Environmental, Health, and Safety Guidelines for Small and Medium Enterprises of BRAC Bank Limited

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This guideline is also suitable for application specifically to small and medium type enterprises under any government/non-government organizations. However, there is still scope for tailoring these general environmental guidelines to larger-scale or industrial initiatives.

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INTRODUCTION

Small and medium enterprises (SME) in Bangladesh are playing a vital role to stimulate economic development including alleviation of poverty through employment generation. Small and medium enterprises cover a wide range of business activities some of which have negative environmental impacts (ROPME/GC 1992). With the rapid expansion of micro-finance and its anticipated future growth, there is an increasing threat to local environment. Moreover, the workers of the enterprises are also exposed to various health and safety risks. There are a number of areas where SMEs affect the local environment. Many of the businesses create hazardous waste and discarded indiscriminately since there are inadequate disposing facilities and lack of regulation or enforcement. The location of enterprises is a major concern, which can impact on natural resources especially if enterprises are located near park, hospital, educational institution, residential area, or waterway. Business location affects habitats' quality of life, aesthetics of natural resources, and infrastructure of both urban and rural areas. The scope of impacts varies in urban and rural settings and is caused by many factors. These factors can be intrinsic to the enterprise itself (waste generation, pollution, land/resource degradation). It should be noted that most informal sector activities do not cause significant harm to the environment and in some cases can be beneficial – as with waste collectors and recycling businesses (Pallen 1997). It is also important to note that many of the harmful effects can be mitigated or reduced without threatening the viability and growth of the business. In many cases increased material/production efficiency which is a key element of conservation is mutually beneficial since it saves business money and increases profits. However, the business impacts on environment (air, water, land, animal, plants and habitats) is of greater importance especially if economic activities play a part in threatening rare or endangered species of plants and animals, polluting air, water, land and destruction of habitats.

Environmental management ensures the sustainable mitigation of the harmful environmental effects of SMEs. This is the guideline for SME division of BRAC Bank towards environment-friendly enterprise development. It should be noted that the guideline must not impose any unnecessary obstacles for sustainable growth of micro enterprises. Rather, the guideline would help in raising the awareness level of the entrepreneurs and workers including staff of the BRAC Bank Limited.

OBJECTIVES OF THE GUIDELINE

The environmental guideline for SME division of BRAC Bank Limited is prepared with the following objectives:

i. To prevent any adverse environmental impact raised from the activities of SMEs,

ii. To protect the health and safety of those directly involved in the activities of SMEs, and

iii. To make SMEs environment-friendly under SME division of BRAC Bank Limited.

FOCUS OF THE GUIDELINE
(Environmental and Social Parameters)

The guidelines provided here are organized into five categories of environmental management principles to consider when processing loans. These are as follows:

Environmental management principles

Category	Considering factors
A. Habitat and wildlife	i. Landscape ii. Drainage iii. Rare/Endangered species iv. Native species
B. Natural resource use	i. Minimal inputs ii. Alternative energy sources iii. Re-use and recycling iv. Groundwater
C. Chemical use	i. Natural alternatives ii. Minimal use iii. Least harmful iv. Storage/Transport v. Quality standards
D. Waste management	i. Minimal wastes ii. Alternative uses iii. Treatment iv. Disposal v. Storage
E. Health and safety parameters	i. Occupational health • Working environment (Ventilation, lighting, density, fire extinguishing device, fire exit, safe water and sanitation, etc.) • Personal health and safety (Personal protection device, first aid, health check up etc.) ii. Ambient environment (buffer zone, drainage, air emission, sound pollution, waste management, etc.)

It should be noted that this guideline has been developed for application specifically to small and medium type enterprises. However, there is still scope for tailoring these general environmental guidelines to larger-scale or industrial initiatives.

IMPLEMENTATION OF THE GUIDELINE: PROCEDURES

The guideline will be introduced initially to both head office and field staff. Its introduction to the decentralized field staff especially staff of the SME division at different areas of the country is more difficult and time consuming. The application of this guideline to existing and future SMEs under BRAC Bank will be done at two different levels: programmatic (Head office) and project (Field). The guideline presented here is to be applied primarily at the former level, and supported at the field level through project implementation. The guideline should be systematically integrated into decision-making and programme designing and planning. More specifically, the process for implementation of the guideline will specify the following for processing loan:

- All new SME investment proposals at both head office and field level must demonstrate the application of the guideline through documentation of the considerations and resulting steps taken. An environment group will be responsible for reviewing the proposals from time to time at head office level. Customer Relation Officer (CRO) at field level will ensure proper application of the guideline into the activities of SMEs. For existing SMEs, the application of guideline is to be retroactive as undertaken by the environment group. A plan of action to implement the recommendations into the existing SMEs will be prepared and implemented accordingly by the CRO in-charge of SME section at field level. The environment group will follow-up the status of implementation of the recommendations.
- Monitoring and follow-up activities by the environment group will be developed enterprise-wise. In addition to environment group staff, there will be build-up of capabilities for environmental monitoring within existing field staff as part of general and on-going project management. However, there are three key types of functions to be carried out by field staff of SME section of BRAC Bank which include the following:

    i. Information, education and communication for awareness building among participating SME members;

    ii. Site specific considerations: local environmental conditions, location of the project, design specifications, etc., and

    iii. Monitoring and field inspections of SMEs to ensure compliance (chemical inputs, waste management, etc.).

The interaction between the head office and field level is crucial in ensuring the implementation of environmental measures. Environmental

recommendations must be incorporated into any programme technical and training manuals (Sharif 2002) that will be used in providing training to both organizational staff and SME members. Duration for training in this regard depends largely on the nature of contents and types of participants. An effective time plan for training to the concerned persons should be developed and updated from time to time. For example, organizational staff may receive a half-day to one day training and SME member would receive two hours orientation prior to receiving the loan. However, an environment group in the SME Division of BRAC Bank Limited will assist to implement this environmental guideline effectively. The environment group will ensure follow-up and monitoring on regular basis towards successful implementation of the guideline. Environmental Research Unit of BRAC Research and Evaluation Division may assist in this regard from time to time.

General principles

a. Activities (Annex-A) which are regulated or prohibited under international agreements and by the national laws and the activities which may cause significantly environmental/social problems should not be financed.

b. Waste is one of the main factors of polluting the environment. Industries contribute to the pollution of the environment, especially in the absence of regulations that force manufacturers to reduce their hazardous impact (Shomron 1997). Adverse environmental impact of SMEs should be minimized and controlled through waste minimization, recycling, and appropriate disposal.

c. Taking protective measures by the workers are highly needed during handling hazardous items/chemical in production process. SMEs must ensure safety and healthy working conditions through ensuring adequate air and lighting, fire protection devices, safe sanitation, safe water for drinking, safe way of entrance and departure, etc.

d. Enterprises having machineries with high-speed moving parts should be adequately protected for safety of the workers. The workers of such enterprises must be provided with special training to operate the machine effectively and efficiently. Some of high-speed moving parts include fly-wheels, presses, drilling machines, electric motors, etc.

e. Common space in the community should not be hampered by any of the activities of the enterprise. Common space is kept for the interest of all living in the community. Any attempt to use common space by the enterprise will affect on local environment adversely. The space, which is not owned, by any of the individuals in the community called common space.

f. The business where any of the activities ignores the interest of future generations should not be accepted for providing loan. An environmental checklist (Annex B) should be used for processing loan.

g. Existence of child labour in the factory is one of the indications of breaching law and ignoring the child rights. Use of child labour should not be supported. But in fact, this is harder to comply with. We realized that in many situations encountered by SMEs, child labour is unavoidable. So, it is suggested to put workable standards in place for SME division of BRAC Bank, such as uncovering unacceptable situations, e.g. when child labour is at the expense of education.

h. Provision of payment to the workers for overtime work should be maintained.

i. Energy must be used efficiently. Renewable energy should be preferred in running the production system.

j. Information and education building programme especially related to waste management, safety and security at working place, and other environmental considerations among SME members should be introduced, and maintained on regular basis.

Environmental considerations in project planning and implementation

There are four broad areas of the natural-human system for environmental considerations that should be considered in project planning and implementation (Child 1998). Another one area named 'Health and safety: occupational health' is also an important part of environmental considerations in project planning and implementation. The following provides an explanation as well as environmental considerations against these five categories.

