

ENVIRONMENTAL MANAGEMENT FRAMEWORK

Sri Lanka: Early Childhood Development Project



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1 INTRODUCTION

The Government of Sri Lanka has an embryonic ECD program (framework) encapsulated in different policy and plan documents, including the National Policy on Early Childhood Care and Development, the National Plan of Action for Children of Sri Lanka 2013-17 and the Sri Lanka Budget which includes a three-year plan. Drawing upon these policy and plan documents, GoSL is currently in the process of finalizing a National Plan for Early Childhood Care and Development (NPECCD), 2015-2020.

The draft NPECCD provides a situation analysis of the sector, identifies key issues and challenges, outlines strategic areas of focus, and presents planned interventions aimed at addressing the challenges faced by the sector. It identifies equitable access to and quality of ECD programs as the most important key issues in the sector. In order to address these issues, it proposes interventions in the following strategic areas: (1) policies, systems and structure of early childhood care and development (ECCD), (2) access to ECCD, (3) quality improvement of ECCD, (4) health, nutrition and safety, and (5) monitoring/regulation of ECCD. NPECCD provides the foundation for the proposed IDA-financed operation.

The ECD Project supports some of the key interventions outlined in the five strategic areas of NPECCD with the objective of enhancing equitable access to and improving the quality of ECCD services for 3-5 year old children. The Project supported interventions are structured around two components: (1) expanding and strengthening the delivery of ECCD services, and (2) project management, and monitoring and evaluation (M&E).

In order to understand the environmental risks associated with the project interventions and to deduce means of avoiding, minimizing, mitigating and managing any adverse impacts due to project interventions an environmental assessment is required. The project envisages the improvement of ECD services across Sri Lanka, via new construction of ECD Centers to allow access in unserved areas as well as the rehabilitation and up-gradation of existing ECD centers. While the potential nature of the project activities are known at the preparatory stage, their exact scope is not known as designing the required infrastructure as well as identifying exact locations where the physical interventions will be made will require more time. Thus this Environmental Management Framework (EMF) has been prepared in order to ensure proper due diligence on environmental aspects is undertaken. It will act as a guide to be used during implementation at the point the scope and designs of all physical interventions will be known.

2 The ECD PROGRAM AND OBJECTIVE OF THE EMF

2.1 Component 1: Expanding and strengthening the delivery of ECD services (US\$ 45 mil)

This component aims to improve the provision of ECD services in Sri Lanka by: (i) improving the quality of ECD provision across the country, (ii) expanding equitable access to ECD services across the country, and (iii) improving the quality of ECD in the Plantation sector.

2.1.1 Subcomponent 1.1: Improving the quality of ECD provision (US\$ 28 mil)

In order to improve the quality of ECD provision in Sri Lanka, the Project will support quality management, improvement of ECD facilities, provision of teaching-learning materials, and the training of ECD teachers, teacher assistants, and trainers.

Quality management

The Project will finance the revision of the government's curriculum framework and child development standards that are meant to guide the teaching-learning processes in ECD centers throughout the country. It will also support the development of age-appropriate teaching-learning materials for 3-5 year old children and teachers in the Sinhalese, Tamil and English languages, and the acquisition of these materials by ECD centers. The development of these materials will be guided by the above curriculum framework and development standards endorsed by the government. To measure the improvements made towards meeting development standards, all project-supported centers will be required to conduct annual child development assessments.

The Project will also support the development of a compact set of prioritized minimum quality standards for ECD centers based on the government's existing quality standards. Project support for ECD facility improvement discussed below will put special emphasis on helping centers meet these prioritized standards. In addition, the Project will support the establishment and consolidation of a provincial ECD center registration system in each province. It will coordinate with the PCs to ensure some degree of consistency in the registration systems across Provinces. These systems will be based on national quality standards, and will have the ability to grade ECD centers according to their service quality.

The Project will also support the development of ECD resource centers (that would include library and other resources to support ECD practitioners) at the provincial level by upgrading or extending existing facilities. These resource centers may also include facilities for conducting small workshops and training programs, and will be linked with specific ECD centers which can be used as model centers for good ECD practices.

Facility improvement grants to existing ECD centers

The quality of physical infrastructure and equipment in ECD centers is among the key determinants of the quality of ECD services. Most ECD centers are resource constrained, and are inadequate in terms of basic infrastructure, play equipment, and teaching learning materials. Government support for the improvement of center facilities is currently very limited. In order to help improve the physical quality of center facilities, around 6,000 eligible state- and non-state-run ECD centers across the country will receive support in the form of grants for minor works and for upgrading equipment and furniture. Beneficiary centers that do not meet the government's prioritized minimum quality standards will be required to focus the support on meeting these standards. It should be noted, however, that even with the assistance provided under the Project, enabling most of the centers to meet the prioritized minimum quality standards will be a challenge due to the limited availability of resources.

Support for minor civil works will focus on construction of toilets, water connections for sanitation, and refurbishment of facilities. Facility refurbishment can involve, inter alia, enhancement of disability access; repairs of roofs, doors and windows; installation of water tanks; construction of fences; cleaning up play areas; and construction of room partitions. Centers located in rented private premises will not be eligible for refurbishment support, but will be eligible to receive learning materials, consumables and play equipment. The broad categories of equipment, consumables and furniture that can be provided to centers by the Project include play area equipment, toys, water filters, safety equipment, equipment for children with special needs, equipment for administrative support, consumable classroom materials, and basic furniture for students and teachers.

The Project will target ECD centers serving poorer families and locations by allowing only centers charging monthly tuition fees below a pre-specified maximum amount to apply for support. The eligible centers would need to have been in operation for at least two years, and should meet pre-specified minimum requirements for building space and staffing. Details on the eligibility criteria for ECD centers will be provided in the OM. Project funds for facility improvement must give particular attention to the requirements of children with special needs.

Interested eligible centers will submit proposals to the SMCA ECCD divisional office requesting support for a set of activities/equipment/materials that fit within the broad categories of works and equipment discussed above. The total estimated cost in the proposals must be equal to or less than a pre-determined maximum amount. The application must also include detailed data on the state of their facilities. In order to make the application process efficient, each proposal will be required to follow a simple, pre-defined format which will help the applicant to easily document the center's status and key needs, estimate itemized costs, and present their activities timeline. As part of the proposal evaluation process, each applicant will be visited by an ECCD officer to ensure that the requests made in the proposal are consistent with the needs of the center and are prioritized to help the center in meeting the government's quality standards. While the support will cover centers across the country over the Project period, priority will be given to centers in poor, remote and/or underserved areas during the

initial years. Activities/items under this sub-component will follow community driven development (CDD) based procurement.

In order to enhance transparency and accountability, each beneficiary center will be required to publicly display information on the amount and the results of the support received. All participating centers will be also be required to have a functioning parent committee which will assist the ECD teacher(s) in developing the grant proposal and implementing the approved work plan. Grants under this sub-component will be distributed by SMCA through the District Secretariat Offices (DSOs).

Provision of teaching-learning materials

The Project will support the provision of age-appropriate, high-quality teaching-learning materials to both state- and non-state-run centers across the country. SMCA has already identified a list of essential educational materials for ECD centers, which are on display in the ministry. These materials include durable wooden toys, blocks and shapes, different types of puzzles, shapes, and measuring devices such as scales and clocks. Using this list as the basis, the Project will prepare a standard package of play-oriented educational materials for distribution. In addition, the Project will also identify a list of around 100 age-appropriate picture books, storybooks and other reading materials in Singhalese, Tamil and English that will be distributed to these centers as a package. This reading package, which can include board books, cloth books, and ordinary paper books, will be made available in Singhalese, Tamil, English, or in a mix of languages. Interested ECD centers must submit a request for the packages to the SMCA District Authorities. SMCA will procure the packages centrally and make arrangements for their distribution to the centers.

Training of ECD teachers, ECD teacher assistants, and trainers

The Project will support the development and delivery of training programs for ECD teachers, teacher assistants, and teacher trainers. As an initial essential step in the development of these training programs, SMCA will prepare a comprehensive capacity development plan for these stakeholders, which will guide the plans for the different types of training. Training of ECD teachers and ECD teacher assistants: The Project will support the following categories of training for ECD teachers and teacher assistants: (i) one to two-year long ECD certificate and diploma programs; and (ii) short-term training. Both types of training programs will be targeted mainly towards in-service as well as freshly recruited incoming teachers and teacher assistants. The Project will prioritize training for ECD teachers from geographical areas which lag behind others in terms of teacher training and qualifications.

