

Appendix A

Environmental Management Plan

ENVIRONMENT MANAGEMENT PLAN (EMP)

A. Institutional Arrangements for Project Implementation

1. The Government of Himachal Pradesh through Department of Planning (DoP) is the Executing Agency (EA). The EA (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 subproject level; (iv) provides overall strategic guidance on technical supervision and project execution; and (v) ensures overall compliance with the loan covenants.
2. The implementing agencies (IAs) in the project are HPKVN, DoUD, DoRD, DoTE, PWD and DoLE. For all CLCs project implementing agencies will be DoUD, HPKVN and PWD. The implementing 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 subprojects for due diligence requirements and approve subproject proposals; (iv) bidding, evaluation and contract award; (v) managing and disbursing funds; (vi) review compliance with loan covenants, contract specifications, work plans and quality control; and (vii) consolidate and submit progress reports, finance and accounting / audit reports, and matters requiring higher level decision to state-level empowered committee (SLEC) and ADB.
3. A State-level empowered committee (SLEC) has been established in Himachal Pradesh, chaired by State's Chief Secretary, with Principal Secretary/Secretary of the Department of Planning as Member Secretary and comprised of Secretaries from relevant line departments (PWD, DoUD, DoRD, DoLE, HPKVN MD). The SLEC has been empowered to take all decisions on behalf of the State and will (i) act as a policy making body, (ii) provide overall advice and guidance to the State's executing agency and PMU, and (iii) accord all approvals under the Project.
4. 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 subprojects to satisfy ADB's due diligence requirements and approving subproject proposals submitted by PIUs and line departments; (iv) bidding, evaluation and contract award; (v) managing and disbursing funds; (vi) reviewing compliance with loan covenants, contract specifications, work plans and quality control; (vii) consolidating and submitting progress reports, finance and accounting/audit reports, and matters requiring higher-level decision, to the SLEC and ADB.

5. The sub-projects will be implemented by the Project Implementation Units (PIUs) at local level, comprising of personnel drawn from relevant line departments on deputation and outside of government and will be headed by a Project manager. The PIUs will be responsible for: (i) prioritizing and preparing subproject proposals; (ii) providing day-to-day assistance, supervision and guidance to the PWD and an agency to be hired for quality check; (iii) conducting detailed assessments and surveys including public consultation and input from stakeholders; (iv) preparing detailed designs, specifications, schedule of quantity, bidding documents, and related documentation; (v) implementing civil works and related activities; (vi) reporting to PMU; (vii) preparing regular progress reports for the SLEC, the executing agency and ADB through PMU; and (viii) supervising construction, conducting quality control, approving progress payments to contractors; and (ix) maintaining records and accounts on an up-to-date basis and making these available to ADB, its missions, or auditors for inspection.
6. 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, Government of Himachal Pradesh, and Government of India 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.
7. The EA will engage one agency for the quality check and to meet time line requirements. This agency will work under the PMU. The scope of services of the agency will include but not necessarily be limited to: (i) surveys, verification of feasibility studies and base maps;

- (ii) project planning and management support to the PIU; (iii) finalization of design criteria, preparation of manuals, guidelines and systems; (iv) preparation of detailed design and bid documents; and (v) construction management and contract administration.
8. The Environmental Management Plan (EMP) translates recommended mitigation and monitoring measures into specific actions that will be carried out by the contractor and proponent. EMP deals with the management measures and implementation procedure of the guidelines along with enhancement measures recommended to avoid, minimize and mitigate foreseen environmental impacts of the project. For each mitigation measure to be taken, its location, timeframe, implementation and overseeing/ supervising responsibilities are listed in the EMP. **Tables 10 to 12** presents a generic EMP to guide the contractor in mitigating environmental impacts.

Responsibility for updating IEE during Pre-Construction and Construction

9. **Responsibility for monitoring.** During construction, environmental specialist of safeguards cell at HPKVN and the designated representative engineer of the PIU will monitor the contractor's environmental performance. During the operation phase, monitoring will be the responsibility of the PMU. The Environmental specialist will prepare monthly and quarterly report.
10. **Responsibility for Reporting.** PMU will submit to ADB semi-annual reports on implementation of the EMP and will permit ADB to field environmental review missions which will review in detail the environmental aspects of the project. Any major accidents having serious environmental consequences will be reported immediately. PMC's Environment Safeguard Specialist will assist PMU for finalization semi-annual and annual progress reports.