Habitat and wildlife

Habitat is a general term that refers to the living biota of an area, including the soil and vegetation (tree, shrubs, grasses, riparian and wetland plants, etc.), as well as the rivers, lakes, ponds, wetland, upland areas, etc. that host the vegetation. Wildlife refers to the animals, including mammals, reptiles, amphibians, fish, birds, insects and micro-organisms. The two are obviously intricately inter-linked and together form the foundation for a healthy and functioning ecosystem.

Most human activities result in a change in land use through habitat alteration or destruction, which invariably leads to a displacement or loss of wildlife, in turn changing the balance of the natural system.

Environmental considerations on habitat and wildlife

Activities of the project should require minimal physical alteration of the landscape, including building dike, soil removal or deposit, or vegetation removal. The natural features of the land should be incorporated into the physical design and layout of the project. If possible, building should not be constructed in a location adjacent to a permanent water body (including lakes, ponds, wetlands, streams, rivers) or in a location that would require the removal of trees or other significant vegetation. The natural drainage of the project area should remain unaltered and intact. Particularly, there should be no filling in or alteration of wetlands or rivers.

There should be no destruction of wildlife or its habitat if the vicinity is known or suspected to contain rare or endangered plant or animal species. The project should not introduce any non-native plant or animal species into the natural environment. Native species should preferably be used over non-native species. Suitable non-native species should only be used based on the full understanding of the effects of their introduction, and only within a contained system.

Natural resource use

The survival of the human population depends entirely on the continued use of the planet's natural resources. Natural resources for basic survival can be summarized quite simply as: water and energy. Water is used for drinking, cooking, washing, transportation and most industrial productions. Energy from organic matter (wood, vegetation, dung), fuel (natural gas, petroleum), and other sources (solar energy, wind energy) also fulfills basic human survival needs. The earth, however, has a limited supply of energy for external use by humans without disrupting the natural balance. For the continued functioning of the natural energy cycles, human use must not outstrip the ability of the earth to replenish it. The transportation of these water and energy sources to use for different purposes creates pollution problems, such as water contamination from waste, air pollution due to fuel burning, deforestation from fuel wood collection, or organic depletion of the soil due to dung and forest litter collection. The minimized and wise use of these resources is required to meet the needs of the growing population.

Environmental considerations on natural resource use

The natural resource inputs into a project should be minimized as much as possible. This includes the use of water and energy sources such as wood, vegetation, dung, and fossil fuels. Alternative to these 'traditional' natural sources should be sought. Other material inputs, such as packaging and plastics, should also be minimized. Alternative energy

sources should be used instead of the renewable and non-renewable sources wherever possible. These include solar, wind, biogas, and tidal power.

The project should be designed to incorporate water and energy-saving practices and devices. This includes 'closed-loop' processes, i.e. making the outputs of one process as the inputs for another. Use of groundwater in a project should not result in the lowering of the groundwater table due to cumulative extractions and the inability of the water table to regenerate.

Chemical use

The environment has a natural ability to absorb certain substances, but when chemical compounds that are not naturally part of the system are added, the natural balance is disturbed. These chemicals build-up in the air, water and soil, poisoning it and affecting the plants, wildlife, and humans. As an example, chemical dyes used to colour fabric are discharged directly to a pond adjacent to a printing and dyeing industry. The water and soil not being able to assimilate this loading and become contaminated, killing the plants surrounding and in the pond, causing fish death or illness, creating health problems for the people using the water, and then affecting the nearby fields that are irrigated with this water. Chemical pollution of a water body would also have effects on surrounding water bodies, especially during the monsoon flooding.

Environmental considerations on chemical use

If possible, natural alternatives to chemicals should be used to minimize adverse environmental effect. Minimum use of the chemicals leads to minimum adverse effect on environment. So, the amount of chemicals used in the project activities should be kept to an absolute minimum.

If no natural alternative is known, the use of chemical should be the one having the least negative environmental impacts. Banned substances should not be used under any circumstances. Chemicals should be stored, including during transport, in airtight containers to avoid any leakage or fume release. Storage should be in a locked and well ventilated room used specifically for storage only. The project should not be carried out in an area where there is known air, water, or soil quality problems. The project should not be undertaken if the resultant air, water, or soil quality standards of the area would be exceeded. This will be applicable for large project which need EIA to get permission from the Department of Environment.

Waste management

The use of both natural and human-made materials results in some waste materials being produced, such as dirty and contaminated water and solid wastes. These wastes often have their own serious impact on the environment and human health, particularly when disposed of. For example, solid waste disposed of next to a water body will decompose and leach chemicals or excess organic liquids into water. This damage can be lessened in a number of ways, specifically by minimizing the amount of waste produced, re-use or recycling of waste materials, and proper treatment and/or disposal of the waste.

Environmental considerations on waste management

The energy and unused material outputs produced by the project activities should be minimized as much as possible. Alternative uses should be sought for the waste produced, either for the project activities or for external uses by other local activities. All necessary wastes should be treated before disposal if possible. These include liquid wastes, wastewater including heated water, and solid and airborne wastes. However, wastes should be disposed of in an ecologically acceptable way to avoid ecological damage, short and long-term. Any temporary storage of wastes should be maintained in such a way and location as to avoid leakage or contamination.

Health and safety parameters: occupational and environmental health

Occupational health and safety is a cross-disciplinary area concerned with protecting the safety, health and welfare of people engaged in work or employment. As a secondary effect, it may also protect co-workers, family members, employers, customers, suppliers, nearby communities, and other members of the public who are impacted by the workplace environment. Occupational health should aim at the promotion and maintenance of the highest degree of physical, mental, and social well-being of workers in all occupations; the prevention of workers from health hazards caused by their working conditions; the protection of workers in their employment from risks resulting from factors adverse to health; and, the placing and maintenance of the workers in an occupational environment adapted to their physiological and psychological capabilities.

Environmental health addresses mainly ambient environment of the work place. State of ambient environment of the work place largely depends on the function of working environment and the environment around the establishment. Ambient environment includes working environment, natural environment, vegetation, habitat, local community, and livelihoods of local community.

Environmental considerations on health and safety parameters

Occupational health and safety is the function of working environment that includes ventilation, lighting, density, fire extinguishing device, fire exist, safe water and sanitation, etc. It also deals with personal health and safety that includes personal protection device (gloves, masks, apron, ear pad, goggles, etc.), first aid, health check-up, etc. Ambient environment is also the function of working environment. It as well includes buffer zone, drainage system, air emission, sound pollution, waste management, livelihood patterns of nearby communities, etc.

Indoor air quality (IAQ) refers to the quality of the air in a work environment. Complaints about IAQ ranges from simple complaints of comfort issues (too hot/cold/draftee, etc) and odd smell to more complex problems, where the air quality may be suspected of causing illness and lost work time (Robert 2001). Sufficient airing and lighting is one of the major factors of improved rate of production and services of the workers including their good health in the factory. In production system, there are some sub systems, which are interacted and inter-dependent. If one sub system does not work well the whole system will be hampered. Airing and lighting are two sub-systems. The quality of these two sub-systems should be ensured in every phase of actions for all the time.

Chemical agents are divided into two broad categories: hazardous and toxic. Hazardous means dangerous. This category includes flammables, explosives, irritants, sanitizers, acids, caustics, etc. (Cutter 1994). Workers in enterprises if not aware of hazardous items or chemicals, they will be working at risk and any time it may lead to accident. So, workers should be aware of hazardous items used in production process from time to time.

For most people in the world, the greatest environmental health threat continues to be, as it has always been, pathogenic (disease causing) organisms (WHO 1995). Existence of safe sanitation in working place is necessary for the workers. It has fruitful meanings and impact on production system including individual life of the workers if the arrangement of safe sanitation is maintained separately for both male and female workers within the factory premises. Getting safe working environment is one of the rights of the workers, which should be ensured by the owner of the enterprise. An arrangement of the safe sanitation for both male and female workers separately is one of the major conditions of safe working environment

Safe drinking water is needed for safe life. Access to safe water supply is one of the most important determinants of health and socioeconomic development (Cvjetanovic 1986). Right information about safe drinking water and ensuring safe water for the workers should be ensured.

Arrangement of sufficient fire extinguishing equipments in the factory is necessary to protect the property and lives. Awareness programme on fire fighting for both workers and owners of the enterprises is necessary.

MITIGATION MEASURES: ENTERPRISE-WISE

Some of the SMEs require general principles to apply for environment-friendly activities and some of the enterprises require standard environmental, health, and safety mitigation measures. Standard environment-friendly mitigation measures for some enterprises where SME division of BRAC Bank financing mostly are suggested below. The suggestions are prepared based on our study findings and reviewing related literature, documents of different organizations.

