

UTTARAKHAND WORKFORCE DEVELOPMENT PROJECT (P154525)

(FINAL ENVIRONMENT ASSESSMENT AND ENVIRONMENT
MANAGEMENT FRAMEWORK)



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Executive Summary

The Uttarakhand Workforce Development Project (UKWDP) is designed with the spirit of enhancing the quality and relevance, sustainability, and efficiency of the skills development system in Uttarakhand. The Project has been undertaken by Ministry of Labour and Employment, Government of India and Government of Uttarakhand (GoUK) with the aim to balance short-run needs of closing the immediate skills gaps in terms of both quality and quantity, with the expected long-run outcomes of establishment of a demand-driven and high quality system of skills and training. 25 Industrial Training Institutes (ITIs) in the State will be prioritized to be undertaken under the World Bank funded UKWDP.

Planning, development and management of the ITIs may involve several critical environmental obligations. Systematic EA was conducted including review of standards, statutory /voluntary provisions, best practices, assessment of existing situation through site visits and consultations, and preparation of draft EMF. Environment Assessment (EA) will help in determining the impacts of the Projects through identified details of these ITIs. For developing an institute, EA might serve as a decision-making tool ensuring that the project design would result into an environmentally sound and sustainable reality. GoUK undertook an independent EA with the objectives of expanding and augmenting the current good practices; to incorporate the environmental principles into the location/siting, design, construction, operation and maintenance of the ITIs and other buildings, and to incorporate the industry-specific environmental, health, and occupational safety issues. Based on the guidance provided in the Environmental Management Framework (EMF) included in the Environmental Assessment Document, based on actual interventions which have significant environmental impacts Environment Management Plan (EMP) shall be prepared for each ITI to accomplish these objectives.

A detailed desk review was conducted for various relevant acts, rules, manuals, standards, and guidelines etc., at the national and state level, to have a comprehensive idea of measures that can be incorporated in the EMF. Applicability of Operational Policies and Business Policies of World Bank were also considered. It is evident from the major findings of the review, that there are some crucial factors, which need special attention in the context of environmental management framework.

A sample of total 08 ITIs was taken up for assessment of the existing situation. Samples were selected on the basis of different criteria like, outreach to urban areas, rural areas and industrial hubs; institutions located at district level; institutions located at sub-districts level catering to students of Scheduled Tribe communities; geo-climatic conditions (in mid hilly areas/ higher hilly areas) and; trades covered in the ITIs. The site examinations included interviews with the ITI management, current students and recent graduates about their opinion on the key issues found from the literature review.

The environmental issues as identified from the field survey are (i) site planning and design (location site planning/accessibility/design); (ii) proper maintenance of buildings and associated services; (iii) resource consumption and disposal; and (iv) environmental health and safety practices.

The present course contents of ITIs are developed at the national level. The structure seems to be well designed keeping in mind the educational, socio-economic background and exposure of the students. However, mechanisms for incorporating feedbacks from the bottom level need to be

established with changing industrial environment. The review highlighted the present day need of an improved curriculum with national or global norms of occupational health and safety and environmental management practices.

Based on the review of national standards, field survey and industrial consultations a draft EMF has been developed which includes (i) mitigation measures/environment management measures for civil works; (ii) implementation arrangements; (iii) inclusion of environmental, health and occupational safety aspects in the curriculum; (iv) training and capacity building and; (v) budgetary requirements for EMP activities.

Stakeholder Consultations: Consultation with various stakeholders was carried out as a part of the EA exercise through interviews, formal and informal discussions. The stakeholders consulted at the local level included trainees, faculty, other staff and nearby communities. Consultations at state level including GoUK officials, NGOs, civil societies, industry representatives, etc., was held on March 5th, 2016 based on draft EA report. The stakeholders agreed to the points highlighted in the environment assessment, suggested implementation and mitigation measures, and proposed institutional structure. It was suggested to give more emphasis on capacity building for staff and students.

Disclosure: GoUK and the World Bank disclosed the draft EA on their website and InfoShop respectively before state level stakeholder consultations. The final draft EA, incorporating comments from stakeholder consultations, has also been disclosed by GoUK and the World Bank.

Conclusion: Overall, it is envisaged that the project activities will have an overall positive impact. Some environmental concerns are associated with limited construction activities; capacity of the ITIs to address environmental concerns, effectiveness of the curriculum, and capacity of the State to address these issues which can be addressed through implementation of EMP prepared for each ITI based correspondence to observed impacts based on the guidance of this EMF.

1. Introduction

1.1. Project Background

The Uttarakhand Workforce Development Project (UKWDP) is designed with the spirit of enhancing the quality and relevance, sustainability, and efficiency of the skills development system in Uttarakhand. The Project has been undertaken by Ministry of Labour and Employment, Government of India and Government of Uttarakhand (GoUK) with the aim to balance short-run needs of closing the immediate skills gaps in terms of both quality and quantity, with the expected long-run outcomes of establishment of a demand-driven and high quality system of skills and training. 25 Industrial Training Institutes (ITIs) in the State will be prioritized to be undertaken under the World Bank funded UKWDP.

The Project would complement national-level projects in the sector, such as VTIP, its succeeding STRIVE, and Nai Manzil Project. UKWDP would benefit from national level improvement of training programs and curriculum that VTIP and STRIVE support. It would provide close support to the state in translating the central policies into implementation by strengthening the state's capacity, and would provide tailored-made approaches to improve the performance of state ITI system, which would complement the national initiatives. UKWDP would also foster knowledge generation through thorough implementation support, which would contribute to national knowledge and operations including STRIVE and Nai Manzil.

1.2. Need for Environment Assessment and EMF

Industrial Training Institutes are like mini industries. Planning, development and management of the ITIs may involve several critical environmental obligations. Environment Assessment (EA) will help in determining the impacts of the Projects through identified details of these ITIs. For developing an institute, EA might serve as a decision-making tool ensuring that the project design would result into an environmentally sound and sustainable reality. In the initial stages, EA provides framework for the detailed planning and design of the project. Environment Management Plans (EMP) developed on the basis of EA, may serve as important guideline during execution of the project. Similarly, an EA exercise is required to be carried out for developing the Environment Management Framework (EMF) for the vocational training institutes (ITIs) in India.

EMF sets out the principles, rules, guidelines and procedures to assess the environmental impacts. It contains measures and plans to reduce, mitigate and/or offset adverse impacts and enhance positive impacts, provisions for estimating and budgeting the costs of such measures, and information on the agency or agencies responsible for addressing project impacts.

GoUK has engaged an independent consultant to undertake EA with the following objectives:

- a) The current good practices are expanded and augmented;
- b) Environmental principles are incorporated into the location/siting, design, construction, operation and maintenance of the ITIs and other buildings;
- c) Industry-specific environmental, health, and occupational safety issues are adequately built in the curriculum for the improved vocational education system;

1.3. Scope of EA and EMF

- a) Desk review to identify the relevant National standards and codes related to the planning, design, construction of institutional buildings and site development

- b) Sample field based examination (supplemented by desk review, if required) to identify if these standards and codes are used fully in the site development and construction of building facilities of the ITIs in general in India, and to identify current good practices; and current environmental issues
- c) Inputs from selected group of industries and industrial associations would be needed in order to develop recommendations for curriculum development – related to trade-specific environmental management, health, occupational safety and international environmental benchmarking.
- d) Preparation of an Environment Management Framework (EMF) for the vocational training institutes in India.

The civil works would mainly be repairs, reconstruction, and possible small expansion of building facilities. No new campuses or major buildings construction are expected. It is also anticipated that the environmental issues related to civil works may not be huge, and many of the required safeguard measures are already available in the National norms and standards.

1.4. Approach and Methodology

The entire study was organized in the following stages:

Stage I: Review of Standards, Statutory /Voluntary provisions, Best Practices

The desk review looked into various provisions of National Building Code, BIS Codes, various relevant environmental acts and legislations, national and international best practices pertaining to campus environment management, occupational health & safety issues.

Stage II: Assessment of Existing Situation through Site Visits and Consultations

Based on geo-climatic conditions, trade-pollution potential and intervention criteria, a total of 8 ITIs have been taken up for assessment of existing situation. The assessment was carried out through focused group discussions with faculty, staff & students.

Stage III: Preparation of Draft EMF

Based on the assessment of existing situation and review of relevant standards/codes of practice etc., pertinent environmental issues and their impact significance were identified. Various options to address the major environmental issues as well as possible environmental augmentative measures were identified and included in the overall framework along with the institutional framework, training & capacity building plan and public disclosure policy.

2. Policy and Regulatory Framework

2.1. Relevant National Policies and Legislations

The ***Environment (Protection) Act, 1986*** serves as the umbrella environment legislation in India and entrusts joint ensure effective implementation of the environment legislation and regulations. The MoEF and the pollution control boards (CPCB i.e. Central Pollution Control Board and SPCBs i.e. State Pollution Control Boards /SPCCs i.e. State Pollution Control Committees) together form the regulatory and administrative core of the sector.

Two specific legislations (popularly called the Air Act and the Water Act) empower the central and state pollution control authorities to enforce emission and effluent standards for industries discharging pollutants into air and water.

In addition, the Supreme Court of India and some High Courts of the states have led the way in the enforcement of environmental laws through citizen-led public interest litigation (PIL) that has its legal basis in the constitutional right to a healthy environment. A summary of key environmental legislation is given below in Table 2.1

Table 2.1: Key Environmental Legislations and its Applicability to the UKWDP

Act and/or rules	Summary	Applicability
Environment Protection Act, 1986 (to be read with The Environment Protection Rules, 1986)	The Act applies to the ITI as where the hazardous substances are handled.	Yes
The Air (Prevention and Control of Pollution) Act, 1981 (to be read with Air (Prevention and Control of Pollution) Rules, 1983)	The Act applies to any building, structure or property used for industrial or trade purposes where pollution occurs or emitting any air pollutant into the atmosphere takes place.	Yes
The Water (Prevention and Control of Pollution) Act, 1974 (amended 1988)	The Act applies to every outlet that includes any conduit pipe or channel, open or closed, carrying sewage or trade effluent or any other holding arrangement which causes or is likely to cause, pollution.	Yes
The Water (Prevention and Control of Pollution) Cess (Amendment) Act, 2003	The Act applies to every industry which includes any operation or process, or treatment and disposal system, which consumes water or gives rise to sewage effluent or trade effluent, but does not include any hydel power unit.	Yes
Noise Pollution (Regulation & Control) Rules 2000	The rule applies to: 1) Industrial area 2) Commercial area 3) Residential area 4) Silence zone (where an area comprising not less than 100 meters around hospitals, educational institutions and Courts may be declared as silence	Yes

Act and/or rules	Summary	Applicability
	area/zone for the purpose of these rules).	
EIA notification on Environment Clearances, 2009	It mandates that certain projects envisaged to be polluting for the environment have to seek prior approval from the Ministry of Environment and Forests to set-up the project. A list of projects along with the procedure required to be undertaken to sought the approval from Government is clearly delineated under the law.	No (Screening will eliminate any such possibility)
Forest (Conservation) Act, 1980	The Act is applicable to any project which requires forest land for construction. Depending on the size of the tract to be cleared, clearances are required.	No (Screening will eliminate any such possibility)
Biological Diversity Act, 2002	<p>The Ministry of Environment and Forests has enacted the Biological Diversity Act, 2002, following the Convention on Biological Diversity signed at Rio de Janeiro in 1992, of which India is a party.</p> <p>This Act is meant to “provide for the conservation of biological diversity, sustainable use of its components, and fair and equitable sharing of the benefits arising out of the use of biological resources, knowledge and for matters connected therewith or incidental thereto.”</p>	No (Screening will eliminate any such possibility)
Batteries (Management and handling) Rules, 2001	The Rule applies to every manufacturer, importer, re-conditioner, assembler, dealer, recycler, auctioneer, consumer and bulk consumer involved in manufacture, processing, sale, purchase and use of batteries or components.	Yes
The Scheduled Tribes & Other Traditional Forest Dwellers (Recognition of Forest Rights), 2006	<p>The Act recognizes and vests the forest rights and occupation in forest land in forest dwelling Scheduled Tribes and other traditional forest dwellers who have been residing in such forests for generations but whose rights could not be recorded, and provides for a framework for recording the forest rights so vested and the nature of evidence required for such recognition and vesting in respect of forest land.</p> <p>The Act may be applicable in case of forest land used for TC or in the immediate vicinity.</p>	No (Screening will eliminate any such possibility)
Payment of Wages Act, 1936	The Act applies to every establishment and lays down as to by what date the wages are to be paid, when it will be paid and what deductions can be made from the wages of the workers.	Yes

