Environmental Due Diligence Guidelines

For Infrastructure Development Activities under the Sri Lanka Skills Sector Development Program

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1. Background

The Government of Sri Lanka (GOSL) launched the Skills Sector Development Program (SSDP) as part of its Public Investment Strategy 2014–2016. The Program reflects government commitment to the expansion and improvement of skills development necessary to achieve Mahinda Chintana goals. It provides the overarching strategic framework for building an efficient skills development system to meet local and foreign labor market demand by 2020. The SSDP enters on the following policy areas: (i) supportive policies, systems, and structures that are responsive to domestic and overseas labor market demands; (ii) improving the quality of skills development programs; (iii) making skills development programs more relevant to industry needs; (iv) expanding access to Technical and Vocational Education and Training (TVET) as the major provider of skills training; and (v) improving public perception of the benefits of the sector. The Program identifies the major challenges in the sector, policy directions, most effective actions, performance targets, indicative financing requirements, and the entities responsible. The proposed SSDP would support the Government’s program across its main areas, structured around the following two components; (i) Program Support to the National Skills Development Program; and (ii) Innovation, Results Monitoring and Capacity Building. The program will be implemented by the Ministry of Youth Affairs and Skills Development (MYASD).

2. Purpose of Environmental Due Diligence Guidelines (EDDG)

The following Environmental Due Diligence Guidelines (EDDG) have been developed to facilitate the MYASD in conducting environmental diligence policies and procedures that are to be ardently followed under the World Bank’s programmatic support of infrastructure development activities. MYASD, as the implementing agency of the SSDP, will be the institution responsible for ensuring that all guidelines set in the EDDG are followed during the infrastructure development activity, including rehabilitation, renovation, upgrading or new construction of facilities to further strengthen TVET endeavors under the SSDP.

Considering the scope of the SSDP it is unlikely that there will be any significant irreversible environmental impacts as a result of the program activities. However in order to ensure that all physical interventions made are environmentally sound, the guidelines presented in the EDDG should be implemented to ensure due diligence is conducted accordingly and all identified environmental impacts are avoided/mitigated to ensure these interventions are environmentally sustainable.

The EDDG presents the guidelines and procedures to address and mitigate low to medium intensity environmental impacts likely to be encountered during the currency of the programs. In the context of the SSDP no construction activities will be permitted in environmental sensitive areas such as wetlands and marshes and it is anticipated that building construction will result in minor environmental impacts.
MYASD will also follow the Environmental Codes of Practice, developed by the Institute for Construction Training and Development (ICTAD), during construction activities.

3. The World Bank Operational Policies and Guidelines for environmental safeguards

The nature and scale of the program activities will trigger the following World Bank Operational policies.

**OP 4.01: Environmental Assessment.** Requirements for OP 4.01 are that an Environmental Assessment for projects that involve Bank financing will need to be conducted. Considering the nature and magnitude of potential environmental impacts from relatively limited scale and magnitude of the construction and/or renovation works, the proposed operation has been classified as category ‘B’. Since the exact locations of new institution buildings is not known at this stage and may not be known at appraisal, the requirement to carry out an Environmental Assessment as part of program preparation has been waived, but for sub-programs, if any, with potential adverse impacts, a limited Environmental Assessments may be done during program implementation prior to disbursement of funds for that particular activity.

Under the SSDP, likely construction will include new buildings in existing vocational training centre, extensions and renovations to existing buildings. It is expected that all planned construction work will be done on existing premises, and no new sites may be considered, construction activities are not anticipated to cause major environmental impacts considering that these will not be permitted in environmentally sensitive areas such as wetlands, marshes or clearing of forests. As OP 4.01 does take into account the natural environment, human health and safety, and social aspects the impacts on surrounding environment will be considered, such as the prevention of water borne diseases, location of latrines in such a manner that does not pollute existing water ways.

In order to avoid encouraging illegal extraction of resources required for construction, all contracts should include clauses in the contracts to ensure that sand, clay and timber are obtained from authorized locations and sources that are licensed by relevant GOSL authorities.

