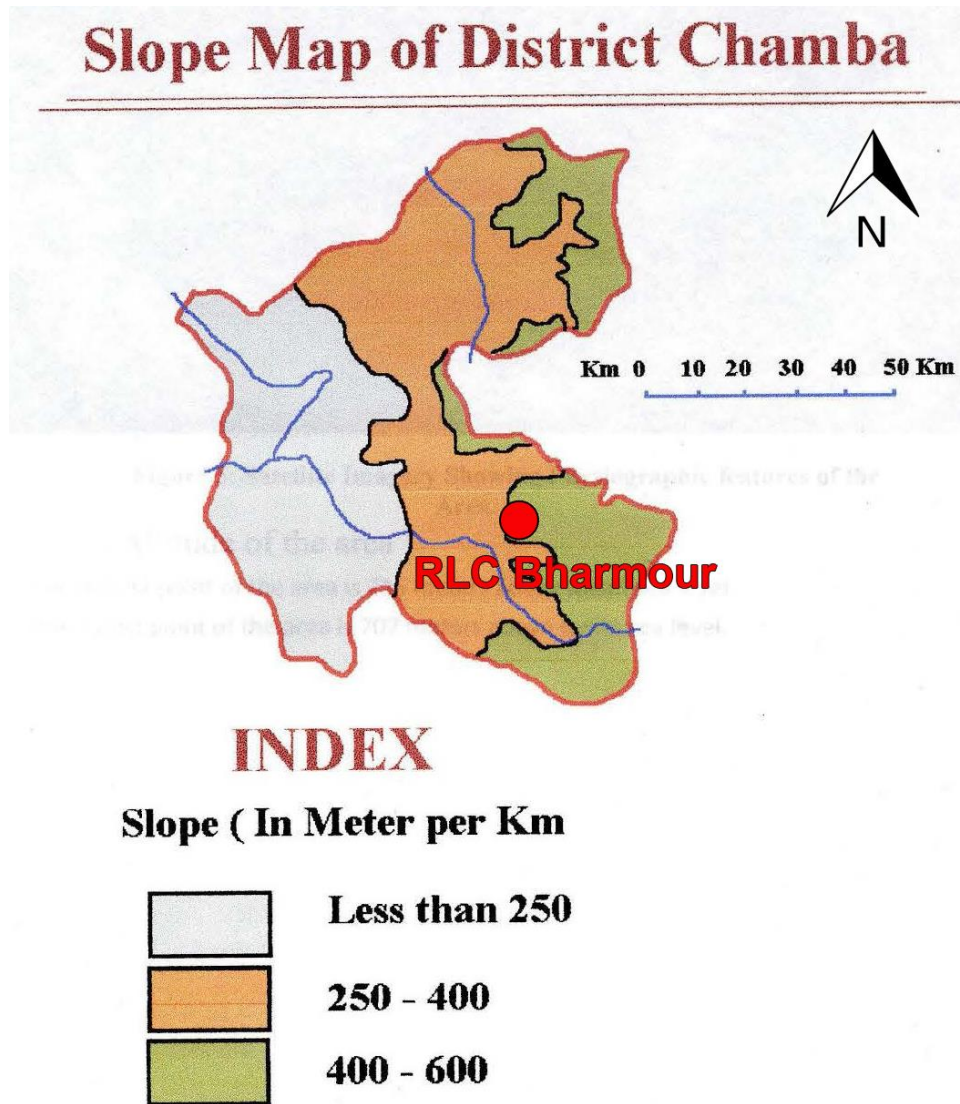


Figure-6: Slope Map of Chamba District



23. The soil quality data for the subproject region has been obtained from secondary sources and this data has been given in **Table-6** below. It is clear from these results that soils in the subproject area are alkaline in nature and have lower concentration of parameters contributing to soil fertility. The soils have loam as their texture in the subproject zone. The Soil Map of Chamba district showing different types of soils has been given in **Figure 7**.

Table-6: Soil Quality for Subproject Area

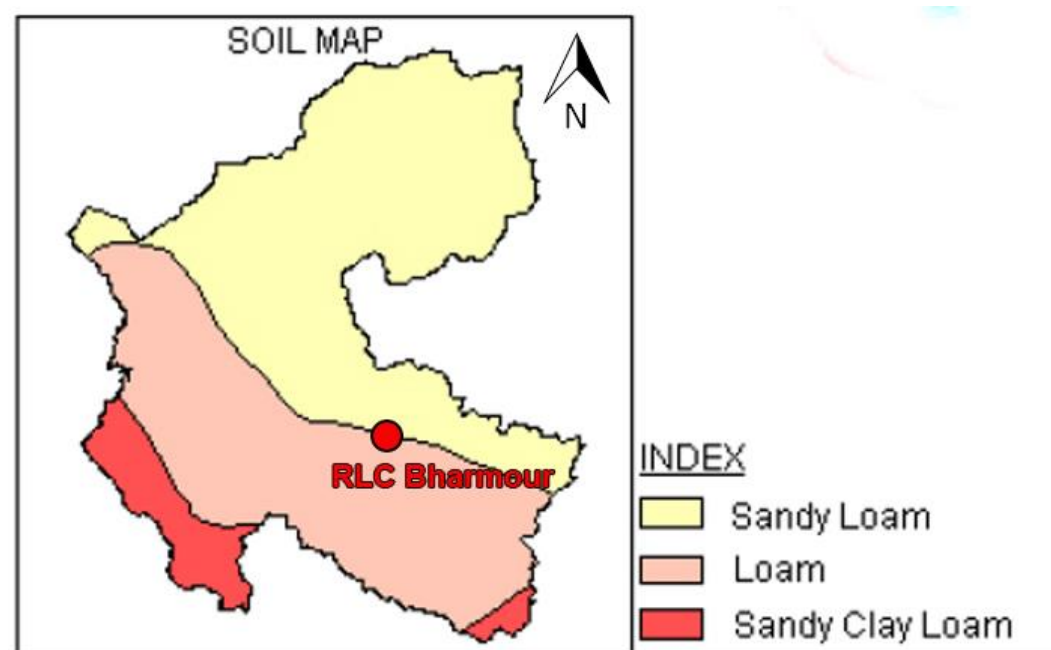
Sl. No.	Test Parameter	Units	Location 1	Location 2
1.	pH	-	7.1	7.3
2.	EC	dS/m	23.50	24.6
3.	TDS	mg/l	17.81	15.99

4.	SiO ₂	%	65.63	67.30
5.	Al ₂ O ₃	%	17.88	21.25
6.	Fe ₂ O ₃	%	1.48	2.83
7.	Na ₂ O	%	5.45	3.10
8.	K ₂ O	%	5.60	3.20
9.	CaO	%	0.82	0.65
10.	MgO	%	0.21	0.48
11.	P ₂ O ₅	%	0.56	0.59
12.	TiO ₂	%	0.59	0.60

Location-1: 33/220/400 KV Substation, Lahal, Bharmour (Main Gate), Location2-33/220/400 KV Sub Station, Lahal, Bharmour Substation Colony

Source: Himachal Pradesh Clean Energy Development Investment Program (Tranche-2 IEE Report-May 2018)

Figure-7: Soil Map of Chamba District



3. Water Resources (Surface and Ground) and water Quality

24. The subproject site is located in catchment area of the Ravi River. With its tributaries, the Ravi river drains the whole of Chamba valley between Dhauladhar and Pangti range and thus commands the largest and most important part of the district. The river originates from Bara Bangahal area of Dhauladhar. The Main tributaries of Ravi are Budhil, Tundah, Beljedi, Sal, Siul, Siowa The river Chenab or Chandrabhaga rises from the mountains of Baralacha pass by two heads, the stream with its source on south- eastern side of the pass being called the Chandra and the other one which rises from north- western side is called the Bhaga. After the confluence of these two sister streams at Tandi, the river is generally known as Chenab. There are no large-sized lakes in Chamba district. However, a few water bodies namely Khajjiar Lake, Manimahesh Lake, Chamera Lake, Lama Dal, Gadasru Lake, Maha Kali Dal exists. There is no presence of any lake or pond in the vicinity of subproject site. The water quality data of Ravi River has been obtained from the secondary sources and this

has been given in Table-7 below. It is clear that water is not contaminated and meets drinking water standards for all parameters for which data is available. Since, subproject is located in upper reach of river catchment, so there is no risk of contamination of water.

25. The ground water sources in the subproject area are dug wells, hand pumps, and natural springs also. To establish the baseline scenario, ground water quality data was obtained from secondary sources. The water quality data for the project region is given in **Table 7** for surface water and **Table-8** for ground water.

Table-7: Surface Water Quality (Ravi River)

Sl. No.	Parameter	Value	Drinking Water Standard Value (IS:10500)
1	pH	7.49	6.5 to 8.5
2	Temperature (Deg. °C)	21.6	Not Specified
3	Chloride (as Cl), mg/l, Max	12	250
4	Nitrate, mg/l, Max.	BDL	45
5	Iron (as Fe), mg/l, Max.	BDL	0.3
6	Total Dissolved solids mg/l, Max	NA	500
7	Total Suspended Solids mg/l, Max./ Transparency (cm)	NA/55.40	Not specified
8	Sulphate (as SO ₄) mg/l, max.	45	150
9	Oil & Grease, mg/l	Nil	0.5
10	Biochemical Oxygen Demand, mg/l (3 days for 27° C)	0.78	Not specified
11	Chemical Oxygen demand, mg/l	2.60	Not specified
12	Copper (as Cu), mg/l	BDL	0.05
13	Zinc (as Zn), mg/l. Max.	BDL	5
14	Mercury (as 0.001 Hg) mg/l, Max.	BDL	0.001
15	Cadmium (as Cd) mg/l, Max.	BDL	0.003
16	Arsenic (as As), mg/l, max.	BDL	0.01
17	Cyanide (as CN) mg/l, Max.	BDL	0.05
18	Lead (as Pb) mg/l, Max.	BDL	0.01
19	Total Chromium (as Cr), mg/l	BDL	0.05
20	Boron, mg/l	NA	0.5
21	DO, mg/l	7.4	Not Specified
22	Total Hardness (as CaCO ₃), mg/l	NA	200
23	Total Alkalinity, mg/l	87.50	200

BDL = Below Detection Limit, NA= Data not available.

Source: Ravi River Ecology and Fishery, Directorate of Knowledge Management in Agriculture, Indian Council of Agriculture Research, Delhi (Year 2014)

Table-8: Ground Water Quality in Subproject Area

Sl. No.	Name of the parameter	Units	Requirement		Results	
			Acceptable limit	Permissible limit in absence of alternative source	Loc - 1	Loc-2
1.	Color	NTU	5	15	1.1	0.10
2.	Hardness as CaCO ₃	mg/L	200	600	54.90	55.10
3.	Odour	-	Odorless	Odorless		

Sl. No.	Name of the parameter	Units	Requirement		Results	
			Acceptable limit	Permissible limit in absence of alternative source	Loc - 1	Loc-2
4.	TDS	mg/L	500	2000	72.28	72.17
5.	Turbidity	NTU	1	5	0.2	0.11
6.	Cyanide as CN	mg/L	0.05	No Relaxation	N/D	N/D
7.	Chloride as Cl	mg/L	250	1000	15.60	15.21
8.	Fluoride as F	mg/L	1.0	1.5	0.74	0.85
9.	Nitrate as NO ₃	mg/L	45	No Relaxation	0.78	0.82
10.	pH	-	6.5-8.5	No Relaxation	7.1	6.8
11.	Sulphate as SO ₄	mg/L	200	400	15.59	14.59
12.	Phenolic Compound as C ₆ H ₅ OH	mg/L	0.001	0.002	N/D	N/D
13.	Arsenic as As	mg/L	0.01	0.05	N/D	N/D
14.	Copper as Cu	mg/L	0.05	1.5	N/D	N/D
15.	Cadmium	mg/L	0.003	No Relaxation	N/D	N/D
16.	Iron as Fe	mg/L	0.3	No Relaxation	N/D	N/D
17.	Lead as Pb	mg/L	0.01	No Relaxation	N/D	N/D
18.	Calcium as Ca ²⁺	mg/L	75	200	34.45	34.75
19.	Magnesium as Mg ²⁺	mg/L	30	100	5.12	4.95
20.	Manganese as Mn	mg/L	0.1	0.3	N/D	N/D
21.	Mercury as Hg	mg/L	0.001	No Relaxation	N/D	N/D
22.	Selenium as Se	mg/L	0.01	No Relaxation	N/D	N/D
23.	Zinc as Zn	mg/L	5	15	N/D	N/D
24.	Total Coliforms	mg/L	Absent	-	Absent	Absent
25.	Chromium as Cr	mg/L	0.05	No Relaxation	N/D	N/D
26.	COD		-	-	27.9	27.3
27.	BOD	mg/l	-	-	1.27	1.2
28.	DO	mg/l	-	-	2.0	1.99
29.	Electrical Conductivity	μS/cm	750	0-2000	20.20	21.45

Location-1: 33/220/400 KV Sub Station, Lahal, Bharmour (Main Gate), Location2-33/220/400 KV Sub Station, Lahal, Bharmour Substation Colony

Source: Himachal Pradesh Clean Energy Development Investment Program (Tranche-2 IEE Report-May 2018)

26. Due to the absence of any water polluting source in the area, it is clear that all parameters of water quality are within the permissible limits specified by the Bureau of Indian Standards for drinking and irrigation for ground and surface water sources. The ground water results are for sources within 5 km distance from subproject site. The groundwater quality was monitored in the year 2018. The Ravi River water quality results are from the monitoring conducted by Ministry of Agriculture in the year 2014-15. Water quality monitoring will be conducted by the contractors prior to the start of construction works.

27. Based on 2013 data collected by the Central Ground Water Board, Ground water generally occurs under unconfined to semi-confined conditions. State Irrigation and Public Health Department has drilled hand pumps fitted with the motors somewhere. The average depth of these hand pumps varies from 35.00 to 70.12 m below ground level (bgl). Average depth to water level varies from 10 m bgl to 30 mbgl with variable discharges ranging from 0.25 to 0.75 liters per second(lps). Water table follows the topography and the formations encountered are localized valley fill deposits consisting of sand, gravels, pebbles & cobbles. The Central Ground Water Board has also confirmed that both river and ground water quality meets requirements for all usages such drinking, irrigation, bathing, etc.

4. Geology and Seismology

28. The rock formations occupying the district range from pre-Cambrian to Quaternary period. The generalized geological succession in the district is given below in **Table-9**.

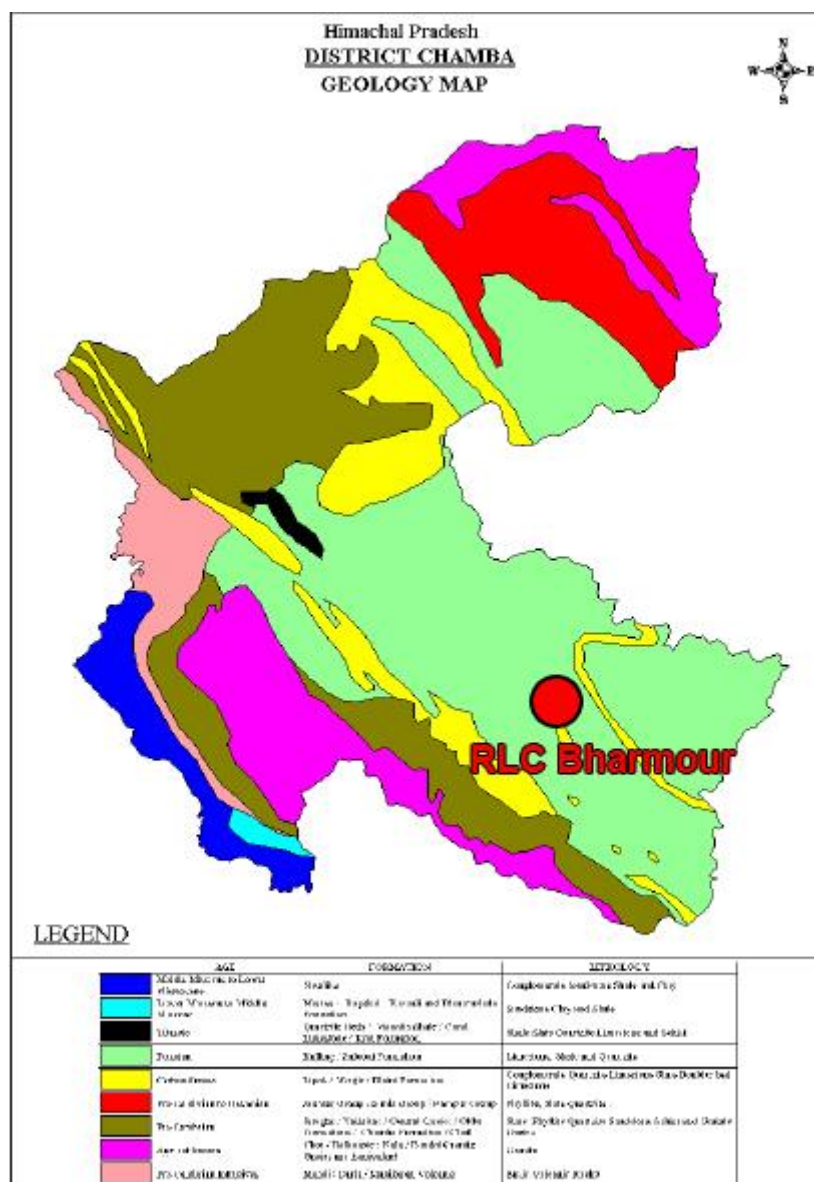
Table-9: Geological Succession in Chamba District

Age	Age Formation	Lithology
Pleistocene	Upper Sivaliks	Boulder conglomerate
Pliocene	Middle Sivaliks	Sandstone, gravel beds, clays etc.
Miocene	Lower Sivaliks	Shales, Hard Sandstone etc.
Triassic	Kalhel formation	Light and dark grey limestone with banks of phyllite and slate
Permian	Salooni Formation	Inter bedded phyllite, light and dark grey limestone, phyllite, black carbonaceous slate with schistose quartzite and chert band
Carboniferous	Manzir formation	Pebbly phyllite, grey green slate with limestone
Lower to Middle Paleozoic	Dalhousie/ Dhauladhar formation	Granite and granite gneiss
Lower Paleozoic	Chamba formation	Meta siltstones, greywackes, slates and phyllites.