Full tuition scholarships will be provided to qualified and financially needy teachers and teacher assistants on a competitive basis to pursue certificate and diploma programs offered by selected government universities and institutions. Interested candidates must submit their applications for scholarships to SMCA. The beneficiaries will be selected by a scholarship committee that will include government officials as well as independent experts. The Project will pay the selected beneficiaries' tuition fees directly to the educational institutions in which they are admitted and enrolled. In order to ensure that the scholarship candidates have access to

programs relatively close to where they reside, the institutions selected to participate in the scholarship scheme will, as a group, have a physical presence in each of the nine provinces. Information on the available scholarships will be disseminated widely to the target groups by both SMCA and the participating institutions. Around 500 ECD teachers and teacher assistants will be supported during the Project period.

Short-term training will be organized and delivered at the divisional level by ECCD officers with the support of resource persons and other key stakeholders, including non-governmental and private organizations working on ECD in Sri Lanka. As there are currently no clear guidelines for the length and content of short-term training, there is a wide variation in the quality and quantity of training across locations and time. Hence, before the commencement of short-term training, a standardized, week-long, certified short-term training module will be developed centrally by the Open University of Sri Lanka (OUSL), through a Memorandum of Understanding (MOU) with SMCA. The development of this module will also involve the preparation of a trainer's manual and a training package for trainees consisting of a workbook and resource materials for future reference.

While the short-term training program will focus primarily on enhancing ECD domain knowledge and developing pedagogical skills grounded in child development principles, it will also cover issues related to child rights, child protection, health, nutrition, simple screening for developmental problems, and approaches to facilitating the learning of children with special needs. Approximately 5,000 ECD teachers and teacher assistants will benefit from short-term training during the Project period.

Training of trainers: Currently, Sri Lanka does not have any program for training trainers for delivering short-term training in ECD. As a result, there is a near absence of properly trained resource persons who can be engaged to support the delivery of short-term training. The training of trainers (TOT) program supported by the Project will prepare the necessary pool of trainers to deliver short-term training across the nation. Around 500 trainers will be trained through Project support during the Project period.

The TOT module will be a 2-week training program that focuses on developing skills in planning, designing and conducting training for ECD teachers and teacher assistants according to the week-long short-term training package. In addition, it will include sessions on conducting parental awareness and parenting education programs. The eligibility criteria for applicants to the TOT program will include, inter alia, minimum educational qualifications (bachelor's degree) and sector experience. The selection of candidates will be done on a competitive basis. Details on the eligibility and selection criteria for TOT trainees will be provided in the Operations Manual (OM). The TOT module will be developed by OUSL in consultation with the government's National Institute of Education (NIE). Both OUSL and NIE will be responsible for delivering the TOT program. During the development and implementation of the training module for trainers, OUSL and NIE will also closely interact with and obtain inputs from organizations with practical experience and expertise in specialized areas such as care for children with special needs, health and nutrition, and child protection.

Other related activities: To reinforce the skills emphasized in the short-term training program through peer-to-peer learning, the Project will provide support to Divisional Secretariat Office for organizing periodic interaction programs among teachers. Given that children's smooth transition from pre- to primary school depends partly on the primary school teachers' understanding of child development principles, the Project will also support short orientation programs on holistic child development for primary school teachers and head teachers. These programs will be organized and conducted by ECCD officers in coordination with the Ministry of Education at the Provincial level.

Center-based health and nutrition support

The Project will also support efforts to improve knowledge of early childhood health and care practices among both teachers and parents. For teachers, the Project will support the development and implementation of health sub-modules as part of ECD teacher training programs. Parental awareness programs supported by the Project will also include modules aimed at increasing parental awareness of best practices in the health and care of young children.

2.1.2 Subcomponent 1.2: Expanding equitable access to ECD Services (US\$ 7mil)

Both demand side and supply side interventions will be used to make ECD more accessible to all, and to increase the enrollment of children in the 3-5 year old age group.

Demand side interventions

Parental awareness and interaction programs: Parental awareness programs are one group of activities currently being carried out each year by SMCA. However, the scale of these activities is small, program manuals do not exist, and program content is not well defined. As a result, the quality and intensity of these programs vary widely across time and locations. The Project will support the development of standardized program modules as well as the regular delivery of these programs across the country. Targeted towards parents of children in the 0-5 year age group, these programs will include awareness campaigns for enhancing parents' understanding of holistic childhood development and making them familiar with available opportunities for enrolling their children in ECD centers, interaction programs for guided parental experience, and parent education programs to enhance parenting practices and behaviors .

The awareness campaigns will include the use of local print media, radio and television to reach out to families and communities in their homes, as well as the use of workshops and group meetings to bring families together for presentations and discussions on early childhood development. Interaction programs for guided parental experience will include modeling sessions conducted by trained agents where parents and children participate in a sequence of activities selected depending on the age of the child and his or her development needs and are

highly recommended for those children with some developmental delay. Those sessions could be held at home or in group settings of same age children using a learning-by-doing teaching approach. Parent education programs will be provided mainly in group settings through workshops conducted by trained agents based on peer-learning strategies, combining delivery of basic content and dialogue with parental experience sharing.

Standardized modules and relevant teaching-learning materials, including resource materials for parents, for these programs will be developed centrally by expert agencies or organizations contracted by SMCA. The programs will be organized and delivered at the divisional level by ECCD officers with the support of resource persons and other key stakeholders, including non-governmental and private organizations working on ECD. To enhance the effectiveness of these programs, the ECCD officers will also coordinate program delivery with local health and nutrition campaigns targeting mothers and children.

Special support for poor students channeled through ECD centers: The Project will give grants to fee-levying state- and non-state-run ECD centers for providing scholarship support to 3-5 year old children from poor households. Scholarship recipients will be selected by individual ECD centers, with concurrence from the ECCD officer and parent committees, primarily on the basis of their household economic status. Priority will be given to poor children with special needs. Around 25,000 children are expected to benefit from this scholarship scheme.

The scholarship support will be channeled to the students through participating ECD centers. Each of these centers will receive a total of Rs. 3000/month from the DSO, which can only be used for providing full fee waivers to poor students. As in the case of facility improvement grants, centers charging tuition fees above a pre-specified maximum amount will not be eligible to apply for scholarship support. Similarly, eligible centers must have a track record of having been in operation for at least two years at the time of application. Other eligibility criteria for ECD centers, and guidelines for the selection of scholarship recipients and funds utilization, will be detailed in the OM.

Scholarship funds will be provided to each participating ECD center by the DSO in three installments spread out over the academic year, and will be conditional on the centers' submitting evidence of regular attendance of the selected scholarship students. Each participating center will be required to submit to the ECD officer basic profiles of individual scholarship recipients at the beginning of the academic year and attendance records of these children at the end of each trimester.

The Project will also support the provision of transportation to ECD centers for orphanage children who would like to attend a pre-school near the orphanages. The ECD officer in charge of that particular pre-school will coordinate with the orphanage to arrange for transport facilities. Details will be documented in the OM.

Supply side interventions

Establishment and extension of facilities in unserved and underserved areas:

The Project will support the establishment of new ECD facilities in unserved areas to enhance equitable access to ECD services. Unserved and underserved areas, and gaps in ECD provision, will be identified through a comprehensive mapping of ECD facilities and distribution of the 3-5 year old population. This information, along with poverty mapping data, will be used to prioritize poor, unserved areas for the construction of new facilities.

It is expected that the mapping exercise will be completed by SMCA by April 2016. The exact locations for new Project supported centers will be determined on the basis of the mapping data and requests from the different districts. Government-owned land for the construction of these facilities will be identified and provided by PCs and local government authorities. Project support can also be used to convert existing government-owned structures to ECD centers. In such cases, the Project will provide funds to renovate these structures in accordance with SMCA's minimum standards for new ECD facilities. The responsibility for managing all newly constructed ECD centers, including financing teacher salaries, will lie with the PCs or the local government authorities. The teachers in these centers will be eligible for teacher training support under the Project.

In underserved areas identified through the mapping exercise, the Project will support the extension of existing state-run ECD centers to expand enrollment. The selection of beneficiary centers in these areas will be done jointly by the SMCA district and divisional officers, PCs and local government authorities.

All activities related to facility extension, new construction, and teacher recruitment for new centers will be undertaken by the PCs and local government authorities. Basic furnishing, equipment and teaching-learning materials for new Project supported centers will be provided by SMCA through the DSOs. In total, the project will support the construction or extension of around 45 ECD centers across the country, excluding centers in the plantation sector.