Sector: Production
Enterprise type: Plastic industry
Category: *Orange – B

Potential negative impacts	Mitigation measures
Risk from using machine if: - Machines look unsafe, ill maintained, have dangerous parts - No safeguards are available and/or used when necessary - Leakages, disposals, liquid waste or wastewater drains to stream/river/ pond/soil	- Position machines on a safe spot and cover dangerous moving parts - Take up maintenance routine, follow strict maintenance and lubrication practices for the moving parts of equipment - Keep machines in good shape and clean - Experience operators only - Provide and use safeguards (goggles, gloves, mask) - Re-use scrap/disposals - Stop leakages and draining liquid waste without treatment - Establish contingency plans for accidents - Have fire fighting equipment and first aid kit available
- During cutting plastic, plastic dust and particulates are mixed into the indoor air especially and conversion of plastic chips into plastic granular through heating, one kind of pungent smell is emitted which may adversely affect workers health - Improper disposal of waste both solid and liquid pollutes air, water, and land that affects animals including human health adversely	- It is essential to use nose mask by the workers during production - Workers should be given knowledge on handling hazardous chemicals properly - Solid waste should be disposed in a fixed dumping sites and effluent must be discharged only after proper treatment.

Potential negative impacts	Mitigation measures
Risk from working in the conditions if: - Work takes place in unventilated space - Workers are exposed to dust, noise, vibration - There are no clear agreements with employees: they cannot claim their rights	- Make agreements with workers about acceptable working hours - Ventilate - Provide masks and ear plugs - Make use of natural light (in other cases: arrange proper artificial/electric lighting) - Vulnerable groups (children/women) do not work in dangerous areas - Establish contingency plans for accidents - Have fire fighting equipment and first aid kit available

* As per provisions of the Environment Conservation Act (ECA), 1995 and Environment Conservation Rules (ECR), 1997 all new and existing industrial units are obliged to apply for an Environmental Clearance Certificate (ECC) from the Department of Environment (form attached as Annex C). For the purpose of granting ECC, industrial units are classified into four categories depending upon their environmental impact. These are Green, Orange-A, Orange- B, and Red (Huq 2002) (Annex D).

Sector: Production
Enterprise type: Textile industry/dyeing/finishing
Category: Orange – A

Potential negative impacts	Mitigation measures
Risk from using machine if: - Machines look unsafe, ill maintained, have dangerous parts - No safeguards are available and/or used when necessary - Leakages, disposals, liquid waste or wastewater drains to stream/river/ pond/soil	- Position machines on a safe spot and cover dangerous moving parts - Take up maintenance routine, follow strict maintenance and lubrication practices for the moving parts of equipment - Keep machines in good shape and clean - Experience operators only - Provide and use safeguards (goggles, gloves, mask) - Re-use scrap/disposals - Stop leakages and draining liquid waste without treatment - Establish contingency plans for accidents - Have fire fighting equipment and first aid kit available

Potential negative impacts	Mitigation measures
Risk from polluting water if: - Waste water/liquids are released/discharged to water (stream/pond/lake/open sewer) - Liquid waste generated has high pH, BOD and COD values. The effluents also have high heavy metal concentration.	- A system must be set up to measure waste discharges - Prevent unnecessary water discharges - Use filters - Discharge wastewater in controlled sewer system - Discharge toxic waste via community service - The liquid effluent from dyeing and finishing units should first be adjusted. The liquid should be transferred to a second tank where flocculants like aluminium sulphate (Alum) or Poly Aluminum chloride (PAC) is to be added to precipitate as much solid contents as possible. The banned acid dyes, direct dyes, dispersed dyes and azo dyes must not be used.
Risk from using chemicals/paints/solvents if: - No safeguards are used when necessary - No relevant Material Safety Data Sheets (or other safety leaflet) are available - Storage is unsafe, since unlocked, near sleeping/eating	- Do not over-use chemicals - Provide and use safeguards when working with chemicals (mask, goggles, gloves, overall) - A separate storage is created, locked away from children and living/eating rooms - Safeguards for longer storage periods - Establish contingency plans for accidents - Have fire fighting equipment and first aid kit available

Potential negative impacts	Mitigation measures
Risk from working in the conditions if: - Work takes place in unventilated space - Workers are exposed to dust, noise, vibration - There are no clear agreements with employees: they cannot claim their rights	- Make agreements with workers about acceptable working hours - Provide for appropriate ventilation in work spaces - Provide masks and ear plugs - Make use of natural light (in other cases: arrange proper artificial/electric lighting) - Vulnerable groups (children/women) do not work in dangerous areas - Establish contingency plans for accidents - Have fire fighting equipment and first aid kit available
- If the electric wire is connected loosely into the motor and any types of faulty electrical connections may lead to short circuit related accidents - Workers including neighbors may face serious health problems due to high sound and vibration of the machineries - Liquid wastes disposed on land or solid wastes dumped on the surface or in unsatisfactory landfills are prone to weathering process and leaching by rain. Some of the toxic compounds in these wastes find their way to ground water, aquifers or to nearby surface waters contaminating both the water and the aquatic biota through contaminating their tissues, thus causing health hazards to nearby inhabitants.	- A regular check on electrical connections should be done - Workers should be aware of accident may rise from faulty electrical connections - Well set up of the machineries, adequate height of the roof, and sound protection device should be established- Management of high standards treatment, and landfills should be ensured.

Sector: Production
Enterprise type: Leather processing/tanning
Category: Red

Potential negative impacts	Mitigation measures
- Leather industry is more harmful to the environment than the textile, medicine, fertilizer and paper industries (NEMAP 1995) - Worst smell emanating from rotten meat during processing leather affects the workers in an adverse way. Neighbors are also affected.	- Measuring and monitoring discharge - Proper treatment for neutralization of the effluent before disposal should be ensured - Leather processing unit should be established outside the residential and commercial areas. Environment friendly chemical may be used to protect worst smell.
Risk from using chemicals/acids/dyes if: - No safeguards are used when necessary - No relevant Material Safety Data Sheets (or other safety leaflet) are available - Storage is unsafe, since unlocked, near sleeping/ eating	- Do not over-use chemicals - Provide and use safeguards when working with chemicals (mask, goggles, gloves, overall) - A separate storage is created, locked away from children and living/eating rooms - Establish contingency plans for accidents - Have fire fighting equipment and first aid kit available
Risk from disposing of organic/production/chemical waste if: Waste is lying around and/or not properly disposed of	- Organic waste can be re-used as fertilizer or animal fodder - Dispose via community service in stead of burning - Have dustbins available; waste lying around attracts even more waste - Sell waste/scrap to recycling companies
Risk from polluting water if: Waste water/liquids are released/discharged to water (stream/pond/lake/open sewer)	- Prevent unnecessary water discharges - Use filters - Discharge wastewater in controlled sewer system - Discharge toxic waste via community service

Potential negative impacts	Mitigation measures
Risks from working in the conditions if: - Work takes place in unventilated space - Workers are exposed to dust, noise, vibration - There are no clear agreements with employees: they cannot claim their rights - There is an unsafe working environment potentially leading to stress (aggression, discrimination, sexual violence)	- Make agreements with workers about acceptable working hours - Ventilate - Provide masks and ear plugs - Make use of natural light (in other cases: arrange proper artificial/electric lighting) - Vulnerable groups (children/women) do not work in dangerous areas - Establish contingency plans for accidents - Have fire fighting equipment and first aid kit available

Sector: Production
Enterprise type: Rice mill/Oil mill
Category: Orange – B

Potential negative impacts	Mitigation measures
- During operation, high speed moving parts may cause accident if handled carelessly - Ash, dust, and other particulates affect neighbors' health especially workers' health	- High speed moving parts (fly-wheels, electric motors) must be adequately protected - Workers in the rice mill must use nose mask during operation - Ash and dust must be dumped into nearby fixed place

Sector: Production
Enterprise type: Bakery
Category: Orange – A

Potential negative impacts	Mitigation measures
- Highly temperature in the furnace may make happen accident - Excessive emission of smoke from burning of fuel in the furnace - Contaminating the food stuff through flies and other insects	- Temperature measuring scale may be used in controlling temperature - Adequate height of chimney should be ensured. - All of the produced foods (Biscuits, cake, bread etc.) must be adequately covered for all the time

Sector: Production
Enterprise type: Engineering works
Category: Orange – B

Potential negative impacts	Mitigation measures
Risk from using machine if: - Machines look unsafe, ill maintained, have dangerous parts - No safeguards are available and/or used when necessary - Leakages, disposals, liquid waste or wastewater drains to stream/river/ pond/soil	- Position machines on a safe spot and cover dangerous moving parts - Take up maintenance routine, follow strict maintenance and lubrication practices for the moving parts of equipment - Keep machines in good shape and clean - Experience operators only - Provide and use safeguards (goggles, gloves, mask) - Re-use scrap / disposals - Stop leakages and draining liquid waste without treatment - Establish contingency plans for accidents - Have fire fighting equipment and first aid kit available
- Improper handling of welding work and gas cylinder can lead to accident	- Proper training should be provided to the workers so that they can handle welding works effectively

Sector: Production
Enterprise type: Saw mill
Category: Orange – A

Potential negative impacts	Mitigation measures
- During operation, saw may act as source of health hazard if handled carelessly - Unplanned supply of woods from immature forest cause deforestation which ultimately hampers total biodiversity in the country	- Protective measures using hand gloves, standing at safe distance, alertness etc. must be ensured during operation of saw mill by the workers - Supply of wood from matured forest in a proper way should be ensured.