Source: Government of India, Ministry of Water Resources, Central Ground Water Board. Ground Water Information Booklet Chamba District (Year -2013)

29. The geological map of subproject district is given in **Figure-8**. It is clear from this map that subproject site and surroundings have rocks formation of pre-Cambrian period.

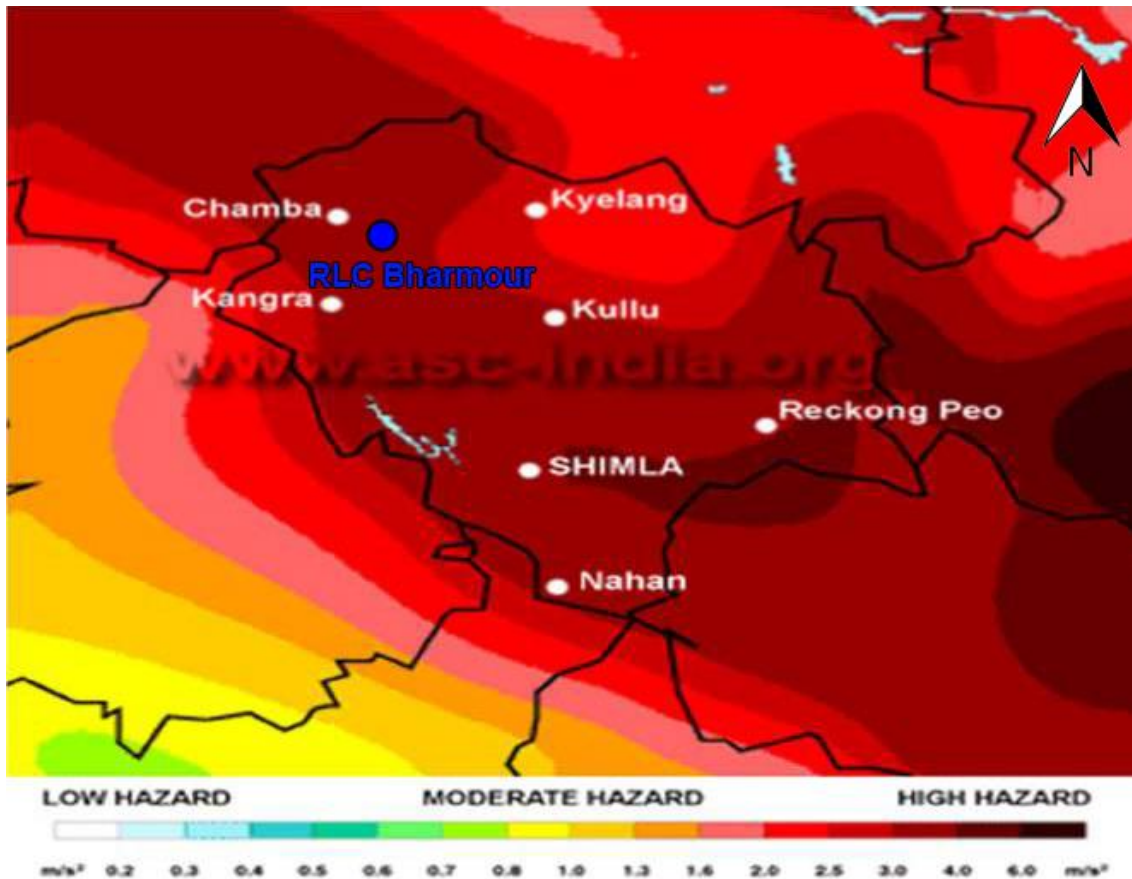
Figure-8: Geological Map of Project Region



Source: Government of India, Ministry of Water Resources, Central Ground Water Board. Ground Water Information Booklet Chamba District (Year -2013).

30. The state of Himachal Pradesh lies almost entirely in the Himalayan Mountains, and is part of the Punjab Himalayas. Due to its location, it weathers many mild earthquakes every year. Large earthquakes have occurred in all parts of Himachal Pradesh, the biggest being the Kangra Earthquake of 1905. The Himalayan Frontal Thrust, the Main boundary Thrust, the Krol, the Giri, Jutogh and Nahan thrusts lie in this region. Besides that there are scores of smaller faults, like the Kaurik Fault which triggered the 1975 earthquake. Chamba, Kullu, Kangra, Una, Hamirpur, Mandi, and Bilaspur Districts lie in Zone V. Hence subproject is located in High Hazard earthquake zone. All RLC building structures have been designed considering seismic zone V. The seismic map of Himachal Pradesh is given in **Figure-9** below:

Figure-9: Seismic Map of Himachal Pradesh

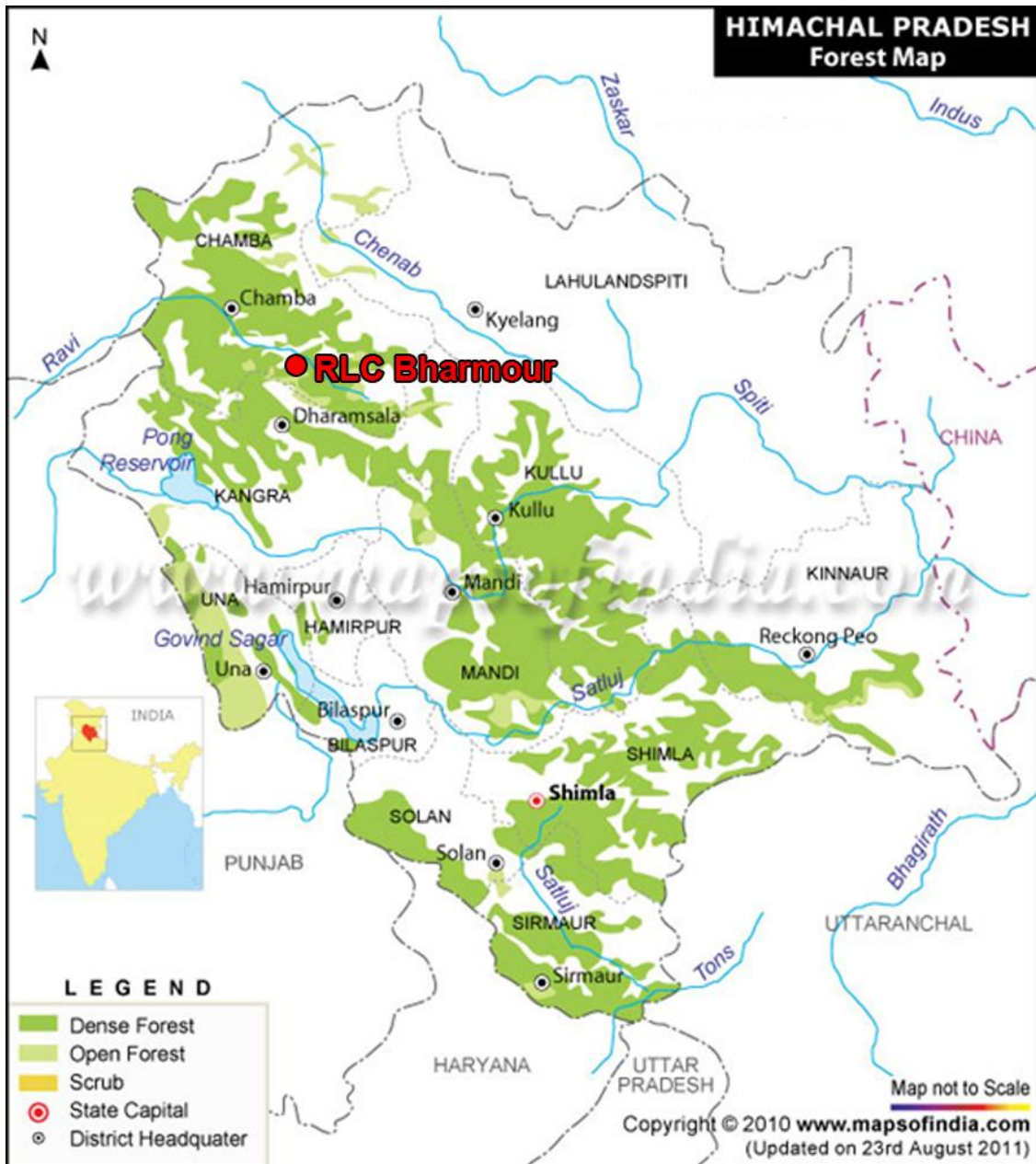


B. Ecological Resources

1. Forests

31. Forest in Himachal Pradesh currently covers an area of nearly 37,691 km² (14,553 sq 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 cover 28.52%, and unclassified forests constitute 0.35% of the total forest area. Chamba district has about 37.37% (2437 sq km of its geographic area 6522 sq km) under forests and most of it is managed by the Forest Department. The forests of the district can be classified into six main categories, namely (1) tropical dry deciduous forests; (2) sal forests; (3) chir forests; (4) oak forests; (4) deodar, fir, and spruce forests; and (5) the Alpine pastures. The forest cover map is shown in **Figure 10**.

Figure-10: Forest Cover Map of Himachal Pradesh



Source: Forest Department, Government of Himachal Pradesh (Year 2018)

32. The subproject site location does not fall within any reserved, protected, or revenue forest. This has been confirmed with the revenue records of RLC site land. 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. Majority of the area is covered by Himalayan subtropical broadleaf forests. Apart from this, the state has some of the vegetation that is abundant with sal, sisham, chir pine, dry deciduous, and moist broad-leaved forests. The landscape that 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.

33. Himachal Pradesh has abundant fruits like apple, peaches, plums, and berries. It is rightly called the “fruit bowl of India.” There are plenty of fruit orchards, and fruits are exported to various parts of the country and abroad. The pleasant climate also helps numerous flower varieties like gladiolas, lilies, tulips, chrysanthemums, roses, marigolds, carnations, etc. to grow in abundance. The topography and the agro- climatic conditions of Chamba district are quite suitable for the production of the various fruits. The topography of the district can be grouped into three categories namely high hill areas located at a higher elevation, mid hill areas and low lying valley areas. Fruits of different varieties, depending upon the terrain, climatic condition and soil are grown in the district. The total area of district under horticulture is around 17035 hectares as per data of Economics and Statistics Department of GOHP (as per Statistical Abstract of Himachal Pradesh 2017). The fruits grown in the district are almonds, walnuts, mango, grapes, malta, litchi, galgal and louquat, etc. In the above mentioned total area, apple is also grown in considerable area (12554 ha) in the district and Chamba is fourth largest apple growing district in Himachal Pradesh.

34. The Chamba district is rich in animals and birds which include some of the rare species. The animals and birds that are found in the district are- (1) Ghoral, (2) Kakar, (3) Kastura, (4) Aimu, (5) Ibex, (6) Blue mountain sheep, (7) Thar, (8) Black Bear, (9) Brown Bear, (10) Panther or Leopard, (11) Snow Leopard, (12) Wild Boar, (13) Spotted Deer of Chital, (14) Sambar, (15) Porcupine, (16) Flying squirrel (17) Himalyan Pine Martin etc. Apart from the important game animals described above animals like Jackal, Monkey, Langoor, Fox etc. are also met within the area. There is a variety of birds in the district like Monal pheasant, Snow cock, Western horned tragopan, Juguriam, Pea-cock, Ring dove, Spotted dove, shikara, parrot, tawny eagle, green pigeon, pigeon, griton vulture, tits, nut cracker, Pies, Wood packer, Crow, Himalyan fly catcher, etc. which are found in the tract of this district. Since the subproject site is close to built up area, therefore, fauna is domesticated. There are no trees at site that need to be cut for the construction of RLC.

35. There is no major water body (river or lake) close to the subproject site. Hence aquatic flora and fauna is of no significance as project will not directly or indirectly affect any perennial water body.

2. Protected Areas

36. The list of protected areas (National Parks and Wildlife Sanctuaries) in Himachal Pradesh is given in **Table 10**. None of the protected areas are located within 10 km aerial distance from RLC Bharmour site.

Table-10: Protected Areas in Himachal Pradesh

Sl. No.	Sanctuaries	District	Area (km ²)
1	Bandli	Mandi	32.11
2	Chail	Solan	16.00
3	Chandra Tal	Lahaul and 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-Khajjjar	Chamba	17.17
10	Kanawar	Kullu	54.27
11	Khokhan	Kullu	14.94

Sl. No.	Sanctuaries	District	Area (km ²)
12	Kibber	Lahaul & Spiti	2220.12
13	Kugti	Chamba	379.00
14	Lipa Asrang	Kinnaur	31.00
15	Majathal	Solan	30.86
16	Manali	Kullu	29.00
17	Nargu	Mandi	278.00
18	Pong Dam Lake	Kangra	207.59
19	Rakchham-Chitkul	Kinnaur	304.00
20	Renuka	Sirmour	4.00
21	Rupi-Bhaba	Kinnaur	503.00
22	Sechu-Tuan Nalla	Chamba	390.29
23	Sainj	Kullu	90.00
24	Shikari Devi	Mandi	29.94
25	Shimla Water Catchment	Shimla	10.00
26	Simbalbara	Sirmour	27.88
27	Talra	Shimla	46.48
28	Tirthan	Kullu	61.00
29	Tundah	Chamba	64.00
30	Water Supply Catchment	Shimla	10.00
National Parks			
1	Great Himalayan National Park	Kullu	765.00
2	Pin Valley National Park	Lahaul and Spiti	675.00
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 (Year 2017)

C. Economic Resources

1. Industries

37. Being a hilly state, Himachal Pradesh has few large industrial units. As shown in **Table 11** below, the Chamba district also mainly has micro, small, and medium enterprises focusing on agro-products, textiles, furniture, etc.:

Table-11: Details of Existing Micro and Small Enterprises and Artisan Units in the District

NIC Code No	Type of Industry	Number of Units	Investment (lakh ₹)	Employment
20	Agro-based	517	500	2068
22	Soda water	-	-	-
23	Cotton textile	-	-	-
24	Woolen, silk, and artificial thread-based clothes	11	20	33
25	Jute and jute-based	-	-	-
26	Ready-made garments and embroidery	-	-	-
27	Wood and wooden-based furniture	283	300	849
28	Paper and paper products	31	62.00	93

NIC Code No	Type of Industry	Number of Units	Investment (lakh ₹)	Employment
29	Leather-based	44	66	132
31	Chemical and chemical-based	-	-	-
30	Rubber, plastic, and petro-based	5	10	15
32	Mineral-based	-	-	-
33	Metal-based (steel fabrication)	233	62.61	297
35	Engineering units	-	-	-
36	Electrical machinery and transport equipment	-	-	-
97	Repairing and servicing	265	662.13	886
01	Others	353	779	1222
	Kachori Making	1784	3499.13	6175

Source: Government of Himachal Pradesh, District Industry Centre. Chamba (Year 2014)

2. Transportation

38. The RLC site at Bharmour is well connected by roads with all the important places in Himachal Pradesh like Shimla (414 km), Palampur (233 km), and Dharmshala (206 km). The nearest rail head at Pathankot is 170 km away.

39. According to district profile of Chamba district, district has total 2,136.626 km of total road network out of which 1,159 km is metalled road. Details of road network are given in **Table-12** below.

