DRAFT FINAL

ENVIRONMENTAL MANAGEMENT FRAMEWORK
for
BANGLADESH
SKILLS AND TRAINING ENHANCEMENT PROJECT
(STEP)

Directorate of Technical Education (DTE)
Ministry of Education (MOE)
Government of the PeoplesRepublic of Bangladesh

Updated on August, 2015

Executive Summary

Skilled worker is an essential component in any growing economy. The GoB has highlighted the importance of the technical and vocational education and training (TVET) sector in Bangladesh. The project development objective of the "Skills and Training Enhancement Project (STEP)" is to improve the quality and relevance of TVET in Bangladesh and to strengthen system capacity and selected training institutions to produce more employable and better skilled trainees for both the domestic and overseas employment markets. The original five-year program was implemented between FY 2010/11-2014/15 (with estimated project cost of US$ 104.71 million). The project originally supported: (i) Component 1: Improving Quality and Relevance of Training; (ii) Component 2: Pilots in TVET ; (iii) Component 3: Institutional Capacity Development; (iv) and Component 4: Project Management, Communications, and Monitoring and Evaluation. The objective of the proposed Additional Financing (AF) is to sustain and deepen the impact of successful interventions under the original project primarily through scaling-up of project activities, and to enhance the ongoing reform agenda at system and service-delivery levels for attaining the next stage of skill development landscape as envisaged by the National Skills Development Policy (NSDP). Based on the lessons learned from the earlier operation and international experiences, this AF entails the following: (i) scale-up of interventions that have successfully contributed to the improvement of service delivery, (ii) minor modifications in project sub-components to improve the efficiency of implementation; (iii) introduction of additional innovative activities; (iv) fine-tuning of the results framework; and (v) an update of implementation arrangements. The total project cost of Additional Financing is US$120.8 million (Bank financing US$100 million, recipient US$20.8 million)

This Environmental Management Framework (EMF) of the Bangladesh's Skills and Training Enhancement Project (STEP) has been prepared in compliance with the World Bank EA requirements on projects proposed for Bank financing to help ensure that they are environmentally sound and sustainable, and thus improve decision making (OP 4.01, January 1999). Since the exact nature and scale of safeguards impacts under the specific subprojects remain to be assessed, the issues and impacts addressed in the original EMF were largely based on the experience with similar projects implemented in the recent past. The EMF of the original project has been updated using the implementation experience of the original project implementation. The EMF provides the provision to screen and assess the environmental safeguard issues and impacts, and prepare the necessary adverse impact mitigation plans. The EMF also provides the necessary background for environmental considerations, checklists of potential environmental issues of the project activities to be considered and built into the design of the project so that environmentally sustainable implementation can take place. The EMF highlights relevant general policies, guidelines, codes of practice and procedures to be taken into consideration for integration of environmental aspects into the project design. Adhering to the principles and procedures and using the checklists of potential environmental issues laid out in this EMF helps the implementing agencies to ensure compliance

with the relevant provisions under the related Government's policies, and associated rules, regulations and procedures as well as the World Bank's environmental safeguard policies. This EMF also serves as the guideline for preparing Terms of Reference (ToR) of the staff designated by the implementing agencies (DTE, BTEB, BMET) to oversee and monitor the environmental compliance of the respective project components coming under their implementation responsibility.

General principles and component specific principles for the EMF have been developed in this document. The EMF has been updated by analyzing the four components of the project and experience of the original project implementation. Environmental issues related to the components have been presented in this document. The major task with environmental issues involved in the project is infrastructure rehabilitation and refurbishment and vertical expansion of DTE building as well as upgradation/modernization of existing workshop facilities and infrastructure. It is important to identify the hazardous construction and laboratory materials, the drainage problem and the pollution generated from the insufficient proper disposal of municipal solid wastes.

Projects and programs financed with IDA resources need to comply with the World Bank Operational Policies. Therefore, the project components eligible for funding under STEP will be required conformity with environmental legislation of the Government of Bangladesh (GOB) in addition to satisfy the World Bank's safeguard policies. The physical intervention and the detail extension of the project are still unknown at this stage. The Project is classified as a **Category 'B**' according to World Bank Safeguard Policy. *The project will screen all sub-projects. The mitigation measures for temporary negative environmental impacts will be specified. If environmental screening identifies any environmental impact, IEE will be conducted for the sub-projects having small-scale repairing and rehabilitation work with minor environmental impacts and EMP will be prepared. If IEE indicates that there are significant negative environmental impacts from the small-scale sub-projects; the implementing agency will conduct the EIA and EMP will be prepared after the EIA.*

Guideline for Environmental screening and Initial Environmental Assessment for project components having limited environmental impact has been developed and incorporated in this document. The purpose of the environmental screening is to get relevant concerns addressed early on before further design of a project and to ensure that actions to mitigate environmental impacts or enhance environmental opportunities are budgeted for. The two major components will use different formats for environmental screening. Environmental screening will be the preliminary step to identify any potential impacts due to the project activities. Based on an extensive literature review and expert consultation, screening matrices have been developed and provided in the Annex.

The EMF has also documented the environmental enhancement aspect of the project. BTEB will be responsible for developing environmental, occupational health and safety curricula for the technology courses upgraded by the project, if necessary, with outside expertise. The project will train student and teachers and promote capacity building in environmental and occupational health and safety practice which will eventually generate resource management and environmental awareness enhancement in professional life.

A guideline for Environment Management Plan (EMP) for major three components has been developed. The Environment Management Plan (EMP) outlines the environmental management procedures that will be implemented during the project period and also in the operation & maintenance period to minimize the negative impacts and implementation of enhancement measures.

This documents stresses on the occupational health and safety. A Sample Outline of Laboratory Safety Guideline and General requirement for worker health and safety have been provided in the Annex. The job description of the Environment Specialist under M&E consultant and a sample General ToR for Environmental Impact Assessment of rehabilitation/renovation/ refurbishment of existing building, classrooms, workshops, and library been developed and provided in the annex of this EMF.

DTE has been gaining experience with World Bank project through STEP. DTE designated a focal person to ensure the environmental compliance of STEP activities in light of the EMF. However, DTE's in house capacity building on environmental monitoring is far behind due to lack of resources. DTE needs to take support of an environmental professional for ensuring environmental compliance in the project activities. Based on the environmental screening, budget for implementation of EMP will be allocated with each sub-project. The additional financing has provision of an Environmental and Social Safeguard Specialist to strengthen the implementation and reporting of the EMF. The specialist will review all the sub-project specific documents and related the environmental safeguard issues, monitor the environmental issues during implementation and operational stage and will help to prepare the environmental law and occupational safety courses to be incorporated in the curricula. In addition, DTE will also assign 2 staffs. These staff will be trained on monitoring environmental management in the campus during project implementation and operational stage.

Project Director of DTE will submit half yearly progress report on the environmental management to the World Bank. The report will have two parts. One part will contain the initial screening report of all proposals, identified environmental concerns, appropriate mitigation measures and monitoring plan and costing. Another part will present the monitoring and management status of the EMP implementation of the ongoing activities in the selected institutions.

The original EMF was prepared by DTE with the help of environmental consultant. The Ministry of Education will share the EMF with concerned academic institutions, Department of Environment and civil society. It was disclosed in both Bangla and English by the Ministry of Education on behalf of the GoB in Bangladesh and it was also be made available at the World Bank's InfoShop. The updated EMF has also been disclosed in-country and InfoShop. Relevant subproject specific safeguard documents/mitigation plans (EMPs) prepared subsequently will also be re-disclosed to the public.

Abbreviations

BIMT	Bangladesh Institutes of Marine Technology
BMET	Bureau of Manpower Employment and Training
BNBC	Bangladesh National Building Code
BTEB	Bangladesh Technical Education Board
CPO	Counseling and Placement officer
DOE	Department of Environment
DP	Development Partners
DPD	Deputy Project Director
DTE	Directorate of Technical Education
EA	Environmental Assessment
EC	European Commission
ECA	Environmental Conservation Act
ECC	Environmental Clearance Certificate
ECR	Environmental Conservation Rule
EIA	Environmental Impact Assessment
EMF	Environmental Management Framework
EMP	Environmental Management Plans
FY	Fiscal Year
GoB	Government of Bangladesh
HRMIS	Human Resource Management Information System
IDA	International Development Association
IEE	Initial Environmental Examinations
ILO	International Labor Organization
IME	Institutional Management Committee
ISC	Industry Skills Councils
M&E	Monitoring and Evaluation
MOE	Ministry of Education
MOEF	Ministry of Environment and Forest
NEMAP	National Environment Management Action Plan
NGO	Non Government Organization
NSDC	National Skills Development Council
NSS	National Skill Standard
OP	Operational Policy
PIU	Project implementation Unit
PD	Project Director
PPT	Project Preparation Team
RMG	Ready-Made Garments
SIL	Specific Investment Loan
SSC	Sector Skills Councils
SMC	School Management Committee
STEP	Skills and Training Enhancement Project
ToR	Term of Reference
TTC	Technical Training Centers
TVET	Technical and Vocational Education and Training
USD	US Dollar
VTI	Vocational Training Institutes
WARPO	Water Resources Planning Organization

Table of Contents

1. Project Background

1. Skilled worker is an essential component in any growing economy. The Government of Bangladesh (GoB) has highlighted the importance of the technical and vocational education and training (TVET) sector in Bangladesh. The TVET landscape includes 425 diploma-level polytechnics and 7000 short-course training institutions, including both public and private providers. Vocational training is also provided through technical streams at the secondary and higher secondary education levels. STEP is currently supporting 33 polytechnics and 65 short course training providers.

2. Since 2006/07, there have been rapid progress in the Government's thinking in this sector and in the support; the GoB has been able to mobilize through key development partners. The Government's Education Policy 2010, outlines articulately the strategies it proposed to adopt for helping to strengthen the role of TVET in the country. The importance of TVET to the Bangladesh economy has been highlighted during this global economic crises as the crises has had some effect on three crucial areas of the Bangladesh economy, *viz*., (i) exports (in particular, ready-made garments (RMG) and knitwear), (ii) remittances from overseas migrants, and (iii) jobs across all levels with a particular emphasis on potential overseas migrants and those already abroad who have had to return to Bangladesh after their jobs were lost due to the on-going crises.

3. There is considerable anecdotal evidence to suggest that Bangladesh would have fared better, particularly in terms of job-losses in overseas markets, had the share of skilled emigrants to total emigrants been higher, since the crises seems to have had differential impacts across people of different skill levels. Though the GoB had focused the spotlight on TVET and skills development long before the impact of the crises became apparent, the focus was magnified once the true aftermath of this crisis became clear.

2. Project Development Objective

4. The project development objective is to strengthen selected public and private training institutions to improve quality of vocational training, and employability of trainees, including those from disadvantaged socio-economic backgrounds. The proposed Additional Financing (with an implementation period of three years) will support the following main activities:

(a) **scaling-up successful interventions**: (i) institutional development grants to new public and private polytechnics; (ii) fulfillment of exceeding demand for skills training by expanding the coverage of stipends to a greater number of disadvantaged students; (iii) expansion of short-term skills training opportunities and (iii) roll-out of Recognition of Prior Learning (RPL) program;

(b) **fine-tuning existing scheme and mechanisms**: (i) provision of greater flexibility in technology/trade support in polytechnics and short-courses; (ii) introduction of e-government

procurement (e-GP) in central TVET institutions and selected polytechnics; and (iii) enhancement of communication and mobilization activities; and

(c) **introducing further innovations**: (i) digitized contents in teaching; (ii) in-service competency-based subject training in Technical Teacher's Training College (TTTC), Technical Teacher's Training Institute (TTTI) and Vocational Teacher's Training Institute (VTTI); (iii) training for prospective migrant workers; and (iv) impact evaluation for RPL activities.

3. Objectives of EMF

5. The Environmental Management Framework (EMF) provides general policies, guidelines, codes of practice and procedures to be integrated into the implementation of the World Bank-supported Skills and Training Enhancement Project (STEP). The project will support: (i) Component 1: Improving Quality and Relevance of Training; (ii) Component 2: Innovative Programs in TVET; (iii Component 3: Institutional Capacity Development; (iv) and Component 4: Project Management, Communications, and Monitoring and Evaluation. These components under additional financing will be implemented over a period of three years.