2.1.3 Subcomponent 1.3: Improving the quality of ECD in the Plantation sector (US\$ 10 mil)

The Plantation sector, with its distinct, historically marginalized, resident worker population needs special support to enhance the quality of ECD services. Unlike in the rest of the country where SMCA plays the lead role in overseeing ECD related activities, social development programs—including those targeted towards young children—in the Plantation sector are implemented by the Plantation Human Development Trust (PHDT), a tripartite organization consisting of GoSL, Regional Plantation Companies and Plantation Trade Unions. Furthermore, as many of the mothers of young children in the Plantation community are engaged as Plantation workers, the centers in the Plantations serve as both childcare facilities and ECD centers. Hence, project support for the Plantation sector through PHDT is categorized as a separate subcomponent of the Project. Funds will be provided to PHDT by SMCA via an MOU to implement Project supported interventions in this sector. The Plantations under the purview of PHDT cover nine provinces.

The Project's focus within the Plantation sector is on improving the quality of ECD services provided by the ECD centers. More specifically, the activities supported include (i) upgrading of old, poor quality ECD centers, (ii) refurbishment of existing ECD center facilities, (iii) training of ECD teachers, and (iv) parental awareness/parenting education programs. All Project supported activities will be managed by PHDT.

Given the difficult terrain of the Plantations, the construction and locations of many of the old centers pose health hazards to the children. Furthermore, despite the need for daycare, some of these centers do not have the required infrastructure to adequately serve this purpose. Hence, according to the estimates made by PHDT, there is a need for the reconstruction or extension of around 140 centers in the Plantations. The Project will support PHDT to meet this need. The salaries of staff in these centers will be paid by the plantation estates, and center services will be provided free of charge to plantation families. As the land for these prospective centers has already been identified, most of the Project supported new center construction work in Plantations will be carried out during the first two years of the project.

Both short-term training and certificate/diploma programs for ECD teachers will be organized and delivered by PHDT with the assistance of resource persons. The Project will provide scholarship support to around 50 ECD teachers to participate in the nationally recognized Diploma program offered by PHDT. Similarly, it will support the short-term training of around 1000 ECD teachers, and the delivery of parental awareness/parenting education programs to Plantation community members.

2.2 Component 2: Project Management, and Monitoring and Evaluation (M &E) (US\$ 5 mil)

This component finances different inputs, including technical assistance in specific areas, to support the project management team in achieving the Project targets. It also supports the Project's monitoring and evaluation activities.

Project management: The Project will finance incremental costs associated with project management, consulting services, transportation, equipment, training of ECD administrators, and other administrative expenses incurred during program implementation. As the Project will entail a significant increase in the responsibilities of SMCA, the capacity building of staff at all levels of the ministry's administrative structure is essential for effective Project implementation. The Project will support the development and implementation of a comprehensive capacity development plan for government units and staff, including relevant staff from the PCs, engaged in implementing ECD activities.

Within the framework of this plan, the Project will support the development of a short-term training module for field level staff (e.g., district and divisional level officers) as well as a specialized modules for staff working at the Provincial and Central levels. These modules will cover a broad range of topics including administration, planning, budgeting, procurement,

financial management, ECD domain knowledge and computer literacy. In the case of the module for field staff, the content will also include training on organizing and managing ECD teachers training programs and parental awareness/parenting education programs. Around 350 government staff will receive this type of training during the Project period. The training will be designed and delivered by an agency with experience in delivering training to government staff. In addition, around 100 officers working on ECD will be supported to pursue further studies leading to ECD diplomas and higher degrees. The capacity development of government units will also involve the provision of necessary equipment, transportation facilities, and technical support in different areas at the central, provincial, district and divisional levels.

The Project will provide support for technical assistance to the project management team in a number of areas including, inter alia, institutional analysis, preparation of guidelines, development of information systems, monitoring and evaluation, planning, communication, procurement, financial management and social and environmental safeguards, as necessary. It will finance the design and implementation of a comprehensive mapping exercise to identify the locations of existing ECD centers and areas that are unserved or underserved. The Project can also support other technical assistance necessary for the smooth implementation of the Project such as assessment studies, surveys, independent audits of grant expenditures and evaluations.

M&E and results framework: The Project will support the development and implementation of a robust and comprehensive ECD monitoring and evaluation system for ensuring compliance with quality assurance standards and providing constructive feedback to ECD centers. The Project will develop and systematically utilize a comprehensive electronic management information system (MIS) as an integral part of the M & E system. The MIS will allow decentralized entry of data on ECD centers, teachers and children, and regular updating of monitoring information. Project progress will be tracked through a set of key performance and intermediate results indicators reflecting the PDO.

2.3 Objectives of the EMF

It is anticipated that there will be environmental issues and impacts from the project predominantly during the work phase for the new constructions, rehabilitation and upgradation of infrastructure, particularly due to the project's underlying objective is to improve the climate resilience. Thus the project is categorized as a Category B project under World Bank environmental classification of projects.

As a means to address the potential environmental impacts of the project, this environmental management framework (EMF) has been prepared by the SMCA. The objective of the EMF is to provide guiding principles for the assessment and management of environmental aspects of all physical works targeted under this project. It will help to; a) systematically identify, predict, and evaluate beneficial and adverse environmental impacts of the planned physical interventions b) designing enhancement measures for beneficial impacts, and c) implement mitigating measures for adverse impacts.

Adhering to the principles and procedures laid out in this EMF will ensure compliance with the World Bank's environmental safeguard policies and the relevant provisions under national

environmental legislation and regulations. The document will provide the necessary background for environmental considerations to be built into the design of the project so that environmentally sustainable implementation can take place. To aid this process, the EMF highlights relevant general policies, guidelines, codes of practice and procedures to be taken into consideration for integration of environmental aspects into the project design.

The EMF will be made available for public review and comment in appropriate locations in Sri Lanka and in International Development Association (IDA) Infoshop in accordance with BP 17.50 requirements of disclosure. Detailed assessments for individual sub-projects will be carried out (in accordance with the EMF) by the implementing agencies prior to completing engineering designs and commencing bidding process and will be reviewed and cleared by the designated Project Approving Agency (PAA), as applicable, under prevailing national environmental legislation in Sri Lanka and by IDA prior to the approval of disbursement of funds.

3 POLICY, LEGAL AND ADMINISTRATIVE FRAMEWORK

3.1 Government Policies and Legislations for Environmental Protection

The project will need to take the following legislation and associated regulations into consideration while planning and implementing project activities. It will be the responsibility of the respective implementing agency to obtain the relevance clearances as per the legislation:

National Environmental Act No. 47 of 1980 and amended in 1988. The National Environmental Act (NEA) provides conservation and development guidelines for natural resources including water, forest, flora and fauna in Sri Lanka. The 1988 amendment transformed the Central Environmental Authority (CEA) to enforcement and implementing agency. The CEA issues Environmental Protection Licenses (EPL) to medium and high polluting industries under section 23(A) of the NEA. Since 1994 issues of EPL to low polluting industries has been delegated to relevant local authorities. Under section 7(1) there is a provision to establish an Environmental Council in collaboration with respective line agencies to advise the CEA. Section 9(1) provides necessary guidelines to establish District Environmental Agency with the District Secretary as the Chairman of each District Environmental Agency. Therefore, CEA has special powers to monitor, assess and advise the government on critical environmental conservation, management and development issues.

The 13th Amendment to the Constitution of Sri Lanka. The Constitution of Sri Lanka contains several provisions, relating to the environment (i.e. Article 27 (14) and Article 28). The 13th Amendment introduced a new level of institution for environmental protection and management. Thus, provincial government under this Amendment has legislative and executive power over environmental matters (i.e. Article 154 (A) 9, 19 and (III) 17). According to such provincial legislative and executive power, the North Western Provincial Council adopted the North Western Provincial Environmental Authority to control, prevent and monitor all environmental related activities in the North Western Province.

Pradeshiya Sabha Act No. 15 of 1987. Section 12 (2) of the Pradeshiya Sabha Act has authority to appoint a separate committee to advise on environmental matters. Section 105 of the Act states the prohibition of polluting water or any streams. While Section 106 refers to pollution caused by industry and related offences. The Pradeshiya Sabah is entrusted with granting of permission for the built environment within its jurisdiction. It also serves to ensure public health, solid waste collection, and disposal and deal with nuisance under this Act.

Flood Protection Ordinance – Act No. 22 of 1955. This ordinance provides necessary provisions to acquire land or buildings or part of any land or building for the purpose of flood protection.

Coast Conservation Act No. 57 of 1981. The Coast Conservation Act makes provisions for the preparation of coastal zone management plans, regulates and controls development activities within the coastal zone, formulates and executes schemes of work for coast conservation within

the coastal zone in the country. Under section 6 of the Act, there is provision to appoint a Coast Conservation Advisory Council. The purpose of the Council is to advise on all development activities proposed in the coastal zone, review the coastal zone management plan, environmental impact assessments etc. The current Coastal Zone Management Plan states that the Director of CCD will call for an EIA when such activities may have potential impacts on the coastal zone.

