



Environmental Management Framework Export Competitiveness for Jobs Project



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Executive Summary

Introduction

The Government of Bangladesh (GoB) with support from World Bank (WB) has proposed to take up the Export Competitiveness for Jobs Project (EC4J) to maintain a growth trajectory in export performance, to contribute to export diversification and more and better jobs in targeted sectors. Bangladesh's continued integration in trade and international production networks will play an important role in this process. The GoB has identified the four sectors i.e., (i) leather, (ii) footwear, (iii) plastics and (iv) light engineering sectors as high potential priority sectors. Exports of leather, leather goods and leather footwear are growing fast but value addition is impeded by lack of compliance with international standards for husbandry and slaughter practices, and especially inadequate technology, environmental degradation, and poor labor standards in the tannery sector. Its 6,200 firms employ nearly one million people of which a majority are women. Exports of footwear¹ have doubled every four or five years for more than a decade and the sector has many similarities with the RMG sector in terms of strengths and weaknesses. The plastics and light engineering² sectors produce essential intermediate products used in supply chains of many other sectors but the sectors are increasingly directly exporting their output. The plastics industry is made up of roughly 3,000 firms employing 600,000 workers whereas the electronics industry's 2,500 firms employ some 70,000 workers. In FY15, Bangladeshi exports from the four sectors were worth US\$1.6 billion.

The IDA approval of the loan is contingent upon the GOB's (PIU's) compliance to the WB environmental safeguards requirements. Hence, the PIU has undertaken to prepare an EMF (Environmental Management Framework) for the project to ensure the requirements and also for compliance of GOB (DOE) requirements for IEE and EIA. Overall, the project is likely to have a positive impact on the environment as the project will facilitate coordinated investments in Environmental, Social and Quality (ESQ) compliance and monitoring. However, SME sector is one of the most polluting sectors and some negative environmental impacts may occur during construction activities and installation of equipment such as environmental monitoring equipment, end-of-pipe equipment upgrading, ICT systems, safety equipment, technical measurement equipment in addition there may be impacts due to improper operation of facilities constructed. The project is likely to have a large number of sub-projects which are yet to be identified and the location of many subprojects are yet to be specified. In view of the limited information, a framework approach for environmental management has been adopted for the project. The Environmental Management Framework (EMF) for the project has been prepared in accordance with Environment Conservation Rules 1997 of Bangladesh and the Safeguard Policies of the World Bank. The EMF document will provide the broad framework for the environmental management in the sub-projects; while the investors will be responsible for preparing the sub-projects' IEE and EIA reports and proper implementation of Environmental Management Plan (EMP).

The Proposed Project

The proposed project aims to promote diversification and enhance growth and competitiveness of select labor-intensive sectors in which Bangladesh has a revealed comparative advantage or sectors that provide essential inputs in export-oriented manufacturing value chains. Bangladesh's continued integration in trade

¹ Footwear is made up both leather and non-leather footwear. A majority of Bangladesh's exports of footwear is leather based. The literature, government policy documents, and industry associations do seldom distinguish between the two sub-categories. References to footwear in this PAD covers both sub-categories.

² 'Light engineering' is loosely defined but frequently used in policy dialogue in Bangladesh and SAARC at large. The Cambridge Dictionary defines it as "small machines and equipment" but there is no authoritative definition. Bicycles is the largest sub-group exported under the light engineering heading in Bangladesh. In the context of this project, light engineering is a reference mainly to electronic and electrical products.

and international production networks will play an important role in this process. The GoB has identified the following four as high potential priority sectors:

- (i) leather,
- (ii) footwear,
- (iii) plastics and
- (iv) light engineering sectors

Important selection criteria for the sectors were: (i) scope to create new jobs/labor intensity; (ii) perceived private interest and scope to generate more investment and export potential; and (iii) relevance and scope for project additionality. Binding constraints in the targeted sectors are linked to issues of market access, skills shortages and weak institutions for technology upgrading, and infrastructure weaknesses. Adherence to various technical and process quality standards, testing and accreditation mechanisms, and social and environmental standards are increasingly essential to export leather, leather products, footwear, plastics and light engineering products.

The project will be structured around four components:

- (i) Market Access Support Program,
- (ii) Productivity Enhancement Program,
- (iii) Public Investment Facility for Infrastructure Constraints; and
- (iv) Project Implementation, Monitoring and Evaluation.

The proposed project will address specific market failures holding back investment, exports, and job creation in the priority sectors, and support some of the key objectives of both the GoB's development objectives and the WBG's mission of inclusive growth. First, the WBG has extensive experience of advising governments in the targeted areas and the combination of IDA financing and an extensive body of knowledge and convening power will help the GoB implement this project. Second, the project will build upon extensive analytical work and ongoing pilot activities that are financed by the Trade & Competitiveness Global Practice (T&C GP), the Jobs Cross-Cutting Solutions Area, and the International Finance Corporation (IFC), and already implemented with some of the proposed implementing partners of the proposed project. Third, the project will complement ongoing and planned lending activities, which are expected to yield significant synergies. Fourth, the Task Team has already developed strong partnerships with the industry associations in the targeted sectors and these productive relationships will strengthen further under the new lending operation. Finally, some of the proposed support activities linked to market access; skills formation and technology diffusion; and infrastructure gap financing will directly or indirectly benefit other productive sectors beyond the four explicitly targeted here; including those outlined in the GoB's Export Policy Agenda.

Project Boundaries

The components and activities of the project will be implemented all over Bangladesh. The equipment installations will be in established factories, thus the project area of each of the installations will be limited to the walled premises. Air quality needs to be monitored within the premises. However, in case, of effluent discharge, nearby water bodies (within 1km radius) will be a part of the monitoring activities. The land parcels dedicated for the Technology Centers (this will include access roads) will be located in semi-urban areas or locations within proximity of industrial parks where infrastructure likely is inadequate. Preliminary findings and recommendations from the ongoing prefeasibility study work indicate that promising candidates and locations for the technology centers are: (i) within proximity of Dhaka with a focus on light/general engineering; (ii) within proximity of Dhaka with a focus on testing services for electrical and electronics goods; (iii) within proximity of Chittagong with a focus on light/general engineering/plastics; and (iv) within proximity of Savar with focus on footwear and leather goods.

Policy, Legal and Administrative Framework

Regulatory requirements toward protection and conservation of environment have been enunciated by the Government of Bangladesh (GoB) as well as the World Bank (WB) are reviewed. The GoB pertinent policies and regulations among these requirements are summarized as under:

- Environmental Conservation Legislations/Policies/Strategies
 - ◊ Bangladesh Environment Conservation Act (ECA), 1995 and subsequent amendments
 - ◊ Bangladesh Environment Conservation Rules, 1997 and latter revisions
 - ◊ Bangladesh Environment Court Act, 2010
 - ◊ Environmental Policies, Strategies and Plans
 - ◊ National Conservation Strategy, 1992
 - ◊ National Environmental Policy, 1992
 - ◊ National Environmental Management Action Plan (NEMAP), 1995
 - ◊ Bangladesh Climate Change Strategy and Action Plan (BCCSAP), 2009
 - ◊ Coastal Zone Policy, 2005
 - ◊ Coastal Development Strategy, 2006
 - ◊ National 3R Strategy for Waste Management, 2010
- Other Relevant Acts, Policies and Rules
 - ◊ National Information and Communication Technology (ICT) Policy, 2002
 - ◊ Bangladesh Economic Zone Act, 2010
 - ◊ Bangladesh Industrial Policy, 2010
 - ◊ Bangladesh Labour Act, 2006
 - ◊ Bangladesh Labour Rules 2015
 - ◊ Bangladesh Factories Act (1965)
 - ◊ Bangladesh National Building Code, 2006
 - ◊ Bangladesh National Building Code, 2015 (Draft)

Implication of Government Policies on Project: A schedule attached to the Environment Conservation Rules 1997 categorizes projects as Green, Orange A, Orange B, and Red. While many of the activities of the EC4J project do not have any construction or installations and do not need any Environmental Clearance, sub component Export Readiness Fund (sub component 1.2) will provide grant-based incentives to finance advisory services and equipment that enable firms to identify and address ESQ compliance gaps and upgrade products and production processes. Some of the equipment include environmental monitoring equipment, end-of-pipe equipment upgrading, ICT systems, safety equipment, technical measurement equipment. Production of shoes and leather goods (capital up to 5 hundred thousand Taka), plastic & rubber goods (excluding PVC), agricultural machinery and equipment, Industrial machinery and equipment are considered to be Orange A. The Export Readiness Fund will cover projects which may include both services and fixed asset expenditures up to a maximum grant of US\$200,000. These activities will be categorised as Red per ECR 97. Procedure for obtaining Environmental Clearance includes the following:

- (i) report on the feasibility of the industrial unit or project (applicable only for proposed industrial unit or project);
- (ii) report on the Initial Environmental Examination (IEE) relating to the industrial unit or project, and also the terms of reference for the Impact Assessment of the unit or the project and its Process Flow Diagram;
OR Environmental Impact Assessment report prepared on the basis of terms of reference previously approved by the Department of Environment, along with the Layout Plan (showing location of Effluent Treatment Plant), Process Flow Diagram, design and time schedule of the Effluent Treatment Plant of the unit or project, (these are applicable only for a proposed industrial unit or project);

- (iii) report on the Environmental Management Plan (EMP) for the industrial unit or project, and also the Process Flow Diagram, Layout Plan (showing location of Effluent Treatment Plant), design and information about the effectiveness of the Effluent Treatment Plan of the unit or project (these are applicable only for an existing industrial unit or project);
- (iv) no objection certificate of the local authority;
- (v) emergency plan relating adverse environmental impact and plan for mitigation of the effect of pollution;
- (vi) outline of relocation, rehabilitation plan (where applicable);
- (vii) other necessary information (where applicable);

Component 2 Productivity Enhancement Program and Component 3 Public Investment Facility for Infrastructure Constraints: will require construction of technology upgrade centers/CFCs and associated access roads. These activities will be categorized as Orange B as per ECR 97. Procedure for obtaining Environmental Clearance includes the following:

- (i) Application through prescribed form-3 under Environment Conservation Rules 1997
- (ii) Prescribed fees under schedule-13 under Environment Conservation Rules 1997 (Amended 2002)
- (iii) Report on the feasibility of the industrial unit or project (applicable only for proposed industrial unit or project);
- (iv) Report on the Initial Environmental Examination of the industrial unit or project, and also the process flow diagram, Layout Plan (showing location of Effluent Treatment Plant), design of the Effluent Treatment Plant (ETP) of the unit or project (these are applicable only for a proposed industrial unit or project);
- (v) Report on the Environmental Management Plan (EMP) for the industrial unit or project, and also the Process Flow Diagram, Layout Plan (showing location of Effluent Treatment Plant), design of the Effluent Treatment Plant and information about the effectiveness of the ETP of the unit or project, (these are applicable only for an existing industrial unit or project);
- (vi) No objection certificate (Prescribed Form) from the local authority;
- (vii) Emergency plan relating adverse environmental impact and plan for mitigation of the effect of pollution;
- (viii) Outline of the relocation, rehabilitation plan (where applicable);
- (ix) Other necessary information (where applicable).

If an application is made under sub-rule (5) of ECR 97 along with the relevant documents specified in sub-rule (6) of ECR 97, then in the case of an Orange- A Category industrial unit or project, within thirty days of the receipt of the application, and in the case of an Orange-B or Red Category industrial unit or project, within sixty days of the receipt of the application, a Location Clearance Certificate shall be issued or the application shall be rejected mentioning appropriate reasons for such rejection.

ECR 97 also includes standards for air quality, odour, sound and waste from industrial units or projects. These standards shall be applicable to all sub projects or activities other than those specified under the heading "Standards for sector-wise industrial effluent or emission." Compliance with these standards shall be ensured from the moment a sub project starts operation. These standards shall be inviolable even in case of any sample collected instantly at any point of time. These standards may be enforced in a more stringent manner if considered necessary in view of the environmental conditions of a particular situation.

Since there may be construction activities, all construction will be done as per Bangladesh National Building Code, 2006. The BNBC also stipulates the general duties of the employer to the public as well as workers and sets out the details about the different safety tools of specified standard. These standards will be incorporated in the Environmental Code of Practice (ECOP) and waste management plan of the project.

The directives given in the Bangladesh Factory Act (1965), Bangladesh Labour Act (2006), Bangladesh Labour Rules (2015) and Bangladesh National Building Code (2015) regarding health and safety of workers and general requirements and pre cautionary requirements of fire protection will have to be followed. Where applicable, all infrastructures (industries) to be financed by the project must obtain fire license from relevant authority.

The technology upgrade centres/CFCs will house modern manufacturing equipment and processes and the project will fund installation of equipment that needs to be disposed of properly after equipment becomes unusable or damaged. The National 3R Strategy for Waste Management gives directions for the management of solid waste and e-waste, and the waste management plan of the project will take the strategy into account. It is also important to highlight that the Seventh Five Year Plan (2015-2020) focusses on creating jobs and lifting the growth rate and emphasizes on developing vocational knowledge-based human resources, bring dynamism in public-private investment, and diversify products to boost export. Hence, this project actually supports GoB in the implementation of goals, strategies, policies and plans required for the socio-economic development of the country.

World Bank's Environmental Safeguard Policy: The World Bank has developed a number of Safeguard Policies to ensure that all possible impacts are considered and mitigation measures are identified prior to the implementation of any proposed project. These are, OP 4.01 Environmental Assessment, OP 4.04, Natural Habitats and OP 4.11, Physical Cultural Resources. The proposed project has been classified as a category 'B' project, and one environmental safeguard policy 'Environmental Assessment policy (OP/BP 4.01)' has been triggered. In general, the project is not expected to have significant environmental impact due to the nature of investments. *The project may finance some infrastructure and install some equipment and also the project is targeting the highly polluting SME sectors, special attention has to be adopted for minimizing the environmental impact during the implementation and operation stage.* Since the details of the investments are not known at this stage of the project, a framework approach has been taken. The Environmental, Health, and Safety (EHS) Guidelines of the Word Bank Group and Occupational Health and Safety (OHAS) practices of International Labour Organisation (ILO) will be applied in the construction and operational activities of the project. The Environmental Code of Practice (ECoP) and waste management plan for the project will take the EHS guidelines into account.

Description of Baseline

The components and activities of the project will be implemented all over Bangladesh. However, component activities and locations are yet to be finalized. As result it is not possible to prepare any project specific environmental baseline. Alternatively, the EMF includes the generic environmental baseline for relevant component type and guideline for collection of information and data. Component wise description

Information on the Workplace/Factory Facility:

- ◇ Location and area of the factory/firm
- ◇ Products and services (name and number of units)
- ◇ Raw material used and source of raw material
- ◇ Machines used and probable emissions and discharges from the machines
- ◇ Waste (type and volume) and waste management
- ◇ Presence and use of ETP or access to CETP
- ◇ DoE clearance status

Information on Health and Safety issues:

- ◇ Total no. of employees and workers
- ◇ Integrity of workplace structure and infrastructure (including lighting and ventilation system, access roads, Work Environment Temperature)
- ◇ Access to utilities and maintenance of utility systems (water, electricity, gas)

- ◇ Access to services by workers (medical, sanitation, canteen)
- ◇ Presence of inflammable materials and storage of materials
- ◇ Presence of fire-protection systems inside factory buildings
- ◇ Fire license from relevant authority
- ◇ Access to protective gear such as masks, gloves, protective gear for eyes and ears and quality of the gear

Physical/Chemical Hazards

- ◇ Air Quality and water/ wastewater
- ◇ Rotating and Moving Equipment
- ◇ Welding / Hot Work, Fire and Explosions
- ◇ Corrosive, oxidizing, and reactive chemicals
- ◇ Noise, Vibration, Electrical and Eye Hazards
- ◇ Asbestos Containing Materials (ACM)
- ◇ Biological Hazards
- ◇ Working at Heights

Monitoring/Training

- ◇ Work Environment Facilities Monitoring, Accidents and Injury Monitoring, Environmental Parameters (Air/water) Monitoring
- ◇ Hazard Materials Monitoring, Fire/Safety Training, OHS/First Aid Training
- ◇ Access to health and safety training and awareness materials

Determination of physical components of the environment:

Physical Environment:

- ◇ Climate (average precipitation, temperature, humidity)
- ◇ Topography and soil type
- ◇ Air quality
- ◇ Surface water quality
- ◇ Hydrology (groundwater levels)
- ◇ Land use and land cover

Ecological Environment:

- ◇ Bio-ecological zone
- ◇ Percentage of area under vegetation
- ◇ Type of trees

Potential Project Impacts and Mitigation Measures

The environmental impacts identified at this stage are preliminary in nature and the detail environment assessment will need to be further elaborated specifically and potential for occurrence has to be ascertained during further stages of subproject design and implementation when locations will be specified. It is confirmed that subprojects with highly significant adverse impact on environment will not be included in the project. Based on the types of subprojects to be financed under the project, it is expected that the project activities will not cause any significant, irreversible and long-term environmental impacts. The environmental impacts under component 2 & 3 of the project are expected to be mostly construction related and limited within the project boundaries. However, there are possibilities of a few likelihood adverse environmental and social impacts. Most of the adverse impacts identified are reversible in nature and can be managed by appropriate mitigation measures.

Based on the magnitude and implications of environmental issues and for management purpose, the subprojects are divided into the following three categories.

- Subprojects which have significant adverse environmental impacts that are sensitive, diverse, or unprecedented or will be implemented in environmentally important areas - including wetlands, forests, grasslands, and other natural habitats. Such sub-projects will be excluded from the project. Subprojects which will have irreversible health impacts will also be excluded.
- Subprojects which have minor potential negative environmental impacts. These impacts are site-specific; the impacts are reversible; and in most cases mitigation measures can be designed more readily since the activities require no land acquisition and have only generic construction and equipment installation activities.
- Subprojects which are likely to have minimal or no adverse environmental impacts especially subprojects that do not have construction and equipment installation activities.

Screening Matrix for Environmental Impact Assessment: All the major environmental parameters covering ecological, physical and human interest related aspects need to be considered in identifying the potential impacts during different phases of the project.

A simple matrix or checklists of the environmental parameters for each subproject (grant window, technology center and common facility infrastructural services) during planning phase have been recommended. In the checklist, the magnitude of environmental impacts has been classified as none, low, moderate and severe. Long-term and short-term impacts (identified as L and S, respectively) as well as reversible and irreversible (identified as R and I, respectively) have also been identified in the checklist. Mitigation measures will be required as per findings of the checklist. Although the overall project is classified as B, based on the activity specific impact, the activity can be upgraded to category A in future. This checklist needs to be completed for each of the locations for the different components of the project.

Impact Assessment:

Adverse Environmental Impacts

- ◇ **Vegetation removal:** Construction and equipment installation activities under the different components of the project will take place in public land. During site preparation vegetation consisting of weeds, grasses, and shrubs will be cleared and the overburden removed to start construction. Vegetation removal is associated with loss of biodiversity, soil erosion, sedimentation and siltation, increased runoff and degradation of surface water.
- ◇ **Emissions causing air pollution:** Air quality can be degraded due to releasing of solvent vapors from dehairing, deliming, spray application, degreasing and finishing (for example dye and adhesive application). Decaying organic material also produces strong odours. Industrial practices in plastic manufacture can lead to polluting effluents and the use of toxic intermediates. The equipment including Computer Numeric Control or CNC machines can produce metal dust, particles and loud noise during operation affecting operating personnel and surrounding personnel. Welding and cutting arcs also produce electromagnetic radiation. Continuous exposure to fumes and in large concentrations have been linked to numerous respiratory and health related illnesses. Thermal cutting processes on base metals such as stainless steel, low alloy steels, hard facing materials and other alloys may release materials that contain manganese, chromium, cadmium, lead, nickel or other known hazardous substances. In addition to health risks, uncontrolled thermal cutting fumes result in reduced worker productivity, product quality problems, factory maintenance issues and environmental concerns³. There are also environmental and health concerns associated with emissions during incineration of solid waste.

³ Majolagbe S. B., A. A. Abioye, K. J. Akinluwade, O. S. Adesina and A. R. Adetunji (2015). Radiation Effects: Recommendations for Safe Plasma/Flame Cutting Operation. Journal of Scientific Research & Reports 6(3): 237-242, 2015; Article no.JSRR.2015.149

- ◇ **Water pollution:** Many of the industrial processes especially in the leather and footwear industry lead to environmental degradation and water pollution. Industrial waste from the leather sector poses serious environmental impact on water (with its high oxygen demand, discolouration and toxic chemical constituents and contains a complexity of pollutants including chromium and chlorinated phenols and other organic and inorganic pollutants). Footwear industries, though less polluting, also use chemical adhesives and tanning chemicals. Examples of some of these chemicals include Chlorinated phenols, tribromophenol, chlorinated paraffins, dimethylfumarate etc, which are used to preserve the materials, such as leather, in shoes. These chemicals are easily leaked into the environment and water through the discharge from the factories. These chemicals can harm the wild life who may consume infected water or plants. Spillage of plastic pellets that find their way into sewage systems, and eventually to the sea, has hurt wildlife that may mistake the pellets for food.
- ◇ **Recycling of solid waste:** All of the sectors (leather, footwear, plastic and light engineering) produce solid waste that can be recycled. However, there are also environmental and health concerns associated with emissions during incineration. Improper storage, handling and transport of solid waste can lead to unhygienic, unhealthy and unsightly conditions.
- ◇ **Disposal of cutting oil:** In general, cutting oils can be reused several times and are typically designed for this purpose once processed through reclamation equipment. Reclamation is necessary with cutting fluids because they can degrade after a period of use due to the working and environmental contaminants to which they are exposed. After several uses and reclamation cycles, eventually the cutting fluid is destined for disposal. When that time comes, disposing of the fluid must be done with care.
- ◇ **Fire safety Issues:** Industrial units especially plastic factories and storage facilities are vulnerable to fire hazards.
- ◇ **Disposal of machines:** Disposal or end-of-life management of many of the machines and equipment needs to be done carefully. Leaching of chemicals, if any from improperly disposed machines can leach into soil or water or into air affect the environment and human health, or the staff/workers may come in direct contact.

Positive Environmental Impacts

- ◇ **Stronger environmental compliance:** The interventions of the project will build capacity of public and/or public-private institutions as well as to directly support private firms in their efforts to comply with existing statutory environmental regulations and legislations of the country and access international markets. Associated firms will thus be influenced to incorporate social and environmental sustainability measures in their production and supply chains.
- ◇ **Recycling/Reuse:** Recycling/reuse is a form of waste management that involves converting waste and other used materials into reusable products. Recycling helps to reduce energy usage, reduce the consumption of fresh raw materials, reduce air pollution and water pollution (from land filling) by reducing the need for “conventional” waste disposal and also reduces greenhouse gases emissions.

Mitigation measures

- ◇ Clearing natural vegetation will be avoided and equipment will be installed in a natural clearing. The removed trees or plants should be replaced with new plantation at appropriate locations, Where-ever possible the trees and plants should be replaced by at least two samplings of same species. However, local officials can be consulted to finalize the plantation program. The genetic variety in trees as well as other species needs to be ensured. Reduce monocultures, avoid exotic tree species particularly numerous invasive aliens from plantations. Local varieties of trees should be planted as much as possible. Sufficient open space, green space can be provided in the project area during landscaping.

- ◇ To minimize the damage of air pollution from CNC machines on human health it is best to work in large, open spaces and ensure that buildings have adequate ventilation. To reduce dust professional dust purification systems or underwater cutting method can be used. Underwater method also reduces noise. For protection from radiant energy, workers must use personal protective equipment, such as safety glasses, goggles, welding helmets, or welding face shields to protect the eyes from sparks and the rays of the arc when performing or observing plasma arc cutting or gouging. This equipment must have filter lenses with a shade number that provides the appropriate level of protection. Extractors and face masks must be worn and exposed skin should be protected with adequate gloves and clothing.
- ◇ Emission and discharge levels for the design and operation of each project must be established through the Environmental Assessment (EA) process, based on GoB legislation and relevant ECoPs of the project. Frequent sampling will be required during start-up and upset conditions. Each of subprojects will have an environmental compliance officer at factory level. Once a record of consistent performance has been established, sampling for selected parameters should be on a monthly basis. Bi-annual monitoring for all parameters as mentioned in ECR 97 should be carried out and, if parameters are present at levels equal to or above ECR 97 standards for waste from industrial units, corrective actions should be taken. Monitoring data should be analyzed and reviewed at regular intervals and compared with the operating standards so that any necessary corrective actions can be taken. Records of monitoring results should be kept in an acceptable format. These should be reported to the responsible authorities and relevant parties, as required, and provided to PIU if requested. The guidelines are expressed as concentrations to facilitate monitoring. Dilution of air emissions or effluents to achieve these guidelines is unacceptable. Where ever possible chemicals shall be recovered and recycled/reused.
- ◇ Water saving practices should be in place. For example, use of batch instead of continuous washing. Reuse wash water and recycle. Segregate wastewater streams to simplify treatment.
- ◇ Every light engineering plant should have a coordinated plan for managing used cutting oil. Cleaner production methods and waste minimization should be the first initiative in reducing waste oil at a factory. When the oil reaches the end of its design life, it must be either reclaimed or recycled. In-line oil sensors to ensure that oil life is extended and unnecessary oil changes do not occur can be used. Additional steps can be, use of oil mist lubrication on industrial gear boxes and other equipment, selection of equipment with reduced oil sump sizes and improving the filtration of the lube oil change and dosing the additives.
- ◇ Solid waste and electronic waste should be properly disposed. The options include: storage, incineration, municipal solid waste landfill, recycling and hazardous waste process. Develop waste management plan for various specific waste streams (e.g., reusable waste, flammable waste, construction debris etc.) prior to commencing of installation and submit for approval. Organize disposal of all wastes generated during construction in an environmentally acceptable manner. This will include consideration of the nature and location of disposal site, so as to cause less environmental impact.
- ◇ Minimize the production of waste materials by 3R (Reduce, Recycle and Reuse) approach. Segregate and reuse or recycle all the wastes, wherever practical. Prohibit burning of solid waste. In the leather and footwear industry, recycle waste to the extent feasible to manufacture fertilizer (plants/crop has to be tested before marketing to ensure chemical are not entering into food chain), animal feed (needs to be tested before use for ensuring permissible chemical content), leather products provided that the quality of these are not compromised. The destination of any material produced in the subprojects of the project sent for recycling needs to be verified and recycling firms or factories even if they are not funded by the project must maintain GoB standards during recycling or disposal or any kind of emissions from these recycled materials.
- ◇ Train and instruct all personnel in waste management practices and procedures as a component of the environmental induction process. Provide refuse containers at each worksite. Request suppliers to minimize packaging where practicable.

- ◇ Place a high emphasis on good housekeeping practices. That is maintain all construction sites in a cleaner, tidy and safe condition and provide and maintain appropriate facilities as temporary storage of all wastes before transportation and final disposal.
- ◇ Equipment will not be repaired in the field. Where ever possible prefabrication in built up areas to avoid damage to vegetation.
- ◇ Implement suitable safety standards for all workers and site visitors, with sufficient provisions to comply with international standards (e.g. International Labor Office guideline on 'Safety and Health in Construction; World Bank Group's 'Environmental Health and Safety Guidelines') and contractor's own safety standards, in addition to complying with national standards.
- ◇ BNBC 2015 prescribes fire-safety standards and the compulsory installation of fire-protection systems inside factory buildings. All factories and installations of the project must ensure fire license from relevant authority. Regular monitoring and factory inspection also needs to be done by management and personal.
- ◇ End of life management of machines should include recovering salvageable materials and timely disposal of material.

Environmental Management Framework

Details of the sub-projects/activity to be financed under the project will be selected during project implementation phase and therefore, the exact locations, technology, size and extent of the sub-project' will remain unknown during carrying out of the environmental assessment in preparation phase. Therefore a framework approach has been adopted for EA. The framework has been prepared fully by considering the GoB regulatory framework and WB safeguard policy. This is not an attempt to predict the specific impacts of projects or activities, but rather to minimize the overall potential change to the natural environment whilst implementing activities. The Environmental Management Framework (EMF) has been prepared based on the: (i) assessment on surrounding environment of the proposed locations; (ii) evaluation of the potential overall environmental impacts of the proposed project activities; (iii) suggestions for subproject specific standard environmental mitigation and monitoring plan with unit costing; (iv) public consultations; (v) identification of the institutional barriers and capacity building needs for environmental management; and (vi) agreements necessary on the institutional arrangements for the environmental management.

Using the major steps outlined below, the EMF describes the process for ensuring that environmental and social concerns are adequately addressed through the institutional arrangements and procedures used by the project for managing the identification, preparation, approval, and implementation of Components. The major steps are:

- ◇ Screening and Impact Assessment
- ◇ Review, Approval, and Disclosure of Component Safeguard Instruments
- ◇ Implementation, Supervision, Monitoring, and Reporting

General principles of EMF

- The Project Directors of implementing agencies will be responsible for the environmental compliance in all the component and the Project Director.
- PIU and all the ERF grant receivers 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 agency will ensure the participation of local community in planning and implementation of Component 1.2, 2 and 3.
- Each subproject will be subject to Environmental Clearance by the Department of Environment (DOE) and the implementation cost of the EMP will be a part of the Bill of Quantities (BOQ).

- PIU 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.
- The negative list of project is given in the EMF. Without prior clearance from the World Bank those activities cannot be supported in any form under the project.
- PIU will be responsible for sharing the bi-annual environmental monitoring report with the World Bank.

Safeguard Screening and Impact Assessment: Key steps in Component preparation during project implementation are safeguard screening and impact assessment. The safeguard screening often includes two steps, eligibility screening and technical screening for assessment of potential impacts, policies triggered and instruments to be prepared. The purpose of “environmental screening” is to get a preliminary idea about the degree and extent potential environmental impacts of a particular sub-project, which would subsequently be used to assess the need for further EA.

As mentioned earlier, overall, the project is likely to have a positive impact on the environment compliance and monitoring once completed. Project interventions should contribute to reduce negative externalities by improving the use of cleaner and more efficient technology and production processes. However, some negative environmental impacts may occur during construction activities and installation of equipment such as environmental monitoring equipment, end-of-pipe equipment upgrading, ICT systems, safety equipment, technical measurement equipment in addition there may be impacts due to improper operation of facilities constructed. The outcome of the technical screening will be used to classify the subprojects into one of three categories (Category A, B, C according to OP 4.01), depending on the type, location, sensitivity, and scale of the project component and the nature and magnitude of its potential environmental impacts (World Bank OP 4.01). The screening will also be used for determining the categorization in line with the ECR 97 and the Project Implementation Unit (PIU) will be responsible to ensure that necessary clearances are in place.

Checklists will be used to screen the components and activities of this project, based on expert judgment and FGD and KII with officials and field technicians from implementation agencies and communities living around the installation area, can give direction in using these screening tables. The checklist needs to be completed on the basis of the threshold values highlighted in safeguard policies of WB and environmental policies of GoB; which are: potential risks to natural habitats and forests, pollution risks including land, water and air, human health and occupational safety, land slope stability, and built artifact or heritage. Key potential negative impacts on the environment and local community will be screened during planning and implementation phases (ES report needs to be submitted with the grant request for component 1, and during the sight selection for component 2 and 3). Subprojects with medium and high impacts will need to develop and implement mitigation measures, monitoring programs, and adequate institutional capacity on safeguards and this will be used as the basis for preparation of EMPs for subprojects.

Based on the magnitude and implications of environmental issues and for management purpose, the subprojects are divided in to following three categories.

| | |
|--|------------|
| Subprojects or activities which have significant adverse environmental impacts that are sensitive, diverse, or unprecedented or will be implemented in environmentally important areas - including wetlands, forests, grasslands, and other natural habitats. Subprojects which will have irreversible health impacts. | Ineligible |
|--|------------|

| | |
|---|----------|
| Subprojects or activities which have minor potential negative environmental impacts. These impacts are site-specific; the impacts are reversible; and in most cases mitigation measures can be designed more readily since the activities require no land acquisition and have only generic construction and equipment installation activities. | Eligible |
| Subprojects or activities which are likely to have minimal or no adverse environmental impacts especially sub projects that do not have construction and equipment installation activities. | Eligible |

Subprojects or activities with any of the attributes listed below will be ineligible for support under the proposed project without prior approval from the World Bank:

- ◇ Subprojects or activities involving significant conversion or degradation of critical natural habitats;
- ◇ Subprojects or activities involving new or significant expansion of disposal facilities with negative health impacts to nearby water sources or population;
- ◇ Subprojects or activities involving new or significant expansion of disposal sites requiring involuntary public participation;
- ◇ Subprojects or activities in the leather sector which are not situated in designated industrial zones and not connected to Central Effluent Treatment Plant (CETP) or involve tanning of leathers
- ◇ Subprojects or activities included in the WB (IFC) exclusion list
- ◇ Red or A Category project like tannery, plastic industries will not be financed for new construction or large expansion. These type of industries can only be financed to improve technology, environmental due diligence, labor skill and labor health and safety standards.

Environmental Management Plan (EMP): A project's EMP consists of a set of mitigation, monitoring, and institutional measures to be taken during implementation and operation to eliminate adverse environmental and social impacts, offset them, or reduce them to acceptable levels. The plan also includes the actions needed to implement these measures. EMPs are essential elements of EIA reports for Category A projects; however, for many Category B projects, the EA may result in a management plan only. According to ECR 97, EMP is required for all Category red projects. Thus EMP is mandatory for activities (of sub component 1.2) which will be classified as Red based on screening matrix.

Analysis of Alternatives: Various alternatives need to be considered in siting and design of the project components in environmentally sensitive areas. The analysis of these alternatives should be based on the following considerations,

- ◇ With or without the project activities in environmentally sensitive areas;
- ◇ Analysis criteria to include environmental, technical/design and economic options;
- ◇ Subprojects or activities should be focussed on optimum locations and data and information should be based on primary data collection in upstream/ downstream region outside of environmentally sensitive areas combined with modelling activities and satellite information.

Environmental Code of Practice (ECoPs): ECoP will consist of routine systematic checking that all mitigations are effectively implemented during the relevant periods of the project. The following ECoPs will be considered for the project.

- ◇ Tree Plantation ECoP
- ◇ Pollution Prevention ECoP
- ◇ Waste Management ECoP
- ◇ Construction Management ECoP
- ◇ Health and safety ECoP
- ◇ Fire Safety ECoP
- ◇ Recycling ECoP
- ◇ Effluent Discharge ECoP

Stakeholder Consultations

Stakeholder consultations were carried out (i) at factory level in Gazipur and Dhaka and also (ii) at expert and institutional level in Department of Environment (DoE), Ministry of Commerce (MoC) and related industry associations in Dhaka. The consultations were carried out in a few rounds, factory level consultations took place in January 2017 and were carried out through FGDs in local areas using questionnaire interviews. The objectives of this round consultations were, (i) disclosure of project information to stakeholders; (ii) consultation with stakeholders on issues to include in the assessment, and (iii) participation of stakeholders in development of screening matrix and related impacts. A second round of consultations took place when the EMP was available in draft form and a presentation and open discussion session took place. The consultation took place on 16 February 2017. The objectives of this consultation were, (i) disclosure of the draft report contents, including the proposed EMP and ECoPs; (ii) consultation with stakeholders on the results of the assessment; and (iii) discussion of stakeholder participation in environmental management activities during construction and implementation. Around 15 people were consulted in the first round of consultations, while 28 participants registered for the consultation meeting that took place in February. In general the opinion and outlook towards the project objectives is positive. The general population and experts have shown an interest towards the activities and feel that the activities of the project will be beneficial for the environment and the nation. The Association representatives have shown concern that some of the capacity development activities focusing on the EMF will have duplications and should a part of the different training activities funded by the project. The participants recommended that some of the activities can be considered Red category as per ECR 97 and will need an EIA to receive environmental clearance. Most importantly, the participants agreed with the contents and recommendations of the EMF.

A one-to-one meeting was held with Director (Natural Resource Management), DoE on 19 February 2017. His observation is, since the project activities focus on working with the industrial sector to develop their capacities for environmental compliance, the project is timely and much needed to ensure sustainable development. Training and capacity development activities will not require environmental clearance, however, subprojects which require construction and equipment installations will require environmental assessment to determine the category under ECR 97 and subsequently further required documentation must be submitted for environmental clearance. He also suggested that production flow diagrams of each of the sub projects be analyzed for intervention points to ensure EQS compliance. He also suggested that the EMF can recommend designated personnel at firm or factory level from within existing manpower to ensure environmental and social concerns are adequately addressed.

Disclosure of Safeguard Instruments: All the activities of the project that is during planning and equipment installation will be disclosed locally in a timely manner, before approval of the activities (grant part of component 1 and construction of technology centre under component 2 and common facilities related infrastructure under component 3), in an accessible place and in a form and language understandable to key stakeholders. During disclosure the following information needs to be shared,

- ◇ Main objectives, activities and outcomes of the project;
- ◇ Any environmental impacts (positive and negative);
- ◇ Mitigation measures to be taken;
- ◇ Environmental Management Framework.

Implementation Arrangements

The Environmental Management Framework (EMF) implementation requires an organization support structure in the form of organizational requirements, training needs and plan, and information management system. The Government of Bangladesh (GoB) is responsible for overall project management and

coordination through its Ministry of Commerce (MoC). The purpose of project management is to ensure (i) Project Oversight and Policy Direction, (ii) Project Coordination and Management, and (iii) Project Implementation.

The PIU will consist of a Project Director, technical staff, a Procurement Specialist, a Financial Management Specialist, an Environmental Safeguards Specialist, a Social Safeguard Specialist and a Monitoring and Evaluation (M&E) Specialist. The PIU will rely on four point persons in each industry association for coordination purposes and a firm will be hired under international competitive bidding, with a performance clause, to boost the technical capacity of the PIU for its daily work. An important aspect of daily work will be to integrate and supervise key long-term technical contractors of the ERF (Export Readiness Fund) Manager (Component 1.2), the PIFIC (Public Investment Facility for Infrastructure Constraints) Manager (Component 3) and those under the technology center preparation phase (Component 2). The PIU will report at a minimum twice yearly to a Project Steering Committee (PSC) chaired by the Secretary of the MoC. The PIU will rely on two task-specific advisory boards for: (i) the ERF (i.e. the Grant Advisory Committee); and (ii) the Technology Center establishment process. The former will have representatives from GoB, civil society, academia/business schools and the Chamber of Commerce whereas the latter will largely constitute participants from industry associations and the private sector in addition to GoB. In addition to the PIU based environment specialist, i) environmental monitoring will be part of the consulting firm that will perform 400 ESQ firm-level assessments and advise on improvements, including on the ESQ; and (ii) the Export Readiness Fund (which will have ad hoc technical/environmental specialists advising on applications linked to environmental management and compliance)

Grievance redress

Grievances are issues, concerns, problems, or claims (perceived or actual) that individuals or community groups want to address and be resolved by the Project. The grievance mechanism is a locally based, project-specific extra-legal way to deal with and resolve complaints and grievances faster and thus enhance project performance standards in terms of environmental management. World Bank has specific clauses/guidelines requiring the borrower/client to set up and maintain a grievance redress mechanism at the Project level. This mechanism does not replace donors' accountability mechanism, but is intended to solve grievances at the local level. If aggrieved, it is expected that affected people will first approach the local grievance mechanism before taking the issue to other forum. The GRC system established in this project is expected to be effective in resolving grievances related to compensation and relocation aspects. All affected persons will have full and free access to GRCs. A decision agreed with the aggrieved party at any level of hearing will be binding on the PIU/business entity involved but will not limit the aggrieved party's right to seek legal redress.