Table-12: Road Network in Chamba District

Sl. No.	Type of Road	Road Network Length (km)
1.	Total road network	2,136.626
2.	Metalled road	1,159.902
3.	Unmetalled road	976.724
4.	Number of Villages connected with roads	570
5.	Road density	32.62 km per 100 sq.km or 4.62 km per 1000 persons

Source: District official website

3. Land Use

40. There is lot of variation in land physiographic and agro climatic conditions in Chamba district. The district harbors low hills subtropical regions of Bhatiyat block, mid hills sub humid areas of Chamba (Sadar), high hills temperate regions of Salooni, Mehla and Tissa and high land tribal areas of Bharmaur and Pangti. Consequently, land use pattern varies widely from one region to another. Out of the total geographical area of 5,06,899 hectares (excluding Pangti block), the cultivated area is only 38,837 hectares accounting for about 8 per cent) of the geographical area of the district. The availability of cultivable land decreases drastically from low to high hills. In the blocks like Bharmaur, Tissa and Salooni, the availability of arable land is limited due to undulating topography and hilly terrains but more area can be developed and brought under plough. The major proportion of the area falls under permanent pastures and forest lands. However, there are 2,085 hectares of culturable waste and 5,523 hectares of fallow land that can be developed and brought under cultivation which would increase the existing cultivated area by about 20 per cent. Table-13 shows the land use pattern.

Table-13: Land Use Pattern of Chamba District

Land Use	Area (hectare)
Geographical area of district	692,419
Area under forest, dense and open forest	272,008
Misc. Tree, crops and Groves (Not included in net area sown)	225
Permanent Pastures & Other Grazing Lands	348,869
Culturable Waste land	6,871
Land put to Non- Agri- Culturable Uses	15,380
Barren & Unculturable Land	4,748
Current Follows	1,942
Other Follows	733
Net Area sown	41,643
Net Area sown more than once	26,132
Total Cropped Area	67,775

Source: District Statistical Handbook, 2015

41. **Agricultural Development.** As per District agriculture plan of Chamba district, the farmers of the district generally take two crops per year. Maize is the main crop of the Kharif season and potato and paddy are also sown, in some areas. Wheat and barley are the major Rabi crops. The period of sowing and harvesting of crops depends on the elevations. Millets and coarse cereals like ogla, kangni, cheeney, chilai and bathu constitute important crops of the cold region of Bharmaur and Pangi where maize is not sown during the Kharif. Amongst the vegetables grown during the Kharif season are tomato, peas, potato and cabbage. Mostly these crops are grown to meet local requirements of the cultivators. Six seed multiplication farms are functioning at Bhanota, Rajpura, Bhagat, Thullet, Ahla and Dharwas.

4. Electrification

42. There is 100 % electrification in rural and urban areas of Chamba district as per Statistical abstract published by Department of Economics and Statistics, GOHP for the year 2015-2016.

D. Social and Cultural Resources

1. Population and Communities

43. According to the Census 2011, the total population of Chamba district is 519,080 persons comprising 261,320 males and 257,760 females. This population of the district forms 7.56 per cent of the state population and ranks at 7th place among the districts. Out of the total population of the district 93.04 per cent lives in rural areas while 6.96 per cent lives in urban areas. Rural population of the district is distributed among 10 sub-districts and urban population is spread over in 5 towns. The total urban population in the district is 36,108 persons comprising 19,357 males and 16,751 females. The total rural population in this district comes to 482,972 persons and is comprised of 241,963 males and 241,009 females as per Census 2011. This rural population is distributed in 1,110 villages. Out of the total

1,591 villages in the district 1,110 are inhabited villages while 481 villages are uninhabited. The concentration of villages are mainly along the valleys of rivers and streams as well as on undulating slopes while higher altitude areas are mostly devoid of any habitation.

44. Average literacy rate of Chamba in 2011 was 72.17 compared to 62.91 of 2001. If things are looked out at gender wise, male and female literacy were 82.59 and 61.67 respectively. For 2001 census, same figures stood at 76.41 and 48.85 in Chamba District. Total literate in Chamba District were 323,842 of which male and female were 186,064 and 137,778 respectively.

45. With regards to Sex Ratio in Chamba, it stood at 986 per 1000 male compared to 2001 census figure of 959. The average national sex ratio in India is 940 as per latest reports of Census 2011 Directorate. In 2011 census, child sex ratio is 953 girls per 1000 boys compared to figure of 955 girls per 1000 boys of 2001 census data.

46. The majority of the population (about 95%) speaks Hindi and a fraction of population Dogri (about 2 %). In urban areas people speak Punjabi also. Majority of the people are Hindu Brahmin, Rajputs, Baniyas, and scheduled castes and scheduled tribes. There are also minority populations of Sikhs, Muslims and Christians. The traditional dress for men is the kurta, pyjama, and a woolen jacket used in winter. Women generally wear the salwar kameez.

2. Health Facilities

47. The GOHP run health facilities in Chamba district include 1 civil hospital, 7 community health centers, 42 primary health centers, and 176 sub centers. The Ayurvedic related health facilities include 2 hospitals, and 99 dispensaries. There are 2 homeopathy hospitals also in the district. In addition to the above mentioned government run health facilities, there are many private run hospitals, nursing homes and clinics.

3. Education facilities

48. In the Chamba district, there are 1115 primary schools, 239 middle schools, 85 High schools, 81 secondary and senior secondary schools, 7 degree colleges 1 B.Ed College , and 2 Polytechnics to provide quality education. In addition to this, there are many private owned schools, degree colleges, polytechnic institutes and Industrial Training Institutes.

E. Archaeological Resources

49. There are no heritage sites notified by Archaeological Survey of India (ASI) within or near the subproject 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 subproject.

IV. ENVIRONMENTAL IMPACT AND MITIGATION MEASURES

A. Environmental Impacts

50. 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 subproject, namely “Rural Livelihood Center at Bharmour” 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 preconstruction 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.
- (iv) **Operation and maintenance impacts.** Impact associated with the operation and maintenance of the infrastructure built in the subproject.

51. ADB’s Rapid Environmental Assessment checklist for Buildings was used while screening the site and recommending mitigation measures (**Appendix 2**). To assess climate related risk potential due to project –ADB’s Checklist for Preliminary Climate Risk Screening was used (**Appendix-3**) and project has been categorized as ‘Medium Risk’.

B. Location Impacts

52. The subproject site is away from environmental sensitive receptors such as reserved and protected forests and also away from core and buffer zones of notified Wildlife sanctuary, Bird sanctuary, National Park, and Tiger Reserves. The site photographs are shown in **Appendix 4**. The subproject site is located on unencumbered land owned by the Department of Labor and Employment (**Appendix 5**). No new land has been acquired for the subproject, nor has anyone been displaced in anticipation of the proposed ADB financed subproject. There are no significant ecological resources in the surroundings of the RLC site. There are no heritage sites notified by ASI and state archaeological department within the subproject area or in the immediate surroundings. No significant impacts can arise due to project location as the RLC building components will not impinge upon any area of ecological, archaeological or historical importance. The site of RLC is in residential area of rural village. Hence, there is no requirement for change of land use.

53. The RLC site is located within seismic zone V and even a small magnitude earthquake may damage the RLC building.

C. Impacts during Design and Preconstruction Phase

54. As noted above, the proposed subproject site is owned by the Government of Himachal Pradesh. There are no issues arising due to land acquisition or involuntary resettlement. There are also no requirements to cut any trees. Based on the environmental screening of the subproject area, there are no significant adverse environmental impacts during the design and preconstruction phases.

D. Impacts during Construction Phase

55. All construction activities to be undertaken at the site will be approved by the PMU. The construction Phase impacts due to the proposed project components are generic to the

construction activities. The EMP emphasizes on the construction impacts and necessary mitigation measures to be strictly followed by the contractor and supervised by the PWD and PIU. The key potential impacts are covered in the following paragraphs.

56. Impact due to stock piles of construction materials: Improper stockpiling of construction materials at and around the RLC site could obstruct movement along access paths of local residents. Hence, due consideration will be given for proper material storage at RLC construction site. Stock piles will be covered to protect from dust and erosion. Waste materials will be disposed off at identified and approved locations.

57. Disposal of construction waste: The construction waste could lead to untidy conditions at site and may find its way to local urban drains and natural streams and siltation and obstruction to natural flow in these drains and streams. In the proposed subproject, it shall be mandatory for the contractor to ensure proper disposal of the construction waste at the disposal site as designated by the PWD.

58. Quarry and/or borrow pits operations: Since the civil works are of a small size, all construction material will be procured from market ensuring these are from GOHP authorized sources. There will not be any need for direct procurement of stones and building material from quarries.

59. Increase in noise levels: Noise levels in the immediate proximity of RLC site are expected to increase somewhat during construction. However, these will be largely imperceptible as civil works will be confined to relatively small area. The duration of construction will also be relatively brief. Transportation of construction materials will be confined to daytime, 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 500 m only. This noise will be intermittent in nature, and will last only during the construction phase. The construction noise is not likely to be felt at residential houses near the RLC site as site and residential houses have different levels due to hilly terrain. At the residential 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.

60. Impacts on biodiversity during construction phase: No major impacts are expected on the biodiversity during the construction phase as the sub project site is open, and there is no need to remove any tree. Shrubs are also very scattered due to rocky strata. As part of compensatory plantation, 10 trees will be planted in the vacant space along the periphery of the RLC plot.

61. Disturbance to traffic during construction phase. Since subproject site is located in undulating terrain having narrow access, hence transportation of construction materials through trucks is ruled out. Hence requirement for traffic management plan for construction phase is not foreseen. But transportation manually may cause inconvenience to locals residing and /or working close to subproject site. But the scale of civil works is relatively small, the inconvenience caused will be relatively minor and limited only to the construction phase.

62. Impact on cultural properties: The proposed subproject will not have any impact on any religious structure or any other structure of historical and/or cultural significance.

63. 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 and the ground

strata at site being rocky.

64. **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 Phase include respirable and suspended particulate matter and gaseous emissions (nitrogen oxide, sulfur dioxide, carbon monoxide, etc.). Since transportation of construction materials is planned manually so dust generation is likely very limited and vehicular emissions are ruled out on account of transportation. Therefore, impact at this stage will be temporary and restricted to the close vicinity of the construction site only.

65. All vehicles and construction equipment operating for the contractor and the consultant will obtain and maintain "Pollution under Control" certificates. To control dust emissions, vehicles deployed for transporting material (close to the site up to road), sand, and aggregate haulage, will be covered with tarpaulins to prevent spillage. Regular sprinkling of water during excavations and /or rock cutting at site, unloading construction material at site, 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 will comply with standards. The contractor will submit emission monitoring results as a compliance with environmental monitoring plan.

66. **Construction wastes:** Some waste will be generated due to excavated earth, rock cutting at site, and also due to making an access road widened, and discarded construction materials at site. Debris, cut rock and excavated earth material can be reused subject to the approval of the PWD engineer during construction. Waste generated during construction and site preparation will be disposed off as per law and to the satisfaction of the engineer. The clean-up and restoration operations will be implemented by the contractor prior to demobilization. The contractor will clear all temporary structures and dispose off all garbage from construction site. All construction zones used and affected by the subproject will be left clean and tidy, at the contractor's expense as per the satisfaction of the engineer.

67. The contractor is likely to engage local labor for various construction activities. However, in case of migrant labor has to be engaged, the contractor will establish properly designed labor camp with all basic amenities such as potable drinking water supply and sanitation facilities (septic tanks and soak pit). Since site is in undulating terrain, it is likely that the contractor will need to hire a house for accommodation of construction workforce. Dust bins will be placed in adequate numbers at camp/house hired. The EMP lays down some measures to address likely adverse impacts associated with the labor camp.

E. Environmental Impacts during Operation Phase

68. Since RLC will be involved in providing skill development related training programs, therefore, there will not be any adverse environmental impact during operation. It may be noted that no local small level production centre is planned at RLC so any pollution related impacts on account of this is also ruled out. The RLC design provides for adequate parking, accommodation, and safe disposal for waste water and solid waste. Toilet blocks with septic tank and soak pits have been included in the design. The solid waste generated at RLC during operation phase will be segregated. Its disposal will be integrated with local town waste disposal. There may be generation of some waste on account of maintenance and operation of solar PV cell. The supplier of the solar PV cell will be responsible for collecting the waste for possible reuse and recycling.

69. Given the relatively small size of the RLC, there will not be any vehicular increase on account of its operations as site access road is not wide enough for cars/vehicles. Most of

the trainees will be local or those from far off will be residing at RLC only as separate accommodations have been planned for males on females on bottom two floors. A diesel generator will be required, but it will operate only during power cuts. The generator will be of the silent type, and will comply with the levels stipulated by the Central Pollution Control Board.

70. Safety measures: The design of the RLC includes structural and seismic safety measures required by India's latest building codes (in seismic zone V). The other safety features are explained below:

- The 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 RLC building during any fire-related or other eventuality.
- During natural calamities, the operations will be stopped. The visiting public members and RLC staff will be safely evicted as per the disaster management plan of Himachal Pradesh.
- Necessary first aid facilities will be provided at the RLC building.

71. Socio-economic impacts: The RLC will have a positive development impact since it will enhance skills of Himachali youth for employment.

72. Flora and fauna: Since the RLC will be located within built up area of village Garola, no adverse impact on fauna and flora is anticipated due to its operation. To enhance the natural look of the RLC, planting of shrubs and landscaping will be taken up along the pathways and vacant space. About 15-20 trees will be planted in the vacant space between the boundary and building and along the access path. About 20-30 shrubs will also be planted on the side slopes depending upon feasibility of survival as site is in a hilly and undulating terrain.

F. Description of Planned Mitigation Measures

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

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

Sl. No.	Potential Environmental Issues	Duration / Extent	Magnitude	Proposed Mitigation Measures	Institutional Responsibilities
1: Location Impacts					
1.1	Lack of sufficient planning to assure long-term sustainability of the RLC building and ensure protection specially from earthquakes and	Permanent	Major	<p>The design of RLC building has been done considering earthquake coefficient of zone V.</p> <p>The site is not on the bank of any river or local stream.</p>	PWD

Sl. No.	Potential Environmental Issues	Duration / Extent	Magnitude	Proposed Mitigation Measures	Institutional Responsibilities
	other natural disasters				
2: Design and Preconstruction Impacts					
2.1	Consents, permits, clearances, NOC, etc.	Permanent	Major	Obtain all necessary consents, permits, clearance, NOCs, etc., prior to start of civil works. Acknowledge in writing and provide report on compliance with all the obtained consents, permits, clearance, NOCs, etc. Include in detailed design drawings and documents all conditions and provisions, if necessary.	PWD
2.2	Layout of components to avoid impact on the aesthetics of the site	Permanent	Major	Project components will not have any adverse impact on aesthetics of site as it involves construction of a building. Hence, no mitigation measures are warranted.	Not Applicable
2.3	Slope stability-related issues	Permanent	Minor	The RLC site is on an undulating terrain. The building design has been done considering stability on account of steep slope.	Not applicable
2.4	Increased storm water runoff from alterations of the site's natural drainage patterns due to landscaping, excavation works, construction of parking lots, and addition of paved surface	Permanent	Moderate	Design of proposed RLC will allow efficient drainage at the site and maintain natural drainage patterns. The site being undulating so there will not be any drainage issue.	PWD
2.5	Integration of energy efficiency and energy conservation programs in design of RLC	Permanent	Moderate	The following measures have been included in the design to enhance energy efficiency: <ul style="list-style-type: none"> • Usage of recyclable materials like wood substitutes • Installation of Bureau of Energy Efficiency-certified equipment • Usage of energy-efficient lighting fixtures (LED and solar) • Provision of solar 	PWD

Sl. No.	Potential Environmental Issues	Duration / Extent	Magnitude	Proposed Mitigation Measures	Institutional Responsibilities
				power generation	
3: Construction Impacts					
3.1	Construction camp—location, selection, design and layout	Temporary	Moderate	The construction camp will be located within the RLC site or a house is to hire in the vicinity due to tough terrain conditions. It will not affect the day-to-day activities of local residents. Adequate sanitation facilities shall be provided at camp site and in case it is established in a rented house, it will be ensured that house has adequate sanitation facilities. No waste water will be discharged outside from the construction camp.	Contractor, PWD
3.2	Traffic circulation plan during construction	No impact	Insignificant	Since the RLC site is on undulating terrain having narrow access so all transport will be manually and works being for a small scale building, no traffic circulation plan is warranted.	Contractor, PWD
3.3	Impacts on flora and fauna	Temporary	Moderate	Conduct site induction and environmental awareness. Limit activities within the work area. Prepare site landscape and shrub or tree plantation plan (for 15-20 trees and 20-30 shrubs.)	Contractor, PWD
3.4	Site clearance activities, including delineation of construction area	Temporary	Moderate	The commencement of site clearance activities will be undertaken with due permission from the environment specialist of the PWD or HPKVN to minimize environmental impacts. All areas used for temporary construction operations will be subject to complete restoration to their former conditions with appropriate rehabilitation procedures	Contractor, PWD