All building construction and renovation will adhere to the existing building and other applicable codes of practice in Sri Lanka. To ensure that the building contractor is responsible for adherence to the following Codes of Practice (ICTAD specifications) which will be included in the contract documents:

- SCA/3/1 Irrigation and land Drainage
- SCA/3/2 Water Supply, Sewerage & Storm Water Drainage
- SCA/3/3 Reclamation Works
- SCA/3/4 Ground Water Exploration & Exploitation
Any other Standard Specifications approved by the Government of Sri Lanka.

In addition, the contractor is required to pay attention to and address the following when conducting construction activities when implementing infrastructure development.

1. Electromagnetic radiation— issues such as the location of telecommunication towers and consequences of permitting such towers to be built on top of institution buildings, buildings near H/T cables etc.

2. Addressing noise pollution during construction activities.

3. Cultural Features preservation of culturally significant buildings.

4. Ecological issues of the sites

5. Transport and access to site.

6. Overshadowing and access to daylight and sunlight, with possible options for passive solar design and its effect on site layouts.

7. External appearance (aesthetics)


9. Designing appropriate landscaping.


11. Waste disposal, salvage, re-use and recycling of materials.


13. Safety, security and fire.


15. Potential for sick building syndrome

If new construction is taken up, the construction should not be conducted in environmentally sensitive areas designated under the National Laws of Sri Lanka as conservation areas under the following legislative documents.
4. **Anticipated Environmental Impacts and Recommended Mitigation Measures**

4.1 **Anticipated Environmental Impacts**

As the majority of construction work will be on existing premises potential impacts that are likely to involve the following are:

- **Site clearance**: During site clearing, any vegetation that is not properly disposed of can block drains and waterways, and also spread invasive species.

- **Soil Erosion and Water Contamination**: Gravel/soil brought for any filling purposes if not properly stored and is exposed to the natural elements can be washed off to nearby streams, paddy lands, rivers and low lying areas causing sedimentation. Storm water congestion on site can create inconveniences to institutional activities and construction work. Improper placement of institution laboratories and latrines can cause groundwater contamination to streams and drinking water sources. Also waste water generated during construction and from labour camps can also contaminate drinking water sources if not properly treated.

- **Waste generation**: Reconstruction work in the North and East may involve new construction of severely damaged institution buildings, whereby construction debris will be generated and need to be removed and disposed. Various construction waste from construction related activities and labour camps will be generated that can create an inconvenience if not properly managed. In addition, waste that is not disposed of properly can become breeding grounds for water borne diseases.

- **Resource Extraction**: The construction work is likely to create a huge demand for construction materials such as sand, clay for bricks and timber which will place a burden on resources. Therefore, there will be impacts related to sand mining and extraction of gravel from burrow pits/quarries.
• **Transport:** Transportation of material to and from the site will create disturbances during class hours; can cause injury to children and increase traffic congestion in the area.

• **Labour camps:** As construction work will be conducted in the majority of cases on institution premises, if labour camps are required, location of camps and workers interactions with students can create negative social impacts.

• **Safety:** Safety of workers, trainees and residents will be an issue. Construction related operations will generate safety risks to workers. Given work will be on institution premises, construction sites that are not cordoned off can cause potential safety hazards to students and residents who are too close to the construction site.

• **Noise:** During site preparation and construction work noise will be generated due to construction related work. During class hours this may create disturbances to classroom activities and to residents living close to the construction site.

• **Dust:** Dust generated during clearing and construction work can cause difficulties for students who have respiratory problems, and become a nuisance during class hours. Soil/gravel kept for long periods without proper cover can generate dust and become an inconvenience during class hours and for surrounding residents. Transportation of materials to site will also generate dust. Decommissioning of existing structures can also create dust that is potentially hazardous.

**4.2 Recommended Environmental Impact Mitigation Measure**

**Site Selection:** Although most construction work will be on existing institution premises and only a small fraction may be required to be located on new sites, during environmental assessments care must be taken to ensure that selection of sites abide by the following:

• Construction/renovations should not be located within conservation areas, protected areas, sanctuary and forest areas as designated by the Forest and Wildlife Conservation Departments.