Capacity Building, Training and Technical Assistance

The effectiveness of the Environmental Management Framework and implementation depends considerably on the understanding and preparedness of project staff and in particular their Environmental Team. It is important that the project authority to sensitize the team on management of environmental issues.

The various aspects that need to be covered under the capacity building will include general environmental awareness with focus on the following,

- ◇ Principles and policies for (natural) mitigation of environmental degradation;
- ◇ Legal and institutional aspects; project mandates;
- ◇ Probable environmental impacts from project;

- ◇ ECoPs suggested by the project, environmental compliance and overall awareness of environmental issues;
- ◇ The EMF consisting of the environmental designs and implementation plans; mitigation activities, monitoring, evaluation and reporting methods and mechanisms and, inter-sectoral and inter-agency collaboration, etc.

The following should be considered,

- ◇ Post-training utilization of the trainees and application of knowledge acquired during training activities should be ensured by the management of the agencies. Dependable follow-up measures and structural reformation need be in place to ensure sustainability and effective application.
- ◇ A pool of officers having aptitude, commitment, competence and adaptability need to be identified within each agency to act as trainers and retain the knowledge acquired.
- ◇ Encourage decentralization of the training services to ensure optimal utilization of facilities and resources in the regional offices.
- ◇ Incentives should be given to busy personal to attend the training courses by giving due importance during performance appraisal and career advancement.
- ◇ Mid and junior level officers should be given preference to ensure continuity.
- ◇ Where ever possible capacity building activities for EIA and environmental issues should held in tandem with other capacity building activities of the project

Environmental Management and Monitoring Cost

Most of the mitigation measures, such as management of construction activities are to be mainstreamed with the overall subproject (at preparation, implementation and operation phases). The budget for these mitigation measures is to be integrated in the overall subproject budget whether funded by private entrepreneurs or the PIU. Additional and specific budgets for implementing the EMF are required for: (a) staffing of the PIU with appropriate number of environmental specialists; (b) compliance monitoring by PIU staff; and (c) environmental audits.

The total budget for these activities is estimated at US\$225,000, as detailed in the EMF will be provisioned in the project budget.

Conclusions and Recommendations

- This EMF is a document which provides guidelines as to how the environmental safeguard issues can be addressed both in the project management level and for the sub-components that are yet to be identified specifically.
- While many of the activities of the EC4J project do not have any construction or installations and do not need any Environmental Clearance, some activities will provide grant-based incentives to finance advisory services and equipment that enable firms to identify and address ESQ compliance gaps and upgrade products and production processes.
- Some of the equipment include environmental monitoring equipment, end-of-pipe equipment upgrading, ICT systems, safety equipment, technical measurement equipment. Production of shoes and leather goods (capital up to 5 hundred thousand Taka), plastic & rubber goods (excluding PVC), agricultural machinery and equipment, Industrial machinery and equipment are considered to be Orange A.

- The Export Readiness Fund will cover projects which may include both services and fixed asset expenditures up to a maximum grant of US\$200,000. These activities will be categorised as Red per ECR 97.
- Component 2 Productivity Enhancement Program and Component 3 Public Investment Facility for Infrastructure Constraints: will require construction of technology upgrade centers/CFCs and associated access roads.
- ECR 97 also includes standards for air quality, odour, sound and waste from industrial units or projects. These standards may be enforced in a stringent manner if considered necessary in view of the environmental conditions of a particular situation.
- The proposed project has been classified as a category 'B' project, and one environmental safeguard policy 'Environmental Assessment policy (OP/BP 4.01)' has been triggered according to World Bank safeguard policy. In general, the project is not expected to have significant environmental impact due to the nature of investments. However, the project may finance some infrastructure and install some equipment.
- The PIU in the MOC is to start with no existing capacity on the management of environmental and social issues. The PIU has to build up institutional capacity to manage the project, including planning and implementation of actions to meet the environmental and safeguards requirements. At least one professional **full-time Environmental Safeguard Specialist** should be appointed early in the project implementation and environmental consultants should be procured as and when necessary.
- The Environmental Safeguard Specialist will be based in the PIU and be responsible for assisting the PIU on environmental screening of the sub-project proposals; and monitoring the implementation of the subprojects.
- The EMF identifies various environment related issues and recommends remedial measures. It is essential that these recommendations are implemented for making the EMF functional especially in building human resources in the sub-projects through appropriate training at all levels i.e., management, professional and technical. The Environmental monitoring, reporting and auditing recommended in the EMF document should be done at regular intervals as these are essential for successful implementation of the EMF. The PIU will share **a bi-annual (half yearly) environmental monitoring report with World Bank** which will include the environmental status of the project intervention.

List of Acronyms

| | |
|---------|---|
| BCCSAP | Bangladesh Climate Change Strategy and Action Plan |
| BDT | Bangladesh Taka |
| BEIOA | Bangladesh Engineering Industry Owners Association |
| BEPZA | Bangladesh Export Processing Zones Authority |
| BFLLFEA | Bangladesh Finished Leather, Leather Goods and Footwear Exporters Association |
| BITAC | Bangladesh Industrial and Technical Assistance Center |
| BPGMEA | Bangladesh Plastic Goods Manufacturers & Exporters Association |
| BIDA | Bangladesh Investment Development Authority |
| BOQ | Bill of Quantities |
| BSCIC | Bangladesh Small and Cottage industries Corporation |
| CETP | Common Effluent Treatment Plant |
| COEL | Centre of Excellence for Leather Skill Bangladesh Limited |
| DC | Deputy Commissioner |
| DG | Director General |
| DoE | Department of Environment |
| EA | Environmental Assessment |
| EC4J | Export Competitiveness for Jobs Project |
| ECA | Environmental Conservation Act |
| ECC | Environmental Clearance Certificate |
| ECoP | Environmental Code of Practice |
| ECR | Environment Conservation Rules |
| EHS | Environment Health and Safety |
| EIA | Environmental Impact Assessment |
| EMF | Environmental Management Framework |
| EMP | Environmental Management Plan |
| ESMP | Environmental and Social Management Plan |
| ESQ | Environmental, Social and Quality |
| ETP | Effluent Treatment Plant |
| FDI | Foreign Direct Investment |
| FGD | Focused group discussion |
| FY | Financial Year |
| GoB | Government of Bangladesh |
| IDA | International Development Association |
| IFC | International Finance Corporation |
| MoEF | Ministry of Environment and Forest |
| NAPA | National Adaptation Program of Action |
| NEMAP | National Environment Management Action Plan |
| NWP | National Water Policy |
| O&M | Operation and maintenance |
| OHAS | Occupational Health and Safety |
| PIU | Project Implementation Unit |
| PSC | Project Steering Committee |
| WB | World Bank |

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1. Introduction

1. The Government of Bangladesh (GoB) with support from World Bank has proposed to take up the Export Competitiveness for Jobs Project (EC4J) to maintain a growth trajectory in export performance; as raising export competitiveness is essential to transform the broader economy. Bangladesh's continued integration in trade and international production networks will play an important role in this process. The GoB has identified the four sectors i.e., (i) leather, (ii) footwear, (iii) plastics and (iv) light engineering sectors as high potential priority sectors. Exports of leather, leather goods and leather footwear are growing fast but value addition is impeded by lack of compliance with international standards for husbandry and slaughter practices, and especially inadequate technology, environmental degradation, and poor labor standards in the tannery sector. Its 6,200 firms employ nearly one million people of which a majority are women. Exports of footwear⁴ have doubled every four or five years for more than a decade and the sector has many similarities with the RMG sector in terms of strengths and weaknesses. The plastics and light engineering⁵ sectors produce essential intermediate products used in supply chains of many other sectors but the sectors are increasingly directly exporting their output. The plastics industry is made up of roughly 3,000 firms employing 600,000 workers whereas the electronics industry's 2,500 firms employ some 70,000 workers. In FY15, Bangladeshi exports from the four sectors were worth US\$1.6 billion.

2. The IDA approval of the loan is contingent upon the GOB's (PIU's) compliance to the WB environmental safeguards requirements. Hence, the PIU has undertaken to prepare an EMF (Environmental Management Framework) for the project to ensure the requirements and also for compliance of GOB (DOE) requirements for IEE and EIA. The project is likely to have a large number of sub-projects which are yet to be identified and the location of many subprojects are yet to be specified. In view of the limited information, a framework approach for environmental management has been adopted for the project. The Environmental Management Framework (EMF) for the project has been prepared in accordance with Environment Conservation Rules 1997 of Bangladesh and the Safeguard Policies of the World Bank. The EMF document will provide the broad framework for the environmental management in the sub-projects; while the investors will be responsible for preparing the sub-projects' IEE and EIA reports and proper implementation of Environmental Management Plan (EMP).

1.1. Background

3. The GoB requested support from the IDA in FY16 to promote export competitiveness and diversification by supporting the development of the four identified sectors (i.e., leather, footwear, plastics and light engineering) but many of the solutions will benefit other sectors. Important selection criteria were: (i) scope to create new jobs/labor intensity; (ii) perceived private interest and scope to generate more investment and export potential; and (iii) relevance and scope for project additionality. Leather and leather products, (leather and non-leather) footwear, plastics and light engineering are labor-intensive sectors that have demonstrated strong growth and growth potential. However, binding constraints in the targeted sectors are linked to issues of market access, skills shortages and weak institutions for technology upgrading, and infrastructure weaknesses. Adherence to various technical

⁴ Footwear is made up both leather and non-leather footwear. A majority of Bangladesh's exports of footwear is leather based. The literature, government policy documents, and industry associations do seldom distinguish between the two sub-categories. References to footwear in this PAD covers both sub-categories.

⁵ 'Light engineering' is loosely defined but frequently used in policy dialogue in Bangladesh and SAARC at large. The Cambridge Dictionary defines it as "small machines and equipment" but there is no authoritative definition. Bicycles is the largest sub-group exported under the light engineering heading in Bangladesh. In the context of this project, light engineering is a reference mainly to electronic and electrical products.

and process quality standards, testing and accreditation mechanisms, and social and environmental standards are increasingly essential to export leather, leather products, footwear, plastics and light engineering products. The identified sectors rely on skilled technical workers and increasingly on R&D, product development and process engineering developed in partnership with institutions of higher education. A strong small and medium sized enterprise (SME) cluster underpinning the leather, leather products, footwear and light engineering sectors is essential to raise competition and productivity. Natural entry barriers in terms of high costs of modern machinery shuts out many prospective entrepreneurs. But there are proven business models of shared centers for technology adoption and diffusion where initial public subsidies help the SME segment access modern technology, product development and training facilities. In addition, there are binding infrastructure constraints negatively affecting the development of some of the industrial clusters. Some of the functions, including training and accreditation institutes, are controlled by public institutions that lack competition or incentives to perform. There are also frequent coordination failures where market participants are poorly organized to effectively address issues of mutual interest, such as policy advocacy, articulation of demand for skills of labor, and agreeing on common criteria and needs for technology adoption.

4. The project will be structured around four components:
 - (v) Market Access Support Program,
 - (vi) Productivity Enhancement Program,
 - (vii) Public Investment Facility for Infrastructure Constraints; and
 - (viii) Project Implementation, Monitoring and Evaluation.

The development of these sectors is held back due to negative externalities due to lack of common effluent treatment plants (CETPs), and public goods, like access roads to industrial parks. The project will finance such infrastructure gaps (any kind of involvement with CETP is excluded within the project scope) which will directly or indirectly benefit other productive sectors beyond the four explicitly targeted here. Such investments will also have some environmental and social impacts.

5. Overall, the project is likely to have a positive impact on the environment compliance and monitoring once completed. Project interventions should contribute to reduce negative externalities by improving the use of cleaner and more efficient technology and production processes. However, some negative environmental impacts may occur during construction activities and installation of equipment such as environmental monitoring equipment, end-of-pipe equipment upgrading, ICT systems, safety equipment, technical measurement equipment in addition there may be impacts due to improper operation of facilities constructed. As a result, although an EMF is not required in the GoB national regulations, it is required for World Bank-financed projects in order to ensure compliance with the World Bank safeguard policies. The reason for adopting framework approach is that the subprojects nbto be funded under the project will be identified during project implementation phase. Consequently, an EMF which sets out guidelines and procedures so that proposed project components take into account environmental concerns has been prepared.

6. The specific measures for managing environmental impact of subprojects, including Environmental, Health and Safety (EHS) and Occupational Health and Safety (OHAS) issues, are presented in the EMF. Each subproject will be subject to Environmental Clearance by the Department of Environment (DOE) and the implementation cost of the EMP will be a part of the Bill of Quantities (BOQ). Adequate implementation of the EMF (especially environmental screening and periodic environmental audits) has been included as covenants in the project agreement. EMF implementation does not preclude Environmental Clearance by Department of Environment (DOE), GoB as per laws and rules (i.e. Environmental Conservation Act of 1995 and Environmental Conservation Rules of 1997) including their subsequent amendments.

1.2. Objectives

7. The objective for preparing the environment management framework(EMF) for fulfilling the requirement the GoB regulatory framework and WB safeguard policy. The framework approach has been adopted as a part of environment assessment(EA) since details of the sub-projects to be financed under the project will be selected during project implementation phase. The exact locations, technology, size and extent of the sub-project' will remain unknown during carrying out of the environmental assessment in preparation phase. The EMF will assist the EC4J project implementing agency (PIU) in the preparation of the project EMF with effective environmental tools based on lessons learnt from previous similar projects in Bangladesh and elsewhere. The EMF provides general policies, guidelines, codes of practice and procedures for the management of environmental issues to be integrated into the implementation of the project. In order to achieve the main objective, the specific objectives of the EMF are to:

- (i) identify all relevant potential environmental risks and social concerns that may arise as a result of the proposed Program and the projects that it will support;
- (ii) specify appropriate roles and responsibilities of involved agencies and parties;
- (iii) develop a screening and assessment methodology for potential projects, that will allow an environmental risk classification and the identification of appropriate safeguards instruments;
- (iv) develop environmental criteria for screening and prioritization within a portfolio of potential projects and activities;
- (v) outline the required procedures for managing and monitoring environmental risks related to the sub-projects;
- (vi) determine the training, capacity building and technical assistance needed to successfully and effectively develop and implement the required safeguards instruments for investments planned during the TA Program;
- (vii) establish the funding required to implement the EMF requirements; and
- (viii) provide practical information resources for implementing the EMF.

1.3. Approach

8. In order to prepare the EMF, the project has adopted the following approaches:

- Review of the project details;
- Interaction and discussions with the project implementing agencies and the design team;
- Review of the policy and regulatory requirements, international best practices;
- Field visit to each type of industry (leather, footwear, plastics and light engineering sectors) to collect baseline information;
- Collection and review of secondary data, reports and studies;
- Consultations with the stakeholders including beneficiary/affected communities;
- Development of screening matrix or checklist to identify potential impacts;
- Development of Environmental Management Framework (EMF);
- Exploration of institutional mechanisms for implementation of EMF.

9. The proposed EMF has been prepared following the standard methodology consisting of the steps listed in Figure 1.1,

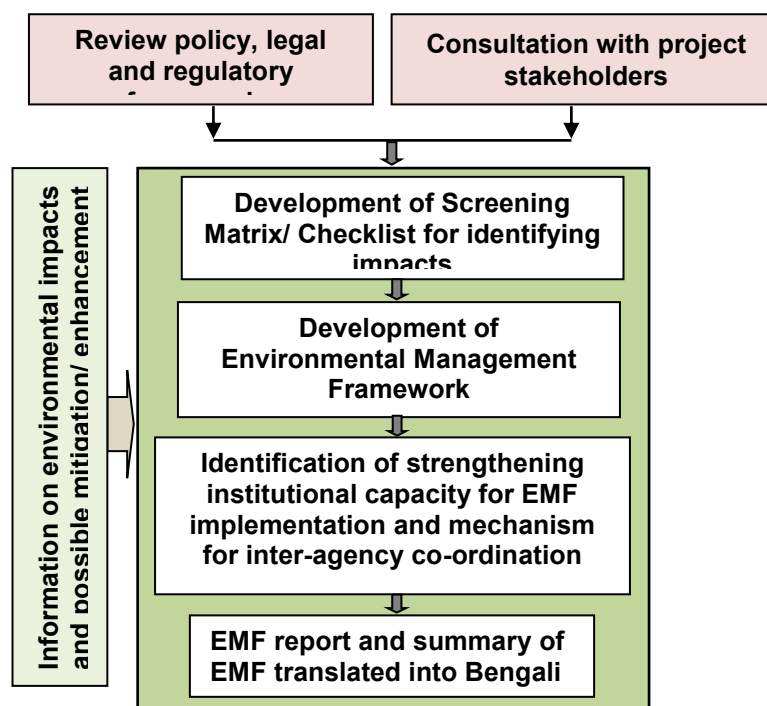


Figure 1.1: Approach of EMF

1.4. Organization of EMF

10. This EMF is organized with the following chapters:

- Chapter 1:* Project background, objectives, study methodology
- Chapter 2:* Description of the project and the proposed interventions and other salient information relevant for environmental assessment.
- Chapter 3:* The policy, legal and administrative framework. Environmental policy and legal requirement analysis: both Statutory and World Bank Group's and implications on the proposed project.
- Chapter 4:* Baseline information, checklist of information to be collected.
- Chapter 5:* Potential Project Impacts and Mitigation Measures. An overview of environmental issues related to project components. The assessment includes environmental implications due to the project components and mitigation measures
- Chapter 6:* Procedures for Review, Clearance, and Implementation of Subproject Safeguard Instruments. Includes Safeguard Screening and Impact Assessment, Development of Component Documentation, Review, Approval, and Disclosure of Subproject Safeguards Instruments, Grievance Redress Mechanism, Implementation, Supervision, Monitoring, and Reporting
- Chapter 7:* Stakeholder Consultation and disclosure mechanism
- Chapter 8:* Implementation Arrangements for implementation of the EMF
- Chapter 9:* Grievance Redress Mechanism
- Chapter 10:* Capacity Building, Training, and Technical Assistance
- Chapter 11:* Environmental and Monitoring Cost

Chapter 12: Conclusions and Recommendations

2. Overview of the Project

11. The Government of Bangladesh (GoB) with support from World Bank has proposed to take up the project to maintain a growth trajectory in export performance; as raising export competitiveness is essential to transform the broader economy. Bangladesh's continued integration in trade and international production networks will play an important role in this process. The GoB has identified the following four as high potential priority sectors:

- (i) leather,
- (ii) footwear,
- (iii) plastics and
- (iv) light engineering sectors.

12. The identified sectors currently employ largely poor, low-skilled workers and demonstrate great potential for stronger backward linkages and increased domestic value addition. The Bangladeshi plastics and light engineering sectors are successful in certain international niche markets. Both sectors are also essential providers of inputs in the value chains of other export-oriented sectors in Bangladesh. For example, the plastics industry provides inputs to the RMG, footwear, furniture, toys, and luggage product sectors. Up to 90 percent of the exported production of plastics is 'deemed exports'—i.e. for every \$1 in direct exports there is up to \$9 in indirect exports. There is strong anecdotal evidence that multinationals are assessing Bangladesh as the next frontier for large investment in these sectors.

13. Binding constraints in the targeted sectors are linked to issues of market access, skills shortages and weak institutions for technology upgrading, and infrastructure weaknesses. Adherence to various technical and process quality standards, testing and accreditation mechanisms, and social and environmental standards are increasingly essential to export leather, leather products, footwear, plastics and light engineering products.

2.1. Project Objectives

14. The proposed Project Development Objective (PDO) the project is to contribute to export diversification and more and better jobs in targeted sectors.

15. The Project will support in particular the leather, footwear, light engineering/electronics and plastics sectors, which are important pillars of Bangladesh's industry and prominent in direct and deemed exports. These target sectors are also key to Bangladesh's objective of diversifying its export basket in the coming years and some of them are intermediate inputs in many other sectors.

16. The objectives related to each of the four main components are:

- **Component 1: Market Access Support Program:** to support achievement and accreditation of national, international, and buyer-specific standards, with respect to environmental, social, safety and quality practices.
- **Component 2: Productivity Enhancement Program:** to strengthen skills formation and training in targeted niche areas relevant to the target sectors and improve production processes through technology adoption and diffusion.

- **Component 3: Public Investment Facility for Infrastructure Constraints:** to support feasibility studies and gap-filling capital investments to facilitate clusters in becoming more competitive and fulfill safeguards requirements.
- **Component 4: Project Implementation, Monitoring and Evaluation:** for safeguards management and monitoring and evaluation will also include financing for capacity building of key implementing partners.

2.2. Project Description

17. The proposed project would address constraints to growth mainly in the four identified sectors (i.e., leather, footwear, plastics and light engineering) but many of the solutions will benefit other sectors. The proposed intermediate results indicators are selected to monitor progress towards achieving the PDO, including the number of firm-specific compliance assessments, the investment crowded in through the Export Readiness Fund, the number of Technology Centers (TC) in operation.

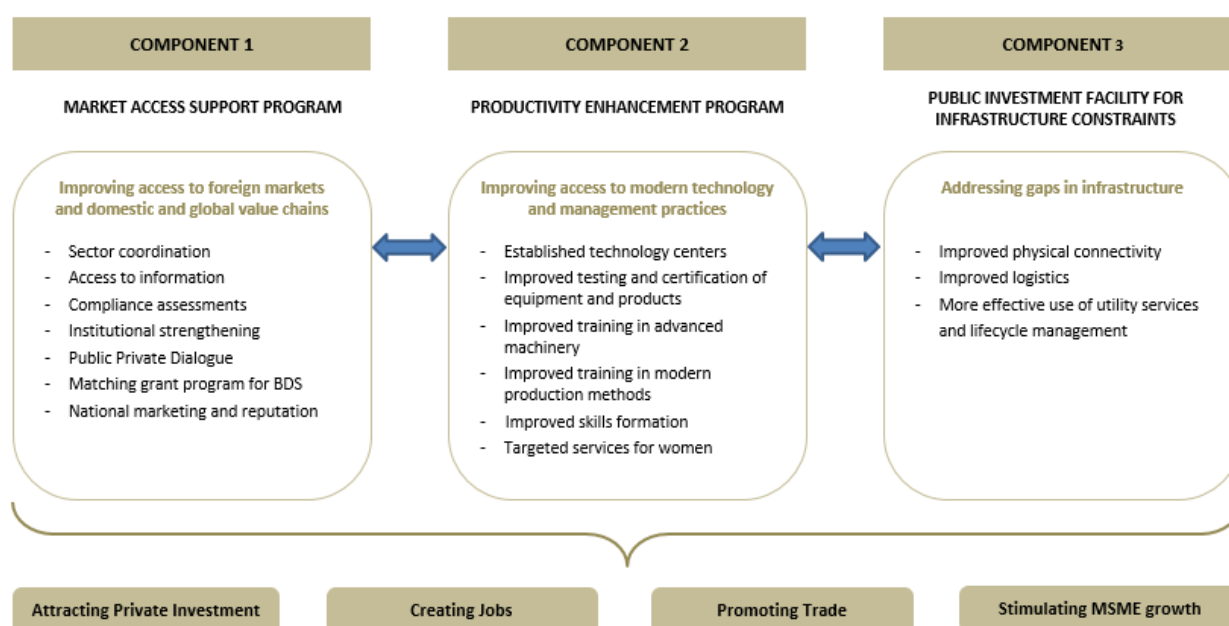


Figure 2.1: Project Structure

18. The design of this project is based on the recognition that the identified sectors rely on skilled technical workers and increasingly on R&D, product development and process engineering developed in partnership with institutions of higher education. A strong small and medium sized enterprise (SME) cluster underpinning the leather, leather products, footwear and light engineering sectors is essential to raise competition and productivity. A natural entry barrier in terms of high costs of modern machinery shuts out many prospective entrepreneurs. But there are proven business models of shared centers for technology adoption and diffusion where initial public subsidies help the SME segment access modern technology, product development and training facilities. In addition, there are binding infrastructure constraints negatively affecting the development of some of the industrial clusters.

Component 1: Market Access Support Program

19. The first component will address critical constraints for the private sector to access international markets and integrate in global value chains (GVCs). Access to markets and GVCs is increasingly dependent on firms' ability to adhere to international and firm-specific quality standards and

accreditations in addition to national rules and regulations. Multinationals of branded goods insist that suppliers incorporate social and environmental sustainability measures in their production and supply chains. It may involve an accreditation process that ensures that certification practices are acceptable and supported by third parties. Conformity assessment may be used to determine that a process or product meets specific technical standards and requirements. In Bangladesh, many firms struggle to gain market access because of weak institutional capacity among local accreditation agencies and conformity assessment bodies; incomplete information; and coordination failures in many emerging export sectors. Some industry associations identified these issues as serious constraints for their members. This component will thus target its interventions to build capacity of public and/or public-private institutions as well as to directly support private firms in their efforts to obtain information and comply with existing requirements. It will seek to identify and promote voluntary private solutions that reduce the risk of regulatory capture.

Subcomponent 1.1: Sector-level ESQ awareness and readiness (US\$7m)

20. This subcomponent will finance TA, training and equipment to build knowledge around, and capacity to maintain, ESQ standards across each priority sector. These activities will primarily be led by the private sector through industry associations, and with close coordination with GoB. Specific activities to be financed under this subcomponent include:

21. **Sector-specific action plans:** preparation of targeted action plans for each of the priority sectors to address salient aspects of compliance & quality parameters, in tandem with effective institutional mechanisms for standardization and certification frameworks. This set of activities will also include capacity building of industry associations to strengthen their ability to plan and execute the agenda on export oriented industry compliance requirements, including provision of some equipment and software to perform their roles effectively, technical support and training, and facilities to participate in public private dialogue.
22. **Firm-level ESQ compliance assessments:** voluntary technical assessments at the firm-level to identify gaps and actions required to improve compliance with ESQ standards, including broader firm and management capabilities for meeting and maintaining compliance. These assessments will be carried out under the leadership of industry associations with the help of accredited technical consultants. These assessments will be relatively standardized and action-oriented with clear guidance on the steps/initiatives and investments the firm would need to take in order to meet industry compliance requirements.⁶ It is expected that at least 400 firms would undertake a compliance assessment, where a number of women owned and managed firms will be selected based on their interest.
23. **Industry-wide training and awareness raising:** regular sector-level workshops and seminars, offering both basic and specialized technical training, designed to raise awareness on ESQ standards (the cost and benefits of compliance, technical requirements, and the steps required and resources available to firms and supply chains to upgrade and achieve certification for ESQ standards) as well as more general production and process related training. In addition to ensuring participation of women in these activities, specialized awareness and training will be designed and delivered to address specific constraints faced by women-in-business to improve compliance and technical capabilities. These activities would be carried out both prior to and following on for the development of the sector action plans and be carried out with industry associations, technical consultants, and domestic and international institutes of learning.

⁶ In the World Bank Group's PaCT program, a partnership supporting cleaner production in the RMG sector, firms were charged US\$3,000-US\$6,000, depending on firm size, for a factory assessment. The planned ESQ compliance assessments would be somewhat more comprehensive and larger firms would be required to contribute to the cost of the work.

24. **Provision of ESQ reference material:** development and dissemination of regularly updated ESQ information at the sector level, widely available and regularly updated in both hardcopy and online format, in Bangla and English, and including the development of compliance handbooks that is directly relevant for the micro entrepreneur to the large producer.

Subcomponent 1.2 Export Readiness Fund (\$10m)

25. This subcomponent will provide grant-based incentives to finance advisory services and equipment that enable firms to identify and address ESQ compliance gaps and upgrade products and production processes as required by large buyers/brands and laws and regulations in major export markets. The Export Readiness Fund (ERF) will provide grants on a matching basis to address ESQ constraints in the leather, footwear, plastics and light engineering sectors. The Fund will be designed as a catalytic, risk-sharing instrument that aims to address market failures by mobilizing investment in priority industries that would not otherwise come forward because of uncertainty about the expected benefits. There is substantial evidence of market failures in the Bangladesh export sector that leads to underinvestment and retards the diversification of exports. With regard to the finance market, properly targeted and scaled grants can have a beneficial effect by crowding-in rather than crowding-out private investment. The Fund is expected to assist the targeted industries by supporting investment through both business/technical services and limited essential complementary equipment that would help firms identify and address compliance gaps and upgrade the quality of products and production processes.

26. The assessment of the size and adequacy of the grant fund is based partly on the findings of a number of reports and analyses of export priorities in Bangladesh.⁷ The predicted export priorities will be complemented by a detailed analysis of specific export markets at the time project proposals are prepared. An ongoing enterprise survey of 2,000 targeted firms will also provide more detailed insights on the scale and nature of the demand and this information will be available already at the bidding stage for the Fund Management firm. The Fund will pay particular attention to the needs of women-owned businesses to improve ESQ compliance, which will better connect them with export markets. Stimulating demand for BDS within ESQ compliance will also strengthen domestic services supply in the longer term, which will benefit firms that later enter the market but cannot avail of any particular grants.

27. The matching grant facility will include three separate categories enabling firms to apply for funding to carry out one or more of the investments, outlined below. Funding for all three categories will require substantial matching from recipient firms. Firms will be incentivized (and may be required) to undertake certification or to invest in advisory services on quality management⁸. As such, there are close links across the categories and firms will not be prevented from accessing funding support across all categories provided that the proposed subprojects require distinct assistance inputs.⁹ Firms that participate in the ESQ compliance assessments may have a natural advantage in the application process if their participation is well motivated. Details of specific co-financing requirements and incentives will be developed.

- a) **Compliance-related capital investments:** This category will support investments identified from the firm-level ESQ compliance assessments¹⁰ as being critical to achieving ESQ compliance, including equipment, systems, and facilities. Examples include environmental monitoring equipment, end-of-pipe equipment upgrading, ICT systems, safety equipment,

⁷ For example, a comprehensive PricewaterhouseCoopers (January 2017) report listed the four industries selected for the ERF as top priorities for Bangladesh based on the Rodrik/Hausmann industrial sector selection model.

⁸ This may reduce the level of matching required for a capital investment or provide an output-linked rebate.

⁹ An applicant cannot get funding from the different windows for two identical proposals

¹⁰ While applicants will not be required to have undertaken a firm-level assessment financed under this program, preference will be given to quality proposals that have come from firms that have done the assessment. All applicants will be required to show that identified investments are motivated in an objective assessment process.

technical measurement equipment, etc. A minimum size threshold will be set to avoid excessive transaction costs for the Fund per US\$ granted.

- **Certifications:** This category will provide catalytic financing to address the market failure resulting from lack of information on the need for or likely benefits of certification for products and/or processes (e.g. ISO-level certifications, see Table 2 for a comprehensive outline) to enable them to tap into new markets. These grants will aim to promote new markets by targeting certifications for which there is not yet a well-established private market in Bangladesh. Individual grants will be relatively small (a ceiling will be established) and will be designed to be quick disbursing. Project may facilitating 'ISO 14001-2004 (Environmental Management Standard) and OHSAS 18001:1999 (Occupational Health & Safety Management Systems) certifications for some enterprises based on their compliance on environment management.
- b) **Quality management:** This category will address the wider associated information failure by supporting investments in advisory services to improve managerial capabilities and/or to implement quality management practices in the firm (e.g. Kaizen) and efficient export practices. Under this window, groups of firms will also be encouraged to apply for funding for jointly delivered advisory support.

28. The Fund will be administered over the initial course of 42 months. Final subproject selection criteria will be based on a minimum (threshold) economic rate of return and a series of attributable socio-economic net benefits including: (i) total job creation (and female employment); (ii) private co-investment mobilized; (iii) potential increase in exports, including indirect exports; (iv) introduction of new products and processes; and (v) compliance/environmental benefit (wastage reduced/quality standards achieved).

29. The Fund will operate two windows to which entrepreneurs and business owners can submit grant proposals:

30. **The Small Grant window** will cover mainly services with a grant limit of US\$40,000. The average grant size would be roughly US\$15,000 and the grant-to-private contribution ratio would be approximately 60:40. These smaller grants will be fast tracked and thereby require less stringent administrative burden. Given women owned businesses are mostly SMEs in these target sectors, this grant window will support a number of such firms to help access the fund to improve ESQ requirements.
31. **The Large Grant window** will cover projects which may include both services and fixed asset expenditures up to a maximum grant of US\$200,000. The expected average grant size would be US\$110,000 and the grant-to-private contribution ratio would be approximately 50:50. These larger grants will be subject to a full due diligence process and require significant contributions to the core project indicators.

32. There will be closed calls for proposals under each window to allow a relatively simple management process while also introducing a form of 'business plan competition' to provide evaluation and selection benchmarks, and award ceremonies hosted by the Grant Advisory Committee (GAC) members chaired by the MoC, which promote the Fund. An additional 'open window' may also be employed if appropriate. Red or A Category project like tannery, plastic industries will not be financed for new construction or large expansion. These type of project only be financed to improve technology, environmental due diligence, labor skill and labor health and safety standards.

33. ERF will be managed by a fund management company (the 'Fund Manager') with a proven track record of successfully managing similar funds in other countries. It will be recruited through internationally competitive bidding. A GAC consisting of senior officials, civil society, academia, the Chamber of Commerce and other relevant Business Membership Organizations representing the private sector will have an advisory role reviewing the short-lists and confirming those sub-projects that

are assessed as meeting the stated objectives of the Fund. A comprehensive monitoring and evaluation (M&E) system will be put in place and managed by the ERF to provide data for performance assessment, ongoing monitoring, and a future impact assessment that would be conducted by the WBG through an independent source.

Subcomponent 1.3: Market development and ESQ branding (\$3m)

34. This subcomponent will finance TA and training to help overcome some of the market access constraints faced by Bangladeshi exporters as a result of reputational issues linked to ESQ compliance. It is intended to support and complement the *de facto* improvements in compliance that will result from implementation of the activities under subcomponents 1.1 and 1.2 in addition to Component 2. Activities financed under this subcomponent will be targeted and limited in scope to address mainly sector-specific compliance and quality-linked branding and market development efforts.¹¹ The activities will include:

- a) **Capacity building:** capacity building of industry associations and relevant government agencies to support quality and compliance-led market development, including support for specialized market development resources and building capabilities for hosting trade shows and other events targeting international producers/investors and buyers.
- b) **Market development:** co-financing for the sectors to host annual trade fairs and participate in up to three annual trade fairs or exhibitions in major foreign markets. The sectors may also contract in-market presence of trade agents to develop supply chain opportunities with key markets and buyers on performance-based contracts.
- c) **Branding and marketing:** sector-level efforts to promote compliance with ESQ standards as part of branding and marketing propositions targeting selected markets and international buyers.

Component 2: Productivity Enhancement Program (US\$34m)

35. The second component will address two sets of constraints related to productivity improvements in the targeted sectors: (i) a shortage of relevant skills; and (ii) use of inferior technology by firms, which both impede product quality, innovation and ESQ compliance. Raising labor productivity through improvements in skills formation and training is essential to strengthen export competitiveness, and by extension raising labor income. Bangladesh's most productive RMG factories have shown the way but the leather, footwear, light engineering and plastics sectors have some way to go to catch up both upstream and downstream in existing value chains. Roundtable discussions organized in 2016 with industry associations and their members highlight: (i) skills formation and training; and (ii) technology adoption and diffusion as crucial areas to raise productivity.

36. **Technology Centers:** Greater technology adoption and diffusion is essential to raise productivity in Bangladesh's emerging export industries. Access to shared production technology and shared services will allow firms to buy vital production technology (e.g. specialty machinery, advanced tools, dyes, etc.) and obtain testing on material inputs and finished products—none of which are currently available locally. It will also allow firms to utilize common machinery for designs, mold making, casting and prototyping where it is not economical for them to purchase this equipment themselves due to economy of scale constraints. It will also allow firms to obtain training for both management and staff, and receive onsite business advisory services to ensure that they maximize the absorption of the new technologies and training. The lack of technology and services was repeatedly highlighted as a critical

¹¹ Broader support for national-level export promotion, including country-level branding, is being financed through the Bangladesh Investment Climate Fund 2, which the Task Team is jointly leading through a BETF.

disadvantage to the local leather, footwear and light engineering micro, small and medium-sized enterprises (MSMEs) in roundtable discussions. The establishment of technology centers are widely considered the appropriate model for meeting these needs and the focus of the Technology Centers will to the extent possible be focused on function rather than industry—all in order to maximize the economic and social gains. A public incentive is motivated by significant entry barriers linked to the need for large upfront capital investment in machinery, plant and operating staff; persistent coordination failures within individual sectors that have inhibited the development of active markets for these technology services; and the industry-specific public goods associated with the centers.

37. This sub-component will finance technical assistance, equipment and works to establish three or four technology centers within proximity to existing production clusters of MSMEs. The sub-component will also finance training and some operating expenditures during the initial years of operation as these new institutions get up and running and start to generate revenue on a cost-recovery basis. The preparatory phase—from planning to construction—will take up to an estimated four years to complete so the centers will be operational during the last two years of the project. The process could potentially be faster for a technology center focusing on testing and certification services since these types of services require less heavy equipment and machinery and could thus be housed in existing buildings.

38. The delivery of the activities will be sequenced as follows. First, ongoing work to produce an enterprise survey of 2,000 firms in the four target sectors and a pre-feasibility study for technology centers are scheduled to be delivered by April, 2017. Initial conclusions of the pre-feasibility study have been informing the proposed design of this component. Second, a firm will be hired to produce a full-scale feasibility study for the three or four proposed centers and the contract should be negotiated and ready for sign-off by the time of Project effectiveness. This work will build on the proposed business models and institutional arrangements proposed in the pre-feasibility study and: (i) provide detailed and final arrangements for each center; and (ii) provide transaction advisory services to the GoB in the work to identify institutional partners to operate the Technology Centers. Third, an engineering design firm will be hired to provide detailed architectural drawings for the construction of the centers, and the associated infrastructure and connections to utility services and access roads/pavements to surrounding neighborhoods. In parallel, a cluster technology partner will be hired to work jointly with the industry associations, the engineering design firm and local technical colleges to prepare the specifications for new equipment, develop initial curricula and courses, including gender-sensitive recommendations, and provide training and mobilization of trainers. Fourth, and finally, contractors will be hired to deliver the works and installation of the equipment packages. Depending on the final choice of locations—and thus the size of land available—the works will likely involve the construction of some dorm facilities for course participants as well as accommodation for key staff of the Technology Centers, as in other countries, in addition to parking and canteen facilities within the perimeters of the centers.

39. Before the Technology Centers are operational, there will be need for skills enhancement in specific areas for effective delivery of interventions. Since the Technology Centers are expected to take up to four years to complete, this component will engage existing training institutions to provide services based on a needs assessment of specific areas of skills requirements. The component will finance the provision of such training activities related to skills enhancement through the development of course modules, training-of-trainers, etc. Some of these technical colleges could eventually become close partners of the Technology Centers. Training activities will also support gender sensitization and awareness raising at factories and training institutes with specific training modules developed not only for female workers but also for the development of female managers, where applicable.

COMPONENT 3: PUBLIC INVESTMENT FACILITY FOR INFRASTRUCTURE CONSTRAINTS (US\$44m)

40. The third component will finance technical assistance, equipment and works. A Public Investment Facility for Infrastructure Constraints (PIFIC, or the 'Facility')—a temporary vehicle—will be established by the Project Implementation Unit (PIU) to address infrastructure constraints negatively affecting the development of leather, footwear, plastics and electrical/electronic industrial clusters. The Facility will act as a filtering, prioritization and selection mechanism for proposals to address industry-specific infrastructure constraints and provide the required engineering expertise to design and prepare the bidding documents for (mainly) works contracts. It will generate public benefits by addressing infrastructure underinvestment caused by coordination failures, benefiting groups of firms. The underinvestment also stems from lack of information within individual businesses about urgent quality and environmental requirements for growth of production and exports. The investments would be of a balancing and gap filling nature designed to help mobilize commercial funding through sharing risk. The management of the Facility will be a competitively hired firm which will provide the management and engineering design services under a performance-based contract.