6. The purpose of this document is to outline a Framework for Environmental Assessment &Management, giving brief details of potential Environmental issues typically associated with the planning and implementation of the project activities envisaged under the STEP and provide guidelines on how to carry out Environmental Screening (ES), Initial Environmental Examinations (IEE), Environmental Impact Assessment (EIA),and prepare Environmental Management Plans (EMP) to mitigate project induced negative environmental impacts and enhance positive environmental impacts of the project interventions. An EMF for the STEP is necessary because sub-project specific environmental impacts cannot be precisely identified upfront before the physical intervention and knowing details of activities at the locations. The EMF provides the necessary background for environmental considerations, a checklist of potential environmental issues of the project activities to be considered and built into the design of the project so that environmentally sustainable implementation can take place. The EMF highlights relevant general policies, guidelines, codes of practice and procedures to be taken into consideration for integration of environmental aspects into the project design. Adhering to the principles and procedures and using the checklist of potential environmental issues laid out in this EMF helps the implementing agencies to ensure compliance with the World Bank's environmental safeguard policies and the relevant provisions under the related Government's policies, and associated rules, regulations and procedures. This EMF also serves as the guideline for preparing Terms of Reference (ToR) of the staff designated by the implementing agencies (DTE, BTEB, BMET etc.) to oversee and monitor the environmental compliance of the respective project components coming under their implementation responsibility by the PIU (Project Implementation Unit). Therefore this EMF must be used as the template and guideline to ensure diligent environmental compliance of the planning and implementation of the activities envisaged under the STEP. The EMF prepared for the original project has been updated for the additional financing using the experience of the original project.

7. Projects and programs financed with IDA resources need to comply with the World Bank Operational Policies. Therefore, the project components eligible for funding under STEP will be required conformity with environmental legislation of the Government of Bangladesh (GoB)in addition to satisfy the World Bank's safeguard policies. According to the ECR'97 construction of multi-storied building is an Orange B category project. It is also mentioned in the ECR'97 that any engineering works (up to 10 hundred thousand Taka) is an "Orange B" Category project. However, Ministry of Housing and Public works defines that more than 6 storied building outside Dhaka and more than 10 storied building inside Dhaka are multistoried building. But the physical intervention and the detail extension of the project are still unknown at this stage. *The project will screen all sub-projects. The mitigation measures for temporary negative environmental impacts will be specified. If environmental screening identifies any environmental impact, IEE will be conducted for the sub-projects having small-scale repairing and rehabilitation work with minor environmental impacts and EMP will be prepared. If IEE indicates that there are significant negative environmental impacts from the small-scale sub-projects; the implementing agency will conduct the EIA and EMP will be prepared after the EIA.* The Project is classified as a **Category 'B**' according to World Bank Safeguard Policy. The EMF of STEP has been developed to ensure compliance with the World Bank's safeguard policies under the current conditions in Bangladesh. The objective of the EMF is to ensure that activities under the proposed operations will address the following issues:

- Minimize potential negative environmental impacts as a result of either individual subprojects or their cumulative effects;
- Enhance positive environmental outcomes;
- Provide a mechanism for consultation and disclosure of information;
- Ensure that environmental and related social issues are thoroughly evaluated and necessary interventions are incorporated in planning, decision making, and implementation of project activities ;
- Protect human health; and
- Ensure compliance and due diligence with World Bank environmental safeguard policies as well as with related Government policies, regulation, guidelines and procedures as applicable to the type of project activities financed by the project.

4. Project Description

8. To make the TVET sector more responsive to current and emerging labor market needs for skilled manpower, the GoB has been implementing the Skills and Training Enhancement Project (STEP) aimed at: (a) improving the quality and relevance of diploma and short-term training programs; (b) strengthening the capacity of key institutions such as DTE, BTEB, and BMET for better management of TVET sector, development/revision of curricula, development of modern teaching and learning resources, teacher training, and other functions; and (c) strengthening the monitoring and evaluation of the TVET sector and specifically of institutions financed under this project.

9. Under the project, the following key reforms have been initiated in a selected set of public institutions. Based on the evaluation of the pilot and lessons learned during implementation, the government will consider institutionalizing these reforms in all public institutions. These reform measures are:

(a) *Strengthening Institute-Industry Linkages:* To enhance the relevance of programs offered at polytechnics and institutes in Bangladesh, all institutes establish an Institute Management Advisory Committee (IMAC) to oversee the strategic and physical development of the institute and to provide overall guidance on institutional activities.

(b) *Full Teaching Strength:* Since trainers and teachers are at the heart of ensuring high quality teaching and relevant training in classrooms and laboratories, it is important to ensure that prescribed norms, such as, for Student Teacher Ratios (STRs) are maintained. All teacher or trainer posts that have already been sanctioned and have been lying unfilled for more than 6 months will be filled by delegating the authority to the institutions to fill these posts through contractual hires.

(c) *Introduction of Self-Financing Programs:* Since TVET courses tend to be very expensive compared to general education, it is important to ensure that the sole burden for financing of such programs do not fall purely on the government and to expand the resource base from which institutes can be financed. Institutes will be allowed to introduce a parallel fee-paying program for students who want to pursue courses outside the formal timings/procedures of the institutions.

(d) *Retention and Reinvestment of Generated Funds:* The fees generated through such fee-paying students and/or other means, will be retained at the level of the institute and reinvested into strengthening the institute's ability to improve the quality and relevance of training programs from these institutes.

10. In addition to this, another significant innovation that the government is piloting in this project is that of competition between the public and private sector – both public and private institutions will be allowed to compete for resources under Component 1 of the project. This is an important step towards leveling the playing field between public and private institutions and allowing good quality institutions to compete for resources.

11. Proposed AF will comprise the following components: (a) improve the quality and relevance of training, (b) innovative programs in TVET, (c) institutional capacity development, and (d) project management, communications, monitoring and evaluation.

Component 1 - Improve the Quality and Relevance of Training (Original Project[1]: US$ 83.5 million; AF Project[2]: IDA: US$ 75.7 million, GoB: 0)

[1] This original project cost includes: original Credit, GoB, and MDTF.
[2] This AF project cost includes: Credit and GoB.

12. *Sub-component 1.1:Expansion of targeted polytechnics for the competitive institutional grants and stipend for disadvantaged students*: Under the original and MDTF, 33 polytechnics have been supported by the institutional grants (25 public and 8 private) for improving the quality of training. As recognized by the NSDP, polytechnics are the key to producing engineers and professional workers that is scarce in current Bangladesh labor market and to strengthening productivity and national competiveness. Despite initial slow progress due to weak capacity of institutions and their unfamiliarity to the new competitive funding mechanism, the institutions have made substantial achievement in upgrading equipment and facilities and conducting quality enhancement activities, such as overseas teacher training, invitation of industry lecturers, and organizing industry visits. In 33 institutions, 74 percent of the funds are used for modernization of the equipment and facilities and infrastructure, 18 percent is spent on capacity development and administration, and 6 percent was for student training services, such as sending more than 25,000 students to industry study visits. The proposed AF will**:** (i) expand support to an additional 25 (13 public and 12 private) institutions according to the agreed eligibility and selection criteria, (ii) support polytechnics to introduce additional market demand**-**driven technologies; and (iii) scale up support to the existing polytechnics. New institutions are expected to have relatively weaker capacity, so the increased coverage of competitive funding aims to bottom up the overall quality standard of polytechnic in Bangladesh. Additional support to existing institutions aims to accelerate the quality improvement by generating synergy with what they have achieved – including modernization of equipment and overseas training.

13. *Stipends:* The original project and MDTF have supported about 280,000 student years by targeting disadvantaged students identified by Proxy-Means Testing (PMT). The AF will support about 43,000 student years to fill the funding gap under the original project and about 215,000 student years for the AF period. Currently, stipends have been provided to 93 eligible polytechnics (43 public, 50 private), supporting disadvantaged male students and all female students. Based on the observed results of increased attraction of well performing students to polytechnics and a rapid increase of female intake, the AF will expand stipend coverage to a larger number of eligible institutions, and enhance communication activities to promote awareness among prospective students especially in rural areas. AF will also pilot electronic attendance monitoring mechanism in 5 public institutions for increasing accountability. Male students will continue to be selected through PMT, and all female students will receive stipends based on their application. The DTE will assess the effectiveness of PMT stipends and traditional merit-based scholarship during the AF period to establish a sustainable and cost effective stipend program for achieving 50 percent enrollment increase as envisaged by the NSDP. Accordingly, the Project Implementation Manual (PIM) will be updated.

14. *Sub-component 1.2: Expansion of targeted short-course institutions:* Under the original project and MDTF, the beneficiary targets for short-courses are 70,500 trainees in a total of 64 short-course institutions (47 public and 17 private). The first round of tracer study revealed that the quality enhancement activities including improved job-placement support have contributed to higher employment rate among supported students, and the stipend

supports are rightly benefiting the disadvantaged students (World Bank 2015). Under the proposed AF, this activity will be expanded to 150,000 trainees in 90 institutions (26 additional institutions). It will scale up the scope of support by: (i) supporting new market-oriented short-course programs through partnerships with key private sector institutions in the TVET sector such as Underprivileged Children's Educational Program (UCEP), Palli Karma-Shahayak Foundation (PKSF), Bangladesh Garment Manufacturers and Exporters Association (BGMEA), Bangladesh Knitwear Manufacturers and Exporters Association (BKMEA), and Bangladesh Association of International Recruiting Agencies (BAIRA), and (ii) supporting BMET to introduce a new training program for prospective migrant workers on a pilot basis. To respond to large aspirations of short-course trained graduates to work abroad, the pilot aims to coordinate a foreign country to match up the skills standards, enabling smooth recognition of skills acquired by Bangladeshi workers. The existing short-course institutions will continue to receive grants under the AF for extending support to market-relevant trades that were not covered under the original grant. Based on a recent economic data, the implementation grant will be raised from US$250 to US$275 per student enrolled in a course. To achieve the government objective of competency-based training, the AF will support the transition from National Skills Standard (NSS)-based training to NTVQF-based training programs in phases.

Component 2 - Innovative Programs in TVET (Original Project: US$ 3.5 million; AF Project: IDA: US$ 4.3 million, GoB: 0)

15. This component, originally titled "Pilots in TVET", has been renamed "Innovative Programs in TVET." In addition to Sub-components 2.1 and 2.2, an additional sub-component 2.3, Recognition of Prior Learning (RPL), has been added. These programs are recognized by the National Skills Development Policy (NSDP) as key constituents of future skills development system in Bangladesh, and these pilots will generate knowledge and operational experience.

16. *Sub-component 2.1: National Skills Development Council (NSDC) Secretariat and Industry Skills Council (ISC).* This sub-component will continue to support both NSDC Secretariat and eligible ISCs, and will continue to be financed by the original IDA Credit and MDTF. This sub-component has made a steady but slow progress. Inadequate coordination between the NSDC Secretariat and the ISCs as well as insufficient implementation capacity and buy-in from industries have been a roadblock. An assessment will be carried out for the existing 12 ISCs[3] to determine the institutional capacity and industry context, as well as for fostering knowledge sharing across ISCs. This sub-component aims to produce a few model cases of ISC operation by selecting a few well-performing and high-market demand ISCs and providing them with additional support.

17. *Sub-component 2.2: Apprenticeship program in Secondary School Certificate - SSC (voc).* Based on the SSC(voc) sub-sector diagnosis study, apprenticeship was selected as a pilot

[3] Existing ISCs include: leather, transport equipment, agro-food, IT, light engineering, construction, ready-made garments, informal, pharmaceuticals, ceramics, furniture, and tourism & hospitality.

intervention for this sub-component. The SSC (voc) apprenticeship pilot, designed upon the competency-based NTVQF architecture, started in 2014, targeting 7 public SSC (voc) schools. The pilot will be expanded by including 3 additional public and 10 private schools. BMET will carry out a review of the pilot and assessment of existing SSC (voc) and HSC (voc) programs to discuss effectiveness and possible alternative models of secondary level vocational training.

18. *Sub-component 2.3: Recognition of Prior Learning (RPL).* The RPL program is a new initiative in Bangladesh, built on competency-based training and assessment, and offers certification to workers for competencies gained through informal on-the-job training and work experiences. Ten RPL assessment centers under STEP have been accredited by the BTEB, and 13 cycles of RPL assessments have been successfully implemented. Under the proposed AF, coverage will be expanded to at least 30 centers for 30,000 assesses in 10-15 demand-driven occupations. To enhance effectiveness in RPL assessment, this sub-component will support an increase in the number of assessors and their certification at various levels. The details of RPL implementation will be included in the PIM. A rigorous impact evaluation will be conducted to evaluate the impact of RPL on the workforce.

Component 3 - Institutional Capacity Development (Original Project: US$ 8.4 million; AF Project: IDA: US$ 12.73 million, GoB: US$19.6 million)

19. This component will continue to focus on strengthening the institutional capacity of the key government stakeholders of skills to enhance efficiency and effectiveness of skills sector management and operation and to ensure sustainability of reforms introduced. It will mainly support: the Directorate of Technical Education (DTE), the Bangladesh Technical Education Board (BTEB) under the Ministry of Education (MOE), and the Bureau of Manpower Employment and Training (BMET) under the Ministry of Expatriates' Welfare and Overseas Employment (MOEWOE) and the Ministry of Public Administration (MOPA). The following initiatives will also be supported under the proposed AF to achieve improvement in three areas: (a) efficiency of existing systems, (b) management and administrative capacity, and (c) governance and accountability.