Sector: Production
Project type: Welding
Category: Red

Potential negative impacts	Mitigation measures
- Eye sight can be severely affected because of the brightness of welding arc	- Welder should be equipped with adequate heat resistant eye protective welding masks and hand gloves.
- Faulty electrical connections can lead to short circuit related accidents.	- Electrical connection should be regularly checked and old wires and fittings must be replaced.
- Welding work carried out on roadside can be dangerous for the general public.	- The enterprise must have sufficient covered space with proper ventilation to carry out the welding work.

Sector: Production
Project type: Metal work
Category: Orange – B

Potential negative impacts	Mitigation measures
Risk from using machine if: - Machines look unsafe, ill maintained, have dangerous parts - No safeguards are available and/or used when necessary - Leakages, disposals, liquid waste or wastewater drains to stream/river/pond/soil	- Position machines on a safe spot and cover dangerous moving parts Take up maintenance routine, follow strict maintenance and lubrication practices for the moving parts of equipment - Keep machines in good shape and clean - Experience operators only - Provide and use safeguards (goggles, gloves, mask) - Re-use scrap/disposals - Establish contingency plans for accidents - Have fire fighting equipment and first aid kit available
- Generation of excessive amount of heat from the furnace is created during production	- Adequate exhaust fan and cross ventilation can control of room temperature

Potential negative impacts	Mitigation measures
Risk from using chemicals/paints/solvents/lubricants if: - No safeguards are used when necessary - No relevant Material Safety Data Sheets (or other safety leaflet) are available - Storage is unsafe, since unlocked, near sleeping/eating	- Do not over-use chemicals - Provide and use safeguards when working with chemicals (mask, goggles, gloves, overall) - A separate storage is created, locked away from children and living/eating rooms - Establish contingency plans for accidents Have fire fighting equipment and first aid kit available
- Emission of soot and flue gasses comprising of oxides of sulphur and Carbon Monoxide from the melting furnace	- Installation of chimney of minimum 15 feet height. Where gas connections exist, gas pressure gauge and air flow meters and efficient air damper should be installed with the furnace to ensure complete combustion.
Risk from polluting water if: Waste water/liquids are released/discharged to water (stream/pond/lake/open sewer)	- Prevent unnecessary water discharges - Use filters - Discharge wastewater in controlled sewer system - Discharge toxic waste via community service
- Water used for quenching is contaminated	- The contaminated quenching water must be neutralized before disposal.
- Solid waste from metal work is generated normally.	– Maintain proper segregation and disposal of generated solid waste
Risk from working in the conditions if: - Work takes place in unventilated space - Workers are exposed to dust, noise, vibration - There are no clear agreements with employees: they cannot claim their rights	- Make agreements with workers about acceptable working hours - Adequate ventilation must be ensured - Provide masks and ear plugs - Make use of natural light (in other cases: arrange proper artificial/electric lighting) - Vulnerable groups (children/women) do not work in dangerous areas - Establish contingency plans for accidents - Have fire fighting equipment and first aid kit available

Sector: Production
Project type: Galvanizing
Category: Orange – B

Potential negative impacts	Mitigation measures
- Hydrochloric acid medium is used for galvanizing process.	- The spent hydrochloric acid should be separated and neutralized by adjusting pH to between 6-7 before discharge.
- There is formation of sludge	- The sludge should be neutralized by adding lime.
Risk from working in the conditions if: - Work takes place in unventilated space - Workers are exposed to dust, noise, vibration - There are no clear agreements with employees: they cannot claim their rights	- Make agreements with workers about acceptable working hours - Provide for appropriate ventilation in work spaces - Provide masks and ear plugs - Make use of natural light (in other cases: arrange proper artificial/electric lighting) - Vulnerable groups (children/women) do not work in dangerous areas - Establish contingency plans for accidents - Have fire fighting equipment and first aid kit available

Sector: Production
Project type: Food processing
Category: Orange – B

Potential negative impacts	Mitigation measures
Risk from processing food if: - Perishable ingredients (especially meat, poultry and fish) are not kept fresh and cool - Basic hygienic practices are not enforced (washing hands, clean tools, clean water)	- Keep the working area clean - Wash hands and tools at all times - Use clean water only - Have first aid kit available
Risk from employing children if: Children are employed without consideration of children should receive education, proper nutrition and health care and they are to employ to operate hazardous works	- Have children help with light duties only - Only outside school hours and pupils must have time and designated place to do homework - Children do not operate hazardous machines/works

Potential negative impacts	Mitigation measures
Risk from using machine if: - Machines look unsafe, ill maintained, have dangerous parts - No safeguards are available and/or used when necessary - Leakages, disposals, liquid waste or wastewater drains to stream/river/ pond/soil	- Position machines on a safe spot and cover dangerous moving parts - Take up maintenance routine, follow strict maintenance and lubrication practices for the moving parts of equipment - Keep machines in good shape and clean - Experience operators only - Provide and use safeguards goggles, gloves, mask) - Re-use scrap/disposals - Stop leakages and draining liquid waste - Establish contingency plans for accidents - Have fire fighting equipment and first aid kit available
- Emission of smoke from burning of fuel	- A minimum of 10-15 feet height of chimney should be installed
- Waste water from processing will generate organic load	- The waste should be separated for composting or to be converted as animal/poultry feed and fish meal.
- Limited solid waste generation	- Proper disposal to landfill
- Workers are likely to suffer from health hazards due to long hours of exposure to high ambient temperature specially during summer	- Provisions for temperature control through adequate ventilation
- Employees/workers having contagious or infections diseases will contaminate the food stuff	- Regular health check-up of the employees/workers should be ensured

Sector: Production
Project type: Carpet making
Category: Red

Potential negative impacts	Mitigation measures
Having risk from cotton, jute, synthetic fibers and dust floating in the work place	- Use of nose mask and proper ventilation is highly suggested
Risk from employing children if: Children are employed without consideration of children should receive education, proper nutrition and health care and they are to employ to operate hazardous works	- Have children help with light duties only - Only outside school hours and pupils must have time and designated place to do homework - Children do not operate hazardous machines/works

Sector: Production
Project type: Bidi manufacture
Category: Red

Potential negative impacts	Mitigation measures
Having risk as: - Workers are subjected to long exposures to tobacco and tobacco leaves	- Use of masks by workers is suggested
- Lack of ventilation and adequate space may cause suffocation and related health hazard	- Adequate ventilation at work place is to be ensured
Risk from employing children if: Children are employed without consideration of children should receive education, proper nutrition and health care and they are to employ to operate hazardous works	- Have children help with light duties only - Only outside school hours and pupils must have time and designated place to do homework - Children do not operate hazardous machines/works
- Employment of females specially pregnant women may lead to complication	- Employment of pregnant women should be carefully handled - Have pregnant women help with light duties only as they feel comfortable

Sector: Production
Project type: Wooden furniture
Category: Orange – A

Potential negative impacts	Mitigation measures
- There will be generation of wood cuttings and saw dust	- The solid waste generated may be used as fuel or dumped in a sanitary landfill.
- The operation is involved in use of polish, varnish and thinners.	- Nose mask use is suggested