Table 10: Pre-Construction Phase Environmental Management Plan

Sl. No.	Environmental Issues	Mitigation Measures	Parameter /Indicator for Compliance	Responsible for Implementation	Responsible for Supervision	Frequency for Monitoring	Sources of Fund for Implementing Mitigation Measure
1	Lack of sufficient planning to assure long term sustainability of the improvements and ensure protection of the assets created.	Design has included provisions for ensuring effective maintenance and protection of the assets to be created so as to ensure the long term sustainability. The long term sustainability has been ensured by taking into consideration appropriate Bureau of Indian Standards Codes (BIS) for design, Seismic Zone V coefficient, appropriate wind load factor (corresponding to 39 m/s wind speed), and detailed design after carrying geotechnical investigations and topographic survey.	Verification of design parameters	PWD	PMU/PMC	Review after completion of DPR	Part of PWD/PMC Professional Fee
2	Layout of components to avoid impacts on the aesthetics of the site	The project components siting will avoid impacts on the aesthetics of the site and surroundings and CLC building will very well mix	CLC building exterior	PIU / PWD	PMU/PMC	Review after completion of DPR	Part of PWD/PMC Professional Fee

Sl. No.	Environmental Issues	Mitigation Measures	Parameter /Indicator for Compliance	Responsible for Implementation	Responsible for Supervision	Frequency for Monitoring	Sources of Fund for Implementing Mitigation Measure
		with local buildings.					
3	Slope stability related issues	The plot area for CLC building is flat, however, during construction any exposed slopes at excavated areas will be covered and slope protection measures will be provided specially at side slopes of internal roads.	Slope protection measures on side slopes of access path, internal road, etc.	PIU/PWD	PMU/PMC	Review of recommended slope protection measures	Part of PWD/PMC Professional Fee
4	Increased storm water runoff from alterations of the site's natural drainage patterns due to landscaping, excavation works, construction of parking lot, and addition of paved surfaces	Design of proposed CLC building enables efficient drainage of the plot and maintains natural drainage patterns. The storm water generated will be diverted to local drain through a properly constructed drainage system.	Arrangement for proper diversion of storm water runoff	PIU/PWD	PMU/PMC	After mobilisation 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	The detailed designs for the sub-project have ensured that environmental sustainability principles, including energy efficiency,	Specifications of rain water harvesting structures, electrical	PIU/PWD	PMU/PMC	During finalisation of DPR	Part of project cost

Sl. No.	Environmental Issues	Mitigation Measures	Parameter /Indicator for Compliance	Responsible for Implementation	Responsible for Supervision	Frequency for Monitoring	Sources of Fund for Implementing Mitigation Measure
	of sub-project components	resource 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 BEE certified equipments • Usage of energy efficient lighting fixtures (LED) • Provision of P-V cells on roof for solar power. 	fixtures, details of water heating system				
6	Consents, permits, clearances, no objection certificate (NOC), etc.	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	PIU	PMU	check consent for establishment of construction camp , approval from civic authorities for CLC construction	Project cost
7	Establishment of baseline environmental	Conduct documentation of location of components, areas for construction zone	Records and Photographs	Contractor	PIU/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	Sources of Fund for Implementing Mitigation Measure
	conditions prior to start of civil works	(Camp, staging, storage, stockpiling, etc.) and surroundings (within direct impact zones). Include photos and GPS coordinates					
8	Utilities	<p>1-The locations and operators of utilities to be impacted should be identified and documented in DPR documents to prevent unnecessary disruption of services during the construction phase.</p> <p>2-Require contractor to prepare a contingency plan to include actions to be done in case of unintentional interruption of services.</p> <p>3-Obtain from the PIU and/or PWD the list of affected utilities and operators;</p> <p>4-If relocations are necessary; contractor will coordinate with the</p>	<p>List and maps showing utilities to be shifted</p> <p>Contingency plan for services disruption</p>	<p>- PWD will prepare preliminary list and maps of utilities to be shifted</p> <p>- During detailed design phase, contractor to (i) prepare list and operators of utilities to be shifted; (ii) contingency plan</p>	PIU/PWD	Pre-Construction phase	Contractor