Act and/or rules	Summary	Applicability
E-waste (Management and Handling) Rules, 2011	The Rules applies to every producer, consumer or bulk consumer involved in the manufacture, sale, purchase and processing of electrical and electronic equipment or components as specified in Schedule-I, collection centre, dismantler and recycler of e-waste.	Yes
The Public Liability Insurance Act and Rules, 1991	The Act mandates companies to take public insurance for its employees	Yes
Workmen's Compensation Act, 1923	The Act applies to every establishment and provides for compensation in case of injury by accident arising out of and during the course of employment.	Yes
The Ancient Monuments and Archaeological Sites and Remains Act, 1958 & Its amendments till 1992	Under sub-rule 32 of the ancient monuments and archaeological sites and remain rules, 1959 and notification issued in 1992, area up to 100 m from the protected limits and further beyond it up to 200 m near and adjoining protected monument have been declared to be protected and regulated areas, respectively, for purpose of both mining operation and construction. Any repair, addition or alternation and construction/reconstruction within these areas need prior approval of the Archaeological Survey of India	Yes
Contact Labour (Regulation and Abolition) Act, 1970	The Act applies to every establishment and contractor who employs on any day of the preceding twelve months twenty or more workmen and the work performed by the workers shall be for more than one hundred and twenty days in the preceding twelve months and if work is of a seasonal character it is performed for more than sixty days in a year.	Yes
Equal Remuneration Act, 1979	The Act applies to every establishment and mandates that equal payment of wages shall be made for work of equal nature to male and female workers and not for making discrimination against female employees	Yes
Child Labour (Prohibition and Regulation) Act, 1986	The Act prohibits employment of children below 14 years of age in certain occupations and processes and provides for regulation of employment of children in all other occupations and processes. Employment of child labour is prohibited in building and construction industry	Yes

2.2. Relevant State Policies and Legislations

Environmental Policy: The State does not have environmental policy of its own. As a result, National Environment Policy seeks to lay down guidelines that will facilitate development while

ensuring environmental conservation without hampering the present and future development imperatives.

State building Bylaws 2011: Issued by the Department of Housing, it has provisions and guidelines for development of the training institutes and hostels. The bylaws provide standard guidelines on height of a building, approach road, parking provisions, stiles, basement and basement parking, staircase, ramp, boundary wall, earthquake and fire safety provisions, fire escape exit provisions (as per fire and building safety part IV), Distance from Electric/power supply line, distance from water supply source, Standard for Rain water harvesting (3.5 Cum up to 400 Sqm area+0.5 cum/50 Sqm area), Solar Water Heating, Special provision for TWSN (Trainees with special needs), Distance for Aerodrome , Provision for Horizontal vertical extension , Provision for other services, Waste water recycling (required for building having area more than 2 Hac), Buildings having construction area more than 4.4 Hac. has other specification in the guideline.

Uttarakhand Environmental Protection and Pollution Control Board (UEPPCB): The state of Uttarakhand has its state pollution control board named as Uttarakhand Environmental Protection and Pollution Control Board (UEPPCB). The UEPPCB has been entrusted with the powers and functions under the Water (Prevention and Control of Pollution) Act 1974. Subsequently the implementation of Water (Prevention and Control of Pollution) Cess Act, 1977; Air (Prevention and Control of Pollution) Act, 1981; Environment Protection Act (1986) and the Public Liability Insurance Act, 1991 was also entrusted to the State Board.

As per Government of India Gazette Notification no 1331,dated 22nd September, 2008, State level Environmental Impact Authority has been notified. Environmental clearances from Environmental Impact Authority need to be obtained for all activities or expansion of modernizations of existing projects in accordance with the following clause of GoI: “In exercise of the powers conferred by sub-section (1) and clause (v) of sub-section (2) of section 3 of the Environment (Protection) Act, 1986, read with clause (d) of sub-rule (3) of rule 5 of the Environment (Protection) Rules, 1986 and in supersession of the notification number S.O. 60 (E) dated the 27th January, 1994, except in respect of things done or omitted to be done before such supersession, the Central Government directed that on and from the date of its publication the required construction of new projects or activities or the expansion or modernization of existing projects or activities listed in the Schedule to this notification entailing capacity addition with change in process and or technology shall be undertaken in any part of India only after the prior environmental clearance from the Central Government or as the case may be, by the State Level Environment Impact Assessment Authority, duly constituted by the Central Government under sub-section (3) of section 3 of the said Act, in accordance with the procedure specified in the notification number S.O. 1533 (E) Date 14th September 2006.”

2.3. The World Bank’s Applicable OPs and BPs

OP/BP	Relevant Content
WB BP/OP 4.01 Environmental Assessment	<ul style="list-style-type: none"> • Applies to conduct of EA for new or expansion of ITIs • Disclosure and Public Consultation • Mitigate construction related environmental and social impacts
WB BP/OP 4.04 Natural Habitats	<ul style="list-style-type: none"> • Avoid sites that have Natural Habitats of rare and endangered species • Preserve Natural habitats wherever possible
WB BP/OP 4.09 Pest management	<ul style="list-style-type: none"> • Applies to creation and maintenance of Green Belts • Use IPM approaches, such as biological control, cultural practices,

OP/BP	Relevant Content
	<p>and the development and use of crop varieties that are resistant or tolerant to the pest. The Bank may finance the purchase of pesticides when their use is justified under an IPM approach.</p> <ul style="list-style-type: none"> • The procurement of any pesticide in a Bank-financed project is contingent on an assessment of the nature and degree of associated risks, taking into account the proposed use and the intended users. • The following criteria apply to the selection and use of pesticides in Bank-financed projects: <ul style="list-style-type: none"> a) They must have negligible adverse human health effects. b) They must be shown to be effective against the target species. c) They must have minimal effect on non-target species and the natural environment. d) The methods, timing, and frequency of pesticide application are aimed to minimize damage to natural enemies. Pesticides used in public health programs must be demonstrated to be safe for inhabitants and domestic animals in the treated areas, as well as for personnel applying them. e) Their use must take into account the need to prevent the development of resistance in pests.
WB BP/OP 4.10 Indigenous Peoples	<ul style="list-style-type: none"> • Applicable when ITI location is on lands owned by indigenous peoples or linked to them. • The identities and cultures of Indigenous Peoples are inextricably linked to the lands on which they live and the natural resources on which they depend. These distinct circumstances expose Indigenous Peoples to different types of risks and levels of impacts from development projects, including loss of identity, culture, and customary livelihoods, as well as exposure to disease. • Local Community Consultations in SA to minimize and mitigate impacts
WB BP/OP 4.11 Physical Cultures	<ul style="list-style-type: none"> • This policy addresses physical cultural resources, which are defined as movable or immovable objects, sites, structures, groups of structures, and natural features and landscapes that have archaeological, pale ontological, historical, architectural, religious, aesthetic, or other cultural significance. • Physical cultural resources may be located in urban or rural settings, and may be above or below ground, or under water. Their cultural interest may be at the local, provincial or national level, or within the international community. • Preparation of a physical cultural resources management plan that includes (a) measures to avoid or mitigate any adverse impacts on physical cultural resources; (b) provisions for managing chance finds; (c) any necessary measures for strengthening institutional capacity for the management of physical cultural resources; and (d) a monitoring system to track the progress of these activities.
WB BP/OP 4.12 Involuntary Resettlement	<ul style="list-style-type: none"> • This policy covers direct economic and social impacts that both result from Bank-assisted investment projects, and are caused by (a) the involuntary taking of land resulting in (i) relocation or loss of shelter; (ii) loss of assets or access to assets; or (iii) loss of income sources or means of livelihood, whether or not the affected persons must move to another location; or (b) the involuntary restriction of access to legally designated parks and protected areas resulting in adverse impacts on the livelihoods of the displaced persons. • Assess displacement and loss of livelihood Prepare resettlement plan as part of EA

OP/BP	Relevant Content
	<ul style="list-style-type: none"> • Include compensations / income generation and pension schemes for affected people
WB BP/OP 4.36 Forests	<ul style="list-style-type: none"> • This policy applies to the following types of Bank-financed investment projects: <ol style="list-style-type: none"> a) projects that have or may have impacts on the health and quality of forests; b) projects that affect the rights and welfare of people and their level of dependence upon or interaction with forests; and c) projects that aim to bring about changes in the management, protection, or utilization of natural forests or plantations, whether they are publicly, privately, or communally owned.
WB BP/OP 4.60 Disputed Areas	<ul style="list-style-type: none"> • For every ITI project in a disputed area, Bank staff will consider the nature of the dispute. The Project Appraisal Document (PAD) for a project in a disputed area discusses the nature of the dispute and affirms that Bank staff have considered it and are satisfied that either (a) the other claimants to the disputed area have no objection to the project; or (b) in all other instances, the special circumstances of the case warrant the Bank's support of the project notwithstanding any objection or lack of approval by the other claimants.

2.4. World Bank Group Approach towards Handling and Management of Asbestos Containing Material (ACM)

The World Bank Group's EHS Guidelines¹ specify that the use of ACM should be avoided in new buildings and construction or as a new material in remodeling or renovation activities. Existing facilities with ACM should develop an asbestos management plan that clearly identifies the locations where the ACM is present, its condition (e.g., whether it is in friable form or has the potential to release fibers), procedures for monitoring its condition, procedures to access the locations where ACM is present to avoid damage, and training of staff who can potentially come into contact with the material to avoid damage and prevent exposure. The plan should be made available to all persons involved in operations and maintenance activities. Repair or removal and disposal of existing ACM in buildings should be performed only by specially trained personnel² following host country requirements or, if the country does not have its own requirements, internationally recognized procedures.³ Decommissioning sites may also pose a risk of exposure to asbestos that should be prevented by using specially trained personnel to identify and carefully remove asbestos insulation and structural building elements before dismantling or demolition.¹

¹[http://www.ifc.org/ifcext/enviro.nsf/AttachmentsByTitle/gui_EHSGuidelines2007_GeneralEHS/\\$FILE/Final+-+General+EHS+Guidelines.pdf](http://www.ifc.org/ifcext/enviro.nsf/AttachmentsByTitle/gui_EHSGuidelines2007_GeneralEHS/$FILE/Final+-+General+EHS+Guidelines.pdf) (pp. 71, 91, 94)

² Training of specialized personnel and the maintenance and removal methods applied should be equivalent to those required under applicable regulations in the United States and Europe (examples of North American training standards are available at: <http://www.osha.gov/SLTC/asbestos/training.html>)

³ Examples include the ASTM International E1368 - Standard Practice for Visual Inspection of Asbestos Abatement Projects; E2356 - Standard Practice for Comprehensive Building Asbestos Surveys; and E2394 - Standard Practice for Maintenance, Renovation and Repair of Installed Asbestos Cement Products.

2.5. Summary

The whole review process gives an insight of the relevance of national standards, code of practices, legal provisions, guidelines, and manuals with special reference to vocational training institutes in India and its environmental assessment. It is evident from the major findings explained above in this section, that there are some crucial factors which need special attention in the context of environmental management framework. There are some crucial factors which need special attention during various stage of rehabilitation of a ITI building and which need to be incorporated in the EMF.