Sector: Production
Project type: Painting and printing
Category: Orange – B

Potential negative impacts	Mitigation measures
Risk from using paints/solvents if: - No safeguards are used when necessary - No relevant Material Safety Data Sheets (or other safety leaflet) are available - Storage is unsafe, since unlocked, near sleeping/eating	- Do not over-use chemicals - Provide and use safeguards when working with chemicals (mask, goggles, gloves, overall) - A separate storage is created, locked away from children and living/eating rooms - Establish contingency plans for accidents - Have fire fighting equipment and first aid kit available
Risk from disposing of production/chemical waste if: Waste is lying around and/or not properly disposed of	- Dispose via community service - Have dustbins available; waste lying around attracts even more waste - Separate (toxic) waste - Sell waste/scrap to recycling companies
Risk from causing emissions to air if: Smoke/exhaust gas is being produced and emitted while no filters are being used	- Reduce unnecessary burning - Maintain burners and adjust them well - Use clean fuel, Use filters, Use chimneys - Use closed heating/burning systems - Re-use heat (energy)
Risk from polluting water if: Waste water/liquids are being released/discharged to water (stream/pond/lake/open sewer)	- Prevent unnecessary water discharges - Use filters - Discharge wastewater in controlled sewer system - Discharge toxic waste via community service
Risk from working in the conditions if: - Work takes place in unventilated space - Workers are exposed to dust, noise, vibration	- Make agreements with workers about acceptable working hours - Ventilate - Provide masks and ear plugs - Make use of natural light (in other cases: arrange proper artificial/electric lighting) - Establish contingency plans for accidents - Have fire fighting equipment and first aid kit available

Sector: Production
Project type: Garments
Category: Orange – B

Potential negative impacts	Mitigation measures
Risk from employing children if: Children are employed without consideration of children should receive education, proper nutrition, and health care and they should be protected from abuse and discrimination, able to play and enjoy their childhood	- Have children help with light duties only - Only outside school hours and pupils must have time and designated place to do homework - Children do not operate hazardous machines
Risk from working in the conditions if: - Work takes place in unventilated space - Workers are exposed to dust, noise, vibration - There are no clear agreements with employees: they cannot claim their rights - There is an unsafe working environment potentially leading to stress (aggression, discrimination, sexual violence)	- Make agreements with workers about acceptable working hours - Ventilate - Provide masks and ear plugs - Make use of natural light (in other cases: arrange proper artificial/electric lighting) - Vulnerable groups (children/women) do not work in dangerous areas - Establish contingency plans for accidents - Have fire fighting equipment and first aid kit available
Risk from using machine if: - Machines look unsafe, ill maintained, have dangerous parts - No safeguards are available and/or used when necessary - Leakages, disposals, liquid waste or wastewater drains to stream/river/pond/soil	- Position machines on a safe spot and cover dangerous moving parts - Take up maintenance routine, follow strict maintenance and lubrication practices for the moving parts of equipment - Keep machines in good shape and clean - Experience operators only - Provide and use safeguards (goggles, gloves, mask) - Re-use scrap/disposals - Stop leakages - Stop draining liquid waste - Establish contingency plans for accidents - Have fire fighting equipment and first aid kit available

Sector: Production
Project type: Ceramics, Pottery, Glazing
Category: Orange – B

Potential negative impacts	Mitigation measures
Risk from extracting clay or minerals if: The activities cause erosion and/or land degradation	- Recover land, grow vegetables, plants, trees to prevent land erosion after extraction - Use of clay/minerals should be legal, with permission - Employees work safe and no excessive overtime - Establish contingency plans for accidents
Risk from polluting water if: Waste water/liquids are being released/discharged to water (stream/pond/lake/open sewer)	- Prevent unnecessary water discharges - Use filters - Discharge wastewater in controlled sewer system - Discharge toxic waste via community service
Risk from employing children if: Children are employed without consideration of children should receive education, proper nutrition, and health care and they should be protected from abuse and discrimination, able to play and enjoy their childhood	- Have children help with light duties only - Only outside school hours and pupils must have time and designated place to do homework - Children do not operate hazardous machines
Risk from working in the conditions if: - Work takes place in unventilated space - Workers are exposed to dust, noise, vibration - There are no clear agreements with employees: they cannot claim their rights	- Make agreements with workers about acceptable working hours - Ensure appropriate ventilation - Provide masks and ear plugs - Make use of natural light (in other cases: arrange proper artificial/electric lighting) - Vulnerable groups (children/women) do not work in dangerous areas - Establish contingency plans for accidents - Have fire fighting equipment and first aid kit available

Sector: Production
Project type: Glass manufacturing
Category: Orange – B

Potential negative impacts	Mitigation measures
Risk from causing emissions to air if: Smoke/exhaust gas is being produced and emitted while no filters are being used	- Reduce unnecessary burning - Maintain burners and adjust them well - Use clean fuel, Use filters, Use chimneys - Use closed heating/burning systems - Re-use heat (energy)
Risk from disposing of organic/production/chemical waste if: Waste is lying around and/or not properly disposed of	- Organic waste can be re-used as fertilizer or animal fodder - Dispose via community service - Have dustbins available; waste lying around attracts even more waste - Separate (toxic) waste - Sell waste/scrap to recycling companies
Risk from working in the conditions if: - Work takes place in unventilated space - Workers are exposed to dust, noise, vibration - There are no clear agreements with employees: they cannot claim their rights - There is an unsafe working environment potentially leading to stress (aggression, discrimination, sexual violence)	- Make agreements with workers about acceptable working hours - Ensure appropriate ventilation - Provide masks and ear plugs - Make use of natural light (in other cases: arrange proper artificial/electric lighting) - Vulnerable groups (children/women) do not work in dangerous areas - Establish contingency plans for accidents - Have fire fighting equipment and first aid kit available

Sector: Production
Project type: Handicrafts
Category: Orange – A

Potential negative impacts	Mitigation measures
Risk from employing children if: Children are employed without consideration of children should receive education, proper nutrition and health care and they should be protected from abuse and discrimination, able to play and enjoy their childhood	- Have children help with light duties only - Only outside school hours and pupils must have time and designated place to do homework - Children do not operate hazardous machines

Potential negative impacts	Mitigation measures
Risk from working in the conditions if: - Work takes place in unventilated space - Workers are exposed to dust, noise, vibration - There are no clear agreements with employees: they cannot claim their rights - There is an unsafe working environment potentially leading to stress (aggression, discrimination, sexual violence)	- Make agreements with workers about acceptable working hours - Ensure appropriate ventilation - Provide masks and ear plugs - Make use of natural light (in other cases: arrange proper artificial/electric lighting) - Vulnerable groups (children/women) do not work in dangerous areas - Establish contingency plans for accidents - Have fire fighting equipment and first aid kit available

Sector: Production
Project type: Brick/Tile manufacturing
Category: Orange – B

Potential negative impacts	Mitigation measures
Risk from extracting clay or minerals if: - The activities cause erosion and/or land degradation - No safety precautions seem available	- Recover land, grow vegetables, plants, trees to prevent land erosion after extraction - Use of clay/minerals should be legal, with permission - Employees work safe and no excessive overtime - Establish contingency plans for accidents
Risk from causing emissions to air if: Smoke/exhaust gas is produced and emitted while no filters are being used	- Reduce unnecessary burning - Maintain burners and adjust them well - Use clean fuel, Use filters, Use chimneys - Use closed heating/burning systems - Re-use heat (energy)
Risk from polluting water if: Waste water/liquids are released/ discharged to water (stream/pond/lake/open sewer)	- Prevent unnecessary water discharges - Use filters - Discharge wastewater in controlled sewer-system - Discharge toxic waste via community service

Potential negative impacts	Mitigation measures
Risk from employing children if: Children are employed without consideration of children should receive education, proper nutrition, and health care and they should be protected from abuse and discrimination, able to play and enjoy their childhood	- Have children help with light duties only - Only outside school hours and pupils must have time and designated place to do homework - Children do not operate hazardous machines
Risk from working in the conditions if: - Work takes place in unventilated space - Workers are exposed to dust, noise, vibration - There are no clear agreements with employees: they cannot claim their rights	- Make agreements with workers about acceptable working hours - Ensure appropriate ventilation - Provide masks and ear plugs - Make use of natural light (in other cases: arrange proper artificial/electric lighting) - Vulnerable groups (children/women) do not work in dangerous areas - Establish contingency plans for accidents - Have fire fighting equipment and first aid kit available

Sector: Service
Enterprise type: Hospital
Category: Red

Potential negative impacts	Mitigation measures
Risk from using chemicals/pharmaceutical substances if: - No protective equipment and safeguards are available to workers (masks, goggles, gloves, overalls) - No material safety data sheets (or other safety leaflets) are available	- Do not over-use chemicals - Make protective equipment and safeguards available to workers (masks, goggles, gloves, overalls) - Have material safety data sheets available - Establish contingency plans for accidents - Have fire fighting equipment and first aid kit available
Upon disposal of hospital waste including toxic and hazardous waste without segregation properly may lead to increase the possibility of incidence of morbidity and mortality among the community people	- Hospital waste should be dispatched only based on proper segregation