• Ensure that constructions/renovations/expansions are not located on steep slopes, landslide or flood prone areas. If programs are located in areas prone to these risks, then proper retaining walls and strengthening of slopes should be done to minimize risks,

• Ensure that no construction/ expansions are located close to wetland or on reservation of surface water bodies,

• Water supply programs should not create conflicts between water users and unacceptable lowering of water table due to ground water withdrawal,
• All stages of site selection and construction should be done in consultation with all stakeholders and with approval from local authorities and government agencies where required.

**Resource Extraction:** Construction material such as sand, soil, metal and rubble shall be sourced from GSMB or GOSL licensed sites. Timber shall be sourced from agencies that have obtained the required licenses. As much as possible timber used should be from renewable forest sources. Construction contracts shall include clauses ensuring that contractors abide by this requirement.

**Waste Management:** Waste generated during site clearance should be disposed of in areas approved by the local authorities. Spread of invasive species should be minimized by destroying such plants on site.

Construction sites shall be cleared on a daily basis of any material that can cause injury. Proper waste bins shall be located on construction sites and labour camps. A waste recycling plan shall be prepared by the contractor to reduce the amount of waste disposed. Waste shall be disposed of in sites approved by Local Authorities.

Disposal of hazardous materials shall be done in a manner that does not cause harm to surrounding environment and public. Paints, thinners and other material shall be temporarily stored and disposed of in CEA approved sites. During decommissioning activities, hazardous material shall be identified (i.e. asbestos sheets) and removed to minimize contamination. Disposal of such materials shall be done according to government guidelines.

**Soil Erosion & Contamination of Waterways:** In order to prevent soil being washed away, materials will be stored to minimize erosion. Silt traps shall be placed where appropriate to minimize sedimentation of nearby waterways.

Latrines should be located downstream from drinking water sources and away from waterways.

**Dust and Noise:** Materials such as gravel and soil shall be covered during transport. Frequent watering down of construction site needs to minimize dust generation.

Noise shall be kept to minimum required standards during class hours in order to prevent any inconvenience. Where possible, usage of noise generating equipment should be kept to the minimum during class hours. Strict labour supervision should be undertaken to reduce noise. Equipment used on site shall be in good serviced condition.
**Safety Measures:** Transportation of material shall be covered and should avoid rush hours (institution start and end times). Vehicle drivers shall maintain appropriate speeds in order to avoid accidents, especially when driving in institution premises.

Strict labour supervision should be undertaken of construction workers especially during class hours to minimize interactions with students. Labour awareness programmes to educate labourers on codes of conduct shall be introduced.

Safety regulations shall be followed by contractors to minimize risks. Necessary barriers, warnings, signs demarcating unsafe areas should be followed according to standard construction practices. Safety nets should be used to cover buildings and prevent injury to students and teachers.

**Decommissioning of structures:** Structures that are to be decommissioned should be done in a manner that does not block waterways and is not a safety risk to students and public. All structures should be removed, and debris recycled or disposed of in sites authorized by the appropriate local authority. No debris shall be disposed of in a manner that will block waterways or become potential breeding grounds for waterborne diseases. Any open pits shall be filled. Once cleared, area should be landscaped.
5. GUIDELINES FOR ENVIRONMENTAL SAFEGUARDS CONDITIONS FOR INCLUSION IN THE CONTRACTS

General

- The Contractor and his employees shall adhere to the mitigation measures set down and take all other measures required by the institution Engineer to prevent harm, and to minimize the impact of his operations on the institutional environment.
- The Contractor shall avoid the use of heavy or noisy equipment/activities during class hours.
- The contractor, on completion of construction, should take full responsibility in ensuring a clean and safe institute premises.
- Noisy and heavy constructions should plan to carry out after class hours, during holidays and vacations.