Sl. No.	Potential Environmental Issues	Duration / Extent	Magnitude	Proposed Mitigation Measures	Institutional Responsibilities
3.5	Drinking water availability	Temporary	Major	Sufficient supply of potable water will be provided and maintained at camp and construction site. The drinking water will be obtained from the market through authorized tankers. This water will be stored in a tank of suitable size to ensure uninterrupted water supply in case camp is established in open area.	Contractor, PWD
3.6	Waste disposal	Permanent	Major	Location of disposal site for construction waste and waste spoil generated due to rock cutting will be finalized by the environmental specialist of PWD or HPKVN. He will confirm that disposal of the material will not impact the water body and / or natural spring, tree and vegetation areas. The contractor will also ensure that no endangered or rare flora is impacted by such materials.	Contractor, PWD
3.7	Stockpiling of construction materials	Temporary	Moderate	Stockpiling of construction materials does not impact nor obstruct drainage. Stockpiles will be covered to protect from dust and erosion.	Contractor, PWD
3.8	Soil erosion	Temporary	Moderate	Temporary slope protection may be required during construction at the excavated areas. Adequate measures will be taken up so that there is no soil erosion causing risks in the vicinity.	Contractor, PWD
3.9	Soil and water pollution due to fuel and lubricants, construction waste	Temporary	Moderate	The fuel storage and vehicle cleaning will not be taken up at site. Any fuel requirements will be met from market. Soil and water pollution parameters will be monitored as per monitoring plan.	Contractor, PWD

Sl. No.	Potential Environmental Issues	Duration / Extent	Magnitude	Proposed Mitigation Measures	Institutional Responsibilities
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 subproject site. Extraneous construction wastes and surplus generated due to rock cutting will be transported to the pre-identified disposal site for safe disposal.	Contractor, PWD
3.11	Generation of dust	Temporary	Moderate	The contractor will take every precaution to reduce the levels of dust at construction site.	Contractor, 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 and will be regularly maintained to ensure that pollution emission levels comply with the relevant requirements.	Contractor, PWD
3.13	Noise pollution	Temporary	Moderate	Noise limits for construction equipment used in this project will not exceed 75 dB (A) at 1 m distance.	Contractor, PWD
3.14	Material handling at site	Temporary	Moderate	<p>Workers employed on mixing cement, lime mortars, concrete etc., will be provided with protective footwear and protective goggles.</p> <p>Workers who are engaged in welding works will be provided with welder's protective eye shields.</p> <p>Workers engaged in stone breaking activities will be provided with protective goggles and clothing.</p> <p>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</p>	Contractor, PWD

Sl. No.	Potential Environmental Issues	Duration / Extent	Magnitude	Proposed Mitigation Measures	Institutional Responsibilities
				chemical. A register of all toxic chemicals delivered to the site will be kept and maintained up to date by the contractor.	
3.15	Disposal of construction waste and Surplus on account of rock cutting	Temporary	Moderate	Safe disposal of the construction waste will be ensured in the pre-identified disposal locations. In no case will construction waste be disposed of around the project site and especially in vacant plots in the locality.	Contractor, PWD
3.16	Safety measures during construction	Temporary	Moderate	<p>Adequate safety measures for workers during handling of materials at site will be taken up.</p> <p>The contractor has to comply with all regulations for the safety of workers. Precaution will be taken to prevent danger to 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.</p> <p>The contractor will conform to all anti-malaria instructions given to him by the engineer.</p>	Contractor, PWD
3.17	Clearing of construction of camp and restoration	Temporary	Major	<p>Contractor to prepare site restoration plans for approval by the engineer. The plan is to be implemented by the contractor prior to demobilization.</p> <p>On completion of the works, all temporary structures will be cleared away, all rubbish burned, 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 satisfaction of the</p>	Contractor, PWD

Sl. No.	Potential Environmental Issues	Duration / Extent	Magnitude	Proposed Mitigation Measures	Institutional Responsibilities
				engineer.	
4: Operation and Maintenance impacts					
4.1	Environmental Conditions	Temporary	Moderate	Air, water, noise and soil quality will be monitored periodically as per the environmental monitoring plan prepared.	DORD
4.2	Safety risks	Temporary	Major	<ul style="list-style-type: none"> • Proper demarcation and flagging of the area requiring safety observations. • Necessary precaution measures to be observed by visitors will be printed on boards and will be prominently put inside the RLCC building. 	DORD
4.3	Unhygienic conditions due to poor maintenance of sanitation facilities and irregular solid waste collection	Temporary	Severe	DOLE will carry out maintenance of the toilets, and carry out the regular collection and disposal of waste to the local disposal site. The septic tanks will be emptied regularly.	DORD
4.4	Waste generated on account operation and maintenance of Solar PV Cells	Intermittent	Minor	The supplier of solar PV cells will maintain the system. Any waste generated will be collected by the supplier for possible reuse and recycling. For this, necessary agreement will be prepared at the time of supply and installation.	DORD

DORD = Department of Rural Development, HPKVN = Himachal Pradesh Kaushal Vikas Nigam, RLC= Rural Livelihood Center, LED = light emitting diode, NOC = no objection certificate, PWD = Public Works Department.

G. Land Aquisition and Resettlement

74. The proposed RLC will be located on land owned by the DORD. The land records showing ownership of DORD-GOHP have been given in **Appendix-5**. Hence, there will not be any acquisition of private land. Since the proposed site is unencumbered land, there is no acquisition of any private assets. At the subproject site, there are no squatters or encroachers. Hence, there is no requirement for any rehabilitation and resettlement.

V. ENVIRONMENT MANAGEMENT PLAN

A. Institutional Arrangements for Project Implementation

75. 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.

76. 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.

77. 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) and Managing Director- HPKVN. 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.

78. 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.

79. The sub-project will be implemented by the Project Implementation Unit (PIU) of PWD 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 PIU will be responsible for: (i) prioritizing and preparing sub-project proposals; (ii) providing day-to-day assistance, supervision and guidance to the PWD at Shimla 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.

80. 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 HPSPDP. 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.

81. 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.

82. 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).

83. 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.

84. The contractor(s) at sub-project site(s) will designate one officer as safeguard cum safety officer for the implementation of ESMF and EMP requirements at sites. The project implementation arrangement for safeguard compliance has been shown below in **Figure -11**. **Tables 15 to 17** present a generic EMP to guide the contractor in mitigating environmental impacts for pre construction, construction and operation phases of RLC.

Figure-11: Project implementation arrangement for safeguard compliance

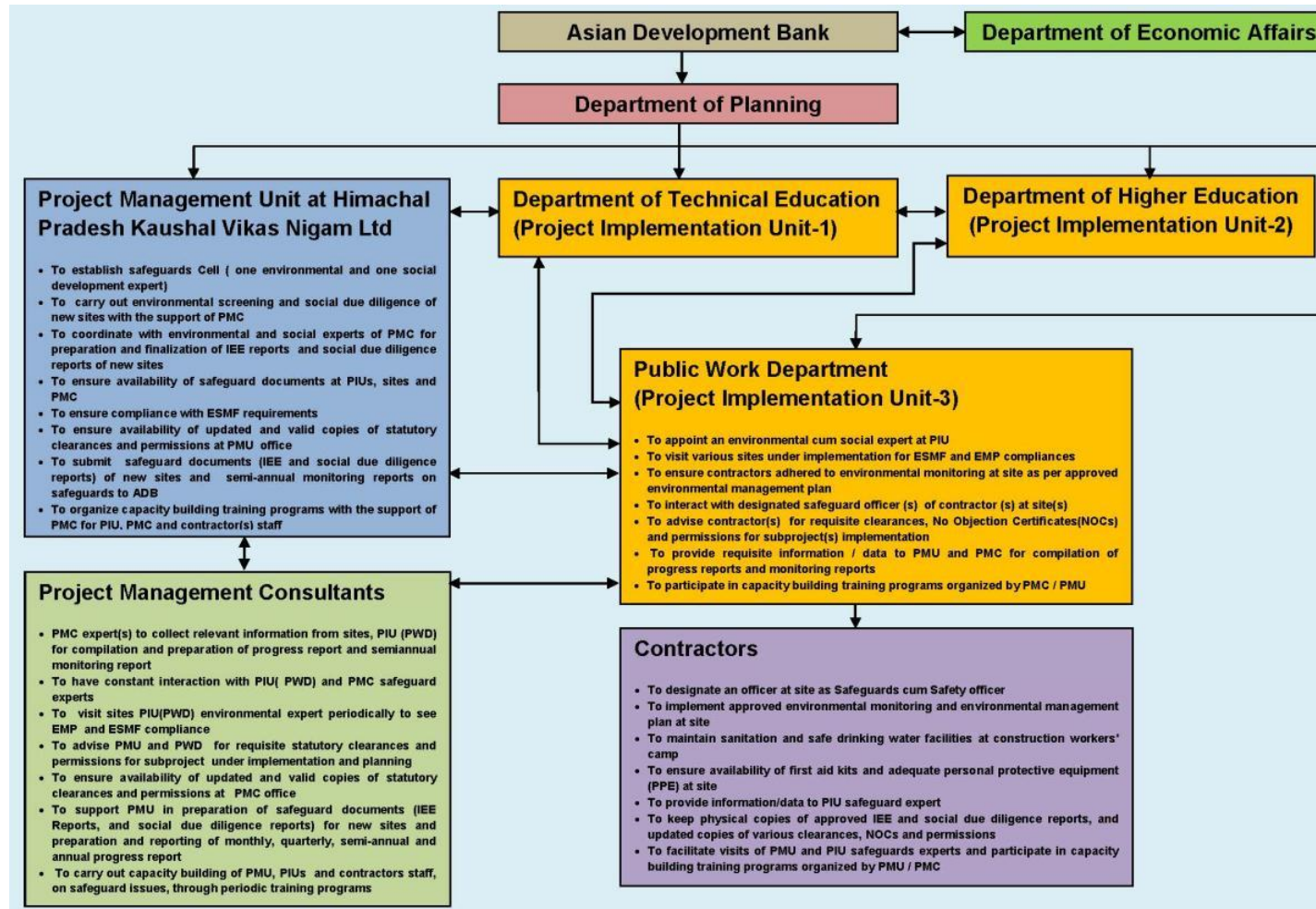


Table-15: Environmental Management Plan for Preconstruction Phase

Sl. No.	Environmental Issues	Mitigation Measures	Parameter / Indicator for Compliance	Responsible for Implementation	Responsible for Supervision	Frequency for Monitoring	Fund Sources for Implementing Mitigation Measure
1	Lack of sufficient planning to assure long-term sustainability of the improvements and ensure protection of the assets created	<ul style="list-style-type: none"> Design has included provisions for ensuring effective maintenance and protection of the assets to be created to ensure their long-term sustainability. The long-term sustainability has been ensured by taking into consideration the appropriate Bureau of Indian Standards Codes 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. 	Verification of design parameters	PWD	PWD	Review after completion of detailed project report	Project cost
2	Layout of components to avoid impacts on the aesthetics of the site	<ul style="list-style-type: none"> The project components sighting will avoid impacts on the aesthetics of the site and surroundings, and the RLC building will blend well with local buildings. 	RLC building exterior	PWD	PWD	Review after completion of detailed project report	Project cost
3	Slope stability related issues	<ul style="list-style-type: none"> The plot area for RLC building is undulating 	Slope protection measures in	PWD	PWD	Review of recommended slope	Project cost

Sl. No.	Environmental Issues	Mitigation Measures	Parameter / Indicator for Compliance	Responsible for Implementation	Responsible for Supervision	Frequency for Monitoring	Fund Sources for Implementing Mitigation Measure
		and a rugged terrain, therefore, building design has considered all slope protection related measures and these protection measures are per building design code and regulatory requirements.	building design, on side slopes of access path, internal road, access road /pathway, etc.			protection measures	
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	<ul style="list-style-type: none"> In the subproject, drainage will not be an issue as site of RLC is on undulating terrain and will help in quick drainage. Further, design of proposed RLC building design has considered drainage of plot also a parameter and as far possible natural drainage pattern around site will be maintained. The storm water generated will be diverted to side drains along the slope. . 	Arrangement for proper diversion of storm water runoff	PWD	PWD	After mobilization of contractor at site and during establishment of construction camp	Incidental to construction cost
5	Integration of energy efficiency and energy conservation programs in design of subproject components	<ul style="list-style-type: none"> The detailed designs for the subproject have ensured that environmental sustainability principles, including energy efficiency, resource 	Specifications of rain water harvesting structures, electrical fixtures, details of water heating	PWD	PWD	During finalization of detailed project report	Project cost

Sl. No.	Environmental Issues	Mitigation Measures	Parameter / Indicator for Compliance	Responsible for Implementation	Responsible for Supervision	Frequency for Monitoring	Fund Sources for Implementing Mitigation Measure
		recycling, waste minimization, etc. The design considers the following energy efficiency measures: <ul style="list-style-type: none"> - Usage of recyclable materials like wood substitutes. - Installation of Bureau of Energy Efficiency-certified equipment - Usage of energy efficient lighting fixtures (LED) - Provision of photovoltaic cells on roofs for solar power. 	system				
6	Consents, permits, clearances, NOC, etc.	<ul style="list-style-type: none"> • Obtain all necessary consents, permits, clearance, NOCs, etc. prior to start of civil works. • Acknowledge in writing and provide report on compliance all obtained consents, permits, clearance, NOCs, etc. 	Consents, permits, clearance, and NOCs' records and communications	PWD	PWD	Check consent for establishment of construction camp and approval from civic authorities for RLC construction	Project cost
7	Establishment of baseline environmental conditions prior to start of civil works	<ul style="list-style-type: none"> • Conduct documentation of location of components, areas for construction zone (camp, staging, 	Records and photographs	Contractor	PWD	Once prior to construction	Contractor

Sl. No.	Environmental Issues	Mitigation Measures	Parameter / Indicator for Compliance	Responsible for Implementation	Responsible for Supervision	Frequency for Monitoring	Fund Sources for Implementing Mitigation Measure
		storage, stockpiling, etc.) and surroundings (within direct impact zones). Include photos and GPS coordinates.					
8	Utilities	<ul style="list-style-type: none"> The locations and operators of utilities to be impacted should be identified and documented in detailed project report documents to prevent unnecessary disruption of services during the construction phase. As a Requirement for the subproject, the 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. 	<ul style="list-style-type: none"> List and maps showing utilities to be shifted Contingency plan for services disruption 	<ul style="list-style-type: none"> 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 	PWD	Preconstruction Phase	Contractor
9	Social and Cultural Resources	<ul style="list-style-type: none"> Consult Archaeological Survey of India or 	Chance find protocol	PWD	PWD	Prior to start of construction	Project cost

Sl. No.	Environmental Issues	Mitigation Measures	Parameter / Indicator for Compliance	Responsible for Implementation	Responsible for Supervision	Frequency for Monitoring	Fund Sources for Implementing Mitigation Measure
		<p>Himachal Pradesh State Archaeology Department to obtain an expert assessment of the archaeological potential of site.</p> <ul style="list-style-type: none"> Consider alternatives if the 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 construction 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. 				activities	
10	Construction camp—location, selection, design and layout	<ul style="list-style-type: none"> Sighting of the construction camp shall be as per the guidelines below and details of layout to be approved by PWD. 	Construction camp location, and locations of material storage areas, sanitation facilities	Contractor	PWD	At the time of construction camp establishment and finalization of storage areas	Contractor

Sl. No.	Environmental Issues	Mitigation Measures	Parameter / Indicator for Compliance	Responsible for Implementation	Responsible for Supervision	Frequency for Monitoring	Fund Sources for Implementing Mitigation Measure
		<ul style="list-style-type: none"> Seeing the site terrain, it is suggested that construction camp be established in a house in the vicinity of site. The house may be taken on rent. The storage location of construction materials shall be at the RLC site or any building close to the RLC site. The house to be hired for construction camp should have adequate sanitation and drinking water facilities. 					
11	Sources of construction materials	<ul style="list-style-type: none"> Use quarry sites and sources licensed by the Government of Himachal Pradesh. Verify suitability of all material sources and obtain approval from PIU. If additional quarries are required after construction has started, obtain written approval from PIU. Submit monthly to PWD a documentation of sources of materials. If construction materials 	Permits issued to quarries or sources of materials	<p>Contractor</p> <p>PWD to verify sources (including permits) if additional is requested by contractor</p>	PWD	Upon submission by contractor	Project cost