Sl. No.	Environmental Issues	Mitigation Measures	Parameter /Indicator for Compliance	Responsible for Implementation	Responsible for Supervision	Frequency for Monitoring	Sources of Fund for Implementing Mitigation Measure
		providers to relocate the utility.					
9	Social and Cultural Resources	<p>1-Consult Archaeological Survey of India (ASI) or Himachal Pradesh State Archaeology Department to obtain an expert assessment of the archaeological potential of site.</p> <p>2-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.</p> <p>3-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</p>	Chance find protocol	<p>- PMC to consult ASI or HP State Archaeology Department</p> <p>- PMC to develop protocol for chance finds</p>	PMU	Prior to start of construction activities	PMC

Sl. No.	Environmental Issues	Mitigation Measures	Parameter /Indicator for Compliance	Responsible for Implementation	Responsible for Supervision	Frequency for Monitoring	Sources of Fund for Implementing Mitigation Measure
		ensure they are protected and conserved.					
10	Construction Camp - Location, Selection, Design and Layout	<p>Siting of the construction Camp shall be as per the guidelines below and details of layout to be approved by PWD.</p> <p>The potential sites will be selected for labour camp and these shall be visited by the environmental expert of safeguards cell and one having least impacts on environment will be approved by the PWD and safeguard cell. As far as possible construction camp will be established at vacant land near CLC plot Ground to avoid impact on other land.</p> <p>Location for storage of construction materials shall be identified CLC site or at any building close to CLC site.</p> <p>Construction sanitation facilities shall be</p>	Construction Camp site, and locations of material storage areas, sanitation facilities	Contractor	PWD/ PIU	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	Sources of Fund for Implementing Mitigation Measure
		adequately planned,					
11	Sources of construction materials	<p>Use quarry sites and sources licensed by the GoHP.</p> <p>Verify suitability of all material sources and obtain approval from PIU.</p> <p>If additional quarries are required after construction has started, obtain written approval from PIU. Submit to PWD on a monthly basis documentation of sources of materials.</p>	Permits issued to quarries/sources of materials	<p>Contractor</p> <p>PMC and PWD to verify sources (including permits) if additional is requested by contractor</p>	<p>PMU</p> <p>PIU</p>	Upon submission by contractor	PMC and PWD as part of consultancy fee
12	Access for Construction material transportation	<p>Plan transportation routes so that heavy vehicles do not use narrow local roads, except in the immediate vicinity of site.</p> <p>Schedule transport and hauling activities during non-peak hours.</p>	Traffic management plan	Contractor	PIU and PWD	During Delivery of construction materials	Contractor

Sl. No.	Environmental Issues	Mitigation Measures	Parameter /Indicator for Compliance	Responsible for Implementation	Responsible for Supervision	Frequency for Monitoring	Sources of Fund for Implementing Mitigation Measure
		<p>Locate entry and exit points in areas where there is low potential for traffic congestion.</p> <p>Keep the site free from all unnecessary obstructions.</p> <p>Drive vehicles in a considerate manner.</p> <p>Coordinate with the Traffic Police Department for temporary road diversions and for provision of traffic aids if transportation activities cannot be avoided during peak hours.</p>					
13	Occupational health and safety	<p>Comply with IFC EHS Guidelines on Occupational Health and Safety</p> <p>Develop comprehensive site-specific health and safety (H&S) plan. The overall objective is to provide guidance to contractors on establishing a management strategy and applying practices that</p>	Health and safety (H&S) plan	Contractor	PMU and PMC PIU and PWD	During construction phase	Contractor

