

**ENVIRONMENTAL AND SOCIAL MANAGEMENT
FRAMEWORK**

Issue for concern	Environmental and social impact	(a) Mitigation measure(s)	Implementing party (ies)	Monitoring arrangement (s)	Cost and fund source	Time frame
Extraction of resources	Extraction of natural resources such as sand, metal, etc. can cause changes in the topography and can lead to environmental degradation.	<p>(b) ICTAD Guidelines shall be followed.</p> <p>(c) All sand and aggregate shall be brought in from places with permits.</p> <p>(d) Wherever possible, use of sea sand shall be adopted to minimize the impacts on river beds.</p>	Contractor	Contractor	Contractor fee	Spot checks
Land Preparation	<p>Cut and fill activities may cause blockages of water ways / Sedimentation.</p> <p>Unless, fill material is brought from an approved place, it may lead to environmental degradation.</p> <p>If land is polluted, unless cleaned and sanitized, it may lead to health issues and vector issues affecting other existing community and future communities.</p>	<p>(a) During filling operations, silt traps or appropriate measures shall be taken near the canal system.</p> <p>(b) Construction debris shall not be disposed in the canal</p> <p>(c) In some instances, canal embankments will have to be raised. This will be carried out with the relevant authority such as SLLRDC, LA.</p> <p>(d) Fill material shall only be brought in through permit holders. ICTAD guidelines shall be followed.</p> <p>(e) Cleansing of the land shall be carried out using acceptable</p>	Contractor	PMU Environmental Officer/ Specialist/ Contract Supervision Consultant.	Project cost	Weekly during construction

		<p>methodologies under the NEA (e.g. chlorine (bleach) at concentration: 50 to 100 ppm).. Canal upgrading and cleansing shall also be carried out by means of removing debris, possible dredging and cleaning of banks to improve water flow.</p> <p>(f) Noise shall be kept under control by regular maintenance of equipment and vehicles “no honking” board shall be placed near the boundaries. Noisy activity shall be prohibited during night time.</p>				
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<p>Establishment of baseline environmental conditions prior to start of civil works</p>	<p>Obtaining a suitable and representative baseline data set will be critical to the whole monitoring and audit process because it forms the standard against which environmental impacts are assessed.</p> <p>Construction activities such as piling and high vibration activities may also lead to damage of structures in the surrounding area where there are still over 100 slum dwellings remaining.</p>	<p>(a) Documentation of demarcated areas for construction zone and labour camps shall be carried out. Include photos and GPS coordinates. This is applicable only if there are on site labour camps.</p> <p>(b) Base line monitoring in respect of ambient air quality, water quality, and noise levels and water quality shall be carried out. Baseline monitoring for water quality, air quality and noise, shall be audited prior to the start of construction and thereafter carried out during the construction phase of the subproject.</p> <p>(c) Structural surveys of the surrounding buildings and the underserved areas shall be carried out to establish any existing defects/damages.</p> <p>(d) Structures in the underserved areas shall be monitored closely during construction due to their fragility.</p> <p>(e) The grievance redress mechanism shall be made clear and easily accessible.</p>	Contractor	Contractor/ UDA PMU	Contractor fee	At commencement of operation.
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<p>Setting up of labour camps</p> <p>This will only become applicable if labour camps are established.</p>	<p>Unless guidelines on labour camps are followed it can lead to environmental pollution. It can also lead to health, hygiene and safety issues for the workers.</p>	<p>(a) Location of labour camps shall be approved by the UDA PMU and shall comply with guidelines/recommendations issued by CEA and LAs.</p> <p>(b) Sitting of the construction camp shall be as per the guidelines provided by ICTAD with adequate space provision for labour camp and construction equipment within the site.</p> <p>(c) Proper solid waste disposal, sanitation and sewerage facilities (drinking water, urinals, toilets and wash rooms) shall be provided to the site of construction/labour camps.</p>	<p>Contractor</p>	<p>Contractor / Environment Officer /Specialist</p>	<p>Contractor fee</p>	<p>As required</p>
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Resources mobilization and allocation of space	Allocation of space for storage yard for construction material, labour camp, project office requires addition amount of space.	<p>(a) Use local materials shall be practiced as much as possible to reduce the need for storage space</p> <p>(b) Storage of construction materials shall be located sufficiently away from the road frontage. Sand, rubble, metal bitumen and cement shall be covered. All cement, bitumen (barrels), oil and other chemicals shall be stored and handled on an impervious surface above ground level (e.g. concrete slab) and shall be enclosed ensuring that no storm water flows in to the structures. There shall be adequate ventilation to avoid accumulation of fumes and offensive odor that could be harmful.</p> <p>(c) Un-skilled and skilled workers for the proposed construction activities shall be sourced locally where possible to reduce the requirement of land for labor camps.</p>	Contractor	PMU Environment Officer / Specialist		Onset of construction
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<p>Drinking water availability at construction camp and construction site</p>	<p>No availability of drinking water for labourers will result in dehydration and health risk. (This is especially essential during the water scarce periods).</p>	<p>(a) Sufficient supply of potable water shall be provided from a reputable source and maintained at the site. (b) The drinking water shall be stored in a suitable size storage tank to ensure uninterrupted availability. (c) Contractor shall submit his plan on ensuring water availability at the site for drinking sanitation and construction. The original source of the water supplied by the tankers will be recorded if brought in from outside.</p>	<p>Contractor</p>	<p>PMU Environment Officer / Specialist</p>		<p>Weekly checks</p>
<p>Dust and construction equipment emissions</p>	<p>Impact from dust generation leads to Poor air quality release of Volatile Organic Compound (VOC) from storage sites and transfer of vehicle/equipment fuels, emission of small amounts of Carbon monoxide, Nitrogen dioxide and particulates from construction activities and vehicles may compromise health of the workers and surrounding community.</p>	<p>(a) Dust control shall be carried out by wetting down and spraying water at construction site. (b) Dust emissions during transportation of construction materials shall be controlled by enforcing speed limits on the vehicles close to site. (c) Precautions shall be taken to avoid dust emissions during loading and unloading of construction material. Tarpaulin covering is mandatory on trucks/lorries which are used for transporting materials. (d) All filling works shall be protected or covered in a manner to minimize dust generation (e) All vehicles, equipment, and machinery used for construction</p>	<p>Contractor</p>	<p>PMU Environment Officer / Specialist</p>		<p>Weekly checks</p>