Improving the efficiency of existing systems

20. *Specialized teacher training at Technical Teacher Training College (TTTC) and VTTI.* A lack of training opportunities for teachers in the TVET sector has been recognized as one of the main constraints that affect the quality of technical education and training in Bangladesh. DTE has under its jurisdiction TTTC (for diploma) and VTTI (for SSC (voc) and HSC (voc)) which are responsible for providing teacher training in TVET. However, their training facilities have been underutilized due to lack of effective coordination and operational funding. With the proposed AF, the project will work with DTE to expand specialized teacher training for polytechnic teachers to enhance subject knowledge, pedagogical skills, and management skills by providing capacity building support to the TTTC and VTTI.

21. *Upgrading BTEB printing capacity:* Currently, around 20 million various type of teaching learning materials are printed by the BTEB printing press, however, due to capacity constraint, BTEB outsourcing some of the printing requirements. Given the TVET transition from traditional to competency-based, there is a need to increase the capacity of BTEB printing press to produce a large quantity of quality teaching and learning materials for increased number of competency-based technology and trades. The AF will support the upgrading of its in-house printing facilities.

22. *Development of digital contents and contents management system for improving the quality of teaching and learning*: Digitization of teaching and learning materials will open an avenue for the new generation of more learner-centered and cost effective TVET. Selected training curriculum and materials will be converted to user-friendly digital contents and uploaded onto a contents management system to be accessible to everyone who seeks skills training as well as those enrolled in training courses. This activity will be led by BTEB, and integration of the digitized contents in teaching will be piloted in a selected number of institutions to develop a new modality of TVET service delivery.

Improving the administrative and management capacity

23. *Professional Development of public officials in areas of governance and management:* All the staff members of public administration, including DTE, BTEB, BMET, polytechnics, and 20 other ministries organizing skills and professional training are managed by the Ministry of Public Administration (MOPA). The AF will support leadership and management training of public officials in MOPA and relevant agencies for improving understanding of the skills programs and promoting the whole-of-the nation approach to skills development.

24. *Expansion of Administrative Capacity of DTE*: Physical space has been a major capacity constraint for effective administration of the skills sector. To provide adequate physical facilities, and to enhance coordination and administrative capacity, the AF will support vertical expansion of three floors of the DTE building in order to provide office space to relevant agencies in the skills development sector.

Improving the accountability and governance

25. *Supporting introduction of e-Government Procurement in central TVET agencies and selected polytechnics.* The Government has a plan to move to e-government procurement to promote efficiency, transparency and accountability in public financing. The proposed AF will support the introduction of e-Government Procurement in the central TVET agencies as well as in selected public polytechnics. Based on positive results, e-government procurement will be rolled out in all the project supported institutions in phases.

Component 4 - Project Management, Communications, Monitoring and Evaluation (Original Project: US$ 6.3 million; AF Project: IDA: US$ 7.2 million; GoB: US$1.2 million)

26. *Sub-component 4.1: Project Management and Communications*. This sub-component will continue to support project management and implementation, and the improvement of system

management and implementation of reforms through training of policy makers and administrators. The AF will also support the enhancement of communication and mobilization activities.

27. *Sub-component 4.2: Project Monitoring and Evaluation (M&E).* This sub-component will scale-up M&E activities and provide technical assistance and training for project M&E and capacity development for both TVET and national institutions/agencies. These activities will include: (a) a short-course graduates tracer study; (b) a diploma graduates course tracer study; (c) a stipend effectiveness study; and (d) a study on DTE scholarship program; and (e) an impact evaluation of RPL. Monitoring of institutional development grants will be strengthened to take stock of upgraded institutional capacities and to solicit effective lessons learned from operational experiences.

28. *Impact evaluation of RPL:* The RPL aims to provide official recognition and certification of skills gained by workers in Bangladesh from prior experience in non-formal and informal sector. This form of certification allows workers to signal their intention to gain entry in the formal sector, earn higher wages, or attend a higher-level skills training programs. Eighty-nine percent of Bangladeshi labor are found in informal sector where skills are not officially recognized or certified. There are almost no impact of evaluations that assess the impact of skills certification in anywhere in the world. This IE will provide evidences to the policy and decision makers to take informed decision for taking forward the RPL program in future.

5. Relevant Government Policies, Acts, Rules and Strategies

5.1 General Description

29. The importance of environmental consideration related to education, construction as well as reconstruction projects has been recognized in a number of national documents that set the legal and regulatory framework for management of environment due to the skill and training enhancement project promotion. This EMF has adopted the guidelines. The major related policies, acts, rules and plans are:

Environment

i. Environment Policy, 1992 and Environment Action Plan, 1992
ii. National Environment Management Action Plan, 1995
iii. Environmental Conservation Act (ECA) of 1995
iv. Environmental Conservation Rules (ECR) of 1997

Occupational Health and Safety and Construction

v. The Bangladesh Labor Act, 2006
vi. Bangladesh National Building Code (1993, 2006)

5.2 Environment Policy, 1992 and Environment Action Plan, 1992

30. The concept of environmental protection through national efforts was first recognized and declared with the adoption of the Environment Policy, 1992 and the Environment Action Plan,

1992. The importance of policies in beefing up the environmental regime is recognized in a number of international instruments including the World Conservation Strategy in 1980 and the Brundtland Commission Report, 1987. Paragraph 14 of Chapter 8 of Agenda 21 underscored the necessity of formulation of national policies as well as laws for environmental protection and sustainable development. The major objectives of Environmental policy are to i) maintain ecological balance and overall development through protection and improvement of the environment; ii) protect country against natural disaster; iii) identify and regulate activities, which pollute and degrade the environment; iv) ensure environmentally sound development in all sectors; v) ensure sustainable, long term and environmentally sound base of natural resources; and vi) actively remain associate with all international environmental initiatives to the maximum possible extent.

31. The National Environment Action Plan recommended sector specific action plan to achieve the objectives and implement the policy recommendations of the National Environment Policy. National Environment Policy ensures Environmental Impact Assessment (EIA) in all new projects. Adverse impact will be prevented through proper steps and adequate investments. The followings are sector relevant key recommended actions:

Education and Public Awareness

a. Widespread mass awareness regarding environmental conservation and improvement, sustainable, long term and environmentally sound utilization of all resources will be created.

b. Inclusion and dissemination of environmental knowledge and information in the formal and informal systems of education and media will be ensured.

c. Spontaneous and direct participation of people in all environmental activities will be induced.

d. Environmental issues will be incorporated in all government and non-government training programs and also in such programs for industrial and commercial workers.

Science Technology and Research

a. Environmental pollution supervision and control measures will be incorporated into national science and technology policy.

b. Technology will be evolved to ensure long term, sustainable and environmentally sound utilization of all resources for conservation and improvement of environment.

5.3 National Environnent Management Action Plan, 1995

32. The National Environment Management Action Plan (NEMAP, 1995), based on a nationwide consultation program identified the main national environmental issues, including those related to the Education and awareness which EA practitioners should note. The main related national concerns included flood environmental degradation of water bodies, increased water pollution, shortage of irrigation water and drainage congestion; various specific regional concerns were also identified. The government policies related to the vocational training institutes presented in the NEMAP (1995) are stated below:

(a) Effective utilization of Vocational Training Institutes and the National Council for Skill Development and Training will be strengthened to promote effective inter actions between the training institutes on the one hand and the employers in the private and public sector on the other.
(b) Extension education and management training for teachers and education administrators would be organized.
(c) Environmental education would be imparted to the teachers and students at all levels of education.

5.4 Bangladesh Environmental Conservation Act (ECA), 1995

33. The Environmental Conservation Act (ECA) of 1995 is the main legislative framework document relating to environmental protection in Bangladesh. This umbrella Act includes laws for conservation of the environment, improvement of environmental standards, and control and mitigation of environmental pollution. This Act established the Department of Environment (DOE), and empowers its Director General to take measures as he considers necessary which includes conducting inquiries, preventing probable accidents, advising the Government, coordinating with other authorities or agencies, and collecting & publishing information about environmental pollution. According to this act(Section 12), ***no industrial unit or project shall be established or undertaken without obtaining, in a manner prescribed by the accompanying Rules, an Environmental Clearance Certificate (ECC) from the Director General of DOE***.

5.5 Bangladesh Environmental Conservation Rules (ECR), 1997

34. The Environment Conservation Rules, 1997 were issued by the Government of Bangladesh in exercise of the power conferred under the Environment Conservation Act(Section 20), 1995. Under these Rules, the following aspects, among others, are covered:

a. Declaration of ecologically critical areas
b. Classification of industries and projects into 4 categories
c. Procedures for issuing the Environmental Clearance Certificate
d. Determination of environmental standards

35. The Rule 3 defines the factors to be considered in declaring an area 'ecologically critical area' (ECA) as per Section 5 of ECA'95. It empowers the Government to declare an area 'ECA', if it is satisfied that the ecosystem of the area has reached or is threatened to reach a critical state or condition due to environmental degradation. The Government is also empowered to specify which of the operations or processes shall be carried out or shall not be initiated in the ecologically critical area. Under this mandate, MOEF has declared Sunderbans, Cox's Bazar-Tekhnaf Sea Shore, Saint Martin Island, Sonadia Island, Hakaluki Haor, Yanguar Haor, Marzat Baor and Gulshan-Baridhara Lake as ecologically critical areas and prohibited certain activities in those areas.

36. ECR'97 (Rule 7) classifies industrial units and projects into four categories depending on environmental impact and location for the purpose of issuance of ECC. These categories are: Green, Orange A, Orange B, and Red

37. All existing industrial units and projects and proposed industrial units and projects, that are considered to be low polluting are categorized under "Green" and shall be granted Environmental Clearance. For proposed industrial units and projects falling in the Orange- A, Orange- B and Red Categories, firstly a site clearance certificate and thereafter an environmental clearance certificate will be issued. A detailed description of those four categories of industries has been given in Schedule-1 of ECR'97.Apart from general requirement, for every Red category proposed industrial unit or project, the application must be accompanied with feasibility report on Initial Environmental Examination (IEE), Environmental Impact Assessment (EIA) based on approved TOR by DOE, Environmental Management Plan (EMP) etc.

38. The ECR'97 also contains the procedures for obtaining Environmental Clearance Certificates (ECC) from the Department of Environment for different types of proposed units or projects. Any person or organization wishing to establish an industrial unit or project must obtain ECC from the Director General. The application for such certificate must be in the prescribed form together (later in this chapter) with the prescribed fees laiddowninSchedule13, through the deposit of a Treasury Chalan in favor of the Director General.Rule8prescribes the duration of validity of such certificate (3 years for green category and1year for other categories) and compulsory requirement renewal of certificate at least30days before expiry of its validity.

5.6 The Bangladesh Labor Act, 2006 (Amended 2013)

39. The Act consolidated and amended previous laws relating to employment of workers, relationship between workers and employers, determination of minimum wages, payment of wages, compensation for injuries arising out of and in the course of employment, formation of trade unions, raising and resolving industrial dispute, health, safety, welfare and environment of employment of workers and apprentice and related issues. The Act is built more or less on the basis of the Factories Act, 1965 and Factories Rules, 1979 but applies to a wider number of establishments beyond factories. The health, safety and welfare duties and obligations that were contained in the old Factories Act, 1965, have now been transposed to chapters 5 (health and hygiene), 6 (safety), 7 (special provisions with regard to health and safety, and 8 (Welfare measures).

40. In the past criminal prosecutions for offences contained in the Factories Act took place in the magistrate court. Now all prosecutions for offences must take place in the Labour Court using the Code of Criminal Procedure. There are new criminal offences relating to violations of the code that cause, death or injury (section 309) with significantly higher sentences available to the courts. In the past only factory inspectors could prosecute criminal cases against industrial organizations. Now, this right has been extended to a wider category of people.

41. The Bangladesh Labor Act 2006 was amended in the wake of global attention after the collapse of the Rana Plaza and several other accidents, mostly in the RMG sector. The amendments adopted on July 15, 2013 focus on fundamental rights to freedom of association and collective bargaining and addresses steps to improve occupational safety and health. Bangladesh has ratified ILO Conventions 87 and 98 on freedom of association and collective bargaining and is obliged to abide by its provisions. Under the new provisions Unions need not be approved by factory owners anymore; they can be authorized directly by the Labor Directorate; different administrative wings of factories can have their own trade unions. Any factory with 20 percent female workforce must have a female representative in the trade unions.

42. The Bangladesh Labor Act as amended and adopted on July 15, 2013 will be applicable to the firms/sub-projects to be financed under the project. This contains provisions Several provisions to improve workplace safety have been included in the law, such as establishment of safety committees in factories with 50 workers or more; a greater role for the labor inspectorate to inspect safety and health conditions of workplaces and conduct on-the-spot inspections; personal safety equipment will now be required. Workplace Health Centers must be established in workplaces with over 5000 employees and safety welfare officers must be in place in workplaces with more than 500. Inspection of factories is now mandatory at the time of giving license or its renewal. No changes can take place regarding factory layout plans without permission of factory inspectors. Legal and financial grievances between labor and factory owners can be handled through arbitration, failing which they can be settled at the Labor Court. Provisions for worker related deaths, welfare funds in export oriented funds (5 percent of profits with various welfare and provident funds), support for occupational diseases, are provided in the law.