Sl. No.	Environmental Issues	Mitigation Measures	Parameter / Indicator for Compliance	Responsible for Implementation	Responsible for Supervision	Frequency for Monitoring	Fund Sources for Implementing Mitigation Measure
		are procured from market then ensure that these are from licensed sources through verification of royalty payment to the GOHP					
12	Access for construction material transportation	<ul style="list-style-type: none"> • Since subproject site is in an undulating terrain and also has an access through a narrow footpath, therefore, all transportation of construction materials will be manual from the main road. Hence specific traffic plan is not required. • During manual transportation of construction materials, it will be ensured that habitants of neighboring buildings are not at inconvenience. • Keep the site free from all unnecessary obstructions. 	Safe manual transport of construction materials	Contractor	PWD	During delivery of construction materials	Contractor
13	Occupational health and safety	<ul style="list-style-type: none"> • Comply with International Finance Corporation Environmental, Health, and Safety Guidelines 	Health and safety plan	Contractor	PWD	During Pre construction phase	Contractor

Sl. No.	Environmental Issues	Mitigation Measures	Parameter / Indicator for Compliance	Responsible for Implementation	Responsible for Supervision	Frequency for Monitoring	Fund Sources for Implementing Mitigation Measure
		<p>on Occupational Health and Safety in developing comprehensive site-specific health and safety plan. 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.</p> <ul style="list-style-type: none"> • Include in the health and safety plan measures such as (i) type of hazards in the construction of the RLC building, (ii) corresponding personal protective equipment for each identified hazard, (iii) health and safety training for all site personnel, (iv) procedures to be followed for all site 					

Sl. No.	Environmental Issues	Mitigation Measures	Parameter / Indicator for Compliance	Responsible for Implementation	Responsible for Supervision	Frequency for Monitoring	Fund Sources for Implementing Mitigation Measure
		activities, and (v) documentation of work-related accidents. • Provide medical insurance coverage for workers.					
14	Public consultations	• Continue information dissemination, consultations, and involvement or participation of stakeholders during project implementation.	Disclosure records; consultations	PWD	PWD	<ul style="list-style-type: none"> • During update of IEE report • During preparation of site- and activity-specific plans as per environmental management plan • Prior to start of construction • During construction 	Project cost

IEE = initial environmental examination, NOC = no objection certificate, PIU = project implementation unit, PWD = Public Works Department, RLC = rural livelihood center,

Table-16: Environmental Management Plan for Construction Phase

Sl. No.	Environmental Issues	Mitigation Measures	Parameter / Indicator for Compliance	Responsible Implementation	Responsible Supervision	Frequency for Monitoring	Sources of Fund for Implementing Mitigation Measure
1	Sanitation facilities at construction camp	• The contractor shall provide sanitation facilities at the camp site. The camp in all probability is to be established in a house. These facilities at camp	Construction camp sanitation facilities	Contractor	PWD	Regularly during construction phase	Contractor Fee

Sl. No.	Environmental Issues	Mitigation Measures	Parameter / Indicator for Compliance	Responsible Implementation	Responsible Supervision	Frequency for Monitoring	Sources of Fund for Implementing Mitigation Measure
		<p>will include dust bins in adequate numbers for solid waste collection, and separate toilets for male and females</p> <ul style="list-style-type: none"> • Toilet facilities shall be maintained. 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	<ul style="list-style-type: none"> • The traffic circulation plan in the current subproject is not warranted as all construction materials, machinery and equipment are to be transported manually. • The contractor will ensure that locals are not at inconvenience. 	Manual transport of construction materials	Contractor	PWD	Every day during construction phase	Contractor fee
3	Site clearance activities, including delineation of construction areas	<ul style="list-style-type: none"> • Only ground cover or shrubs that directly affect the permanent works or necessary temporary works shall be removed (although shrubs and vegetation presence is not much due to rocky terrain) with prior approval from 	Preconstruction records of sites and vegetation in area of construction	Contractor	PWD	Duration of site preparation	Contractor fee

Sl. No.	Environmental Issues	Mitigation Measures	Parameter / Indicator for Compliance	Responsible Implementation	Responsible Supervision	Frequency for Monitoring	Sources of Fund for Implementing Mitigation Measure
		<p>the environmental expert of the Safeguards Cell.</p> <ul style="list-style-type: none"> All areas used for temporary construction operations will be subjected to complete restoration to their former conditions with appropriate rehabilitation procedures. Photographic records shall be maintained for the temporary sites used for construction. These will help in proper restoration. 					
4	Drinking water availability at construction camp and construction site	<ul style="list-style-type: none"> Sufficient supply of cold potable water during summer and hot water during winter months to be provided and maintained. The drinking water will be obtained from the market. No public supply source in the vicinity of sub-project will be used for drinking or construction purposes. In the house to be hired for construction camp, it 	Water supply source and availability of water, source of water used by the tankers	Contractor	PWD	Regularly during construction phase	Contractor fee

Sl. No.	Environmental Issues	Mitigation Measures	Parameter / Indicator for Compliance	Responsible Implementation	Responsible Supervision	Frequency for Monitoring	Sources of Fund for Implementing Mitigation Measure
		<p>will be ensured that it has a water storage tank of sufficient capacity. At construction site of RLC drinking water availability will be ensured.</p> <ul style="list-style-type: none"> Contractor will submit his plan on how availability of drinking water shall be assured. The original source of the water supplied by the tankers will be recorded. 					
5	Waste disposal	<ul style="list-style-type: none"> The pre-identified disposal location shall be part of the comprehensive waste disposal plan. A solid waste management plan will 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 	Waste disposal sites, waste management plan	Contractor	PWD	Regularly during construction phase	Contractor fee

Sl. No.	Environmental Issues	Mitigation Measures	Parameter / Indicator for Compliance	Responsible Implementation	Responsible Supervision	Frequency for Monitoring	Sources of Fund for Implementing Mitigation Measure
		that waste shall not be disposed of near natural streams and along the access path.					
6	Stockpiling of construction materials	<ul style="list-style-type: none"> Stockpiling of construction materials will be done in such a way that it does not impact and obstruct the drainage. Stockpiles will be covered to protect from dust and erosion. 	Subproject stockpiling sites	Contractor	PWD	Regularly during construction phase	Contractor fee
7	Arrangement for construction water	<ul style="list-style-type: none"> The contractor shall provide a list of locations and type of sources from where water for construction shall be acquired. To avoid disruption or disturbance to other water users, the contractor shall arrange water from the market through authorized tanker suppliers or from the local municipality and consult PWD before finalizing the source. 	Source of water used by the tankers	Contractor	PWD	Regularly during construction phase	Contractor fee
8	Soil erosion and water ponding on account of	<ul style="list-style-type: none"> Slope protection measures will be undertaken as per 	Boundaries of RLC site, access path slopes, etc.	Contractor	PWD		Contractor fee

Sl. No.	Environmental Issues	Mitigation Measures	Parameter / Indicator for Compliance	Responsible Implementation	Responsible Supervision	Frequency for Monitoring	Sources of Fund for Implementing Mitigation Measure
	excavation	design to control soil erosion especially on slopes of access path and boundaries of RLC construction site. • The excavation works will be avoided during monsoon months to avoid erosion / land slide, stagnation of water, and vector - borne diseases.					
9	Water pollution from construction wastes	• The contractor shall take all precautionary measures to prevent discharge of waste water from site	Subproject site	Contractor	PWD	Regularly during construction phase	Contractor fee
10	Water pollution from fuel and lubricants	• The contractor shall ensure that all construction vehicle parking locations; fuel and lubricants storage locations; vehicle, machinery, and equipment maintenance and refueling sites shall be located at least 500 m away from the natural streams. As far as possible storage of fuels and lubricants shall be avoided at site. Any maintenance of machinery at site will	Vehicle parking, equipment refueling and maintenance	Contractor	PWD	Regularly during construction phase	Contractor fee

Sl. No.	Environmental Issues	Mitigation Measures	Parameter / Indicator for Compliance	Responsible Implementation	Responsible Supervision	Frequency for Monitoring	Sources of Fund for Implementing Mitigation Measure
		<p>not be carried out. This is to avoid spillage of waste oil and cleaning water at site.</p> <ul style="list-style-type: none"> Contractor shall ensure that all vehicles and machinery, as well as equipment operation, and refueling shall be carried out in such a manner that spillage of fuels and lubricants does not contaminate the ground surface of site. The monitoring of ground and surface water quality will be taken up as per monitoring plan. 					
11	Soil pollution due to fuel and lubricants, construction wastes	<ul style="list-style-type: none"> The fuel storage and vehicle cleaning area will be stationed such that spillage of fuels and lubricants does not contaminate the ground. 	Vehicle maintenance and parking area, soil quality monitoring results	Contractor	PWD	Regularly during construction phase	Contractor fee
12	Siltation of water bodies due to spillage of construction wastes	<ul style="list-style-type: none"> No disposal of construction wastes will be carried out into the surface water bodies. Extraneous 	Water bodies especially natural springs near subproject site	Contractor	PWD	Regularly during construction phase	Contractor fee

Sl. No.	Environmental Issues	Mitigation Measures	Parameter / Indicator for Compliance	Responsible Implementation	Responsible Supervision	Frequency for Monitoring	Sources of Fund for Implementing Mitigation Measure
		construction wastes will be transported to the pre-identified disposal sites for safe disposal.					
13	Generation of dust	<ul style="list-style-type: none"> The contractor will take every precaution to reduce the levels of dust at construction sites. Water will be sprayed as required, on locations of excavations, internal unfinished roads/walkways, access path to site and locations of sand and sub grade storages. The water for spraying will be used from the water stored for construction. The water spray records will be maintained at site. All filling works are to be protected or covered in a manner to minimize dust generation. The air quality monitoring will be conducted as per monitoring plan 	Subproject site, air quality monitoring results, water spray records	Contractor	PWD	Regularly during construction phase	Contractor fee
14	Emission from construction vehicles, equipment	<ul style="list-style-type: none"> All vehicles, equipment, and 	Pollution under control certificates of	Contractor	PWD	Regularly during construction phase	Contractor fee

Sl. No.	Environmental Issues	Mitigation Measures	Parameter / Indicator for Compliance	Responsible Implementation	Responsible Supervision	Frequency for Monitoring	Sources of Fund for Implementing Mitigation Measure
	and machinery	<p>machinery used for construction shall conform to the relevant Bureau of India Standard norms.</p> <ul style="list-style-type: none"> The discharge standards promulgated under the Environment Protection Act, 1986 shall be strictly adhered to. The silent or quiet equipment available in the market shall be used in the subproject. The Contractor shall maintain a record of pollution under control for all vehicles and machinery used during the contract period, which shall be produced for verification whenever required. 	vehicles and machinery				
15	Noise pollution	<ul style="list-style-type: none"> The contractor shall confirm that all construction equipment shall strictly conform to the Ministry of Environment, Forests and Climate Change and Central Pollution Control Board noise 	Certificates of vehicles conforming noise standards, noise monitoring results	Contractor	PWD	Regularly during construction phase	Contractor fee

Sl. No.	Environmental Issues	Mitigation Measures	Parameter / Indicator for Compliance	Responsible Implementation	Responsible Supervision	Frequency for Monitoring	Sources of Fund for Implementing Mitigation Measure
		<p>standards.</p> <ul style="list-style-type: none"> Contractor must ensure that all equipment used in construction shall be fitted with exhaust silencers. At the construction sites, noisy construction work such as crushing, operation of diesel generator sets, use of high noise generation equipment shall be stopped during the night time between 10:00 p.m. to 6:00 a.m. Noise limits for construction equipment used in this project will not exceed 75 dB(A) at 1 m distance. However, noise levels as specified in ambient noise standards (55 dB(A) during day time and 45 dB(A) during night time) will be adhered to during the construction phase. Noise level monitoring will be carried out as per monitoring plan. 					
16	Impacts on flora and fauna	<ul style="list-style-type: none"> Conduct site induction and environmental 	Records of Barricades along excavation	Contractor	PWD	Regularly during construction phase	Contractor fee

Sl. No.	Environmental Issues	Mitigation Measures	Parameter / Indicator for Compliance	Responsible Implementation	Responsible Supervision	Frequency for Monitoring	Sources of Fund for Implementing Mitigation Measure
		awareness. • Limit activities within the work area. • Plant trees and shrubs in the area/space marked for plantation in the layout.	works. Records of trees and shrubs planted by the contractor at end of construction phase.				
17	Material handling at site	• Workers employed on mixing cement, lime mortars, concrete, etc., will be provided with protective footwear and protective goggles. • Workers engaged in welding works will be provided with welder's protective eye shields. • The use of any toxic chemical will be strictly in accordance with the manufacturer's instructions. The PWD will be given at least 6 working days' notice of the proposed use of any chemical. A register of all toxic chemicals delivered to the site will be kept and maintained up to date by the contractor.	Data on available personal protective	Contractor	PWD	Regularly during construction phase	Contractor fee
18	Disposal of construction waste,	• The contractor shall confirm that safe	Disposal site	Contractor	PWD	Regularly during construction phase	Contractor fee

Sl. No.	Environmental Issues	Mitigation Measures	Parameter / Indicator for Compliance	Responsible Implementation	Responsible Supervision	Frequency for Monitoring	Sources of Fund for Implementing Mitigation Measure
	debris, cut material	<p>disposal of the construction waste and any surplus generated (on account of rock cutting at site and along widening of access path) will be ensured in the pre-identified disposal locations.</p> <ul style="list-style-type: none"> In no case will any construction waste will be disposed off around the project site indiscriminately. 					
19	Safety measures during construction	<ul style="list-style-type: none"> Adequate safety measures for workers during handling of materials at 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 to workers from accidental injuries, fire, etc. First aid treatment will be made available for all injuries likely to be sustained during work. The contractor will conform to all anti- 	Records of availability of personal protective equipment, availability of first aid kits	Contractor	PWD	Regularly during construction phase	Contractor fee

Sl. No.	Environmental Issues	Mitigation Measures	Parameter / Indicator for Compliance	Responsible Implementation	Responsible Supervision	Frequency for Monitoring	Sources of Fund for Implementing Mitigation Measure
		malaria instructions given to him by the engineer.					
20	Clearing of construction of camp and restoration	<ul style="list-style-type: none"> Contractor to prepare site restoration plans for approval by the engineer (PWD). The plan is to be implemented by the contractor prior to demobilization. On completion of the works, all temporary structures will be cleared away, all rubbish burned, excreta or other disposal pits or trenches filled in and effectively sealed off, and the site left clean and tidy, at the contractor's expense, to the entire satisfaction of the PWD. 	Restoration plan, and records of preconstruction of temporary sites	Contractor	PWD	End of construction phase	Contractor fee

NOC = no objection certificate, PIU = project implementation unit, PWD = Public Works Department, RLC= rural livelihood Center.

Table-17: Environmental Management Plan for Operation Phase

Sl. No.	Environmental Issues	Mitigation Measures	Parameter / Indicator for Compliance	Responsible Implementation	Responsible Supervision	Frequency for Monitoring	Sources of Fund for Implementing Mitigation Measure
1	Environmental conditions	<ul style="list-style-type: none"> Periodic monitoring of the ambient air quality, noise level, surface water quality, soil quality in the subproject area as suggested in the monitoring plan through an approved monitoring agency. 	Monitoring results and relevant standards	DORD through Pollution Monitoring Agency	HPKVN	As per monitoring plan	DORD
2	Unhygienic condition due to poor maintenance of sanitation facilities and irregular solid waste collection	<ul style="list-style-type: none"> DORD will maintain toilets, and carry out the regular collection and disposal of wastes to a designated waste treatment site. Solid waste disposal will be integrated with local municipal council waste disposal. Septic tanks will be regularly emptied. 	Maintenance schedule of RLC building and facilities drawn up	DORD	HPKVN	Every year during tourist season	DORD
3	Natural disasters	<ul style="list-style-type: none"> 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 the Meteorological Department	District administration	HPKVN	During disasters	Government of Himachal Pradesh
4	Waste Generation on account of maintenance and operations of solar PV Cell	<ul style="list-style-type: none"> The solar PV cell will be maintained and operated by the supplier. Any waste generated will be taken by the supplier for possible reuse and recycle. For this, necessary agreement will be made at the time of supply. 	Waste generated from the operation and maintenance of solar PV cells	DORD and supplier of solar PV cells	HPKVN	During entire operation phase	DORD

DORD= Department of Rural Development, HPKVN = Himachal Pradesh Kaushal Vikas Nigam, PIU = project implementation unit, PWD = Public Works Department.

B. Emergency Response Plan

85. The Government of India enacted the Disaster Management Act in 2005. To implement this Act, the National Disaster Management Authority has been established at the central level and State Disaster Management Authorities (SDMA) was established in each state including Himachal Pradesh. The Chief Minister is the chairman of Himachal Pradesh SDMA.