		<p>shall conform to the Sri Lankan government vehicle emission test. For equipment emission norms as specified in air emission gazette under the NEA.</p> <p>(f) The air quality monitoring shall conform to IFC-WB EHS standards.</p>				
Noise pollution	Construction noise can disturb surroundings	<p>(a) All machinery, equipment and vehicles shall be maintained in a good condition by engaging skilled mechanics and regularly maintained. National Emission Standards (1994). Noise control regulations stipulated by the CEA in 1996 (Gazette Extra Ordinance, no 924/12) shall be strictly be implemented for crushers, construction vehicles and equipment.</p> <p>(b) Contractor shall ensure that all vehicles and equipment used in construction shall be fitted with exhaust silencers.</p> <p>(c) Noisy construction work such as crushing, operation of diesel generator sets, use of high noise generation equipment shall be stopped during the night time between 10:00 p.m. to 6:00 a.m.</p>	Contractor	PMU Environment Officer/ Specialist		Onset of construction, thereafter once in 3 months.

		(d) The maximum permissible noise levels at boundaries of the land in which the source of noise is located for construction activities will conform to IFC-WB EHS mix development standards. These standards override the NEA standards.				
Wastewater and sewage disposal	<p>Untreated wastewater disposal from labour camps and toilet facilities will once again contribute towards the pollution of the unless handled appropriately.</p> <p>Untreated sewage will contaminate and degrade surface and ground waters as well as pose health risks.</p>	<p>(a) Temporary wastewater pits will be put in place during the construction.</p> <p>(b) Any release of wastewater will meet standards set by Sri Lanka Standards Institute (SLSI) and that stipulated under the NEA.</p> <p>(c) Temporary sewage pits (sealed) will have to be established which will be removed once construction is over. Any release of sewage will have to conform to IFC-WB-EHS standards if released in to the environment at any point.</p>	Contractor	PMU Environment Officer/ specialist		Onset of construction activities.