5.7 Bangladesh National Building Code, 2006

43. Part-7, Chapter -1 of the Bangladesh National Building Code (BNBC) clearly sets out the constructional responsibilities according to which the relevant authority of a particular construction site shall adopt some precautionary measures to ensure the safety of the workmen. According to section 1.2.1 of chapter 1 of part 7, "In a construction or demolition work, the terms of contract between the owner and the contractor and between a consultant and the owner shall be clearly defined and put in writing. These however will not absolve the owner from any of his responsibilities under the various provisions of this Code and other applicable regulations and bye-laws. The terms of contract between the owner and the contractor will determine the responsibilities and liabilities of either party in the concerned matters, within the provisions of the relevant Acts and Codes (e.g.) the Employers' Liability Act, 1938, the Factories Act 1965, the Fatal Accident Act, 1955 and Workmen's Compensation Act 1923". (After the introduction of the Bangladesh Labor Act, 2006, these Acts have been repealed).

44. Section 1.4.1 of chapter-1, part-7 of the BNBC, states the general duties of the employer to the public as well as workers. According to this section, "All equipment and safeguards required for the construction work such as temporary stair, ladder, ramp, scaffold, hoist, run way, barricade, chute, lift etc. shall be substantially constructed and erected so as not to create any unsafe situation for the workmen using them or the workmen and general public passing under, on or near them".

45. Part-7, Chapter-3 of the Code has clarified the issue of safety of workmen during construction and with relation to this, set out the details about the different safety tools (PPE) of specified standard. In relation with the health hazards of the workers during construction, this chapter describes the nature of the different health hazards that normally occur in the site during construction and at the same time specifies the specific measures to be taken to prevent such health hazards. According to this chapter, exhaust ventilation, use of protective devices, medical checkups etc. are the measures to be taken by the particular employer to ensure a healthy workplace for the workers.

46. To prevent workers falling from heights, the Code in section 3.7.1 to 3.7.6 of chapter 3 of part 7 sets out the detailed requirements on the formation and use of scaffolding. According to section 3.9.2 of the same chapter, "every temporary floor openings shall either have railing of at least 900 mm height or shall be constantly attended. Every floor hole shall be guarded by either a railing with toe board or a hinged cover. Alternatively, the hole may be constantly attended or protected by a removable railing. Every stairway floor opening shall be guarded by railing at least 900 mm high on the exposed sides except at entrance to stairway. Every ladder way floor opening or platform shall be guarded by a guard railing with toe board except at entrance to opening. Every open sided floor or platform 1.2 meters or more above adjacent ground level shall be guarded by a railing on all open sides except where there is entrance to ramp, stairway or fixed ladder….. the above precautions shall also be taken near the open edges of floors and roofs".

47. The major challenge is the proper implementation of the Code as section 2.1 of chapter 2 of part 1 duly states that, "The Government shall establish a new or designate an existing agency responsible for the enforcement of this Code with a given area of jurisdiction. For the purpose of administering and enforcing the provisions of the Code, the enforcing agency shall have the authority of the Government and shall herein be referred to as the Authority."

48. Part 9, 1.2.1 states that if the land is changed and the occupants of the area are against the change, no change in use of an existing building will allowed.

49. Section 1.2.3 of Part-9 also states that in case of partial changing of a building, fire resistance should be ensured and all provisions with greater public safety should be applied to the entire building of the structure.

50. Section 1.2.4 of Part 9 clearly states "Additions to existing building shall comply with all of the requirements of the BNBC for new constructions. The combined height and area of the existing building and the new addition shall not exceed the height and open space requirements for new building specified in Part 3 of the Code. Where a fire wall that complies with Table 3.3.1 of Part 3 is provided between the addition and the existing building, the addition shall be considered as a separate building."

5.8 Environmental Clearance Procedure

51. Legislative bases for EIA in Bangladesh are the Environmental Conservation Act 1995 (ECA'95) and the Environmental Conservation Rules 1997 (ECR'97). Department of Environment (DOE), under the Ministry of Environment and Forest (MOEF), is the regulatory body responsible for enforcing the ECA'95 and ECR'97. According to the ECR'97 construction of multi-storied building is an Orange B category project. It is also mentioned in the ECR'97 that any engineering works (up to 10 hundred thousand Taka) is an "Orange B" Category project. However, Ministry of Housing and Public works defines that more than 6 storied building outside Dhaka and more than 10 storied building inside Dhaka are multistoried building. But the physical intervention and the detail extension of the project are still unknown at this stage.

52. *The project will screen all sub-projects. The mitigation measures for temporary negative environmental impacts will be specified.* The concerned implementing agency will prepare environmental screening report on half-yearly/yearly basis highlighting the possible impacts from the small-scale sub-projects and measures taken for possible impacts.

6. World Bank's Environmental Safeguards Policy

53. The Bank requires environmental assessment (EA) and Social Assessment of projects proposed for Bank financing to help ensure that they are both socially and environmentally sound and sustainable, and thus to improve decision making. The World Bank's environmental

assessment policy and recommended processing are described in **Operational Policy (OP)/Bank Procedure (BP) 4.01: Environmental Assessment**. This policy is considered to be the umbrella policy for the Bank's environmental "safeguard policies" which among others include: Natural Habitats (OP 4.04), Forests (OP 4.36), Pest Management (OP 4.09), Physical Cultural Resources (OP 4.11)), and Safety of Dams (OP 4.37). **Operational Policies (OP)** is the statement of policy objectives and operational principles including the roles and obligations of the Borrower and the Bank, where as **Bank Procedures (BP)** is the mandatory procedures to be followed by the Borrower and the Bank. OP/BP 4.01 issued in January 1999, is the central documents that defines the Bank's environmental assessment requirements. Following are the WB's environmental and social/resettlement guidelines:

Environmental Policies

- OP 4.01 Environmental Assessment
- OP 4.04 Conservation of Natural Habitats
- OP 4.09 Pest Management
- OP 4.36 Forestry
- OP 4.37 Safety of Dams

Social Policies

- OP 4.11 Safeguarding Cultural Property in IFC Financed Projects
- OP 4.12 Involuntary Resettlement
- OP 4.10 Indigenous Peoples

Legal policies

- OP 7.50 Projects on International Waterways
- OP 7.60 Disputed Areas

The most relevant policies of WB in STEP activities is OP 4.01 Environmental Assessment.

OP 4.01 Environmental Assessment

54. The Bank requires environmental assessment (EA) of projects proposed for Bank support to ensure that they are environmentally sound and sustainable, and thus to improve decision making. EA is a process whose breadth, depth, and type of analysis depend on the nature, scale, and potential environmental impact of the proposed project. EA evaluates a project's potential environmental risks and impacts in its area of influence; examines project alternatives; identifies ways of improving project selection, siting, planning, design, and implementation by preventing, minimizing, mitigating, or compensating for adverse environmental impacts and enhancing positive impacts; and includes the process of mitigating and managing adverse environmental impacts throughout project implementation. EA takes into account the natural environment (air, water and land); human health and safety; social aspects (involuntary resettlement, indigenous peoples and physical cultural resources); and transboundary and global environmental aspects. The borrower is responsible for carrying out the EA and the Bank advises the borrower on the Bank's EA requirements.

55. The Bank classifies the proposed project into three major categories, depending on the type, location, sensitivity, and scale of the project and the nature and magnitude of its potential environmental impacts.

Category A: The proposed project is likely to have significant adverse environmental impacts that are sensitive, diverse, or unprecedented. These impacts may affect an area broader than the sites or facilities subject to physical works.
Category B: The proposed project's potential adverse environmental impacts on human population or environmentally important areas-including wetlands, forests, grasslands, or other natural habitats- are less adverse than those of Category A projects. These impacts are site specific; few if any of them are irreversible; and in most cases migratory measures can be designed more readily than Category A projects.
Category C: The proposed project is likely to have minimal or no adverse environmental impacts.

7. General Principles for Environment Management in STEP

56. The project may support the reconstruction/refurbishment of existing structure, enhancing workshops and laboratory facilities, and introduction of environment and occupational health and safety related course to the curricula. In the view of EMF objectives and assessment of the nature, the planning and implementation of the project activities will be based on the following principles, most of which are incorporated in the project design and implementation arrangements:

General principles

- The Project Directors of implementing agencies (DTE/MOE, BTEB and BMET) will be responsible for the environmental compliance in their respective component and the Project Director at DTE at MoE will be responsible for monitoring and oversight to ensure overall project environmental compliance.
- All the implementing agencies will follow the related government rules (laws, ordinances, acts etc.) and World Bank Operational Policies and Guidelines. This EMF would serve as the basis for ensuring this compliance.
- Implementing agencies will be responsible for obtaining and ensuring clearance required from local government agencies/local committees as necessary.
- No project activities will be carried out in disputed lands or lands restricted for development.

Component 1 and 3: Reconstruction/refurbishment/vertical expansion

- The tasks under Component 1 and Component 3 include infrastructure rehabilitation and refurbishment and vertical expansion of DTE building respectively. These activities will involve small-scale civil works. The physical intervention and detail design of the proposed civil work may not be known at appraisal stage. Though the activities identified in this project are mainly technical assistance and any major infrastructural component is not proposed, the

extent of civil works, upgrading of workshops, land acquisition necessity cannot be ascertained at this stage.

- The project will ensure that environmental considerations are given sufficient attention in all these activities. To this end, it will carry out ES and specify the mitigation measures for temporary negative environmental impacts. Some sample mitigation measures of the environmental impact during construction/reconstruction/vertical expansion phase have been included in Annex G. Sample mitigation measures for possible environmental impact from reconstruction/refurbishment/vertical expansion have also been included in Annex G. If environmental screening identifies some long term but minor and reversible environmental impact, IEE will be conducted for the sub-projects having small-scale repairing and rehabilitation work with minor environmental impacts and EMP will be prepared. If IEE indicates that there are significant negative irreversible environmental impacts from the small-scale sub-projects; the implementing agency will conduct the EIA and EMP will be prepared after the EIA.

- The project will ensure that environmental assessment addresses all potential environmental direct and indirect impacts of the sub-project throughout its life: pre-construction, construction and operation stages and mitigation measures have been taken to mitigate negative consequences and enhance positive impacts.

- To the extent possible, the project will support renewable energy (solar lighting) for lighting purposes and rainwater harvesting storage tanks for water supply purpose and proper sanitation facilities where possible.

Component 1: modernization of the equipment and facilities and infrastructure

- The project will ensure environmental screening of all kind laboratory facility enhancements and specify the mitigation measures for temporary negative environmental impacts.

- Proper disposal facilities and occupational health and safety will be ensured for any toxic materials to be used in the laboratory.

- Necessary precaution should be considered in the design phase for minimizing the noise from the machineries.

- In order to make the polytechnic diploma technology courses more relevant to industry needs, curricula revision would be imminent. BTEB will support developing environmental, occupational health and safety curricula. This will enhance the positive environmental impact.

8. Environmental Management Framework (EMF) Issues

57. Based on the review of national standards and World Bank operational policies, an Environmental Management Framework (EMF) has been developed by Ministry of Education

of the Government of Bangladesh. Appropriate measures have been suggested and developed in the Environment Management Framework (EMF) to minimize and mitigate the likely adverse environmental impacts associated with the project which will assist the Implementing Agency in screening all the sub-projects for the likely environmental impacts, identifying and implementing suitable mitigation measures through an environmental management plan. The EMF has been prepared by analyzing the five components of the project.

8.1 Infrastructure Rehabilitation, Refurbishment and Vertical Expansion

58. To ensure limited environmental impact due to the expansion of the existing building to accommodate the workshop/laboratories for new trade courses, if necessary, World Bank OP 4.01 for Environmental Assessment Policy will be followed. New or expansion of the TVETs related civil works requires environmental assessment, public consultation and mitigation of construction relates environmental and social impacts. It is important to identify the hazardous construction and laboratory materials, the drainage problem and the pollution generated from the insufficient proper disposal of municipal solid wastes.

8.1.1 Pre-Construction phase

Loss of land

59. The work scope of infrastructure rehabilitation and refurbishment may be extended to expansion of existing building, classrooms, workshops, and library. Expansion of infrastructure on agricultural land will reduce crop production. During design phase it should be assessed and alternate options must be explored to identify suitable land, which has less impact on agricultural production. In case of both vertical and horizontal expansion of building, surrounding lands will be temporarily occupied for construction works.

Involuntary resettlement

60. Expansion of existing building, classrooms, workshops, and library may require cleaning of the site by removing temporary structures occupied by people. These people might need re-location provided with upgraded dwelling and sanitation facilities. In case of both vertical and horizontal expansion of building, people from surrounding area may need to relocate temporarily due to noise and dust pollution during construction phase.

8.1.2 Construction Phase

Surface Water Pollution

61. Nearby water body may be polluted due to disposal of construction wastes or wastes from labor camps of the building project.

Ground Water Pollution

62. If not properly designed, constructed and maintained, septic tank and soak-well deepened up to underground water table acts as media to pollute water, which may be cause of waterborne disease.