North Western Province Environmental Statute (NWPES) of 1991 implemented by the North Western Provincial Council for areas coming under the North Western Province

Environmental assessments are required for prescribed projects that have been gazetted in Gazette Extraordinary 1020/21 of 27th March, 1998. It specifies two lists of project types (a) where EIA/IEE is mandatory and (b) where the EA can be requested if the PAA decides so. The scoping process is similar to that of the NEA and will be headed by one of the two listed PAAs; (a) Provincial Environmental Authority and (b) Provincial Ministry of Fisheries and Aquaculture. Representation of the CEA and the Ministry of Environment in the scoping committee is a mandatory requirement. Setting up of the terms of reference, preparation of the EA, review and public disclosure and consultation, granting of the project decision are the same as specified in the NEA.

State Land Ordinance – Act No. 13 of 1949. The State Land Ordinance provides necessary guidelines for:

- The protection of springs, reservoirs, lakes, ponds, lagoons, creeks, canals, aqueducts, etc.,
- The protection of the source, course, or bed of any public stream,
- The construction or protection of roads, paths, railways, and other means of internal communication,
- The prevention of the erosion of soil, and
- The preservation of water supplies.

Section 75 of the Ordinance highlights riparian proprietors' activities. The occupier of land or the bank of any public lake or public stream shall have the right to use water in that lake or stream for domestic purpose and shall not be diverted through a channel, drain or pipe or by means of a pump or other mechanical contrivance, but shall be removed in a bucket or receptacle.

Soil Conservation Act No. 25 of 1951 and Amendment No. 29 of 1952. The Soil Conservation Act makes provision for the conservation of soil resources for the prevention or mitigation of soil erosion and for the protection of land against damage by floods and droughts. It is possible to declare any area defined in the order to be an erodible area for the purpose of this Act. Under this Act, the following activities are prohibited:

- Clear weeding of land or other agricultural practices conducive to soil erosion,
- Use of land for agriculture purposes within water sources and banks of streams,

- Exploitation of forests and grassland resources and setting fire in declared areas.

Mines and Minerals Act No. 33 of 1992. The Geological Survey and Mines Bureau established under Act No. 33 of 1992 Mines and Minerals Act. Under this Act, mining falls within the purview of the Geological Survey and Mines Bureau (GSMB). Mining and exploitation for minerals, including sand must be licensed under the Act by the GSMB. Mining licenses are issued only to qualified individuals and companies registered to do business in Sri Lanka. Mining is not permitted within Archaeological Reserves and within specified distance of monuments. New mining licenses are subject to the EIA process, if the type and extent of mining is listed under the EIA regulations. Additionally, the GSMB has power to stipulate conditions including the taking of deposits and insurance for the protection of environment. Regulations made by the GSMB under the Act cover a variety of environmental stipulations, criteria and conditions for licensing and operating mines. This also covers the disposal of mine wastes. The Act also deals with the health, safety and welfare of miners. Reclamation of mines is a major problem in Sri Lanka and due to current practice requires the mining enterprise to make a deposit to cover costs of recovery. Mining rights on public and private land are subject to licensing by the GSMB and all minerals wherever situated belonging to the State. The right to mine particular parcels of public land maybe subjected to EIA procedures as well as to lease for permit conditions.

Fauna and Flora Protection Ordinance – Act No. 49 of 1983 amended in 2008. This Act provides for the protection, conservation and preservation of the Fauna and Flora of this country. Under the Fauna and Flora Protection Ordinance (FFPO), five categories of protected areas are established viz. Strict Nature Reserves, National Parks, Nature Reserves, Jungle Corridors and Intermediate Zones. The CA has gazetted all the forest and wildlife reserves as environmentally critical areas to be governed by both FFPO and the Forest Ordinance, under emergency regulations. Under the Act No. 49 of 1993, new sections inserted as 9 (a) states that No person or organization, whether private or State shall within a distance of one mile of the boundary of any National Reserve declared by order made under Section 2, carry out any development activity of any description whatsoever, without obtaining the prior written approval of the Director. Therefore, every application is subjected to follow Act No. 47 of 1980 – National Environmental Act, and thus subjected to follow Environmental Impact Assessment (EIA) or Initial Environment Examination (IEE) procedures.

Forest Ordinance – No. 17 of 1907 and subsequent amendments. The Forest Ordinance of Sri Lanka is the law for conservation, protection and management of forest and forest resources for the control of felling and transport of timber and forest related matters. The Forest Ordinance of No. 17 of 1907 amended by several Acts up to 1995 – Act 34 of 1951, No. 49 of 1954, No. 13 of 1966, No. 56 of 1979, No. 13 of 1982, No. 84 of 1988, and the new Act No. 23 of 1995. Under Section 4 of Act No. 23 of 1995, the Minister is in charge of forests, has special powers to order and declare any specified area of State land or the whole or any specified part of any reserve forest which has unique ecosystems, genetic resources or a habitat or rare and endemic species of flora , fauna, micro-organisms and of threatened species which need to be

preserved in order to achieve an ecological balance in the area by preventing landslides and fire hazards to human life, as a Conservation forest.

Under Section 5 of the Act, a Forest Officer of a specified area has special power to stop any public or private way or watercourse in a reserved forest. It shall be lawful for the District Secretary to determine the amount of compensation to be paid, in case that the water course injuriously affects the interests or one or more individuals to whom on that account compensation should be paid.

Under Section 6 of the Act, the following activities are prohibited:

- Trespassing or permits cattle to trespass,
- Causes any damage by negligence in felling any tree, cutting or dragging any timber,
- Wilfully strips off the bark or leaves from, or girdles, lop, taps, burns or otherwise damages any trees,
- Poisons water,
- Quarries stone, burns lime or charcoal, or collects or subjects to any manufacturing process, any forest produce,
- Extracts coral or mollusk shells or digs or mines for plumbago, gems or other minerals,
- In contravention of any regulations made by the Minister, pastures cattle, hunts, shoots, fishes or sets traps or snares or guns, or constructs, ambushes, or uses any explosive substances.

National Water Supply and Drainage Board (NWSDB) – Law No. 2 of 1974 The National Water Supply and Drainage Board (NWSDB) is the principle water supply and sanitation agency in Sri Lanka. It was established in January 1975 pursuant to Law No. 2 of 1974. Prior to its official mandate, the NWSDB started as a sub-unit, under the Public Works Department for Water Supply and Drainage. In 1965, it became a division under the Ministry of Local Government. From 1970, this division functioned as a separate department under the Ministry of Irrigation, Power and Highways and remained so until the Act was approved by Parliament creating the NWSDB in 1975. General duties of the NWSDB include to develop, provide, operate and control an efficient, coordinated water supply and to distribute water for public, domestic or industrial purpose to establish, develop, operate and control an efficient and coordinated sewerage system.

National Policy for Rural Water Supply and Sanitation – 2001. The National Policy for Rural Water Supply and Sanitation approved by the cabinet in 2001 has laid down the framework for the provision of water supply and sanitation services to the rural sector which is defined as any Grama Niladhari Division within a Pradeshiya Sabha area except those in former Town Council areas that have populations over 6000 people. It provides guidelines as to the minimum requirements needed to ensure health, and levels of service in terms of quantity of water, haulage distance, adequacy of source, equity, quality, flexibility for upgrade, and acceptable safe water supply systems, among others. It prescribes ventilated improved pit latrines as basic sanitation facilities and defines other acceptable options that include, among

others, piped sewer with treatment, septic tanks with soakage pits, water sealed latrines with disposable pits. For rural water supply and sanitation, the Policy defines the roles and responsibilities of the Government, Provincial councils, local authorities, community based organizations (CBO), non-governmental organizations (NGOs), private sector and international donors. It also sets the scope of regulation for which the provincial councils and local authorities can enact statutes and by –laws.