Sl. No.	Environmental Issues	Mitigation Measures	Parameter /Indicator for Compliance	Responsible for Implementation	Responsible for Supervision	Frequency for Monitoring	Sources of Fund for Implementing Mitigation Measure
		<p>are intended to eliminate, or reduce, fatalities, injuries and illnesses for workers performing activities and tasks associated with the project.</p> <p>Include in H&S plan measures such as: (i) type of hazards in the intake wells site; (ii) corresponding personal protective equipment for each identified hazard; (iii) H&S training for all site personnel; (iv) procedures to be followed for all site activities; and (v) documentation of work-related accidents.</p> <p>Provide medical insurance coverage for workers.</p>					
14	Public consultations	Continue information dissemination, consultations, and involvement/participation of stakeholders during project	<p>-Disclosure records</p> <p>- Consultations</p>	PMU,PMC PIU,PWD and Contractor	PMU and PMC	<p>- During updating of IEE Report</p> <p>- During preparation of</p>	<p>PMU</p> <p>Contractor to allocate funds to support</p>

Sl. No.	Environmental Issues	Mitigation Measures	Parameter /Indicator for Compliance	Responsible for Implementation	Responsible for Supervision	Frequency for Monitoring	Sources of Fund for Implementing Mitigation Measure
		implementation.				site- and activity-specific plans as per EMP - Prior to start of construction - During construction	

Table 11: Construction Phase Environmental Management Plan

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 camp site. These facilities will include dust bins in adequate numbers for solid waste collection, and separate toilets for male and females. These toilets facilities shall be maintained and septic tanks/soak pits shall be	Construction camp sanitation facilities	Contractor	PWD/PIU	Regularly during construction phase	Contractor

Sl. No.	Environmental Issues	Mitigation Measures	Parameter /Indicator for Compliance	Responsible Implementation	Responsible Supervision	Frequency for Monitoring	Sources of Fund for Implementing Mitigation Measure
		provided at the toilets. The dust bins shall be regularly emptied and waste from camp site shall be disposed off at designated locations.					
2	Traffic Circulation plan during construction	Prior to commencement of site activities and mobilization on ground, the Contractor will prepare and get approved from the Engineer (PWD), circulation plan during construction for safe passage of public vehicles so that locals are not at inconvenience. The Contractor with support of the PIU will carry out dissemination of these information and circulation plan at site and at key access road to CLC site.	Safe movement of Traffic	Contractor	PWD/PIU	Every day during construction phase	Contractor
3	Site clearance activities, including delineation of construction areas	Only ground cover/shrubs that impinge directly on the permanent works or necessary temporary works shall be removed	Pre-construction records of sites and vegetation in area of construction	Contractor	PWD / PIU	Duration of site preparation	PWD/PIU

Sl. No.	Environmental Issues	Mitigation Measures	Parameter /Indicator for Compliance	Responsible Implementation	Responsible Supervision	Frequency for Monitoring	Sources of Fund for Implementing Mitigation Measure
		with prior approval from the Environmental Expert of safeguard cell. All areas used for temporary construction operations will be subjected to complete restoration to their former condition with appropriate rehabilitation procedures. The 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 sites	Sufficient supply of cold potable water to be provided and maintained. If the drinking water is obtained from an intermittent public water supply then storage tanks will be provided. For this contractor will submit his plan how availability of drinking water shall be assured. In case it is obtained from the natural	Water supply source and availability of water , permission of local authority if obtained from local spring	Contractor	PWD/PIU	During Construction phase regularly	Contractor

Sl. No.	Environmental Issues	Mitigation Measures	Parameter /Indicator for Compliance	Responsible Implementation	Responsible Supervision	Frequency for Monitoring	Sources of Fund for Implementing Mitigation Measure
		spring then permission from local authorities shall be obtained.					
5	Waste disposal	<p>The pre-identified disposal location shall be part of Comprehensive Waste Disposal Plan. Solid Waste Management Plan to be prepared by the Contractor in consultation with local civic authorities.</p> <p>The Environmental Specialist of PWD shall approve these disposal sites after conducting a joint inspection on the site with the Contractor.</p> <p>Contractor shall ensure that waste shall not be disposed off near natural streams in the surroundings of site and along the access path.</p>	Waste Disposal sites, waste management plan	Contractor	PWD/PIU	Regularly during construction phase	Contractor
6	Stockpiling of construction materials	Stockpiling of construction materials will be done in such a way that it does not impact and obstructs the	Subproject stockpiling sites	Contractor	PWD / PIU	Regularly during construction phase	Contractor