Air Pollution

63. Air pollution may be triggered from exhaust of construction machineries used in the site, if those are not properly maintained.

Noise Pollution

64. Heavy machineries used during construction, especially during pile driving works, may produce noise exceeding the permissible level in case of major construction work.

Disruption of Natural Systems

65. Major expansion of existing building, classrooms, workshops, and library disrupts the existing ecology and natural system of the locality. Wild animals like foxes, jackals, snakes, frogs, etc. have to leave the area.

Trees and Vegetation

66. Tree felling may be required to clear the site for building expansion. Live vegetation will be disrupted. Water bodies are sometimes filled, which causes destruction of plants grown under water.

8.1.3 Operation & Maintenance phase

Water Logging

67. Due to improper planning and construction storm water drainage congestion / water logging may be created. This may affect commercial activities in the market and cause potential risk to community health. Detrimental effect may cause on the paved/road surfaces in the market areas.

Additional Burden on Utilities

68. Expansion of existing building, classrooms, workshops, and library especially if it is multistoried, creates additional burden on the existing system of utilities like water supply, sewerage, electricity, gas, telephone and road network, etc.

Operation and maintenance of the environmental utilities

69. Lack of O&M of the environmental utilities is very nuisance to environment and worsens the environment if they are not there at all. Regular cleaning person of the utilities (sweepers) should be appointed.

Excessive Resource Use

70. Expansion of existing building, classrooms, workshops, and library call for using land, material (like scarcity of wood from natural forests) and water resources, which may create crisis for other intended users.

Excessive Use of Energy

71. Expansion of existing building, classrooms, workshops, and library creates facility for more people and consequently increases demand for electricity and other form of energy etc.

8.2 Enhancing Workshops and Laboratories Facilities

72. Sub component 1.1will finance modernization of the equipment and facilities and infrastructure which may incorporate uses of new chemical constituents which project are still unknown at this stage. The chemical constituents of the raw materials may require special disposal unit. The new equipment may introduce noisy workshop exercise. In order to eliminate the technical skill gap, innovative technologies may be introduced which may have adverse impact on the environment, if not properly designed, constructed and maintained. On top of that, the base scale study of the project will require assessing the existing drainage, sewerage and disposal facilities in the selected TVET centers. The environmental rules and policies describe limits and standards. Thus, most of the important parameters derived from the set of rules are framed in line with the acts. A framework is necessary to be developed from these basic parameters, based on which the status of environment of the TVET centers will be captured. The EMF consists of few sets of indicators such as—quantity of waste generated per day (in kg); amount and type of waste generated per capita (gm); frequency of cleaning, facilities for collection, storage and disposal of the waste; infrastructure for the effluent treatment etc. In setting up the bench marks for the indicators, Environmental Conservation Act 1995 and Environment Conservation Rules 1997, World Bank OP 4.01 for Environmental Assessment Policy will be helpful.

8.2.1 Construction phase

Loss of land

73. The work scope of the component "modernization of the equipment and facilities and infrastructure" is extended to expansion of existing workshops and purchasing raw materials. Disposal of containers, preservatives of raw materials on fertile agricultural land will reduce crop production. During design phase the type of raw materials to be purchased should be assessed and alternate options must be explored to identify suitable land, which has less impact on agricultural production.

8.2.2 Operation & Maintenance phase

Surface Water Pollution

74. Nearby water body may be polluted due to disposal of material wastes obtained from the laboratories.

Ground Water Pollution

75. If not properly designed, constructed and maintained, septic tank and soak-well deepened up to underground water table acts as media to pollute water, which may be cause of waterborne disease.

Air Pollution

76. Air pollution may be triggered from exhaust of machineries used in the workshop and laboratories, if those are not properly maintained.

Noise Pollution

77. Heavy machineries used in the workshop may produce noise exceeding the permissible level.

Disruption of Natural Systems

78. Improper disposal of wastes disrupts the existing ecology and natural system of the locality. Wild animals like foxes, jackals, snakes, frogs, etc. have to leave the area.

Water Logging

79. Due to improper disposal of wastes, drainage congestion / water logging may be created. This may affect commercial activities in the market and cause potential risk to community health. Detrimental effect may cause on the paved/road surfaces in the market areas.

Operation and maintenance of the environmental utilities

80. Lack of O&M of the environmental utilities is very nuisance to environment and worsens the environment if they are not there at all. Regular cleaning person of the utilities (sweepers) should be appointed.

Additional Burden on Utilities

81. Uses of new types and larger number of machineries in workshops, and laboratory will creates additional burden on the existing system of utilities like water supply, electricity and gas etc.

82. Component 3: 'Institutional Capacity Development' aims to strengthen the capacity of the key agencies, Directorate of Technical Education (DTE), Bangladesh Technical Education Board BTEB and Bureau of Manpower, Employment, and Training (BMET), Ministry of Education (MOE) and Ministry of Welfare and Overseas Employment (MOEWE) to support quality assurance activities, strengthen curriculum development, including environmental, occupational health and safety curricula. Component 3 will play in enhancing positive environmental impact by promoting environmental awareness in the TVET arena. The impact of vertical expansion of DTE building under Component 3 has already been discussed in 7.1.

83. Component 4: Monitoring and Evaluation involves on-going monitoring of the project performance. Monitoring and Evaluation is responsible to provide disaggregated data to address the key issue under social safeguards to ensure equity and inclusion among the project recipients (in terms of gender, minority groups etc.), taking the needs of the targeted audience

into consideration while designing project components. Any environmental impact is not expected from component 4.

84. Considering the nature and magnitude of potential environmental impacts from relatively limited scale of the renovation/refurbishing of infrastructure, the proposed operation is to be classified as category 'B'. Since the physical intervention and detail design of reconstruction works are not known at this stage and may not be known at appraisal, the requirement to carry out an environmental analysis as part of project preparation can be waived but, for subprojects with potential adverse impacts, a limited environmental analysis/screening will be done during project implementation prior to approval for any sub-project.

9. Environmental Screening & Initial Environment Examination

85. The purpose of the environmental screening is to get relevant concerns addressed early on before further design of a project and to ensure that actions to mitigate environmental impacts or enhance environmental opportunities are budgeted for. The environmental screening is about taking stock in time and to avoid losing later opportunities. The participation and consultation with local communities are important in identifying the potential impacts of the project interventions. Subcomponents of Component 1 and 3will require environmental screening (ES). Based on the extent of environmental impact obtained from the environmental screening, the decision for further initial environment examination will be taken. In general, small-scale repairing with minor environmental impact under Component 1, 2&3 will require only ES. ES is considered as the first level of assessment applied project identification and pre-feasibility stage. The ES addresses the issues at project (sub-project) identification and pre-feasibility planning stage. The main objective at this stage is to help define the project (sub-project) in terms of locations, components and designs. The main activities of are to:

- assess regional resources and the effects of past interventions;
- examine the likely project-environment interactions;
- establish an effective people's participation program;
- identify the key environmental issues and the range and potential severity of impacts;
- compare the environmental consequences of project alternatives;
- prepare an initial EMP[4]

86. For any sub-project which will involve infrastructure renovation/refurbishing construction works/vertical expansion, the sub-project proponent i.e., public and private TVET centers, their faculties, and departments fulfilling eligibility criteria will use a checklist (Annex-A) to identify activity that may have environmental impacts.All infrastructures related projects require Environmental Screening. If ES indicates any environmental impact, IEE will be conducted. IEE is the descriptive approach of the screening format. For example, if cutting of tree is necessary for expansion of a building, IEE provides the information on the type and number of trees to be affected. If any land filling is required for sub-project site preparation

[4]Projects with potential impacts will require environmental impact assessment. Small projects or those with little impact will not require EIA.

such as filling of low lying lands, full Environmental Impact Assessment will be a condition for IDA financing. This will include detail examination of potential negative and positive environmental impacts, comparison of them with those of feasible alternatives, and recommendation for measures needed to prevent, minimize, mitigate, or compensate for adverse impacts and improve environmental performance. If it is assessed that the environmental impacts are minimal, no IEE/EIA would be required. However, it needs to be ensured that the general EMP (Annex-G) and Occupational Health and Safety guideline are included in the contractor's bidding documents so that it becomes obligatory for the contractor to adopt the EMP during execution of works.

87. The proponent i.e., TVET centers, their faculties, students and staffs and the local people will fulfill the attached checklist in Annex-B to facilitate the surrounding environmental enhancement.

88. The laboratory/library users will fulfill the checklist (Annex-C) for a simple assessment of laboratory and educational resources facilities and the users' experience in the laboratory. Trained teaching staffs and regular meeting with the domestic/overseas recruiters will enhance the interest in vocational training. This checklist will help to provide an additional safeguard by developing/improving a new/existing laboratory safety guideline and comprehensive laboratory management. It should be noted that if the laboratory maintains/practices world standard safety guideline and the educational resources are plenty, student-exchange program with foreign TVET centers may be promoted in future.

10. Environmental Impact Assessment (EIA)

89. Environmental Impact Assessment (EIA) will be only required for the major expansion of building, workshop, laboratories and purchasing raw materials, if IEE recommends. EIAwill be used by the implementing agencies as a decision-making tool to ensure that the project design and implementation of activities such as raw materials are environmentally sound and sustainable. During the preparation phase, the objective of the EIA is to provide inputs to the feasibility study; preliminary and detailed design of the project including institutional capacity needs and barriers to be addressed. During the implementation phase, environmental management plans (developed as a part of the EIA during the preparation phase) serve as a framework for strengthening the mitigation, enhancement and environmental monitoring measures and system in the STEP application. In the preparation phase, the EIA shall achieve the following objectives:
    - To establish the environmental baseline in the study area, and to identify any significant environmental issue;
    - To assess these impacts and provide for measures to address the adverse impacts by the provision of the requisite avoidance, mitigation and compensation measures;
    - To integrate the environmental issues in the project planning and design;
    - To develop appropriate management plans for implementing, monitoring and reporting of the environmental mitigation and enhancement measures suggested.

90. The EIA report should clearly spell out the site specific environmental issues and their mitigation measures. 1 sample ToR for rehabilitation/renovation/refurbishment/vertical expansion of existing building, classrooms, workshops, and library has been attached in Annex-D for environmental impact assessment of component 1, 2 and 3. The Project Implementation Unit (PIU) will be responsible for carrying out the EIA and the implementing agencies should take prior approval of DOE on these ToRs, if necessary.

11. Guidelines for preparation of Environmental Management Plan

91. The primary objective of the environmental management and monitoring is to record environmental impacts resulting from the sub-project activities and to ensure implementation of the 'mitigation measures' identified earlier in order to reduce adverse impacts and enhance positive impacts from specific sub-project activities. Having identified the potential impacts of the relevant sub-project through screening, the next step is the identification and development of measures aimed at eliminating, offsetting and/or reducing impacts to levels that are environmentally acceptable during implementation and operation of the project through the preparation and implementation of an Environmental Management/Mitigation Plan (EMP). EMP provides an essential link between the impacts predicted and mitigation measures specified. EMP format needs to fit the circumstances in which EMP is being developed.

a. Description of Submittal Requirements

92. Environmental Management Framework shows the scope of work with potential negative/positive impact involves a small scale renovation/refurbishment of existing structure, expansion of existing laboratory/resources, and introducing demand-driven trade and occupational safety (both health and environmental) courses.