3. Assessment of Existing Conditions

3.1. Case Study Selection

Out of 25 ITIs to be undertaken under the Project, 8 institutions were assessed to understand the existing field level environmental, and occupational health and safety conditions. The 8 ITIs were selected based on the following criteria:

- Outreach to urban areas, rural areas and industrial hubs
- Institutions located at district level
- Institution located at sub-districts level catering to students of Scheduled Tribe communities
- Geo-climatic conditions (in mid hilly areas/ higher hilly areas)
- Trades covered in the ITIs

Table 3.1 List of ITIs Selected for Field Investigations

S.No	Name of the ITI	Location	Climatic Condition	Details of the Trade in the ITI
1	ITI Niranjapur Dehradun	Urban, Plain, District level near SIDCUL	Humid	Electrician, Plumber, Wireman, IT
2	ITI Vikasnagar	Rural, Foothill, Sub-division level near SIDCUL	Humid	Mechanist, Electrician, Lab Chemist, Hospital House Keeping, Refrigeration and AC mechanic
3	ITI Vishist Haridwar	Urban, Plain, District level near SIDCUL	Hot	Mechanist, Electrician, Refrigeration and AC mechanic, IT
4	ITI Haldwani	Urban, Foothill, Urban and District level, near SIDCUL	Hot	Mechanist, Electrician, IT
05	ITI Dugadda *	Hill, Rural, Sub-divisional level	Humid	Motor Mechanic, Electrician
6	ITI Almora	Hill, Rural, District level	Cold	Motor Mechanic, Electrician
7	ITI New Tehri	Hill, Urban, District level Urban area, near rural belt	Cold	Mechanist, Electrician, IT
8	ITI Kashipur	Urban, Plain, Sub-division level near SIDCUL	Hot	Mechanist, Electrician, Refrigeration and AC mechanic, IT

*was dropped from the list of 25 ITIs to be undertaken by the Project after completion of EA
Field investigations undertaken between December 2015- January 2016

3.2. Field Investigations

Field investigations were undertaken to assess the key issues related to site selection, access, site layout and design, construction material, resource consumption pattern, environmental issues, health and safety and best practices. The site examinations included interviews with the ITI management, current students and recent graduates about their opinion on the key issues mentioned above. Compliance of the National standards and norms (appraised through the desk review) were verified too. to investigate the key issues related to site selection, access, site layout and design, construction material, resource consumption pattern, environmental issues, health and safety and best practices. The site examinations included interviews with the ITI management, current students and recent graduates about their opinion on the key issues mentioned above. Compliance of the National standards and norms (appraised through the desk review) were verified too.

3.3. Issues Identified During Field Investigations

The issues identified during field investigations are as given below:

a) **Access to adequate water supply:**

The water availability to the ITIs is ensured by the PHED supplies. The students and faculty members have reported that there is water crisis. Its due to the inadequate storage capacity and damage of the supply pipeline especially in the sanitation units.

b) **Environmental Sanitation:**

Based on the assessment and interaction with students and faculty it has been observed that there is provision of separate sanitary units for girls and boys. The sanitary facilities are inadequate in numbers and placing. Moreover, in majority of the sanitation units, the hygiene is an unattended issue. Girl students and female faculty members are the most affected. The staff deployed for the sanitation blames that its due to the inadequate water, and supply of cleaning agents. While the ITI management feels that outsourcing of the facility will improve the scenario. The faculty members informed that from their own resources they have constructed a water storage tank of 10 kl capacity and suggest that rain water harvesting could be a better option for reverting the present trend. MHM emerged as a major issue as female staff members have to access the meager facility with poor sanitation available in the institution.

Bacteriological contamination may pose a threat to the health and safety of the trainees and other staff. The ITI has access to toilet facilities, but during the assessment open defecation has been a common practice. Considering that the ITI have access to sewerage systems it is a serious management concern. The runoff water during raining season will drain -out most of the solid and liquid residues along the slope posing water quality risks as it all will flow into rivers and other surface waters. Therefore, sub-projects need to undertake adequate measures ensuring that no-solid and liquid wastes are allowed to affect the health of downstream inhabitants in form of intrusion.

c) **Solid Waste Management:**

There is lack of safe and proper management of disposal of solid waste generated in the classrooms and the workshops of various trades. It was observed that the usual practice followed by the institutions is to dispose the trade specific waste with general waste without segregation through burning in open spaces. Defunct machines and electrical appliances have been stocked in rooms and corridors leading to unsafe environment and making the facilities more stressed.

d) **Drainage System:**

The Institutional buildings have drains but few workshop sites require more drainage network for rain water disposal during monsoons. Therefore, additional requirement of the storm water drains is assessed to avoid erosion and to minimize the risk of the landslide and mass failure in and around campuses. Upkeep of the existing storm water drains also has issues like lack of periodic de-silting. Furthermore, it needs periodic supervision and attention, to avoid any incidence of chocking as it may cause damage to the machines and building ancillaries.

e) **Green Campus:**

For proper training and learning experience conducive physical environment is also a prerequisite. The campuses visited for EA have a huge scope of improvement in the domain of landscape planning and environmental friendly green development. Generally, the campuses are devoid of any landscape planning.

The parking facility for the vehicles is available in the institutions though it lacks proper signage and is inadequate in proportion to the number of students enrolled in the institution. In all ITIs located in hilly terrain, the campuses are constructed in a series of terraces so there is hardly any possibility of special provision for Trainees with Special Needs (TWSN). There is no ramp and barrier free campus related other facilities for TWSNs.

As per the students the attempts for involvement of students in the allied activities like sports, campus cleaning, EHS etc., have not even practiced.

The campus has provision of the boundary wall and the proper gates to generally avoid any slippage or damage to infrastructure. During the assessment, the issue of its inappropriate height, which allows the trespassing by unwanted elements even during the training hours, has been reported. The issues like use of the assets by the district administration/ other governmental departments for non-teaching and non-training related uses have been reported.

f) **Possible impact on downstream ecosystem and settlements:**

One of the possible direct adverse impacts is anticipated to be the impact on downstream ecosystem due to unscientific disposal of solid and liquid waste. The waste (both solid and liquid) discharge from the institute which is located at uphill can affect the downhill water source and settlement in different ways. The unmanaged waste directly drained out in the streams going to downhill habitations and also contaminates subsoil water going downhill. Therefore, the solid waste of ITIs either be composted within the campus or be disposed into municipal dump for further recycling. As a good practice the sewerage and the gray water is being disposed into the sewerage system.

g) **Possible impact on ecological resources:**

The state of Uttarakhand is well known for its rich bio-diversity providing favorable niche for different habitats, flora and fauna. No wide spread impacts of the project activities are anticipated on ecological resources such as the forests. All ITIs have very limited scope of new constructions. New constructions are confined within the existing campus of ITI's. However, special attention needs to be paid to avoid any damage to the natural fauna and flora especially during site development, disposal of the extra earth and other construction debris.

h) **Possible impacts on land-use and topography:**

The preliminary review of the sub-project areas suggests that the earthwork activities associated with the proposed constructions of building ancillaries and extensions will not have any significant impact on the topography of the area. However, it needs to be ensured that the earthwork activities are undertaken either before or after monsoons and are completed as soon as

possible. The potential impact due to the project activities will be in terms of localized topsoil erosion along the alignment, and is anticipated to be insignificant.

i) **Other issues relating to expansion and planning of construction:**

Issues relating to expansion and constructions were also observed as per the specifications and guidelines. The condition seems to have possibility of improvement in site selection, orientation of the building, climatic responsive structure, use of the local material, non-use of the asbestos containing material, fencing, boundary wall and protection from fire (including forest fires) in case of the institutions located near forest areas. The issues like lack of energy and water conservation measures have also been observed.

j) **Existing Institutional Capacity:**

During the assessment it has been observed that in majority of institutions have no committee or management systems in place to monitor the issues like adequacy/ functionality of water supply, sanitation, occupational safety, water/ energy conservation and up keeping of various institutional facilities provided for environmental hygiene and safety. Though, at institutional level in ITI Kashipur and ITI Haridwar, the students and teachers were found voluntarily involved in improving the ambience of the institution by planting ornamental trees and plants and also, by organizing periodic clean up campaigns.

k) **Maintenance of Institutions:**

There is lack of maintenance of buildings with regards to environment, health and safety. Absence or non-functional fire safety equipment, absence of personal safety equipment in workshops, loose hanging electrical wires and electrical fittings, insufficient and unhygienic water and sanitation facilities, etc., are some issues observed during assessment. General upkeep of the building like painting and repair of drains and fencing/boundary wall also need due attention.

4. Review of Vocational Training Curriculum

4.1. Present Curriculum

The present course contents of ITIs are developed at the national level. Based on discussion it has been observed that the structure of the curriculum seems to be well designed keeping in mind the educational, socio-economic background and exposure of the students. However, mechanisms for incorporating feedbacks from the training institutions need to be established with changing industrial environment. Over the years, some of the trades are becoming more popular due to growing market demand and prospects whereas a few of them are becoming obsolete.

4.2. Curriculum review

The following curriculums were reviewed as part of the EA:

- a) Based on details provide by SPIU;
- b) NCVT curriculum developed by Central Staff Training and Research Institute, Directorate General of Employment & Training, Ministry of Labor & Employment, Government of India;
- c) SCVT courses by the state government of Uttarakhand.

It has been observed that existing curriculum requires some additional content to meet the local and regional requirements along with compliances of OHSAS standards (Occupational Health & Safety Assessment Series) of occupational safety and from environmental management point of view. The main findings of curriculum review are as follows:

- i. It was reported that the contents like Elementary First Aid practice, Artificial respiration practice, occupational health hazard related to the trade- its causes, consequences, mitigation and control are part of the syllabus.
- ii. The above mentioned contents are being shared with the students during the start of new session when the admission process is underway so some of the students under the admission process miss it and others being new to the industrial environment also do not pay due attention to the content shared.
- iii. As the training advances further the need of the safety, hygiene, etc., becomes a priority but as the content is not shared again so the perpetual possibility of inculcating the safety behavior minimizes.
- iv. In none of the institution the regular surveillance by any authority or environmental health and safety committee is being undertaken.
- v. Other aspects of trade-wise implementation of curriculum are summarized as below:

Table 4.1: Trade wise Identified Gaps

S.No.	Name of Trade	Gaps Identified
i.	Electrician	a) Identification of trade specific waste generated b) Environmentally safe substitutes of different and liquid raw material

S.No.	Name of Trade	Gaps Identified
		c) Safe disposal & recycling of waste d) Solar and Hybrid energy appliances, concept, assembling and repair
ii.	Electronics	a) Identification of trade specific waste generated b) Environmentally safe substitutes of different and liquid raw material c) Safe disposal & recycling of waste
iii.	Information & Communication Technology System Maintenance	a) Identification of trade specific waste generated b) Environmentally safe substitutes of different and liquid raw material c) Safe disposal & recycling of waste
iv.	Instrument Mechanic Chemical Plant	a) Identification of trade specific waste generated b) Environmentally safe substitutes of different and liquid raw material c) Safe disposal & recycling of waste
v.	Instrument Mechanic	a) Identification of trade specific waste generated b) Environmentally safe substitutes of different and liquid raw material c) Safe disposal & recycling of waste
vi.	Interior design and decorator	a) Identification of trade specific waste generated b) Environmentally safe substitutes of different and liquid raw material c) Safe disposal & recycling of waste d) Importance of safety and general precaution need to be included in each of the semester.
vii.	Laboratory Assistant Chemical Plant	a) Identification of trade specific waste generated b) Environmentally safe substitutes of different and liquid raw material c) Safe disposal & recycling of waste
viii.	Plumber	a) Course on safety equipment. b) Identification of trade specific waste generated c) Environmentally safe substitutes of different and liquid raw

S.No.	Name of Trade	Gaps Identified
		material d) Safe disposal & recycling of waste
ix.	Refrigeration and air conditioning	a) Identification of trade specific waste generated b) Environmentally safe substitutes of different raw material used c) Safe disposal & recycling of solid and Liquid waste d) Solar and Hybrid energy appliances, concept, assembling and repair
x.	Mechanic auto and electrical and electronics	a) Identification of trade specific waste generated b) Environmentally safe substitutes of different and liquid raw material c) Safe disposal & recycling of waste d) Practical related to Safety and Health, Importance of maintenance and cleanliness of Workshop. Interaction with health center and fire service station to provide demo on First aid and Fire safety, Use of fire extinguishers need to be conducted as mentioned in the syllabus
xi.	Mechanic Tractor	a) Identification of trade specific waste generated b) Environmentally safe substitutes of different and liquid raw material c) Safe disposal & recycling of waste d) Practical related to Safety and Health, Importance of maintenance and cleanliness of Workshop. Interaction with health center and fire service station to provide demo on First aid and Fire safety, Use of fire extinguishers need to be conducted as mentioned in the syllabus
xii.	Mechanic Diesel	a) Identification of trade specific waste generated b) Environmentally safe substitutes of different and liquid raw material c) Safe disposal & recycling of waste d) Practical related to Safety and Health, Importance of maintenance and cleanliness of Workshop. Interaction with health center and fire service station to provide demo on First aid and Fire safety, Use of fire extinguishers need to be conducted as mentioned in the syllabus
xiii.	Pump operator cum mechanic	a) Identification of trade specific waste generated b) Environmentally safe substitutes of different and liquid raw material c) Safe disposal & recycling of waste d) Practical related to Safety and Health, Importance of

S.No.	Name of Trade	Gaps Identified
		maintenance and cleanliness of Workshop. Interaction with health center and fire service station to provide demo on First aid and Fire safety, Use of fire extinguishers need to be conducted as mentioned in the syllabus
xiv.	Wireman	a) Identification of trade specific waste generated b) Environmentally safe substitutes of different and liquid raw material c) Safe disposal & recycling of waste d) Practical related to Safety and Health, Importance of maintenance and cleanliness of Workshop. Interaction with health center and fire service station to provide demo on First aid and Fire safety, Use of fire extinguishers need to be conducted as mentioned in the syllabus

4.3. Need for Revision of Curriculum

Based on the review of existing curriculum it is proposed that there is a need to give more emphasis on issues like identification of trade specific waste generated concept of using safe substitutes of raw material, safe disposal and recycling of solid and liquid waste generated in each of the industry associated with different trades.