41. The Facility will have three windows for provision of assistance. The **first window** will be dedicated to connecting the new Technology Centers with utility services and access roads. The land parcels dedicated for the Technology Centers will be located in semi-urban areas or locations within proximity of industrial parks where infrastructure likely is inadequate. The **second window** will be for less extensive works—provisionally US\$0.5-2.0 million per subproject—which will be processed on a fast track basis. This will likely cover mainly existing clusters of MSMEs—with more focus on the micro and small entrepreneurs—that tend to group in sometimes very large numbers and often operate as semi-formal entities occupying the “middle” of the supply chain. The **third window** will be for more complex works—provisionally US\$2.0-10.0 million per subproject—which will face a rigorous appraisal process. The resources available to the PIFIC will fund approximately 15-20 infrastructure works projects with indicative allocations of US\$10 million for the first window, US\$10 million for the second window, and US\$20 million for the third window.

42. The MoC in collaboration with the industry associations have solicited a number of potential infrastructure projects that the firm hired to manage the Facility will have as a starting point. These include off-site **public infrastructure facilities, upgrading of access roads and new connecting bridges** for the Savar leather cluster to facilitate transportation of workers, raw materials and support services; upgrading of access roads and other facilities to upgrade access roads to engineering clusters (e.g. in Keranigonj and Munshigonj); local infrastructure facilities for product lifecycle management and recycling; storage/warehouse facilities for leather preservation, etc. Some of these projects will not be feasible from a safeguards perspective and all projects will strictly follow the ESMF to adhere to the Category B safeguards rating. Any major infrastructure works that would have a particularly positive contribution to the objectives of the project but require more intrusive interventions could possibly be prepared under an upgraded safeguards category through a restructuring at the Mid-Term of the project. Importantly, the Facility will be encouraged to seek out subprojects that address critical infrastructure constraints faced by women workers/students in the clusters.

43. The Facility will be active over up to 54 months and the management services fee for the Facility is expected to be US\$3-4 million. It will take an estimated six months to recruit the consulting firm that will manage the Facility and the Facility should be exhausted within five years of Board approval. The Facility manager will be responsible for pipeline development, assistance to project preparation, selection of projects, assistance agreements, and the preparation of bidding documents. The consulting firm recruited will be required to have a permanent local presence and to act as a semi-autonomous extension of the PIU—responding to PIU guidance and decisions. Besides overseeing the contract for the service provider of the Facility, the PIU will be in charge of procurement and contracting of all works, including for the supervision firm monitoring the delivery of the works. Once the Facility provides the final bidding documents it will have completed its assignment and its management firm fulfilled its contractual obligations. There will thus be an incentive for the firm to deliver the services in an expedient

manner with full commitment of the available resources within the time of their contract which may be an initial 30 months long and include an automatic extension of 24 months upon satisfactory performance.

COMPONENT 4: PROJECT IMPLEMENTATION, MONITORING & EVALUATION (US\$4.5m)

44. The fourth component will finance equipment, operating expenses, training and consulting services of the PIU to allow for a strong team to manage day-to-day operations, including technical, fiduciary, safeguards, M&E and impact evaluation commitments. It will be staffed with qualified and experienced personnel, to manage, coordinate and monitor the project activities, including staff from the MoC, seconded staff from other government ministries and agencies, and external consultants. Capacity building of implementing partners will be an integral part of the PIU. The Project Director will be in charge of overall project implementation and ensuring environmental safeguard of the project activities. A full time environmental safeguard specialist will be in the PIU for the entire project period.

2.3. Project Boundaries

45. The components and activities of the project will be implemented all over Bangladesh. The equipment installations will be in established factories, thus the project area of each of the installations will be limited to the walled premises. Air quality needs to be monitored within the premises. However, in case, of effluent discharge, nearby water bodies (within 1km radius) will be a part of the monitoring activities. The land parcels dedicated for the Technology Centers (this will include access roads) will be located in semi-urban areas or locations within proximity of industrial parks where infrastructure likely is inadequate. Preliminary findings and recommendations from the ongoing prefeasibility study work indicate that promising candidates and locations for the technology centers are: (i) within proximity of Dhaka with a focus on light/general engineering; (ii) within proximity of Dhaka with a focus on testing services for electrical and electronics goods; (iii) within proximity of Chittagong with a focus on light/general engineering/plastics; and (iv) within proximity of Savar with focus on footwear and leather goods.

3. Policy, Legal and Administrative Framework

46. This section identifies the relevant legislative, regulatory and policy requirements of the government of Bangladesh for the project. That is the applicable national laws, decrees, circulars, decisions, and national technical regulations and standards and also that sector specific regulations on environment. Also summarized in this section are the World Bank environmental and social safeguard policies. Furthermore, the implications of these policies on the project have been discussed and reviewed.

3.1. Environmental Conservation Act (1995) and Amendments

3.1.1. Bangladesh Environment Conservation Act (ECA), 1995

47. The Environmental Conservation Act (ECA) of 1995, with amendments in 2000, 2002 and 2010, is the main legislative framework relating to environmental protection in Bangladesh. This umbrella Act addresses conservation of the environment, improvement of environmental standards, and control and mitigation of environmental pollution. It replaced the earlier Environment Pollution Control Ordinance of 1977, now repealed. This Act has 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 and 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.

48. The main strategies of ECA '95 can be summarized as:

- Declaration of ecologically critical areas and restriction on the operations and processes, which can or cannot be carried out/initiated in the ecologically critical areas;
- Regulations in respect of vehicles emitting smoke harmful for the environment;
- Environmental clearance;
- Regulation of the industries and other development activities' discharge permits;
- Promulgation of standards for quality of air, water, noise and soil for different areas for different purposes;
- Promulgation of a standard limit for discharging and emitting waste; and
- Formulation and declaration of environmental guidelines.

Nationally Designated Ecologically Critical Areas

49. Ecologically Critical Areas are those having significant value in their natural state, or having socio-cultural significance or sensitivity. Ecologically Critical Areas can be defined as areas that may contain unique features, cultural or historical sites, maintain key natural processes, support endangered, endemic or threatened plant or animal species and their habitats, or provide important breeding areas for wildlife. If the Government is satisfied that the ecosystem of an area is in an environmentally critical situation or is threatened to be in such situation, the Government may, by notification in the official Gazette declare such area as an Ecologically Critical Area. Activities that may degrade the environment further are prohibited in the declared Ecologically Critical Areas by the Amendment of Environmental Conservation Act 1995 dated 5 October 2010. A list of Ecologically Critical Areas has been declared by the government.

Terrestrial and Marine Protected Areas

50. Protected areas are the building blocks of virtually all national and international conservation strategies, supported by governments and international institutions. These areas protect the world's threatened species and are essential providers of ecosystem services and biological resources. There

are currently 47 protected areas in Bangladesh designated under ECA 1995 (Amended 2002). There is a law Bangladesh Wild Life (Preservation) Act, 1974 under which wild life sanctuaries are protected.

51. The terrestrial protected areas are totally or partially protected areas of at least 1,000 hectares that are designated by national authorities as scientific reserves with limited public access, national parks, natural monuments, nature reserves or wildlife sanctuaries, protected landscapes, and areas managed mainly for sustainable use.

52. Marine protected areas are areas of intertidal or subtidal terrain - and overlying water and associated flora and fauna and historical and cultural features - that have been reserved by law or other effective means to protect part or the entire enclosed environment. Some of the sites are owned and managed by governments, while others by managed private individuals, companies, communities and other groups.

53. A schedule attached to the Environment Conservation Rules 1997 categorizes projects as Green, Orange A, Orange B, and Red, and identifies for each category the level of environmental impact assessment required and other clearance application procedures and information. An appeal procedure is available for proponents who fail to obtain clearance. Failure to comply with any part of this Act may result in punishment to a maximum of three years imprisonment or a maximum fine of BDT 300,000 or both. The Department of Environment (DOE) executes the Act under the leadership of the DG.¹²

54. Bangladesh Environment Conservation Act (ECA), (Amendments) 2000: This amendment focuses on

- ascertaining responsibility for compensation in cases of damage to ecosystems;
- increased provision of punitive measures, both fines and imprisonment; and
- fixing authority on cognizance of offences.

55. Bangladesh Environment Conservation Act (ECA), (Amendments) 2002: The 2002 Amendment of the ECA elaborates on the following parts of the Act:

- restrictions on polluting automobiles;
- restrictions on the sale and production of environmentally harmful items like polythene bags;
- assistance from law enforcement agencies for environmental actions; (iv) punitive measures; and
- authority for trials of environmental cases.

56. Bangladesh Environment Conservation Act (ECA), (Amendments) 2010: The ECA 1995 was amended in 2010, which provided clarification of defining wetlands as well as Ecologically Critical Areas and included many important environmental concerns such as conservation of wetlands, hill cutting, ship breaking, and hazardous waste disposal. This amendment empowered the government to enforce more penalties than before. Moreover, affected persons were given provision for putting objections or taking legal actions against the polluters or any entity creating nuisance to affected person.

Bangladesh Environment Conservation Rules, 1997

57. 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),

¹²Government of Bangladesh. 1995. "The Bangladesh Environment Conservation Act, Act No. 1 of 1995" http://www.moef.gov.bd/html/laws/env_law/153-166.pdf

1995. These Rules defined categories of industries and projects and the types of environmental assessments each requires. There have been three amendments to these Rules, in February and August 2002, and in April 2003.

58. Under these Rules, the following aspects, among others, are covered:

- Declaration of ecologically critical areas
- Classification of industries and projects into four categories
- Procedures for issuing the Environmental Clearance Certificate (ECC)
- Determination of environmental standards.

59. According to Rule 7 of this Act, for the purpose of issuance of Environmental Clearance Certificate, the industrial units and projects shall, in consideration of their site and impact on the environment, be classified into the following four categories:-

- (a) Green;
- (b) Orange – A;
- (c) Orange – B; and
- (d) Red.

60. All existing industrial units and projects and proposed industrial units and projects, that are considered to be low polluting, such as, assembling and manufacturing of TV, Radio, etc, assembling and manufacturing of clocks and watches, assembling and manufacturing of toys (plastic made items excluded) are categorized under "Green" and shall be granted Environmental Clearance. Production of shoes and leather goods (capital up to 5 hundred thousand Taka), plastic & rubber goods (excluding PVC), agricultural machinery and equipment, Industrial machinery and equipment are considered to be Orange A, whereas, plastic products, engineering works (up to 10 hundred thousand Taka capital) and construction, re-construction and extension of road (feeder road, local road) are Orange B category. Tanneries are however red category and requires an Environmental Impact Assessment report along with other necessary documents.

61. 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 (provided later in this chapter) together with the prescribed fees laid down in Schedule 13, through the deposit of a Treasury Chalan in favor of the Director General. Rule 8 prescribes the duration of validity of such certificate (3 years for green category and 1year for other categories) and compulsory requirement renewal of certificate at least 30 days before expiry of its validity.

62. ECR '97 also includes standards for air quality (Schedule 2), sound (Schedule 4) odour (Schedule 8), wastes from industrial units or projects wastes (Schedule 10) and Sector-wise Industrial Effluent or Emission (Schedule 12).

Bangladesh Environment Court Act, 2010

63. Bangladesh Environment Court Act, 2010 has been enacted to resolve the disputes and establishing justice over environmental and social damage raised due to any development activities. This act allows government to take necessary legal action against any parties who creates environmental hazards/ damage to environmentally sensitive areas as well as human society. An Environment Court is to be constituted with one judge and, in consultation with the Supreme Court, the Government shall appoint an officer of the judicial service of the rank of Joint District Judge, and such Judge shall dispose of cases only under environmental laws. An Environment Court shall be competent

to impose penalty for offences under any other environmental law, to confiscate an equipment or part thereof, a transport used in the commission of such offence or an article or other thing involved with the offence. For the purposes of conducting an inspection of any matter or investigation of an offence under an environmental law, or when directed by the Director General or the Environment Court for assessing compensation under this Act, an Inspector may, at any reasonable time, enter any place, search into, or seize anything or collect sample from, or inspect, that place.

64. The Act requires that factory must ensure adequate fire safety measures, appropriate means of escaping in case of fire, and protection against dangerous and accident-prone parts of machinery, electric and mechanical devices, self-acting machines, etc. Workers are to be given proper training before they are employed on dangerous machines. Controlling appliances of cranes and other lifting machines, hoists and lifts must be of good construction, sound material and adequate strength. Other sources of dangers, such as pits, sumps, openings in floors etc., should be securely covered or fenced and effective screens or suitable goggles should be provided to workers to protect their eyes. Every factory is to have adequate and suitable facilities for washing and bathing and provide first-aid medicines and appliances.

b. Environmental Policies, Strategies and Plans

National Conservation Strategy, 1992

65. National Conservation Strategy (NCS) was drafted in late 1991 and submitted to the Government in early 1992. This was approved in principle. However the final approval of the document is yet to be made by the government.

National Environmental Policy, 1992

66. Bangladesh National Environmental Policy of 1992 is one of the key policy documents of the Government and sets out the basic framework for environmental action. The Environment Policy delineates the Department of Environment (DoE) as the approving agency for all such IEE/EIA's to be undertaken in the country. The policy addresses 15 sectors in all, in addition to providing directives on the legal framework and institutional arrangements. Marine environment and also science and technology are two of the key sectors covered in this policy.

67. The policy recognizes that, for immediate and long term solution of the problems concerning natural disaster, it is necessary that the issues are considered as an integral part of the overall program for protection and improvement of environment and sustainable resource management.

National Environmental Management Action Plan (NEMAP), 1995

68. The National Environmental Management Action Plan (NEMAP) is a wide ranging and multi-faceted plan, which builds on and extends the statements set out in the National Environmental Policy. NEMAP was developed to address issues and management requirements for the period 1995 to 2005 and set out the framework within which the recommendations of the National Conservation Strategy are to be implemented. NEMAP has the following broad objectives:

- Identification of key environmental issues affecting Bangladesh;
- Identification of actions necessary to halt or reduce rate of environmental degradation;
- Improvement of the natural and built environment;
- Conservation of habitats and biodiversity;
- Promotion of sustainable development; and
- Improvement in the quality of life of the people.

69. The plan also recommends the development of capabilities of different hazard forecasting and enhancement of coordination between different government agencies and also a comprehensive database for water resources systems.

Bangladesh Climate Change Strategy and Action Plan (BCCSAP), 2009

70. The Bangladesh Climate Change Strategy and Action Plan 2009 is built on the following six pillars:

- Food security, social protection and health to ensure that the poorest and most vulnerable in society, including women and children, are protected from climate change and that all programs focus on the needs of this group for food security, safe housing, employment and access to basic services including health;
- Comprehensive disaster management to further strengthen the country's already proven disaster management system to deal with increasingly frequent and severe natural calamities;
- Infrastructure to ensure that existing assets are well maintained and fit-for-purpose and that urgently needed infrastructure is put in place to deal with the likely impact of climate change;
- Research and knowledge management to predict the likely scale and timing of climate change impacts on different sectors of the economy and socio-economic groups, to underpin future investment strategies and to ensure that Bangladesh is networked with the latest global thinking on science and best practices of climate change management;
- Mitigation and low carbon development to ensure low carbon development options and implement these as the country's economy grows over the coming decades and the demand for energy increases; and
- Capacity building and institutional strengthening to enhance the capacity of government ministries and agency, civil society and the private sector to meet the challenges of climate change and mainstream them as part of development action.

Coastal Zone Policy, 2005

71. The Coastal Zone Policy was initiated as a harmonized policy that transcends beyond sectoral perspectives. The policy provides general guidance so that the coastal people can pursue their livelihoods under secured conditions in a sustainable manner without impairing the integrity of the natural environment. The policy framework underscores sustainable management of natural resources with emphasis on conservation and enhancement of critical ecosystem- necessary measures will be taken to conserve and develop aquatic and terrestrial including all the ecosystems of importance identified by the Bangladesh National Conservation Strategy. The strategy recommends that steps be taken to support upgrading of technology and institutional strengthening for enhancing capacity to generate better data and more accurate long-term prediction and risk related to climate change. An Integrated Coastal Resources Database (ICRD) was also set up.

Coastal Development Strategy, 2006

72. Coastal Development Strategy is based on the Coastal Zone Policy has been approved by the Inter-Ministerial Steering Committee on Integrated Coastal Zone Management Plan (ICZMP) Project in 2006. The strategy takes into account the emerging trends: increasing urbanization, changing pattern of land use, declining land and water resources, unemployment and visible climate change impacts.

National 3R Strategy for Waste Management, 2010

73. The Department of Environment finalised this strategy in 2010 with the aim to reduce and manage environmental, social and economic impacts associated with disposal of waste. The strategy

is based on principles of well-established environmental management and service rendering norms and in line with key strategies and policies of Bangladesh such as PRSP, National Sanitation Policy and Strategy, Industrial Policy, Agricultural Policy, Renewable Energy Policy as well CDM Strategy. While the national 3R goal for waste management is to achieve higher levels of waste reduction, reuse, and recycling and minimizing waste disposal on open dumps, rivers, flood plains and landfills by 2015 may seem ambitious and the challenges ahead may be multifaceted, there have been number of positive experiences in the recent past which provides useful lessons to build upon. According to the strategy the recycling of e-waste is required to be regulated due to presence of hazardous constituents in the components of waste electrical and electronic assemblies and recommends that the government should encourage e-waste recycling projects under public-private partnership mode. The National 3R Strategy broadly guides the relevant institutions e.g. local government bodies, industries, NGOs, trade bodies such as chamber of commerce and industries agencies to develop their own action plans for achieving National 3R goal in their respective areas.

c. Other Relevant Acts, Policies and Rules

Bangladesh Factories Act (1965)

74. This Act pertains to the occupational rights and safety of factory workers and the provision of a comfortable work environment and reasonable working conditions. The Act provides for inspection of factories and regulates matters related to hygiene, ventilation, overcrowding, night work, safety, dangerous machinery, leave, overtime, canteens, and child care facilities. This act covers most of the provisions in the WB EHS guidelines.

75. The Act prohibits employment of children under the age of 14 years in factories. Children over the age of 14 shall be registered and subject to provisions regarding hours of work. Factories Act 1965 (originally East Pakistan Factories Act 1965) was adopted by Government of with the objective of regulating the appointment of workers, their wages and the working conditions in factories, including health and hygiene, safety, welfare, working hours, leave and holidays, and punishments and penalties for both the owners and workers for non-compliance of the requirements. The Act has 11 chapters and 116 main sections. The Act defines and clarifies various terms included such as adolescent, adult, child, day, explosive substance, factory, machinery, manufacturing process, occupier, prime mover, shift in factory, transmission machinery, working hour, and wages. It incorporates the provisions for obtaining approval of factory plans, including the construction or extension, class or description of factories from the chief inspector. According to the Act, every factory is to be maintained clean and free from effluents arising from any drain, privy or other nuisance. Effective arrangements are to be made in every factory for the disposal of wastes and effluents, prevention of accumulation of dust and fume, and proper ventilation and maintenance of room temperature.

National Information and Communication Technology (ICT) Policy, 2002

76. This Policy aims encourage in building an ICT-driven nation comprising of knowledge-based society. The policy focuses on development of a country-wide ICT-infrastructure to ensure access to information which will facilitate empowerment of people and enhance democratic values and norms for sustainable economic development. The infrastructure will be used for human resources development, governance, e-commerce, banking, public utility services and all sorts of on-line ICT-enabled services. Proper initiatives will be taken to utilize ICT systems in agro-based industries, agricultural research, and dissemination of agricultural technology, agri-business development to the farmers and preparation and maintenance of agricultural database. The policy also recommends that ICT be used to build capacity to fight against environmental degradation.

Bangladesh Economic Zone Act, 2010

77. The Act prepared based on the decision of cabinet meeting dated in 2000 and finally passed as Bangladesh Economic Zones Act, 2010. It is an act to make provisions for establishment of economic zones in all potential areas including back ward and underdeveloped regions and development, operation, management and control there of including the matters ancillary thereto with a view to encouraging rapid economic development through increase and diversification of industry, employment, production and export. It has included the establishment of economic zone, act to override other law, site selection and declaration, land acquisition, category and special tariff for divided of economic zone, permit of banking activities, allotment of land, duties and function of authority, function of governing body and the executive board, Budget and fund of the authority, compliance to laws connected with environment, applicability of laws on workers welfare association and industrial relations, special rights, power to make regulations and removal of difficulties.

Bangladesh Industrial Policy, 2010

78. Industrial Policy 2010 aims at achieving the Millennium Development Goals (MDGs) and, above all, reducing unemployment and the proportion of the population afflicted by poverty and hunger to less than a half by 2017 through the adoption of short, medium and long term programmers that help build a modern and vibrant industrial sector. Achieving the recently announced Digital Bangladesh goal by 2021, and creating employment opportunity for at least one person from each household in order to reduce poverty and unemployment loom large among the central policy objectives of the government. The country till now has gone through 10 policies: Industrial Investment Policy, 1973. New Industrial Investment Policy, 1974. Revised Investment Policy, December 1975. New Industrial Policy (NIP), June 1982. Revised Industrial Policy (RIP), July 1986. Industrial Policy, July 1991. Industrial Policy, 1999. Industrial Policy 2005 (IP 2005). Industrial Policy 2009 Industrial Policy 2010.

Bangladesh Labour Act, 2006

79. The Bangladesh Labour Act (2006) consolidates and amend the laws relating to employment of labour, relations between workers and employers, determination of minimum wage, payment of wages and compensation for injuries to workers, formation of trade unions, raising and settlement of industrial disputes, health, safety, welfare and working conditions of workers, and apprenticeship and matters ancillary thereto. This Act pertains to the occupational rights and safety of factory workers and the provision of a comfortable work environment and reasonable working conditions. Safety precaution regarding explosive or inflammable dust/ gas, protection of eyes, protection against fire, works with cranes and other lifting machinery, lifting of excessive weights as well as provision safety measure like as appliances of first aid , maintenance of safety record book, rooms for children, housing facilities, medical care, group insurance etc. are illustrated in the Act.

Bangladesh Labour Rules 2015

80. Bangladesh government has introduced the Bangladesh Labour Rules 2015 on September 15, 2015 through a gazette. The Rules prescribed the process and forms for the registration of manpower supply agencies under the Labour Act. Under the Labour Act, an appointment letter must be issued for hiring any labour. The Labour Rules makes it mandatory that the appointment letter must contain certain information such as salary, other financial benefits, applicable rules etc. The Rules also provide a detail guideline on health and fire safety.

Bangladesh National Building Code (2006)

81. The basic purpose of this code is to establish minimum standards for design, construction, quality of materials, use and occupancy, location and maintenance of all buildings within Bangladesh in order to safeguard, within achievable limits, life, limb, health, property and public welfare. 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. The BNBC also stipulates 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 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”. 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 of specified standard.

Bangladesh National Building Code, 2015 (Draft)

82. The Bangladesh National Building Code (BNBC) has been further updated and all buildings and structures will be designed and constructed in conformance with BNBC 2015. The code describes the design and construction of the buildings through the use of building concepts having a positive environmental impacts and encourage sustainable construction practices, allowing efficiency and conservation of energy, water and building materials, and to promote resource efficiency. Energy efficiency and sustainability is not an individual issue rather an integrated and inseparable part of the building design and construction process. The code prescribes that buildings having a height more than 33m shall be constructed with non-combustible materials. The fire resistance ratings of various building components shall conform to American Society for Testing and Materials (ASTM) standards. Regulations for safeguards for life and property in the use or occupancy of buildings or premises from the hazards of smoke and fire and explosions are given which include general requirements of fire protection, pre cautionary requirements, means of egress, equipment and in-build facilities standard installations required for firefighting and firefighting arrangements required for various occupancy groups. The code stipulates installation of fire detection and firefighting equipment fixed currently or localized or portable and their arrangement in the building. Three design scenarios and Fire protection plan has been included in this Code to reduce the probability of fire incident and probability of injury or death from fire, structural failure due to fire and safety of building use.

National Water Policy, 1999

83. The National Water Policy, 1999, lays down the broad principles of development of water resources and their rational utilisation under these constraints. It conforms to internationally accepted principles of integrated water resources management, such as laid down in the Dublin-Rio statements. It aims to guide both public and private sector actions for ensuring optimal development and management of water that benefits both individuals and the society at large. Policy indications regarding such issues as overall basin-wide planning, water rights and allocation, public and private involvement, public investment, water supply and sanitation, fisheries, navigation, agriculture, industry and environment are incorporated in the Policy.

84. The Policy emphasises the need to give full consideration to environmental protection, restoration and enhancement measures consistent with National Environmental Management Action Plan (NEMAP) and the National Water Management Plan (NWMP). To address issues related to harnessing and development of groundwater and the general management of water resources in an efficient and equitable manner the policy highlights the need to develop a state of knowledge and capability that will enable the country to design future water resources management through broad public participation.

85. The National Water Act issued in 2013, is based on the National Water Policy, and provides the legal framework for development, management, extraction, distribution, usage, protection, and conservation of water resources in Bangladesh. As per this Act, all forms of water (e.g., surface water, ground water, sea water, rain water and atmospheric water) within the territory of Bangladesh belong

to the government on behalf of the people. Without prior permission issued by the Executive Committee, no individuals or organizations will be allowed to extract, distribute, use, develop, protect, and conserve water resources, nor they will be allowed to build any structure that impede the natural flow of rivers and creeks. Act recognizes the significance for managing all forms of water resources in the context of natural flow of surface water and recharge of groundwater.

d. Implication of Government Policies in the Project

140. Sub component Export Readiness Fund (sub component 1.2) will provide grant-based incentives to finance advisory services and equipment that enable firms to identify and address ESQ compliance gaps and upgrade products and production processes. Some of the equipment include environmental monitoring equipment, end-of-pipe equipment upgrading, ICT systems, safety equipment, technical measurement equipment and at the end the financing is linked to augmented production. Production of shoes and leather goods (capital up to 5 hundred thousand Taka), plastic & rubber goods (excluding PVC), agricultural machinery and equipment, Industrial machinery and equipment are considered to be Orange A. The Export Readiness Fund will cover projects which may include both services and fixed asset expenditures up to a maximum grant of US\$200,000. These activities will be categorised as Red per ECR 97. Red category project will be excluded from the investment. These type of industries or subprojects will only be financed to improve technology, environmental due diligence, labor skill and labor health and safety standards. However, in accordance of the nature of the subproject and the classification of DoE (Green, Orange A, Orange B) the required Environmental Clearance of the respective subproject will need to be obtained before commencement of any physical work.

141. The Environmental Conservation Act (ECA) '95 and Environmental Conservation Rules (ECR) 97 gives clear directions for environmental assessment needs and contains the procedures for obtaining Environmental Clearance Certificates from the Department of Environment for different types of proposed units or projects. A schedule attached to the Environment Conservation Rules 1997 categorizes projects as Green, Orange A, Orange B, and Red.

142. Procedure for obtaining Environmental Clearance related to the EC4J activities includes the following:

- (i) report on the feasibility of the industrial unit or project (applicable only for proposed industrial unit or project);
- (ii) report on the Initial Environmental Examination (IEE) relating to the industrial unit or project, and also the terms of reference for the Impact Assessment of the unit or the project and its Process Flow Diagram;
OR Environmental Impact Assessment report prepared on the basis of terms of reference previously approved by the Department of Environment, along with the Layout Plan (showing location of Effluent Treatment Plant), Process Flow Diagram, design and time schedule of the Effluent Treatment Plant of the unit or project, (these are applicable only for a proposed industrial unit or project);
- (iii) report on the Environmental Management Plan (EMP) for the industrial unit or project, and also the Process Flow Diagram, Layout Plan (showing location of Effluent Treatment Plant), design and information about the effectiveness of the Effluent Treatment Plan of the unit or project (these are applicable only for an existing industrial unit or project);
- (iv) no objection certificate of the local authority;
- (v) emergency plan relating adverse environmental impact and plan for mitigation of the effect of pollution;
- (vi) outline of relocation, rehabilitation plan (where applicable);

- (vii) other necessary information (where applicable);

143. Component 2 Productivity Enhancement Program and Component 3 Public Investment Facility for Infrastructure Constraints: will require construction of technology upgrade centers/CFCs and associated access roads. These activities will be categorized as Orange B as per ECR 97. Procedure for obtaining Environmental Clearance includes the following:

- (i) Application through prescribed form-3 under Environment Conservation Rules 1997
- (ii) Prescribed fees under schedule-13 under Environment Conservation Rules 1997 (Amended 2002)
- (iii) Report on the feasibility of the industrial unit or project (applicable only for proposed industrial unit or project);
- (iv) Report on the Initial Environmental Examination of the industrial unit or project, and also the process flow diagram, Layout Plan (showing location of Effluent Treatment Plant), design of the Effluent Treatment Plant (ETP) of the unit or project (these are applicable only for a proposed industrial unit or project);
- (v) Report on the Environmental Management Plan (EMP) for the industrial unit or project, and also the Process Flow Diagram, Layout Plan (showing location of Effluent Treatment Plant), design of the Effluent Treatment Plant and information about the effectiveness of the ETP of the unit or project, (these are applicable only for an existing industrial unit or project);
- (vi) No objection certificate (Prescribed Form) from the local authority;
- (vii) Emergency plan relating adverse environmental impact and plan for mitigation of the effect of pollution;
- (viii) Outline of the relocation, rehabilitation plan (where applicable);
- (ix) Other necessary information (where applicable).

144. If an application is made under sub-rule (5) of ECR 97 along with the relevant documents specified in sub-rule (6) of ECR 97, then in the case of an Orange- A Category industrial unit or project, within thirty days of the receipt of the application, and in the case of an Orange-B or Red Category industrial unit or project, within sixty days of the receipt of the application, a Location Clearance Certificate shall be issued or the application shall be rejected mentioning appropriate reasons for such rejection.

145. ECR 97 also includes standards for air quality, odour, sound and waste from industrial units or projects. These standards shall be applicable to all sub projects or activities other than those specified under the heading “Standards for sector-wise industrial effluent or emission.” Compliance with these standards shall be ensured from the moment a sub project starts operation. These standards shall be inviolable even in case of any sample collected instantly at any point of time. These standards may be enforced in a more stringent manner if considered necessary in view of the environmental conditions of a particular situation.

146. Since there will be construction activities, all construction will be done as per Bangladesh National Building Code, 2006. The BNBC also stipulates the general duties of the employer to the public as well as workers and sets out the details about the different safety tools of specified standard. These standards will be incorporated in the Environmental Code of Practice (ECoP) and waste management plan of the project. The directives given in the Bangladesh Factory Act (1965), Bangladesh Labour Act (2006), Bangladesh Labour Rules (2015) and Bangladesh National Building Code (2015) regarding health and safety of workers and general requirements and pre cautionary requirements of fire protection will have to be followed. Where applicable, all infrastructures to be financed by the project must obtain fire license from relevant authority.

147. The technology upgrade centers/CFCs will house modern manufacturing equipment and processes and the project will fund installation of equipment that needs to be disposed of properly after equipment becomes unusable or damaged. The National 3R Strategy for Waste Management gives directions for the management of solid waste and e-waste, and the waste management plan of the project will take the strategy into account.

148. It is also important to highlight that the Seventh Five Year Plan (2015-20120) focusses on creating jobs and lifting the growth rate and emphasizes on developing vocational knowledge-based human resources, bring dynamism in public-private investment, and diversify products to boost export. Hence, this project actually supports GoB in the implementation of goals, strategies, policies and plans required for the socio-economic development of the country.

e. World Bank's Environmental Safeguard Policy

149. The World Bank has developed a number of Safeguard Operation Policies to ensure that all possible impacts are considered and mitigation measures are spelled out prior to the implementation of any proposed project. These policies ensure that the quality of operations is uniform across different settings worldwide. If the decision is taken that a Safeguard Policy should be applied, mitigation measures and plans must be developed and in place before the implementation of a proposed project.

150. The Bank requires environmental screening and classification for all investment projects² (including ones financed by Trust Funds, Project Preparation Facilities and Guarantees) proposed for Bank financing, to help ensure that they are environmentally and socially sound and sustainable. Screening and classification take into account the natural environment (air, water, and land); human health and safety; social aspects (involuntary resettlement, Indigenous Peoples); cultural property; and transboundary and global environmental aspects.

151. The objectives of environmental screening and classification are: to evaluate the environmental risks associated with a proposed operation; to determine the depth and breadth of Environmental Assessment (EA); and to recommend an appropriate choice of EA instrument(s) suitable for a given project. The Bank recognizes that environmental screening and classification is not absolute and involves professional judgment on a case by case basis. When screening, careful consideration needs to be given to potential environmental impacts and risks associated with the proposed project. Judgment is exercised with reference to the policy expectations and guidance; real impacts on the ground; and established regional and Bank-wide precedence and good practice.

OP 4.01 Environmental Assessment

152. The World 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.

153. The World 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 mitigation 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.

OP 4.04: Natural Habitats

154. The policy describes the conservation of natural habitats, like other measures that protect and enhance the environment, is essential for long-term sustainable development. The Bank therefore supports the protection, maintenance, and rehabilitation of natural habitats and their functions in its economic and sector work, project financing, and policy dialogue. The Bank also supports, and expects borrowers to apply, a precautionary approach to natural resource management to ensure opportunities for environmentally sustainable development. The Bank- promotes and- supports natural habitat conservation and improved land use by financing projects designed to integrate into national and regional development the conservation of natural habitats and the maintenance of ecological functions. Furthermore, the Bank promotes the rehabilitation of degraded natural habitats. The Bank does not support projects that involve the significant conversion or degradation of critical natural habitats.

OP 4.09 – Pest Management

155. Through this OP, the WB supports a strategy that promotes use of biological or environmental control methods and reduces reliance on synthetic chemical pesticides. Rural development and health sector projects have to avoid using harmful pesticides. Other pesticides can be used, but only as an element of an Integrated Pest Management Plan (IPMP) that emphasizes environmental and biological controls.

OP 4.11 - Physical Cultural Resources

156. This policy addresses physical cultural resources,¹ which are defined as movable or immovable objects, sites, structures, groups of structures, and natural features and landscapes that have archaeological, paleontological, historical, architectural, religious, aesthetic, or other cultural significance. Physical cultural resources may be located in urban or rural settings, and may be above or below ground, or under water. Their cultural interest may be at the local, provincial or national level, or within the international community. Physical cultural resources are important as sources of valuable scientific and historical information, as assets for economic and social development, and as integral parts of a people's cultural identity and practices.

OP 4.37 - Safety of Dams

157. The Policy seeks to ensure that appropriate measures are taken and sufficient resources provided for the safety of dams the WB finances. However this OP is not relevant since the proposed Project does not involve construction of dams. This policy discusses measures to be taken for the construction of a new dam, or projects that rely on the performance of an existing dam or a dam under construction (DUC): for example power stations or water supply systems that draw directly from a reservoir controlled by an existing dam or a DUC. The policy also recommends, where appropriate, as part of policy dialogue with the country, Bank staff discuss any measures necessary to strengthen the institutional, legislative, and regulatory frame-works for dam safety programs in the country.

Environmental, Health, and Safety General Guidelines

158. The Environmental, Health, and Safety (EHS) Guidelines of the World Bank Group are technical reference documents with general and industry-specific examples of Good International Industry Practice. The EHS Guidelines contain the performance levels and measures that are generally considered to be achievable in new facilities by existing technology at reasonable costs. Application of the EHS Guidelines to existing facilities may involve the establishment of site-specific targets, with an appropriate timetable for achieving them. The applicability of the EHS Guidelines should be tailored to the hazards and risks established for each project on the basis of the results of an environmental assessment in which site-specific variables, such as host country context, assimilative capacity of the environment, and other project factors, are taken into account.

f. Implication of World Bank Environmental Safeguard Policies

159. In general, the project is not expected to have significant environmental impact due to the nature of investments. However, the project will finance some infrastructure such as buildings and roads. Special attention needs to be taken during site selection and installation of the equipment and associated facility, if any. Under this consideration, the proposed project has been classified as a category 'B' project, and only the Environmental Assessment policy (OP/BP 4.01) has been triggered. In order to address the policy, a framework approach has been adopted since the subprojects to be funded under the project are not known at this stage. The activities to be supported under the project will go through environmental screening process. The project is a Category "B" project.

160. Application of two other environmental safeguard policies - Natural Habitats (OP/BP 4.04) and OP 4.11 - Physical Cultural Resources – was considered during the project concept stage. However, the general assessment carried out during the project preparation confirmed that these policies will not be applicable for the project. The project will not have the potential to cause conversion of habitat and impair associated ecological functions. This is because the implementation will be limited to built-up areas. However, the EMF has provision of screening of these impacts at subproject levels and will have suggested mitigation measures, if required. The triggered World Bank safeguard policies are presented below:

| Safeguard Policies | Triggered? | Explanation (Optional) |
|-------------------------------------|------------|---|
| Environmental Assessment OP/BP 4.01 | Yes | The PIFIC will finance small-scale construction activities and procurement of equipment which may cause environmental impact due to construction and existing equipment disposal. The project will also finance upgrading of technology and production processes to improve ESQ standards for the development of the leather, footwear, plastics and light engineering sectors, which could involve detrimental side-effects of polluting production processes due to improper operation. The activities involved are not expected to cause any significant negative or irreversible changes in the environment during the implementation or operation stage. The project will only support activities which can be managed through the implementation of an Environmental Management Plan (EMP). An Environmental Management Framework (EMF) approach is adopted because the project consists of |

| | | |
|--|-----|---|
| | | subprojects spread throughout the country for which exact sites are yet to be identified. |
| Natural Habitats OP/ BP 4.04 | No | |
| Forests OP/BP 4.36 | No | |
| Pest Management OP 4.09 | No | |
| Physical Cultural Resources OP/BP 4.11 | No | |
| Indigenous Peoples OP/BP 4.10 | Yes | The locations for the technology centers and PIFIC are not determined at this stage. These may be set up in areas where IPs may live; IP students and workers may be beneficiaries of the project. The project will screen for these possibilities. Nevertheless, a Small Ethnic, Tribal and other Vulnerable Peoples Framework (SETVPF) has been prepared and will be disclosed before appraisal in accordance with Bank rules. If and when the screening process reveals potential impacts on IPs, site specific plans will be prepared on the basis of the SETVPF, disclosed and implemented. |
| Involuntary Resettlement OP/BP 4.12 | Yes | There will be subprojects developed throughout the country and the actual footprint and exact site(s) of any subproject requiring land acquisition has yet to be identified. Three – four Technology Centers, PIFIC will be established. After exploring other options, there may be a possibility that the project may have to resort to land acquisition for the establishment of the centers and associated infrastructure (access roads etc.). There may be squatters and/or ongoing livelihood activities on private lands (in case of direct purchase) or public lands. A Social Management Framework (SMF) and Resettlement Policy Framework (RPF) has been prepared which provides specific measures for managing social impact of subprojects including developing Resettlement Action Plans (RAPs). Any subproject site that requires land acquisition or displaces people, induces adverse livelihood impacts will be subject to the preparation of these plans, clearance by the World Bank, and subsequent disclosure. |
| Safety of Dams OP/ BP 4.37 | No | |

| | | |
|--|----|--|
| Projects on International Waterways OP/BP 7.50 | No | |
| Projects in Disputed Areas OP/BP 7.60 | No | |

161. The Environmental, Health, and Safety (EHS) Guidelines of the World Bank Group and Occupational Health and Safety (OHAS) practices of International Labour Organisation (ILO) will be applied in the construction and operational activities of the project. The Environmental Code of Practice (ECoP) and waste management plan for the project will take the EHS guidelines into account. **However, a screening of each sub-project should be carried out to examine the risk of labor influx, current labour and working conditions and practices of the firm. The appropriate mitigation measure shall be taken accordingly.**

162. In addition to the above environmental safeguard policies, the project will follow the access to information policy. According to World Bank's approach to the disclosure of information, transparency and sharing of knowledge, the public will have access to a broad range of information about project in preparation and implementation. The EMF, Social Assessment, Social Action Plan and RAP were disclosed on Ministry of Commerce website and also sent to World Bank operational portal. Consultations have been held at community level and civil society level. The EMF will be translated in Bangla and placed in both English and Bangla on Ministry of Commerce website and also in relevant offices in the project area.