93. A small scale renovation/refurbishment/vertical expansion of existing structure ropes in three decision making parts i) site layout and design, ii) choice of building material, iii) building services to be provided. This section expresses the submittal requirement expected to be turned before the commencement of renovation/refurbishment of any structure. The submittal requirement for the site layout and design plan includes A) site plan showing existing buildings/structures, B) site plan showing existing slopes C) site plan showing site drainage pattern. In case of choosing construction material for structural system, masonry, mortar, plastering, roofing and ceiling, windows, doors and openings, electrical, plumbing, water proofing, paint/polish etc., should comply with specific clauses in construction agreement in the context of Bangladesh National Building Codes (BNBC) should be submitted. Submission of A) luminous efficacy of each luminary type used, B) wiring diagram for each, C) outdoor lighting, D) detailed plumbing and drainage plans, E) sewerage disposal mechanisms, F) solid waste management system and plan with narrative description and G) water consumption details are necessary.

b. Guideline for Hazardous Waste Management

94. Hazardous materials—such as laboratory chemicals, chemical by-products, chemical handling supplies, paints and solvents—can cause pollution and present risks to health, safety and environment. TVET campus community as individuals and the TVET as an institution need to be committed in seeking and employing waste minimization and pollution prevention measures. The following actions are recommended:
    - Regulate the uses of all hazardous waste in campus.
    - More permanent and detailed labeling (possibly with barcode)
    - Assess the chemical constituents, possible health hazard and disposal method of the raw materials to be purchased.
    - Information on the substitution of alternative, safer chemicals at time of purchase.
    - Oversee safe use of radioactive materials and radiation producing machines.
    - Handle, transport and appropriately dispose of hazardous waste materials.
    - Develop contingency plans and procedures.
    - Aware students of the potential environmental impact and disposal of each hazardous material they will use during academic and professional life.

c. Guideline for Environmental and Occupational Health and Safety Issues in the Curriculum

95. Courses presenting occupational health and safety should be mandatory for the TVET students. Regular workshop on general health and safety will be offered to all students. Each laboratory will be responsible for rendering the safety guidelines to the students at the beginning of the class. A sample outline of the laboratory safety guideline and general requirement of worker's health and safety are presented in Annex-E and Annex F respectively.

d. Description of mitigation measures

96. Feasible and cost effective measures to minimize adverse impacts to acceptable levels should be specified with reference to each impact identified. Further, it should provide details on the conditions under which the mitigation measures should be implemented (ex; routine or in the event of contingencies). The EMP also should distinguish between type of solution proposed (structural &nonstructural) and the phase in which it should become operable (design, construction and/or operational). Efforts should also be made to mainstream environmental and social opportunities as reasonable. A typical Environmental Mitigation Plan format is presented in Table-1 of Annex-G.

e. Monitoring program

97. In order to ensure that proposed mitigation measures have the intended results and complies with national standards and donor requirements, an environmental performance monitoring program should be included in the EMP. The monitoring program should give details of the following;
    - Monitoring indicators to be measured for evaluating the performance of mitigation measure (for example national standards, engineering structures, extent of area replanted etc.).
    - Monitoring mechanisms and methodologies
    - Monitoring frequency
    - Monitoring locations

A typical monitoring plan is shown in Table 2 of Annex-G.

f. Institutional framework for EMF Implementation

98. The project Implementation Unit (PIU) headed by the Project Director is responsible for implementing the EMF. DTE has a focal person to carry out the activities as per the provisions of the EMF. In order to strengthen the implementation of EMF and SMF, DTE will hire an Environmental and Social Safeguard Specialist in the additional financing. There is also be a local focal person at each of the institutions (typically the principal of the institutions) who makes liaison with the focal person at DTE. The local focal persons are primarily responsible of filling out the screening forms and sending them to DTE PIU for review. The activities of the DTE focal person will include: (1) coordinating the environmental screening activities in different institutions where physical interventions are being made, (2) assessing the nature of the impacts, (3) preparing IEE/EIA whenever necessary, (4) ensuring that the EMP is adequately reflected in the Contractor's bidding documents, (5) carry out monitoring activities in the works sites to assess the implementation of the EMP, (6) preparing reports of monitoring activities from time to time, (7) oversee the enhancement measures (incorporation of occupational health and safety in curriculum, establishing synchronized operating protocols for the laboratories) and tracking their progress. The Environmental and Social Safeguard Specialist will help the focal person in carrying out the responsibility on environmental management.

g. Implementing schedule

99. Timing, frequency and duration of monitoring protocols should be linked to the overall implementation schedule of the project and will be decided by the Project Director. However the timing, frequency and duration of these protocols should be at such intervals which would allow sufficient information to be conveyed regarding the smooth progress of implementation of the EMP.

h. Reporting procedures

100. Project Director of PIU shares the half yearly progress report to the World Bank. The reporting on the progress of EMF implementation will be attached with the half yearly progress report. The report will contain the initial screening report of all proposals, identified environmental concerns, appropriate mitigation measures and monitoring plan. It will also present the monitoring and management status of the EMP implementation of the ongoing activities in the selected institutions as well as progress regarding the implementation of enhancement measures (establishing synchronized laboratory protocols, incorporating environmental health and safety in curriculum).

i. Cost estimates and sources of funds

101. Implementation of mitigation measures mentioned in the EMP may involve an initial investment cost as well as recurrent costs. The EMP should include costs estimates for each measure, which will be part of the sub-project cost.

12. Environmental Review and Clearance

102. All the sub-project proposals should be reviewed first at the institutional level and an environmental professional will be part of the review process. The institution will submit their proposal for small infrastructure renovation/refurbishing with an environment and safety checklist for small infrastructure renovation/refurbishing and vertical expansion Proposal (Annex-A), environment and safety checklist for environment facilities improvement (Annex-B) and laboratory/resource facilities checklist (Annex-C). These checklists will be used by the Project Implementation Unit at DTE to assess possible environment and safety issues. The measurable environmental indicators will be used along with other indicators for assessing the sub-projects. The Environmental and Social Specialist/Focal point will review the mitigation and monitoring plan. The PIU can ask for further clarification or strengthening the mitigation and monitoring plan. The Directorate of Technical Education (DTE) will ensure that a qualified environmental professional will be in each project review and approval committee at DTE.

13. Environmental Enhancement

103. In order to make the polytechnic diploma technology courses more relevant to industry needs, curricula revision would be imminent. BTEB will be responsible for developing environmental, occupational health and safety curricula for the technology courses upgraded by the project, if necessary, with outside expertise. The window will train student and teachers and promote capacity building in environmental and occupational health and safety practice which will eventually generate resource management and environmental awareness enhancement in professional life.

104. Environment Management program will be introduced in the campus of Vocational Training Center for the first time in Bangladesh through the STEP. The campus will ensure proper drainage to avoid water logging, solid waste disposal, hazardous material disposal and occupational health and safety. It is expected that STEP will provide an opportunity to the stakeholders involved to understand the overall benefit of EA in respect of sustainable development.

14. Capacity-Building and Monitoring of Safeguard Framework Implementation

105. As part of the capacity-building on environmental issues in Directorate of Technical Education (DTE) and Bangladesh Technical Education Board (BTEB), selective staffs will receive training in EMF application and environmental management. The environment specialist assigned for the environmental management in both construction and operational stages will assist in capacity-building, and will provide subsequent guidance and review of the EMF's application, as required. During supervision of these operations, the World Bank will assess the implementation of the EMF, and recommend additional strengthening, if required.

15. Consultation and Disclosure

106. The original EMF was prepared by DTE with the help of environmental consultant. The Ministry of Education will share the EMF with concerned academic institutions, Department of Environment and civil society. As no potential affected one is identified at this stage, such field level consultation will be waved here. The original EMF was disclosed in both Bangla and English by the Ministry of Education on behalf of the GoB in Bangladesh and was also be made available at the World Bank's InfoShop. Relevant subproject specific safeguard documents/mitigation plans (EMPs) prepared subsequently will also be disclosed to the public. The updated EMF has also been disclosed in-country and InfoShop.

16. Assessment Report of Implementation of Existing EMF

107. The project requires initial screening of all sub-projects. The proposed activities in the original project did not trigger major environmental issues by far. DTE is gaining experience with World Bank project through STEP. DTE designated a focal person to ensure the environmental compliance of STEP activities in light of the EMF.

108. The DTE has appointed a focal person for ensuring the safeguard compliance in activities carried out under STEP. An environmental monitoring was carried out by a Bank-appointed consultant in 26 technical institutions at the initial stages of the project to look into the environmental management in both construction and operational stages and review the application of EMF. An environmental monitoring report was previously shared with the Bank which highlighted the environmental status of 26 technical institutions which received fund from STEP. This objective of the report was to determine whether the EMF is being followed by grant holding polytechnic institutions.

109. Site visits were conducted on 26 technical institutions (out of the 30 institutions receiving grant) to receive firsthand information on the status of compliance with environmental guidelines in the EMF. From the initial desk review, the questions for individuals were short listed. During site visits, discussions were held with Principal and/ or relevant personnel in regards to STEP project, with head of departments, instructors, lab in charges and sometimes students. Discussions were held on renovation activities including construction, its effects, mitigation, measures, etc. Questions were asked regarding waste disposal, safety, hygiene, displacement, etc. Laboratory safety was given due priority in these visits. The status of addressing environmental health and safety issues in policy and practice both within STEP funded activities and beyond was scrutinized.

110. Upon discussing with institutions on the environmental effects of small-scale construction related activities (paint work, civil, water supply and electrical repairs) it was found that activities supported by STEP were not likely incur major environmental hazards. However, environmental due diligence were found lacking in some of the institutions. In those cases, recommendations were made to take remedial measures as per EMF. Based on the review of 26 institutions activities, it was agreed with the implementing agency that the PMU will

regularly the environmental screening process and also the implementation of EMP (as relevant). It would be pivotal for institutions to execute the suggestions in a timely manner.

111. As agreed, the PMU has also initiated a program to monitor the environmental status of the remaining 7 technical institutions using their own capacity. The monitoring work is in progress (2 out of 7 institutions have been monitored to date) and eventually the PMU will submit an environmental management report and share it with the Bank. The PMU will continue regular monitoring to determine the status of field implementation of EMF and prepare quarterly monitoring report and share with the World Bank.

112. The review has also identified the lack of a synchronized Standard Operating Procedure (SOP) for the laboratories to ensure occupational health and safety for the lab users. It has been agreed that the preparation of the SOP would be suggested during the additional financing. Also in order to enhance the understanding of environmental management at the institution level and to effectively perform screening and assessment as per EMF, capacity building in the form of training was agreed and budgeted in additional financing.

Annex-A: Environment and Safety Checklist for Small Infrastructure and Renovation/Refurbishing and Vertical Expansion Proposal

Instructions:
The purpose of this checklist is to identify potential environment and safety issues related to the small infrastructure renovation/refurbishing work. This is a generalized checklist format for smaller infrastructure work.

The relevant Engineer of respective institution will fill-up the format, which is expected to be reviewed and signed by an Environmental Professional. However, the checklist must be reviewed and signed by the respective Head of the Department/Institution. If the checklist shows potential negative environmental impacts, the institution will submit a separate sheet for mitigation measures for it (Annex-G).

Title of Sub-project:

_____

Applicant Institution:

_____

Types of renovation/refurbishing work:

_____

Estimated cost of renovation/refurbishing work:

_____

Duration of renovation/refurbishing work:

_____

Tentative Start Date:

_____

Name and Designation of the Sub-project Coordinator/Focal Point: _____

_____

Brief Description of Small infrastructure renovation/ refurbishing work (Within 200 words)

Checklist

Sl #	Screening Questions	Yes	No	Not Aware	Possible Negative Environmental Impact[5]
1	Will the renovation work disturb other academic activities?				
2	Will it create major noise?				
3	Will it create dust problem around the sites?				
4	Will it temporarily stop the water supply and sanitation system?				
5	Will any refrigeration/air conditioning units be removed/disposed?				
6	Will any liquid waste, or an item containing liquids (including oils), need to be transported off-site for reuse, recycle or disposal?				
7	Will any building materials be removed/disposed that are coated with lead-based paint?				
8	Will any building materials be removed/disposed that contain lead, silver or chrome?				
9	Will batteries be removed/disposed (lead-acid or nickel-cadmium batteries from emergency lights and other battery-powered or battery-backup items?				
10	Will mercury-containing devices (switches, gauges, thermostats) be removed/disposed?				
11	Will an emergency generator set be installed?				
12	Will the renovation work have any indirect impact on environment and ecosystem?				
13	Will the workers be provided protective equipment, devices and clothing and be ensured those are used?				
14	Will enough health and safety direction and insurance be provided to the workers?				

[5] If the answer of the questionnaire is 'Yes', please describe the possible negative environmental impact.

Signature:
The above answers are true and complete. I understand that the Directorate of Technical Education is relying on them to make its decision.

Sub-project Focal Point Signature & Date:
_____

Contact Number and E-mail:
_____

Please sign below to verify that the information in this document is accurate and complete to the best of your knowledge.

Environmental Professional Signature & Date (Optional):
_____

Name:
_____

Contact Number and E-mail:
_____

Department/Institutional Head Signature & Date:
_____

Name:
_____

Contact Number and E-mail:
_____

Annex-B: Environment and Safety Checklist for Environmental Facilities Improvement

Instructions:
The purpose of this checklist is to identify potential environment and safety issues related to the environmental management. This is a generalized checklist format for the environmental conditions and near the TVET centers.

The TVET faculties, staffs and students and the local people will fill-up the format, which will be reviewed and signed by the Head of the Department and TVET management committee and an environmental professional. If the checklist shows potential negative environmental impacts the applicant will submit a separate sheet for mitigation measures for it (Annex-G).

Title of Sub-project:

_____

_____

Participant:

_____

Designation of the Participant:

_____

Brief Description of Environmental Facilities needed/planned to be improved (Within 200 words)

Checklist

Sl #	Screening Questions		Yes	No	Not aware	Remarks
1	i	Will there be fencing/boundary wall all along the property line of the TVET?				
	ii	If there is already a boundary wall, will it require any renovation?				
	iii	Will the TVET personnel have enough parking facilities?				
2	Is the surface water used at TVET?					
3	Is the water clean?					
4	Is the water potable?					
5	Is the drinking water tap in a clean place?					
6	Is there any deep tube wells?					
7	Is there enough toilet facilities?					
8	Are the toilets well maintained?					
8	Will there be proper waste disposal facilities?					
9	Will there be adequate liquid waste management facilities?					
10	Will the drainage pattern follow the natural drainage?					
11	Will the project have any indirect impact on environment and ecosystem?					