The course content should also incorporate the region specific and modern technologies like solar and hybrid energy appliances its assembling and maintenance. Similarly the practical sessions should emphasize on safety and health, importance and maintenance of the cleanliness of workplace. Emphasis on fire safety, first aid and disaster preparedness should also be made a compulsory part of curriculum in each semester of training. Here the mock drill exercises pertaining to the trade specific possible accidents and industrial disasters should be introduced.

5. Stakeholder Consultations

A participative approach was followed for the assessment. Consultations were held with staff of ITIs, DGE&T, students and government agencies to identify the gaps in the present arrangements and to get a buy in of all the associated players.

5.1 Identification of key stakeholders

The current program is to be managed by DGE&T, Uttarakhand. The Department is responsible for the entire process of planning and implementation for higher education in the state. Management representatives from other adjoining ITI's run by PPP partners are the important stakeholders owing to their knowledge of the local area and surrounding. Their influence on the program further increases during the operation phase since the entire responsibility of maintenance and upkeep of the institution is managed by them.

Academicians from the departments of Civil/electrical Engineering (from IIT Roorkee/Engineering Colleges run by Tehri Hydro Development Corporation in Tehri and Dehradun), including those from NIVH (National Institute for Visually handicapped), Local industries, National Rural Livelihood Mission, reputed nongovernmental institutions like Sri Bhuvneshwari Ashram, Anjanisain Tehri Garhwal, Sri Dev Suman University, Badsahithol, Tehri, District Tehri, working on alternative energy and livelihood were consulted for knowledge updates and convergence. The project envisages moving to 'greener' and more sustainable designs for construction. The aforementioned departments will play a crucial role in this process.

Student representatives including representatives from various student associations, welfare bodies (including women, youth and/or physically challenged) were consulted as well.

Government Agencies responsible for implementing, and monitoring the environmental policies set forth by the state/national government. These included representatives from the Environmental Planning & Coordination Organization of the state, representatives from the Uttarakhand State Pollution Control Board and representatives from the state Environmental Impact Assessment Authority. These representatives can view the proposed framework from the legal standpoint and also give important inputs on the efficacy of its implementation.

Representative from reputed NGOs, HIFEED (Himalayan Institute for Environment Ecology and Development) Ranichauri, District Tehri, Uttarakhand, working on skilling sector programs/projects under GoI sector Jan Sikshan Sansthan for district Tehri. These stakeholders understand the sector well and will be able to provide useful inputs on the existing gaps.

Subsequent to identification of the stakeholders, a consultation plan was drawn up. The consultation plan was based on the preliminary understanding of the issues and concerns which need to be discussed with the stakeholders identified. The stakeholders were informed about the outline of the project and also given an understanding of the purpose of consultations. The list of participants is included in Annexure 2.

5.2 Consultation Process

General concerns associated with the process primarily revolve around the quality of the process. The consultation process needs to be carried out in a fair and transparent manner to

ensure that all stakeholders have a voice on the table and such that their views can be captured. This would help improve the design of the proposed project and make it more robust towards unforeseen issues in the future.

Consultations for the project will be carried out in two phases:

- a) **The Assessment Phase:** The consultations at this phase were more focused on understanding the present work processes. The consultation during this phase was intended to assess whether the process involved in the program can identify, assess and mitigate the potential environmental risks. List of the students/Faculty members consulted is provided as Annexure -2
- b) **The Development Phase:** The Environmental Management Framework, drafted on the basis of EA, Has been discussed with all stakeholders on March 5th, 2016 during State level stakeholder consultation workshop. The consultations saw participation from 81 stakeholders including officers from various line departments such as nodal agency for Swachh Bharat Mission, Department of Forest, Social welfare, National Rural Livelihood Mission, Industries working as PPP partner of ITI's in the state, and civil societies working on natural resource management. The issues discussed during the workshop are detailed later in the chapter.

The following key issues were highlighted during the Assessment Phase consultations:

- a) Strengthening of vocational technical trainings and employment opportunities in the context of targeted rural areas and its youth population. The students from rural areas are unable to find suitable employment opportunities in the rural sector, after graduating from the institutions. Hence, there is need for re-orientation of syllabus and introduction of courses, that would more appropriate to cater to the skills set development for rural youth and also as per the requirement of the industry. In terms of infrastructure facilities, there is huge gap that need to be bridged. It not only includes the physical infrastructure, especially classrooms, libraries, toilets, and drinking water facilities but also the adequate number of trained and oriented teachers
- b) There is a need to develop proper barrier free infrastructure and associated facilities for differently able students, in order to increase their enrollment. The space and other constraints in the Institution campus/buildings should be considered while designing barrier free access and relevant design options should be incorporated.
- c) It was learnt that there is shortage of water in the institutions and therefore there is a need to practice rooftop rainwater harvesting in the institutions.
- d) The courses offered by institutions have been enrolling more girl students. However, facilities for the girl students in the institutes like adequate number of usable toilet with water and hand washing facilities are not available. General upkeep of the toilets and cleanliness of the toilets were other issues highlighted during the consultations.
- e) Other issues emerged during the discussion were 1) chocking of the storm water drains, 2) leaking roofs and ventilators fixed, 3) hostel upkeep also mentioned as an area need attention, 5) Use of the solar/ wind energy / hybrid for heating the building, street light during night hours in hostel area and water heating purposes.
- f) The need for training of teachers was emphasized during the meetings by the staff. It was well understood by the staff that training is an essential component which should be conducted on a compulsory basis for all targeted Institutions. As training is not a onetime event thus refresher courses should be organized on regular periodicity. This exercise would

be a key step in enhancing skill sets of the teachers/faculty and upgrading the ITIs as a clean and green institution.

- g) Disposal of the old designed machines and other scrape is an area need immediate solution as it makes the institutions unsafe.

The following key suggestions were made during the Development Phase consultations:

- (a) All the stakeholders agreed to the environmental issues highlighted in the EA.
- (b) Sanjeev Kumar, Principal ITI Rajpur Road told that green Building rating should be done for the buildings to be constructed. It was clarified that as the scope of the proposed program does not involve the construction of the new building thus the EMF has the provision of incorporating the Uttarakhand Building bylaws, which primarily covers all the essential aspects of Green building.
- (c) Mr. M.M. Doval, Chairman, Gramin Vikas Sansthan, Sumankyari, District Dehradun, suggested that the rain water harvesting could also be made part of strengthening of infrastructure. It was clarified that its already proposed in the mitigation measures under EMF section.
- (d) Mr. K.B. Shah, Coordinator Institute for Development Support, Dehradun told that to improve the environmental conditions in the ITIs, it would be nice to provide some incentive to the institutions that has better landscaping and other green environmental aspects.
- (e) It was also reiterated by the stakeholders that simulation technique can be promoted to reduce the waste in each of the trades.
- (f) Use of the solar panels without battery and wind energy devices could be prompted.
- (g) For upkeep of the campus services and landscape management it has been suggested by many of the stakeholders that use of the Corporate Social Responsibility (CSR) funds could be one of the alternatives. For mobilization and utilization of CSR funds as corpus fund for green campus there is a need to make adequate policy interventions from competent authority level.
- (h) Training of the instructors on “how to manage their campus environment” also emerged as a training need. It was clarified that in capacity building section the provision of training like campus mapping and screening format filling on monthly basis by a group of students & trainers (in the supervision of EHS Coordinator) will act as a hands-on training for all the stakeholders. Other training also covers many the required aspects like disaster preparedness and industry immersion.
- (i) The students and ITI’s, staff unanimously agreed that for bringing ownership in all the primary stakeholders about proper upkeep and management of the resources and assets of the campus, the staff need to be trained periodically and the skill may further be imparted to the other stakeholders.
- (j) The periodicity of monitoring the Environmental health and sanitation on monthly basis was also agreed by all the stakeholders.

6. Environmental Management Framework

The various issues identified during the primary survey and the issues emerging through the discussions with the various stakeholders have been used as the basis to evolve the EMF. Further, the activities under proposed up gradations were screened to identify various environmental issues in the project life cycle. The proposed framework includes possible preventive as well as mitigation measures of these sub-project activities.

The key objectives of EMF are:

- a) The current good practices are expanded and augmented;
- b) Environmental principles are incorporated into the locations/siting, design, construction, operational and maintenance of ITIs and other surroundings;
- c) Industry specific environmental, health and occupational safety issues are adequately built in the curriculum for the improved vocational education system;
- d) Demand driven industry-specific environmental issues relevant for the international benchmarking of the industries and educational system are incorporated in the curriculum.

The framework approach used for the project approaches the issue of environment management in a broad manner. While it is expected that the framework identifies all possible issues that may arise due to the implementation of this project, it is expected that an environment management plan will be made for each ITI covering all the site that is taken up for implementation of works. The management plan so prepared should always be available at the site for reference, when executing works, as through periodic reviews it will ensure sustainable delivery of all the project objectives.

Therefore, the following steps shall be followed as part of environmental management due diligence while working on each ITI:

- I. **Screening** of the proposed activities at each ITI to identify potential impacts
- II. **Environmental Assessment** of impacts
- III. **Preparation of Environment Management Plan (EMP)** incorporating mitigation of identified impacts
- IV. Supervising implementation of EMP and its monitoring and evaluation.

6.1 Screening

The purpose of screening is to get an overview of the nature, scale and magnitude of the issues in order to determine the scope of the detailed EA that would be subsequently carried out. After identifying issues, the applicability of the Bank's environment safeguard policies is established along with Government of India's/states regulatory requirements. Based on this, boundaries and focus areas for the EA along with the use of specific instruments are determined.

Once the sub-project sites are identified/short-listed, an environment screening exercise will be carried out to help in identifying potential impacts of sub-projects. The results from this exercise will help in: (i) finalizing the sites for the various sub-projects; (ii) identification of the need to obtain any regulatory clearances and; (iii) establishing the need to carry out any further investigation/ assessment. Based on this, prioritization and phasing of the civil work program/procurement plan would be worked out.

The environment screening process for the project will use a simple methodology supported by use of screening matrix included in Annexure 1, which will help in avoiding environmentally

sensitive sites/features to a large extent. The results will be collated component-wise in the form of Screening Report/s monitored on monthly basis and forwarded to the bank on quarterly basis.

6.2 Potential Impacts

Based on the results from the environmental assessment, following are some of the key environmental issues that need to be addressed under the project. The natures of activities proposed under the project do not pose any significant environmental risks. However, there are some environmental concerns associated with activities such as civil works (new construction/expansion/repair of buildings) and pressure on already stressed facilities within the existing campus with introduction of additional building blocks/ancillaries. In addition, issues pertaining to health and safety also need due attention and are directly related to creation and maintenance of a clean and safe learning and teaching environment, are purposefully linked to the achievement of the objectives of the project. Environment Management Plan (EMP) shall be prepared for each ITI to address the potential impacts environmental and health impacts envisaged due to each intervention of activities proposed in each ITI.