4. Guideline of Baseline Environment Information Collection

163. As mentioned earlier, the components and activities of the project will be implemented all over Bangladesh. However, component activities and locations are yet to be finalized. As result it is not possible to prepare any project specific environmental baseline. Alternatively, the EMF includes the generic environmental baseline for relevant component type and guideline for collection of information and data. The baseline information can be used in the screening matrix given in chapter 5 to identify and monitor probable impacts and identify mitigation measures.

164. Preliminary findings and recommendations from the ongoing prefeasibility study work indicate that promising candidates and locations for the technology centers are:

- (i) within proximity of Dhaka with a focus on light/general engineering;
- (ii) within proximity of Dhaka with a focus on testing services for electrical and electronics goods;
- (iii) within proximity of Chittagong with a focus on light/general engineering/plastics; and
- (iv) within proximity of Savar with focus on footwear and leather goods.

165. Source of Raw Materials used by the Enterprises

| Sector | Raw materials | Source | | | Products /Services |
|--------------------|--|--------|----------|------|--|
| | | Local | Imported | Both | |
| Leather & Footwear | Rexin, solution, sole, rubber, elastic, thread, gum, chemical, animal skin, colour etc | 80 | 9 | 1 | Tanning(will not be supported)Gents shoes, ladies shoes, baby shoes, sandal shoes, slippers etc. |
| Plastic | Plastic, steel etc | 11 | 1 | | Mugs, bowls, Buckles, Bodna, home appliances, plastic goods producing moulds etc. |
| Light Engineering | SS pipe steel, iron, scrap, CI pipe, aluminium, copper, lead colour etc | 40 | 33 | 67 | Door and window grills, frames, collapsible gate, iron and steel furniture, motor parts, engine repair, pump, machine tools, agricultural equipment, automobile boy building, repairing and colouring, ship breaking (will not be supported), etc. |

166. **Status of DoE Clearance:** SME Foundation conducted a study on total of 380 small and medium enterprises in March, 2013. ¹³The study shows that only 18% feels that DoE's clearance is needed for the SME sectors. The Table 2.1 shows that 73% of the respondent who understands the importance of DoE clearance reported to collect the DoE clearance. The 18% who feels the need of DoE clearance but did not collect, mentioned the following reasons (i) lack of knowledge on how to collect (ii) financial constraints.

Table 2.1: Status of clearance from DoE

| Clearance from DoE is needed | No. of respondents | |
|---------------------------------|--------------------|--------------|
| | No. | % |
| Yes | 68 | 17.9 |
| No | 312 | 82.1 |
| Total | 380 | 100.0 |
| Clearance from DoE is collected | No. of respondents | |
| | No. | % |

¹³ SME Clusters in Bangladesh, March 2013

| | No. | % |
|--------------|-----|------|
| Yes | 50 | 73.4 |
| No | 18 | 26.4 |
| Total | 68 | 100 |

167.

168. The following activities need to be done to describe the baseline environment of the study area:

- ◇ **Determination of influence area:** Areas that will be directly impacted by the activities. These include ancillary facilities, temporary construction areas, borrow areas, access routes for transport of material and equipment.
- ◇ **Information on the industrial unit or factory:** This information relates to type of products manufactured, type and source of raw materials, type of machines used. It will support in the assessment of understanding the emissions and discharge from the factory.
- ◇ **Information on Health and Safety issues:** This information relates to health and safety of employees and workers.
- ◇ **Determination of physical components:** This information relates to the area-specific conditions pertaining to atmosphere and climate, topography, soil, hydrology and drainage, under physical environment; terrestrial ecology, aquatic ecology, biodiversity, National Conservation Site of Importance under biological environment; and demography, settlement pattern, land use and water use pattern, water supply and sanitation, fisheries industries, cultural and archeological resources under socio-economic environment.
- ◇ **Collection of primary and secondary data:** The environmental baseline condition in the component study area needs to be characterized using both primary and secondary data. Primary data can be collected by the PIU field team during visits to the study area, through rapid rural appraisal (RRA), focus group discussions (FGD), key informant interviews (KII) and public consultations. Secondary data can be collected from maps and databases.

169. **Examples of baseline description for the following are given in Annex I:**

- ◇ Access road to an industrial unit
- ◇ Installation of Equipment

a. Baseline Information for Reconstruction of Access Roads

Determination of Influence Area

170. The land parcels dedicated for the access roads will be located in semi-urban areas or locations within proximity of industrial parks where infrastructure likely is inadequate. Influence area will be the khas land and land within 100m on both sides adjacent to the road. Nearby water bodies (within 1km radius) will be a part of the monitoring activities.

Determination of physical components

171. Considering the influence area the following components need to be described in the description of the baseline environment:

Physical Environment:

- ◇ Climate (average precipitation, temperature, humidity)
- ◇ Topography and soil type
- ◇ Air quality
- ◇ Surface water quality
- ◇ Hydrology (groundwater levels)
- ◇ Land use and land cover

Ecological Environment:

- ◇ Bio-ecological zone
- ◇ Percentage of area under vegetation
- ◇ Type of trees



Figure 4.1 Access Road to an Industrial Unit in Gazipur

b. Baseline Information for Installation of Equipment

Determination of Influence Area

172. The equipment installations will be in established factories, thus the project area of each of the installations will be limited to the walled premises. Air quality needs to be monitored within the premises. However, in case, of effluent discharge, nearby water bodies this includes water bodies which will directly or indirectly receive effluent, will be a part of the monitoring activities.

Information on the Workplace/Factory Facility:

- ◇ Location and area of the factory/firm
- ◇ Products and services (name and number of units)
- ◇ Raw material used and source of raw material
- ◇ Machines used and probable emissions and discharges from the machines
- ◇ Waste (type and volume) and waste management
- ◇ Presence and use of ETP or access to CETP



Figure 4.2 Machines used in plastic industry (above) and light engineering sector (below)

Information on Health and Safety issues:

- ◇ Total no. of employees and workers
- ◇ Integrity of workplace structure and infrastructure (including lighting and ventilation system, access roads, Work Environment Temperature)
- ◇ Access to utilities and maintenance of utility systems (water, electricity, gas)
- ◇ Access to services by workers (medical, sanitation, canteen)
- ◇ Presence of inflammable materials and storage of materials
- ◇ Presence of fire-protection systems inside factory buildings
- ◇ Fire license from relevant authority
- ◇ Access to protective gear such as masks, gloves, protective gear for eyes and ears and quality of the gear



Figure 4.3 Footwear factory in Gazipur (adequate air and light, ventilation system, electrical wiring)



Figure 4.2 Footwear factory in Gazipur (separate storage of materials with adequate labelling)

Physical/Chemical Hazards

- ◇ Air Quality and water/ wastewater
- ◇ Rotating and Moving Equipment
- ◇ Welding / Hot Work, Fire and Explosions
- ◇ Corrosive, oxidizing, and reactive chemicals

- ◇ Noise, Vibration, Electrical and Eye Hazards
- ◇ Asbestos Containing Materials (ACM)
- ◇ Biological Hazards
- ◇ Working at Heights

Monitoring/Training

- ◇ Work Environment Facilities Monitoring, Accidents and Injury Monitoring, Environmental Parameters (Air/water) Monitoring
- ◇ Hazard Materials Monitoring, Fire/Safety Training, OHS/First Aid Training
- ◇ Access to health and safety training and awareness materials

Determination of physical components of the environment:

Physical Environment:

- ◇ Climate (average precipitation, temperature, humidity)
- ◇ Topography and soil type
- ◇ Air quality
- ◇ Surface water quality
- ◇ Hydrology (groundwater levels)
- ◇ Land use and land cover

Ecological Environment:

- ◇ Bio-ecological zone
- ◇ Percentage of area under vegetation
- ◇ Type of trees

Determination of physical components

173. Considering the influence area the following components need to be described in the description of the baseline environment:

Physical Environment:

- ◇ Climate (average precipitation, temperature, humidity)
- ◇ Topography and soil type
- ◇ Air quality
- ◇ Surface water quality
- ◇ Hydrology (groundwater levels)
- ◇ Land use and land cover

Ecological Environment:

- ◇ Bio-ecological zone
- ◇ Percentage of area under vegetation
- ◇ Type of trees

5. Potential Project Impacts and Mitigation Measures

163. The environmental impacts identified at this stage are preliminary in nature and will need to be further elaborated specifically and potential for occurrence has to be ascertained during subproject design and implementation when locations will be specified and details of the subproject will be known. However, most of the activities of this project are unlikely to have severe environmental implications. But, there are possibilities of a few likelihood adverse environmental and social impacts due to particular

activities like: infrastructure such as buildings and roads supporting the network of technology upgrade centers. Most of the adverse impacts identified are reversible in nature can be relieved by mitigation measures. As the project is expected to cover different regions of the country, it is necessary to keep in mind the general variation in the environmental conditions expected in different parts of the country in subproject selection, planning and design.

The sub projects can be categorised based a screening checklist which involves:

- Identification of the major sub project activities;
- Reconnaissance of the sub project areas and their surroundings and collection of baseline information;
- Preliminary assessment of the impacts of these activities on the ecological, physic-chemical and socio-economic environment of the sub project and surrounding area.

164. All the major environmental parameters covering ecological, physical and human interest related aspects need to be considered in identifying the potential impacts during different phases of the project. Environmental screening is essential to gather information on baseline status and potential environmental impacts of the project interventions. Environmental screening identifies the consequence of the proposed projects in broader sense based on similar project experiences, stakeholder's perceptions and expert judgment, without having very much detailed investigation. Also critical issues are identified through the screening which needs detailed investigation. Based on the extent of environmental impact obtained from the environmental screening, the decision for further environment impact assessment will be taken.

a. Screening Matrix for Environment Assessment

165. All the major environmental parameters covering ecological, physical and human interest related aspects need to be considered in identifying the potential impacts during different phases of the project. Environmental screening is essential to gather information on baseline status and potential environmental impacts of the project interventions. Environmental screening identifies the consequence of the proposed projects in broader sense based on similar project experiences, stakeholder's perceptions and expert judgment, without having very much detailed investigation. Also critical issues are identified through the screening which needs detailed investigation. Based on the extent of environmental impact obtained from the environmental screening, the decision for further environment impact assessment will be taken. Based on the magnitude and implications of environmental issues and for management purpose, the subprojects are divided in to following three categories.

- Subprojects which have significant adverse environmental impacts that are sensitive, diverse, or unprecedented or will be implemented in environmentally important areas - including wetlands, forests, grasslands, and other natural habitats. Subprojects which will have irreversible health impacts. Such sub-projects will be excluded from the project.
- Subprojects which have minor potential negative environmental impacts. These impacts are site-specific; the impacts are reversible; and in most cases mitigation measures can be designed more readily since the activities require no land acquisition and have only generic construction and equipment installation activities.
- Subprojects which are likely to have minimal or no adverse environmental impacts especially sub projects that do not have construction and equipment installation activities.

166. Environmental screening will be carried out with the help of simple matrix or checklists of the environmental parameters identified in Baseline Description for each of the major components during planning phase have been presented in Table 5.1. In the checklist, the magnitude of environmental impacts has been classified as none, low, moderate and severe. Long-term and short-term impacts (identified as L and S, respectively) as well as reversible and irreversible (identified as R and I,

respectively) have also been identified in the checklist. This checklist needs to be completed for each of the locations for the different components of the project during planning, construction/implementation and operational phase. The following table needs to be filled in based on expert judgment and FGD by officials and field technicians from implementation agencies. Discussion with communities living around the infrastructure needs to be carried in filling the checklist.

Table 5.1: Environmental Screening using Checklist¹⁴

| Screening Criteria/ Environmental Parameters | Environmental Assessment | | | | |
|--|--------------------------|-----------|----------------|----------|--------|
| | Positive Impact | No Impact | Adverse Impact | | |
| | | | Low | Moderate | Severe |
| Does the project site and activities fall within/ and/ or will impact the following environmentally sensitive areas? | | | | | |
| Protected areas | | | | | |
| Wetland | | | | | |
| Reserve forest | | | | | |
| National parks | | | | | |
| Buffer zone of protected areas | | | | | |
| Special area for protecting biodiversity | | | | | |
| Near cultural heritage sites | | | | | |
| Areas with rare/ endangered flora/ fauna | | | | | |
| Will there be any minor constructions which will have impacts on | | | | | |
| 1. Ecological | | | | | |
| Fisheries | | | | | |
| Aquaculture | | | | | |
| Eutrophication | | | | | |
| Wetland | | | | | |
| Bushes/ trees | | | | | |
| Animals | | | | | |
| Species diversity | | | | | |
| Endangered species | | | | | |
| 2. Physical-chemical | | | | | |
| Erosion and siltation | | | | | |
| Flooding | | | | | |
| Drainage congestion | | | | | |
| Air pollution | | | | | |
| Noise pollution | | | | | |
| Solid waste | | | | | |
| Chemical waste | | | | | |

¹⁴¹⁴ This matrix need to be filled up and attached with the grant proposal under ERF (component 1.2)

| Screening Criteria/ Environmental Parameters | Environmental Assessment | | | | |
|--|--------------------------|-----------|----------------|----------|--------|
| | Positive Impact | No Impact | Adverse Impact | | |
| | | | Low | Moderate | Severe |
| Water pollution | | | | | |
| Disaster management | | | | | |
| 3. Human interest related | | | | | |
| Loss of agricultural land | | | | | |
| Health | | | | | |
| Navigation | | | | | |
| Impact on education and religious establishments | | | | | |
| 4. Health and safety | | | | | |
| | | | Yes | No | |
| Access to site is safe and easy for installation team and inspection staff | | | | | |
| Hazardous/dangerous substances used (Attach the list of the materials) | | | | | |
| Workplace Structures, Workspace and Exit is adequate | | | | | |
| Signage Area/Fire Precautions, Labeling of Equipment, Safe Access, Personal Protective Equipment (PPE), First Aid is adequate | | | | | |
| Presence of rotating and moving equipment, welding / hot work, fire and explosions, | | | | | |
| Presence of corrosive, oxidizing, and reactive chemicals, | | | | | |
| Noise, Vibration, Electrical and Eye Hazards, Asbestos Containing Materials (ACM) | | | | | |
| Air Supply/Ventilation, Potable Water Supply, Clean Eating Area Lighting, Confined Space, Lone and Isolated Workers, Work Environment Temperature, Lavatories and Showers, Severe Weather and Facility Shutdown. | | | | | |
| If the measures are not adequate than Remedial measures and any other issues/ Comments | | | | | |
| Evaluation of the sub-component/ Activity | | | | | |
| Produce significant amount of pollutants | | | | | |
| Type of pollutants (if yes in previous sections) | | | | | |
| Air | | | | | |
| Water | | | | | |
| Soil | | | | | |
| Probable cumulative impacts | | | | | |
| Means of disposal available | | | | | |
| Quantity of pollutants (per month) | | | | | |
| Fate of pollutants | | | | | |
| Remedial measures and any other issues/ Comments | | | | | |
| Signature of the focal person: | | | | | |
| Signature of PIU Environment Specialist | | | | | |

b. Impact Assessment

167. Based on the magnitude and implications of environmental issues the sub components that do not have any construction and equipment installation activities can be excluded from screening as they do not have any primary environmental aspects irrespective of their location or intensity of activity. These are:

- Subcomponent 1.1: Sector-level ESQ awareness and readiness
- Subcomponent 1.3: Market development and ESQ branding
- Sub-component 2: Skills Formation and Training
- Component 4: Project Implementation, Monitoring and Evaluation

The activities under the remaining components will require screening using the checklist provided in Table 5.1.

168. Based on stakeholder consultations carried out at institute level (MoC, DoE and the different associations) and site visit, the following impacts due to equipment installations and construction activities have been identified. It may be noted these are the potential impacts and all subproject may not have these impacts. The precise scale of impact in each case will be assessed during the planning and implementation of the subcomponents, and appropriate mitigations, where necessary, will be taken.

Adverse Environmental Impacts

- ◇ **Vegetation removal:** Construction and equipment installation activities under the different components of the project will take place in public land. During site preparation vegetation consisting of weeds, grasses, and shrubs will be cleared and the overburden removed to start construction. Vegetation removal is associated with loss of biodiversity, soil erosion, sedimentation and siltation, increased runoff and degradation of surface water.
- ◇ **Emissions causing air pollution:**
 - Leather and Footwear:** Air quality can be degraded due to releasing of solvent vapors from dehairing, deliming, spray application, degreasing and finishing (for example dye and adhesive application). Decaying organic material also produce strong odours.
 - Plastic:** Industrial practices in plastic manufacture can lead to polluting effluents and the use of toxic intermediates. The equipment including Computer Numeric Control or CNC machines can produce metal dust, particles and loud noise during operation affecting operating personal and surrounding personal. Welding and cutting arcs also produce electromagnetic radiation. Continuous exposure to fumes and in large concentrations have been linked to numerous respiratory and health related illnesses.
 - Light Engineering:** Thermal cutting processes on base metals such as stainless steel, low alloy steels, hard facing materials and other alloys may release materials that contain manganese, chromium, cadmium, lead, nickel or other known hazardous substances. In addition to health risks, uncontrolled thermal cutting fumes result in reduced worker productivity, product quality problems, factory maintenance issues and environmental concerns ¹⁵. There are also

¹⁵ Majolagbe S. B., A. A. Abioye , K. J. Akinluwade, O. S. Adesina and A. R. Adetunji (2015). Radiation Effects: Recommendations for Safe Plasma/Flame Cutting Operation. Journal of Scientific Research & Reports 6(3): 237-242, 2015; Article no.JSRR.2015.149 ISSN: 2320-0227 SCIENCEDOMAIN, http://www.journalrepository.org/media/journals/JSRR_22/2015/Mar/Akinluwade632014JSRR15438.pdf

environmental and health concerns associated with emissions during incineration of solid waste.

◇ **Water pollution:**

Leather: Many of the industrial processes especially in the leather and footwear industry lead to environmental degradation and water pollution. Industrial waste from the leather sector poses serious environmental impact on water (with its high oxygen demand, discolouration and toxic chemical constituents and contains a complexity of pollutants including chromium and chlorinated phenols and other organic and inorganic pollutants). In addition, there are binding infrastructure constraints such as dysfunctional CETPs which also leads to water pollution from the industries.

Footwear: Footwear industries, though less polluting, also use chemical adhesives and tanning chemicals. Examples of some of these chemicals include Chlorinated phenols, tribromophenol, chlorinated paraffins, dimethylfumarate etc, which are used to preserve the materials, such as leather, in shoes. These chemicals are easily leaked into the environment and water through the discharge from the factories. These chemicals can harm the wild life who may consume infected water or plants.

Plastic: Spillage of plastic pellets that find their way into sewage systems, and eventually to the sea, has hurt wildlife that may mistake the pellets for food.

◇ **Recycling of solid waste:** All of the sectors (leather, footwear, plastic and light engineering) produce solid waste that can be recycled. However, there are also environmental and health concerns associated with emissions during incineration. Improper storage, handling and transport of solid waste can lead to unhygienic, unhealthy and unsightly conditions.

◇ **Disposal of cutting oil:** In general, cutting oils can be reused several times and are typically designed for this purpose once processed through reclamation equipment. Reclamation is necessary with cutting fluids because they can degrade after a period of use due to the working and environmental contaminants to which they are exposed. After several uses and reclamation cycles, eventually the cutting fluid is destined for disposal. When that time comes, disposing of the fluid must be done with care.

◇ **Fire safety Issues:** Industrial units especially plastic factories and storage facilities are vulnerable to fire hazards.

◇ **Access to acids and chemicals:** The acids and chemicals used in industrial processes can cause serious harm, if left in the hands of untrained professionals and handled carelessly. Furthermore, access to acids and chemicals by all can result in accidents outside the industrial units as well.

◇ **Disposal of machines:** Disposal or end-of-life management of many of the machines and equipment needs to be done carefully. Leaching of chemicals, if any from improperly disposed machines can leach into soil or water or into air affect the environment and human health, or the staff/workers may come in direct contact.

Positive Environmental Impacts

◇ **Stronger environmental compliance:** The interventions of the project will build capacity of public and/or public-private institutions as well as to directly support private firms in their efforts to comply with existing statutory environmental regulations and legislations of the country and access international markets. Furthermore, project activities will partly address negative

environmental impacts from the leather, footwear, plastics and light engineering sectors after ESQ enhancement. Associated firms will also be influenced to incorporate social and environmental sustainability measures in their production and supply chains.

- ◇ **Recycling:** Recycling is a form of waste management that involves converting waste and other used materials into reusable products. Recycling helps to reduce energy usage, reduce the consumption of fresh raw materials, reduce air pollution and water pollution (from land filling) by reducing the need for “conventional” waste disposal and also reduces greenhouse gases emissions.



Figure 5.1: (A) Improper storage and handling of Cutting Oil; (B) Inadequate lighting and electrical connections can lead to accidents; (C) Lack of cleanliness reduces productivity; (D) Workers need to have protective footwear; (E) Improper waste management

Mitigation measures

Detailed mitigation measures are also discussed in Chapter 6 and Annex II.

- ◇ Clearing natural vegetation will be avoided and equipment will be installed in a natural clearing. The removed trees or plants should be replaced with new plantation at appropriate locations, Where-ever possible the trees and plants should be replaced by at least two samplings of same species. However, local officials can be consulted to finalize the plantation program. The genetic variety in trees as well as other species needs to be ensured. Reduce monocultures, avoid exotic tree species particularly numerous invasive aliens from plantations. Local varieties of trees should be planted as much as possible. Sufficient open space, green space can be provided in the project area during landscaping and all constructed roads should be lined with trees and shrubs.
- ◇ To minimize the damage of pollution from CNC machines on human health it is best to work in large, open spaces and ensure that buildings have adequate ventilation. To reduce dust professional dust purification systems or underwater cutting method can be used. Underwater method also reduces noise. For protection from radiant energy, workers must use personal protective equipment, such as safety glasses, goggles, welding helmets, or welding face shields to protect the eyes from sparks and the rays of the arc when performing or observing plasma arc cutting or gouging. This equipment must have filter lenses with a shade number that provides the appropriate level of protection. Extractors and face masks must be worn and exposed skin should be protected with adequate gloves and clothing.
- ◇ Emission and discharge levels for the design and operation of each project must be established through the Environmental Assessment (EA) process, based on GoB legislation and relevant ECoPs of the project. Frequent sampling will be required during start-up and upset conditions. Each of subprojects will have an environmental compliance officer at factory level. Once a record of consistent performance has been established, sampling for selected parameters should be on a monthly basis. Bi-annual monitoring for all parameters as mentioned in ECR 97 should be carried out and, if parameters are present at levels equal to or above ECR 97 standards for waste from industrial units, corrective actions should be taken. Monitoring data should be analyzed and reviewed at regular intervals and compared with the operating standards so that any necessary corrective actions can be taken. Records of monitoring results should be kept in an acceptable format. These should be reported to the responsible authorities and relevant parties, as required, and provided to PIU if requested. The guidelines are expressed as concentrations to facilitate monitoring. Dilution of air emissions or effluents to achieve these guidelines is unacceptable. Where ever possible chemicals shall be recovered and recycled.
- ◇ Every plant should have a coordinated plan for managing used cutting oil. Cleaner production methods and waste minimization should be the first initiative in reducing waste oil at a factory. When the oil reaches the end of its design life, it must be either reclaimed or recycled. In-line oil sensors to ensure that oil life is extended and unnecessary oil changes do not occur can be used. Additional steps can be, use of oil mist lubrication on industrial gear boxes and other equipment, selection of equipment with reduced oil sump sizes and improving the filtration of the lube oil charge and dosing the additives.
- ◇ Solid waste and electronic waste should be properly disposed. The options include: storage, incineration, municipal solid waste landfill, recycling and hazardous waste process. Develop waste management plan for various specific waste streams (e.g., reusable waste, flammable waste, construction debris etc.) prior to commencing of installation and submit for approval.

Organize disposal of all wastes generated during construction in an environmentally acceptable manner. This will include consideration of the nature and location of disposal site, so as to cause less environmental impact. The lakes, water bodies and lowlands must not be used for disposal of any waste or debris.

- ◇ Minimize the production of waste materials by 3R (Reduce, Recycle and Reuse) approach. Segregate and reuse or recycle all the wastes, wherever practical. Prohibit burning of solid waste. In the leather and footwear industry, recycle waste to the extent feasible to manufacture fertilizer, animal feed, leather products provided that the quality of these are not compromised. The destination of any material produced in the subprojects of the project sent for recycling needs to be verified and recycling firms or factories even if they are not funded by the project must maintain GoB standards during recycling or disposal or any kind of emissions from these recycled materials.
- ◇ Train and instruct all personnel in waste management practices and procedures as a component of the environmental induction process. Provide refuse containers at each worksite. Request suppliers to minimize packaging where practicable.
- ◇ Place a high emphasis on good housekeeping practices. That is maintain all construction sites in a cleaner, tidy and safe condition and provide and maintain appropriate facilities as temporary storage of all wastes before transportation and final disposal.
- ◇ Water saving practices should be in place. For example, use of batch instead of continuous washing. Reuse wash water and recycle. Segregate wastewater streams to simplify treatment.
- ◇ Restricted access to stores and go downs will be practiced. Only trained and accounted for personnel will have access to acids and other chemicals. Weekly inventories will have to be done by designated personnel.
- ◇ Equipment will not be repaired in the field. Where ever possible prefabrication in built up areas to avoid damage to vegetation.
- ◇ Implement suitable safety standards for all workers and site visitors, with sufficient provisions to comply with international standards (e.g. International Labor Office guideline on 'Safety and Health in Construction; World Bank Group's 'Environmental Health and Safety Guidelines') and contractor's own safety standards, in addition to complying with national standards.
- ◇ BNBC 2015 prescribes fire-safety standards and the compulsory installation of fire-protection systems inside factory buildings. All factories and installations of the project must ensure fire license from relevant authority. Regular monitoring and factory inspection are also need to be done by management and personal.
- ◇ End of life management of machines should include recovering salvageable materials and timely disposal of material.



Figure 5.2: From top left: Fire safety Precautions; Protective gear and clothing ensures worker safety; cutting oil behind glass door in CNC machine, machine recycles the oil; adequate waste management practices; Recycling of plastic

6. Environmental Management Framework

169. The Environmental Management Framework (EMF) is proposed as a decision making tool to manage adverse impacts of project interventions on the environment and people of the project area and ensures that activities implemented under this project are environmentally sound. The key objectives of this framework are to

- Provide a framework for the integration of environmental aspects at all stages of the project planning, design, execution and operation of various sub components;
- Ensure positive social and environmental impacts of sub components and avoid/minimize and manage any potential adverse impacts;
- Enhance health and safety provisions of the activities of the project
- Ensure compliance with World Bank safeguard policies

170. The EMF recognizes the need for an early environmental and social assessment, during planning stage of activities at the field level which will help in identifying any adverse impact and support in planning and implementing mitigation measures. These mitigation measures are to be mainstreamed throughout the implementation phase. The framework has been prepared taking into consideration of the GoB regulatory framework and WB safeguard policy. This is not an attempt to predict the specific impacts of projects or activities, but rather to minimize the overall potential change to the natural environment whilst implementing projects. One purpose of the EMF is also to record the procedure and methodology for management of mitigation identified for each negative impacts of the Project. It will help the management in delineating the responsibility of various participants and stakeholders involved in planning, implementation and operation of the project.

171. Using the major steps outlined below, this section of the EMF describes the process for ensuring that environmental and social concerns are adequately addressed through the institutional arrangements and procedures used by the project for managing the identification, preparation, approval, and implementation of Components. The major steps are:

- ◇ Screening and Impact Assessment
- ◇ Review, Approval, and Disclosure of Component Safeguard Instruments
- ◇ Implementation, Supervision, Monitoring, and Reporting

172. A schematic diagram showing the Environmental Assessment Framework is shown in Figure 6.1. Each of the components are further discussed in detail in the different sections of this chapter.

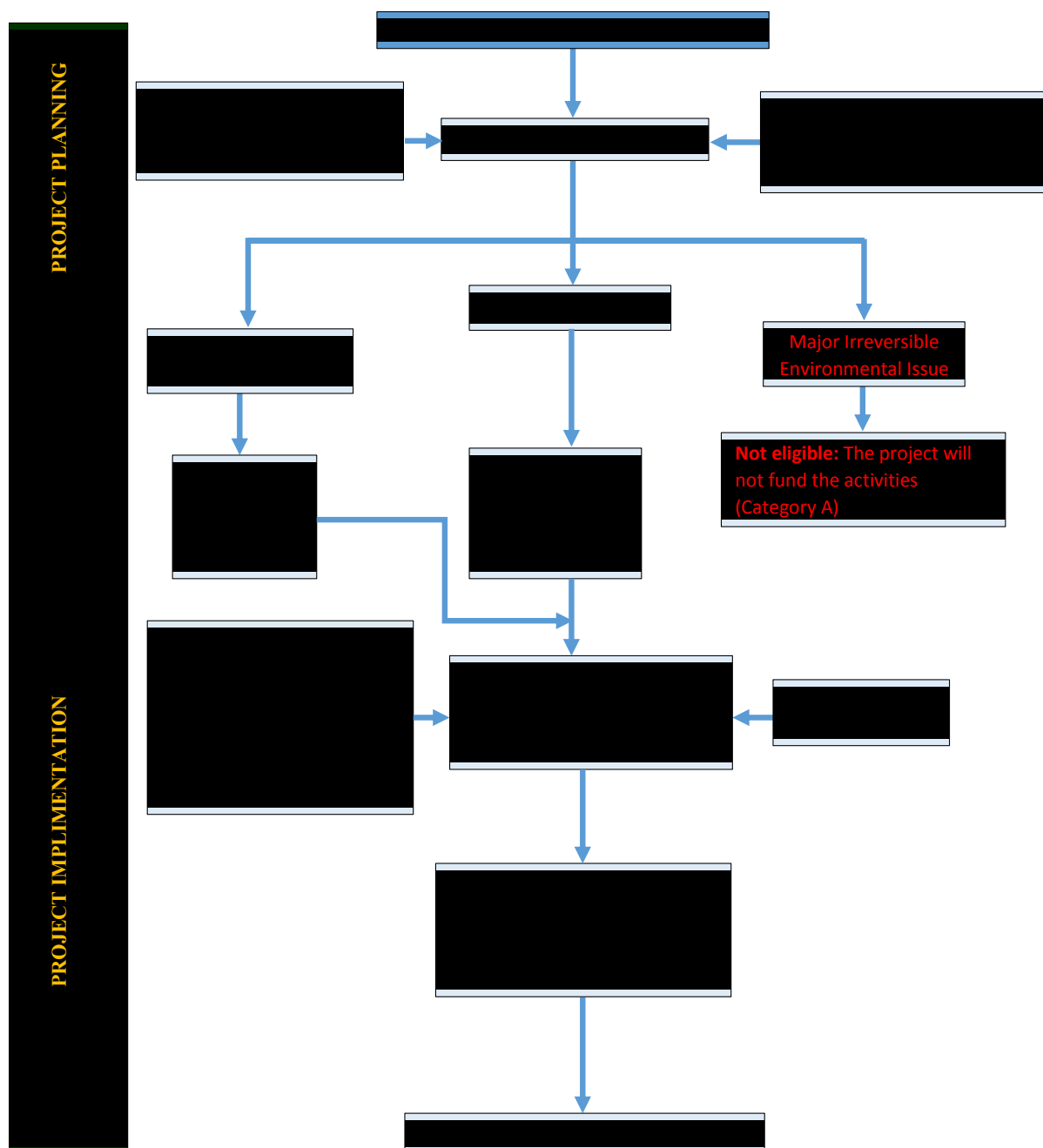


Figure 6.1: Environmental Management Framework

a. Screening and Impact Assessment

173. Key steps in Component preparation during project implementation are screening and impact assessment. The screening often includes two steps: eligibility screening and technical screening for assessment of potential impacts, policies triggered and instruments to be prepared.

174. The purpose of eligibility screening is to avoid adverse social and environmental impacts that cannot be adequately mitigated by project or that are prohibited by a World Bank policy, or by international conventions.

175. Eligibility screening will follow the principles for selection and implementation of subprojects:

- ◇ After identification of sub-projects or activities community consultations regarding the objectives, scopes as well as environmental and social safeguard implications, especially with respect to environmental impacts and use of public and private lands will be undertaken;
- ◇ All proposed activities to be funded by the project will be subject to an environmental and social screening in order to prevent execution of projects with significant negative environmental and social impacts and the PIU will not elect to undertake activities which could result in significant negative impacts;
- ◇ The PIU will not elect to undertake activities that may require land acquisition, and will try to keep the development works limited to improvement of the existing infrastructure, and use their own or other public land. The location of the infrastructure should be in an area which is designated or likely to be designated as an industrial zone;
- ◇ Where use of private land is essential PIU may seek voluntary contribution from the concerned landowners, and/or members of the beneficiary communities would collectively explore alternatives to voluntary contribution.

176. In general, technical screening process identifies what levels of environmental assessment are required for the subcomponents. The purpose of the screening is to get relevant concerns addressed at an early stage. It ensures proper designs with adequate considerations mitigate environmental and social impacts. Furthermore, it enhances opportunities for proper budgeting. Environmental and social impacts of each subcomponent/subproject of the project will vary in their extent, magnitude and duration as per the nature and scale of the subcomponents and location chosen. The screening will be done by the Project Steering Committee which will be chaired by the MoC and comprise representatives including from the main industry associations of the targeted sectors, the Ministry of Industry, the Bangladesh Investment Development Authority (BIDA) and the Export Promotion Bureau.

177. Based on discussions in previous chapters it can be concluded that overall, the project is likely to have a positive impact on the environment as the project will facilitate coordinated investments in Environmental, Social and Quality (ESQ) compliance and monitoring. However, some negative environmental impacts may occur during construction activities and installation of equipment such as environmental monitoring equipment, end-of-pipe equipment upgrading, ICT systems, safety equipment, technical measurement equipment in addition there may be impacts due to improper operation of facilities constructed.

178. The technical environmental screening of each proposed component is to determine the appropriate extent and type of environmental assessment (EA). The outcome of this screening is used to classify the subprojects into one of three categories, depending on the type, location, sensitivity, and scale of the project component and the nature and magnitude of its potential environmental impacts (World Bank OP 4.01).

Table 6.1: Environmental and Social Screening Criteria

| Category | Screening Criteria |
|-------------------------|---|
| Category A (if High) | A subproject will be Category A if it 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. An EIA is carried out for this type of activities as per ECA 1995 of GoB. No subproject under this project is likely to have significant environmental impact. If any subproject is identified with significant environmental impacts or irreversible health impacts, it will not be supported under the project. |

| Category | Screening Criteria |
|---------------------------|--|
| Category B (If medium) | A subproject is classified as Category B if its potential adverse environmental impacts on human populations or environmentally important areas - including wetlands, forests, grasslands, and 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 mitigation measures can be designed more readily than for Category A projects. |
| Category C (If Low) | A subproject is classified as Category C if it is likely to have minimal or no adverse environmental impacts. Beyond screening, no further EA action is required for a Category C project. |

179. The checklist given in Table 5.1 will be used to screen the components and activities of this project. The checklists will be filled in based on expert judgment and FGD with officials and field technicians from implementation agencies and communities living around the installation area.

180. In the checklist, the magnitude of environmental impacts needs to be classified as none, low, moderate and severe. Long-term and short-term impacts (identified as L and S, respectively) as well as reversible and irreversible (identified as R and I, respectively) also need to be identified in the checklist. This checklist needs to be completed for each of the locations for the different components of the project based on participation and consultation with beneficiaries/local communities. The checklist needs to be completed on the basis of the threshold values highlighted in safeguard policies of WB and environmental policies of GoB, which are:

- ◇ potential risks to natural habitats and forests,
- ◇ pollution risks including land, water and air,
- ◇ human health and occupational safety,
- ◇ land slope stability, and
- ◇ built artifact or heritage

181. Each subproject or activity of the project will go through environmental and social screening in order to identify relevant environmental and social concerns. The screenings are also helpful to suggest if any further investigation and assessment is necessary. Once the subcomponents are screened against all these criteria they will be categorized as indicated in the Table 6.1 and as per the nature and magnitude of impacts.

182. Activities or sub projects with any of the attributes listed below will be ***ineligible for support*** under the proposed project:

- ◇ Subprojects or activities which require land acquisition or involuntary contribution of private lands;
- ◇ Subprojects or activities involving significant conversion or degradation of critical natural habitats;
- ◇ Subprojects or activities involving new or significant expansion of disposal facilities with negative health impacts to nearby water sources or population;
- ◇ Subprojects or activities involving new or significant expansion of disposal sites requiring involuntary public participation;
- ◇ Subprojects or activities in the leather sector which are not situated in designated industrial zones and not connected to Central Effluent Treatment Plant (CETP)
- ◇ Subprojects or activities included in the WB (IFC) exclusion list
- ◇ Red or A Category project like tannery, plastic industries will not be financed for new construction or large expansion. These type of industries or subprojects will only be financed to improve technology, environmental due diligence, labor skill and labor health and safety standards.

183. Key potential negative impacts on the environment and local community will be screened during planning and implementation phases. Subprojects with medium and high impacts will need to develop and implement mitigation measures, monitoring programs, and adequate institutional capacity on safeguards and this will be used as the basis for preparation of EMPs for subprojects. Data collection, field survey, and consultation with local communities and affected population will be carried out. If a component is required by the government's EIA regulations, appropriate actions and documents will be prepared accordingly.

6.1.1 Analysis of Alternatives

184. The Export Competitiveness for Jobs Project (EC4J) will directly contribute to the GoB's policy objective of diversifying exports beyond ready-made garments (RMG). The creation of more, better and inclusive jobs is paramount given the annual entry of more than two million youth in the workforce every year in the coming decade.

185. Overall, the project is likely to have a positive impact on the environment compliance and monitoring once completed. Project interventions should contribute to reduce negative externalities by improving the use of cleaner and more efficient technology and production processes. However, the project may finance some infrastructure and install some equipment. Various alternatives need to be considered in siting and design of the project components. The analysis of these alternatives should be based on the following considerations:

- ◇ With or without the project activities in environmentally sensitive areas, near educational and religious institutes; The project is a better alternative as it will lead to improvements/benefits in different aspects;
- ◇ Analysis criteria to include environmental, technical/design and economic options (Table 6.2);
- ◇ Construction works and equipment installation should be done in already built up areas or khas land;
- ◇ Network technology upgrade centers/CFCs of should be focussed on optimum locations and baseline description should be based on primary data collection outside of environmentally sensitive areas combined with modelling activities and satellite information.