Participant Signature & Date: _____

Contact Number and E-mail: _____

Please sign below to verify that the information in this document is accurate and complete to the best of your knowledge.
Environmental Professional Signature & Date (Optional) : _____

Name: _____

Contact Number and E-mail: _____

Department/Institutional Head Signature & Date: _____

Name: _____

Contact Number and E-mail: _____

Annex-C: Environment and Safety Checklist for Laboratory/Resource Facilities

Instructions:
The purpose of this checklist is to identify the laboratory/resource facilities. This is a generalized checklist format for all category resources (in class or laboratory).

The TVET faculties and students will fill-up the format, which will be reviewed and signed by the Head of the Department. If the checklist shows potential negative environmental impacts the applicant will submit a separate sheet for mitigation measures for it (Annex-G).

Title of Laboratory/Resources:
_____

Participant's Name:
_____

Applicant Institution:
_____

TVET Trade:

- ☐ Garments and Knitwear
- ☐ Electrical and Electronics
- ☐ Automobiles
- ☐ Civil works
- ☐ Ceramic
- ☐ Others (Specify)_____
- ☐ Leather Technology
- ☐ Welder
- ☐ Food Processing
- ☐ Plastic Processing
- ☐ Carpentry

Brief Description of laboratory safety facilities and resources to provide positive

Checklist

Sl #	Screening Questions		Yes	No	Remarks
	Laboratory Facility				
1	Does the laboratory have				
	i	environment, health and safety protocol or guidelines?			
	ii	adequate fire safety provision?			
	iii	safety provision for gas cylinder handling?			
	iv	proper waste disposal facilities?			
	v	adequate liquid waste management facilities?			
	vi	proper storage facilities for hazardous chemicals, pesticides etc.?			
	vii	adequate ventilation system?			
	viii	first-aid facilities?			
	ix	emergency exit facilities?			
	x	trained professional to guide the students about safety procedures?			
2	Will the laboratory based work				
	i	require procurement of hazardous products (WHO Hazard Class I & II)?			
	ii	produce hazardous waste materials?			
	iii	generate infectious waste?			
	iv	cause significant emissions of gas harmful to health?			
	v	generate liquid waste?			
	vi	cause any major noise?			
3	Does the user have received formal training on laboratory operation and safety rules?				
4	Does the user have previous work experience at laboratory on similar works?				
5	**Other resources**				
	i	Do the class and laboratory have enough trainers?			
	ii	Are the trainers knowledgeable of their subject?			
	iii	Are there enough books in the library?			
	iv	Do the students have enough access to the computers?			
	v	Is the internet facility sufficient?			
6	**Career Building**				
	i	Is there yearly job fair among all the TVETs			
	ii	Do the overseas companies participate?			
	iii	Do the local companies offer jobs to the competent candidates?			
	iv	Do the overseas companies offer jobs to the competent candidate?			

Signature:

The above answers are true and complete. I understand that the Directorate of Technical Education is relying on them to make its decision.

Name: _____

Contact Number and E-mail: _____

Please sign below to verify that the information in this document is accurate and complete to the best of your knowledge.

Department/Institution Head Signature & Date: _____

Name: _____

Contact Number and E-mail: _____

Annex-D: General ToR for Environmental Impact Assessment of infrastructure rehabilitation & refurbishment

1. Introduction.

The project will support the Government of Bangladesh efforts to provide the Bangladesh economy with workers who have the relevant knowledge, skills and attitudes in trades and occupations in demand from the labor market, both domestically and abroad. Component 1, 2 and 3 will include rehabilitation/renovation/refurbishment/vertical expansion of existing building, classrooms, workshops, and library facility.

2. Background Information.

Since 2006/07, there have been rapid progress in the Government's thinking in this sector and in the support; the Government of Bangladesh (GOB) has been able to mobilize through key development partners. The Government's recently released New Education Policy, outlines articulately the strategies it proposed to adopt for helping to strengthen the role of TVET in the country. The importance of TVET to the Bangladesh economy has been highlighted during this global economic crises as the crises has had some effect on three crucial areas of the Bangladesh economy, *viz*., (i) exports (in particular, ready-made garments (RMG) and knitwear), (ii) remittances from overseas migrants, and (iii) jobs across all levels with a particular emphasis on potential overseas migrants and those already abroad who have had to return to Bangladesh after their jobs were lost due to the on-going crises. Though rigorous evidence is not available, there is considerable anecdotal evidence to suggest that Bangladesh would have fared better, particularly in terms of job-losses in overseas markets, had the share of skilled emigrants to total emigrants been higher, since the crises seems to have had differential impacts across people of different skill levels. Though the GOB had focused the spotlight on TVET and skills development long before the impact of the crises became apparent, the focus was magnified once the true aftermath of this crisis became clear.

3.Objectives.

The overall objective of this assignment is to conduct an Environmental Impact Assessment for the rehabilitation/renovation/ refurbishment of existing building, classrooms, workshops, and library in order to recommend appropriate mitigation and management measures in the project area.

4. EA Requirements.

According to the ECR'97construction of multi-storied building (more than 10 storied) is considered as the 'Orange B' category. It is also mentioned in the ECR'97 that any engineering works (up to 10 hundred thousand Taka) is an "Orange B" Category project. However, it does not explicitly mention about the environmental category for small-scale repairing or rehabilitation extension of existing building having minor environmental impacts. Since the activities identified in this project are mainly technical assistance and any major infrastructural component is not proposed, IEE will be conducted for the sub-projects having small-scale repairing and rehabilitation work with minor environmental impacts. If IEE indicates that there are significant negative environmental impacts from the small-scale sub-projects; the implementing agency will conduct the EIA.

5. Scope of Work.

Depending on the existing and proposed development in the area, significant information about the environmental status of the area should be collected. For example, EA's conducted around the proposed development area should be collected (if available). As such, this EA should draw upon the existing information collected for those EA reports, but ensuring that the information is updated and current.

5.1 Policy, Legal and Administrative framework. Describe the relevant local, regional, national and international regulations and standards governing environmental quality (such as air and water discharge standards), health and safety aspects, protection of sensitive areas and endangered species project site and land use controls. Also review the applicable safeguard policies of the World Bank and describe their relevance for the project. Finally, tabulate all the necessary statutory clearance/ permission needs and the World Bank safeguards that may apply to the project.

5.2 Description of the Project. This section of the project will need to provide information on the following:
i. Nature and Scope of the project
ii. Need for the project
iii. Location and site description (using maps to show the project and site location, and any specific environmental attributes in and around the location)
iv. Technical description of key project components (including material, equipment, machinery description and its specific location at the site using maps/ drawings)
v. Description of the preconstruction, construction, post construction and operations activities including technical details of earth work, fuel and water use, discharges, wastes and pollution prevention equipment.
vi. Proposed schedules for project implementation

Maps should be included to illustrate the general setting of the project as well as surrounding areas likely to be environmentally affected. These maps should include topographical contours, as well as location of major surface water bodies, other sources of pollution, roads, railways, habitation, land use and ecological attributes and administrative boundaries.

5.3 Description of Environmental Base line:
The base line description collection should take into account the existing and proposed developments in the area so that cumulative impacts can be assessed. Based on the field visit baseline data needs to be collected from secondary and primary sources to describe the baseline conditions.

5.3.1 Physical Environment: This includes information topography, geology/ seismology, soil type, climate and meteorology, natural gradient and drainage pattern and ambient noise levels.

5.3.2 Air Quality: This includes the collection of air quality data of the surrounding area.

5.3.3 Water quality and quantity: base line data of the intake water quality is necessary. In addition, given the competing water usage of the river water, availability of enough water during the lean season needs to be assessed as part of the baseline data collection.

5.3.4 Fisheries: There may be fishing in the river stretch adjacent to the project which may get disrupted by the intake and discharge of the construction disposals. Hence the nature and scale of fisheries around the project area will need to be assed.

5.3.5 Flora and fauna: Any flora and fauna of importance, especially any endangered species, sensitive habitants and species of commercial importance.

5.3.6 Flooding: If any river is around the project they may represent a risk of flooding. Historical hydrological data needs to be reviewed to ensure that the project is flood proofed. The 50 year project flood level should ideally be taken as the plinth level when leveling/filling the site.

5.4 Description of potential environmental impacts and mitigation measures:

Identify all potential impacts that would incur during preconstruction, construction and operational phases of the following:
i. Ambient noise levels
ii. Emissions and ambient air quality
iii. Effluent and ambient water quality and quantity
iv. Fisheries resources and other aquatic Flora and Fauna
v. land use and soil
vi. Human health and wellbeing of the local community

Using a screening matrix (provided in the EMF) the scale of impact should be screened initially. Assess the impacts brought about by the project related activities on the baseline environments. Distinguish between the positive and the negative impacts, direct and indirect impacts, including impacts from possible accidents, and short- and long term impacts, which are unavoidable or irreversible. Characterize the cause and effects of impacts and the synergistic effects of multiple impacts on the environment and the local community. Characterize the impacts in terms of nature (e.g., reversible, irreversible), scale (e.g., local and regional), and duration (e.g., short, medium, long term).

Suggest mitigation measures to reduce and offset identified impacts. For all identified impacts, explain how the project plans to mitigate the adverse impact from the pre-construction stage onwards. In addition, explain how the project plans to offset or compensate for adverse effects and for positive enhancements of environmental qualities.

5.5 Determine cumulative environmental impacts:
Given the existing sources of air pollution and proposed development in the area determine the cumulative adverse impacts on environmental quality. This may need the resources to undertake some modeling of air quality, and projection of water use and effluent discharges.

5.6 Analysis of alternatives:
Compare feasible alternatives to the proposed project site, technology, design and operation including the without project scenario, in terms of potential environmental impacts and the feasibility of mitigating the impacts. State the basis of selecting a particular alternative.

5.7 Environmental Management Plan:
Develop an EMP that consists of a set of mitigation, monitoring and institutional measures to be taken during different stages of the project (pre-construction, construction and operation) to mitigate the adverse environmental impacts, offset them, or reduce them to acceptable levels. The EMP should propose cost effective mitigation measures, the cost of which should be a part of the project cost.

Given that a number of mitigation measures would need to be taken by the contractors during construction, erection and maintenance stages, it is important to ensure that the EMP is integrated with the bid documents for procurement of contractor services. This is essential to ensure the implementation of the mitigation measures.

Environmental monitoring plan is an integral part of an EMP, which outlines the specific information to be collected for ensuring the environmental quality at different stages of project implementation. The parameters and their frequency of monitoring should be provided along with cost of monitoring plan and institutional arrangements for conducting monitoring. Reporting formats should be provided along with a clear arrangement for reporting and taking corrective action.

5.8 Public Consultations:
In order to ensure that all relevant issues have been covered by EA, it is essential to consult potentially affected people and other relevant stakeholder (such as NGOs from the area) early in the EA process, so that their views and concerns about environmental issues can be addressed to the extent possible.

5.9 Structure of the EA report:
The following table of contents is recommended:
i. Executive summary
ii. Policy, legal and administrative frame work
iii. Project description
iv. Baseline data
v. Environmental impacts
vi. Analysis alternatives
vii. Environmental Management Plan
viii. Public consultations
ix. Annexes

6. Duration:
It is estimated that the assignment can be completed within 10-12 weeks.

7. Reporting:
The consultants will report to the Project Director. They should provide the interim report produced after two months. Relevant World Bank staff in the Dhaka office should be copied on the outputs. It should be ensured that the EA also satisfies the DoE's requirements.

8. Qualifications:
The consultant firm should have at least 5 years' experience in undertaking EA for development projects. They should have staff with experience in ambient environmental monitoring, modeling and analysis. They should be able to collect secondary data.

Annex-E: A Sample Outline of Laboratory Safety Guideline

1. Fire, Police, Rescue, Emergency Medical Service Phone numbers should be provided first.
2. Purpose of the lab should be stated.
3. A brief description of the materials to be used in that laboratory has to be stated. The information will include chemical structure and properties (flammability, corrosively, toxicity, reactivity and poisonous). In special cases, carcinogenic, mutagenic and teratogenic, radioactive and asbestos containing materials and compressed gases, additional information regarding the health hazard and date, detail information should be labeled on the container. The accessibility of those materials should be limited.
4. The laboratory users should be aware of the use and location of the personal protective equipment (eye protection, goggles; protective clothing, apron; hand protection, gloves; foot protection, closed toe shoes or steel shoes; hearing protection, head protection, respiratory protection).
5. The users should be thoroughly informed of the use and location of the laboratory safety equipment like fume hoods, storage cabinets, storage containers, refrigerators, eye wash stations, safety showers and fire safety equipment.
6. The users should also be aware of the laboratory equipment safety. They should be informed of the glassware, heating devices, vacuum systems and centrifuges.
7. The first aid kit should be placed in an accessible location. The laboratory users should be trained to handle emergency procedure in case of wounds, thermal and chemical burns, ingestion and inhalation of chemicals.
8. Any special feature associated with the laboratory should also be noted.
9. They have to notify the laboratory manager if they need to work after normal hours.