Sl. No.	Environmental Issues	Mitigation Measures	Parameter /Indicator for Compliance	Responsible Implementation	Responsible Supervision	Frequency for Monitoring	Sources of Fund for Implementing Mitigation Measure
		drainage. The stockpiles will be covered to protect from dust and erosion.					
7	Arrangement for Construction Water	<p>(i) The Contractor shall provide a list of locations and type of sources from where water for construction shall be acquired.</p> <p>(ii)The contractor shall use ground/surface water as a source of water for the construction with the written consent from the concerned Department.</p> <p>(iii)To avoid disruption/disturbance to other water users, the Contractor shall arrange water from market or from local municipality and consult PWD before finalizing the source.</p>	Water availability at identified water source locations	Contractor	PWD/PIU	Regularly during construction phase	Contractor
8	Soil Erosion	Slope protection measures will be undertaken as per design to control soil erosion especially on side slopes of access and	Locations of slope protection	Contractor	PIU/PWD		Contractor

Sl. No.	Environmental Issues	Mitigation Measures	Parameter /Indicator for Compliance	Responsible Implementation	Responsible Supervision	Frequency for Monitoring	Sources of Fund for Implementing Mitigation Measure
		internal roads.					
9	Water Pollution from Construction Wastes	The Contractor shall take all precautionary measures to prevent entering of waste water into any local stream during construction.	Subproject sites	Contractor	PIU/PWD	Regularly during construction phase	Contractor
10	Water Pollution from Fuel and Lubricants	The Contractor shall ensure that all construction vehicle parking locations, fuel/lubricants storage sites, vehicle, machinery and equipment maintenance and refueling sites shall be located at least 500 m away from the natural streams. Contractor shall ensure that all vehicle/machinery and equipment operation, maintenance and refueling shall be carried out in such a manner that spillage of fuels and lubricants does not contaminate the ground.	Vehicle parking, refueling sites, Oil interceptor functioning	Contractor	PIU/PWD	Regularly during construction phase	Contractor

Sl. No.	Environmental Issues	Mitigation Measures	Parameter /Indicator for Compliance	Responsible Implementation	Responsible Supervision	Frequency for Monitoring	Sources of Fund for Implementing Mitigation Measure
		Waste water from vehicle parking, fuel storage areas, workshops, wash down and refueling areas shall be treated in an oil interceptor before discharging it on land or into surface water bodies or into other treatment system.					
11	Soil Pollution due to fuel and lubricants, construction wastes	The fuel storage and vehicle cleaning area will be stationed such that spillage of fuels and lubricants does not contaminate the ground. Soil and pollution parameters will be monitored as per monitoring plan.	Vehicle maintenance and parking area, soil quality monitoring results	Contractor	PIU/PWD	Regularly during construction phase	Contractor
12	Siltation of water bodies due to spillage of construction wastes	No disposal of construction wastes will be carried out into the surface water bodies. Extraneous construction wastes will be transported to the pre-identified disposal sites for	Water bodies specially natural springs near sub project site,	Contractor	PIU/PWD	Regularly during construction phase	Contractor

Sl. No.	Environmental Issues	Mitigation Measures	Parameter /Indicator for Compliance	Responsible Implementation	Responsible Supervision	Frequency for Monitoring	Sources of Fund for Implementing Mitigation Measure
		safe disposal.					
13	Generation of dust	The contractor will take every precaution to reduce the levels of dust at construction sites. All filling works to be protected/ covered in a manner to minimize dust generation.	Subproject site, air quality monitoring results	Contractor	PIU/PWD	Regularly during construction phase	Contractor
14	Emission from Construction Vehicles, Equipment and Machinery	All vehicles, equipment and machinery used for construction shall conform to the relevant Bureau of India Standard (BIS) norms. The discharge standards promulgated under the Environment Protection Act, 1986 shall be strictly adhered to. The silent/quiet equipment available in the market shall be used in the sub Project. The Contractor shall maintain a record of PUC for all vehicles and machinery used during the	PUC certificates of vehicles and machinery	Contractor	PIU/PWD	Regularly during construction phase	Contractor