Table 6.3: Criteria for evaluation of alternatives

| Main Criteria | Sub Criteria |
|-----------------------|--|
| Technical Aspects | <ul style="list-style-type: none"> • Robustness, constructability, • Degree of protection, • Maintenance requirements, • Above flood levels |
| Financial Aspects | <ul style="list-style-type: none"> • Construction cost and • Maintenance cost |
| Environmental Aspects | <ul style="list-style-type: none"> • Project footprints, • Material requirements, • Impact on river flows and channels, • Impact on aquatic and terrestrial habitats, • Health and safety |

6.1.2 Environmental Management Plan (EMP)

186. A project's EMP consists of a set of mitigation, monitoring, and institutional measures to be taken during implementation and operation to eliminate adverse environmental and social impacts, offset them, or reduce them to acceptable levels. The plan also includes the actions needed to implement these measures. EMPs are essential elements of EIA reports for Category A projects; however, for many Category B projects, the EA may result in a management plan only. To prepare a management plan, the PIUs needs to identify a set of responses to potential adverse impacts; (b) determine requirements for ensuring that those responses are made effectively and in a timely manner; and (c) describe the means for meeting those requirements. The procedures in ECR-97 will be used as applicable to obtain NOC/SCC/ECC from the DOE for the subprojects.

The typical key mitigation measures associated with the enterprises include

- Establishment of Effluent Treatment Plant (ETP) for treating the waste water.
- Ensuring the safety of workers by providing gloves, masks, shoes, etc.
- Using of chemicals for processing within acceptable limits according to the regulation provided by the DoE.
- Managing the operating hours so that noise pollution does not affect habitant of the surrounding area.
- Proper disposal of solid wastes containing harmful chemicals should be ensured, no wastes should be burnt in open place under any circumstances.
- Effective Environmental Management Plan (EMP) should be introduced for maximum pollution abatement.
- Use of renewables energy, adopt energy saving packages,
- Ensuring adequate stack height
- Establishment of Air Treatment Protector (ATP)

6.1.3 Environmental Code of Practice (ECoPs)

187. The environmental codes of practice (ECoPs) are generic, non site-specific guidelines. The ECoPs consist of environmental management guidelines and practices to be followed by the PIU and contractors for sustainable management of all environmental issues. ECoP will consist of routine systematic checking that all mitigations are effectively implemented during the relevant periods of the project. Detailed ECoPs are shown Annex II.

- ◇ Tree Plantation ECoP
- ◇ Pollution Prevention ECoP
- ◇ Waste Management ECoP
- ◇ Construction Management ECoP
- ◇ Health and safety ECoP
- ◇ Fire Safety ECoP
- ◇ Recycling ECoP
- ◇ Effluent Discharge ECoP
- ◇ Acid and Chemical Access ECoP

7. Stakeholder Consultations

188. Stakeholder consultations were carried out at factory level in Gazipur and Dhaka and also at expert and institutional level in Department of Environment (DoE), Ministry of Commerce (MoC) and related industry associations in Dhaka. The consultations were carried out in a few rounds, factory level consultations took place in January 2017 and were carried out through FGDs in local areas using questionnaire interviews. The dates, location and stakeholders consulted are given in Table 7.1. Details of the stakeholder consultations are given in Annex III.

Table 7.1: Stakeholder Consultations

| Date | Location | Stakeholders |
|------------------|--|--|
| 26 January 2017 | <ul style="list-style-type: none"> MoC, Dhaka | <ul style="list-style-type: none"> Project Task Team, MoC |
| 28 January 2017 | <ul style="list-style-type: none"> Bangladesh Engineering Industry Owner's Association (BEIOA), Tipu Sultan Road, Wari, Dhaka; BEIOA-Light Engineering Training Institute Various non-compliant Light Engineering factories in Tipu Sultan Road, Wari, Dhaka; Progoti Engineering Works, Shonir Akhra, Dhaka | <ul style="list-style-type: none"> President and Office staff of Bangladesh Engineering Industry Owner's Association (BEIOA) BEIOA-Light Engineering Training Institute Coordinator Local factory personnel and staff |
| 30 January 2017 | <ul style="list-style-type: none"> Bengal House, Gulshan Avenue, Gulshan, Dhaka | <ul style="list-style-type: none"> President, Bangladesh Plastic Goods Manufacturers & Exporters Association (BPGMEA) |
| 13 February 2017 | <ul style="list-style-type: none"> Centre of Excellence for leather Skill Bangladesh Ltd (COEL), East Chandra, Kaliakoir, Gazipur Blue Ocean Footwear Ltd. East Chandra, Kaliakoir, Gazipur Bengal Plastics, Ltd, Zirabo, Savar, Dhaka | <ul style="list-style-type: none"> COEL Coordinator and trainers Factory officials and personnel |
| 16 February 2017 | <ul style="list-style-type: none"> Purbani Hotel (Consultation Workshop) | <ul style="list-style-type: none"> Project Task Team, MoC Representative of Ministry of Industry Representatives from Business Promotion Council (BPC) Association members from different sectors |
| 19 February 2017 | <ul style="list-style-type: none"> Department of Environment | <ul style="list-style-type: none"> Director (Natural Resource Management) , DoE |

The objectives of the round consultations were,

- (v) disclosure of project information to stakeholders;
- (vi) consultation with stakeholders on issues to include in the assessment, and
- (vii) participation of stakeholders in development of screening matrix and related impacts.

189. A consultation took place on 16 February 2017. The objectives of this consultation were, (i) disclosure of the draft report contents, including the proposed EMP and ECoPs; (ii) consultation with stakeholders on the results of the assessment; and (iii) discussion of stakeholder participation in environmental management activities during construction and implementation.

190. Around 15 people were consulted in the first round of consultations, while 28 participants registered for the consultation meeting that took place in February. In general the opinion and outlook towards the project objectives is positive. The general population and experts have shown an interest towards the activities and feel that the activities of the project will be beneficial for the environment and the nation. The Association representatives have shown concern that some of the capacity development activities focusing on the EMF will have duplications and should a part of the different training activities funded by the project. The participants recommended that some of the activities can be considered Red category as per ECR 97 and will need an EIA to receive environmental clearance. Most importantly, the participants agreed with the contents and recommendations of the EMF.

191. A one-to-one meeting was held with Director (Natural Resource Management), DoE on 19 February 2017. His observation is, since the project activities focus on working with the industrial sector to develop their capacities for environmental compliance, the project is timely and much needed to ensure sustainable development. Training and capacity development activities will not require environmental clearance, however, subprojects which require construction and equipment installations will require environmental assessment to determine the category under ECR 97 and subsequently further required documentation must be submitted for environmental clearance. He also suggested that production flow diagrams of each of the sub projects be analysed for intervention points to ensure EQS compliance. He also suggested that the EMF can recommend designated personnel at firm or factory level from within existing manpower to ensure environmental and social concerns are adequately addressed.

192. In general the factory workers and officials have noted that there are no perceived environmental or health hazard problems that may originate from the activities of the project. However during the consultation workshop participants highlighted that the leather industry is very polluting and the activities should be categorized as red under ECR 97 rules. Acid and chemical handling of subprojects should also be monitored closely. Based on the recommendations the EMf has been updated and ECoPs have been identified to address the concerns raised.

193. **EMF Disclosure Status:** The draft final EMF document with a Bangla version have been disclosed on March 6, 2017, on www.mincom.gov.bd and the Bank's operational portal for public comments. Advertisement requesting public comments will be published in two daily Newspapers (English and Bangla). After 30 days of the advertisement, the EMF will address public comments and Final EMF will be re-disclosed on the website. Hard copies of the documents will be made available in public offices.

a. Community Participation & Consultations during the Project Implementation

194. Community/stakeholder consultations will be conducted throughout the project cycle, with varying focus on issues relating to the subproject activities and the people who may have stakes therein. More formal consultations, focus group discussions and interviews of knowledgeable local persons will start with feasibility study, social (and environmental) screening, PAP census and impact assessment,

and preparation and implementation of the impact mitigation plans. Focus of consultations will generally shift from wider audience to specific groups who have direct stakes in the project.

195. Community consultations will always include the following as they relate to project preparation and implementation:

- ◇ The objectives, scope and implications with respect to the project, socioeconomic impacts, as well as the adverse impacts that are likely to be caused on users of khas and other public lands and private landowners;
- ◇ Gather community inputs/feedbacks as to how adverse impacts could be minimized; and the rights and responsibilities on the parts of the communities themselves and the agencies involved in preparation and implementation, such as GOB, World Bank, the consultant, etc.
- ◇ Potential impacts and their sources relating to the location and scope of the civil works required to build infrastructures in order to support the various economic activities
- ◇ Inform the community about Grievance Redress Mechanism and the Grievance Redress Committee that would be constituted at the local level and project level, its membership composition, and explain its functions and limitations and how an aggrieved person could lodge complaints and grievances
- ◇ Project will hold separate consultations with women. The main objective is to explore the possibilities of introducing economic activity that would benefit the local women. (Recording and analysis of inputs/feedbacks and other information will always be gender disaggregated.)

b. Disclosure of Safeguard Instruments

196. All the activities of the project that is during planning and equipment installation will be disclosed locally in a timely manner, before approval of the activity implementation, in an accessible place and in a form and language understandable to key stakeholders. During disclosure the following information needs to be shared:

- Main objectives, activities and outcomes of the project
- Any environmental impacts (positive and negative)
- Mitigation measures to be taken
- Environmental Management Framework

8. Implementation Arrangements

197. The Environmental Management Framework (EMF) implementation requires an organization support structure in the form of organizational requirements, training needs and plan, and information management system. The Government of Bangladesh (GoB) is responsible for overall project management and coordination through its Ministry of Commerce (MoC). The purpose of project management is to ensure (i) Project Oversight and Policy Direction, (ii) Project Coordination and Management, and (iii) Project Implementation.

198. To carry out the above functions a Project Implementation Unit (PIU) will be established under the MoC and the PIU will report to a Project Steering Committee which will be chaired by the MoC and comprise representatives including from the Ministry of Industries, Ministry of Labour and Employment, Ministry of Textiles and Jute, and the Bangladesh Investment Development Authority (BIDA) in addition to the Chairmen of the Bangladesh Finished Leather, Leather Goods and Footwear Exporters Association (BFLLFEA), Leather Goods & Footwear Manufacturers & Exporters Association of Bangladesh (LFMEAB), the Bangladesh Tanners Association (BTA), the Bangladesh Engineering Industry Owners Association (BEIOA), the Bangladesh Electrical Merchandise Manufacturers Association (BEMMA), and the Bangladesh Plastic Goods Manufacturers & Exporters Association (BPGMEA).

199. The PIU will consist of a Project Director, technical staff, a Procurement Specialist, a Financial Management Specialist, a Safeguards Specialist (Environmental and Social) and a Monitoring and Evaluation (M&E) Specialist. The PIU will rely on four point persons in each industry association for coordination purposes and a firm will be hired under international competitive bidding, with a performance clause, to boost the technical capacity of the PIU for its daily work. An important aspect of daily work will be to integrate and supervise key long-term technical contractors of the ERF (Export Readiness Fund) Manager (Component 1.2), the PIFIC (Public Investment Facility for Infrastructure Constraints) Manager (Component 3) and those under the technology center preparation phase (Component 2). The PIU will report at a minimum twice yearly to a Project Steering Committee (PSC) chaired by the Secretary of the MoC. The PIU will rely on two task-specific advisory boards for: (i) the ERF (i.e. the Grant Advisory Committee); and (ii) the Technology Center establishment process. The former will have representatives from GoB, civil society, academia/business schools and the Chamber of Commerce whereas the latter will largely constitute participants from industry associations and the private sector in addition to GoB.

200. At the **Project Level**, the PIU will oversee:

- (a) The overall compliance with measures agreed with the World Bank on the basis of the findings and results of the screening and EA; and
- (c) The findings of monitoring programs and need for corrective measures.

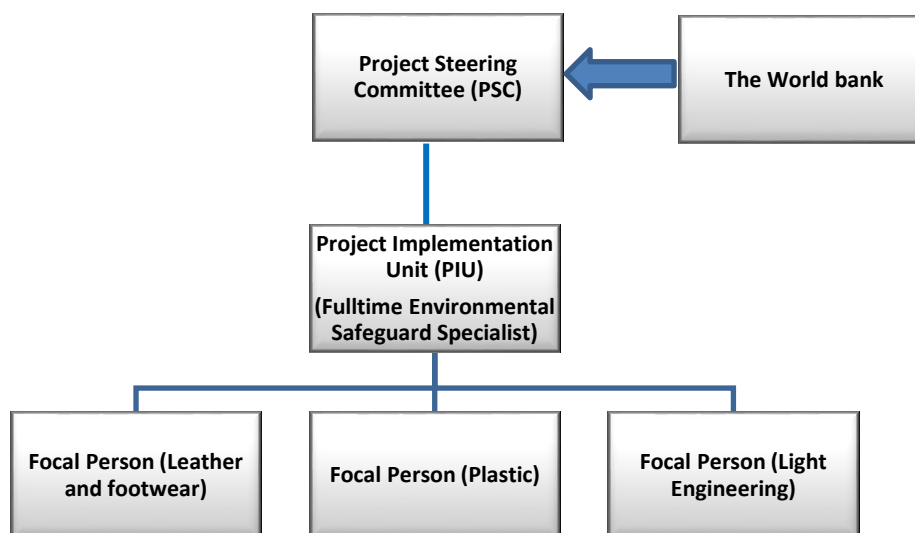
201. A fulltime Environmental Safeguards Specialist will provide support to the PIUs throughout the EA process with advice, training, dissemination of good practice, and operational support. The Environmental Specialist will review all the screening report, EMFs, monitoring reports etc. prepared by implementing agencies. The TOR of the Environmental Specialist is given in Annex IV.

202. At **Component Level**, during project implementation, Project Implementation Units (PIU) responsible for each Component will be responsible for ensuring effective implementation of safeguard measures in close consultation with local authorities and local communities. The PIU will assign at least one full time staff as the safeguard focal person to be responsible for forging effective implementation of safeguard activities in each of the project locations. Each industry association will select one focal person to coordinate with PIU. The PIU will be responsible for incorporating environmental considerations in bidding and contractual documents. During implementation, the PIU will assign local

officials to be responsible to monitor environmental safeguard issues. Designated personnel at firm or factory level of the sub project from within existing manpower will ensure environmental and social concerns are adequately addressed. The results will be part of the component progress report and the safeguard focal point will be responsible for ensuring proper documentation of safeguard activities.

203. In addition to the PIU based environment specialist, i) environmental monitoring will be part of the consulting firm that will perform 400 ESQ firm-level assessments and advise on improvements, including on the ESQ; and (ii) the Export Readiness Fund (which will have ad hoc technical/environmental specialists advising on applications linked to environmental management and compliance).

Figure 8.1 Organizational Flowchart



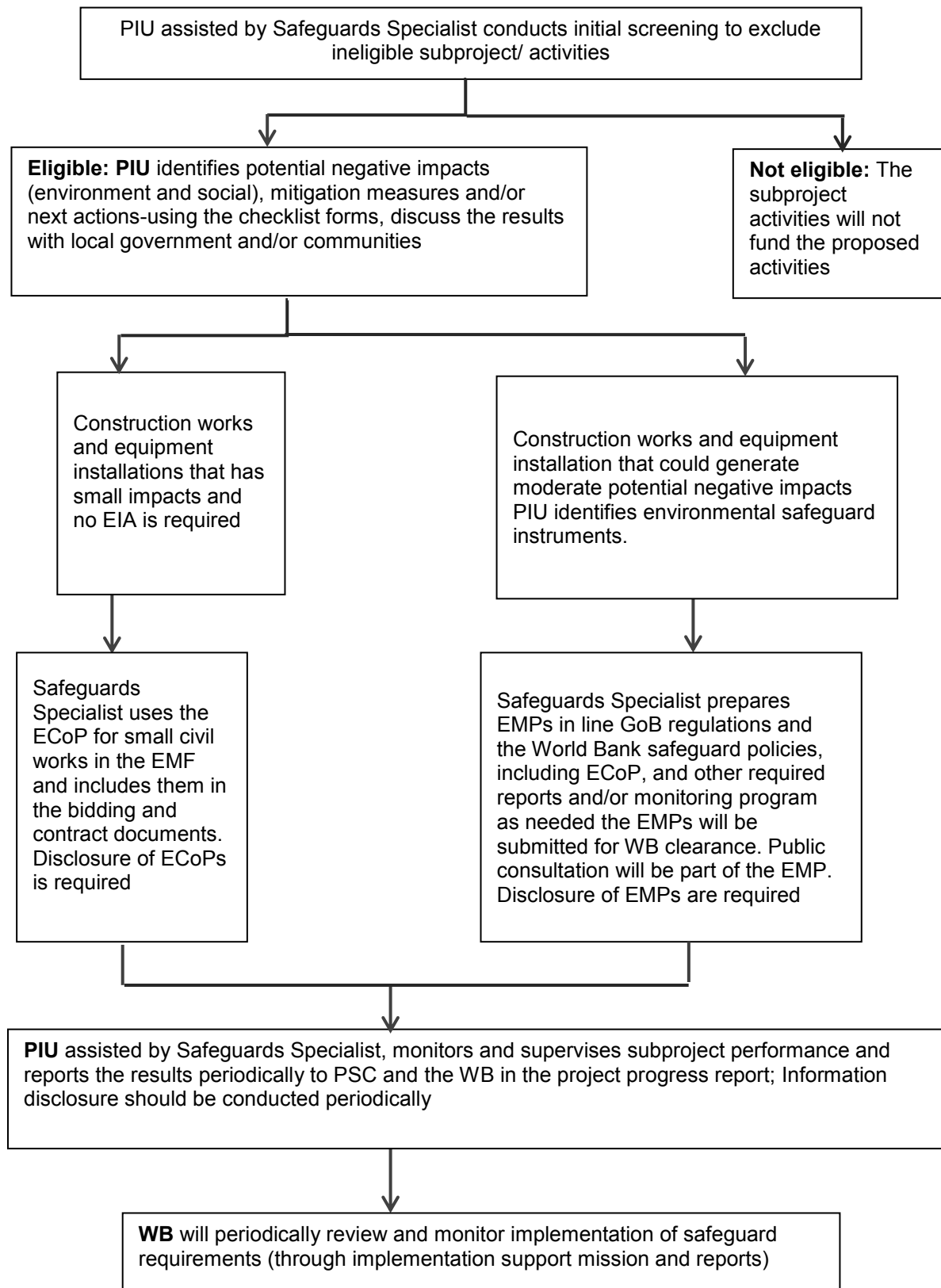


Figure 8.2: Implementation arrangements for EMF

a. Special Environmental Clauses (SECs) included in the Technical Specification

162. An Environmental Assessment highlights the major possible impacts and lists mitigation measures to be implemented. Some of those measures, but not all, are directly related to the construction and installation works of the project. These measures and precautions are to be implemented in the frame of worksites management. When evaluating bid proposals Procurement Committee needs to look at the approach the contractor will use to for environmental management during construction, its previous experiences, and the cost for environmental mitigation. Each contractor will be required to work with the PIU to ensure implementation of mitigation measures. The construction contracts will have Special Environmental Clauses (SECs) to bind the contractors for the above obligations, these are:

- The bidder will be responsible for communicating with and training of its staff in the environmental/social aspects. The contractor will develop the various plans directed towards health, safety, the environment and social issues (discussed in Chapter4 and 5), and get them approved by the PSC before the commencement of the physical works on site.
- The bidder should demonstrate that is has the key personal as permanent staff for at least two (2) years that have expertise in designing and monitoring environmental impacts and implement mitigation measures and health and safety experience in field activities.
- The bidder should demonstrate experience of one (1) construction contract over the last five (5) years in which the environmental impact mitigation knowledge transfer to a local partner or capacity building of the Employer's country staff was carried out satisfactorily.
- The Contractor should institute a program of self-monitoring and enforcement via standard international quality assurance procedures for monitoring the Project Impact, as described in EMF. The self-monitoring and enforcement program shall be in accordance with the associated quality assurance procedures which shall be included in the Contactor's Site Environmental Management Plan.
- The Contractor should, wherever possible, locally recruit the available workforce and shall provide appropriate training as necessary. The Contractor shall consider all aspects of workforce
- The Contractor should, wherever possible, locally recruit the available workforce and shall provide appropriate training as necessary. The Contractor shall consider all aspects of workforce
- The bidder should have available in-house policies and procedures acceptable to the PSC for worksite management.
- The contractor will be required to follow the ECoPs (appropriate ECoPs to be added in the Annex) and sub-project specific EMP (to be added in Annex).
 - Tree Plantation ECoP
 - Pollution Prevention ECoP
 - Waste Management ECoP
 - Construction Management ECoP
 - Health and safety ECoP
 - Fire Safety ECoP
 - Recycling ECoP
 - Effluent Discharge ECoP
 - Acid and Chemical Access ECoP

Table 8.2: Mitigation and Compliance Monitoring Plan

| Environmental Impact/Issue | Mitigation Actions | Responsibility | | Key Performance Indicator | Cost Allocation |
|--------------------------------|---|---------------------------|--|--|--------------------------------|
| | | Execution | Monitoring | | |
| Vegetation removal | <p>Clearing natural vegetation will be avoided as far as possible.</p> <p>Construction work will be established in a natural clearing, to the extent possible.</p> <p>Any loss or damage to vegetation will be compensated in accordance with Tree Plantation Plan</p> <p>Equipment needs to be installed in natural clearing</p> <p>Complete record will be maintained for any tree cutting.</p> <p>Tree Plantation ECoP</p> | Contractor (construction) | Safeguard Specialist | <p>Number of any non-compliance reports</p> <p>Number of tree felled</p> <p>Area of vegetation restored</p> | Included in contractors' costs |
| Emission causing air pollution | <p>Adequate ventilation in infrastructure housing the machine</p> <p>Professional dust purification systems or underwater cutting method</p> <p>Personal protective equipment, such as safety glasses, goggles, welding helmets, or welding face shields</p> <p>Extractors and face masks must be worn and exposed skin should be protected with adequate gloves and clothing.</p> <p>Maintaining ECR 97 standards for air quality, sound and odour</p> | Factory Management | Safeguard Specialist Factory Management | <p>Factory regulations</p> <p>Monitoring of air quality, sound and odor</p> <p>Health record (respiratory diseases) of workers</p> | Included in construction costs |
| Water pollution | <p>Maintaining ECR 97 standards for effluent or waste water from industrial units,</p> <p>Where ever possible recovery and recycling of chemicals</p> | Contractor | Safeguard Specialist, Third party monitoring | <p>Number of non-compliance reports.</p> <p>Number of community complaints.</p> | Included in O&M costs |

| Environmental Impact/Issue | Mitigation Actions | Responsibility | | Key Performance Indicator | Cost Allocation |
|-------------------------------|---|----------------------------------|--|--|-----------------------|
| | | Execution | Monitoring | | |
| | The lakes, water bodies and lowlands must not be used for disposal of any waste or debris. Effluent Discharge ECoP | | | | |
| Electronic and chemical waste | Waste Management ECoP Recycling ECoP A Waste Management Plan will be prepared and approval obtained from PSC. Cleaner production methods and waste minimization should be the first initiative in reducing waste oil at a factory. Destination of any material produced in the subprojects of the project sent for recycling needs to be verified and recycling firms or factories even if they are not funded by the project must maintain GoB standards during recycling or disposal or any kind of emissions from these recycled materials. End of life management of machines should include recovering salvageable materials and timely disposal of material. | Factory Management | Safeguard Specialist | Approved Plan Plan itself will outline appropriate KPIs for its implementation. | Included in O&M costs |
| Health and safety | Place a high emphasis on good housekeeping practices. That is maintain all construction sites in a cleaner, tidy and safe condition. Only trained professionals will install and operate equipment International Labor Office guideline on 'Safety and Health in Construction; World Bank Group's 'Environmental Health and Safety Guidelines BNBC 2015 | Contractor Factory Management | Third party monitoring Factory Management | Occurrence of accidents | Included in O&M costs |

| Environmental Impact/Issue | Mitigation Actions | Responsibility | | Key Performance Indicator | Cost Allocation |
|---|--|----------------------------------|---|--|--------------------------------|
| | | Execution | Monitoring | | |
| Fire safety | Fire license Fire safety ECoP BNBC 2015 | Contractor Factory Management | Safeguard Specialist | Fire license validity Occurrence of accidents | Included in O&M costs |
| Water pollution and disturbance to land ecosystem | Equipment will not be repaired in the field, repairs will take place in designated laboratories. Construction materials will be stored, used and handled appropriately. | Contractor | Safeguard Specialist, Third party monitoring | Number of non-compliance reports. Number of community complaints. | Included in contractors' costs |
| Mishandling of acids and chemicals | Train and instruct all personnel on hazards of acids and chemicals Restriction of access of store Monitoring of use Only trained and accounted for personnel will have access to acids and other chemicals. Acid handling ECoP | Factory Management | Factory Management Third party monitoring | Acids and chemicals are accounted for | Included in O&M costs |

b. Report Requirement

163. Contractor (Component 2 and 3) and grant receiver (component 1.2) are responsible for implementation of EMP during construction works and factory upgradation respectively. Consulting firm responsible for firm level assessment for ESQ standard will monitor the environmental status.

164. PIU (environment safeguard specialist) will conduct field inspections and surveys and will report to the Project Director.

165. DoE will be consulted if complicated issues arise during construction and operation stages. MOC will apply for annual site clearance from DoE.

166. PIU, MOC will prepare the **half yearly (bi annual) progress report** on environmental management and will submit to the World Bank for review.

167. The World Bank will review the screening report, environmental management plan, monitoring reports on random basis and will carry out field visit to cross-check.

9. Grievance Redress Mechanisms

168. Grievances are issues, concerns, problems, or claims (perceived or actual) that individuals or community groups want to address and be resolved by the Project. The grievance mechanism is a locally based, project-specific extra-legal way to deal with and resolve complaints and grievances faster and thus enhance project performance standards in terms of social and resettlement management.

World Bank has specific clauses/guidelines requiring the borrower/client to set up and maintain a grievance redress mechanism at the Project level. This mechanism does not replace donors' accountability mechanism, but is intended to solve grievances at the local level. If aggrieved, it is expected that affected people will first approach the local grievance mechanism before taking the issue to other forum. The GRC system established in this project is expected to be effective in resolving grievances related to compensation and relocation aspects. All affected persons will have full and free access to GRCs. A decision agreed with the aggrieved party at any level of hearing in the GRC system will be binding on the PIU/business entity involved; but will not limit the aggrieved party's right to seek legal redress.

169.

a. Grievance Redress Committee (GRC)

170. A two-tier bottom up GRC system will be established in this Project. First, there will be GRCs at the local level, hereafter called Local GRC (union/municipality level); and second, GRC at the project level to give room for grievances to be fairly reviewed. These GRCs will be established through gazette notifications from the Ministry. The APs will be informed through public consultation that they have a right to have their grievances redressed by the local committees as well as by the project management. The APs can also call upon the support of the implementing NGO (INGO) engaged to implement the RAP to assist them in presenting their grievances or queries to the GRC. Other than disputes relating to ownership right under the court of law, the GRC will review grievances involving all resettlement assistance, relocation and other support. The local GRCs (at the union/municipal level) will hear the grievances first. Only unresolved cases will be forwarded to the next tier – Project level GRC for further review and resolution. Grievances will be redressed within a month from the date of lodging the complaints. GRC decisions will be on a majority basis and will be disclosed and available for review by the stakeholders. If any disputant is unhappy or unsatisfied with the outcome of the Project level GRC, he/she may file cases in the court.

171. GRCs at the union/municipality level (community level) will be formed with representatives from Leather/Footwear/Plastic/Light engineering, local elected representatives from the Local Government Institutions (LGI), representatives of the affected persons (preferably women representative in case of women APs), and RAP implementing NGO.

172. The Project-Level GRC will review all unresolved cases forwarded to by Local GRCs. It will be headed by the PIU. The Project-level GRC with representation of member of MoC and civil society member will further establish fairness and transparency in the resolution of disputes or grievances. In specific cases, Project-level GRC may seek legal advice from the INGO Legal Advisor or any external legal advisor, if required.

b. GRM Documentation and Monitoring

173. To ensure impartiality and transparency, hearings on complaints at the GRC level will remain open to the public. The GRC will record the details of the complaints and their resolution in a register, including intake details, resolution process, and the closing procedures. PMU consultant will maintain the following three GRM Books:

Opening Book: (1) Case no., (2) Date and channel of receipt, (3) Name of complainant, (4) Gender, (5) Father or husband, (6) Complete address, (7) Main objection (loss of land/property or entitlements), (8) Complainants' story and expectation with evidence, and (8) Previous records of similar grievances.

Resolution Book: (1) Serial no., (2) Case no., (3) Name of complainant, (4) Complainant's story and expectation, (5) Date of hearing, (6) Date of field investigation (if any), (7) Results of hearing and field investigation, (8) Decision of GRC, (9) Progress (pending, solved), and (10) Agreements or commitments.

Closing Book: (1) Serial no. (2) Case no., (3) Name of complainant, (4) Decisions and response to complainants, (5) Mode and medium of communication, (6) Date of closing, (7) Confirmation of complainants' satisfaction, and (8) Management actions to avoid recurrence.

174. The GRC will also prepare periodic reports on the grievance resolution process and publish these on their websites. PMU will consolidate reports from the GRCs on GRM and post in their website.

10. Capacity Building, Training and Technical Assistance

175. The effectiveness of the Environmental Management Framework and implementation depends considerably on the understanding and preparedness of project staff and in particular their Environmental Team. It is important that the project authority to sensitize the team on management of environmental issues. This EMF provides guidance, and encourages them to build requisite capacities.

176. One of the most critical aspects of this project is to strengthen the technical capacity of the implementing agencies and target sectors. The capacity building program will be based on an assessment of the current capacity of staff, identification of training needs and involve development of a time-bound plan for areas of training, phasing, and modalities and institutions through which specific training will be provided. The capacity building program should also provide an opportunity for integrating environmental issues into the different policies, projects and activities of Ministry of Commerce, Ministry of Industry, the Bangladesh Investment Development Authority (BIDA) and the Export Promotion Bureau. Inter-sectoral coordination in dealing with cross-cutting issues like environment is a major lacking in Bangladesh.

177. While many of the policies and sectoral regulations in Bangladesh have incorporated environmental issues into their regulatory framework, There is little existing capacity on management of environmental and social issues in MoC. Additionally inadequate capacity and structural reforms means environmental issues are not treated with appropriate urgency and priority and thus create inconsistencies.

178. Bangladesh hosts a large number of training institutes but few provide the kind of targeted quality training programs needed by the emerging sectors especially on environmental compliance and monitoring. Modest levels of FDI mean that the transfers of technology and managerial skills happen slowly as predominantly domestic investors and entrepreneurs are entering new markets. Thus, there is inadequate information on the demand/supply sides as many prospective workers are unaware of opportunities. There is also an underinvestment in skills due to difficulties in getting recognized credentials acknowledged by employers. Training programs provided by centers like the Bangladesh Industrial and Technical Assistance Center (BITAC) are too often obsolete and fail to meet current industry requirements of the light manufacturing, plastics and other manufacturing sectors. The Institute of Leather Engineering and Technology (ILET) does not provide training environmental compliance and monitoring.. While some industry associations do organize *ad hoc* training sessions, they tend to be modest in scale, irregularly organized and of variable quality.

179. Capacity building for environmental safeguard management and also supporting a wide and deep base of technical knowledge on environmental issues will need to be carried out at all tiers of the project, including PIU, Focal Persons for each of the Sectors, contractors and factory management. The various aspects that need to be covered under the capacity building will include general environmental awareness with focus on the following:

- Principles and policies for (natural) environmental mitigation in development projects;
- Legal and institutional aspects, environmental compliance issues
- Project mandates and probable environmental impacts from project;
- The EMF consisting of
 - The environmental designs and implementation plans;
 - Mitigation activities
 - Monitoring, evaluation and reporting methods and mechanisms and,
 - Inter-sectoral and inter-agency collaboration, etc.

180. Capacity building will be targeting relevant officials of MoC, Focal persons for each of the sectors, trainers in the different training institutes and designated personnel from the funded sub projects.

- ◇ Post-training utilization of the trainees and application of knowledge acquired during training activities should be ensured by the management of the agencies. Dependable follow-up measures and structural reformation need be in place to ensure sustainability and effective application.
- ◇ A pool of officers having aptitude, commitment, competence and adaptability need to be identified within each agency to act as trainers and retain the knowledge acquired.
- ◇ Capacity building programs will need to be prioritized and frontloaded for all the implementing agencies. A systematic needs assessment needs to be carried out periodically throughout the project.
- ◇ Encourage decentralization of the training services to ensure optimal utilization of facilities and resources in the regional offices.
- ◇ Incentives should be given to busy personal to attend the training courses by giving due importance during performance appraisal and career advancement.
- ◇ Mid and junior level officers should be given preference to ensure continuity.
- ◇ Where ever possible capacity building activities for EIA and environmental issues should held in tandem with other capacity building activities of the project

181. The project will develop the capacity of some training centers and finance training for enhancing skills in specific areas using existing institutes and mechanisms. The training curricula will include a capacity development program on environmental issues.

182. Table 9.1 provides a summary of various aspects of the environmental trainings to be conducted. The PSC will update the plan during the Project implementation in consultation with the World Bank. During the implementation phase of the project, these trainings will continue to be conducted and coordinated by Environmental Specialist and PIU staff for all relevant O&M personnel and community.

Table 9.1: Environmental Trainings

| Participants | Contents | Responsibility | Schedule | Type of program |
|-----------------------------|--|---|----------------------------------|---|
| Relevant officials from MoC | General environmental and socioeconomic awareness; Principles and policies for (natural) environmental mitigation in development projects; Legal and institutional aspects; Project mandates; Environmental sensitivity of the project influence area Probable environmental impacts from project; Key findings of the EMF; Mitigation measures; EHS issues ECoPs listed in the EMF | Safeguard Specialist with selected national/ international trainers | During planning stage of project | Long term (5 days with 1 day fieldwork) |

| Participants | Contents | Responsibility | Schedule | Type of program |
|---------------------------------------|--|---|--|---|
| Focal persons for each of the sectors | General environmental and socioeconomic awareness; Principles and policies for (natural) environmental mitigation in development projects; Legal and institutional aspects; Project mandates; Environmental sensitivity of the project influence area Probable environmental impacts from project; Key findings of the EMF; Mitigation measures; EHS issues ECoPs listed in the EMF | Safeguard Specialist with selected national/ international trainers | During planning stage of project | Long term (5 days with 1 day fieldwork) |
| Trainers at BITAC, ILET, COEL etc | General environmental and socioeconomic awareness; Principles and policies for (natural) environmental mitigation in development projects; Legal and institutional aspects; Environmental sensitivity of the project influence area Probable environmental impacts from project; Key findings of the EMF; Mitigation measures; Relevant ECoPs listed in the EMF | Safeguard Specialist with selected national/ international trainers | During implementation stage of project | Medium term (3 days) |
| Designated personnel from subprojects | General environmental and socioeconomic awareness; Environmental sensitivity of the project influence area Probable environmental impacts from project; Mitigation measures; EHS issues; ECoPs listed in the EMF | Trainers from BITAC, ILET, COEL etc | During implementation stage of project | Short term (1 day) |

11. Environmental Management and Monitoring Cost

183. Most of the mitigation measures, such as management of construction activities or waste management are to be mainstreamed with the overall subproject (at preparation, implementation and operation phases). The budget for these mitigation measures is to be integrated in the overall subproject budget whether funded by private entrepreneurs or the PIU. Additional and specific budgets for implementing the EMF are required for: (a) staffing of the PIU with appropriate number of environmental specialists; (b) implementation of EMF compliance monitoring by PIU staff including analysis of pollutant samples by outsourcing; (c) environmental audits by 3rd party; (d) capacity building and training. The total budget for these activities is estimated at US\$225,000, as detailed in Table 11.1 will be provisioned in the project budget.

184. The breakdown of estimated costs is given in Table 11.1.

Table 10.1: Cost Estimates for Environmental Management and Monitoring for PIU

| Sl | Activities | Total | Remarks |
|-------|---|---------|--|
| | | USD | |
| 1 | Baseline information, development of conservation plans and monitoring during instrument installation, construction and operation | | Environment Safeguard Specialist's Deliverable |
| 2 | Consultants and 3 rd Party Monitoring | | |
| | | 75,000 | |
| 3 | Environmental/Safeguards Specialist | 75,000 | Full time contract for 5 years |
| 5 | Analysis of pollutant samples through outsourcing for monitoring related activities, Supplies, travels and other activities | 30,000 | |
| 6 | Capacity building and institutional strengthening | 45,000 | Includes all levels of training |
| Total | | 225,000 | |

12. Conclusions and Recommendations

This EMF is a document which provides guidelines as to how the environmental safeguard issues can be addressed both in the project management level and for the sub-components that are yet to be identified specifically. While many of the activities of the EC4J project do not have any construction or installations and do not need any Environmental Clearance, sub component Export Readiness Fund (sub component 1.2) will provide grant-based incentives to finance advisory services and equipment that enable firms to identify and address ESQ compliance gaps and upgrade products and production processes. Some of the equipment include environmental monitoring equipment, end-of-pipe equipment upgrading, ICT systems, safety equipment, technical measurement equipment. Production of shoes and leather goods (capital up to 5 hundred thousand Taka), plastic & rubber goods (excluding PVC), agricultural machinery and equipment, Industrial machinery and equipment are considered to be Orange A. The Export Readiness Fund will cover projects which may include both services and fixed asset expenditures up to a maximum grant of US\$200,000. These activities will be categorised as Red per ECR 97. Component 2 Productivity Enhancement Program and Component 3 Public Investment Facility for Infrastructure Constraints: will require construction of technology upgrade centers/CFCs and associated access roads. ECR 97 also includes standards for air quality, odour, sound and waste from industrial units or projects. These standards may be enforced in a stringent manner if considered necessary in view of the environmental conditions of a particular situation. The proposed project has been classified as a category 'B' project, and one environmental safeguard policy 'Environmental Assessment policy (OP/BP 4.01)'. In general, the project is not expected to have significant environmental impact due to the nature of investments. However, the project may finance some infrastructure and install some equipment.

The PIU in the MOC is to start with no existing capacity on the management of environmental and social issues. The PIU has to build up institutional capacity to manage the project, including planning and implementation of actions to meet the environmental and safeguards requirements. At least one professional full-time Environmental Safeguard Specialist should be appointed early in the project implementation and environmental consultants should be procured as and when necessary. The Environmental Officer will be based in the PIU and be responsible for assisting the PIU on environmental screening of the sub-project proposals; and monitoring the implementation of the subprojects. In addition to the PIU based environment specialist, i) environmental monitoring will be part of the consulting firm that will perform 400 ESQ firm-level assessments and advise on improvements, including on the ESQ; and (ii) the Export Readiness Fund (which will have ad hoc technical/environmental specialists advising on applications linked to environmental management and compliance)

Under the above general recommendations, the following specific conclusions and recommendations have been derived from the work during EMF development.

- While the EMF provides the guidelines to ensure that environmental safeguards are implemented in the EC4J project, the awareness on the issue is essential for all staff involved in the project implementation including the top Management.
- Best practice in environmental management must be inherent in sub-project preparation and implementation. Provisions to this end must be included in technical specifications, sitting, design criteria, contracts, operations and maintenance.
- The EMF identifies various environment related issues and recommends remedial measures. It is essential that these recommendations are implemented for making the EMF functional especially in building human resources in the sub-projects through appropriate training at all levels i.e., management, professional and technical.
- The Environmental monitoring, reporting and auditing recommended in the EMF document should be done at regular intervals as these are essential for successful implementation of the EMF.