Solid Waste disposal	Waste generated from labour camps, officer's accommodations may impose several negative environmental and social impacts to the subproject affected area including impact on ecology, public health and scenic beauty	<ul style="list-style-type: none"> a) Garbage bins shall be provided to all worker-based camps, No garbage will be disposed of into the environment. b) Cleanliness and good housekeeping shall be practiced on site. There shall be a demarcated waste storage area on site. Provision of proper drainage facilities to minimize water stagnation around worker-based camps shall be carried out. c) Under no circumstances shall the solid waste be burned on site. d) Site restoration plans for approval by PIU/PMU shall be prepared. On completion of the works, all temporary structures will be cleared. 	Contractor	PMU Environment Officer / Specialist		Weekly checks
Transport of construction material	<p>Transportation of construction materials on road network can cause damages to the access roads.</p> <p>Transportation of construction material, loading and unloading shuttering and metal poles and handling of heavy objects may increase the risk and injury to workers. It may</p>	<ul style="list-style-type: none"> (a) The Contractor shall obtain permits from LAs to use local roads prior to transportation of construction materials, machineries etc. (b) ICTAD Operation and Re-Development of Borrow Areas Guidelines for Siting shall be followed in transportation, loading and unloading of construction material. 	Contractor	PMU Environment Officer / Specialist	Contractor fee	Once in 2 weeks

	also pose a nuisance to the surrounding community.					
Occupational Health and Safety of workers	Absence of plan will lead to death to the worker and economic cost to the project	<p>(a) Contactor shall comply with Labor Organization (ILO) convention No. 62, ILO Convention 138 and 182 on Child Labour and Factory Ordinance, etc.</p> <p>(b) Contractor shall develop and implement a comprehensive site-specific health and safety plan on Occupational Health and Safety-First aid treatment shall be made available for all injuries.</p> <p>(c) Medical insurance coverage and indemnity for workers shall be in place for all.</p> <p>(d) The contractor shall conform to all anti dengue instructions given to him by the PHI and the PMU.</p> <p>(e) Workers employed on mixing cement, lime mortars, concrete, etc., shall be provided with protective footwear and protective goggles. Workers engaged in welding works shall be provided with welder's protective eye shields.</p>	Contractor	PMU Environment Officer / Specialist	Contractor fee	Once in 2 weeks

		<p>(f) The use of any toxic chemical shall be strictly in accordance with the manufacturer's instructions. A register of all toxic chemicals delivered to the site shall be kept and maintained up to date.</p> <p>(g) Use of licensed and trained vehicle operators, workers shall adopt necessary safety measures as stated in the contract including using of hard hats, boots, gloves and appropriate clothing.</p> <p>(h) Suitable communication and information on safety shall be provided.</p> <p>(i) The construction site shall be properly barricaded by appropriate material of adequate height.</p> <p>(j) Site shall be well lit to minimize accidents</p>				
Chance Find	If any cultural or religious objects/structures are uncovered during excavation, unless precautions are taken it may be damaged.	<p>(a) In event that a chance find is uncovered, all work on the site shall be stopped and the Department of Archaeology informed. Thereafter instructions/recommendations provided on the way forward shall be adopted.</p> <p>(b) Workers shall be educated on chance find procedures.</p>	Contractor	Contractor		

	However, it is very unlikely that there will be any chance find for this project site as it was a former marshland that was filled in the early 1990s and is not within a culturally significant area.				
Landscaping	In the absence of proper landscape, it will not be aesthetically pleasing. Landscaping should blend in with the surrounding ecosystem.	<ul style="list-style-type: none"> (a) Project landscape activities shall be done as per either detailed design or typical design guidelines. (b) Greening of the peripheries by planting trees along the drainage canals shall be considered. (c) Maximum possible buffer shall be maintained between the buildings and drainage canals. (d) Paving integrated with grass in open spaces that need to be paved shall be adopted to reduce the heat factor and also encourage infiltration of water during rains. (e) A recreational area shall be developed as a as a common area with already built apartment complex at Apple Watte. 	Contractor /PMU	PMU Environment Officer / Specialist	Towards end of construction