Prevention of Mosquito Breeding Act No. 11 of 2007. This Act was passed for the purpose of ensuring the prevention and eradication of all mosquito borne diseases. Under this Act, it shall be the duty of every owner or occupier of any premises to cause (a) open tins, bottles, boxes, coconut shells, split coconuts, tires or any other article or receptacle found in or within such premises, capable of holding water to be removed, destroyed or otherwise effectively disposed; (b) any well found in the premises and its surroundings to be maintained and kept in good repair so as to make it mosquito proof and thereby prevent the breeding of mosquitoes; (c) any artificial pond or pool found in such premises to be emptied at least once in every week; (d) any casual collection of water within premises which is conducive to mosquito breeding, to be regularly drained; (e) shrubs, undergrowth and all other types of vegetation, other than those grown for the purpose of food or those which are ornamental, found within or outside any building or structure within the premises used as a dwelling place which has become a breeding place for mosquitoes, to be removed ; (f) the removal and destruction of the water ,plants that have the botanical name Pistia Stratiotes and commonly known as “ Diya Parandal”, “ Kondepasei ” , “ Telpasy”, “ Barawa –Pasi ” , “ Nanayaviraddi” and of any other water plant or plants, found within the premises, which may facilitate the breeding of mosquitoes. Hence, this Act is placed to eradicate , prevent mosquito borne diseases and targets water sources.

The Urban Development Authority (UDA) - Law, No. 41 of 1978 amended by Act No.70 and Amendments. The UDA is mandated to promote the integrated planning and implementation of social, economic and physical development of areas declared as “Urban Development Areas” under the UDA Act with the overall vision of guidance, facilitation, and regulation of urban development through innovative and integrated physical planning. The UDA, as a part of its mandate provides technical support to local councils who require assistance in developing plans, and has the authority to develop plans when local authorities fail to do so. In case of conflict between local council laws and the Town and Country Planning Ordinance, the UDA Act is paramount in areas designated as urban development areas. The UDA monitors urban areas, including 1 km inland from the coasts in all areas of the coastal zone, and develops land use policies for designated development areas.

Local Authorities: Municipal Council Ordinance –Act No. 29 of 1947 amendments Act 18 of 1979 and Amendments, Urban Council Ordinance 61 of 1939, Acts 13 of 1979 and Amendments. The Municipal Councils and Urban Councils have similar powers to the Pradeshiya Sabhas regarding approval of buildings plans, maintenance of solid waste, sewerage and public utilities etc. Under these laws all new constructions and modifications to current

buildings need to be approved by the appropriate Municipal or Urban Council. By law, the mayor or urban council chairman has the authority to approve building plans. Municipal and Urban councils are required to follow interim planning and building guidelines of the UDA per regulations formulated and published by the UDA. Municipal and Urban councils including those in UDA declared areas approve building plans.

3.2 The World Bank Environmental Safeguard Policies

Projects financed with IDA resources need to comply with World Bank Operational Policies (OPs) for safeguards. Based on the likely activities financed by the project and potential environmental impacts, the following OPs have been triggered.

3.2.1 Environmental Assessment (OP/B P 4.01)

World Bank OP 4.01 requires EA of projects proposed for Bank financing to help ensure that these projects are environmentally sound and sustainable. EA is a process whose breadth, depth and type of analysis depend on the nature, scale and potential for environmental impacts of the proposed project. Considering the work involved and resultant environmental repercussions in irrigation and drainage infrastructure rehabilitation and improvement and landslide protection, the project has been treated as Category B.

World Bank OP 4.01 is very clear that for a project in Category B proposed for financing under an IDA Credit, the project proponent must consult project affected groups and local non- governmental organizations about the project's environmental aspects and take their views into account in the design and implementation. The EA should particularly incorporate such comments to improve social acceptability and environmental sustainability. Such consultations should be initiated as early as possible, in the Project cycle and it is mandatory that consultations are undertaken after the draft EA is prepared. In addition, the project proponent and contractor are expected to consult with stakeholders throughout project implementation as necessary to address environmental related issues that affect them. The OP 4.01 also highlights the importance of analyzing alternative designs, technologies and operational strategies systematically in terms of their potential environmental impacts in order to select the most environmentally friendly and economically viable option.

The purpose of conducting an EA is to identify environmental and social consequences of the proposed sub-projects or components, in order to:

- Ensure the identification of potential environmental issues and social concerns early in the implementation of a proposed project to incorporate necessary safeguards in project design in order to prevent potential adverse impacts by determining appropriate mitigation and compensation measures;
- Minimize risks and enhance positive impacts/benefits;

- Avoid delays and extra costs which may subsequently arise due to unanticipated environmental problems;
- Identify the potential for maximizing environmental resources management and socio- economic benefits to local communities within the scope of the sub-project.

The EA should cover physical-chemical, biological, socio-economic and cultural issues that are likely to arise during rehabilitation and improvement of infrastructure including landslide prevention structures and associated activities as appropriate. As of this stage, designs of specific sub-projects are still being prepared; hence as a result, site-specific EAs and/or environmental management plans (EMPs) cannot be fully completed. Therefore, initial assessments of sample of sites have been undertaken and identification of generic issues that are typically associated with the project activities have been carried out. Once further design details are available, updating of the assessments and/or further improvements to the EMPs will be undertaken by the project proponents prior to finalization of the designs and moving forward with the bidding process. In such circumstances, OP 4.01 requires that arrangements be made whereby the project implementing institutions undertake the functions of sub-project screening, improvement or preparation of EAs and EMPs and implementation of mitigation and monitoring plans, as described in the framework part of this EAMF. The EAMF, EAs and EMPs will be made available for public review and comment. Detailed EAs where applicable will be carried out (in accordance with the EAMF) by the implementing agencies and will be reviewed and cleared by the designated PAA, as applicable, under prevailing national environmental legislation in Sri Lanka and by IDA prior to the approval for disbursement of funds.

4 ASSESSMENT OF ENVIRONMENTAL IMPACTS AND PROPOSED MITIGATION MEASURES

The purpose of this section of the report is to identify the possible environmental impacts and issues that could arise as a result of the proposed project activities. Impacts and issues of any physical intervention could be distinguished between physical, biological/ ecological (covered under this document) and social environments (addressed separately). These impacts could be significant or non-significant, positive or negative, direct or indirect and could be immediate or long term impacts.

4.1 Component-specific Preliminary Assessment of Impacts and Mitigation Measures

Component 1: Improving the quality of ECD provision - Subcomponent 1.1: Facility improvement grants to existing ECD centers

In order to help improve the physical quality of center facilities, eligible state- and non-state-run ECD centers across the country will receive support from the Project for minor works and for upgrading equipment and furniture. Beneficiary centers that do not meet the government's prioritized minimum quality standards will be required to focus the support on meeting these standards.

Support for minor civil works will focus on construction of latrines, water connections for sanitation, and refurbishment of facilities. Facility refurbishment can involve, inter alia, enhancement of disability access; repairs of roofs, doors and windows; installation of water tanks; construction of fences; cleaning up play areas; and construction of room partitions. Centers located in rented private premises will not be eligible for refurbishment support, but will be eligible to receive learning materials, consumables and play equipment.

Component 1: Expanding equitable access to ECD Services -Subcomponent 1.2: Improving the Establishment and extension of facilities in unserved and underserved areas:

As per the planned supply side interventions of Subcomponent which aims on expanding equitable access to ECD service the establishment and up gradation of ECD facilities in unserved and underserved areas is identified as a key physical intervention. The Project will support the establishment of new ECD facilities in unserved areas to enhance equitable access to ECD services. The exact locations of the centers to be supported will be identified post the district wise mapping of island wide ECD centers. Space for the construction of these facilities will be identified and provided by the Provincial Councils or local government authorities (state owned land) or through the beneficiary communities. Construction grants can be used to build new facilities on government- or community-owned or common land. They can also be used to add ECD facilities to existing government- or community-owned structures. In unserved areas where existing building space is made available by communities for use as ECD centers, the Project will provide funds to renovate these structures in accordance with GOSL's minimum standards for new ECD facilities. All newly constructed ECD centers will be managed by the PCs or the Local Authorities.

In the underserved areas identified through the mapping exercise, the Project will also support the extension of existing state- and community-run ECD centers to expand enrollment. The selection of

beneficiary centers in these areas will be done jointly by the DSO, PCs and Local Government authorities.

Component 1: Improving the quality of ECD in the Plantation sector:

The Project's focus within the Plantation sector is on improving the quality of ECCD services provided by the ECCD centers. The activities supported by the Project in this sector are similar to those discussed under Component 1, specifically, they include the replacement or extension of centers to upgrade their quality and the refurbishment of existing ECCD center facilities. All Project supported activities will be managed by PHDT.

Given the difficult terrain of the Plantations, the construction and locations of many of the old centers pose health hazards to the children. Furthermore, despite the need for daycare, some of these centers do not have the required infrastructure to adequately serve this purpose. Hence, according to the estimates made by PHDT, there is a need for the replacement or extension of around 140 centers in the Plantations. The Project will support PHDT to meet this need. As the land for these prospective centers has already been identified, all Project supported new center construction work in plantations will be carried out during the first two years of the project.