Even though it is expected that the new buildings/blocks/extensions/ancillaries would be located within existing college campuses and/or on available government land, planning, construction and operation of higher education facilities, including buildings and supporting infrastructure would require appropriate consideration and integration of environment, health and safety measures to ensure that adverse environmental impacts are minimized and properly managed.

Even when no major new construction is involved, the largely poor state of existing infrastructure requires that environment management dimensions are specifically introduced and enhanced within the higher education institutes of the state. Impacts pertaining to: (a) location (environmental features of the site and surrounding land-uses); (b) design (sanitation, water supply, drainage, solid waste arrangements, waste water management, ventilation, access, energy efficiency, material usage, fire safety, storage facility and natural disaster dimension); (c) construction and worksite safety management, including occupational health and safety of construction workers, public safety issues, dust and noise, management of materials, their sources and debris/waste material; and; (d) operation/maintenance aspects of physical assets such as buildings, laboratories (such as sanitation, waste management, e-waste handling, landscaping, creation/maintenance of activity/sitting spaces, and cleanliness/hygiene in the campus and its various facilities) would require attention. Also, any refurbishment/repair/retrofitting works may require specific student and worker safety measures during construction if it involves removal of asbestos (which can be identified only when the civil works assessment is initiated).

Some specific long-term environmental impacts are associated with the operation and management of the ITI's itself. Appropriate water and sanitation facilities, disposal of wastes, including management of e-wastes, energy use/efficiency, disaster preparedness and dealing with issues where institutes are exposed to noise or other sources of pollution require regular attention. However, such adverse impacts are not likely to be large-scale or irreversible in nature.

Some of the institutional buildings are decades old and may have used asbestos containing material (ACM) in their construction. Use of ACM in civil activities or during disposal of ACM might lead irreversible health effects. Therefore, proper management of handling of ACM needs to be followed by during civil activities.

6.3 Mitigation Measures/Environment Management Measures for Civil Works

The following mitigation measures, but not limited to, shall be included in EMP and implemented to address the potential impacts associated with developing each ITI.

6.3.1 Pre-Construction Activities

The project will permit new buildings and extensions to existing buildings only on land that is owned and fully in the possession of the Institution, the State Government or the Central Government. Further, this land must not be occupied by any person/s, including squatters or encroachers, who may be using it for residential, commercial/livelihood or any other purposes. The availability of land free from any encroachers and/or squatters must be ensured before a site is selected for construction.

The Land Site Assessment process needs to be completed as per the screening format included in Annexure 1. Documentation on the process followed and the certificate prepared need to be archived and made available to Joint Review Missions, comprising of World Bank and SPIU officials. It must be ensured that the ownership of the land is clearly with the Institute on which the civil works are proposed.

As far as possible, the selected sites should be free from encumbrances. However, any encumbrances on the selected site/land such as trees, electrical and water utilities, hand pumps, water taps, parking sheds and temples/shrines (or any other) will be clearly identified and documented using the format provided in Annexure 1. The documentation will cover details of type, number, size/area of the impacted structure, species (in case of trees), as applicable. Relocation/replacement of such structures and utilities needs to be planned and executed prior to initiation of civil works in the suggestion section. The cost estimates for such pre-construction activities should be shown under a separate head in the civil works estimates.

Any site to be restored and having Asbestos containing material needs to be handled as per the Bank's EHS guidelines.

6.3.2 Building Design and Related Aspects

During the design of the buildings or extension of existing blocks, the following, but not limited to, need to be ensured as per the applicable national building codes and State Bylaws:

- Clear and comprehensive drawings for various utility services such as wiring, water supply, waste collection and disposal, plumbing, drainage and sewage disposal diagrams need to be designed as per standard practices.
- Water Supply arrangement/s, as per applicable norms
- Sanitation arrangements, as per applicable norms including separate arrangements for men, women and physically challenged
- Waste water discharge or disposal arrangements
- Adequate storm water discharge arrangement
- Floor height and window area, as per NBC norms.
- Promote wood substitutes and use of materials like fly ash and lead free paint.
- Adoption of relevant construction codes, applicable for earthquake, cyclone, flood and/or landslides.

Additionally, the following, but not limited to, should be considered and provided in the design:

- Building or block orientation, keeping in mind the solar and wind direction and also the existing lay-out
- Natural light and ventilation in classrooms, laboratories, canteen and toilets

Building Structure	Mechanical Systems	Occupant Considerations
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- Barrier free access for the physically challenged
- Appropriate shading devices (chajjas and louvers)
- Signage inside and outside the building
- Display/notice boards for display of information in the classrooms and at other required locations.
- Fire and electrical safety arrangements
- Provision of alarms or hooters to alert building occupiers in case of emergency.
- Clear demarcation of escape routes and assembly points for emergency situations.
- Provision of parking (segregated for two and four wheelers)
- Preserve existing trees, to the extent possible.

6.3.3 Construction Phase - Campus Maintenance and Related Aspects

The institute will ensure that the implementing agency (such as CPWD or State PWD) and/or contractors fully abide by the required legal requirements, including adherence to labour laws. Some key environment and safety requirements that need to be enforced and monitored include, but not limited to, the following:

- Provision and enforcement of Personal Protective Equipment (PPE), as relevant to the needs of the work.
- Ensuring proper safety precautions during erection, use and dismantling of temporary structures such as scaffoldings.
- Ensuring proper barricading and delineation of worksites.
- Ensuring that the required electrical, fire and mechanical safety practices are followed during various construction operations.
- Ensuring provision of safe access and working platforms for workers and supervisors.
- Display of information on Minimum Wages and adherence to the same
- Provision of accommodation for workers as per norms.
- Provision of proper potable water supply arrangements for workers.
- Provision of sanitation arrangements (toilets, urinals, bathrooms) for workers (including separate ones for women workers, as required).
- Provision of first aid and emergency response arrangement.
- Minimization of wastage including reuse and recycle of materials, as possible.
- Prompt disposal of trade specific waste as per the State guidelines provided in '*Delegation of Powers (2010)*'.
- Use of acoustic generators for construction work.
- Ensure proper and safe storing/stacking of construction material.
- Provide for silt control measures, if there are any streams/water bodies in the vicinity.
- Proper planning and sequencing of construction activities to reduce/minimize disturbance to students.
- Any Asbestos Containing Material to be disposed shall be disposed by (i) to a hazardous water facility, or (ii) deep burial (>6m deep) of the material, or (iii) by sealing off the building areas, especially if the foundation is raft foundation.

Table 6.1 Energy efficient and resource efficient construction should provide comfortable indoor conditions

The building and site should provide effective drainage measures to control rainfall runoff and to prevent entry into the building	Controlled mechanical ventilation systems shall be installed	Occupants should be provided with an operator's manual containing specific operating instructions on how to maintain a healthy indoor environment
The building foundation should be designed and constructed to prevent the entry of moisture and other soil gases	Where combustion appliances are used, only sealed direct combustion or power vented systems should be installed in habitable spaces. Gas cooktops should only be installed in conjunction with exhaust fans.	Control systems should include advisory display or indicative modes to alert occupants to "trouble" or "failure" conditions
Building assemblies should be designed and constructed to permit drying of interstitial spaces.	Forced air systems should be designed to provide balanced airflow to all conditioned spaces and zones.	
Building assemblies should be designed and constructed to prevent airflow into insulation systems from both the interior and exterior.	Filtration systems should be provided for forced air systems which provide a minimum atmospheric dust spot efficiency	
Materials, adhesives and finishes with tested low emission rates should be selected.	Indoor humidity should be maintained	
Comfortable indoor Conditions	Provision of adequate windows/ventilators/ floor management to permit natural light/air for reading , workshop and other training operations	Occupants should be provided with an operator's manual containing specific operating instructions on how to maintain a comfortable indoor conditions

The key environmental issues envisaged and suggested mitigation measures are given in the project and suggested mitigation measures are given below:

Table 6.2: Key Environmental Issues and Suggested Mitigation Measures

S.No.	Likely Issue	Mitigation measures
1.	Generation of noise during construction	<ul style="list-style-type: none"> • The construction activities involving generation of noise should be carried out in the daytime only and should be avoided in the night; • Acoustic barriers may be used in case residential area is in the immediate vicinity
2.	Loss of top soil	<ul style="list-style-type: none"> • Top soil excavated from the site should be carefully handled. It should be collected separately and stored as a heap which is appropriately covered. The heap should not be put in the direction of wind to avoid dust generation; • Maximum effort should be made to utilize the top soil for landscaping within the site; • For larger sites, sedimentation basin and contour trenching should be provided so as to avoid loss of top soil
3.	Air pollution due to digging and leveling activities	<ul style="list-style-type: none"> • Water sprinkling shall be practiced; • Construction machinery shall be properly maintained to minimize exhaust emissions of CO, SPM and Hydrocarbons; • These activities shall be avoided in very high wind and cover should be provided for loose construction material
4.	Water contamination and health risks associated with setting labour camp for construction	<ul style="list-style-type: none"> • Provision of separate mobile toilet facilities for men and women shall be made; • The domestic effluent shall be properly disposed of in soak pits; • Garbage bins shall be provided to all workers' accommodation for dumping wastes regularly in a hygienic manner; • Awareness programmes to be conducted regularly for workers on AIDS, and other health related issues; • Adequate drinking facilities shall be provided at the construction site; • Temporary crèche facility may be provided in case of migrant labour children residing in the camps to ensure safety
5	Air pollution due to movement of vehicles	<ul style="list-style-type: none"> • All the vehicles entering the site to be asked to have updated PUC (Pollution Under Control) certificate; • Maintenance of vehicles shall be carried out regularly • Sprinkling of water shall be practiced at the site
6	Land and water contamination due to vehicle movement	<ul style="list-style-type: none"> • Proper maintenance of vehicle shall be carried out to avoid any leakage of oil or grease.
7	Safety issues due to vehicle movement at the site	<ul style="list-style-type: none"> • Vehicle speed is to be restricted to 15km/hour at site; • Necessary safety trainings shall be provided to the drivers of construction vehicles for speed restrictions and do's and don'ts to be followed during movement of construction

S.No.	Likely Issue	Mitigation measures
		vehicles; • Provision of adequate personal protective equipment like safety helmets, face masks, safety shoes, safety goggles etc. for the safety of workers
8	Air pollution due to use of D.G set	• Air pollution due to use of D.G set D.G set to be optimally used with proper orientation and adequate stack height; • Stack monitoring carried out on regular basis; • Proper maintenance of the D.G set should be carried out on regular basis; • Acoustic enclosures are to be provided with the D.G sets to minimize the noise levels
9	Land and water contamination and safety risks due to use and storage of diesel at site	• A covered area shall be defined for storage of HSD with concrete flooring; • The diesel storage area shall not be proximity of the labour camps; • Inflammable substance shall not be allowed at the project site.
10	Land and water contamination due to waste generated at Site	• Waste shall be stored at designated place after segregation on the basis of category (hazardous and non-hazardous); • Hazardous waste shall be disposed of to the authorized vendors only; A waste management plan shall be chalked out to properly dispose the debris generated from the site.

6.4 Implementation Arrangements

Effective implementation of environmental management can be achieved through integrating environmental management aspects in curriculum and civil works. For this, institutional arrangements need to be improved as well as monitoring and evaluation.

6.4.1 Integration of Environment Management Aspects

Environmental Management aspects need to be included trade specific issues in curriculum as discussed earlier. The key steps that are needed to integrate the environmental management measures into civil works is given below. The EHS Coordinator will cross-check and ascertain the integration of environment management aspects in curriculum and civil works. Screening format provided as Annexure 1 should be used for this purpose.

Step 1: A reference to the environment management elements/measures (planning or design stage related) listed in the section above needs to be made. Then, a clear list of elements that will ‘apply’ to the particular civil work being proposed, needs to be identified/made.

Step 2: The identified environment management elements/measures need to be clearly identified in EMP and reflected/marked in the Detailed Project Reports including Design Drawings.

Step 3: The construction stage environment management requirements need to be integrated into Bidding Documents.