Sector: Service
Enterprise type: Restaurant
Category: Orange – A

Potential negative impacts	Mitigation measures
Risk from processing food if: - Perishable ingredients (especially meat, poultry and fish) are not kept fresh and cool - Basic hygienic practices are not enforced (washing hands, clean tools, clean water)	- Keep the working area clean - Wash hands and tools at all times - Use clean water only - Have first aid kit available
- Garbage of the restaurant if discharged in a unsystematic manner will lead to spreading-out of worst smell- a source of air pollution which may cause morbidity of the neighbors - Dirty kitchen, cooking unsafely, and presence of flies and other insects on the foods are the sources of health hazards - Workers having contagious or infections diseases will contaminate the food stuff	- Garbage must be discharged into a permitted dumping site - Through recycling the garbage with proper segregation, quality organic fertilizer can be produced - Clean kitchen and safe cooking on regular basis will ensure hygienic food for good health - Regular health check-up of the workers should be ensured
Risk from employing children if: Children are employed without consideration of children should receive education, proper nutrition and health care and they should be protected from abuse and discrimination, able to play and enjoy their childhood	- Have children help with light duties only - Only outside school hours and pupils must have time and designated place to do homework - Children do not operate hazardous machines

Sector: Service
Project type: Auto/Vehicle repair
Category: Orange – B

Potential negative impacts	Mitigation measures
Risk from using machine if: - Machines look unsafe, ill maintained, have dangerous parts - No safeguards are available and/or used when necessary - Leakages, disposals, liquid waste or wastewater drains to stream/river/ pond/soil	- Position machines on a safe spot and cover dangerous moving parts - Take up maintenance routine, follow strict maintenance and lubrication practices for the moving parts of equipment - Keep machines in good shape and clean - Experience operators only - Provide and use safeguards, goggles, gloves, mask) - Re-use scrap/disposals - Stop leakages and draining liquid waste - Establish contingency plans for accidents - Have fire fighting equipment and first aid kit available
Risk from using paints/solvents/lubricants if: - No safeguards are used when necessary - No relevant Material Safety Data Sheets (or other safety leaflet) are available - Storage is unsafe, since unlocked, near sleeping/eating	- Do not over use chemicals - Provide and use safeguards when working with chemicals (mask, goggles, gloves, overall) - A separate storage is created, locked away from children and living/eating rooms - Establish contingency plans for accidents - Have fire fighting equipment and first aid kit available
Risk from disposing of organic/production/chemical waste if: Waste is lying around and/or not properly disposed of	- Dispose via community service in stead of burning - Have dustbins available; waste lying around attracts even more waste - Sell waste/scrap to recycling companies
Risk from polluting water if: Waste water/liquids are being released/discharged to water (stream/pond/lake/open sewer)	- Prevent unnecessary water discharges - Use filters - Discharge wastewater in controlled sewer system - Discharge toxic waste via community service

Potential negative impacts	Mitigation measures
- Waste lubricating oil, brake oil may be generated.	- The lubricating and other oils generated should be given to lube oil-recycling industry.
- Solid metallic waste may be generated.	- The solid waste generated should be given to steel re-rolling mills for recycling.
- The operation will involve welding and use of high speed grinding and drilling machines.	- Welding mask and eye protection equipment should be used and adequate training is to be provided to workers using grinding and drilling machines. -Use of hand gloves is recommended.

Sector: Service
Project type: Shop/Retail/Market Stall
Category: Orange – A

Potential negative impacts	Mitigation measures
Risk from employing children if: - Children are employed without consideration of children should receive education, proper nutrition and health care and they are to employ to operate hazardous works	- Have children help with light duties only - Only outside school hours and pupils must have time and designated place to do homework - Children do not operate hazardous machines/works
Risk from processing food if: - Perishable ingredients (especially meat, poultry and fish) are not kept fresh and cool - Basic hygienic practices are not enforced (washing hands, clean tools, clean water)	- Keep the working area clean - Wash hands and tools at all times - Use clean water only - Have first aid kit available
Risk from disposing of organic/production/chemical waste if: Waste is lying around and/or not properly disposed of	- Organic waste can be re-used as fertilizer or animal fodder - Dispose via community service in stead of burning - Have dustbins available; waste lying around attracts even more waste - Sell waste/scrap to recycling companies

Sector: Service
Project type: Transportation
Category: Orange – B

Potential negative impacts	Mitigation measures
Risk from using machine if: - Machines look unsafe, ill maintained, have dangerous parts - No safeguards are available and/or used when necessary - Leakages, disposals, liquid waste or waste water drains to stream/river/pond/soil	- Position machines on a safe spot and cover dangerous moving parts - Take up maintenance routine, follow strict maintenance and lubrication practices for the moving parts of equipment - Keep machines in good shape and clean - Experience operators only - Provide and use safeguards (goggles, gloves, mask) - Re-use scrap/disposals - Stop leakages - Stop draining liquid waste - Establish contingency plans for accidents - Have fire fighting equipment and first aid kit available
Risk from causing emissions to air if: Smoke/exhaust gas is being produced and emitted while no filters are being used	- Reduce unnecessary burning - Maintain burners and adjust them well - Use clean fuel, Use filters, Use chimneys - Use closed heating/burning systems - Re-use heat (energy)

Sector: Service
Project type: Wholesale trade
Category: Orange – B

Potential negative impacts	Mitigation measures
Risk from disposing of organic/production/chemical waste if: Waste is lying around and/or not properly disposed of	- Organic waste can be re-used as fertilizer or animal fodder - Dispose via community service in stead of burning - Have dustbins available; waste lying around attracts even more waste - Sell waste/scrap to recycling companies
Risk from working in the conditions if: - Work takes place in unventilated space - Workers are exposed to dust, noise, vibration - There are no clear agreements with employees: they cannot claim their rights	- Make agreements with workers about acceptable working hours - Ventilate - Provide masks and ear plugs - Make use of natural light (in other cases: arrange proper artificial/electric lighting) - Vulnerable groups (children/women) do not work in dangerous areas - Establish contingency plans for accidents - Have fire fighting equipment and first aid kit available

Sector: Agriculture
Enterprise type: Poultry firm
Category: Orange – A

Potential negative impacts	Mitigation measures
Worst smell from the poultry firm affects neighbors' health adversely	- Poultry firms should be located outside the residential area - Poultry waste (litre) should be well managed. In agriculture as fertilizer and fish culture, the poultry litre (waste) can be effectively used

Sector: Agriculture
Project type: Dairy firm
Category: Orange – A

Potential negative impacts	Mitigation measures
Risk from keeping animals if: Animals are kept near eating/sleeping as animals can spread diseases	- Keep animals in a separate area
Worst smell raised from the dairy firm affects the neighbors adversely	- Dairy firm should be located outside the residential area - The house of the livestock including the premises should be clean on regular basis - Cow dung will be sent out in a safe way and better to use as fertilizer

Sector: Agriculture
Project type: Crop growing
Category: Orange – A

Potential negative impacts	Mitigation measures
Risk from using machine if: - Machines look unsafe, ill maintained, have dangerous parts - No safeguards are available and/or used when necessary - Leakages, disposals, liquid waste or wastewater drains to stream/river/ pond/soil	- Position machines on a safe spot and cover dangerous moving parts - Take up maintenance routine, follow strict maintenance and lubrication practices for the moving parts of equipment - Keep machines in good shape and clean - Experience operators only - Provide and use safeguards goggles, gloves, mask) - Re-use scrap/disposals - Stop leakages and draining liquid waste - Establish contingency plans for accidents - Have fire fighting equipment and first aid kit available

Potential negative impacts	Mitigation measures
Risk from using chemicals/lubricants/pesticides/ fertilizers if: - No safeguards are used when necessary - No relevant Material Safety Data Sheets (or other safety leaflet) are available - Storage is unsafe, since unlocked, near sleeping/eating	- Do not over-use chemicals - Consider integrated pest control - Provide and use safeguards when working with chemicals (mask, goggles, gloves, overall) - A separate storage is created, locked away from children and living/eating rooms - Establish contingency plans for accidents - Have fire fighting equipment and first aid kit available
Risk from clearing forest for land cultivation if: Forest is managed unsustainable (illegal and/or without reforestation plan)	- Agree only on permitted and sustainable forms of use of pristine land - Apply reforestation: plant new trees
Risk from employing children if: Children are employed in working with hazardous machines	- Children must not operate hazardous machine - Have children help with light duties only - Only outside school hours and pupils must have time and designated place to do homework