86. As per Section 40 of the Disaster Management Act, 2005, each government department, in conformity with the guidelines laid down by the SDMA, shall draw up their own disaster management plans.

87. Accordingly, a general disaster management plan for the entire state was prepared by the Public Works Department (PWD) in 2015.

88. Similarly, the Department of Rural Development has prepared disaster management plans focusing on their own facilities falling in different parts of the state.

89. These plans prepared by PWD and DORD cover natural calamities including earthquakes, floods, cloud bursts, landslides, and avalanche as relevant. They also lay down clear procedures which have to be followed during natural calamities.

90. Further, all public and private structures have to be designed on the basis of the seismic zoning and structural engineering standards prescribed by the Bureau of Indian standards and the provisions of India's National Building codes. These codes cover all aspects of building construction including administrative regulations, development control rules; fire safety requirements; stipulations regarding materials, structural design and construction (including safety).

91. Himachal Pradesh has adopted robust standard operating procedures (SOP) for responding to any disaster. It has also established an incident response system, which is activated after any event for search, evacuation, rescue, relief and rehabilitation. The SOP lays down, in a comprehensive manner, the specific actions required to be taken by various departments and agencies of Government of Himachal Pradesh, as well as organizations under the control of Government of India for responding to natural disasters. The SOP covers the preparedness, early warning, response, relief and restoration phases of disaster management for effective and efficient response.

92. During the construction phase (for a period of 24 months), the RLC site at Bharmour will be under PWD's jurisdiction. Hence, PWD will be responsible for ensuring that the civil contractors follow relevant building codes and safety norms.

93. During the operation phase, the RLC will come under DORD's jurisdiction. Therefore, it will be responsible for following the relevant aspects of the disaster management plan prepared by the DORD Department Authorities.

94. Hence, instead of preparing a separate emergency response plan for the project or any sub-project (and might be redundant exercise), all statutory provisions of GOHP and the Government of India, including those pertaining to disaster mitigation and response requirements, needs to be adhered to.

C. Environmental Monitoring Plan

95. Environmental monitoring (covers EMP implementation and compliance with all of the

Government of Himachal Pradesh's rules with respect to the environment, and handling of solid and liquid waste) at site will be undertaken by the contractor during preconstruction and construction Phases, and will be supervised by PWD. Environmental monitoring during operation phase will be undertaken by the DORD and be monitored by HPKVN. The environment and social safeguards specialists of PMC will coordinate with PWD and DORD to ensure environmental parameters are monitored and reported.

96. An EMP has been prepared to ensure the effective implementation of mitigation measures to address all the environmental issues during construction and operation phases of the subproject. 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 the Environmental Monitoring Plan as given in **Table 18**.

Table-18: Environmental Monitoring Plan for RLC Bharmour Subproject for Preconstruction, Construction, and Operation Phases

Sl. No.	Field (environmental attribute)	Phase	Parameters to be Monitored	Locations	Frequency	Responsibility	Cost (Rs/\$)
1	Air Quality	During preconstruction phase	Nitrogen oxide, sulfur dioxide, carbon monoxide, particulate matter (both 10 micrometers and 2.5 micrometers or less in diameter)	RLC construction site	Once in the preconstruction phase to establish baseline	Contractor through approved monitoring agency	Rs130,000/ \$1,850
		During construction phase			Once in every season (except monsoon season) during construction phase (24 months construction phase)		
		Operation phase			Once in every season (except during monsoon season) during first 2 years of operation phase		
2	Water quality	During preconstruction phase	Total dissolved solids, total suspended solids, pH, hardness, biochemical oxygen demand, fecal coliform	RLC construction site ground water	Once in preconstruction phase to establish baseline	Contractor through approved monitoring agency	Rs130,000/ \$1,850
		During construction phase			Once in every season (except monsoon season) during construction phase		
		Operation phase			Once every season except during monsoon season during first 2 years of operation phase		
3	Noise levels	During preconstruction phase	Noise quality as per National Ambient Noise Standards on dB(A) scale	RLC construction site	Once in preconstruction phase to establish baseline	Contractor through approved monitoring agency	Rs39,000/ \$600
		During construction phase			Once in every season (except monsoon season) during construction phase		
		Operation phase			Once in every season except monsoon season for first 2 years of operation phase		

RLC = rural livelihood center.

D. Summary of Site- and Activity-Specific Plans

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

Table-19: Environmental Management Plan—Site and Activity Plans and Programs

Preparation Phase	Specific Plan/Program	Purpose	Responsible for Preparation	Responsible for Implementation
Detailed design phase	List and maps showing utilities to be shifted	Utilities shifting	PWD during preliminary stage; contractor as per detailed design	Contractor
Detailed design phase	Contingency plan	Mitigate impacts due to interruption of services during utilities shifting	Contractor	Contractor
Pre construction phase	Environmental monitoring program as per detailed design	Indicate sampling locations, methodology and parameters	PWD	Contractor
Pre-construction	Chance find protocol	Address archaeological or historical finds	PWD	Contractor
Pre-construction phase	List of preapproved sites	Location/s for work camp, areas for stockpile, storage and disposal	PWD	Contractor
Preconstruction phase	Waste or spoil management plan	Mitigate impacts due to waste generation	Contractor	Contractor
Pre-construction phase	Spill prevention and containment plan	Mitigate impacts of accidental spills of oil, lubricants, fuels, concrete, and other hazardous materials	Contractor	Contractor
Construction phase	Erosion control and re-vegetation plan	Mitigate impacts due to erosion	Contractor	Contractor
Construction phase	Health and safety plan	Occupational health and safety	Contractor	Contractor

PWD = Public Works Department.

E. Capacity Building

98. In addition to the primary objective of skills enhancement of Himachali youth, the current subproject will also raise awareness about environmental conservation among trainees, implementing agencies, and local communities. The project will have the opportunity to build capacity in environment protection for the above mentioned stakeholders. The environmental specialists at PMC and Safeguards Cell at PMU will provide the basic training required for environmental awareness. Specific modules customized for the available skill set will be devised after assessing the capabilities of the members of the training program and the requirements of the project. The training would cover basic principles of environmental assessment and management, mitigation plans and programs, implementation techniques, monitoring methods and tools. The proposed training program along with the frequency of sessions is presented in **Table 20**.

Table-20: Training Modules for Environmental Management

Program	Description	Participants	Duration	Training Conducting Agency
A. PRECONSTRUCTION STAGE				
Sensitization Workshop on Environment	<ul style="list-style-type: none"> • Introduction to Environment: environmental assessment and social due diligence requirements in the project, regulatory clearances, and permission requirements in the project • Environmental management plan implementation, introduction of ADB Safeguard Policy Statement, 2009, and ADB Guidelines on Environmental considerations in planning, design and implementing projects 	DORD officials, environmental specialist of PWD and other engineering staff associated with the subproject, PIU staff and HPKVN PMU staff	½ working day	Environmental specialist of project management consulting firm
Session 1	<ul style="list-style-type: none"> • Environmental impacts due to subproject in construction and operation phases, pollution generation activities during preconstruction and construction phases • Environmental management, environmental provisions, implementation arrangements, methodology of assessment good engineering practices to be integrated into contract documents 	All PIUs, HPKVN staff	½ working day	Safeguards specialist of project management consulting firm
B. CONSTRUCTION STAGE				
Session 2	<ul style="list-style-type: none"> • Roles and responsibilities of officials, contractors, consultants toward protection of environment • Implementation arrangements and environmental monitoring during construction phase 	Engineers and staff of line departments of the Government of Himachal Pradesh, PMU, and PIU	½ working day	Safeguards Specialist of PMU
Session 3	<ul style="list-style-type: none"> • Monitoring and reporting system 	Engineers and staff of implementing agencies, PMU, and PIU (including the environmental specialist)	¼ working day	Safeguards Specialist of PMU

ADB = Asian Development Bank, DORD = Department of Rural Development, HPKVN = Himachal Pradesh Kaushal Vikas Nigam, PIU = project implementation unit, PMU = project management unit, PWD = Public Works Department.

F. Environmental Budget

99. Most of the mitigation measures require the RLC contractor to adopt good site practices, which should be part of normal procedures, so there are unlikely to be major costs associated with compliance. Only those items not covered under budgets for

construction are included in the initial environmental examination (IEE) budget. The IEE costs include mitigation, monitoring, and capacity building costs. The summary budget for the environmental management costs for the subproject is presented in **Table 21**.

Table-21: Environmental Management and Monitoring Costs
(Rupees)

Monitoring Component	Rate	Amount	Source of Fund
PRECONSTRUCTION AND CONSTRUCTION PHASE			
Air Quality One location at RLC construction site, thrice a year (one sample at pre-construction and six samples during construction phase; total: seven samples)	10,000	70,000	Contractor
Water Quality One ground water sample from RLC construction site (one sample at pre-construction and six samples during construction phase; total: seven samples)	10,000	70,000	Contractor
Noise Quality One location at RLC site (one sample at preconstruction and six samples during construction phase; total 7 samples)	3000	21,000	Contractor
Training for Capacity Building of stakeholders	Covered in the consultancy cost of the Public Works Department and the project management consulting firm		
Total Pre Construction and Construction Phase Monitoring Cost		161,000	Contractor
OPERATIONS & MAINTENANCE (O&M) PHASE			
Air Quality One location at RLC site, thrice a year, for first 2 years (three samples a year, total of six samples)	10,000	60,000	PMU
Water Quality One ground water sample at RLC site, thrice a year, for first 2 years (three samples a year, total of six samples)	10,000	60,000	PMU
Noise Quality One location at RLC site, thrice a year, for first 2 years (three samples a year, total of six samples)	3,000	18,000	PMU
Total O&M Phase Monitoring Cost		138,000	PMU
Total Cost		299,000	
Contingencies @ 5%		14,950	
Total Budgeted Cost		313,950 (around 350,000)	

RLC = rural livelihood center, PMU = project management unit.

G. Environmental Monitoring and Reporting

100. The PWD will monitor and measure the progress of EMP implementation while supervising civil construction activities. PWD will undertake site inspections and document review to verify compliance with the EMP and progress toward the final outcome. PWD will submit monthly EMP monitoring and implementation reports to PMU, DORD, and HPKVN,

who will take follow-up actions, if necessary. The HPKVN will review and consolidate the monthly reports to prepare semiannual monitoring reports to ADB.

101. ADB will review project performance against the executing agency's commitments as agreed in the loan 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.

VI. PUBLIC CONSULTATION AND INFORMATION DISCLOSURE

A. Process for Consultations Followed

102. This subproject does not involve any elements that could have an adverse impact on the community. There is no deprivation of any sort for the residents or displacement of any groups. Particularly as to environmental impacts, the subproject can be characterized as innocuous.

103. In view of this, the need for holding a public hearing (as defined in EIA Notification 2006 of the Government of India) is not perceived at this stage. However, in compliance with ADB's guidelines, focused public consultations were undertaken during the site visits in subproject areas. Residents of the area were informed about the proposed subproject and their views were obtained. During the preparation of this IEE, consultations have been held with the officials of DOP, HPKVN, MOEFCC, DORD, and other stakeholders such as rural youth looking for job oriented skill development courses and PWD office Bharmour. The process of consultations was taken up as an integral part of the subproject in accordance with the following objectives:

- (i) Educate the general public, especially potentially impacted or benefited communities, individuals, and stakeholders about the proposed subproject activities.
- (ii) Familiarize the people with technical and environmental issues of the subproject for better understanding.
- (iii) Solicit the opinion of the communities and individuals on environmental issues and assess the significance of impacts due to the proposed development;
- (iv) Foster cooperation among officers of PIU, the community, and the stakeholders to achieve a cordial working relationship for smooth implementation of the subproject.
- (v) Identify the environmental issues relating to the proposed activity.

104. During the consultations, local youth and other stakeholders welcomed the project and suggested that skills should be imparted for promotion of local products, and potential employment within Himachal Pradesh. They demanded fast implementation of the subproject. The dates of consultations and stakeholders consulted are summarized in **Table 22**.

Table-22: Stakeholder Consultations and Dates

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
3	Himachal Pradesh Pollution Control Board	23 December 2015
4	Department of Environment, Government of Himachal Pradesh; HPKVN; and Department of Planning	14–18 March 2016
5	Department of Technical Education, Government of Himachal Pradesh	12 December 2015 and 16–17 March 2016
6	Local public at RLC site at Bharmour (Garola Panchayat)	February 14, 2017

HPKVN = Himachal Pradesh Kaushal Vikas Nigam.

105. The views, comments, and suggestions of stakeholders and their incorporation in project design are presented in **Tables 23 and 24**. The records of consultations (list of participants with signatures) and consultation photographs are given in **Appendix 6**. It is clear that most of the suggestions of stakeholders have been taken care in the project design.

Table-23: Views, Comments, and Suggestions of Stakeholders at Subproject Site and Addressal in Project Design

Sl. No.	Place	Date	Stakeholders	Issues Discussed	Outcome of Discussions and Consideration in Project Design and Implementation
1	Rural Livelihood center site, Garola Panchayat	14/02/2017	Local rural youth, people residing near the site, DORD officials and Garola Panchayat Elected representatives	<ul style="list-style-type: none"> • RLC proposal • Project benefits • Implementation schedule • Environmental and social impacts during project implementation • Disruption to utility services 	<ul style="list-style-type: none"> • The participants welcomed the project and informed the consultants that Chamba valley where RLC is proposed produces lot of honey and milk. Hence skill development courses focus on for to commercialization of these two products. This will improve economic conditions of locals. The consultants replied that there suggestion has been noted and will be considered while finalizing various courses to be offered at RLC. • The participants suggested that RLC should have hostel so that students from remote locations of district can join the courses and stay at RLC. The consultants replied that separate hostel has been planned for Girls and Boys. • Some participants suggested that courses for imparting local skills in Woolen Garments, Blankets and apple processing will help local youth in gaining employment locally. The consultants replied that courses on textile, food processing and machinery maintenance have been planned. These will be offered at RLC. • The ADB environment and social safeguard consultant asked the participants about suggestions to reduce pollution during construction and operation of RLC. The participants suggested that construction workers and staff should stay in house as weather at site is very cold during winter months. The local house should be hired so many issues related to sanitation facilities, drinking water availability will be solved. Further, the work force will be safe. The consultants replied that suggestion has been noted and will be included in EMP. The participants also emphasized the need to control dust and noise so that locals are not at inconvenience. The ADB consultant assured them that the Environmental Management Plan will include specific measures to address air and noise pollution issues during

Sl. No.	Place	Date	Stakeholders	Issues Discussed	Outcome of Discussions and Consideration in Project Design and Implementation
					<p>construction.</p> <ul style="list-style-type: none"> Local participants demanded that during construction, local contractors should be hired so that there is generation of employment. The participants suggested that locals should be given preference in employment during the construction. The consultants replied that the appointed contractor once mobilized will look into this demand. Since site is remote so chances of local people employment are more as they will be most effective during construction.