Types of Interventions under Component 1 and the Nature of Envisioned Impacts

Under the ECD Project, physical interventions will thus include the construction new buildings in existing ECD facilities, extensions and renovations to existing buildings, including provision of sanitation facilities (latrines) where required. All activities related to facility extension and new construction for new centers will be undertaken by the Provincial Councils and Local Government authorities and monitored by the Implementing Agency. In total, the project will support the construction or extension of around 250 ECD centers under Component 1 and assist the PHDT in the replacement or extension of around 140 ECD centers in the Plantations under Component 1

The planned construction activities are not anticipated to cause major, irreversible environmental impacts due to their nature and scale. The works associated with these activities will likely generate site-specific and temporary impacts associated with construction work and impacts due to use of construction material such as sand, gravel and metal.

For new constructions as well as expansion work under Component 1, due to the natural hilly landslide prone terrain of the plantation areas, there may be need for the construction of landslide prevention structures which will help to reduce potential landslide in a given site to ensure the long term safety of the ECD center, due diligence will be necessary to ensure the surrounding areas will not reduce their stability due to the landslide mitigation measures that will be put in.

4.2 Generic Impacts and their Significance

Following impacts are for the proposed physical intervention activities of component 1.

4.2.1 Impacts to physical and ecological environment during construction phase

Impacts on soil at construction and material extraction sites and yard

Impact description	Duration of the impact	Level of impact
Loss of productive top soil due to site preparation work	Long-term	Moderate
Soil erosion caused by clearing and grubbing operations which removes the vegetative cover in the immediate surroundings	Long-term	High
Soil erosion caused by mining and quarrying operations	Long-term	Moderate
Contamination of soil by heavy metals and chemicals discharged by construction vehicles and from material storage sites	Short-term	High
Erosion of uncovered temporary stock piles and soil dumps	Short-term	Low

Impacts on surface and ground water sources occur due to following activities

Impact description	Duration of the impact	Level of impact
Siltation of waterways due to modifications to surface water flow and drainage patterns	Long-term	Moderate
Degradation of surface water quality due to equipment and material piling on the site	Short-term	Low
Degradation of water quality due to waste water from worker camps	Short-term	Moderate
Degradation of water quality in water bodies in the vicinity of quarry and borrow sites	Short-term	Moderate
Reduction in groundwater recharge due to drainage and excavation, especially in dry areas	Long-term	High

Impacts on ambient air quality and noise within construction sites, material extraction sites and yards

Impact description	Duration of the impact	Level of impact
Operation of construction vehicles and plants (AC plant and concrete batching plants) that emit obnoxious gases	Short-term	Moderate
Exposure of soil surface due to excavation, clearing of surface vegetation which generates dust	Short-term	Moderate
Mining operations of metal and gravel for construction material will emit dust and other particulate matter	Short-term	Moderate
Improper storage of chemicals that could emit fumes of stored chemicals	Short-term	High
Increased noise nuisance and vibration issues to public living close to construction areas and quarries	Short-term	Moderate

Impacts on ecosystems, fauna and flora

Impact description	Duration of the impact	Level of impact
Clearing of vegetation for construction activities may	Long-term	High

lead to disturbance to natural habitats (wetlands, forest areas, lagoons, etc.)		
Clearing of surface vegetation in quarry sites and burrow sites may lead to the loss of land/ natural habitats	Long-term	High
Loss of important fauna and flora due to construction works	Long-term	Moderate
Disturbance to animal migration routes and patterns	Long-term	High
Changes to aquatic ecosystems due to siltation of waterways, changes to speed and volume of water flow	Long-term	High
Contamination of biota by emissions to air, water and soil during construction and material extraction works	Short-term	Moderate
Loss of standing crops, fruit trees and commercially valuable trees due to construction works close to home gardens, chena lands and paddy fields	Long-term	Moderate

Impacts to physical and ecological environment during operational phase

Impact description	Duration of the impact	Level of impact
Safety issues related to poor operations	Short-term	High
Improved accessibility	Long-term	High (positive)
Improved safety from landslides	Long-term	High (positive)
Reduced flooding and improvement of surface water quality due to better run off management	Long-term	High (positive)

4.3 Detailed Assessment of Potential Impacts and Mitigation Measures

The following table provides a detail assessment of likely impacts of proposed activities under Component 1, proposed mitigation measures and institutional responsibilities.

Activities		Protection and preventive measures	Locations/ Project phase	Mitigation cost	Institutional Responsibility	
					Implementa tion	Supervision
1.0 Advance Works						
	1.1	Design of slope protection / land-slide management structures				
	(a)	Design must ensure structural integrity and safety of structures to address issues such as physical trauma associated with failure of structures and address potential reduction of stabilization of the nearby land due to slope protection activities. Incorporate as appropriate the following during planning, siting and design phases, especially in hilly terrain: Inclusion of buffer strips or physical separations around project sites Incorporation of siting and safety engineering criteria to prevent failures due natural and/or man-made risks (such as wind, flooding, landslides, etc.) Application of locally regulated building codes to ensure structural integrity Certification of designing and constructing infrastructure, the applicability and appropriateness of structural criteria	Design stage	Design cost	NBRO, SMCA, PMU, PHDT	
	1.2	Environmental Management Plan (EMP)				
	(a)	EMP should be included as a Special Condition in the Bid Document; and EMP should be attached to contract to form part of the contract requirement	Prior to bidding	To be provided as a provisional sum and/or as part of the engineering cost	SMCA, PMU, PHDT	
2.0 Construction Phase						
	2.1	Earthwork and Soil Conservation				
	2.1.1	Site Clearance and Land Development				

Activities		Protection and preventive measures	Locations/ Project phase	Mitigation cost	Institutional Responsibility	
					Implementa tion	Supervision
		Prevention of removal of trees as far as possible. During removing, attention should be paid to maintain minimum disturbances to soil cover and also care should be taken not to damage adjoining trees. Degraded state land identified for forestry activities will be improved to compensate for the trees removed as 1:2 at least Water spraying should be done at a regular interval to avoid dust generation due to site clearance	Applicable throughout the construction areas	Engineering cost	SMCA, PMU, PHDT	FD
	2.1.2	Disposal of Debris and Spoil				
	(a)	All debris and residual spoil material including any left earth shall be disposed only at locations approved by the engineer for such purpose and subjected to the clauses 2.1.1.b and 2.1.1.c. All material that is reusable or recyclable shall be used for such purposes either by the contractor or through dealers.	Disposal sites to be identified by the contractor and approved by Engineer.	Engineering cost	Contractor	SMCA, PMU, PHDT Engineer to the sub-project
	(b)	The contractor shall obtain the approval from the relevant Local Authority such as Prdeshiya Sabha, Municipal Council and other government agencies (as required) for disposal and spoil at the specified location, as directed by the Engineer Private land that will be selected for disposal should also require written consent from the land owner				
	(c)	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 runoff and (iii) should not be a nuisance to the public				
	(d)	The debris and residual spoil material including any left earth shall be used, to refill the burrow areas as directed by the engineer, subjected to laying of topsoil as per EMP clause 2.1.2.	All burrow sites (licensed sites) identified by contractor and approved by engineer.			
	(e)	Excavated earth materials and all debris materials shall be disposed immediately without allowing to stockpile at identified locations for debris	Applicable throughout the			

Activities		Protection and preventive measures	Locations/ Project phase	Mitigation cost	Institutional Responsibility	
					Implementa tion	Supervision
		disposal, recommended by the engineer. During transportation, dispose materials should be covered with tarpaulin.	project sites			
	(f)	If approved by the engineer, contractor can dispose the debris and spoil as a filling material provided that the contractor can ensure that such material is used for legally acceptable purposes with disposed in an environmentally acceptable manner.	In identified filling sites subjected to the approval of engineer			
	2.1.2	Conservation and reuse of top soil				
	(a)	Top soil of the agricultural areas and any other productive areas where it has to be removed for the purpose of this project shall be stripped to a specified depth of 150mm and stored in stockpiles of height not exceeding 2m, if directed by the engineer. If the contractor is in any doubt on whether to conserve the topsoil or not for any given area he shall obtain the direction from the engineer in writing	Within the project sites where topsoil from productive land to be removed	Engineering cost	Contractor	SMCA, PMU, PHDT Engineer to the sub-project
	(b)	Removed top soil could be used as a productive soil when replanting/establishing vegetation	Site(s) identified for replantation program			
	(c)	Stockpiled topsoil must be returned to cover the areas including cut slopes where the topsoil has been removed due to project activities. Residual topsoil must be distributed on adjoining/proximate barren areas as identified by the engineer in a layer of thickness of 75mm – 150mm.	Within the project sites where slope stabilization is carried out and/or on barren land			
	(d)	Topsoil thus stockpiled for reuse shall not be surcharged or overburdened. As far as possible multiple handling of topsoil stockpiles should be kept to a minimum.	Locations where topsoil is stockpiled for reuse	-		
	2.1.3	Protection of Ground Cover and Vegetation				
	(a)	Construction vehicle, machinery and equipment shall be used and stationed only in the areas of work and in any other area designated/ approved by the engineer. Entry and exit of construction vehicles and machinery should be restricted to particular points as directed by the engineer	Within the project areas	-	Contractor	SMCA, PMU, PHDT Engineer to the sub-project
	(b)	Contractor should provide necessary instructions to drivers, operators and other construction workers not to destroy ground vegetation cover unnecessarily	Within the project areas			