Sector: Agriculture
Project type: Fishery
Category: Orange – B

Potential negative impacts	Mitigation measures
Risk from catching fish if: - Illegal fishing methods are being practiced including the following: - Fishing with explosives, chemicals and/or illegal methods leads to useless killing of extra (small) fish and other flora and fauna - Imported species can harm the regional ecosystem (e.g. predators, pests)	- Support sustainable forms of fishery - Only use nets and fishing methods that keep small fish and extra catch alive and healthy - Use species of origin, or keep 'foreign' species strictly separate - Observe fishery regulations, such as closed seasons - Report any changes in fish stocks and habitat to authorities
Risk from using chemicals/pesticides/explosives if: - No protective equipment and safeguards are available to workers (masks, goggles, gloves, overalls)	- Do not over-use chemicals - Make protective equipment and safeguards available to workers (masks, goggles, gloves, overalls)

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ANNEX

Annex A. Prohibited activities

Some of the activities/project must not be considered for providing loan that includes the following:

i. Production or activities involving harmful or exploitative forms of forced labour/harmful child labour must not be financed. Forced labour means all work or service, not voluntarily performed that is extracted from an individual under threat of force or penalty. Harmful child labour means the employment of children that is economically exploitive, or is likely to be hazardous to, or to interfere with, the child's education, or to be harmful to the child's health, or physical, mental, spiritual, moral, or social development.

ii. Production or trade in any product or activity deemed illegal under host country laws or regulations or international conventions and agreements.

iii. iii Production or trade of alcoholic beverages or trade in tobacco

iv. Gambling, casinos and equivalent enterprises

v. Trade of wildlife or wildlife products regulated under Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)

vi. Production or trade of radioactive materials. This does not apply to the purchase of medical equipment, quality control equipment, and any equipment where IFC considers the radioactive source to be trivial and/or adequately shielded.

vii. Production or trade of products containing polychlorinated biphenyls (PCB) -a group of highly toxic chemicals. PCBs are likely to be found in oil-filled electrical transformers, capacitors and switchgear dating from 1950-1985.

viii. Production or trade of pharmaceuticals subject to international phase outs or bans. A list of pharmaceutical products subject to phase-outs or bans is available from the Environment Division of the government.

ix. Production or trade of pesticides/herbicides subject to international phase outs or bans. A list of pesticides/herbicides subject to phase-outs or bans is available from the Environment Division.

x. Production or trade of ozone depleting substances subject to international phase out. Ozone Depleting Substances (ODS) -a chemical compounds which reacts with and deplete stratospheric ozone, resulting in the widely publicized 'ozone hole'. The Montreal Protocol lists ODSs and their target reduction and phase out dates.

Annex B. Environmental checklist (to be used for processing loan)

Subject	Yes	No	Not applicable	Response to environment (Positive/Negative)
1. Does the project belong to the prohibited project/activities mentioned in Annex – A?				
2. Category of the project (Based on Environment Conservation Rules, 7(2), 1997), Annex – B	Green Orange – A Orange – B Red None			
3. If the project falls into Green, or Orange – A, or Orange – B, or Red: Does the project has Environmental Clearance Certificate?				
4. If no, specify the reasons				
Practice of child labor				
Habitat and wildlife (Will this project affect adversely on the following:				
2. Does the project use any natural resource, which may pose threat to environment?				
Air				
Water				
Land				
Vegetation/biodiversity				
Natural drainage system				
Chemical use				
Require minimum use of chemical				
Possibility of natural alternatives to chemical use				
Use of banned substances				
Use of toxic chemical in food preparation				
Natural resource use				
Minimum use of natural resources (e.g. wood, vegetation, dung, fossil fuels, etc.)				
Use of alternative energy sources				
Waste management (Appropriate disposal of waste)				
Solid waste				
Liquid waste				
Gaseous waste				

(Annex B continued...)

(Annex B … continued)

Health and safety				
Does the project consider/maintain the following occupational and environmental health and safety considerations:				
i. Taking adequate measures to protect workers from dust, fumes, odors, or pollutants				
ii. Adequate indoor airing and lighting				
iii. Ensure safe drinking water to the workers				
iv. Ensure safe sanitation to both male an female workers separately				
v. Ban smoking				
vi. Appropriate length of work periods				
vii. Control excessive noise and vibration of machinery				
viii. Appropriate knowledge of the workers for handling hazardous materials				
ix. Appropriate knowledge and skill of the workers to handle machine efficiently and effectively				
x. Do the products or services have standard certificate?				
Please specify the justification of the financing (if needed) against the project though it includes a number of negative responses to the environment.				

Annex C (Form): Application for environmental clearance certificate

Director/Deputy Director,
Department of Environment,
Dhaka Division/Chittagong Division/Khulna Division/Rajshahi Division (Bogra)

Sir,

I do hereby apply for Environmental Clearance Certificate for my proposed industrial unit or project, or for the existing industrial unit or project, and enclose papers and furnish information as follows:

1. (a) Name of the industrial unit or project :
   Address of location of the industrial unit or project :
   (b) Address of present office :

2. (a) Proposed industrial unit or project
   - Expected date of starting construction :
   - Expected date of completion of construction :
   - Expected date of trial production in case of industrial unit, in other cases, date of starting operation of the project :

   (b) Existing industrial unit or project
   - Date of starting trial production in case of industrial unit, in other cases, date of starting operation of the project of the project :

3. Name of product and quantity to be produced (daily/monthly/yearly) :

4. (a) Name of raw materials and quantity required (daily/monthly/yearly) :
   (b) Source of raw material :

5. (a) Quantity of water to be used daily :
   (b) Source of water :

6. (a) Name of fuel and quantity required (daily/monthly/yearly) :
   (b) Source of fuel :

7. (a) Probable quantity of daily liquid waste :
   (b) Location of waste discharge :
   (c) Probable quantity of daily emission of gaseous substance
   (d) Mode of emission of gaseous substance :

8. Mouza (village) map indicating “Daag” (plot) number and “Khatiyan” (land tax account) number :

9. Approval of Rajdhani Unnayan Katripakkhya/ Chittagong Development Authority/Khulna Development Authority/ Rajshahi Development Authority (if applicable) :

10. (a) Design and time schedule of proposed Effluent Treatment Plant :
    (b) Fund allocated :
    © Area :

11. Process Flow Diagram :

12. (a) Location map of industrial unit or project :
    (b) Layout plan (with location of Effluent Treatment Plant) :

13. (a) IEE/IEA report* (if applicable) :
    (b) Environmental Management Plan*(if applicable) :

14. Feasibility Report (if applicable) :

Seal

Signature of the entrepreneur
Name :
Address:
Phone :
Date :

Declaration

I do hereby declare that all information provided by me in this application are true to the best of my knowledge and no information has been concealed or distorted herein.

(Name and signature of entrepreneur)

* Each page be countersigned by the person who fills out this application form and by the entrepreneur.

Annex D. List of enterprises under four categories: Green, Orange – A, Orange – B, and Red

As per provisions of the Environment Conservation Act (ECA), 1995 and Environment Conservation Rules (ECR), 1997 (amended by notifications S.R.O 29-Law/2002, S.R.O 234-Law/2002 and S.R.O 88-Law/2003), all new and existing industrial units are obliged to apply as per format specified (Annex D) for an Environmental Clearance Certificate (ECC) from the Department of Environment. For the purpose of granting ECC, industrial units are classified into four categories depending upon their environmental impact. These are Green, Orange – A, Orange – B, and Red.

ECC shall be issued to all existing industrial units and projects and to all proposed industrial units and projects falling in the Green category.

For industrial units and projects falling in the Orange – A, Orange – B and Red categories, firstly a Location Clearance Certificate (LCC) and thereafter an ECC shall be issued:

Provided that the Director General of environment division may, without issuing a LCC at the first instance, directly issue ECC if he, on the application of an industrial unit or project, considers it appropriate to issue such certificate to the industrial unit or project.