6.4.2 Institutional Arrangement

SPIU will assume the overall responsibility for adequate maintenance of the personnel and resources required to supervise, monitor and implement EMP for each ITI. Management of environmental aspects shall be addressed by designating an Environment Officer at SPIU and Environment Health and Safety (EHS) Coordinator at each ITI. The latter will co-ordinate, monitor and provide support for: (a) satisfactory implementation of the EMP; (b) orientation and training for field level staff of the concerned ITIs and other stakeholders; and (c) reporting and documentation. The Environment Officer shall be responsible for overall management of environmental activities under the project. SPIU will share quarterly reports on EMF implementation and related activities with the Bank.

Table 6.3: Roles and Responsibility of Stakeholders For Management of Environmental Issues

Key Responsibility	Planning Stage	Implementation and post Implementation Stage
SPIU	<ul style="list-style-type: none"> Overall environmental planning for all the ITI's adopted/participating state in the UKWDP as suggested in the EMF Coordination with line department for implementation of EMF and EMP Developing advocacy and communication strategy for internalization of the lessons learnt under the EMP implementation Preparation of relevant plans including disposal plans for scrap, hazardous waste, etc. Coordinate with EHS coordinator for finalizing interventions required in each participating ITI, work plan and getting concurrence from appropriate levels Ensure timely release of fund to the participating ITI, validate the proposals received technically. 	<ul style="list-style-type: none"> Ensure that line departments take timely supportive action in the areas that need coordination and convergence for the issues like water supply, sanitation, fire and disaster preparedness Integrate environmental monitoring result into common MIS of the project Continuous monitoring and supervision
EHS Coordinator	<ul style="list-style-type: none"> EHS coordinator will prepare and forward environmental plan to SPIU for concurrence and approval from appropriate level Map the support agency and departments which may be useful for implementation of environmental plan Will ensure the participation of students and other staff members for preparation of environmental plan as per the suggested EMF Prepare the plan clearly stating the role and responsibility of each of the in-house 	<ul style="list-style-type: none"> Ensure that the interventions planned/ needed are being executed as per plan and EMF/EMP, such as plantation before monsoon, precautionary forest fire safety arrangements before winter and summer dry months, enforcement of environmental sanitation and green campus management plan Coordinate with SPIU for physical & financial management of planned works Help students, faculty and other staff in implementing the planned

	and external stakeholder identified	works <ul style="list-style-type: none"> ▪ Provide technical inputs while execution of work is in progress ▪ Maintenance of infrastructure to ensure its lifetime functionality ▪ Ensure students are being educated in environment, health and safety practices
Line Departments (Forest & Watershed, PHED, SBM, Health, DMMC, Social Welfare etc)	<ul style="list-style-type: none"> ▪ Coordinate with SPIU/DLNU/EHS at ITI level, once the Environmental plan is finalized 	<ul style="list-style-type: none"> ▪ Ensure timely implementation of the planned interventions in conjunction with the Project workor the Annual plan prepared in post implantation phase

6.4.3 Environment Officer

The primary role of the Environment Officer in the SPIU is to assist and guide the ITI's in the preparation and implementation of the sub-project specific EMP. In particular, the screening exercises and sub-project specific EMPs, where required and integration of findings into the sub-project's decision making cycle have to be carried out by them. Other duties/responsibilities will include, but not limited to, the following:

- Ensuring appropriate application of the EMF to all components and sub-projects.
- Coordinate the preparation of environmental screening report of project sites assessments.
- Preparation of site specific environment management plans (EMP) for selected sub-projects for each ITI.
- Liaising with various State line departments & other implementing agencies on environmental matters.
- Detailing all the environmental laws and regulations of the state and national government which will apply to specific sub project activities.
- Coordinating with State-level regulatory authorities for obtaining environment clearances in a timely manner.
- Imparting training on EMF/EMP implementation to SPIU and EHS coordinators.
- Capacity building of contractors on environmental issues, practices and procedures to be followed.
- Identifying and providing oversight to consultants who may be deployed to carry out sub-project specific works.
- Prepare information, communication, and education strategy to enable proper conduct of stakeholder consultations.
- Identify the training agency and coordinate the training events.
- Periodic site visits to ensure that environmental requirements in the EMF are being followed during implementation of projects activities by the Line departments and

contractors, including identification of good practices and shortcomings, if any and advice on the remedial corrections.

- Documenting the implementation of EMPs.
- Provide necessary inputs to project quarterly progress reports on environmental matters.

6.4.4 Monitoring and Performance Tracking of Activities Under EMF

In order to evaluate the due compliance of mitigation measures the monitoring will basically focus on; (a) visual observation to assess overall environmental conditions and, (b) monitoring specific environmental quantitative/qualitative parameters. Project design is kept purposefully flexible to encourage a variety of approaches, to inculcate the environmental friendly behavior in all the stakeholders of the priority institutions to be covered under the UKWDP because the project design will need to allow for rapid learning and replication. Similarly, to increase the scope of replication of the good environmental practices, it is also important to learn as systematically in a phased manner from these new interventions. The M&E component would be designed accordingly to document and analyze the milestone achieved. The M&E system will permit to learn from the variety of approaches adopted during proposed project so that the lessons learned can subsequently be fed back into the project.

The objective of the monitoring program is to assess the efficiency of mitigation and enhancement measures suggested in the EMF and adoption of additional mitigation measures if necessary, for improving the environmental conditions in the priority ITIs.

Each ITI management will ensure environmental monitoring report on monthly basis. The same will be compiled into a quarterly report which will be submitted to Bank. This will require a regular quarterly visit of environmental officer to each ITI. The EHS coordinator of each ITI and will submit report to SPIU on quarterly basis.

6.5 Training and Capacity Building

Training and sensitization programs would be required at periodic intervals to ensure that sub-project activities are carried out as per the requirements set forth in this EMF. The thematic issues that require training and exposure will include the following:

- Resource mapping of Institute Campus,
- Participatory planning for Green Campus
- Long-term planning for water conservation, energy efficiency and sanitation and hygiene management
- Solid and Liquid Waste management for each type of vocational training
- Wastewater and storm water management
- Occupational safety and Disaster preparedness
- Disaster preparedness including Forest fire and Earthquake

Table 6.4: Training may be organized by SPIU as per the table given below.

S.No.	Name of the Training	Proposed Trainees	Proposed contents	Institution Suggested
1	Resource mapping of Institute Campus	EHS committee members	PRA and other quick resource appraisal techniques	Center for Continuing Education IIT

S.No.	Name of the Training	Proposed Trainees	Proposed contents	Institution Suggested
				Roorkee
2	Participatory planning for Green Campus	Principal and EHS committee members	PRA and other quick resource appraisal techniques as per GoI standards	Center for Continuing Education IIT Roorkee
3	Long-term planning for water conservation, energy efficiency and sanitation and	Principal and EHS committee m	Roof top Water harvesting and in-situ water conservation through Press Steel Tank, Ferro-cement technology and other appropriate techniques	Watershed Directorate GoUK/Central Soil and Water Conservation Research and Training Institute Kaulagarh Dehradun
4	Hygiene Management	Principal and EHS committee members including Female staff	Personal, Domestic and Institutional sanitation	Swacch Bharat Mission, State Nodal Agency, SPIU Swajal, Dehradun/Key Resource Center, Uttarakhand Academy of Administration Nainital, Uttarakhand/ Local Medical College as identified by the SPIU
5	Solid and Liquid Waste management for each type of vocational training	Principal and EHS committee members including Female staff and support staff	Disposal of Domestic, Chemical, Biomedical, e-waste and Industrial waste, recycling and value addition of waste	Swacch Bharat Mission, State Nodal Agency, SPIU Swajal, Dehradun/Key Resource Center, Uttarakhand Academy of Administration Nainital, Uttarakhand/ Local Medical College as identified by the SPIU
6	Wastewater and storm water management,	Principal and EHS committee members	Design and management of	Swacch Bharat Mission, State Nodal Agency,

S.No.	Name of the Training	Proposed Trainees	Proposed contents	Institution Suggested
		including Female staff and support staff	sullage drains	SPIU Swajal, Dehradun/Key Resource Center, Uttarakhand Academy of Administration Nainital, Uttarakhand/ Local Medical College as identified by the SPIU
7	Occupational safety and Disaster preparedness,	Principal and EHS committee members including Female staff and support staff	As per OHSAS standards	Center for Continuing Education IIT Roorkee/ THDC Engineering College Tehri, Pollution Control Research Institute (PCRI), Bharat Heavy Electrical Limited Haridwar,, Uttarakhand
8	Resource mobilization dovetailing and extension	Principal and EHS committee members	Details of the CSR and other contemporary GO/INGO's/External Aided other projects	THDC Institute of Hydropower Engineering and Technology /CSR Unit Oil and natural Gas Commission Kaulagarh, Dehradun/ Bharat Heavy Electrical Limited Haridwar,, Uttarakhand
8	Disaster preparedness including Forest fire and Earthquake etc	Principal and EHS committee members including Female staff and support staff	Earthquake, Fire, Road accident, Human – wild life conflicts and Forest Fire	Uttarakhand Disaster Minimization and Mitigation Center GOUK/ Emergency Health Service under NRHM
9	Trade specific Industry	All trade	Industry environment and	Local industry as identified by

S.No.	Name of the Training	Proposed Trainees	Proposed contents	Institution Suggested
	Immersion	Foreman	system	DLNI

6.6 Budgetary Requirements for EMP Activities

The various environmental management and augmentation measures suggested for ITIs could be incorporated in detail project reports for each ITI. Certain activities like training, public disclosure, maintenance and management of the services etc. would require special budgetary provisions.

Table 6.5 (a): Budgetary Provisions for EMF at State Level

S.No.	Expense Head	Unit Cost (INR)	Total Man Months Required	Total Expense (INR)	Remarks
1.	Development of National Level Training and Capacity building plan, Manual & Training material	15,00,000		15,00,000	State Level training plan incorporating training needs assessment of the ITIs
2.	Environmental awareness training	20,000		80,000	An ongoing activity
3.	Field Testing of EMF	20,000		15,00,000	At least 3 visits for each ITI
	Total			30,80,000	

Table 6.6 (b): Budgetary Provisions for EMF for Each ITI

No.	Activity	Unit Cost	Total Number/ Required	Total	Remarks/Assumptions
1	Environmental Awareness Training	Rs. 5,000	10	50,000	Locally available resource persons and ITI Venue
2	Environmental Awareness Training	Rs.10,000	5	50,000	Regionally available resource persons with 1-2 external support
3	Environmental Management System documentation/Drills	Lump sum	12	25,000	Initially for 1 year
4.	Provision of Ramps for increased access	5,000	02	10,000	Access to main areas. two ramps assumed

No.	Activity	Unit Cost	Total Number/ Required	Total	Remarks/Assumptions
5.	Environmental Augmentative Measures (Optional)				
	a. Rainwater Harvesting System	20,000	01	20,000	Collection and ground water recharge (wherever applicable)
	b. Safety Infrastructure	Goggles – Rs. 500 Ear plugs – Rs. 50 – 100 Gloves – Rs. 200 – 700 Helmets – Rs. 175 Safety Shoes – Rs. 500 Air masks with filter – Rs. 700 First Aid Box Rs. 2000			As per the number of students
	c. Other EMP activities	Not more than 1% of capital cost			Environmental Management Plan should be as per the prevailing schedule of rate suggested in the procurement manual

6.7 Stakeholder Consultations and Disclosure

Stakeholder Consultations: Consultation with various stakeholders was carried out as a part of the EA exercise through interviews, formal and informal discussions. The stakeholders consulted at the local level included trainees, faculty, other staff and nearby communities. Consultations at state level including GoUK officials, NGOs, civil societies, industry representatives, etc., will be undertaken after disclosure of draft EA and before appraisal of the project.

Disclosure: GoUK has disclosed the draft EA on their website before state level stakeholder consultations held on 5th March 2016. The final draft EA, incorporating comments from stakeholder consultations, has been disclosed by GoUK before appraisal of the Project. The World Bank has disclosed the reports in InfoShop after receiving NOC for disclosure from GoUK on both occasions.