- Strong public participation especially at the community levels should be ensured at all stages of the project.

References

1. The Bangladesh Environment Conservation Act, 1995 *and* subsequent revisions
2. The Environment Conservation Rules, 1997 and subsequent revisions
3. World Bank (1999) OP/BP 4.01- Environmental Assessment
4. WBG (2007), Environmental, Health & Safety (EHS) Guidelines, International Finance Corporation (IFC), World Bank Group (WBG), April 30, 2007.
5. BNBC (2006 and 2015 draft), Bangladesh National Building Code, Bangladesh House Building Research Institute, Dhaka

ANNEX I

As mentioned earlier, the components and activities of the project will be implemented all over Bangladesh. However, component activities and locations are yet to be finalized. As result it is not possible to prepare any project specific environmental baseline. Alternatively, the EMF includes the generic environmental baseline for relevant component type and guideline for collection of information and data. The baseline information can be used in the screening matrix given in **chapter 5** to identify and monitor probable impacts and identify mitigation measures.

Preliminary findings and recommendations from the ongoing prefeasibility study work indicate that promising candidates and locations for the technology centers are:

- (i) within proximity of Dhaka with a focus on light/general engineering;
- (ii) within proximity of Dhaka with a focus on testing services for electrical and electronics goods;
- (iii) within proximity of Chittagong with a focus on light/general engineering/plastics; and
- (iv) within proximity of Savar with focus on footwear and leather goods.

The primary objective in this chapter is for providing an environmental baseline that potential impacts at the construction and operation phases of new technology centers focus on four different sector as leather, footwear, plastic & light engineering. Baseline data includes an inventory of physical, ecological parameters. Covering these aspects, data has been compiled for:

- ◇ Infrastructure of the factory/industrial unit;
- ◇ Health and safety issues;
- ◇ Land Environment (topography, geology, seismology and soils);
- ◇ Water Environment (water resources, water quality);
- ◇ Air Environment (meteorology, air quality);
- ◇ Noise Environment (noise levels);
- ◇ Ecological Environment

Baseline data for the study area was collected using the following methods:

- ◇ Published Literature (Physiography, Geological and Hydrological Survey Reports on that locations)
- ◇ Primary Site visit
- ◇ Local people consultation
- ◇ Organizational Visit

Organization visited:

- 1) M/S Progoti Engineering Works, Shonir Akhra, Dhaka
- 2) Bengal Plastic Factory, Asulia, Dhaka
- 3) Blue Ocean Footwear Ltd. East Chandra, Kaliakoir, Gazipur

Examples of baseline description for the following are given in this section. It should be noted that all three are situated in the same district, thus all information related to physical and ecological components will remain the same. However, the factory and infrastructure information and the influence area will change.

M/S Progoti Engineering Works, Shonir Akhra, Dhaka

Type of Industry: Light Engineering

Information on the Industrial Unit:

- ◇ Location and area of the factory/firm: Shonir Akhra, Dhaka, factory area: 10,000 sqft
- ◇ Products and services: Manufacture of tools, molds for plastic industries, support services for other industries
- ◇ Raw material used and source of raw material: Metal, International (further details to be added eg, type and volume etc)

- ◇ Machines used: Computer Numeric Control or CNC machines (molding and shaping machines). The molding machines produce metal dust and particles. No loud noise.
- ◇ Waste: scrap metal which is recycled (further details to be added eg, type and volume etc)
- ◇ Presence and use of ETP or access to CETP: ETP is not required as no liquid discharge is generated.

Information on Health and Safety issues:

- ◇ Total no. of employees and workers: 20 skilled and semi skilled workers. All male.
- ◇ Building and infrastructure: Large shed with adequate lighting and space to move. Adequate ventilation as height of building is standard industrial height.
- ◇ Access to utilities and maintenance of utility systems: No information.
- ◇ Access to services by workers: One toilet. No canteen or medical facilities.
- ◇ Presence of inflammable materials and storage of materials: No inflammable materials
- ◇ Presence of fire-protection systems inside factory buildings: No visible fire protection system noted.
- ◇ Fire license from relevant authority: No information
- ◇ Access to protective gear such as masks, gloves, protective gear for eyes and ears and quality of the gear: Protective gear was not being used. Uniforms were not being used
- ◇ Access to health and safety training and awareness materials: There were no visible material warning workers of health and safety issues. Workers have gone through 15 day training about handling of machines.

Physical/Chemical Hazards

- ◇ Air Quality and water/ wastewater: Minor, metal dust from machines
- ◇ Rotating and Moving Equipment: Use of rotating and moving equipment present, however CNC machines are adequately covered.
- ◇ Welding / Hot Work, Fire and Explosions: No
- ◇ Corrosive, oxidizing, and reactive chemicals: Use of cutting oil
- ◇ Noise, Vibration, Electrical and Eye Hazards: Minor, as CNC machines are covered
- ◇ Asbestos Containing Materials (ACM): None
- ◇ Biological Hazards: None
- ◇ Working at Heights: no

Monitoring/Training

- ◇ Work Environment Facilities Monitoring, Accidents and Injury Monitoring, Environmental Parameters (Air/water) Monitoring: Inadequate
- ◇ Hazard Materials Monitoring, Fire/Safety Training, OHS/First Aid Training: Inadequate
- ◇ Access to health and safety training and awareness materials: Inadequate

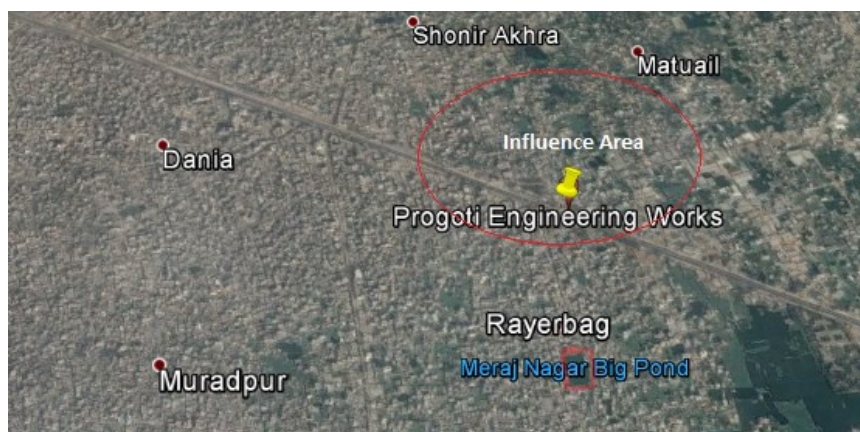


Figure 1: Light Engineering Industry Influence Area at Shanir Akhra, Dhaka.

Bengal Plastic Factory, Asulia, Dhaka

Type of Industry: Plastic

Information on the Industrial Unit:

- ◇ Location and area of the factory/firm: Ashulia, Dhaka; Area: 9178 sq m
- ◇ Products and services: Plastic products
- ◇ Raw material used and source of raw material: Plastic pellets; International and recycling of local plastic
- ◇ Machines used: Loud noise, no liquid discharge or emissions
- ◇ Waste: Plastic which is recycled in factory
- ◇ Presence and use of ETP or access to CETP: ETP is not required as no liquid discharge is generated.

Information on the Industrial Unit:

- ◇ Location and area of the factory/firm: Ashulia, Dhaka; Area: 9178 sq m
- ◇ Products and services: Plastic products
- ◇ Raw material used and source of raw material: Plastic pellets; International and recycling of local plastic
- ◇ Machines used: Loud noise, no water discharge or emissions
- ◇ Waste: Plastic which is recycled in factory
- ◇ Presence and use of ETP or access to CETP: ETP is present and working

Information on Health and Safety issues:

- ◇ Total no. of employees and workers: more than 100 skilled and semi skilled workers. Male and female
- ◇ Building and infrastructure: Large shed with adequate lighting and space to move. Adequate ventilation as height of building is standard industrial height.
- ◇ Access to utilities and maintenance of utility systems: Access to utilities is present including electricity and water. However, the factory has own generator.
- ◇ Access to services by workers: Canteen, medical facilities, daycare facilities present. Separate sanitation facilities for men and women present.
- ◇ Presence of inflammable materials and storage of materials: Flammable materials are used. One reporting of fire.
- ◇ Presence of fire-protection systems inside factory buildings: Fire protection system noted. Adequate warnings around. Adequate and EQS compliant
- ◇ Fire license from relevant authority: License has been obtained
- ◇ Access to protective gear such as masks, gloves, protective gear for eyes and ears and quality of the gear: Protective gear was being used. Uniforms were being used. Adequate and EQS compliant
- ◇ Access to health and safety training and awareness materials: Visible material warning workers of health and safety issues. Workers are trained on job training about handling of machines. Adequate and EQS compliant

Physical/Chemical Hazards

- ◇ Air Quality and water/ wastewater: Minor.
- ◇ Rotating and Moving Equipment: Use of moving equipment present
- ◇ Welding / Hot Work, Fire and Explosions: No
- ◇ Corrosive, oxidizing, and reactive chemicals: No
- ◇ Noise, Vibration, Electrical and Eye Hazards: Noise and vibration is major
- ◇ Asbestos Containing Materials (ACM): None

- ◇ Biological Hazards: None
- ◇ Working at Heights: no

Monitoring/Training

- ◇ Work Environment Facilities Monitoring, Accidents and Injury Monitoring, Environmental Parameters (Air/water) Monitoring: Adequate and EQS compliant
- ◇ Hazard Materials Monitoring, Fire/Safety Training, OHS/First Aid Training: Inadequate
- ◇ Access to health and safety training and awareness materials: Adequate and EQS compliant



Figure 2: Surrounding environment (Water Body)

Blue Ocean Footwear Ltd. East Chandra, Kaliakoir, Gazipur

Type of Industry: Footwear

Information on the Industrial Unit:

- ◇ Location and area of the factory/firm: Ashulia, Dhaka; Area: 9178 sq m
- ◇ Products and services: Footwear
- ◇ Raw material used and source of raw material: Processed leather, gum, plastic, foam, thread etc;
- ◇ Machines used: Loud noise, liquid discharge and emissions
- ◇ Waste: Leather, sent to third party recycling plants
- ◇ Presence and use of ETP or access to CETP: ETP is present and working

Information on Health and Safety issues:

- ◇ Total no. of employees and workers: more than 100 skilled and semi-skilled workers. Male and female
- ◇ Building and infrastructure: Large shed with adequate lighting and space to move. Adequate ventilation as height of building is standard industrial height.
- ◇ Access to utilities and maintenance of utility systems: Access to utilities is present including electricity and water. However, the factory has own generator.
- ◇ Access to services by workers: Canteen, medical facilities, daycare facilities present. Separate sanitation facilities for men and women present.
- ◇ Presence of inflammable materials and storage of materials: Flammable materials are used. Separate storage and EQS compliant

- ◇ Presence of fire-protection systems inside factory buildings: Fire protection system noted. Adequate warnings around. Adequate and EQS compliant
- ◇ Fire license from relevant authority: License has been obtained
- ◇ Access to protective gear such as masks, gloves, protective gear for eyes and ears and quality of the gear: Protective gear was being used. Uniforms were being used. Adequate and EQS compliant
- ◇ Access to health and safety training and awareness materials: Visible material warning workers of health and safety issues. Workers are trained on job training about handling of machines. Adequate and EQS compliant

Physical/Chemical Hazards

- ◇ Air Quality and water/ wastewater: Minor.
- ◇ Rotating and Moving Equipment: Use of moving equipment present
- ◇ Welding / Hot Work, Fire and Explosions: No
- ◇ Corrosive, oxidizing, and reactive chemicals: No
- ◇ Noise, Vibration, Electrical and Eye Hazards: Noise and vibration is major
- ◇ Asbestos Containing Materials (ACM): None
- ◇ Biological Hazards: None
- ◇ Working at Heights: no

Monitoring/Training

- ◇ Work Environment Facilities Monitoring, Accidents and Injury Monitoring, Environmental Parameters (Air/water) Monitoring: Adequate and EQS compliant
- ◇ Hazard Materials Monitoring, Fire/Safety Training, OHS/First Aid Training: Inadequate
- ◇ Access to health and safety training and awareness materials: Adequate and EQS compliant

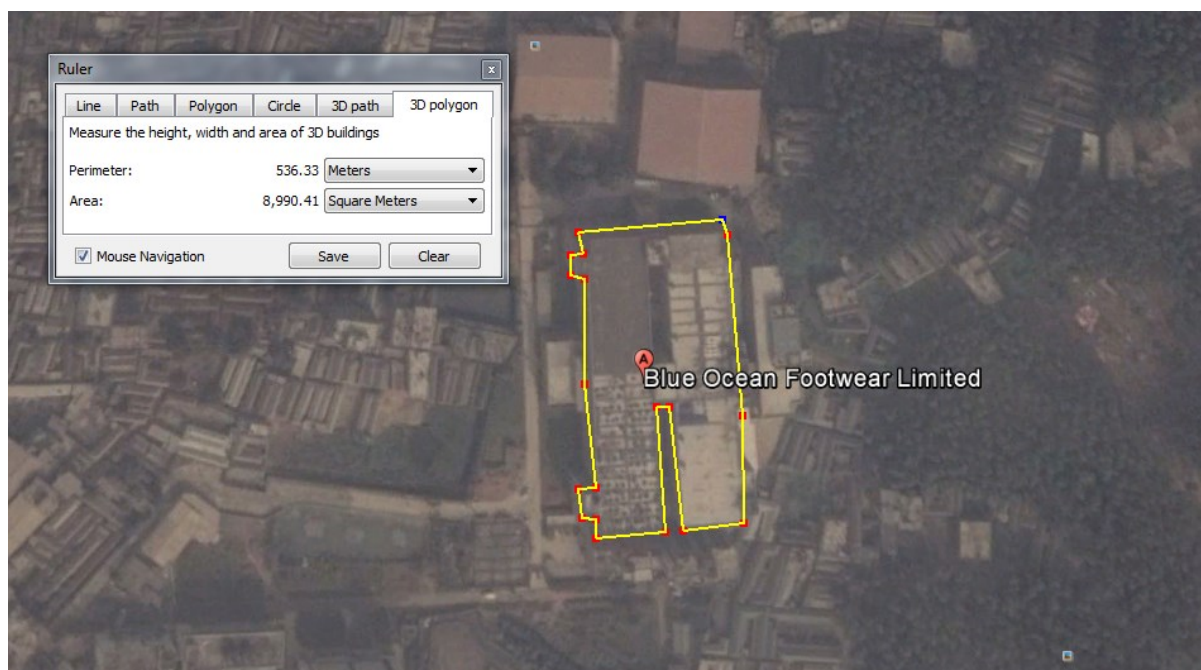
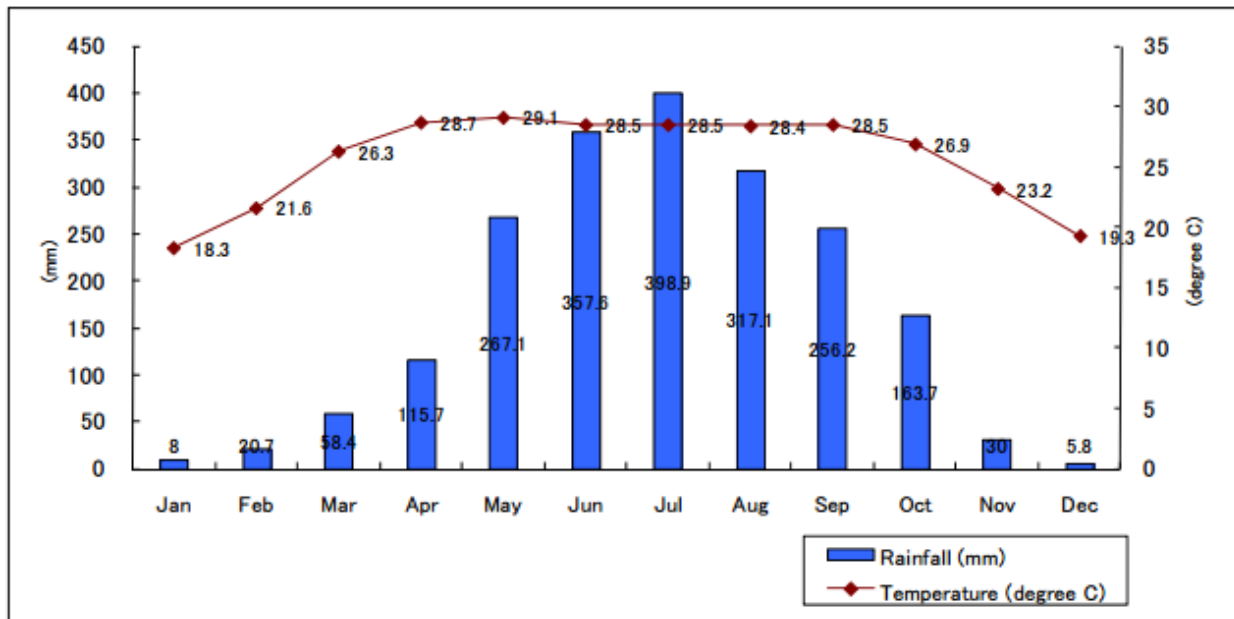


Figure 2: Surrounding environment of Blue Ocean factory

Description of the physical environment

Climate and Temperature

Under the Koppen climate classification, Dhaka has a tropical monsoon climate with an annual average temperature of 25 degrees Celsius and rainfall of about 2,000 mm. The climate is divided into hot and rainy period from May to October, cool and dry period from November to February, and hot and dry period from March to April. About 80% of the annual rainfall occurs between May and September.



Source: <http://www.worldclimate.com/>

Figure 5: Monthly Average Rainfall and Temperature of Dhaka

Topography and Geology

Dhaka is located in the southern tip of Madhupur tract (Pleistocene terrace). Two characteristic geological units of Madhupur Clay of the Pleistocene times and alluvial deposits cover the Dhaka city and surroundings. The Madhupur Clay is the oldest sediment exposed in and around the city area having characteristic topography and drainage. The major geomorphic units of the city are the high land or the Dhaka terrace, the low lands or floodplains, and depressions and abandoned channels. Low lying swamps and marshes located in and around the city are other major topographic features. The elevation of DCC area varies from 2 to 13 meters above the mean sea level. The most of the developed areas including the proposed project site are at an elevation of 6 to 8 meters above the mean sea level. The subsurface sedimentary sequence, up to the explored depth of 300 meters, shows three distinct entities. One entity is the Madhupur Clay characterized by reddish plastic clay with silt and very fine sand particles. This Madhupur Clay unconformably overlies the Dupi Tila formation of the Plio-Pleistocene times, composed of medium to coarse yellowish brown sand and occasional gravel.

The Madhupur Clay and Dupi Tila formation generally are from surface to 10 meters and from 10 to 50 meters below ground respectively. The bearing stratum with soil bearing capacity $N=50$ is located in 18 to 20 meters below ground. The incised channels and depressions in the city are floored by alluvial floodplain deposits and are further subdivided into lowland alluvium and highland alluvium.

The city area does not show any surface folding. However, a large number of faults and lineaments have N-S, E-W, NE-SW and NW-SE trends recognized from air photo interpretation and the nature of the stream courses. All four sides of the city are bounded by major faults.

The city is surrounded by four major river systems. The south of Dhaka city is surrounded by the Buriganga River. The western part of Dhaka is bounded by the Trug River which is connected by a small Tongi Khal on the north. The eastern part of Dhaka is bounded by the Balu River which is also hydrologically connected with Tongi Khal.

The Dupi Tila sand aquifer is the main source of water in Dhaka city. Madhupur Clay overlies the aquifer with a thickness of 8 to 45 meters (averages 10 meters). The aquifer varies in thickness from 100 to 200

meters (averages 140 meters). Groundwater occurs at a depth of 25 to 30 meters in the central part of the city. In the surrounding areas, the groundwater table lies at a depth of 15 to 20 meters. Rivers in and around the city act as the main sources of recharge of the aquifer along the riverbeds. Other sources of recharge are vertical percolation of rain and flood water, and leakage from water supply and sewer system of the city.

Air Quality

The main air pollutants in Dhaka are Nitrogen Oxides (NO_x), Sulfur Dioxide (SO₂), Particulate Matter (PM, usually expressed as PM with diameter of 10 microns or smaller: PM₁₀, or 2.5 microns or smaller: PM_{2.5}), Carbon Monoxide (CO), Ozone, Volatile Organic Compounds (VOCs), and Lead. The motor vehicles and traditional brick kilns contribute predominantly to the air pollution.

The motor vehicles are major source of PM pollution that contributes to the risk of developing cardiovascular and respiratory diseases, as well as lung cancer. Most of the PM pollution (> 80%) comes from the diesel-run vehicles. Hundreds of brick kilns operate during the dry season from November to April in the low agricultural land surrounding Dhaka city and generate smoke dust including SO₂, NO_x and hydrocarbons that contribute to worsening the ambient air and damage of public health.

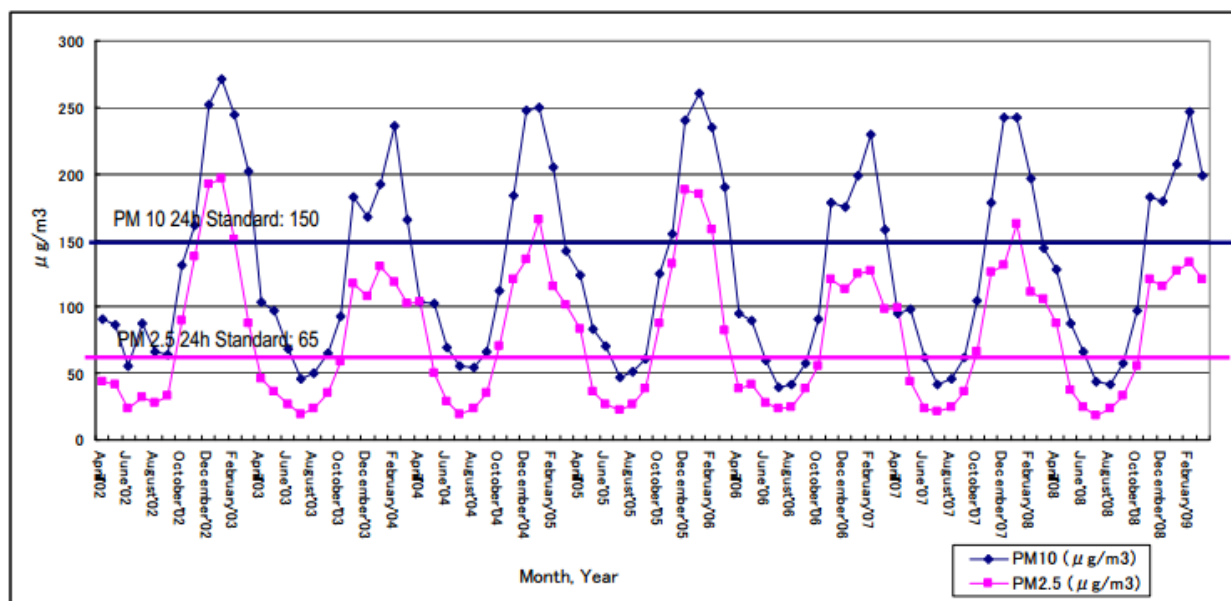
Dhaka has grown rapidly in motorization in recent years. The total number of registered vehicles in Bangladesh has increased from 0.07 million in 1970 to 0.53 million in 2009. Dhaka has more than 3,000 old minibuses which run on diesel fuel. 80% of these buses are unfit to roll over on the city roads because of their high emissions. Even though aging trucks are not allowed to run into Dhaka city during day time, the trucks contribute significantly to worsening Dhaka's air particularly during the dry winter months.

Despite the phasing out of two-stroke three wheeler baby taxis in 2003, the air quality benefit could not be sustained because of a great number of smoky diesel vehicles. Dhaka has witnessed a tremendous growth of Compressed Natural Gas (CNG)-run vehicles in the recent years. A sizeable number of gasoline-run vehicles have been converted to CNG vehicles. The refitted engines which run on the dual fuel are posing a real threat to the already polluted city's air, and the safety and security of commuters.

Emission inventory of mobile sources in Dhaka show that contributions of different vehicles dominate specific types of pollutants. Petrol-fueled light-duty vehicles and auto-rickshaws contribute to most of CO, while diesel-fueled buses and trucks contribute to most of NO_x. Two and three-wheeled auto-rickshaws contribute to about half of hydrocarbon emission. PM emission comes mostly from diesel buses and trucks (45%), and auto-rickshaws (40%).

According to a study conducted by the Bangladesh Atomic Energy Commission, approximately 55% of the PM₁₀ are attributed to suspended soil and motor vehicle (31%), and PM_{2.5} is mostly attributed to motor vehicles (29%) and natural gas/ diesel burning (46%).

The average levels of PM₁₀, NO_x and SO₂ has been increasing since 1990's. However, the annual average levels of NO_x and SO₂ are 40~60 µg/m³ and 15~20 µg/m³ respectively, and remained below Bangladesh national ambient air quality standards (NO_x: 100 µg/m³, SO₂: 80 µg/m³) in from 2002 to 2007. The most serious pollutant from the health point of view in Dhaka is Particulate Matter (PM). The PM₁₀ and PM_{2.5} levels continue to exceed Bangladesh national ambient air quality standards (PM₁₀: 24 hours 150 µg/m³ and annual 50 µg/m³, PM_{2.5}: 24 hours 65 µg/m³ and annual 15 µg/m³) especially during the dry winter months which last about 100 days per year.



Source: Department of Environment

Figure 6: Monthly Average Level of PM10 and PM2.5 in Dhaka City

Water Quality

Dhaka is surrounded by rivers and inter-connected canals which have formed a life-line for city residents. In the last twenty years, migration from rural to urban area, earth filling of the rivers, unregulated industrial expansion, overloaded infrastructure, confusion about institutional responsibility for quality of the water bodies and ineffective enforcement of environmental regulations have caused serious water pollution on the surface water.

There is only one sewage treatment plant at Pagla which is currently operating below the capacity because of the sewerage system failures, and few factories operating effluent treatment systems in DMA. Almost all waste from the residents, industry and millions of farm animals, pesticides and fertilizers are dumped into Dhaka's surface water. These wastes infiltrate to the ground and pollute the groundwater.

Dhaka surface water is very poor condition, especially in the dry season. For some six months of a year, the flow rate of the rivers is negligible or often only a tidal pulse, but the volume of effluent flowing into the canal and river system remains about the same as during the wet season. Consequently, dilution of the contaminants is drastically reduced in the dry season. From a viewpoint of Biochemical Oxygen Demand (BOD) and Ammonia levels, the most polluted water bodies are the Buriganga and Sitalakhya Rivers, Tongi Khal and the canal system in Dhaka East, where very low dissolved oxygen levels that are 1.5~4 mg/l reflect contamination caused by organic waste, domestic sewage and chemical residues from factories. These water bodies are biologically dead during the dry season.

The high levels of BOD (Standard 6 mg/l) that are 10~30 mg/l in the Buriganga and Sitalakhya Rivers reflect mainly the high density of discharging untreated industrial wastewater into the rivers. Some tidal backflow of relatively clean water from the Meghna and Dhaleswari Rivers results in dilution of contaminants in the southern reaches of both the Buriganga and Sitalakhya Rivers, but the extent of this positive effect is limited.

The very high ammonia levels, particularly in the canal system in Dhaka East, the Balu River and the southern reaches of the Buriganga River, reflect the discharge of sewage into these waterways. Ammonia in Dhaka East area increases from about 0.3 mg/l in October to greater than 20 mg/l in March-April, which is twenty times higher than the national environmental quality standard (1.2 mg/l) for ammonia in surface water.

Fauna and Flora

Because Dhaka city has urbanized well, there are few natural forest areas in Dhaka Metropolitan Area (DMA). Significant natural forest areas exist only in the limited northern part of RAJUK area. However, the vegetation of Dhaka city has a variety of indigenous and exotic species especially in parks and gardens. Approximately 310 hectares in DMA accommodate parks and gardens. It is estimated that there are nearly 41-46 parks/gardens such as Osmani Uddyan, Bahadur Shah Park, National Botanical Garden, Zia Uddyan (Garden), Baldha Garden, Suhrawardi Uddyan, Ramna Park. Baldha garden and National Botanical Garden have a wide variety of plants and trees. Besides local species, many exotic species were planted along the roadside, old secretariat area and in residential bungalows for the beautification of the city during 1905-06 when Dhaka was the capital of East Bengal and Assam. About 50 species were then planted, of which Aswath (*Ficus religiosa*), Debdaru (*Polyalthia longifolia*), Narikel (*Cocos nucifera*), Ashok (*Saraca indica*), Mahogany (*Swietenia* sp.), Shegun (*Tectona grandis*), Sissu (*Dalbergia sissoo*) were very common.

Many areas (Mirpur, Dhanmondi, Mohammadpur etc.) of DMA had been covered by natural vegetation during the earlier days. With increased population, industrial and commercial establishments, and construction of roads and highways, most of the vegetation have been cleared over the years. The Modhupur green area had been a habitat for many animals particularly elephants, tigers, leopards, boars, deer and buffaloes till the beginning of the nineteenth century. Monkeys had also been found in abundance till the mid-nineteenth century. Foxes, jackals, squirrels and otters have almost disappeared. Bats and rats are still seen sometimes within the city area. A large number of bird species were common in Dhaka, particularly pigeons, doves, kingfishers, parrots, jungle fowl, common pea-fowl, kite, fishing eagle, vulture etc. But many of these are now extinct and the rest are rapidly disappearing. One good point is that a large number of migratory birds are found in Dhaka (especially in the lake of the National Zoo) in winter. Various species including ducks, seagull, falcons, harriers, plovers, curlews and sandpipers are seen there during winter. Many types of poisonous snakes and non-poisonous snakes were very common till 1960s. A few species including Cobra may still be found. The number of amphibians and fishes has gone down in the last few years.

Table 1: List of different trees around Dhaka city

| Local Name | Scientific Name |
|-------------|---------------------------------|
| Mahogani | <i>Swietenia mahogani</i> |
| Debdaru | <i>Polyalthia longifolia</i> |
| Krisnachura | <i>Delonix regia</i> |
| Koroi | <i>Albizia lebbeck</i> |
| Bat | <i>Ficus benghalensis</i> |
| Bokul | <i>Mimusops elengi</i> |
| Hartaki | <i>Terminalia chebula</i> |
| Shishu | <i>Dalbergia sissoo</i> |
| Eucaliptus | <i>Eucalyptus citriodora</i> |
| Boroi | <i>Zizyphus mauritiana</i> |
| Neem | <i>Azadirachta indica</i> |
| Kadom | <i>Anthocephalus cadamba</i> |
| Akashmoni | <i>Acacia auriculiformis</i> |
| Konok Chapa | |
| Jam | <i>Syzygium cuminii</i> |
| Peara | <i>Psidium guava</i> |
| Khejur | <i>Phoenix Sylvestris</i> |
| Kathal | <i>Artocarpus heterophyllus</i> |
| Palm | <i>Borassus flabellifer</i> |
| Aam | <i>Mangifera indica</i> |

Kath Badam

Terminalia catappa

Source: (JICA Study team of MRT report)

Noise and Vibration

Level of noise in Dhaka city is now a major concern for the general people because it has exceeded the tolerance level. According to WHO survey at 45 locations of Dhaka city, most of the traffic points and many of the industrial, residential, commercial, silent and mixed areas are suffering noises exceeding the standard limits of Bangladesh.

WHO found noise levels of 70 dB in Dhaka Medical College, 75 dB in Shakhari Patti, 90 dB in English Road, 88 dB in Rajuk avenue and 85 dB in Tejgaon, though the standard limit for those area are 50, 55, 60, 70 and 75 dB respectively. These are mainly due to vehicular horns and movement, loudspeakers from processions and meetings, high volume of audio players from roadside small business enterprises and others.

The noise scenarios, in fact, show an extreme threat to human health, especially for elderly people and children. Moreover, the traffic personnel, rickshaw pullers, open vehicle drivers, road side workers, small scale business enterprise workers etc are exposed for long-term noise pollution which might cause severe mental and physical health problems. Nearly 0.5 million of motor vehicles and over 0.4 million of non-motorized vehicles are plying the roads and streets of the city. These vehicles on limited road surface cause extreme traffic congesting, especially near the bus terminals and bus stops. Many of the major roads, lanes and by-lanes remain damaged all year around, which causes collision of vehicles and high levels of noise.

Natural Reserve

There are no nature reserves such as national park or wildlife sanctuary in the area. Two botanical gardens as natural classified area exist in DMA and are managed by forest department.

Surface Water

In this baseline report we have illustrates the surrounding environmental factors as well as the Long-term (1982 to 2012) simulated flows of our visited surrounding rivers as Buriganga, Dhaleswari, Bangshi, Karnatali and Turag River. The average lowest median flow of the rivers were found in the months of Jan and Feb for Buriganga, Dhaleswari and Feb and Mar for Bangshi, Karnatali and Turag River.

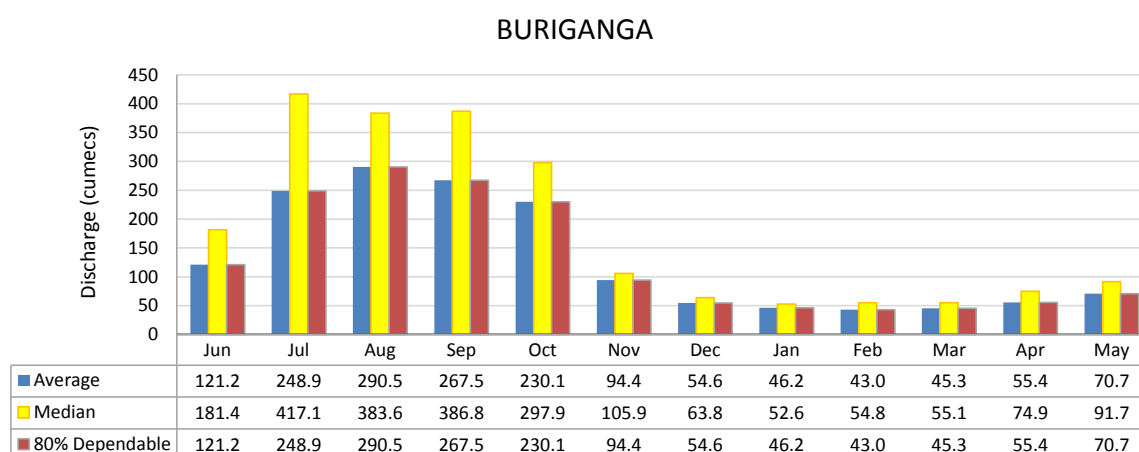


Figure 7: Simulated River Flows Buriganga, Dhaleswari

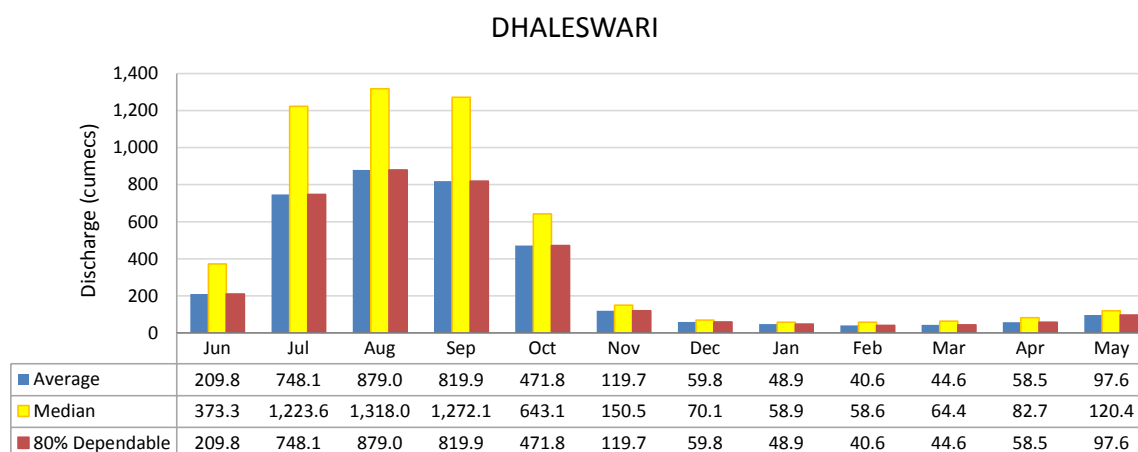


Figure 8: Simulated River Flows Buriganga, Dhaleswari

When compared to the Base year crop water demands, there is sufficient utilizable river water resources in all dry season months. However, it should be noted that due to topography and other physical constraints as well as downstream requirements, it may not be possible to utilize all the available river water resources.

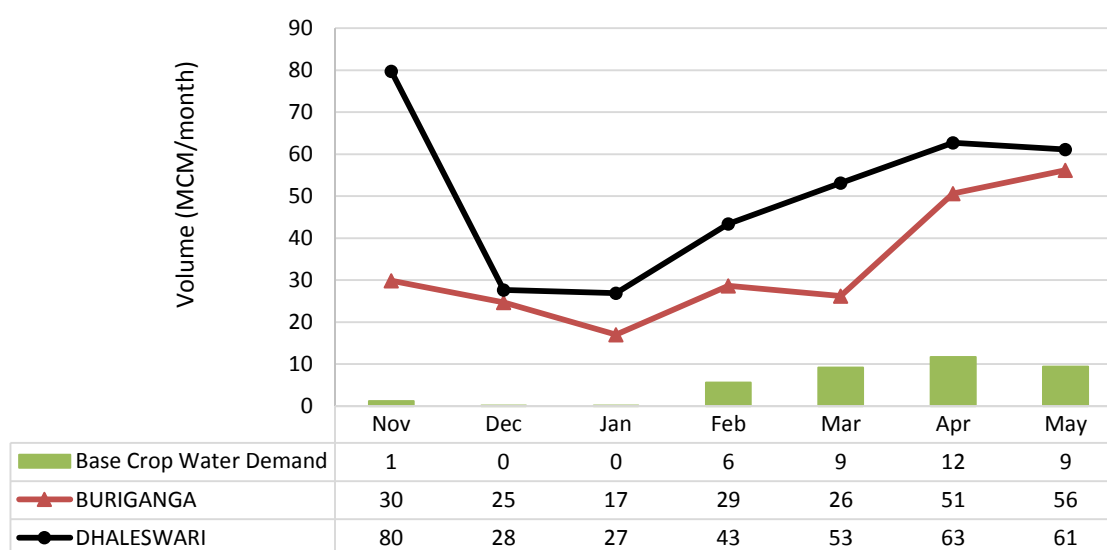


Figure 9: Dry Season Crop Water Demand and Utilizable River Resources (MCM/month)

The dry season volume of water stored in the flood plains is potentially a resource for social, economic and environmental uses. This dry season static water volume in the floodplains of this area is governed by the low river stage and has been estimated for the months of Nov to May. The underlying assumption is that as the floodplains are generally connected to the river, the static water volume varies from month to month based on the river water level. Mean, median and 80% dependable river stages (from the long-run simulation, 1983-2012) was compared to these areas elevation-storage curve presented earlier in the report. The corresponding volume is considered the potential static water resource for these areas if interventions are made to regulate drainage to the river. Utilizable static water resources is the median volume in excess of 80% dependable volume. In this approach, static water stored in ponds and other local depressions disconnected from the river are not included in the estimate.