Activities		Protection and preventive measures	Locations/ Project phase	Mitigation cost	Institutional Responsibility	
					Implementa tion	Supervision
	2.1.4	Burrowing of Earth				
	(a)	Earth available from construction site excavation works as per design, may be used as embankment materials, subject to approval of the engineer	All excavation areas and embankments	-	Contractor	SMCA, PMU, PHDT Engineer to the sub-project
	(b)	Contractor shall comply with the environmental requirements/guidelines issued by the CEA and the respective local authorities with respect of locating burrow areas and with regard to all operations related to excavation and transportation of earth from such sites. Contractor can also find suitable soil materials from currently operated licensed burrow pits in the surrounding area, subject to approval of the engineer No burrow-sites be used (current approved) or newly established within areas protected under FFPO and FO	All burrow sites identified and used by the contractor			
	(c)	Burrow areas shall not be opened without having a valid mining license from the GSMB. The location, depth of excavation and the extent of the pit or open cut area shall be as approved by the engineer.				
	(d)	All burrow pits/areas should be rehabilitated at the end of their use by the contractor in accordance with the requirements/guidelines issued by the CEA and the respective local authority.		Engineering cost		
	(e)	Establishment of burrow pits/areas and its operational activities shall not cause any adverse impact to the near-by properties. Also shall not be a danger of health hazard to the people.	All excavation areas, slopes and burrow sites	-		
	(f)	Contractor shall take all steps necessary to ensure the stability of slopes including those related to temporary works and burrow pits.		Engineering cost		
	2.1.5	Prevention of soil erosion				
	(a)	Debris material shall be disposed in such a manner that waterways, drainage paths would not get blocked. Drainage paths associated with the infrastructure should be improved / erected to drain rain water properly. Silt traps will be constructed to avoid siltation into water ways where necessary. To avoid siltation, drainage paths should not be directed to streams, other water bodies and sea directly and they should be separated from streams / other water	Applicable throughout project sites	Engineering cost	Contractor	SMCA, PMU, PHDT Engineer to the sub-project

Activities		Protection and preventive measures	Locations/ Project phase	Mitigation cost	Institutional Responsibility	
					Implementa tion	Supervision
		bodies / sea				
	(b)	Barricades such as humps will be erected at excavated areas for culverts, silt traps, toe walls, filling and lifting with roper sign boards, as some work in these sections will have to be stopped during heavy rains due to heavy erosion. To prevent soil erosion in these excavated areas, proper earth drain system should be introduced.	Applicable throughout project sites			
	(c)	Embankment slopes, slopes of cuts, etc. shall not be unduly exposed to erosive forces. These exposed slopes shall be graded and covered by grass or other suitable materials per the specifications. All fills, back fills and slopes should be compacted immediately to reach the specified degree of compaction and establishment of proper mulch.				
	(d)	Work that 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.		-		
	(e)	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 include the use of berms, dikes sediment basins, fiber mats, mulches, grasses, slope drains and other devices. All sedimentation and pollution control works and maintenance thereof are deemed, as incidental to the earthwork or other items of work and no separate payment will be made for their implementation.		Engineering cost		
	2.1.6	Contamination of soil by fuel and lubrications				
	(a)	Vehicle/machinery and equipment servicing and maintenance work shall be carried out only in designated locations/ service stations approved by the engineer	Servicing yards to be used for vehicle servicing	Engineering cost	Contractor	SMCA, PMU, PHDT Engineer to the

Activities		Protection and preventive measures	Locations/ Project phase	Mitigation cost	Institutional Responsibility	
					Implementation	Supervision
						sub-project
	(b)	Approval from CEA in the form of an Environmental Protection Licenses (EPL) should be secured by the contractor if he intends to prepare his own vehicle servicing yard				SMCA, PMU, PHDT Engineer to the sub-project
	(c)	Waste oil, other petroleum products and untreated wastewater shall not be discharged on ground so that to avoid soil pollution. Adequate measures shall be taken against pollution of soil by spillage of petroleum/oil products from storage tanks and containers. All waste petroleum products shall be disposed of in accordance with the guidelines issued by the CEA or the engineer.	Servicing yards to be used for vehicle servicing and locations where vehicles will be temporarily stationed			CEA
	(d)	Sites used for vehicle and plant service and maintenance shall be restored back to its initial status. Site restoration will be considered as incidental to work.	New servicing yards developed by the contractor for the project			SMCA, PMU, PHDT Engineer to the sub-project
	2.1.7	Disposal of harmful construction wastes				
	(a)	Contractor prior to the commencement of work shall provide list of harmful, hazardous and risky chemicals/ material that will be used in the project work to the Engineer. Contractor shall also provide the list of places where such chemicals/materials or their containers or other harmful materials have been dumped as waste at the end of the project.	Locations identified to store chemicals and waste disposal	-	Contractor	SMCA, PMU, PHDT Engineer to the sub-project
	(b)	All disposal sites should be approved by the engineer and approved by CEA and relevant local authority.				SMCA, PMU, PHDT Engineer to the sub-project
	(c)	The contractor shall clean up any area including water-bodies affected/contaminated (if any) as directed by the engineer at his own cost.	All affected water bodies close to material storage and waste disposal sites			CEA
	2.1.8.	Quarry operations				
	(a)	Utilizing the existing quarry sites available in the project influential area as much as possible which are approved by GSMB with valid EPL and Industrial Mining Licences;	All, quarry sites which will be used during construction	Engineering cost	Contractor	SMCA, PMU, PHDT Engineer to the

Activities		Protection and preventive measures	Locations/ Project phase	Mitigation cost	Institutional Responsibility	
					Implementa tion	Supervision
		If new quarries are to be opened, prior approval should be obtained from GSMB, CEA and local authorities such as Pradeshiya Sabha. Selected quarry sites should have proper safety measures such as warnings, safety nets etc., and third party insurance cover to protect external parties that may be affected due to blasting. Quarry sites should not be established within protected sites identified under the FFPO and FO	phase.			sub-project CEA, GSMB, local authorities
	(b)	It is recommended not to seek material from quarries that have ongoing disputes with community.		-		
	(c)	The maintenance and rehabilitation of the access roads in the event of damage by the contractors operations shall be a responsibility of the contractor.		Engineering cost		
	2.2	Storage and handling of construction material				
	2.2.1	Emission of dust				
	(a)	Storage locations of sand, metal, soil should be located away from settlements and other sensitive receptors and covered (with artificial barriers or natural vegetation). Measures given under clauses 2.5.1 (c), (d), (e) should be considered within material storage site to minimize dust during handling of material. All access roads within the storage site should be sprinkled with water for dust suspension.	At all material storage locations (stock piles of sand, gravel and metal)	Engineering cost	Contractor	SMCA, PMU, PHDT Engineer to the sub-project
	2.2.2	Storage of fuel, oil and chemicals (avoid fumes and offensive odor)				
	(a)	All cement, bitumen (barrels), oil and other chemicals should be stored and handled on an impervious surface (concrete slab) above ground level. Storage facility of cement, bitumen (barrels), oil and other chemicals should be an enclosed structure ensuring that no storm water flows in to the structure. A ridge should be placed around the storage facility to avoid runoff getting in to the structure. Adequate ventilation should be kept to avoid accumulation of fumes and offensive odor that could be harmful to material handlers. Measures given under clause 2.9 should be considered to avoid any accidents and risks to worker population and public.	At all material storage locations (cement, bitumen, fuel, oil and other chemicals used for construction activities)	Engineering cost	Contractor	SMCA, PMU, PHDT Engineer to the sub-project