Table-24: Summary of Stakeholder Consultation at Institutional Level

Sl. No.	Place and date	Stakeholders	Issues Discussed	Outcome of Discussions and Consideration in Project Design and Implementation
1	Shimla, 23/12/2015 and 18/3/2016	Conservator Forest cum Nodal Officer CAMPA, State Forest Department	Clearances, permissions and No Objection Certificates - requirements from the State Forest Department and suggestions for the project	<ul style="list-style-type: none"> The ADB Environment and Social Safeguards consultant briefly explained the project concept to the state department officials. Officials advised 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. For vocational training purposes, the Government of Himachal Pradesh can give clearance up to 1.0 hectare of forest land. If application is submitted under the Forest (Conservation) Act, 1980, then the net present value of the land and cost for compensatory forestation are to be paid by the state government. If the application is submitted under Forest Rights Act 2006, then for educational institutes, payment of net present value and compensatory afforestation costs are exempted for the land up to 1.0 hectare. The clearance can also be issued at the level of the divisional forest officer. The Forest officials suggested that application may be made under the Forest Rights Act for faster clearance if any site falls under the forest. The ADB consultant assured

Sl. No.	Place and date	Stakeholders	Issues Discussed	Outcome of Discussions and Consideration in Project Design and Implementation
				<p>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.</p> <ul style="list-style-type: none"> Only the proposed women's polytechnic site at Rehan in Kangra district falls within forest area. Under the Forest (Conservation) Act, 1980, clearance is required for forest land diversion. This has been received as of 6 July 2016. The land has also been transferred in the name of DOTE (This point refers to other sub project of HPSPDP - Women's Polytechnic at Rehan in Kangra district).
2	Shimla, 23/12/2015	Senior Environmental Engineer, Himachal Pradesh Pollution Control Board	Clearances and permissions required from HPPCB and Department of Environment	<ul style="list-style-type: none"> The ADB consultant provided an overview on the Himachal Pradesh Skill Development Project (HPSPDP). 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 HPSPDP. 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 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 officials from local DOLE and DORD offices	ITI selected for upgrade, locations of RLCs and CLCs selected at ITI campus and site of proposed Women Polytechnic at Rehan in	<ul style="list-style-type: none"> The ADB 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 and 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

Sl. No.	Place and date	Stakeholders	Issues Discussed	Outcome of Discussions and Consideration in Project Design and Implementation
			Kangra district	<p>Kangra falls within revenue forest land ((This point refers to other sub project of HPSPDP - Women's Polytechnic at Rehan in Kangra district).</p> <ul style="list-style-type: none"> The ADB consultant suggested that DOTE should submit land ownership details and revenue records for all sites planned under the ADB funding for due diligence. He noted that DOTE should also start the process of getting clearances from the Forest Department for the site in Rehan, Kangra, where the Women's Polytechnic is planned (This point refers to other sub project of HPSPDP - Women's Polytechnic at Rehan in Kangra district).
4	Shimla, 21/12/2015	Department of Labor and Employment	Locations of MCCs planned, approximate area required for MCCs	<ul style="list-style-type: none"> The ADB consultant enquired about the proposed locations of MCCs. The officials replied that with ADB assistance, 11 MCCs planned. The planned locations are Hamirpur, Shimla, Bilaspur, Kullu, Dharmshala, etc. As per the Government of India guidelines, the built- up area of around 3,000 sq feet is needed for MCCs. 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	Locations of proposed RLCs, environmental and social safeguard issues, tree cutting, etc.	<ul style="list-style-type: none"> The ADB Environment and Safeguard consultant enquired about probable locations of RLCs planned. 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. The ADB consultant also suggested that sites should be at least 300 m away from buildings and monuments of heritage importance and those declared as protected monuments by the State Archaeological Department or by the Archaeological Survey of India. The officials noted the suggestions.

CLC = city livelihood center, DOTE = Department of Technical Education, HPPCB = Himachal Pradesh Pollution Control Board, IEE = initial environmental examination. ITI = industrial training institute, MCC = model career center, RLC = rural livelihood center.

B. Consultation and Information Disclosure

106. **Consultation:** To ensure continued public and stakeholder participation in the subproject life cycle, periodic consultations should be held at subproject site. This participatory process will ensure that all views of the people are adequately reviewed and suitably incorporated in the design and implementation process.

107. **Information disclosure:** Once the IEE is approved by the Government of Himachal Pradesh and ADB, an electronic version of the IEE will be placed in the official websites of DORD, HPKVN, Government of Himachal Pradesh, and ADB. Upon written request, any person seeking information can obtain a hard copy of the complete IEE document by paying for its photocopying cost. The PMU will issue notification on the disclosure mechanism in local newspapers, ahead of initiation of implementation of the subproject, providing information on the project, start dates, etc. The notice will be issued by the PMU in local newspapers one month ahead of the start of construction works. This will create awareness of the project implementation among the public.

C. Grievance Redress Mechanism

108. Considering that the subprojects of HPSPDP such as the proposed RLC at Bharmour will not generate any major environmental or social impacts, it is expected that grievances, if any, will be relatively minor. Nevertheless, a transparent and responsive grievance redress mechanism will be established to allow any person or persons to raise grievances if any pertaining to the environmental, social, or other relevant dimensions of the HPSPDP.

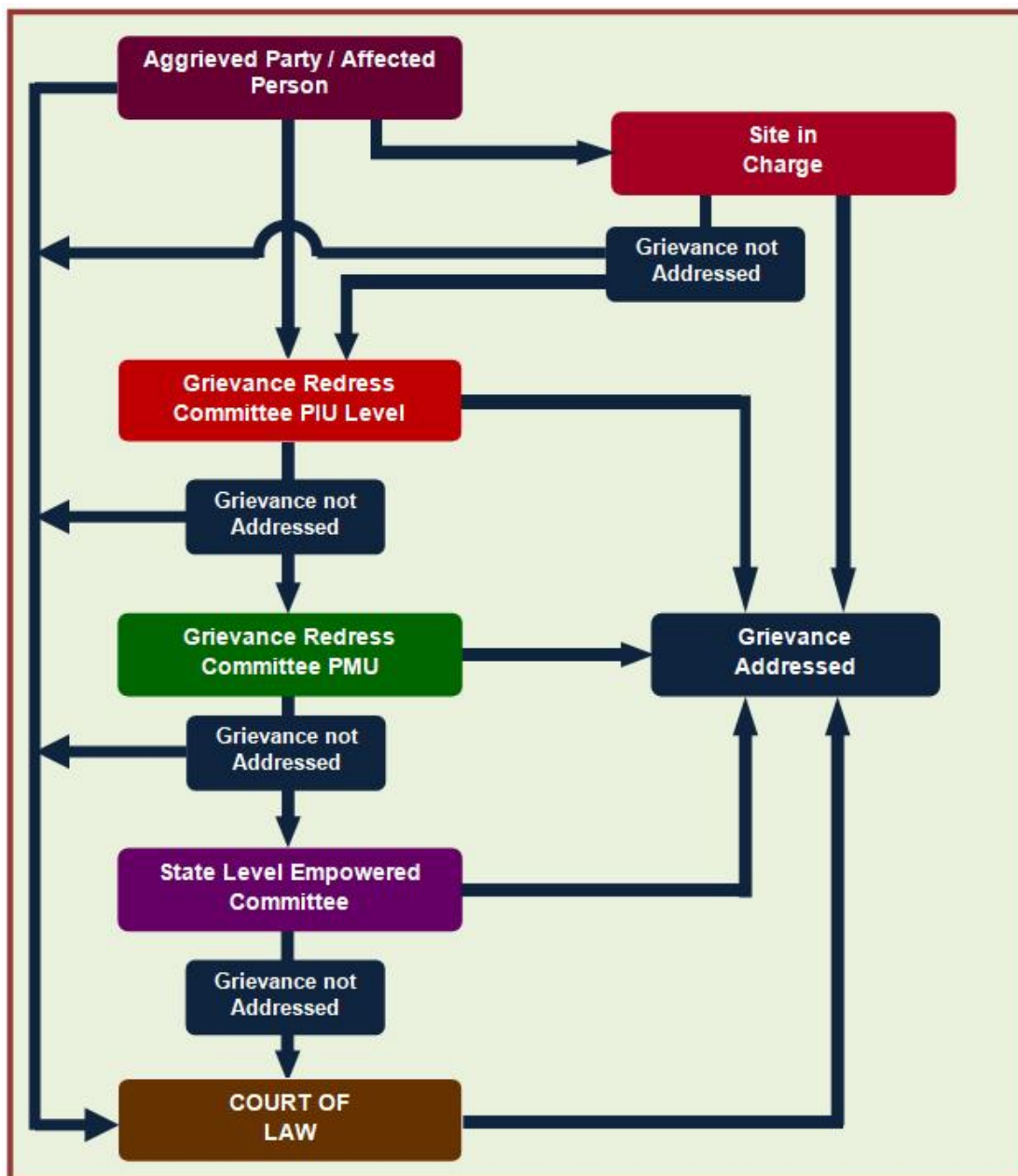
109. At the subproject site where construction of the rural livelihood center will take place, any affected person(s) will have the opportunity to complain to the contractor or local representative of PWD or DORD. A complaint register and complaint forms will be made available at the site office of contractor, with a display board indicating availability of such facility. Complaints received (written or oral communication) will be registered in the complaint register assigning complaint number with date of receipt and nature of grievance. The field office will examine the complaint and take corrective action. The action taken will be documented in the complaint register, and the complaint will be closed if it is satisfactorily addressed, and the complainant will be informed through e-mail or over telephone. In case the grievance referred does not fall under the purview of the project, the same will be intimated to the complainant. If the local subproject level officials are not able to resolve the complaint satisfactorily within 10 days, then the matter will be brought to the notice of the chief engineer of PWD in that zone and the director of the relevant PIU. The PIU will keep consolidated records of all complaints related to the project received at various levels in the zone. If the matter cannot be resolved at the PIU level within a month, then it will be referred to the state-wide grievance redress committee (GRC) established at HPKVN (the PMU) for receiving and redressing grievances and complaints that may arise owing to any of the subprojects and activities of HPSPDP across the state.

110. This GRC at HPKVN will be headed by the managing director, HPKVN, and senior representative of PWD and other implementing agencies as relevant.⁵ The concerned officers will review the grievances in detail, and try to address them promptly in line with the rules and regulations of the Government of Himachal Pradesh. The process should be gender-sensitive, transparent, and fair. Each complaint will be recorded and acknowledged by the GRC. In case the grievances cannot be resolved by the GRC within a reasonable time

⁵ The HPKVN website will include a link where affected person(s) can register their complaints online. A telephone number will also be on the website of HPKVN and the subproject sites, so that the general public can register their complaint with the PIU or PMU office.

period, then complaint will be submitted for the review of the project steering committee which is in charge of the overall HPSPDP. If the matter cannot be resolved satisfactorily by the GRC, then the aggrieved person or party can take the matter to a court of law any time during the Grievance Redressal Process. The grievance redress mechanism has been explained in **Figure-12**.

Figure-12: Grievance Redress Mechanism of the Himachal Pradesh Skill Development Project



PIU = project implementation unit, PMU = project management unit.

VII. FINDINGS AND RECOMMENDATIONS

111. The proposed subproject components do not involve any interventions in and around the natural and cultural heritage destinations and have less significant (direct or indirect) environmental impacts. It is expected that the proposed subproject will enhance economic growth and will help Himachali youth in gaining the skills for gainful employment within the State, other States and abroad. Since subproject site is in remote area of Himachal in tough terrain, it's functioning and operation is an urgent requirement, as currently students have to go to the other district of Himachal and neighboring Punjab State for education.

112. This IEE has identified minor likely impacts on water, air, and noise during the construction and operation period and has defined mitigation measures. Those mitigation measures will be implemented and monitored during the subproject execution. The overall environmental quality of subproject surroundings will not be affected as a result of operating the RLC as adequate sanitation facilities have been planned.

113. The specific management measures laid down in the IEE will effectively address any adverse environmental impacts due to the subproject. 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 phase.

VIII. CONCLUSIONS

114. Based on this IEE, it is expected that the proposed subproject components have only minor, localized, temporary, and insignificant environmental impacts. These can be easily mitigated through adequate mitigation measures and regular monitoring during the design, construction, and post construction phases of the subproject. Negative impacts on water, air quality, and noise levels during civil works and 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 subproject. Based on the findings of the IEE, the classification of the subproject as category 'B' is confirmed. No further special study or detailed EIA needs to be undertaken to comply with the Safeguard Policy Statement, 2009.

APPENDIX 1: ENVIRONMENT CATEGORIZATION

A. Instructions			
<p>(i) The project team completes and submits the form to the Environment and Safeguards Division (RSES) for endorsement by RSES Director, and for approval by the Chief Compliance Officer (CCO). OM F1/OP on <i>Safeguard Review Procedures</i> (paras. 4-7) provides the requirements on environment categorization.</p> <p>(ii) The classification of a project is a continuing process. If there is a change in the project components or/and site that may result in category change, the Sector Division submits a new form and requests for recategorization, and endorsement by RSES Director and by the CCO. The old form is attached for reference.</p> <p>(iii) In addition, the project team may propose in the comments section that the project is highly complex and sensitive (HCS), for approval by the CCO. HCS projects are a subset of category A projects that ADB deems to be highly risky or contentious or involve serious and multidimensional and generally interrelated potential social and/or environmental impacts.</p>			
B. Project Data			
Country/Project No./Project Title		: India/ 49108-002/ Himachal Pradesh Skill Development Project	
Department/ Division		: SARD/SAHS	
Processing Stage		: Loan Approved and Signed (Project under implementation)	
Modality		:	
[<input checked="" type="checkbox"/>] Project Loan		[<input type="checkbox"/>] Program Loan	[<input type="checkbox"/>] Financial Intermediary [<input type="checkbox"/>] General Corporate Finance
[<input type="checkbox"/>] Sector Loan		[<input type="checkbox"/>] MFF	[<input type="checkbox"/>] Emergency Assistance [<input type="checkbox"/>] Grant
[<input type="checkbox"/>] Other financing modalities:			
C. Environment Category			
[<input checked="" type="checkbox"/>] New [<input type="checkbox"/>] Recategorization — Previous Category [<input type="checkbox"/>]			
<input type="checkbox"/> Category A	<input checked="" type="checkbox"/> Category B	<input type="checkbox"/> Category C	<input type="checkbox"/> Category FI
D. Basis for Categorization/ Recategorization (please, attach supporting documents):			
<p>[<input checked="" type="checkbox"/>] Rapid Environmental Assessment Checklist</p> <p>[<input checked="" type="checkbox"/>] Project and/or Site Description</p> <p>[<input checked="" type="checkbox"/>] Other:</p> <p>1. Initial Environmental Examination (Subproject – Rural Livelihood Center at Garola Panchayat in Chamba District of Himachal Pradesh)</p>			
E. Comments			
Project Team Comments		SDES Comments	
<p>The HPSPDP project involves construction of new training facilities and upgrade of some existing buildings to improve the access of technical and vocational education and training (TVET) facilities to the underserved areas of Himachal Pradesh. The new facilities include construction of 7 CLCs, 7 RLCs and 1 polytechnic for women. Eleven existing employment exchanges will be upgraded into model career centers (MCCs). Out of the 7 RLCs, one RLC has been planned at Garola Panchayat in Bharmour Tehsil of Chamba district.</p> <p>The proposed RLC at Garola Panchayat will occupy built up area of 465.67 m² and will have four floors. Since RLC building is part of HPSPDP and will peruse educational and training activities to students for skill enhancement, according to the environmental rules and regulations of India and Himachal Pradesh, there will not be requirement for any prior environmental clearance. This is because educational activities have been exempted from environmental clearance under the EIA Notification 2006 of MoEFCC, Gol.</p>			

<p>The land for the sub project has already been transferred in the name of DORD and is in possession of DORD. The subproject site is free from encumbrances.</p> <p>The subproject site is not located within core and buffer zones of national parks, sanctuaries, tiger reserves, and biosphere reserves; or within 300 meters from the boundary of protected monuments of archaeological importance. <u>Hence, the subproject is category B with respect to environment.</u></p> <p>The ADB consultant has taken relevant government staff to the RLCC site, and shown them how to use ADB's rapid environmental assessment checklists. He has also conducted workshops on ADB's safeguard policies and processes with the implementing agencies including the Public Works Department, which will oversee the civil works.</p>	
F. Approval	
Proposed by:	Endorsed by:
Project Team Leader: SARD/SAHS Date:	Director, SDES Date:
Endorsed by:	Approved by:
Sungsup Ra Director, SAHS Date:	Chief Compliance Officer Date:
<input style="width: 30px; height: 30px; border: 1px solid black;" type="checkbox"/> Highly Complex and Sensitive Project	

APPENDIX 2: RAPID ENVIRONMENTAL ASSESSMENT 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 (SDES) 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/ Himachal Pradesh Skill Development Project (Establishment of Rural Livelihood Center at Garola Panchayat in Bharmour Tehsil of Himachal Pradesh)

Sector Division:

SAHS

Screening Questions	Yes	No	Remarks
A. Project Sighting Is the project area adjacent to or within any of the following areas:			The subproject involves establishment one RLC at Garola Panchayat in Bharmour Tehsil of Chamba district. This RLC will provide skill enhancing courses for gainful employment of Himachali youth. The built up area of RLC is 465.67 m ² . None of the subproject components are located within core and buffer zones of national parks, sanctuaries, tiger reserves, and biosphere reserves; or within 300 meters from the boundary of protected monuments of archaeological importance.
▪ Underground utilities		√	The RLC subproject site is located in an open area and is on undulating terrain. Hence there is no presence of any underground utilities.
▪ Cultural heritage site		√	There are no cultural heritage sites within 500 m of proposed RLC site.
▪ Protected area		√	The RLC site is not within or adjacent to protected area.
▪ Wetland		√	There are no wetlands within 10 km of proposed RLC site.
▪ Mangrove		√	The site is in hilly terrain of Himachal Pradesh and away from coastal area.
▪ Estuarine		√	The site is in hilly terrain of Himachal Pradesh and not close to any estuary.
▪ Buffer zone of protected area		√	The RLC site is not in buffer zone of protected area.
▪ Special area for protecting biodiversity		√	There are no special areas for protecting biodiversity within 10 km aerial distance.
▪ Bay		√	The site is in hilly terrain of Himachal Pradesh and away from coastal area.
B. Potential Environmental Impacts Will the project cause...			