ANNEXURE - 1

CHECKLIST FOR ENVIRONMENTAL SCREENING OF ITI

S. No.	Key Issues of screening	CONFORMING/ NOT CONFORMING		Corrective measures
		Yes	No	
A. KEY FACTORS				
A.1	Presence of sensitive/critical natural habitats including National Parks, Sanctuaries, Wetlands etc.			
A.2	Presence of Reserved and Protected Forests			
A.3	Movement/nesting/breeding sites of endangered species			
A.4	Presence of cultural properties/archaeological monuments/historical places			
A.5	Requirement of regulatory clearances/permissions			
A.6	Presence of Dams/Reservoirs/Public Water Supply Sources			
1. SITE LAYOUT				
1.1	Layout as per local building bye laws			
1.2	Climate responsive orientation of Building			
1.3	Landscaping of open areas and Plantation of trees			
1.4	Reuse of removed top soil for landscaping			

S. No.	Key Issues of screening	CONFORMING/ NOT CONFORMING		Corrective measures
		Yes	No	
1.5	Conservation of local flora and fauna			
1.6	Barrier Free Planning of Campus			
1.7	Environmental graphics and signage's			
1.8	Boundary wall / Fencing of Campus premises			
1.9	Provision for site drainage following natural drainage pattern			
1.10	Provision for water harvesting and conservation			
2. BUILDING DESIGN				
2.1	Building Design as per local building bye laws			
2.2	Provision for natural light and ventilation in class rooms and workshops			
2.3	Barrier free design considerations			
2.3	Incorporation of principles of energy efficiency			
2.4	Conformance to Green Building Codes			
2.5	Use of locally available building materials			
2.6	Use of eco-friendly building materials			
3. SITE DEVELOPMENT AND CONSTRUCTION				
3.1	Management of construction activities to prevent air pollution			

S. No.	Key Issues of screening	CONFORMING/ NOT CONFORMING		Corrective measures
		Yes	No	
3.2	Management of construction activities to prevent water pollution			
3.3	Management of construction activities to prevent noise pollution			
3.4	Management of materials to prevent soil pollution			
3.5	Efficient material use for waste reduction			
3.6	Scheduling of construction activities considering various factors			
3.7	Provision of Health and Safety measures / signage's on site			
3.8	Conformance to labour laws			
3.9	Provision of facilities for labour camps			
4. BUILDING SERVICES				
4.1	Electrical			
A	Use of energy efficient electrical fittings and devices			
B	Use of renewable sources of energy			
4.2	Plumbing			
A	Installation of Water harvesting structures			
B	Water saving fittings and fixtures			
C	Proper Location and number of drinking water faucets			

S. No.	Key Issues of screening	CONFORMING/ NOT CONFORMING		Corrective measures
		Yes	No	
D	Proper Location and number of WC / urinals / wash basins			
E	Recycling of grey water			
4.3	Outdoor lighting			
A	Use of renewable energy sources			
B	Use of energy efficient fixtures			
5. CAMPUS ENVIRONMENT MANAGEMENT				
5.1	Solid waste segregation / composting/ incineration			
5.2	Hazardous waste management			
A	Regulation of use and minimization of production of hazardous waste			
B	Proper labeling and storage and transport of hazardous waste			
C	Awareness building for use of alternative safer materials			
5.3	GOOD HOUSE KEEPING			
A	Regular sweeping of classrooms / corridor / workshops and labs			
B	Routine maintenance plan for building services			
C	Maintenance of landscaping			
D	Prevention and control of spillages and leakages in workshop and labs			

S. No.	Key Issues of screening	CONFORMING/ NOT CONFORMING		Corrective measures
		Yes	No	
E	Environment friendly techniques for pest control			
F	Composting of Biodegradable waste			

This is to certify that as per the compliance report submitted by the EHS of ITI - -----, during the monitoring period of -----, The ITI (name of the Institution) -----, has Conformed with the environmental guidelines of DGE&T, Ministry of Labour and Employment.

Forwarded by

Name of Principal:

Certified By

Name: _____

State Directorate of E&T/Executive Director

ANNEXURE - 2

LIST OF THE STUDENT/ FACULTY MEMBERS INTERACTED

ITI, MECHANIC MOTOR VEHICLE

S.No.	Name of Student
1.	Prashant Kumar Chauhan
2.	Chandan Singh
3.	Pradeek Singh Bisht
4.	Deepak Singh Rana
5.	Ravindra Singh Bisht
6.	Vikramjeet Singh
7.	Shivam
8.	Dharamveer Singh
9.	Prateek Panwar
10.	Diwakar Semwal
11.	Avneesh Singh Rana
12.	Nirdesh Kumar
13.	Naresh Saini
14.	Subhash Rawat
15.	Rahul Kumar
16.	Amit Kumar
17.	Dheeraj Kumar
18.	Nitin Kumar
19.	Sanjay Singh
20.	Mahesh Ram
21.	Deepak Singh Bohra

S.No.	Name of Student
1.	Ajay Kumar
2.	Rohit Kumar
3.	Nikhil Rana
4.	Kulwant Singh
5.	Mohan Pal Singh
6.	Pinki
7.	Rahul Rana
8.	Khasti Ballabh
9.	Maya Kumari
10.	Chandrashekhar Chaube
11.	Monu
12.	Shubham Rai
13.	Devendra Singh Bisht
14.	Saurabh Kumar Rana
15.	Kamal Hasan

S.No.	Name of Student
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1.	Vineet Kumar
2.	Saurabh Kumar
3.	Suraj Rawat
4.	Manoj Kumar
5.	Lata Pal
6.	Shiva Singh Bisht
7.	Veer Singh
8.	Sagar Sharma
9.	Iqbal Hussain
10.	Mahendra Saini
11.	Deepika
12.	Rajkumar
13.	Rahul Bhatt
14.	Saurabh Patwal

WELDER (S.C.V.T.)

S.No.	Name of Student
1.	Somveer Singh
2.	Praveen Rawat
3.	Devendra Singh Rawat
4.	Karan Bisht
5.	Dharmendra Singh
6.	Salman Hussain
7.	Ashish Bhatt
8.	Satish Kumar Sagar
9.	Pankaj Goswami
10.	Vimal
11.	Kamal Kumar Singh
12.	Kishore Bisht

ITI, DRAUGHTSMAN IIND YEAR (DMC)

S.No.	Name of Student
1.	Santoshi Rawat
2.	Kanak Baunthiyal
3.	Ronika
4.	Priyanka Bisht
5.	Ankush Bisht
6.	Pankaj Rawat
7.	Kamlesh Kumar
8.	Vikas Kandari
9.	Israr Alam
10.	Kuldeep Sharvan
11.	Manish Negi
12.	Sudeep Kumar
13.	Amit Bisht
14.	Amit Kumar
15.	Ajay Negi
16.	Dharmendra

ITI, Vikasnagar Wireman trade students

Instructor: Mr. PankaJ Nainwal

S.No.	Name of Student
1.	Anil Kumar
2.	Moh. Ajan
3.	Yaspal
4.	Sohan Singh Chauhan
5.	Kapil Negi
6.	Tajendra Singh
7.	Subham Toamr
8.	Naresh Kumar
9.	Vipin Kumar
10.	Hriya pal
11.	Udit Rawat
12.	Sunil Chauhan

ITI : Electrician

Instructor: Nisha Rani, 78030463156

S.No.	Name of Student
1.	Ankit Singh
2.	Ankit Kumar
3.	Anirudh
4.	Ved Prakash
5.	Shivani
6.	Shital
7.	Kanchan Rawat
8.	Neeraj Singh
9.	Vikas Bhatt
10.	Suarabh
11.	Devendra
12.	Shubham
13.	Pawan
14.	Mukesh
15.	Shelesh
16.	Ankit Bist
17.	Hadder Ali

ITI Dugadda, Steno Hindi

Instructor : Sanjeev kapoor , 9675075277

S.No.	Name of Student
1.	Jyoti
2.	Soni
3.	Anju
4.	Kalpna
5.	Subhani

6.	Kusum
7.	Anjali
8.	Kamini
9.	Jyoti-2
10.	Sagar Adhikari
11.	Moh Saurabh
12.	Deepak
13.	Sonam Rawat
14.	Nijamudin Ansari
15.	Ankita
16.	Nitin negi
17.	Punkaj Kumar
18.	Subham -2
19.	Poonam
20	Sameer Singh

ITI New Tehri

Trade name : Fitter

S.No.	Name of Student
1.	Akash Gwari
2.	Rahul T0mar
3.	Neeraj Sanini
4.	Neeraj Singh Kanintura
5.	Anand Singh
6.	Moh Sadik
7.	Dinesh Kumar
8.	Santosh Singh
9.	Shailendra Singh
10.	Pooja
11.	Pooja-2
12.	Babita
13.	Ankit Kumar

ITI New Tehri, Fitter

Trade name : Sewing Technology

Instructor : Renu Kashyap

S.No.	Name of Student
1.	Manisha
2.	Sushil Uniyal
3.	Reetika Rawat
4.	Priyanka Shah
5.	Rashmi Rana
6.	Pooja Rawat
7.	Somwati
8.	Rahni Nautiyal
9.	SUnita

10.	Dipti Bist
11.	Ganga

ITI New

S.No.	Name of Student
1.	Babita
2.	Semlata
3.	Yudhveer Singh
4.	Deepika
5.	Vineta
6.	Pinki Kharola
7.	Deepika
8.	Vipin Pant
9.	Ankit
10.	Shivani Rawat
11.	Sarita

Tehri, Fitter

Trade Name :Stenography and Secretarial Assistant

Instructor : Mamta Panwar

ITI New Tehri,

Trade Name :Wireman

Instructor : Dheeraj Kumar

S.No.	Name of Student
1.	Anil Chamoli
2.	Ramesh Painuli
3.	Sumit Kudiya
4.	Sachin Kumar
5.	Anudeep Singh Rnagar
6.	Tarun Gusain
7.	Deependra Topwal
8.	Ram prakash

ITI New Tehri

S.No.	Name of Student
1.	Babita
2.	Semlata
3.	Yudhveer Singh
4.	Deepika
5.	Vineta
6.	Pinki Kharola
7.	Deepika
8.	Vipin Pant
9.	Ankit
10.	Shivani Rawat
11.	Sarita

Trade Name: Electronics and mechanic

Instructor : Amar Singh Rawat

S.No.	Name of Student
1.	Akhalash Kumar
2.	Shubahm
3.	Manish Singh
4.	Yudhveer Singh
5.	Vinay Chamli
6.	Vijay Chamoli
7.	Abhishek
8.	Lalit Kishor Singh
9.	Abzal

ITI New Tehri

Instructor: Ranveer Singh

S.No.	Name of Student
1.	Anuj Rawat
2.	Rajnesh kumar
3.	Vijay Prasad
4.	Anuj Kumar
5.	Vipin Singh
6.	Sanjeev Burman
7.	Suraj Chauhan
8.	Akshay Kumar
9.	Vijay Prasad

Trade Name: Turner

S.No.	Name of Student
1.	Babita
2.	Semlata
3.	Yudhveer Singh
4.	Deepika
5.	Vineta
6.	Pinki Kharola
7.	Deepika
8.	Vipin Pant
9.	Ankit
10.	Shivani Rawat
11.	Sarita