Disposal of solid waste and debris

- All construction debris and residual spoil material including any left earth shall be disposed by the contractor at a location approved by the Local Authority for such a purpose.
- The debris and spoil shall be disposed in such a manner that (i) waterways and drainage paths are not blocked, (ii) the disposed material should not be washed away by floods and (iii) should not be a nuisance to the public.

Protection of Ground Cover and Vegetation

- Contractor shall provide necessary instructions to his workers not to destroy ground vegetation cover unnecessarily.

Soil Erosion

- Contractor shall take all steps necessary to ensure the stability of slopes including those related to temporary works.
- Work that will lead to heavy erosion shall be avoided during the raining season. If such activities need to be continued during rainy season prior approval must be obtained from the Engineer by submitting a proposal on actions that will be undertaken by the contractor to prevent erosion.
- The work, permanent or temporary shall consist of measures as per design or as directed by the Engineer to control soil erosion, sedimentation and water pollution to the satisfaction of the Engineer. Typical measures would include grass cover, slope drains, retaining walls etc.
Labour Camps

- Labour camps shall be provided with adequate and appropriate facilities for disposal of sewerage and solid waste. The sewage systems shall be properly designed, built and operated so that no pollution to ground or adjacent water bodies/watercourses takes place. Garbage bins shall be provided in the camps and regularly emptied. Garbage should be disposed off in a hygienic manner, to the satisfaction of the relevant norms.

- Contractor shall ensure that all camps are kept clean and hygienic. Necessary measures shall be taken to prevent breeding of vectors.

- Contractor shall report any outbreak of infectious disease of importance in a labour camp to the Engineer and the Medical Officer of Health (MOH) or to the Public Health Inspector (PHI) of the area immediately.

- Contractor shall remove the labour camps fully after its need is over, empty septic tanks, if instructed by the engineer shall be closed, remove all garbage, debris and clean and restore the area back to its former condition.

Dust Management

- To prevent dust pollution during the construction period, the Contractor shall carry out regular watering of the construction site and shall cover material stocks onsite to prevent dust and other particles getting airborne.

- All vehicles delivering materials shall be covered to avoid spillage and dust emission.

Health and Safety

- Contractor shall take necessary actions to prevent breeding of mosquitoes at places of work, labour camps, material stores etc. Stagnation of water in all areas including gutters, used and empty cans, containers, tyres etc shall be prevented.

- Contractor shall keep all places of work, labour camps, plus office and store buildings clean devoid of garbage to prevent breeding of rats and other vectors such as flies, mosquitoes etc.

- Construction vehicles, machinery and equipment shall be used and stationed only in designated areas of the work site and should not pose any danger to trainees and others.

- Material stockpiles shall be located sufficiently away from the areas frequently used by trainees.

- Construction sites should be fenced out temporarily in order to avoid any risk posed to
trainees of the institute from construction activities

- The contractor shall enforce vehicle speed limits for construction vehicles in areas near and inside the institute premises

**Sourcing of Raw Material**

- The contractor shall ensure that all raw material such as sand, rubble, metal, timber etc required for the construction of the building are sources from licensed sources. If the contractor himself plans to operate his own quarry/sand pit, all necessary approvals from the relevant authorities shall be obtained. Contractor will need to submit copies of such approvals to the institution Engineer.
6. GUIDELINES FOR CONSTRUCTION OF LATRINES

1. Selecting the proper location

Effluent passing into the soil from a latrine pit contains large amounts of micro-organisms which may include disease causing bacteria. It also has high nitrates and other salts. There is a possibility for underlying aquifers to be polluted by the effluent infiltrating into the soil from the latrine pits. Hence a number of factors need to be taken into consideration when siting the pit of the latrine in addition to factors such as convenience and privacy of users.

- A latrine pit should be located outside a radius of 15m from a water source such as a well, stream etc.
- It should not be located upstream or up-hill from any water source
- It should not be located in a low-lying area
- Whenever possible a latrine pit should be located at least 4 m from the nearest house or building
- The bottom of the latrine pit should be a minimum of 2 m above the maximum ground water table to minimize the threat of contamination. (This is the groundwater table during peak wet weather)
- The latrine should be oriented in such a way that it receives adequate sunlight

2. Selecting the proper latrine type

Selection of the most appropriate latrine type is equally important as the siting. There are number of factors that are generally considered when selecting the type of sanitation.