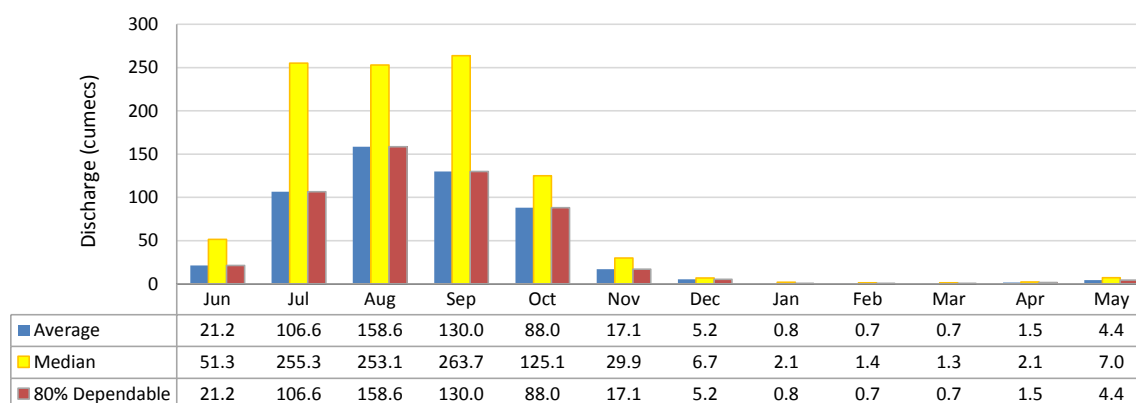
Table 2: Estimated Potentiality of Static Water Resource during Dry Season (1983-2012)

| SN | Water Volume (MCM) | Nov | Dec | Jan | Feb | Mar | Apr | May |
|----|--------------------|-----|-----|-----|-----|-----|-----|-----|
| 1 | Average | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 1.3 |
| | Median | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 1.8 |

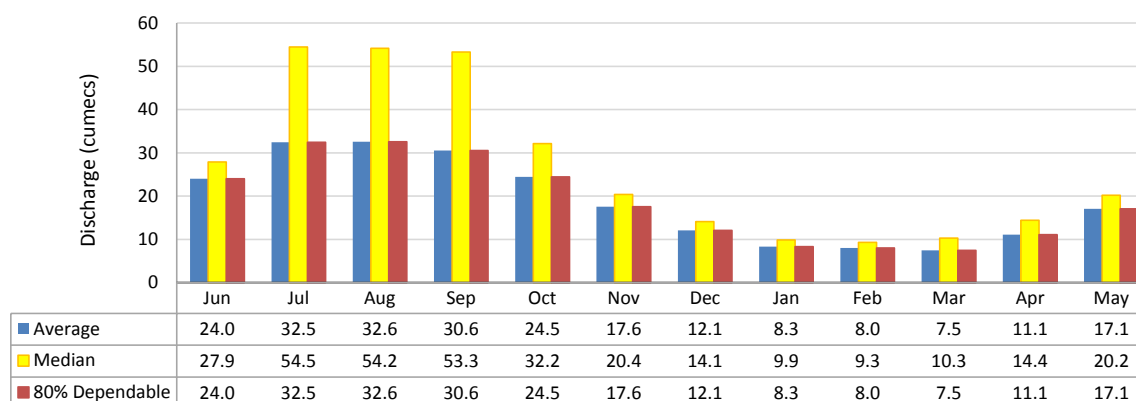
| | | | | | | | | |
|----------|-----------------------|-----|-----|-----|-----|-----|-----|-----|
| | 80% Dependable | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.3 |
| 2 | Average | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 1.3 |
| | Median | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 1.8 |
| | 80% Dependable | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.3 |

Note: (Source: WARPO)

BANGSHI



KARNATALI



TURAG

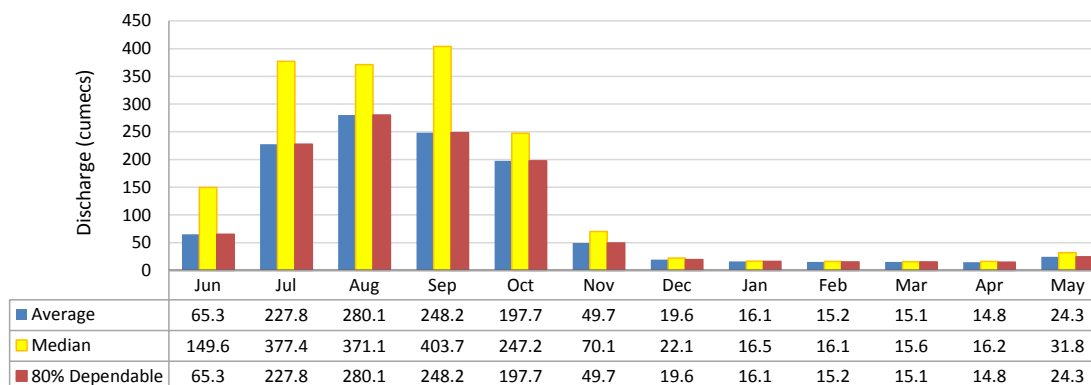


Figure 10: Simulated River Flows Bangshi, Karnatali, Turag

When compared to the Base year crop water demands, utilizable river water resources are insufficient in the months of Mar. It should also be noted that in the other months it may not be possible to utilize

all the available river water resources due to topography and other physical constraints as well as downstream requirements.

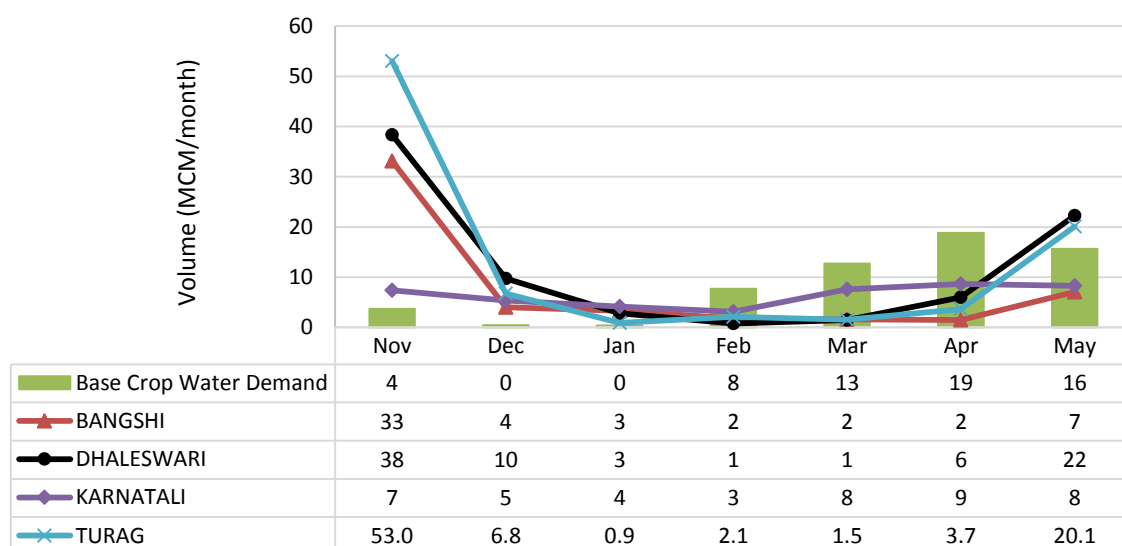


Figure 11: Dry Season Crop Water Demand and Utilizable River Resources (MCM/month)

The dry season volume of water stored in the flood plains is potentially a resource for social, economic and environmental uses. This dry season static water volume in the floodplains of these areas is governed by the low river stage and has been estimated for the months of Nov to May. The underlying assumption is that as the floodplains are generally connected to the river, the static water volume varies from month to month based on the river water level. Mean, median and 80% dependable river stages (from the long-run simulation, 1983-2012) was compared to these areas elevation-storage curve presented earlier in the report. The corresponding volume is considered the potential static water resource for the area if interventions are made to regulate drainage to the river. Utilizable static water resources is the median volume in excess of 80% dependable volume. In this approach, static water stored in ponds and other local depressions disconnected from the river are not included in the estimate.

Table 3: Estimated Potentiality of Static Water Resource during Dry Season (1983-2012)

| SN | Water Volume (MCM) | Nov | Dec | Jan | Feb | Mar | Apr | May |
|----|--------------------|-----|-----|-----|-----|-----|-----|------|
| 1 | Average | 1.7 | 0.5 | 0.3 | 0.3 | 0.5 | 1.1 | 13.4 |
| | Median | 1.7 | 0.5 | 0.3 | 0.3 | 0.5 | 1.1 | 15.6 |
| | 80% Dependable | 0.8 | 0.4 | 0.2 | 0.2 | 0.3 | 0.7 | 4.3 |
| 2 | Average | 1.6 | 0.5 | 0.3 | 0.3 | 0.5 | 1.1 | 13.3 |
| | Median | 1.7 | 0.5 | 0.3 | 0.3 | 0.5 | 1.0 | 15.6 |
| | 80% Dependable | 0.8 | 0.4 | 0.2 | 0.2 | 0.3 | 0.7 | 4.3 |
| 3 | Average | 5.3 | 1.0 | 0.7 | 0.7 | 0.9 | 2.8 | 21.0 |
| | Median | 4.7 | 0.9 | 0.7 | 0.7 | 0.8 | 2.6 | 19.6 |
| | 80% Dependable | 2.1 | 0.8 | 0.7 | 0.7 | 0.7 | 1.0 | 7.2 |

Note: (Source: WARPO)

Water Quality

Rivers around Dhaka city are affected by industrial activities, municipal sewage disposal, faecal contamination, agro-chemicals and sediment loading. where population pressure maintaining a sufficient supply of clean water for the growing population is one of the major challenges, especially in the densely populated Dhaka city. One of the research conducted by Prof. M. Fazlul Bari and Prof. A.B.M. Badruzzaman on water quality was done with a sampling period of April 1- to April 8, 2007 (Dry

season) in 5 major rivers around Dhaka. Those selected Rivers are Turag, Balu, Buriganga, Shitalakkhya, Dhaleshwari and they have categories these river according to the level of pollution. However, they have classified these based on species abundance and richness numerical scores were assigned to potential water quality classes,

- Class I (none to very slight organic pollution),
- Class II (moderate pollution),
- Class III (critical pollution),
- Class IV (heavy pollution),
- Class V (very heavy to extreme pollution).

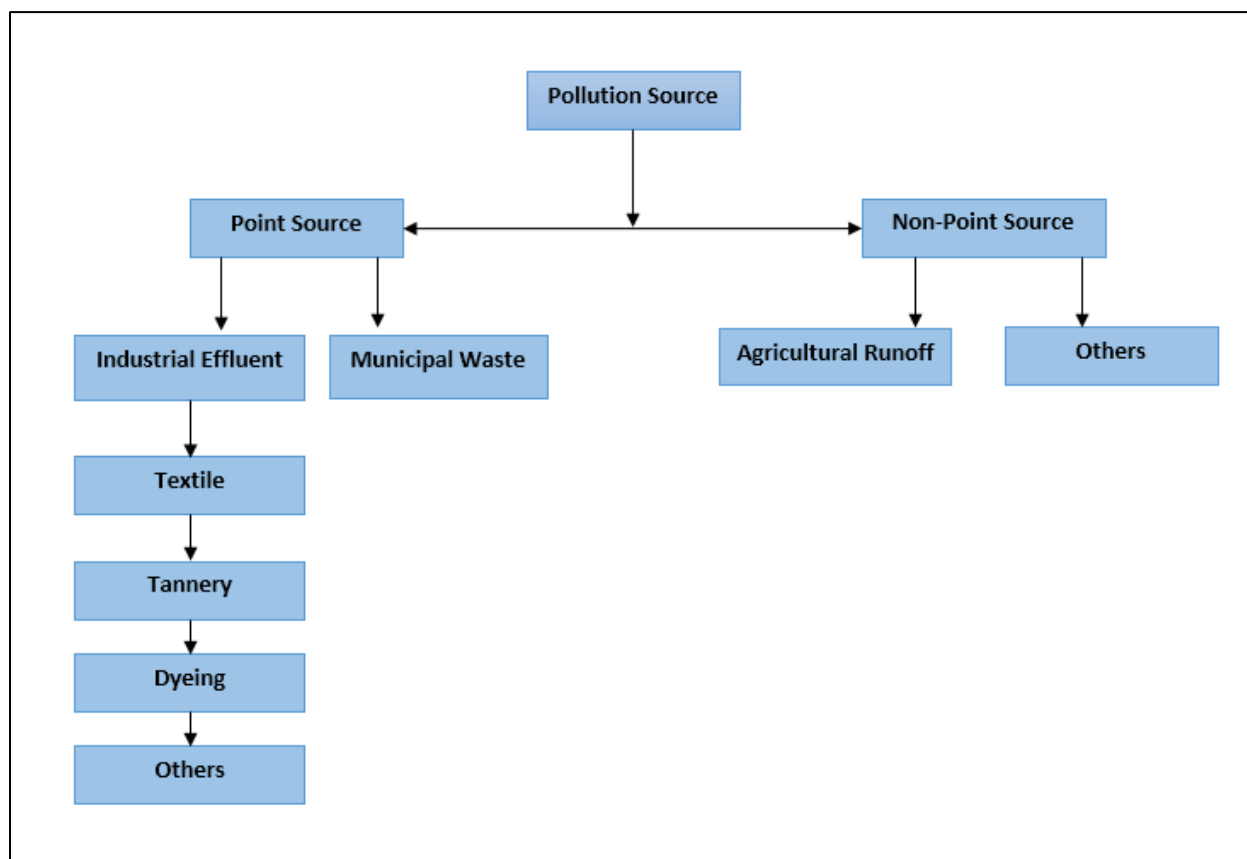
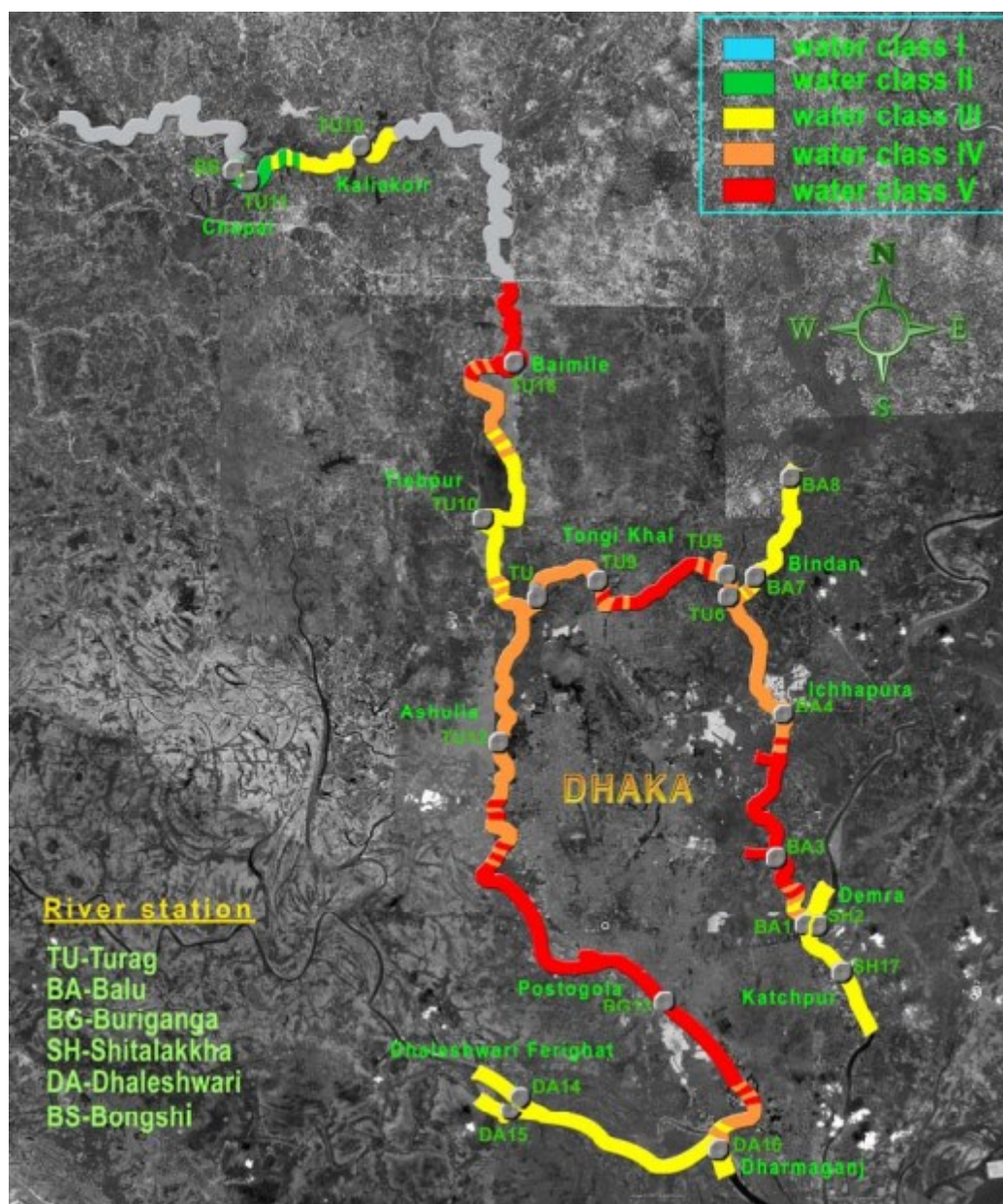


Figure 12: Pollution Sources of the rivers

Table 4: Water Quality classification of rivers around Dhaka city (Source: ASSES-HKH Report)

| River | Site | Water Quality Class |
|----------------|--------------|---------------------|
| Balu1 | Demra | IV |
| Shitalakkhya 2 | Demra | III |
| Balu 3 | Lanchata | V |
| Balu 4 | Ichhapura | IV |
| Turag 5 | Bindan | V |
| Turag 6 | Thermog | IV |
| Balu7 | Dhopapara | III |
| Balu 8 | Pipulia | III |
| Turag 9 | Istema field | IV |
| Turag10 | Tiebpur | III |
| Turag11 | Chapai | II |
| Turag12 | Ashulia | IV |

| | | |
|----------------|--------------|-----|
| Buriganga13 | Postogola | V |
| Dhaleshwari14 | Ferighat | III |
| Dhaleshwari15 | Charkundolia | III |
| Dhaleshwari16 | Dharmaganj | IV |
| Shitalakkhya17 | Katchpur | IV |
| Turag18 | Baimile | V |
| Turag19 | Boroibari | III |
| Bongshi | Sutrapur | III |



(Source: Prof. M. Fazlul Bari and Prof. A.B.M. Badruzzaman ASSES-HKH Report)

Figure 13: Water Quality Mapping around Dhaka City

ANNEX II

ECOP 1: Tree Plantation ECoP

| Project Activity/ Impact Source | Environmental Impacts | Mitigation Measures/ Management Guidelines |
|------------------------------------|--|---|
| Vegetation clearance | Local flora are important habitats for birds, provide fruit harvest, timber/fire wood, protect soil from erosion and overall keep the natural balance for human-living. As such damage to flora has wide range of adverse environmental impacts. | <p>The Contractor shall</p> <ul style="list-style-type: none"> • Minimize disturbance to surrounding vegetation. • Get approval from supervision consultant for clearance of vegetation. • Make selective and careful pruning of trees where possible to reduce need of tree removal. • Control noxious weeds by disposing of at designated dump site or burn on site. • Clear only the vegetation that needs to be cleared in accordance with the engineering plans and designs. These measures are applicable to both the construction areas as well as to any associated activities such as sites for stockpiles, disposal of fill. • Minimize the length of time the ground is exposed or excavation left open by clearing and re-vegetate the area at the earliest practically possible. • Ensure excavation works occur progressively and re-vegetation done at the earliest. • Provide adequate knowledge to the workers regarding nature protection and the need of avoid felling trees during construction • The genetic variety in trees as well as other species needs to be ensured. Reduce monocultures, avoid exotic tree species particularly numerous invasive aliens from plantations. Local varieties of trees should be planted as much as possible; • Trees and plants will be re-planted as per guidelines in consultation with Bangladesh Forest Department to ensure standard of measurements; • Since the planting program will not continue for years, the seedlings may be procured from sources such as Forest Department Nurseries or Private Nurseries. It is expected that the quality of the seedlings from FD nurseries will be better. For better success, at least 1 meter tall seedlings in 25cm x 15cm poly-bags, of about 1.5 years of age, are to be used. The best mode of transporting seedlings is either by 'head load' or 'boat'. |

ECoP 2: Pollution Prevention ECoP

| Project Activity/ Impact Source | Environmental Impacts | Mitigation Measures/ Management Guidelines |
|--|--|--|
| Hazardous material and Waste | Water pollution from the storage, handling and disposal of hazardous materials and general construction waste, and accidental spillage | The Contractor/ Factory management shall <ul style="list-style-type: none"> • Follow the management guidelines proposed in ECP 3: Waste Management • Minimize the generation of spoils, oil and grease, excess nutrients, organic matter, litter, debris and any form of waste (particularly petroleum and chemical wastes). These substances must not enter waterways or storm water systems. |
| Discharge from construction sites | Construction activities, sewerages from construction sites and work camps may affect the surface water quality. The construction works will modify groundcover and topography, changing the surface water drainage patterns of the area. | The Contractor/ Factory management shall <ul style="list-style-type: none"> • Prevent all solid and liquid wastes entering waterways by collecting spoils, oils, chemicals, bitumen spray waste and wastewaters from brick, concrete and asphalt cutting where possible and transport to an approved waste disposal site or recycling depot. |
| Drinking water | Untreated surface water is not suitable for drinking purposes due to presence of suspended solids and ecoli. | The Contractor/ Factory management shall <ul style="list-style-type: none"> • Provide drinking water that meets National and WHO Drinking Water standards. |

ECoP 3: Waste Management ECoP

| Project Activity/ Impact Source | Environmental Impacts | Mitigation Measures/ Management Guidelines |
|--|---|--|
| General Waste | Soil and water pollution from the improper management of wastes and excess materials from the construction sites. | The Contractor/ Factory management shall <ul style="list-style-type: none"> • Organize disposal of all wastes generated during construction in the designated disposal sites approved by the Project authority and develop waste management plan for various specific waste streams (e.g., reusable waste, flammable waste, construction debris etc.) prior to commencing of installation and submit to PSC for approval. |

| Project Activity/ Impact Source | Environmental Impacts | Mitigation Measures/ Management Guidelines |
|------------------------------------|---|---|
| | | <ul style="list-style-type: none"> • Organize disposal of all wastes generated during construction in an environmentally acceptable manner. This will include consideration of the nature and location of disposal site, so as to cause less environmental impact. • Minimize the production of waste materials by 3R (Reduce, Recycle and Reuse) approach. • Segregate all wastes, wherever practical. • Vehicles transporting solid waste shall be totally confined within an enclosed vehicle or is fully covered with a tarp to prevent spilling waste along the route. • Tarp must be undamaged (not torn or frayed) properly secured to the body of the vehicle or trailer with ropes, chains, straps, or cords so that no waste is exposed. The edges of the tarps shall extend 12 inches over the permanent sides and back of the open top vehicle or trailer and must be secured to the permanent vehicle. All loads must be tarped from the point of origin of the waste to the tipping area of the final disposal/landfill. • Train and instruct all personnel in waste management practices and procedures as a component of the environmental induction process. • Provide refuse containers at each worksite. • Request suppliers to minimize packaging where practicable. • Place a high emphasis on good housekeeping practices. • Maintain all construction sites clean, tidy and safe and provide and maintain appropriate facilities as temporary storage of all wastes before transporting to final disposal. • Train and instruct all personnel in waste management practices and procedures as a component of the environmental induction process. |
| Fuels and hazardous goods. | Materials used in construction have a potential to be a source of contamination. Improper storage and handling of fuels, lubricants, chemicals, hazardous goods/materials on-site, wash down of | <p>The PIU and Contractor// Factory management shall</p> <ul style="list-style-type: none"> • Collect chemical wastes in 200 liter drums (or similar sealed container), appropriately labeled for safe transport to an approved chemical waste depot; • Store, transport and handle all chemicals avoiding potential environmental pollution; • Store all hazardous wastes appropriately in raised areas away from water courses. • Make available Material Safety Data Sheets (MSDS) for hazardous materials on-site during construction. • Store hazardous materials above flood plain level. |

| Project Activity/ Impact Source | Environmental Impacts | Mitigation Measures/ Management Guidelines |
|------------------------------------|---|--|
| | plant and equipment, and potential spills may harm the environment or health of construction workers. | <ul style="list-style-type: none"> • Put containers and drums in temporary storages in clearly marked areas, where they will not be run over by vehicles or heavy machinery. The area shall preferably slope or drain to a safe collection area in the event of a spill. • Avoid the use of material with greater potential for contamination by substituting them with more environmentally friendly materials. |
| Equipment dismantling and disposal | Soil and water pollution from the improper management of wastes and excess materials | <p>The PIU shall ensure,</p> <ul style="list-style-type: none"> • All equipment are dismantled as per instructions by trained personal; • Store, transport and handle all equipment avoiding potential environmental pollution; • Recycling dismantled equipment and parts where ever possible • Disposal of equipment as per Waste Management Plan of project. |

ECop 4: Construction Management ECoP

| Project Activity/ Impact Source | Environmental Impacts | Mitigation Measures/ Management Guidelines |
|---|--|---|
| Construction activities and material stockpiles | The impact of soil erosion are (i) Increased run off and sedimentation causing a greater flood hazard to the downstream and silt accumulation and (ii) destruction of aquatic environment by erosion and/or deposition of sediment damaging the spawning grounds of fish | <p>The contractor shall ensure,</p> <ul style="list-style-type: none"> • The construction camp site is accepted by the local authority; • Avoid work within the drip-line of trees to prevent damage to the tree roots and compacting the soil; • Minimize the length of time the ground is exposed or excavation left open by clearing and re-vegetate the area at the earliest practically possible; • Excavation works occur progressively and re-vegetation done at the earliest; • Where ever possible prefabrication should be done so not cause too much disturbance in the field; • Place a high emphasis on good housekeeping practices. That is maintain all construction sites in a cleaner, tidy and safe condition and provide and maintain appropriate facilities as temporary storage of all wastes before transportation and final disposal. • Wash out ready-mix concrete agitators and concrete handling equipment at washing facilities off site or into approved bunded areas on site. <p>Ensure that tires of construction vehicles are</p> |

| Project Activity/ Impact Source | Environmental Impacts | Mitigation Measures/ Management Guidelines |
|------------------------------------|--|--|
| | | <p>cleaned. This should be done in every exit of each construction vehicle to ensure the local roads are kept clean. Locate stockpiles away from drainage lines.</p> <ul style="list-style-type: none"> • Remove debris from drainage paths and sediment control structures. • Cover the loose sediments of construction material and water them if required. • Divert natural runoff around construction areas prior to any site disturbance. • Install protective measures on site prior to construction, for example, sediment traps. • Install 'cut off drains' on large cut/fill batter slopes to control water runoff speed and hence erosion. • Observe the performance of drainage structures and erosion controls during rain and modify as required. |
| Clearing of construction sites | Cleared areas and slopes are susceptible for erosion of top soils, which affects the growth of vegetation and causes ecological imbalance. | <p>The Contractor shall</p> <ul style="list-style-type: none"> • Reinstate and protect cleared areas as soon as possible. • Cover unused area of disturbed or exposed surfaces immediately with mulch/grass turf/tree plantations. |
| Soil erosion and siltation | Soil erosion and dust from the material stockpiles will increase the sediment and contaminant loading of surface water bodies. | <p>The Contractor shall</p> <ul style="list-style-type: none"> • Stabilize the cleared areas not used for construction activities with vegetation or appropriate surface water treatments as soon as practicable following earthwork to minimize erosion. • Water the material stockpiles, access roads and bare soils on an as required basis to minimize dust. Increase the watering frequency during periods of high risk (e.g. high winds). |

ECOP 5: Health and Safety ECoP

| Project Activity/ Impact Source | Environmental Impacts | Mitigation Measures/ Management Guidelines |
|-------------------------------------|--|---|
| Best practices in health and safety | Health and safety of workers and equipment users | <p>The PIU and Contractor// Factory management shall</p> <ul style="list-style-type: none"> • Implement suitable safety standards for all workers and site visitors, with sufficient provisions to comply with international standards (e.g. International Labor Office guideline on 'Safety and Health in |

| Project Activity/ Impact Source | Environmental Impacts | Mitigation Measures/ Management Guidelines |
|--|------------------------------|---|
| | | <p>Construction; World Bank Group's 'Environmental Health and Safety Guidelines') and contractor's own safety standards, in addition to complying with national standards.</p> <ul style="list-style-type: none"> • Provide the workers with a safe and healthy work environment, taking into account inherent risks in its particular construction activity and specific classes of hazards in the work areas. • There can be a safety committee at the factory level and trained professionals who can give first aid; • Emergency numbers should be placed for all to see • Ensure that only trained professionals will install and operate equipment. |

ECop 6: Fire Safety ECoP

| Project Activity/ Impact Source | Environmental Impacts | Mitigation Measures/ Management Guidelines |
|--|----------------------------------|--|
| Fire safety | Fire accidents and loss of lives | <p>The Contractor// Factory management shall</p> <ul style="list-style-type: none"> • Follow BNBC 2015 and ILO (OHS) prescribed fire-safety standards • Compulsory installation of fire-protection systems inside factory buildings. • Ensure fire license from relevant authority. • Regular monitoring and factory inspection also need to be done by management and personal. |

ECop 7: Recycling ECoP

| Project Activity/ Impact Source | Environmental Impacts | Mitigation Measures/ Management Guidelines |
|---|--|--|
| Improper recycling and reuse of materials | Soil and water pollution from the improper management of wastes and excess materials | <p>The Contractor// Factory management shall</p> <ul style="list-style-type: none"> • The destination of any material produced in the subprojects of the project sent for recycling needs to be verified and recycling firms or factories even if they are not funded by the project must maintain GoB standards during recycling or disposal or any kind of emissions from these recycled materials. • Segregate uncontaminated recyclable materials from waste / garbage and deposit these materials in the appropriate containers |

| Project Activity/ Impact Source | Environmental Impacts | Mitigation Measures/ Management Guidelines |
|--|------------------------------|--|
| | | <ul style="list-style-type: none"> • Not mix recyclable materials • Ensure proper handling and storage of recyclable materials that are environmentally hazardous, such as waste oil, tires, solvents, batteries • Ensure that the handling and storage of recyclable material does not create fire or spill hazards • Maintain record of materials collected in the recycling streams are maintained where possible and audits are carried out from time to time. |

ECOP 8: Effluent Discharge ECoP

| Project Activity/ Impact Source | Environmental Impacts | Mitigation Measures/ Management Guidelines |
|--|--|--|
| Effluent Disposal | Soil and water pollution from the improper management of wastes and excess materials | <ul style="list-style-type: none"> • The Contractor// Factory management shall, • Ensure that discharge levels for the design and operation of each project must be established through the Environmental Assessment (EA) process, based on GoB legislation and relevant ECoPs of the project. Frequent sampling during start-up and upset conditions. Each of subprojects will have an environmental compliance officer at factory level. Once a record of consistent performance has been established, sampling for selected parameters should be on a monthly basis. Bi-annual monitoring for all parameters as mentioned in ECR 97, if parameters are present at levels equal to or above ECR 97 standards for waste from industrial units, corrective actions should be taken. • Analyze and review monitoring data at regular intervals and compare with the operating standards so that any necessary corrective actions can be taken. • Maintain records of monitoring results. These should be reported to the responsible authorities and relevant parties, as required, and provided to PIU if requested. The guidelines are expressed as concentrations to facilitate monitoring. • Dilution of effluents to achieve these guidelines is unacceptable. • Where ever possible chemicals shall be recovered and recycled. • Ensure all Transportation vehicles of liquid waste are audited and licensed The auditing of these |

| Project Activity/ Impact Source | Environmental Impacts | Mitigation Measures/ Management Guidelines |
|--|------------------------------|--|
| | | <p>vehicles is to ensure the integrity of the tank and the non-leakage of the contents. This prevents odour and public health problems.</p> <ul style="list-style-type: none"> • Ensure a system to treat effluent produced on site |

ECoP 9: Acids and Chemicals Access ECoP

| Project Activity/ Impact Source | Environmental Impacts | Mitigation Measures/ Management Guidelines |
|--|------------------------------|---|
| Acids and chemicals are not stored as per standard | Soil and water pollution | <p>The Contractor// Factory management shall</p> <ul style="list-style-type: none"> • Ensure that areas and rooms in which chemicals are stored, in excess of the short term, in-use quantities, shall be designed and maintained in accordance with BNBC and Fire Codes, and ILO Occupational Health and Safety (OHAS) Regulations. • Floors shall be non-combustible and liquid tight. Spill containment shall be provided through the use of sills, sumps and/or drains • Exhaust ventilation designed as per plan by PIU • Electrical wiring and equipment shall be installed in accordance with the Electric Code. In areas where flammables are stored, electrical equipment and wiring shall be approved by fire safety experts • Non-compatible chemicals shall be separated by a noncombustible solid partition • Emergency eyewash and showers shall be readily available. Emergency communication shall be provided and monitored at a remote location at all times when someone may be working in the area alone. • Any chemical or gas that has been identified as expired (i.e. beyond manufacturers expiration date on containers) or “out of specification” material shall not be used; • Chemical containers should have the date received and first opened for use noted on them to aid in determining shelf life and product quality. Many chemicals degrade after exposure to moisture in the air and some, • All chemical spills must be cleaned up immediately. Only persons who have been deemed qualified (received training on chemical hazards and clean-up techniques) shall clean up chemical spills |

| Project Activity/ Impact Source | Environmental Impacts | Mitigation Measures/ Management Guidelines |
|--|---|--|
| Acids and chemicals are easily accessible | Accidents from handling of acids and chemicals by untrained persons | <ul style="list-style-type: none"> • All chemical storage cabinet doors must be self-closing and latching. • Chemical containers must be secured/locked on cart before entering the corridor and shall remain secured/locked during transport. • Chemical and gas inventory records shall be maintained by the cleanroom maintenance support group or Laboratory manager. • Restricted access to stores and go downs will be practiced. Only trained and accounted for personnel will have access to acids and other chemicals. Weekly inventories will have to be done by designated personnel. |

ANNEX III

Stakeholder Consultation

204. Stakeholder consultations were carried out at factory level in Gazipur and Dhaka and also at expert and institutional level in Department of Environment (DoE), Ministry of Commerce (MoC) and related industry associations in Dhaka. The consultations were carried out in a few rounds, factory level consultations took place in January 2017 and were carried out through FGDs in local areas using questionnaire interviews. The dates, location and stakeholders consulted are given in the table below

Table A3-1: Stakeholder Consultations

| Date | Location | Stakeholders |
|------------------|--|--|
| 26 January 2017 | <ul style="list-style-type: none"> MoC, Dhaka | <ul style="list-style-type: none"> Project Task Team, MoC |
| 28 January 2017 | <ul style="list-style-type: none"> Bangladesh Engineering Industry Owner's Association (BEIOA), Tipu Sultan Road, Wari, Dhaka; BEIOA-Light Engineering Training Institute Various non-compliant Light Engineering factories in Tipu Sultan Road, Wari, Dhaka; M/S Progoti Engineering Works, Shonir Akhra, Dhaka | <ul style="list-style-type: none"> President and Office staff of Bangladesh Engineering Industry Owner's Association (BEIOA) BEIOA-Light Engineering Training Institute Coordinator Local factory personnel and staff |
| 30 January 2017 | <ul style="list-style-type: none"> Bengal House, Gulshan Avenue, Gulshan, Dhaka | <ul style="list-style-type: none"> President, Bangladesh Plastic Goods Manufacturers & Exporters Association (BPGMEA) |
| 13 February 2017 | <ul style="list-style-type: none"> Centre of Excellence for leather Skill Bangladesh Ltd (COEL), East Chandra, Kaliakoir, Gazipur Blue Ocean Footwear Ltd. East Chandra, Kaliakoir, Gazipur Bengal Plastics, Ltd, Zirabo, Savar, Dhaka | <ul style="list-style-type: none"> COEL Coordinator and trainers Factory officials and personnel |
| 16 February 2017 | <ul style="list-style-type: none"> Purbani Hotel (Consultation Workshop) | <ul style="list-style-type: none"> Project Task Team, MoC Representative of Ministry of Industry Representatives from Business Promotion Council (BPC) Association members from different sectors |
| 19 February 2017 | <ul style="list-style-type: none"> Department of Environment | <ul style="list-style-type: none"> Director (Natural Resource Management) , DoE |

Issues discussed during consultations and meetings at institutional and factory level:

The checklist used for consultation includes the following issues:

1. Knowledge of the participants and attitude of people towards the proposed project interventions.
2. Perception of stakeholders about problems regarding the activities and suggestions for solution of the perceived problems considering:
 - Could there be any environmental problems related to the installation of the equipment?
 - What are the environmental challenges faced by compliant factories?
 - What precautions have been taken to ensure health and safety issues of workers?
 - Have there been any recent accidents?
3. Suggestions on enhancement (positive impacts) and mitigation (negative impacts) measures of the project.
 - What do you think the benefits of this project will be?
4. Current situation of the different sectors
 - Is there any significant generation of solid waste from the facility?
 - Is there any significant generation of liquid waste from the facility?
 - Is there any sources of air pollution from the activities of the facility?
 - What type ETPs are in place? What is the capacity?
 - Is waste recycled? How is it recycled? In case the waste is taken by a waste recycling facility what type of assurance is there that the waste is recycled?
5. Understanding capacity needs of the different sectors
 - Are there any training activities in this sector? If there are, what type? Duration of training? What type of certification?
 - What is the educational background of the trainees?
 - Does the training curricula include environmental awareness and compliance, health and safety issues?
 - How many women participate in these activities?



Figure A3-1: Consultations with Factory Personnel and Officials

Summary of Consultations

| Parties Consulted | Project Appreciation | Project Concerns |
|-------------------|---|-----------------------|
| Factory personnel | Modern equipment is more safe and easy to work with and the project will benefit the workers; | No perceived problems |
| Factory officials | Modern equipment is more safe and easy to work with and the project will benefit the workers; | No perceived problems |

| Parties Consulted | Project Appreciation | Project Concerns |
|---|--|--|
| | <p>Environmental compliance attracts foreign buyers so it is in the industries interest to introduce compliance on a wide scale;</p> <p>There are many administrative hurdles like getting permission and also a lot unnecessary time is consumed in using port facilities and are creating obstacle for industries dependent on foreign material;</p> <p>There is a dearth of accessories such as buckles, rubber soles etc, at the local level and this is also a disadvantage for production.</p> | |
| Members and office bearers of Associations (Leather and footwear, plastic, light engineering) | <p>The Engineering Industry Owner's Association (BEIOA) is willing to give land to the CFCs; CFCs can play an important role in increasing production</p> <p>Plastic sector needs a training and research institute at national level</p> | No perceived problems |
| Training programmes associated with different sectors | <p>Recognized credentials has not been given by government, as a result many of the training programmes cannot give certification;</p> <p>Some of the training programs need to be upgraded to meet current industry requirements of the light manufacturing, plastics and other manufacturing sectors.</p> <p>The training programs do not provide training on environmental compliance and monitoring..</p> | No perceived problems |
| Department of Environment | <p>The project is timely and much needed to ensure sustainable development.</p> <p>Training and capacity development activities will not require environmental clearance, however, subprojects which require construction and equipment installations will require environmental assessment to determine the category under ECR 97 and subsequently further required documentation must be submitted for environmental clearance.</p> <p>Production flow diagrams of each of the sub projects be analysed for intervention points to ensure EQS compliance.</p> <p>The EMF can recommend designated personnel at firm or factory level from within existing manpower to ensure environmental and social concerns are adequately addressed.</p> | Leather and footwear industry is a very polluting industry, categorized Red under ECR 97 and effluent discharge must maintain ECR 97 standards |

Consultation on Environmental and Social Management Framework **Export Competitiveness for Jobs Project (EC4J)**

Date: 16 February, 2017

Venue: Dilkusha Hall, Purbani Hotel, 1 Dilkusha Rd, Dhaka 1000, Bangladesh, Dhaka 1000

A consultation workshop to discuss the 'Export Competitiveness for Jobs Project (EC4J)' and the draft Consultation on Environmental and Social Management Framework report was held on 16 February 2017 at Purbani Hotel, 1 Dilkusha Rd, Dhaka 1000. Around 28 participants from relevant government agencies and sectoral associations were present as well as officials from MoC and MoI. This was the second round of consultations for the formulation of the EMP and a presentation was done on the EMP. This was followed by an open discussion so that participants could provide their feedback.