Sl. No.	Environmental Issues	Mitigation Measures	Parameter /Indicator for Compliance	Responsible Implementation	Responsible Supervision	Frequency for Monitoring	Sources of Fund for Implementing Mitigation Measure
		contract period which shall be produced for verification whenever required.					
15	Noise Pollution	<p>The Contractor shall confirm that all Construction equipment used in construction shall strictly conform to the MoEFCC/CPCB noise standards and all Vehicles and equipment used in construction shall be fitted with exhaust silencers.</p> <p>At the construction sites noisy construction work such as crushing, operation of DG sets, use of high noise generation equipment shall be stopped during the night time between 10.00 pm to 6.00 am.</p> <p>Noise limits for construction equipment used in this project will not exceed 75 dB (A).</p>	Certificates of vehicles conforming noise standards, noise monitoring results	Contractor	PWD/PIU	Regularly during construction phase	Contractor

Sl. No.	Environmental Issues	Mitigation Measures	Parameter /Indicator for Compliance	Responsible Implementation	Responsible Supervision	Frequency for Monitoring	Sources of Fund for Implementing Mitigation Measure
16	Impacts on flora and fauna	Conduct site induction and environmental awareness Limit activities within the work area.	Records, Barricades along excavation works, Trees/shrubs planted by project	Contractor	PWD/PIU	Regularly during construction phase	Contractor
17	Material Handling at Site	Workers employed on mixing cement, lime mortars, concrete, etc., will be provided with protective footwear and protective goggles. Workers, who are engaged in welding works, will be provided with welder's protective eye-shields. The use of any toxic chemical will be strictly in accordance with the manufacturer's instructions. The PWD will be given at least 6 working days' notice of the proposed use of any	Data on available personal protective	Contractor	PWD/PIU	Regularly during construction phase	Contractor

Sl. No.	Environmental Issues	Mitigation Measures	Parameter /Indicator for Compliance	Responsible Implementation	Responsible Supervision	Frequency for Monitoring	Sources of Fund for Implementing Mitigation Measure
		chemical. A register of all toxic chemicals delivered to the site will be kept and maintained up to date by the Contractor.					
18	Disposal of Construction Waste / Debris / Cut Material	The Contractor shall confirm that Safe disposal of the construction waste will be ensured in the pre-identified disposal locations. In no case, any construction waste will be disposed of around the project site indiscriminately.	Disposal site	Contractor	PIU/ PWD	Regularly during construction phase	Contractor
19	Safety Measures During Construction	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 of the workers from accidental injuries, fire, etc. First aid treatment will be made	Records of availability of personal protective equipment, availability of first aid kits	Contractor	PIU/PWD	Regularly during construction phase	Contractor

Sl. No.	Environmental Issues	Mitigation Measures	Parameter /Indicator for Compliance	Responsible Implementation	Responsible Supervision	Frequency for Monitoring	Sources of Fund for Implementing Mitigation Measure
		available for all injuries likely to be sustained during the course of work. The Contractor will conform to all anti-malaria instructions given to him by the Engineer.					
20	Clearing of Construction of Camp and Restoration	Contractor to prepare site restoration plans for approval by the Engineer (PWD). The plan is to be implemented by the contractor prior to demobilization. On completion of the works, all temporary structures will be cleared away, all rubbish burnt, excreta or other disposal pits or trenches filled in and effectively sealed off and the site left clean and tidy, at the Contractor's expense, to the entire satisfaction of the PWD	Restoration plan, and records of pre-construction of temporary sites	Contractor	PIU/PWD	End of construction phase	Contractor

Table 12: Operation Phase Environmental Management Plan

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	The 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	DoUD through Pollution Monitoring Agency	PIU	As per monitoring Plan	DoUD./ PMU
2	Unhygienic condition due to poor maintenance of sanitation facilities and irregular solid waste collection	The DoUD will carry out maintenance of the toilets, and carry out the regular collection and disposal of wastes to a designated waste treatment site. The solid waste disposal will be integrated with Dharamshala city waste disposal. Septic tanks will be regularly emptied. .	Maintenance schedule of CLC building and facilities created	DoUD	PIU	Every year during tourist season	DoUD /PMU
3	Natural Disasters	Necessary procedures to be followed by the visitors, CLC staff and trainees during the natural disasters shall be written at prominent locations.	Warnings of disasters by Meteorological Department	District Administration	PIU	During Disasters	Government of HP