- Groundwater situation - The most important consideration here is ground water pollution. This can particularly be a problem if groundwater is used for drinking purposes and the groundwater table is naturally high.
- The texture of soil, stability, permeability and the general structure of the terrain.
- Affordability
- Cultural acceptance
- Means of disposal of sludge and waste water
3. **Construction of latrine pits to replace existing latrine pits:**

- If new latrine pits are being constructed to replace existing latrine pits then following needs to be followed:
  
  o Old latrine pits must be demolished and unsuitable debris disposed of in sites assigned by the local authority in a manner that does not cause harm or will spread waterborne diseases.

  o If asbestos roofing has been used, proper removal and disposal of sheets are required. Workers involved in removal, should wear proper masks to minimize inhalation.

  o All material that can be re-used and re-cycled should be done in a manner that is environmentally friendly. Re-use debris, except top soil where ever possible from the approval of engineers for the construction activities.

  o If material is not to be used within a few days, it should be moved to a pre-identified site for storage until needed.

  o Debris should not be disposed to water bodies, agricultural lands, marsh lands or any environmentally sensitive areas.

  o Pits should be sealed off to prevent the spread of waterborne diseases.

  o Once area is cleared of all debris, it is advisable to landscape area
7. GUIDELINES ON ASBESTOS USE IN CONSTRUCTION

Asbestos and Asbestos Based Products:

Asbestos is a group of naturally occurring fibrous silicate minerals. It was used widely in the production of many industrial and household products because of its useful properties, including fire retardation, electrical and thermal insulation, chemical and thermal stability, and high tensile strength.

Asbestos based products include Asbestos –Cement (A-C) construction materials such as A-C flat and corrugated sheets, A-C pipe, and A-C water storage tanks. Over 90% of the asbestos fibre produced today is chrysotile which is found in these products. Vehicle brake, clutch pads, roofing and gaskets are some other products that are still being manufactured with asbestos content. Due to international laws banning the use of asbestos, it is hardly used in construction materials other than asbestos –cement products. However, it is still found in older buildings in the form of friable surfacing materials, thermal system insulations, non-friable flooring materials, and other applications.

In Sri Lanka, asbestos roofing sheets are widely used as it is the most cost effective and durable material given climate, environment and other factors. Other alternatives to asbestos roofing sheets in Sri Lanka are clay tile, zinc-aluminium, cadjan (matted coconut/Palmyra/palm leaves) and concrete. These alternatives have disadvantages such as:

- Clay tiles are easy to remove, and in areas where there are monkeys it poses a practical problem. Monkeys tend to travel over roofs and either deliberately or accidentally break tiles, thus expenses for replacing is high.

- Zinc-Aluminium – While durable and long lasting, given the tropical climate and monsoon rains, such roofing heats up during the day and during rainy periods the noise makes it impractical especially to use in classrooms.

- Cement – due to the climate in Sri Lanka if not properly treated can result in leaks and damage to the structure. Furthermore, in high temperatures the heat absorption is high thus increasing the temperature in the buildings. In classrooms, it would make it difficult for students and teachers to work. Furthermore, concrete roofs are costly, and will not be affordable, given the large number of institution infrastructure requirements that will need to be met through the program.

- Cadjan roofs while environmentally friendly, need to be replaced frequently, causes leaks and will not be acceptable on institution buildings.
Ban on Asbestos Use:

As health risks related to exposure to asbestos is widely known, many countries have banned the commercial use of asbestos. The International Labour Organization (ILO) established an Asbestos Convention (C162) in 1986 to promote national laws and regulations for the “prevention and control of, and protection of workers against, health hazards due to occupational exposure to asbestos”. As of March 4, 2008, 31 countries had ratified Convention, 17 of them have banned asbestos use. Sri Lanka, however has not ratified this convention, and the use of asbestos has not been banned.