Signature of the user _____ Date_____

Name of the user _____

Signature of the Lab Manager _____ Date_____

Name of the Lab Manager _____

Annex-F: General requirement for worker health and safety

In Bangladesh the main law related to occupational health and safety is Labor Law 2006. The law has provisions on occupational hygiene, occupational diseases, industrial accidents, protection of women and young persons in dangerous occupation. The key salient features of the general requirements for the workers' health and safety stated in this law is presented in the following Table.

General requirements for Workers Health and Safety

Issues	***Requirements***
Health and Hygiene	• Cleanliness • Proper ventilation and temperature • Protection against dust and fumes • Disposal of wastes and effluents • Proper illumination • Provision of adequate latrines and urinals • Sufficient spittoons and dustbins
Safety	• Safety for building and equipment • Precautions in case of fire • Fencing of machinery • Floor, stair and passage way • Precautions during work on or near machinery in motion • Monitoring against carrying of excessive weights
Compensation for accidents at work	• Owner's responsibility for compensation • Amount of compensation • Report on fatal accident and treatment • Compensation on contract and contract registration • Scope for appeal
Dust and Fumes	• For any dust or fumes or other impurities likely to be injurious to the workers, effective measures shall be taken to prevent its accumulation and its inhalation by workers
Latrines and urinals	• Sufficient latrines and urinals shall be provided • Shall be maintained in clean and sanitary condition • Shall be adequately lighted and ventilated
Precautions in case of fire	• Shall be provided with means of escape in case of fire • Effective measures shall be taken to ensure that all the workers are familiar with the means of escape • Fire fighting apparatus should be provided and maintained
First aid	• First aid facility should be provided and maintained. • Ensure one first aid box for every one hundred and fifty workers

Issues	***Requirements***
	• Shall be kept with a responsible trained person who shall be available during the working hours
Disposal of wastes and effluents	• Provide with proper disposal system for solid waste and effluents. • In case of a factory where no public sewerage system exists, prior approval of the arrangements should be made for the disposal of wastes and effluents
Compensation	• If personal injury is caused to workmen by accident arising in the course of employment, employer shall be liable to pay compensation • Monthly payment as compensation for temporary disablement are – Compensation should be paid for the period of disablement or for one year whichever period is shorter – Such compensation shall be paid at the rate of full monthly wages for the first two months – Two thirds of the monthly wages for the next two months and at the rate of the half of the monthly wages for the subsequent months – In case of chronic occupational diseases, half of the monthly wages during the period of disablement for a maximum period of two years shall be paid

Annex-G: Environmental Mitigation and Monitoring Plan

Table 1: Typical Environmental Mitigation Plan

Activity/Issue	Potential Environmental Impacts	Proposed Mitigation Measures	Responsible Partiers	Estimated Cost

Table 2: Typical Environmental Monitoring Plan

Issue	Parameters	Monitoring Frequency	Monitoring Location	Responsible Parties

Possible Environmental Impacts and Mitigation Measures during Construction/reconstruction/vertical expansion Stage[6]

Aspects	Potential Impact	Mitigation Measures	Responsible parties
1. Physical-chemical Environment			
Dust and Air Pollution: Dust generation from working areas	Dust generation during construction phase. Spillage of the material will occur from the movement of uncovered vehicles for carrying the construction materials (mud, bricks, cement, sand, etc.)	* Regular water should be sprayed during earthworks, construction of embankment, over newly constructed dry embankment and roads. * Construction should be avoided during rainy season * Cover the stockpiles of fine materials in construction yard and trucks carrying construction materials to avoid spillage. * Immediate compaction after embankment and cleaning after construction of base course.	Contractor
Noise Pollution: Noise generation from Crusher, Roller	Noise and vibration from construction equipment and other activities are potentially disruptive to nearby residences and community as a temporary impact	* Equipment should be chosen so that Noise level at the construction sites should be in acceptable noise standard (Government of Bangladesh standard for commercial zone namely L90 of 70dBA). Maintain the restriction during day time working days, if possible * Avoiding, as much as possible, construction equipment producing excessive noiseduring working hours and also at night.	Contractor
Soil Pollution: Loss of Top soil	Fertility of the soil will be reduced from farm land by excavation of top soil for fill materials	* Top soil from farm land should not use as fill materials for earthworks * Use of bottom part of soil for soil filling keeping the top soil beside and restore the top soil after construction to the agricultural land	Contractor
Drainage Congestion: Water logging/erosion	Water logging problems may occur	* Drainage congestion / water logging problems should be controlled * Maintain cross-drainage at all times during construction	Contractor
Slope Destabilization: Slope erosion	Destabilization of road embankment and slope may occur	* Destabilization is mostly related to embankment if not properly compacted * Dense and well rooted growth of permanent grass and trees should be planted at embankment / SOD for protection the slopes.	Contractor
Construction Materials and Wastes: Handling/ disposal	Hazards may occur with the handling and disposal of construction materials and wastes.	* Improper handling and disposal of solid wastes and sewerage directly into water body and on adjacent lands should not be followed. * The waste should not be dumped in any place not approved by the Engineer or Statutory Authority having jurisdiction	Contractor

[6] SPECIAL ENVIRONMENTAL CLAUSES (SECs) FOR TENDER DOCUMENT
Apart from the provisions under "General Specification" and "Particular Specification" for different sub-project components, the Environmental Impacts and Mitigation measures shall be included in the Tender Document under General/Particular Specification (as special environmental clauses). These clauses are aimed at ensuring that the Contractor carries out his responsibility of implementing the EMP and other environmental and safety measures.

Aspects	Potential Impact	Mitigation Measures	Responsible parties
		* Construction wastes should be collected and dumped in the safe places. * Arrange a waste removal contract and schedule at least weekly waste collections to prevent the build-up of waste materials. Audit waste contractors to ensure appropriate disposal methods are applied according to the waste stream.	
Water Pollution: Surface/ Ground water pollution	Improper disposal of solid and liquid waste generate from construction sites and camps will pollute the water quality	* Prohibit direct disposal of solid and liquid wastage into nearby water body. * Spoil Management Plan should be implemented by the contractor.	Contractor
2. Ecological Environment			
Fish Resources & Wetland habitants	The interventions of sub-project components will not be the cause of any adverse impact directly on the fisheries sector.	* Polluted surface water due to construction work will damage the fish resource to some extends. Direct disposal of solid and liquid wastage into nearby water bodies should be prohibited.	Contractor
Trees and Vegetation: Removal of trees	Intervention of proposed schemes will not affect any tree at project sites.	* For aesthetic and environmental purpose plantation (mixed trees such as fast growing trees, timber fruit tree) along the slopes and embankment of the proposed roads should be considered.	Contractor
3. Human Interest Environment			
Traffic congestion	Detours and traffic inconveniences during construction	* Traffic congestion should be controlled by maintained free traffic flows always. Re-routing of traffic by construction of diversion roads (temporary bypass) and well maintained * Avoid transportation of personnel (if possible) equipment and materials in peak hour particularly for road traffic	Contractor
Social disruption at the sites	Social and cultural institutions may be disturbed indirectly by construction activities.	* Provision will have been made to ensure that care will be taken during construction stage at nearby institution, hospital, mosque, other religious institution and settlement regarding dust, air and noise pollution.	Contractor
Public Health and Safety: Health, Safety and security	Occurrence of public accident at the sites	* Provision of adequate cautionary signs, barriers, by putting cautionary red lamp signalling at night, signal and flag persons to control the traffic should be considered * All equipment and safeguards required for the construction work such as temporary stair, ladder, ramp, scaffold, hoist, run away, barricade, etc. are substantially constructed and erected, so as not to create any unsafe situation for the workmen using them or the workmen and general public passing under, on or near them.	Contractor

Aspects	Potential Impact	Mitigation Measures	Responsible parties
Occupational Health and Safety	Accident at the construction sites. Improper accommodation &other facilities for workers. Conflict may arise between local &migrant workers.	* Personal Protective Equipment (PPE) e.g., ear protection gear, mask, goggles, safety shoes, etc. and First Aid Box should be provided to workers/project personal , avoid child labor (age <14) * Proper accommodation, safe drinking water (As free), sanitation, disposal of solid waste facilities and regular health screening system should be available. * Engage local workers instead of migrant workers and to be provided * Appropriate safety signs should be provided in areas where relatively hazardous work is going on	Contractor
Health and safety	Impact from building materials removed/disposed containing lead-based paint or other hazardous materials	• Notify the building supervisor and occupants where work involving lead will take place. • Pre-clean paint chips, dust and debris from existing surfaces ***before*** the job begins. Place plastic catch sheeting or tarpaulins to collect debris on the ground, floor or platform directly below the work area and at least 6 feet out in all directions from the working surfaces. Prepping should not take place on windy days. Catch sheets or tarps should be weighted or secured to the ground. • Personal protective equipment (PPE) must be used for workers. • When preparation activities are completed, working surfaces and the immediate work area should be wet wiped using disposable towels and a detergent solution. All used towels must be gathered and disposed of as contaminated waste. • At break periods or when finished, workers must immediately proceed to assigned clean-up areas to decontaminate. The decontamination areas must be within the barricaded areas and must have polyethylene drop cloths or plastic tarpaulins as a floor. Upon completion of clean-up, discarded PPE will be gathered into 4-6 mil plastic bags or into drums for proper disposal. Waste PPE should be kept separate from paint chips, dust and debris to allow appropriate disposal. • Waste generated in preparation activities (paint chips, glazing, etc.) should be collected and deposited in an appropriate container.	Contractor
Health and safety	Impacts from battery to be removed/disposed (lead-acid or nickel-cadmium batteries)	• All the old batteries to be collected and stored temporarily in safe manner. • All the old batteries to be provided to authorized and licensed battery recyclers for appropriate recycling and disposal.	Contractor

Aspects	Potential Impact	Mitigation Measures	Responsible parties
Health and Safety	Impacts from mercury containing devices (switches, gauges and thermostats) to be removed	• The necessary permits/licenses to store or dispose of the waste must be in place. • In locating the waste storage facilities the public health and environmental protection must be considered. • Storage areas must be located in such a manner that it can provide optimum handling and transportation of waste material. • A waste container must be of sufficient strength and structural integrity to ensure that it is unlikely to burst or leak in its ordinary use. • The containers in which waste is stored must be intact and not corroded or in any other way rendered unfit for the safe storage of waste. • Adequate measures must be in place to prevent accidental spillage, or leakage, and in the case of an incident, adequate mitigation measures are in place to mitigate, and to prevent re-occurrence of the incident. • Materials to be disposed in sanitary protected pits under the supervision of Department of Environment.	Contractor

Aspects	Potential Impact	Mitigation Measures	Responsible parties
Health and Safety	Manage and disposal of hazardous materials	• A Standard Operating Procedure (SOP) is mandatory which describes how to handle a hazardous chemical safely, including the amount and concentration to be used, how to obtain or create the working solution, and special handling procedures, engineering controls, and personal protective equipment. • Laboratory signs, including emergency contacts and chemical inventory, must be posted outside each work area • If possible, select an alternative procedure that uses less hazardous chemicals, or that substitutes a less hazardous form of the same chemical. When use of hazardous chemicals is necessary, the preferred controls are those which remove the hazard from the workplace or place a barrier between the student and the hazard (engineering controls) followed by work practices and personal protective equipment (PPE), which require more effort on the part of the individual student. • Chemical fume hoods are the primary containment devices used to protect personnel and the laboratory environment from hazardous or irritating chemicals that may become airborne through volatilization or aerosolization. • Such waste must be managed from its generation (cradle) to its final destruction (grave). All the waste must contained and disposed as per guidance of the Department of Environment.	Institution

Annex-H: Environmental and Social Specialist's Job Descriptions

The Environmental and Social Specialist, preferably with the post-graduation specialization in environmental engineering, shall have at least 10 years of working experience related to preparation or EA, integration of environmental and social issues in the design, implementation and operation of TVET projects. Experience in construction and maintenance management of building expansion projects and Environmental as mentioned above is preferred.

The specific roles and responsibilities of the Specialist on Environmental aspect shall include, but not limited to the following:

- Support the focal point on the technical aspects of environmental management and quality control
- Monitor and review the screening hand categorization process for each sub-project
- Supervise the implementation of the EMP by the Contractors
- Develop, organize and deliver environmental training programs and workshops for the staff of the Contractors, Field Supervision Staff, DTE and other implementing agency officials (responsible for the supervision of the Maintenance works)
- Review and approve site specific environmental enhancement/mitigation designs worked out by the Contractor
- Hold regular construction meetings with the Environmental management unit in the implementing agency.
- Review the Contractors Environmental Implementation Plans
- Ensure compliance with the Environmental Management Plan (EMP)
- Develop good practice construction guidelines to assist the contractors in implementing the EMP
- Monitor tree plantation programs and the periodic environmental monitoring programs to ensure compliance with the EMP &GoB requirements.
- Prepare and submit regular environmental monitoring and implementation progress reports
- Continuously interact with the implementing agency regarding the implementation of the environmental compliance
- Ensure inclusion and dissemination of environmental knowledge and information in the curricula
- Ensure inclusion and dissemination of occupational health and safety laws in the construction phase and curricula