Initial Environmental Examination Report
Development of Rural Livelihood Center at Bharmour

Screening Questions	Yes	No	Remarks
▪ Encroachment on historical or cultural areas?		√	The construction and operation of RLC will not cause any impact on historical or cultural areas.
▪ Encroachment on precious ecology (e.g., sensitive or protected areas)?		√	The construction and operations of RLC will not cause any impacts on sensitive or protected areas.
▪ Impacts on the sustainability of associated sanitation and solid waste disposal systems?		√	For waste water, septic tanks are planned as part of sanitation system in subproject building. The solid waste will be disposed off by integrating with the disposal systems of the Garola Panchayat.
▪ Dislocation or involuntary resettlement of people?		√	The subproject site is under the ownership of DORD. The site is unencumbered vacant plot. This has been confirmed during the site visits.
▪ Disproportionate impacts on the poor, women and children, Indigenous Peoples or other vulnerable groups?		√	<p>This project is aimed at imparting relevant TVET skills to needy segments and women. In fact, this project is classified as a “GEN” or gender equity project. Hence, it will not have any adverse impact on them or children.</p> <p>The state of Himachal Pradesh is divided into 12 districts. Of these, the Kinnaur and Lahaul-Spiti districts in their entirety, and Pangi and Bharmour (now <i>tehsil</i> Bharmour and <i>subtehsil</i>, Holi) subdivisions of the Chamba district, are notified as scheduled tribal areas of Himachal Pradesh since the proportion of scheduled tribes is 50% or more. These districts are in the extreme north and northeast of Himachal Pradesh, forming a contiguous belt in the far hinterland behind high mountain passes. Given their high altitude, inhospitable terrain, harsh winters, sparsely and dispersed population, and poor connectivity (especially during winters and rainy seasons), no civil works (i.e., construction of training facilities) have been planned here. Since subproject site is not in Kinnaur and Lahaul -Spiti district, therefore, there will be no adverse impact on Indigenous Peoples. Further, joining the skill development courses will be optional so no adverse impact on Indigenous Peoples is anticipated.</p>
▪ Accident risks associated with increased vehicular traffic, leading to loss of life?		√	RLC building to be constructed is of relatively small scale and site is located outside built up area. so there will be no effect on local vehicular traffic (or risk of accidents), either during the construction or operational phases. The site has narrow access so all material transport for construction will be manually. The project does not require traffic management.
▪ Increased noise and air pollution resulting from increased traffic volume?		√	As noted above, there would be no increase in traffic volume owing to this subproject. Hence, there would be no increase in noise or air pollution.
▪ Occupational and community health and safety risks?		√	<p>The environmental impact related to the construction of RLC building will be minor in nature and mostly limited to the duration of construction. The impact will be confined mainly within the construction site. These minor impacts will be mitigated through Environmental Management Plan.</p> <p>Potential occupational health and safety risks during</p>

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Development of Rural Livelihood Center at Bharmour

Screening Questions	Yes	No	Remarks
			construction will be addressed by including provisions in the contract documents and implementation of the environment mitigation measures. During the operation phase, these issues will be taken care of through formulation of safe operating procedures.
<ul style="list-style-type: none"> Risks and vulnerabilities related to occupational health and safety due to physical, chemical, biological, and radiological hazards during project construction and operation? 		√	<p>As noted above, the environmental impact related to the construction of RLC building will be minor and mostly limited for the duration of construction. There will not be any physical, chemical, biological, and radiological hazards during project construction and operation phases.</p> <p>Adequate provisions will be included in the relevant contract documents to address potential occupational health and safety hazards during the construction and operation phases.</p>
<ul style="list-style-type: none"> Generation of dust in sensitive areas during construction? 		√	<p>During construction, there will be minor dust generation due to material handling and operation of construction machinery and equipment. This will be controlled through dust suppression measures e.g. water spray and through proper maintenance of construction equipment and machinery. It will also be ensured that construction equipment and machinery conform to the emission norms laid down by the Central Pollution Control Board.</p>
<ul style="list-style-type: none"> Requirements for disposal of fill, excavation, and/or spoil materials? 	√		<p>Since the subproject site is in undulating terrain. The cut generated will be utilized to the extent possible,. For any surplus cut, site will be identified by PWD for disposal. Since building size is small, significant surplus is not expected to be generated. The generation of spoils is not anticipated except minor construction waste. The construction waste will be utilized to the extent possible. Any remaining waste will be disposed off at disposal site identified by the PWD.</p>
<ul style="list-style-type: none"> Noise and vibration due to blasting and other civil works? 		√	<p>During construction, some noise will be generated due to the operation of construction equipment and machinery. Adequate mitigation measures have been stipulated in the EMP. Since the proposed RLC building is relatively small, no heavy equipment and machinery will be used. No blasting will be required in the construction. Hence, there will not be any significant shaking or vibrations. Further, no construction works will be undertaken at night at the subproject site. There will be periodic noise monitoring at construction site as per the monitoring plan prepared as part of EMP.</p>
<ul style="list-style-type: none"> Long-term impacts on groundwater flows as result of needing to drain the project site prior to construction? 		√	<p>Since the subproject site is in hilly terrain and has swift drainage pattern, no adverse impact on ground water flow are anticipated.</p>
<ul style="list-style-type: none"> Long-term impacts on local hydrology as a result of building hard surfaces in or near the building? 		√	<p>The subproject site is in hilly terrain. The water recharge potential is almost nil because of rocky strata. Hence no impacts on hydrology are anticipated.</p>
<ul style="list-style-type: none"> Large population influx during project construction and operation that causes increased burden on social infrastructure and services 		√	<p>The subproject is small in size (building area <500 m²) construction workforce will not exceed 50. These workers will be mainly local due to terrain conditions. Hence large influx of population is not anticipated. During operation phase, RLC will have its own hostel and all the students</p>

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Screening Questions	Yes	No	Remarks
(such as water supply and sanitation systems)?			and trainees will be local from within Himachal Pradesh. Hence, there will not be any influx of people. Adequate facilities (as per specified codes) for water and sanitation have been designed for the RLC building. During construction, contractors will arrange for potable water supply for the workers, and also provide adequate sanitation facilities. Hence, there will not be any burden on social infrastructure and services during the project life cycle.
▪ Social conflicts if workers from other regions or countries are hired?		√	Preference will be given to locally available labor. The construction activities are relatively small in nature so requirement of workers will not be significant. There would be no need to hire workers from other regions or countries.
▪ Risks to community safety caused by fire, electric shock, or failure of the buildings safety features during operation?		√	Since the RLC building to be constructed will be new, the latest national building codes and safety measures will be followed.
▪ Risks to community health and safety caused by management and disposal of waste?		√	During the construction phase, waste collection and disposal system will be carried out by the contractor. The processes being followed will be reviewed and approved by the Public Works Department. The firm to be engaged for ensuring quality of civil works will help the Public Works Department in ensuring that the required safety measures are adhered to while managing and disposing of waste. For the operation phase, adequate provisions have been made in the RLC building design to take care of management and disposal of waste water and other solid waste.
▪ 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?		√	Specific community risks are not foreseen due to operation since the RLC site has good access through the road. The RLC building has been designed following applicable seismic coefficients for Himachal Pradesh. The building will be maintained regularly in the operation phase.

EMP = environmental management plan, RLC = Rural Livelihood center

APPENDIX 3: A CHECKLIST FOR PRELIMINARY CLIMATE RISK SCREENING

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

Sector: Education

Subsector: Technical Vocational Education and Training

Division/Department: SAHS/ SARD

Screening Questions		Score ^a	Remarks
Location and Design of project	Is sighting 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?	1	Since Himachal Pradesh is a hilly state, there is risk of landslides during the rainy season. However, the road connectivity to subproject site is through national highway and reliable.
	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 RLC site do not demand usage of any specific construction material to counter act weather phenomenon
	Would weather, current and likely future climate conditions, and related extreme events likely affect the maintenance (scheduling and cost) of project output(s)?	0	No, weather conditions at RLC site do not require specific scheduling for maintenance
Performance of project outputs	Would weather or climate conditions and related extreme events likely affect the performance (e.g., annual power production) of project output(s) (e.g., hydro-power generation facilities) throughout their design life time?	0	Not applicable

^a Options for answers and corresponding score are as follows: 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 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 (including 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) – Medium Risk

Other Comments: None

Prepared by: Shreeniwas Verma, Environmental Safeguard Specialist

APPENDIX 4: SITE PHOTOGRAPHS



Line shows top and far extent of site as shown from existing building



Line shows near boundary, existing building and likely access level



Water tank and bushes mark upper limit, path the lower limit



Entry of the building is likely to be from this path which will be the lowest point of propose building

**APPENDIX 5: LAND RECORDS CERTIFIED BY THE REVENUE DEPARTMENT
OFFICIALS SHOWING LAND OWNERSHIP OF GOVERNMENT OF HIMACHAL
PRADESH**

क्र. संख्या
1093771

प्रारूप-1

[देखिए नियम 3(1)]

भाग-1 किसान का विवरण
1093771

1. किसान पास बुक संख्या _____

2. पटवार वृत्त की पास बुक संख्या 680

3. किसान का नाम लल्लू बिआण

4. यदि अनुसूचित जाति/अनुसूचित जनजाति से सम्बन्धित है तो जाति/जनजाति का नाम _____

5. पिता/पति का नाम _____

6. संरक्षक का नाम यदि नाबालिग हो _____

7. चक का नाम पतिप

8. गांव का नाम गलेला

9. तहसील/उप-तहसील हिला

10. जिला चम्बा

11. क्या टी. डी. अधिकारों का हकदार है _____

Attested

पासपोर्ट आकार की
फोटो

तहरीरकर्ता

पड़ताल शुद्ध

तारीख सहित हस्ताक्षर और
पटवारी का नाम

तारीख सहित हस्ताक्षर और
कानूनगो का नाम

(मोहर)

(मोहर)

1

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भाग-3 जमावन्दी का ब्यौरा

जिला होशियार तहसील/उप-तहसील होशियार

खेती संख्या	संकेत संख्या	अवकाश का नम	भूमि वर्ग	नाम कार्यवाही
1	2	3	4	5
232	261		सरावा हिमालय उदका	कठुजा ठ लोक विभागे

4

भाग-3 जमावन्दी का ब्यौरा

जिला होशियार साल 1997/98

खेती संख्या	संकेत संख्या	अवकाश का नम	भूमि वर्ग	भूमि कैसे प्राप्त की गई करीब, कमीशन, धन, कप, मुजबियात इत्यादि	कौशियत
6	7	8	9	10	11
2015	74	5-3	बागिया बागिया फलदार	मले	
		4-8	गैर मुजबियात कबाज		
		0-15			

5

तहसील होशियार
तारीख सहित पटवारी के हस्ताक्षर

पहताल शुद्ध Complete
तारीख सहित कानूनगो के हस्ताक्षर

क्रम संख्या
1093771

प्रारूप - 1
[देखिए नियम 3 (1)]
भाग - 1 किसान का विवरण
1093771

1. किसान पास बुक संख्या _____

2. पटवार घृत की पास बुक संख्या 680

3. किसान का नाम लालू बिमरा

4. यदि अनुसूचित जाति / अनुसूचित जनजाति से सम्बन्धित है तो जाति / जनजाति का नाम _____

5. पिता / पति का नाम _____

6. संरक्षक का नाम यदि नाबालिग हो _____

7. चक का नाम पतिप

8. गांव का नाम गोपला

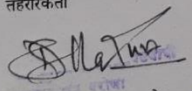
9. तहसील / उप-तहसील होला

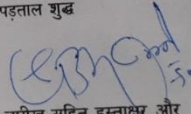
10. जिला लखी

11. क्या टी. डी. अधिकारों का हकदार है _____

Attested

पासपोर्ट आकार की
फोटो

तहरीरकर्ता

तारीख सहित हस्ताक्षर और
पटवारी का नाम
(मोहर)

पड़ताल शुद्ध

तारीख सहित हस्ताक्षर और
कानूनगो का नाम
(मोहर)

1



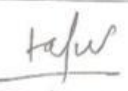







APPENDIX 6: PHOTOGRAPHS AND ATTENDANCE SHEETS OF CONSULTATIONS

A. Photographs



B. Attendance Sheets

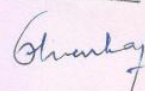

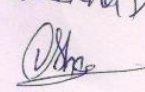
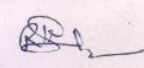

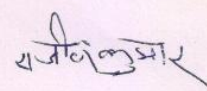
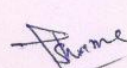
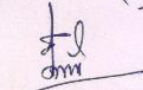
Attendance Sheet of the meeting held on 18-3-2016 at 11.00 AM in Conference Hall Yojna Bhawan, Shimla-2 with ADB consultants regarding Himachal Pradesh Skill Development Project.

Sr. No.	Name of the Officer and Designation	Mobile No. / e-mail address.	Signature
1	Krishan Sharma Deputy Dir Employment	94184-50437 dde-lep-hp@nic.in	
2	Dr. D.K. Sharma, Sr. Env. Engineer	9418027098 pcbseeshimla@gmail.com	
3	Dr. H.K. Gupta, IFS Chief Scientific Officer Deptt. of Env. S&T & JMS at Science & Technology	9418020469 hernanjiifs@gmail.com	
4	Er. Umesh Pathania Technical Officer & Estate Officer State Council Science Tech & Env. & DEST.	9418310231 umeshpathania@del-mat.com	
5	Dr. Bhuram Sharma. Project Director HPS LHM. Deptt of Rural Development (H.P)	94186-70325. h4m hp@gmail.com	
6	SN Verma ADB Consultant Environment & So	0984224458 etstudio2@gmail.com	
7	Rajesh Kumar IFS	9418000151	
8	J. Balasubramanian Prominent	9600044487	
9	Basab Banerjee TVET Expert	7838577785	
10	DEEPAK ANGRA HOD(CE) DTE Sundernagar	9418107688 angradeepak@yahoo.co.in	

RLC Site Bharmour

Dated: 14/02/2017

Stakeholder Consultations

<u>Sr.</u>	<u>Name</u>	<u>Phone No</u>	<u>Signature</u>
1	Vivek Chauhhan BDO Bharmour.	9805242544	
2.	Smt. Tripta Devi		
3.	Radhan h.p. harola —	9816712541	Tripta Devi
	Smt. Ekta Devi		
4.	Vard member -5 —	9816574575	
	Smt. Surekha		
	Vard member -6 —	8627084690	Surekha Devi
5.	Smt. Veena Devi	8894154089	
	Vard member -7 —		
6.	Sh. Rajesh Kumar.		
	Up - Radhan h.p. harola —	98052-35103	
7.	Sh. Ramesh Kumar.		
	Vard member -3 —	98169-46692	Ramesh. Kumar
8.	Sh. Rakesh Kumar		
	P/Sec. Gt. harola —	88943-04002	
(9)	Sector. S/o Sh. Surjan		Surjan
(10)	Rajeev. kumar s/o Sh. Bidal Ram.	98169-34341	
(11)	Parshotam Chand S/o. Krishan Chand	9805676314	
(12)	Kamlesh Kumar Sharma S/o. Sh. Tota Chand		

- PTO -

Sr. No	Name	Phone No	Signature
13	Mr. Jai Desai, Baram -	98166-06540	Jai Desai
14	Sh. Tek Chand / Ullans -	9805500308	Tek Chand
15	Ajeet Kumar St. Sh. Kalu Ram -	9805045916	AJEET Kumar
16	Sagto Ram vill Ullans & Ullans -	78071 40026	सगत राम
17	Devi Lal vill Kakri P.O. Garoda -	9816029845	Devi Lal
18	Suresh Kumar / Ram Sam V. P.O. Ullans -	8894061706	Suresh Kumar
19	Pritam Singh / P.O. Baram -	9805120781	Pritam Singh
20	Raj Ram / Sh. Singh / P.O. -	9805802095	Raj Ram
21	Krishna Chand / Sh. Ganga Ram V. Kakri -	9805716906	Krishna Chand
22	Piyar Singh / Sh. Bheet Singh V. -	9816526085	Piyar Singh
23	Sudheer Kumar / P.O. Ram V. -	9805833815	Sudheer Kumar
24	Ramdevi / Sh. Baldev Singh V. -	Ullans	Ramdevi
25	Usha Desai / Pawan / Ram V. -	Ullans 8894401426	उषा देवी
26	Durga Ram / Sh. Kripa Ram V. -	Garoda 9805443209	Durga Ram
30	Amer Singh St. Sh. Harpal Garoda -	98168 91907	Amer Singh
31	Surjeet Singh St. Sh. Sardass Garoda -	9805464685	Surjeet Singh
32	Raj Kumar St. Ganga Ram -	Ullans 9805716914	Raj Kumar