The objectives of this consultation were,

- (i) Disclosure of the draft report contents, including the proposed EMP and ECoPs;
- (ii) Consultation with stakeholders on the results of the assessment; and
- (iii) Discussion of stakeholder participation in environmental management activities during construction and implementation.



Figure A3-2: Consultation workshop on EMF

Open Discussion

| Participant | Query/ recommendation |
|--|---|
| Mr. Shariful Islam, Bangladesh Accumulator and Battery Manufacturing Association | EIA cannot be done without location of the site (so the concept of EMF was explained to him) Acid from industry is dangerous to handle. Also access should be restricted to acids and chemicals. . Leather industries are extremely polluting and should be catogerised as Red as per ECR 97 Rainwater harvesting can be suggested. |
| Mr. Abdur Razzak, President and Office staff of Bangladesh Engineering Industry Owner's Association (BEIOA) | The capacity building activities should not be duplicated. Rather than spending money on new training programmes, capacity building on environmental issues can be integrated into the existing programmes and capacity building projects of the government and associations The Association will hand over land to the project for CFCs. However, some private land may be acquired by the Association in the coming months, before |

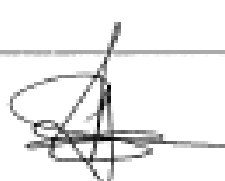
| Participant | Query/ recommendation |
|---|---|
| | project activities start. However a proper institutional set-up is needed so that transfer of ownership of the CFCs can take place after the project finishes in 5 years. Otherwise the CFCs will become unsustainable after project period There will be PD from MoC, but having full time safe guard specialist can be expensive |
| Mr. Ashraf Ibne Nur, BEIOA | Reuse of the end product and its associated disposal considerations should be taken into account Third party monitoring is needed or joint monitoring by WB/MoC |
| Mr Shaheen Ahmed, BPGMEA | Is the EMF for awareness or implementation? Based on the site selection and land ownership there should be scope for further investment of the CFCs by the project |
| Mr. Salimullah, Senior Assistant Secretary, Mol | New measures like ETP/WTP should be in the ECoP Engagement with DoE is important |



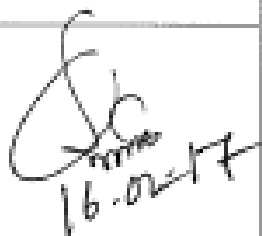
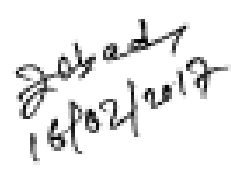
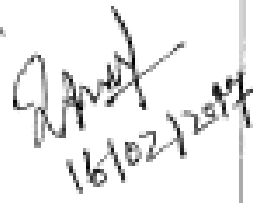

**Consultation on Environmental and Social Management Framework
Export Competitiveness for Jobs Project (EC4J)**


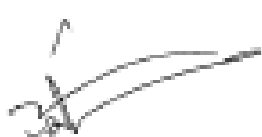




Organized by: Ministry of Commerce

Date: 16 February, 2017






Venue: Dilkusha Hall, Hotel Purbani, Dhaka

| Sl. | Name | Organization & Contact | Signature |
|-----|------------------|--|---|
| 1 | Bushra Mishat | World Bank 01819498828 | B. Mishat |
| 2 | Shanibul Islam | World Bank 01778580756 |  |
| 3 | Ishrat Jahar | Leather Sector Business Promotion Council 01915614112 lsbpc2004@gmail.com | Ishrat |
| 4 | Fathema Nargis | Plastic Products Business Promotion Council 01912-876397 | F. Nargis |
| 5 | Md. Kamruzzaman. | Light Engineering Product Business Promotion Council. # 01719739321 e-mail: lepbc@gmail.com | Kamruzzaman. |

| Sl. | Name | Organization & Contact | Signature |
|-----|------------------------------|---|---|
| 6 | A.T.M Saiful Islam | Ministry of Labour and Employment D.S 01911-312022 Saif-tax@yahoo.com |  16.2.17 |
| 7 | Mastura Safayet | Centre for Policy Dialogue (CPD) Programme Associate 01675237549 mail: masturabust510@gmail.com |  16.02.17 |
| 8 | Md. Salim Ullah | Ministry of Industries Sr. Assoc. Secretary 01557863557 |  16.02.17 |
| 9 | MOHAMMAD AFTAB JABED | BAKGLADESH ELBC-TRICAL MERCHANDISE MANUFACTURES ASS. President (BEMMA) 01711 592797 mail: jamed.jes@hotmail.com |  16/02/2017 |
| 10 | MD. KAMAL HUSSAIN Secretary. | Agriculture Machinery Manufacturers Assoc. Bangladesh BOGMA (AMMA-B) 01411027205 |  16/02/2017 |
| 11 | Shahidul Islam | Bangladesh Accumulator & Battery Manufacturing Association, 01714086526 |  |

| Sl. | Name | Organization & Contact | Signature |
|-----|----------------------------------|---|---|
| 12 | Sarwat RA Khan | BAAMA 01552-407644 baama95@yahoo.com |  |
| 13 | M. Abgrul Iskan FCI | SAAMOT 01732106140 |  |
| 14 | Md. Arifur Rahman Bhuiyan | Centre of Excellence for Leather Skill BD. Ltd. 01913355255 arif@bueab.org |  |
| 15 | K.M. Asadun Noor | Bangladesh Tanners Asso- ciation 01718 409 444 asadunnor88@gmail.com |  |
| 16 | Md. Faizul Akbar | BFLLEA 01716990212 bflleae55@yahoo.com |  |
| 17 | Md. Muskhaddin (Deputy Chief) | Ministry of Commerce 0189473980 mmuskhaddin@yahoo.com |  16.02.17 |

| Sl. | Name | Organization & Contact | Signature |
|-----|---------------------------------|--|------------|
| 18 | Md. Janir Kossam | Export Promotion Bureau 01817583022 janirpbi@yahoo.com | 16.02.2017 |
| 19 | ১৭২৩১২০ ১৪/২ ১৪ | BEIOA. 01711-404826. s.industri88@yahoo.com | 16/02/17 |
| 20 | Md. Abdu Razzaque President, | BEIOA 01713-027627 01819-245588. beioa2008@gmail.com | 16/02/17 |
| 21 | Narayan Chandray | (BPGMEA) Bang. Plastic Goods Manufacturers 2 Ex. 18580. 01552-388-587 narayanhd@yahoo.com | 16/02/17 |
| 22 | Shamim Ahmed | BPGMEA 01711542273 shamim.rta@gmail.com | 16/02/17 |
| 23 | Md. Tasnuva Rahman | World Bank 0177866630 | 16/02/17 |

| Sl. | Name | Organization & Contact | Signature |
|-----|--|---|---|
| 24 | Fakir Firoz Akh BPC 01715067670 | |  |
| 25 | MD. OBAIDUL AZAM (JOINT SECRETARY) | Ministry of COMMERCE 01711 381683 |  |
| 26 | MRINAL SINGAR | 01713048765 |  |
| 27 | M. MUNIRUZZAMAN EXECUTIVE MEMBER | NASCB 01819209790 |  |
| 28 | M. Shaker Bin Shams. | IFC/WBA. 01671758878 |  |
| 29 | | | |

ANNEX IV

Brief Description of Focus Industries

The Ministry of Commerce of the Government of Bangladesh has selected a number of “booster” sectors that have the potential to contribute significantly to the country’s economy & job creation. The sectors are leather, footwear, and light engineering/electronics and plastics sectors.

The leather sector includes 220 tanneries, 3,500 MSMEs and 110 large firms of leather products controlling more than 90% of the export market. Most of the enterprises are located in Dhaka, followed by two big clusters at Bhairab and Chittagong. The sector generates direct and indirect employment for about 850,000 people, including a significant number of women, particularly in the leather products industries. Statistics prepared by Export Promotion Bureau of Bangladesh for the Financial Year 2011-12, the leather sector grew by 17.5 percent and earned \$765 million in revenue. Of this \$434.8 million was attributed from leather products, accounting for approximately 57 percent of the total revenue. There are 3 subsectors – i) Leather Tanning, ii) Leather Footwear, iii) Leather Goods. No other sub-sector emerged yet. 50% of leather is being exported in the form of semi-finished and finished leather losing the value addition opportunity. Rest 50% is being converted into footwear and leather products for the low-end market. The main concern of this sector are it needs more skilled workers and managers, It has limited access to the market, Low product quality, and productivity, Outdated Machineries, Pollution from Tanneries, the expertise of this sector not nurtured or promoted, the absence of integrated policy, Poor infrastructure interrupted power supply.

Light engineering is an important sub-sector of the manufacturing sector. It provides critical support to industrial, agricultural and other sectors of the economy by manufacturing a wide range of spare parts, casting, molds and dies, oil & gas pipeline fittings, light machinery, etc and by providing repair services. Around 40,000 Light Engineering Industries are operating all over the country, which engaged in production and manufacturing of high value added engineering goods and services with the value of annual turnover more than TK. 30,000 crore. In recognizing this fact, the government has declared this sector as a thrust sector in its Industry Policy –2010. The price and quality of the products are reasonable, but there is much to improve. Particularly in the face of competition from foreign products, even in the domestic market, there is an urgent need to improve the product quality and quantity. The local light engineering firms are also eyeing an export market, but both the product quality and the volume of production per worker need to be improved in order to compete in the international market. Most of the light engineering firms use conventional technology in the production process. As a result, they lag behind their foreign competitors also they need to be standardized in quality through rigorous testing.

Plastic products are among the few products outside textiles, apparels, leather and jute goods which have contributed towards export diversification though at a limited scale. The development of local plastic industry has been facilitated mainly by huge domestic low-end plastic products. According to the Bangladesh Plastic Goods Manufacturers and Exporters Association (BPGMEA), its contribution to GDP has increased over time from 0.36 per cent in 2004 to 1.2 per cent in 2008. However, per capita consumption of plastics and plastic-based products is still low in Bangladesh compared to global average consumption. Likewise, the huge potentials in the global market remain unexplored due to various kinds of constraints. According to the survey of Manufacturing Industries (SMI 2012) over 900 manufacturing units are currently operating and most of these are small-scale (about 70 per cent) and domestic market-oriented. According to the BPGMEA, nearly about 250-300 units are currently involved in the export market. About 65 per cent units are located in Dhaka and nearby areas, 20 per cent in Chittagong, 10 per cent in Narayanganj and the rest 5 per cent are in Khulna, Comilla, Bogra and Rajshahi Districts. Considering the environmental pollution created by the plastic industries particularly those of small scale non-compliant ones, relocation of these factories to environmentally complaint areas is needed. The global market for plastic and related products is as big as like that of textiles and

apparels products. In 2013, total global import of plastic products was US\$590 billion while that of textiles and apparels was US\$772 billion (where import of apparels is accounted for US\$403 billion). Plastic products produced in Bangladesh are being exported in two forms- direct export of plastic products and deemed export of plastic products as accessories of apparel products. According to the BPGMEA, export of plastic products is accounted for US\$340 million in 2013 of which 75 per cent is deemed export and the rest 25 per cent is direct export. At present, a total of 23 countries in North America, Europe, Asia and the Pacific and the Middle East are the major export destination of plastic products. A major challenge for the plastic industry is to improve its export competitiveness and build its capacity. The sector needs to address the following issues like Lack of machinery use and mold manufacturing, lack of testing laboratory, lack of skilled labor and technological efficiency and Environmental concern. Additionally, The industry suffers due to shortages of electricity and gas supply and lack of access to capital. Because of bulky nature of products, shipment of plastic products requires lots of spaces and incur high shipment costs. Moreover, shipment from Bangladesh is relatively high as due to high freight cost. Such transportation costs put the local products in pressure in the global market.

The following table provides a brief summary of the key characteristics of the four target sectors: leather and leather goods; footwear (leather and non-leather); plastics, and electronics (light engineering).

| | Hides/Skins & Leather Goods | Footwear (leather & non-leather) | Plastics | Electronics |
|---|---|---|--|--|
| Number of firms | Tanneries: 200; Leather & goods: 3,500 | 2,500 | 3,000 (of which 20 large, 1,480 medium-sized) | 2,500 (of which 20 large) |
| Location | Dhaka (84%), MSMEs across country | Dhaka & Chittagong (80%), MSMEs across country | Dhaka (65%), Chittagong (20%), Narayanganj (10%) | Dhaka (90%), Chittagong (9%) |
| Employment estimates | 558,000 direct and 300,000 indirect (36% women) | 75,000 formal; 700,000-900,000 indirectly engaged (35% women) | 63,919 directly employed (30% women) | 70,000 direct and indirect |
| Exports in FY15 | US\$766 million ¹⁶ Average growth/annum (2005– 2014): 10.8% | US\$714million Average growth/annum (2005-20014): 18.5% | US\$89 million Average growth/annum (2005-20014): 18.3% | US\$56.5 million Average growth/annum (2005-20014): 39.9% |
| Number of firms exporting directly | 90 large firms, 51 tanneries | 90 | >250 | 20 |
| Sector leaders | APEX Tannery | APEX Tropical Shoes | Bengal Plastic | Walton |
| Sector Associations | Leathergoods & Footwear Manufacturers & | Leathergoods & Footwear Manufacturers & Exporters | Bangladesh Plastic Goods Manufacturers & Exporters Association | Bangladesh Engineering Industry Owner's Association |

¹⁶ Raw hides and leather saddlery.

| | Hides/Skins & Leather Goods | Footwear (leather & non-leather) | Plastics | Electronics |
|--|--|--|---|--|
| | Exporters Association of Bangladesh Bangladesh Finished Leather, Leathergoods and Footwear Exporters' Association Bangladesh Tanners Association | Association of Bangladesh | | Bangladesh Electrical Merchandise Manufacturers Association Bangladesh Bi-Cycle & Parts Manufacturers and Exporters Association |
| Major export products | Travel bags Wallets Belts Finished leather Hides/skins | Leather dress shoes Non-leather sports & casual shoes Espadrilles Leather sandals | Tubes, pipes, hoses Fittings Packaging Table ware Doors, window/frame | Textile equipment parts Domestic appliances Electric motors Electricity distributors Accumulators |
| Key export destinations | EU USA Korea Italy China Japan Hong Kong, China | EU Germany Japan USA Spain France Netherlands | India USA Poland Germany France Singapore China | China Hong Kong Nepal India Singapore Sri Lanka Japan |
| Imports in FY2014 | US\$249.2 million Average growth/annum (2005-20014): 28.4% | US\$1,793 million Average growth/annum (2005-20014): 29.8% | US\$1.8 billion Average growth/annum (2005-20014): 17.7% | US\$1.8 billion Average growth/annum (2005-20014): 24.1% |
| Domestic market size | USD500 million ¹⁷ | 200 – 250 million pairs ¹⁸ | USD950 million | USD749 million (light engineering total) |
| GDP Contribution | 1.06% | | 1.2% | 2% |
| % of export earning¹⁹ | 3.0% | 2.3% | 0.28% (excluding deemed export) | 1.5% |
| Share of FDI to Total FDI | 1.42% | 0% | 0% | 1.21% |
| Certification requirement with major export | EU: CE Korea: KC Italy: CE China: CCC Japan: JIS Hong Kong: CCC | EU: CE ²¹ Germany: CE Japan: JIS USA: UL Spain: CE France: CE | India: ISI USA: UL Poland: CE Germany: CE France: CE Singapore: SAFETY | China: CCC Hong Kong: CCC Nepal: not applicable India: ISI/ECO Singapore: SAFETY |

¹⁷

http://bida.portal.gov.bd/sites/default/files/files/bida.portal.gov.bd/page/fd71c686_3537_4077_95dc_a1b65473fd1f/Leather%20&%20Leather%20Goods.pdf

¹⁸ <http://bdnews24.com/business/2015/03/09/shining-future-for-bangladesh-leather-sector-as-china-shifts-focus>

¹⁹ www.worldstopexports.com/bangladeshs-top-10-exports/

²¹ CE certification may not apply for non-leather footwear

| | Hides/Skins & Leather Goods | Footwear (leather & non-leather) | Plastics | Electronics |
|-------------------------------------|---|---|--|---|
| destinations 20 | | Netherlands: CE | Canada: UL | Sri Lanka: not applicable Japan: JIS/PSE |
| Inputs into other industries | Footwear/apparel RMG Automotive/motorcycle | Not applicable | Electronics Construction/building material Furniture Packaging Industrial products Healthcare | Machinery/equipment Automotive/motorcycle Industrial equipment Consumer products Construction |
| Government policies | Export Policy, Industrial Policy, 7 th Five Year plan (Product of the year 2017 by PM) | Export Policy, Industrial Policy, 7 th Five Year Plan (Product of the Year 2017 by PM, along with Leather) | Industrial policy, Export Policy, 7 th Five Year Plan Considered as backward linkage of RMG, enjoying several preferential treatments (bonded warehouse) | Industrial Policy, 7 th Five Year Plan. Considered as large source of employment for both skilled and unskilled labor force |

²⁰ Other important certifications include: Electronics: USA (FCC); Malaysia (SIRIM); Korea (EK); Philippines (ICC); Taiwan (RPC, DoC); Australia (SAA); Indonesia (SDPPI/SNI).

ANNEX V

Terms of Reference for Environmental Safeguard Specialist

1. The Government of Bangladesh (GoB) with support from World Bank has proposed to take up the project to maintain a growth trajectory in export performance; as raising export competitiveness is essential to transform the broader economy. Bangladesh's continued integration in trade and international production networks will play an important role in this process. The GoB has identified the four sectors i.e., (i) leather, (ii) footwear, (iii) plastics and (iv) light engineering sectors as high potential priority sectors. Exports of leather and leather goods are growing fast but value addition is impeded by domestic husbandry and slaughter practices, inadequate technology, environmental degradation and compliance requirements in foreign markets. Its 6,200 firms employ nearly one million people of which a majority are women. Exports of footwear have doubled every four or five years for more than a decade and the sector has many similarities with the RMG sector in terms of strengths and weaknesses. The plastics and light engineering sectors produce essential intermediate products used in supply chains of many other sectors but the sectors are increasingly directly exporting their outputs as well. The plastics industry is made up of roughly 5,000 firms employing 600,000 workers whereas the light engineering industry's 2,500 firms employ some 70,000 workers.

2. The proposed project would address constraints to growth mainly in the four identified sectors (i.e., leather, footwear, plastics and light engineering) but many of the solutions will benefit other sectors. Important selection criteria were: (i) scope to create new jobs/labor intensity; (ii) perceived private interest and scope to generate more investment and export potential; and (iii) relevance and scope for project additionality. Binding constraints in the targeted sectors are linked to issues of market access, skills shortages and weak institutions for technology upgrading, and infrastructure weaknesses. Adherence to various technical and process quality standards, testing and accreditation mechanisms, and social and environmental standards are increasingly essential to export leather, leather products, footwear, plastics and light engineering products. The identified sectors rely on skilled technical workers and increasingly on R&D, product development and process engineering developed in partnership with institutions of higher education. A strong small and medium sized enterprise (SME) cluster underpinning the leather, leather products, footwear and light engineering sectors is essential to raise competition and productivity. Natural entry barriers in terms of high costs of modern machinery shuts out many prospective entrepreneurs. But there are proven business models of shared centers for technology adoption and diffusion where initial public subsidies help the SME segment access modern technology, product development and training facilities. In addition, there are binding infrastructure constraints negatively affecting the development of some of the industrial clusters.

3. The project will be structured around four components: (i) Market Access Support Program, (ii) a Productivity Enhancement Program, (iii) a Public Investment Facility for Infrastructure Constraints; and (iv) Project Implementation, Monitoring and Evaluation. The development of these sectors is held back due to negative externalities due to lack of common effluent treatment plants (CETPs), and public goods, like access roads to industrial parks. The project will finance such infrastructure gaps which will directly or indirectly benefit other productive sectors beyond the four explicitly targeted here. Such investments will also have some environmental and social impacts.

The Safeguard Specialist will work with PIU in implementing the EMF for all four sub components. The EMF aims to: (i) establish clear procedures and methodologies for the environmental and social planning respectively, review, approval and implementation of subprojects to be financed under the project; (ii) specify appropriate roles and responsibilities, and outline the necessary reporting procedures, for managing and monitoring environmental and social concerns related to subprojects; (iii) determine the training, capacity building and technical assistance needed to successfully implement the provisions of the EMF; (iv) establish the project funding required to implement the EMF requirements.

Objectives

The engagement of the Safeguard Specialist is to ensure effective and timely implementation of environmental safeguard activities, monitoring of the environmental impacts of components throughout the project period and environmental enhancement of project activities.

Scope of Services

The scope of service of the Safeguard Specialist:

- Review and identify the considerations and processes for timely implementation of environmental safeguard activities based on recommendations of the EMF and compliant with Bangladesh Environmental Conservation Act, 1995 and the guidelines of the World Bank;
- Prepare environmental check list for different activities of the project which will be the key tool to assess the potential risk and environmental sustainability and to determine required actions for each intervention;
- Develop deliver tailored training programmes for the implementing agencies on use of the environmental checklist and the environmental guidelines and safeguard procedures, the training programme will be based on recommendations of the EMF and wherever necessary national and international training institutes/ personal will be used. The consultant has to monitor training activities to ensure environmental enhancement is achieved;
- Review existing interventions in the EMF and periodically update and revise EMF based on new regulations (if any) of Bangladesh Government. Revisions to safeguard management plans, monitoring requirements and reporting have to be agreed by PCU.
- Extensive consultation with stakeholders including the implementing agencies, local government and communities to understand their views and requirements.
- Review all the screening report, EMFs, monitoring reports etc. prepared by implementing agencies.
- Devise and implement monitoring plan for EMP
- Prepare timely environmental assessment report or review of environmental assessment report prepared PIU;
- Incorporation of EMPs in the bidding and contractual documents;
- Monitoring and supervision of EMP implementation by the contractor, the construction supervision engineer, and the PIU;
- Monitor status and compliance with mitigation measures in the EMP; and any challenges in safeguard implementation, solutions, and lessons learned.
- Pay special attention to issues of non-compliance. In case of any noncompliance or unresolved safeguards issues propose additional measures with PCU and World Bank.
- Visit components and activities with significant potential environmental issues.

Time Period

The environmental specialist shall be engaged for project duration depending upon his/her performance evaluated after 6 months.

Qualification and Experience

The Safeguard Specialist should have at least Masters Degree in Environmental Science or Environmental Engineering. The environmental specialist must have at least 10 years of working experience of which 5 years in the field of environmental activities as consultant or working in an institution which deals with environmental concern. The environmental specialist must be aware of the environmental rules and regulations of Bangladesh and the World Bank and must have completed, or involved in the preparation of, environmental impact study of at least two projects in Bangladesh.

ANNEX VI

Standard Terms of Reference for Conducting Environment Impact Assessment

The Government of Bangladesh (GoB) with support from World Bank has proposed to take up the project to maintain a growth trajectory in export performance; as raising export competitiveness is essential to transform the broader economy. Bangladesh's continued integration in trade and international production networks will play an important role in this process. The GoB has identified the four sectors i.e., (i) leather, (ii) footwear, (iii) plastics and (iv) light engineering sectors as high potential priority sectors. Exports of leather and leather goods are growing fast but value addition is impeded by domestic husbandry and slaughter practices, inadequate technology, environmental degradation and compliance requirements in foreign markets. Its 6,200 firms employ nearly one million people of which a majority are women. Exports of footwear have doubled every four or five years for more than a decade and the sector has many similarities with the RMG sector in terms of strengths and weaknesses. The plastics and light engineering sectors produce essential intermediate products used in supply chains of many other sectors but the sectors are increasingly directly exporting their outputs as well. The plastics industry is made up of roughly 5,000 firms employing 600,000 workers whereas the light engineering industry's 2,500 firms employ some 70,000 workers.

The proposed project would address constraints to growth mainly in the four identified sectors (i.e., leather, footwear, plastics and light engineering) but many of the solutions will benefit other sectors. Important selection criteria were: (i) scope to create new jobs/labor intensity; (ii) perceived private interest and scope to generate more investment and export potential; and (iii) relevance and scope for project additionality. Binding constraints in the targeted sectors are linked to issues of market access, skills shortages and weak institutions for technology upgrading, and infrastructure weaknesses. Adherence to various technical and process quality standards, testing and accreditation mechanisms, and social and environmental standards are increasingly essential to export leather, leather products, footwear, plastics and light engineering products. The identified sectors rely on skilled technical workers and increasingly on R&D, product development and process engineering developed in partnership with institutions of higher education. A strong small and medium sized enterprise (SME) cluster underpinning the leather, leather products, footwear and light engineering sectors is essential to raise competition and productivity. Natural entry barriers in terms of high costs of modern machinery shuts out many prospective entrepreneurs. But there are proven business models of shared centers for technology adoption and diffusion where initial public subsidies help the SME segment access modern technology, product development and training facilities. In addition, there are binding infrastructure constraints negatively affecting the development of some of the industrial clusters.

The project will be structured around four components: (i) Market Access Support Program, (ii) a Productivity Enhancement Program, (iii) a Public Investment Facility for Infrastructure Constraints; and (iv) Project Implementation, Monitoring and Evaluation. The development of these sectors is held back due to negative externalities due to lack of common effluent treatment plants (CETPs), and public goods, like access roads to industrial parks. The project will finance such infrastructure gaps which will directly or indirectly benefit other productive sectors beyond the four explicitly targeted here. Such investments will also have some environmental and social impacts.

While many of the activities of the EC4J project do not have any construction or installations and do not need any Environmental Clearance, sub component Export Readiness Fund (sub component 1.2) will provide grant-based incentives to finance advisory services and equipment that enable firms to identify and address ESQ compliance gaps and upgrade products and production processes. Some of the equipment include environmental monitoring equipment, end-of-pipe equipment upgrading, ICT systems, safety equipment, technical measurement equipment. Production of shoes and leather goods

(capital up to 5 hundred thousand Taka), plastic & rubber goods (excluding PVC), agricultural machinery and equipment, Industrial machinery and equipment are considered to be Orange A. The Export Readiness Fund will cover projects which may include both services and fixed asset expenditures up to a maximum grant of US\$200,000. These activities will be categorised as Red per ECR 97. Thus a sub-project's of these sub-components will include a detailed assessment of significant impacts and the EIA include a detailed prediction and quantification of impacts and delineation of Environmental Management Plan (EMP). Findings of the EIA study will be incorporated in the project design stage so that the project is studied, the site alternatives are required and necessary changes, if required, will be incorporated in the project design stage.

These Terms of Reference is prescribed for Project seeking Environmental Clearance (EC) under the provision of the ECR 97. The Terms of Reference will be issued after approval of the Project Implementation Unit. "Environment" in EIA context mainly focuses, but is not limited to physical, chemical, biological, geological, social, economical, and aesthetic dimensions along with their complex interactions, which affects individuals, communities and ultimately determines their forms, character, relationship, and survival. In EIA context, 'effect' and 'impact' can often be used interchangeably. However, 'impact' is considered as a value judgment of the significance of an effect. The TOR is meant for sub-project level EIA and refers to the developmental activity in isolation and the impacts that it exerts on the receiving environment. However, these must be effectively integrated with the cumulative effects of the development in a region.

Objectives of EIA:

Objectives of EIA include the following:

- ◇ To ensure that the environmental considerations are explicitly addressed and incorporated into the development and decision-making process;
- ◇ To anticipate and avoid, minimize or offset the adverse significant biophysical, social and other relevant effects of development proposals;
- ◇ To protect the productivity and capacity of natural systems and the ecological processes which maintain their functions; and
- ◇ To promote development that is sustainable and optimizes resource use as well as management opportunities.

The EIA report will contain the following:

1) Executive Summary

2) Introduction

- i. Details of the EIA Consultant including accreditation
- ii. Information about the project proponent
- iii. Importance and benefits of the project

3) Project Description

- i. Cost of project and time of completion.
- ii. Products with capacities for the proposed project.
- iii. If expansion project, details of existing products with capacities and whether adequate land is available for expansion, reference of earlier EC if any.
- iv. List of raw materials required and their source along with mode of transportation.
- v. Other chemicals and materials required with quantities and storage capacities
- vi. Details of Emission, effluents, hazardous waste generation and their management.
- vii. Requirement of water, power, with source of supply, status of approval, water balance diagram, man-power requirement (regular and contract)
- viii. Process description along with major equipments and machineries, process flow sheet (quantative) from raw material to products to be provided
- ix. Hazard identification and details of proposed safety systems.

x. Expansion/modernization proposals: a. Copy of all the Environmental Clearance(s) including Amendments thereto obtained for the project from DoE shall be attached as an Annexure.

4) Site Details

- (i) Location of the project site covering Thana, District and State, Justification for selecting the site, whether other sites were considered.
- (ii) A toposheet of the study area of radius of 10km (including all eco-sensitive areas and environmentally sensitive places)
- (iii) Details w.r.t. option analysis for selection of site iv. Co-ordinates (lat-long) of all four corners of the site.
- (iv) Google map-Earth downloaded of the project site.
- (v) Layout maps indicating existing unit as well as proposed unit indicating storage area, plant area, greenbelt area, utilities etc. If located within an Industrial area/Estate/Complex, layout of Industrial Area indicating location of unit within the Industrial area/Estate.
- (vi) Photographs of the proposed and existing (if applicable) plant site. If existing, show photographs of plantation/greenbelt, in particular.
- (vii) Landuse break-up of total land of the project site (identified and acquired), government/ private - agricultural, forest, wasteland, water bodies, settlements, etc shall be included. (not required for industrial area)
- (viii) A list of major industries with name and type within study area (10km radius) shall be incorporated. Land use details of the study area
- (ix) Geological features and Geo-hydrological status of the study area shall be included.
- (x) Details of Drainage of the project upto 5km radius of study area. If the site is within 1 km radius of any major river, peak and lean season river discharge as well as flood occurrence frequency based on peak rainfall data of the past 30 years. Details of Flood Level of the project site and maximum Flood Level of the river shall also be provided. (mega green field projects)
- (xi) Status of acquisition of land. If acquisition is not complete, stage of the acquisition process and expected time of complete possession of the land.

5) Environmental Status

- (i) Determination of atmospheric inversion level at the project site and site-specific micrometeorological data using temperature, relative humidity, hourly wind speed and direction and rainfall.
- (ii) Air quality at 8 locations for PM10, PM2.5, SO2, NOX, CO and other parameters relevant to the project shall be collected. The monitoring stations shall be based on ECR 97 guidelines and take into account the pre-dominant wind direction, population zone and sensitive receptors including reserved forests.
- (iii) Surface water quality of nearby River (100m upstream and downstream of discharge point) and other surface drains at eight locations as per ECR 97 guidelines.
- (iv) Whether the site falls near to polluted stretch of river identified by the DoE if yes give details.
- (v) Ground water monitoring at minimum at 2 locations shall be included.
- (vi) Noise levels monitoring at 4 locations within the study area.
- (vii) Soil Characteristic as per CPCB guidelines.
- (viii) Traffic study of the area, type of vehicles, frequency of vehicles for transportation of materials, additional traffic due to proposed project, parking arrangement etc.
- (ix) Detailed description of flora and fauna (terrestrial and aquatic) existing in the study area shall be given with special reference to rare, endemic and endangered species. If Schedule-I fauna are found within the study area, a Wildlife Conservation Plan shall be prepared and furnished.

6) Impact and Environment Management Plan

This chapter shall describe the likely impact of the project on each of the environmental component, methods adopted for assessing the impact such as model studies, empirical methods, reference to existing similar situations, reference to previous studies, details of mitigation, methods proposed to reduce adverse effects of the project and reference to the models along with the inputs used should be mentioned. Mitigation measures should be proposed as required during the construction stage as well as the operation stage of the project for all the identified impacts.

- (i) Assessment of ground level concentration of pollutants and emissions based on site-specific meteorological features. Cumulative impact of all sources of emissions (including transportation)
- (ii) Water Quality modelling - in case of discharge in water body
- (iii) Impact of the transport of the raw materials and end products on the surrounding environment shall be assessed and provided. In this regard, options for transport of raw materials and finished products and wastes (large quantities) by rail or rail-cum road transport or conveyor cum rail transport shall be examined.
- (iv) A note on treatment of wastewater from different plant operations, extent recycled and reused for different purposes shall be included. Complete scheme of effluent treatment. Characteristics of untreated and treated effluent to meet the prescribed standards of discharge under ECR 97 rules.
- (v) Details of emission and action plan for control of emissions to meet standards.
- (vi) Measures for fugitive emission control
- (vii) Details of hazardous waste generation and their storage, utilization and management. Copies of MOU regarding utilization of solid and hazardous waste in plant shall also be included. EMP shall include the concept of waste-minimization, recycle/reuse/recover techniques, Energy conservation, and natural resource conservation.
- (viii) Action plan for the green belt development plan in 33% area. Giving details of species, width of plantation, planning schedule etc. shall be included. The green belt shall be around the project boundary and a scheme for greening of the roads used for the project shall also be incorporated.
- (ix) Action plan for rainwater harvesting measures at plant site shall be submitted to harvest rainwater from the roof tops and storm water drains to recharge the ground water and also to use for the various activities at the project site to conserve fresh water and reduce the water requirement from other sources.
- (x) Total capital cost and recurring cost/annum for environmental pollution control measures shall be included.
- (xi) Action plan for post-project environmental monitoring shall be submitted.
- (xii) Onsite and Offsite Disaster (natural and Man-made) Preparedness and Emergency Management Plan including Risk Assessment and damage control. Disaster management plan should be linked with District Disaster Management Plan.

7) Occupational health and safety

- (i) Plan and fund allocation to ensure the occupational health & safety of all contract and casual workers. Details of exposure specific health status evaluation of worker. If the workers' health is being evaluated by pre designed format, chest x rays, Audiometry, Spirometry, Vision testing (Far & Near vision, colour vision and any other ocular defect) ECG, during pre placement and periodical examinations give the details of the same. Details regarding last month analyzed data of above mentioned parameters as per age, sex, duration of exposure and department wise.
- (ii) Details of existing Occupational & Safety Hazards. What are the exposure levels of hazards and whether they are within Permissible Exposure level (PEL). If these are not within PEL, what measures the company has adopted to keep them within PEL so that health of the workers can be preserved,

- (iii) Annual report of health status of workers with special reference to Occupational Health and Safety.
- (iv) Details of fire protection facilities

8) Corporate Environment Policy

- (i) Does the company have a well laid down Environment Policy approved by its Board of Directors? If so, it may be detailed in the EIA report.
- (ii) Does the Environment Policy prescribe for standard operating process / procedures to bring into focus any infringement / deviation / violation of the environmental or forest norms / conditions? If so, it may be detailed in the EIA.
- (iii) What is the hierarchical system or Administrative order of the company to deal with the environmental issues and for ensuring compliance with the environmental clearance conditions? Details of this system may be given. iv. Does the company have system of reporting of non compliances / violations of environmental norms to the Board of Directors of the company and / or shareholders or stakeholders at large? This reporting mechanism shall be detailed in the EIA report.

9) Details regarding infrastructure facilities such as sanitation, fuel, restroom etc. to be provided to the labour force during construction as well as to the casual workers including truck drivers during operation phase.

Adequate funds (at least 2.5 % of the project cost) shall be earmarked towards the EHS Commitment based on Public Hearing issues and item-wise details along with time bound action plan shall be included. Socio-economic development activities need to be elaborated upon.

10) Litigation

- (i) Any litigation pending against the project and/or any direction/order passed by any Court of Law against the project, if so, details thereof shall also be included. Has the unit received any notice under the Bangladesh Environment Conservation Act (ECA), 1995 or relevant Sections of Air and Water Acts? If so, details thereof and compliance to the notice(s) and present status of the case.
- (ii) A tabular chart with index for point wise compliance of above

Specific Terms of Reference for EIA Studies Of Leather and Footwear Processing Industry

- (i) Justification for engaging a particular type of process (raw hide/skin into semi finishing or finished leather, semi finished leather to finished leather, dry finishing operations, chrome/vegetable tanning, etc.).
 - (ii) Details regarding complete leather/skin/ hide processing including the usage of sulfides, nitrogen compounds, chromium or other tanning agents, post-tanning chemicals, biocides, etc., along with the material balance shall be provided.
 - (iii) In case of chrome tanning, details of the chrome recovery plant, management of shavings/solid waste including safe disposal.
 - (iv) Details on reuse of soak liquor.
-
- ◇ After identification of sub-projects or activities community consultations regarding the objectives, scopes as well as environmental and social safeguard implications, especially with respect to environmental impacts and use of public and private lands will be undertaken;
 - ◇ All proposed activities to be funded by the project will be subject to an environmental and social screening in order to prevent execution of projects with significant negative environmental and social impacts and the PIU will not elect to undertake activities which could result in significant negative impacts;

Annex VII

Format of Half Yearly Monitoring Report

1. Introduction

2. Background of the Project

- Basic project information including a synopsis of the project organization,
- Description of the physical component of project and the updated progress.
- A synopsis of work undertaken during the half year;
- Project Environmental key personnel, contact names and telephone numbers;

3. Environmental Requirement

- Summarize the environmental protection and pollution control/mitigation measures, as recommended in the agreed EMF report and subproject specific EMP.

4. Environmental Status

- summarize the major activities undertaken by the different subprojects during six months with showing the inter-relationship with environmental protection/mitigation measures;
- describe the monitoring methodology;
- a half yearly assessment of construction impacts on water, air and noise quality as well as the construction waste management, labor camp management and safety assurance at the subproject site;
- Suggestion of appropriate mitigation measures if the half yearly assessment results demonstrate that the environment is declining ;
- a summary description of the actions taken in the event of non-compliance of the sub-projects sites those were visited last half year;
- a summary description of the actions to be taken in the event of non-compliance those were visited this six months and any follow-up procedures related to earlier non-compliance;
- a summary record of all complaints received (written or verbal) and subsequent redress for each subproject during this quarter.

5. Screening/EA Document Preparation :

- submission the list of subprojects/grants for those site specific environment screening/assessment have been carried out during this period.,
- summarize the key environmental issues of theses subprojects.

6. Others

- any other factors which might affect the monitoring results;
- graphical plots of the monitored parameters during the period;
- regulatory compliance progress (environment clearance certificate/renewal certificate from department of environment) etc.

7. Meeting and Discussion;

Summarize the meeting and the subsequent decision on the environment management those have been taken this quarter.

8. Conclusions And Recommendations

9. Annexure

- Photograph of the different factory location
- Environmental Monitoring Report
- Lab Test Report
- Screening Report of all the grants
- Status of construction