Classification of industrial units or projects based on its location and impact on environment includes the following [ECR, 7(2)]:

(A) Green category

1. Assembling and manufacturing of TV, Radio, etc.
2. Assembling and manufacturing of clocks and watches
3. Assembling of telephones
4. Assembling and manufacturing of toys (plastic made items excluded)
5. Book-binding
6. Rope and mats (made of cotton, jute and artificial fibers)
7. Photography (movie and x-ray excluded)
8. Production of artificial leather goods
9. Assembling of motorcycles, bicycles and toy cycles
10. Assembling of scientific and mathematical instruments (excluding manufacturing)
11. Musical instruments
12. Sports goods (excluding plastic made items)
13. Tea packaging (excluding processing)
14. Re-packing of milk powder (excluding production)
15. Bamboo and cane goods

16. Artificial flower (excluding plastic made items)
17. Pen and ball-pen
18. Gold ornaments (excluding production) (shops only)
19. Candle
20. Medical and surgical instrument (excluding production)
21. Factory for production of cork items (excluding metallic items)
22. Laundry (excluding washing)

Foot notes:

(a) Units of all kinds of cottage industries other than those listed in this schedule shall remain outside the purview of Environmental Clearance Certificate (Unit of cottage industry means all industrial units producing goods or services in which by full-time or part-time labour of family members are engaged and the capital investment of which does not exceed taka 5 (five) hundred thousand.)

(b) No industrial unit listed in this category shall be located in any residential area

(c) Industrial units shall preferably be located in areas declared as industrial zones or in areas where there is concentration of industries or in vacant areas.

(d) Industrial units likely to produce sound, smoke, odor beyond permissible limit shall not be acceptable in commercial areas.

(B) Orange – A category

1. Dairy farm, 10 (ten) cattle heads or below in urban areas and 25 cattle heads or below in rural areas
2. Poultry (up to 250 in urban areas and up to 1000 in rural areas)
3. Grinding/husking of wheat, rice, turmeric, pepper, pulses (up to 20 Horse Power)
4. Weaving and handloom
5. Production of shoes and leather goods (capital up to 5 hundred thousand taka)
6. Saw mill/wood sawing
7. Furniture of wood/iron, aluminum, etc., (capital up to 5 hundred thousand taka)
8. Printing Press
9. Plastic and rubber goods (excluding PVC)
10. Restaurant
11. Cartoon/box manufacturing/printing packaging
12. Cinema Hall

13. Dry-cleaning
14. Production of artificial leather goods (capital up to 5 hundred thousand taka)
15. Sports goods
16. Production of salt (capital up to one million taka)
17. Agricultural machinery and equipment
18. Industrial machinery and equipment
19. Production of gold ornaments
20. Pin, U Pin
21. Frames of spectacles
22. Comb
23. Production of utensils and souvenirs of brass and bronze
24. Factory for production of biscuit and bread (capital up to 5 hundred thousand taka)
25. Factory for production of chocolate and lozenge (capital up to 5 hundred thousand taka)
26. Manufacturing of wooden water vessels

(C) Orange – B category

1. PVC items
2. Artificial fiber (raw material)
3. Glass factory
4. Life saving drug (applicable to formulation only)
5. Edible oil
6. Tar
7. Jute mill
8. Hotel, multi-storied commercial and apartment building
9. Casting
10. Aluminum products
11. Glue (excluding animal glue)
12. Bricks/tiles
13. Lime
14. Plastic products
15. Processing and bottling of drinking water and carbonated drinks
16. Galvanizing

17. Perfumes, cosmetics
18. Flour (large)
19. Carbon rod
20. Stone grinding, cutting, polishing
21. Processing fish, meat, food
22. Printing and writing ink
23. Animal feed
24. Ice-cream
25. Clinic and pathological lab
26. Utensils made of clay and china clay/sanitary wares (ceramics)
27. Processing of prawns and shrimps
28. Water purification plant
29. Metal utensils/spoons etc
30. Sodium silicate
31. Matches
32. Starch and glucose
33. Animal feed
34. Automatic rice mill
35. Assembling of motor vehicles
36. Manufacturing of wooden vessel
37. Photography (activities related to production of films for movie and x-ray)
38. Tea processing
39. Production of powder milk/condensed milk/dairy
40. Re-rolling
41. Wood treatment
42. Soap
43. Repairing of refrigerators
44. Repairing of metal vessel
45. Engineering works (up to a capital of one million taka)
46. Spinning mill
47. Electric cable
48. Cold storage
49. Tire re-trading
50. Motor vehicles repairing (up to a capital of one million taka)

51. Cattle farm: above 10 cattle in urban area, and above 25 in rural area
52. Poultry: Number of birds above 250 in urban area and above 1,000 in rural area
53. Grinding/husking wheat, rice, turmeric, chilly, pulses- machine above 20 Horse power
54. Production of shoes and leather goods, above 5 hundred thousand taka capital
55. Furniture of wood/iron, aluminum, etc., above 5 hundred thousand taka capital
56. Production of artificial leather goods, above 5 hundred thousand taka capital
57. Salt production, above a capital of one million taka
58. Biscuit and bread factory, above 5 hundred thousand taka capital
59. Factory for production of chocolate and lozenge, above 5 hundred thousand taka capital
60. Garments and sweater production
61. Fabric washing
62. Power loom
63. Construction, re-construction and extension of road (feeder road, local road)
64. Construction, re-construction and extension of bridge (length below 100 meters)
65. Public toilet
66. Ship-breaking
67. G.I. Wire
68. Assembling batteries
69. Dairy and food

Foot notes:

1. No industrial unit included in this list shall be located in any residential area
2. Industrial units shall preferably be located in industrial zones or in areas where there is concentration of industries or in vacant areas.
3. Industrial units likely to produce sound, smoke, odor beyond permissible limit shall not be acceptable in commercial areas

(D) RED category

1. Tannery
2. Formaldehyde
3. Urea fertilizer
4. T.S.P. fertilizer
5. Chemical dyes, polish, varnish, enamel
6. Power plant
7. All mining project (coal, limestone, hard rock, natural gas, mineral oil, etc.)
8. Cement
9. Fuel oil refinery
10. Artificial rubber
11. Paper and pulp
12. Sugar
13. Distillery
14. Fabric dying and chemical processing
15. Caustic soda, potash
16. Other alkalis
17. Production of iron and steel
18. Raw materials of medicines and basic drugs
19. Electroplating
20. Photo films, photo papers and photo chemicals
21. Various products made from petroleum and coal
22. Explosives
23. Acids and their salts (organic or inorganic)
24. Nitrogen compounds (Cyanide, Cyanamid etc.)
25. Production of plastic raw materials (PVC, PP/Iron, Polyester in etc.
26. Asbestos
27. Fiberglass
28. Pesticides, fungicides and herbicides
29. Phosphorous and its compounds/derivatives
30. Chlorine, fluorine, bromine, iodine and their compounds/derivatives
31. Industry (excluding nitrogen, oxygen and carbon dioxide)
32. Waste incinerator
33. Other chemicals

34. Ordnance
35. Nuclear power
36. Wine
37. Non-metallic chemicals not listed elsewhere
38. Non-metals not listed elsewhere
39. Industrial estate
40. Basic industrial chemicals
41. Non-iron basic metals
42. Detergent
43. Land-filling by industrial, household and commercial wastes
44. Sewage treatment plant
45. Life savings drugs
46. Animal glue
47. Rodenticide
48. Refractories
49. Industrial gas (Oxygen, Nitrogen and Carbon-dioxide)
50. Battery
51. Hospital
52. Ship manufacturing
53. Tobacco (processing/cigarette/Bidi –making)
54. Metallic boat manufacturing
55. Wooden boat manufacturing
56. Refrigerator/air-conditioner/air-cooler manufacturing
57. Tyre and tube
58. Board mills
59. Carpets
60. Engineering works: capital above one million taka
61. Repairing of motor vehicles: capital above one million taka
62. Water treatment plant
63. Sewerage pipe-line laying/relaying/extension
64. Water, power and gas distribution line laying/relaying/extension
65. Exploration/extraction/distribution of mineral resources
66. Construction/reconstruction/expansion of flood control embankment, polder, dike, etc.

67. Construction/reconstruction/expansion of road (regional, national and international)

68. Construction/reconstruction/expansion of bridge (length 100 meter and above)

69. Murate of potash (manufacturing)

Foot notes:

1. No industrial unit included in this list shall be allowed to be located in any residential area

2. Industrial units shall preferably be located in areas declared as industrial zones or in areas where there is concentration of industries or in vacant areas.

3. Industrial units likely to produce sound, smoke, odor beyond permissible limit shall not be acceptable in commercial areas

4. After obtaining location clearance on the basis of Initial Environment Examination (IEE) Report, the Environmental Impact Assessment (EIA) Report in accordance with the approved terms of reference along with design of Effluent Treatment Plant (ETP) and its time schedule shall be submitted within approved time limit.