ANNEXURE –3

List of Participants in EA Consultation Workshop, State level

Sl.No	Name of the Participant	Department	Designation
<u>1</u>	<u>Prem Chand</u>	<u>Vishist ITI Haridwar</u>	<u>Principal</u>
<u>2</u>	<u>Chamela Sigh</u>	<u>Boys ITI Dehradun</u>	<u>Instructor</u>
<u>3</u>	<u>M.M Doval</u>	<u>Gramin Vikas Sansthan, Nainbag Dehradun</u>	<u>Chairman</u>
<u>4</u>	<u>Rajesh Singh</u>	<u>ITI Almora</u>	<u>Principal</u>
<u>5</u>	<u>Sanjev Kumar</u>	<u>Govt. ITI Rajpur Road, Dehradun</u>	<u>Principal</u>
<u>6</u>	<u>J.P Tamta</u>	<u>ITI Sitarganj</u>	<u>Principal</u>
<u>7</u>	<u>Kamal Bahuguna</u>	<u>Director HIFEED, Ranichauri</u>	<u>Director</u>
<u>8</u>	<u>S.Pal</u>	<u>ITI Gujrada</u>	<u>Principal</u>
<u>9</u>	<u>Anand Chauha</u>	<u>Girls ITI Gujrada</u>	<u>Instructor</u>
<u>10</u>	<u>G.P Nautityal</u>	<u>ITI Boys</u>	<u>Instructor</u>
<u>11</u>	<u>S.C. Kukreti</u>	<u>Govt ITI Vikasnagar</u>	<u>Principal</u>
<u>12</u>	<u>B.S.Bhandari</u>	<u>Govt ITI Dehradun</u>	<u>Principal</u>
<u>13</u>	<u>Parveen Tomar</u>	<u>Govt ITI Dehradun</u>	<u>Instructor</u>
<u>14</u>	<u>Anil Pundir</u>	<u>Govt ITI Dehradun</u>	<u>Instructor</u>
<u>15</u>	<u>Sarafat Ali</u>	<u>Govt ITI Dehradun</u>	<u>Instructor</u>
<u>16</u>	<u>Ranjan Verma</u>	<u>World Bank</u>	<u>Consultant, Social Development</u>
<u>17</u>	<u>Suresh Chandra Khanduri</u>	<u>World Bank</u>	<u>Consultant, Environment</u>
<u>18</u>	<u>J.M Negi</u>		<u>Deputy Director , Traning</u>
<u>19</u>	<u>A.K Tripathi</u>	<u>Govt ITI Dehradun</u>	<u>Principal</u>
<u>20</u>	<u>Anish Jain</u>	<u>Govt ITI Dehradun Department of Technical Education</u>	<u>Deputy Cordinator TEQIP</u>
<u>21</u>	<u>Geeta Gairola</u>	<u>Mahila Samakhya Uttarakhand, Ministry of HRD, GOUK</u>	<u>Program Director</u>
<u>22</u>	<u>Sarita Rawat</u>	<u>, Mahila Samakhya Tribal Block Kalsi</u>	<u>District Resorce Person</u>
<u>23</u>	<u>Kamla Rawat</u>	<u>, Mahila Samakhya Tribal Block Kalsi</u>	<u>Junier Resorce Person</u>
<u>24</u>	<u>Avni Mishra</u>	<u>National Rural Livelihood Program, Uttarakhand unit</u>	<u>Resource Person</u>
<u>25</u>	<u>Sneha Priya</u>	<u>National Rural Livelihood Program, Uttarakhand unit</u>	<u>Resource Person</u>
<u>26</u>	<u>G.M Negi</u>	<u>Govt ITI Dehradun</u>	<u>Foreman</u>
<u>27</u>	<u>N.C .Bhandari</u>	<u>Govt ITI Dehradun</u>	<u>Foreman</u>
<u>28</u>	<u>Ravinder Solanki</u>	<u>Govt ITI Dehradun</u>	<u>Foreman</u>
<u>29</u>	<u>B.P Kukreti</u>	<u>Govt ITI Dehradun</u>	<u>Instructor</u>
<u>30</u>	<u>Balwinder kaur</u>	<u>Govt, Girls ITI Dehradun</u>	<u>Instructor</u>
<u>31</u>	<u>Minakshi Doval</u>	<u>Govt, Girls ITI Dehradun</u>	<u>Instructor</u>
<u>32</u>	<u>Kunti Rawat</u>	<u>Govt, Girls ITI Dehradun</u>	<u>Instructor</u>

<u>33</u>	<u>Poonam Nautiyal</u>	<u>Govt, Girls ITI Dehradun</u>	<u>Instructor</u>
<u>34</u>	<u>Meghna Sharma</u>	<u>World Bank</u>	<u>Senior,</u>
<u>35</u>	<u>Sangita Kumari</u>	<u>World Bank</u>	<u>Senior, Social Development Expert</u>
<u>36</u>	<u>Vijay Nautiyal</u>	<u>, Jan Sikshan Sansthan, Ranichauri District Tehri</u>	<u>Director</u>
<u>37</u>	<u>Arun Kumar</u>	<u>Govt ITI Niranjanpur Dehradun</u>	<u>Foreman</u>
<u>38</u>	<u>Pawan Kumar</u>	<u>Govt ITI Niranjanpur Dehradun</u>	<u>Foreman</u>
<u>39</u>	<u>Himanshu Godiyal</u>	<u>Govt ITI Niranjanpur Dehradun</u>	
<u>40</u>	<u>Rajat Maurya</u>	<u>Govt ITI Niranjanpur Dehradun</u>	
<u>41</u>	<u>Subhash Kumar</u>	<u>Employment</u>	<u>Assistant Director</u>
<u>42</u>	<u>Uday Raj Singh</u>	<u>GITI Barkot</u>	<u>Principal</u>
<u>43</u>	<u>Reena Yadav</u>	<u>Govt ITI Niranjanpur Dehradun</u>	<u>Student</u>
<u>44</u>	<u>Vandana Singh</u>	<u>Govt ITI Niranjanpur Dehradun</u>	<u>Student</u>
<u>45</u>	<u>Pooja</u>	<u>Govt ITI Niranjanpur Dehradun</u>	<u>Student</u>
<u>46</u>	<u>Mehak Bani</u>	<u>Govt ITI Niranjanpur Dehradun</u>	<u>Student</u>
<u>47</u>	<u>Anita kumara</u>	<u>Govt ITI Niranjanpur Dehradun</u>	<u>Student</u>
<u>48</u>	<u>Kavita Sharma</u>	<u>Govt ITI Niranjanpur Dehradun</u>	<u>Student</u>
<u>49</u>	<u>Ankit nagar</u>	<u>Govt ITI Niranjanpur Dehradun</u>	<u>Student</u>
<u>50</u>	<u>Subhash Kumar</u>	<u>Govt ITI Niranjanpur Dehradun</u>	<u>Student</u>
<u>51</u>	<u>Nakul Sanini</u>	<u>ITI Gujrada</u>	<u>Student</u>
<u>52</u>	<u>Shivam kumar</u>	<u>ITI Gujrada</u>	<u>Student</u>
<u>53</u>	<u>Ravin Kumar</u>	<u>Govt ITI Niranjanpur Dehradun</u>	<u>Student</u>
<u>54</u>	<u>Hardip Singh Bali</u>	<u>Govt ITI Niranjanpur Dehradun</u>	<u>Student</u>
<u>55</u>	<u>Manoj Kumar</u>	<u>Govt ITI Niranjanpur Dehradun</u>	<u>Instructor</u>
<u>56</u>	<u>Rajendra Tiwari</u>	<u>ITI Sitarganj</u>	<u>Instructor</u>
<u>57</u>	<u>Abhishek Chettri</u>	<u>ITI</u>	<u>Student</u>
<u>58</u>	<u>Gaurav Thakur</u>	<u>ITI Gujrada</u>	<u>Student</u>
<u>59</u>	<u>Parveen Sharma</u>	<u>ITI Gujrada</u>	<u>Student</u>
<u>60</u>	<u>Neeraj Kumar</u>	<u>ITI Gujrada</u>	<u>Student</u>
<u>61</u>	<u>Sachin Kmar</u>	<u>ITI Gujrada</u>	<u>Student</u>
<u>62</u>	<u>Sanjay Kumar</u>	<u>Govt ITI Niranjanpur Dehradun</u>	<u>Student</u>
<u>63</u>	<u>Swaraj Verma</u>	<u>Govt ITI Niranjanpur</u>	<u>Student</u>

		<u>Dehradun</u>	
<u>64</u>	<u>Arjun Kumar</u>		
<u>65</u>	<u>Sabjay Kumar Singh</u>	<u>, Nodal Swacch Bharat Mission, Uttarakhand</u>	<u>Unit Cordinator HRD</u>
<u>66</u>	<u>Vinod Juyal</u>	<u>ITI Kalsi, Tribal belt</u>	
<u>67</u>	<u>Lalit Kumar</u>	<u>ITI Gujrada</u>	
<u>68</u>	<u>Pooja</u>	<u>ITI Niranjanpur</u>	
<u>69</u>	<u>Nakul Kumar</u>		
<u>70</u>	<u>MM Kudiyaal</u>	<u>ITI Girls Dehradun</u>	<u>Principal</u>
<u>71</u>	<u>K.B Shah</u>	<u>Institute For Development Support, NRM based NGO</u>	<u>Cordinator</u>
<u>72</u>	<u>Jitender Tomar</u>	<u>ITI Gujrada</u>	
<u>73</u>	<u>Abhishek Chandra</u>	<u>ITI Gujrada</u>	
<u>74</u>	<u>Gaurav</u>	<u>ITI Gujrada</u>	
<u>75</u>	<u>Jyoti Rani</u>	<u>ITI New Tehri</u>	
<u>76</u>	<u>Sanjay Doval</u>	<u>SPIU</u>	<u>Adm Assistant</u>
<u>77</u>	<u>Rajendra Pd Joshi</u>	<u>ITI</u>	
<u>78</u>	<u>Pornanand Saklani</u>	<u>Department of Forest</u>	<u>Forester</u>
<u>79</u>	<u>Anil Doval</u>	<u>Department of Social Welfare</u>	

Annexure -4

Photogallery illustrating various environmental issues during the course of EIA

	
<p>Dehradun ITI Workshop</p>	<p>ITI Almora view of forest in the campus and damaged storm water drain</p>
	
<p>Almora abandoned building with highly inflammable piles of dry Pine leaves</p>	<p>ITI Almora Faculty members in</p>

	
ITI Almora Toilet Unit	ITI Almora Toilet Unit
	
ITI Almora Electrician Workshop	Garbage dump in ITI Vikasnagar

	
ITI Vikasnagar Building with Ramp for TWSN	ITI Dehradun Parking space
	
ITI Vikasnagar Consultation With Students	ITI Dugadda In District Pauri

	
<p>ITI Kashipur scrape waiting for disposal</p>	<p>ITI Kashipur abandoned Toilet constructed with biogas facility</p>
	
<p>ITI Kashipur students demonstrating personal safety gussets</p>	<p>ITI Kashipur students with Principle in a classroom with Safety demonstrating gussets</p>
	
<p>ITI Kashipur students and</p>	<p>Principle in garden developed by students</p>



Interaction with Female staff in ITI Almora



Leakage from roof area in ITI New Tehri



Interaction with students in ITI New Tehri





Wash room in ITI New Tehri



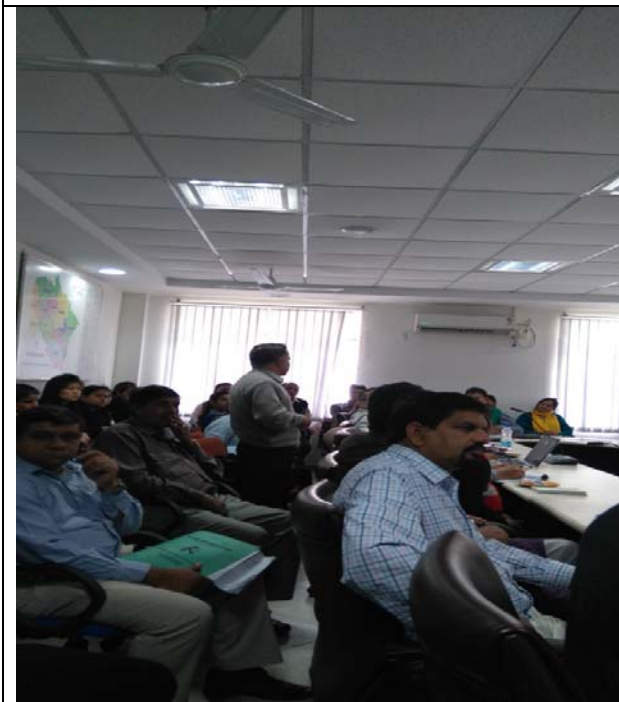
Chocked storm water drain in ITI Tehri

State Level Consultation of Environmental Assessment



State Level consultation, Presentation by SPIU team

State Level consultation, participation by World Bank Consultants



Dr Bhatt, Director, Jan Sikshan Sansthan explaining local conditions

State Level consultation, Presentation by SPIU team

	
<p>Principal ITI emphasizing on need of refresher training</p>	<p>Presentation on EMF explaining salient features and request for suggestions</p>
	
<p>SBM- State Nodal agency representative in meeting</p>	<p>Mr. Anil Kumar Tripathi, Principal ITI Dehradun presenting the power point presentation</p>