ILO asbestos convention requirements include:

- Work clothing to be provided by employers,
- Double changing rooms and wash facilities to prevent dust from going home on street clothes,
- Training of workers about the health hazards to themselves and their families,
- Periodic medical examinations of workers,
- Periodic air monitoring of the work environment, with records retained for 30 years,
- Development of a work plan for demolition work, to protect workers and provide for proper waste disposal, and
- Protection from retaliatory and disciplinary measures of workers who remove themselves from work that they are justified in believing presents a serious danger to health.

Health Risks:

Health hazards from breathing asbestos dust include:

- Asbestosis – a lung scarring disease
- Form of cancer such as mesothelioma.

The main risks of exposure from asbestos is where fibres are easily made air borne under little pressure, such as cutting of A-C products that can release fibres. Risks are from construction materials that need to be altered, repaired and disposed of that may release particles into the air, and increase the risk of inhalation. Renovations, repairs and decommission of buildings containing A-C products such as roof sheets can pose a risk.
However, in the case of Asbestos –Cement (AC) corrugated sheets, the fibre is present in the non-friable form which means that fibre is embedded in cement and cannot be easily air-borne. Such materials are known to have little health risk once (a) the roof has been completed and (b) given that material is in good condition and not disturbed.

Although the World Bank Group’s Good Practice Note on Asbestos, and its Health and Safety Guidelines do not encourage the use of asbestos products in construction, in light of the practical uses for construction of institute infrastructure, the costs, its availability in local markets and lack of feasible alternatives, the use of asbestos is the most feasible option. However, to minimize the health risks that asbestos products do pose, the following guidelines adapted from the World Bank’s Health and Safety Guidelines and other sources are recommended to be followed. As Sri Lanka has no regulations regarding the use of Asbestos, the use of ILO convention guidelines as stated above are recommended as well.

**Construction phase:**

- To minimize the risk of damage of A-C sheets for roofing, transportation of material must be done with care. Where possible, sheets should be transported in airtight containers or with dust covers.

- During installation of sheets, ensure that damage is minimized. Use of power tools to drill holes that may release particles needs to be kept to the minimum.

- Use a protective sheet (i.e. insulation foil) between the A-C sheets and the classrooms to reduce the risk of minute particles entering the rooms.

- Workers who are involved in handling and installing A-C sheets should take precautions to minimize exposure by wearing protective masks and showering to minimize spread of dust. Work clothes used during the installation of sheets should be washed and workers change to clean clothes before leaving construction site.

- Workers should be made aware of the risks of A-C sheets, and how to minimize these risks.
De-Commissioning:

- Contractors should dispose of waste containing asbestos in a manner that does not pose a health risk to the workers concerned or the population in the vicinity. Disposal at approved landfills and prompt burial under various levels of material apply to friable asbestos waste. Contractors should consult the Local Authority and Central Environmental Authority to obtain guidance on proper disposal of material.

- Contractor should be encouraged to develop an asbestos management plan that identifies the content (whether it is in friable form and has potential to release fibres), and proper removal procedures.

- During the removal of A-C sheets, workers should wear proper protective gear such as masks and shower to prevent the spread of dust. Clothes worn during this process should be washed and workers should change into clean clothes prior to leaving construction site.

- Workers who are, or have been, exposed to asbestos in their occupational activities should be provided, in accordance with national laws and practices, with such medical examinations as are necessary to supervise their health in relation to the occupational hazard, and to diagnose occupational diseases caused by exposure to asbestos. For the prevention of disease and functional impairment related to exposure to asbestos, all workers assigned to work involving asbestos exposure should be provided with:
  - a pre-assignment medical examination;
  - periodic medical examinations at appropriate intervals (at least every 3 years);
  - other tests and investigations, in particular chest radiographs and lung function test, which may be necessary to supervise their state of health in relation to the occupational hazard and to identify early indicators of disease caused by asbestos;
  - a copy of their medical record.

The above requirements will be based on the type of construction and its magnitude. The MYASD will apply above guidelines to the extent that is practical, within the context of the specific construction work requirements.