Activities		Protection and preventive measures	Locations/ Project phase	Mitigation cost	Institutional Responsibility	
					Implementa tion	Supervision
	2.2.3	Transportation of material				
	(a)	<p>The contractor should avoid over loaded trucks to transport material to construction sites. During transportation, materials should be covered with tarpaulin. Avoid peak hours in roads with moderate to high traffic'; the contractor shall minimize possible public nuisance due to dust, traffic congestion, air pollution, etc., due to such haulage; If local roads are used, select routes based on the truck load; divide the load to prevent damages to local roads and bridges; observe speed limits and maintain vehicles in the good condition; transport material under cover; avoid peak hours in roads with moderate to high traffic.</p> <p>If there are damages to local roads and other utilities due to hauling in roads which were not identified during design stage, Contractor shall attends to repair all damaged infrastructure/ roads, if needed through relevant authorities</p>	Within the project locations and the vicinity	-	Contractor	SMCA, PMU, PHDT Engineer to the sub-project
	2.3	Water – Protection of Water Sources and Quality				
	2.3.1.	Loss of minor water sources and disruption to water users				
	(a)	Contractor should make employees aware on water conservation and waste minimization in the construction process.	Project sites and worker camps	-	Contractor	SMCA, PMU, PHDT Engineer to the sub-project
	(b)	<p>Arrange adequate supply of water for the project purpose throughout the construction period. Not obtain water for project purposes, including for labor camps, from public or community water supply schemes without a prior approval from the relevant authority.</p> <p>Not extract water from ground water or surface water bodies without the permission from engineer & relevant authority. Obtain the permission for extracting water prior to the commencing of the project, from the relevant authority.</p>		Engineering cost		
	(c)	Contractor shall protect sources of water (potable or otherwise) such as water sources used by the community so that continued use these water sources will not be disrupted by the work. In case the closer of such sources is required on temporary basis contractor shall provide alternative arrangement for supply. Alternative sources such as wells thus provided should be within acceptable distance to the original sources and accessible to the affected community.				

Activities		Protection and preventive measures	Locations/ Project phase	Mitigation cost	Institutional Responsibility	
					Implementa tion	Supervision
	(d)	Contractor shall not divert, close or block existing canals and streams in a manner that adversely affect downstream intakes. If diversion or closure or blocking of canals and streams is required for the execution of work, contractor must obtain the engineers approval in writing. Contractor shall also obtain the approval from the National Water Supply and Drainage Board (NWS&DB) or local authority or Divisional Secretary depending on the operating agency of the intake/water supply. Contractor shall restore the drainage path back to its original status once the need for such diversion or closure or blockage ceased to exist. During the affected period contractor shall supply water to the affected community.	Waterways located in the surrounding areas of road sections or the contractor's work sites.			
	(e)	In case the contractors activities going to adversely affect the quantity or quality of water, the contractor shall serve notice to the relevant authorities and downstream users of water sufficiently in advance.	Project sites			
	(f)	Apply best management practices to control contamination of run-off water during maintenance & operation of equipment. Maintain adequate distance between stockpiles & water bodies to control effects to natural drainage paths.	construction sites, material and soil storage areas, and equipment and machinery service areas			
	2.3.2	Siltation into water bodies				
	(a)	Contractor shall take measures to prevent siltation of water bodies as a result of construction work including, construction of temporary / permanent devices to prevent water pollution due to siltation and increase of turbidity. These shall include the measures against erosion as per EMP 2.1.6.	All water bodies located around the project areas	Engineering cost	Contractor	SMCA, PMU, PHDT Engineer to the sub-project
	(b)	Construction materials containing small / fine particles shall be stored in places not subjected to flooding and in such a manner that these materials will not be washed away by runoff.				
	(c)	Temporary soil dumps should be placed at least 200m away from all water bodies				
	(d)	If temporary soil piles are left at the site for a long time those piles should be covered with thick polythene sheets				

Activities		Protection and preventive measures	Locations/ Project phase	Mitigation cost	Institutional Responsibility	
					Implementa tion	Supervision
	(e)	All fills, back fills and slopes should be compacted immediately to reach the specified degree of compaction and establishment of proper mulch				
	2.3.3	Alteration of drainage paths				
	(a)	Contractor shall not close or block existing canals and streams permanently. If diversion or closure or blocking of canals and streams is required for the execution of work (e.g. for construction of bypass), contractor must first obtain the Engineers approval in writing. Contractor shall carry out an investigation and report to the Engineer, if an investigation is requested by the Engineer. Contractor shall also obtain the approval from the relevant agencies such as ID/ /Divisional Secretary prior to such action is taken. Contractors shall restore the drainage path back to its original status once the need for such diversion or closure or blockage is no longer required.	All drainage paths impacted by the project activities	Engineering cost	Contractor	SMCA, PMU, PHDT Engineer to the sub-project
	(b)	The debris and spoil shall be disposed in such a manner that waterways and drainage paths are not blocked.				
	(c)	Avoid/ minimize construction works near/ at such drainage locations during heavy rain seasons such as monsoon rain periods.				
	2.3.4.	Contamination of water from construction wastes				
	(a)	The work shall be carried out in such a manner that pollution of natural water courses rivers, lagoons, sea and other minor stream paths located within construction areas or downstream. Measures as given in 2.1.6., 2.1.7, 2.1.8, 2.3.2 and 2.3.6 clauses shall be taken to prevent the wastewater produced in construction from entering directly into streams, water bodies or the irrigation systems.	At all water courses located adjacent construction sites and downstream	Engineering cost	Contractor	SMCA, PMU, PHDT Engineer to the sub-project
	(b)	Avoid / minimize construction works near / at such drainage locations during heavy rainy seasons	At all water courses located adjacent construction sites	-		
	(c)	The discharge standards promulgated under the National Environmental Act shall be strictly adhered to. All waste arising from the project is to be disposed in a manner that is acceptable to the engineer and as per the guidelines/instructions issued by the CEA.	At all water courses located adjacent construction sites and downstream	Engineering cost		

Activities		Protection and preventive measures	Locations/ Project phase	Mitigation cost	Institutional Responsibility	
					Implementa tion	Supervision
	2.3.5.	Contamination from fuel and lubricants				
	(a)	All vehicle and plant maintenance and servicing stations shall be located and operated as per the conditions and /or guidelines stipulated under the EPL issued by CEA. In general these should be located at least 200m away from water bodies and wastewater shall not be disposed without meeting the disposal standards of the CEA. Wastewater from vehicle and plant maintenance and servicing stations shall be cleared of oil and grease and other contaminants to meet the relevant standards before discharging to the environment.	Vehicle and plant maintenance and servicing centers	Engineering cost	Contractor	SMCA, PMU, PHDT Engineer to the sub-project
	(b)	Vehicle, machinery and equipment maintenance and re-filling shall be done as required in EMP clause 2.1.6. to prevent water pollution as well	Yards, servicing centers			
	2.3.6.	Locating, sanitation and waste disposal in construction camps				
	(a)	Locations selected for labor camps should be approved by engineer and comply with guidelines/ recommendations issued by the CEA/Local Authority. Construction of laborer camps shall not be located within 200m from waterways or near to a site or premises of religious, cultural or archeological importance and school.	At all labor camps	Engineering cost	Contractor	SMCA, PMU, PHDT Engineer to the sub-project
	(b)	Labor 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 the camps and regularly emptied. Garbage should be disposed of in a hygienic manner, to the satisfaction of the relevant norms. Compliance with the relevant regulations and guidelines issued by the CEA/LA shall be strictly adhered to.				
	(c)	Contractor shall ensure that all camps are kept clean and hygienic. Necessary measures shall be taken to prevent breeding of vectors				
	(d)	Contractor shall report any outbreak of infectious disease of importance in a labor camp to the engineer and the Medical Officer of Health (MOH) or to the Public Health Inspector (PHI) of the area immediately. Contractor shall carry out all instructions issued by the authorities, if any.		-		
	(e)	Contractor shall adhere to the CEA recommendations on disposal of wastewater. Wastewater shall not be discharged to ground or waterways in a		-		

Activities		Protection and preventive measures	Locations/ Project phase	Mitigation cost	Institutional Responsibility	
					Implementa tion	Supervision
		manner that will cause unacceptable surface or ground water pollution.				
	(f)	All relevant provisions of the Factories Act and any other relevant regulations aimed at safety and health of workers shall be adhered to.		-		
	(g)	Contractor should remove all labor camps fully after its need is over, empty septic tanks, remove all garbage, debris and clean and restore the area back to its former condition. A consent letter from the land owner should be obtained that certifies the decommissioning has taken place to the level acceptable to the land owner		Engineering cost		
	2.3.7.	Wastage of water and waste minimization				
	(a)	The contractor will minimize wastage of water in the construction process/operations by reusing water as much as possible, utilizing only the required amount of water for the construction works etc...	Within project sites and labor camps	-	Contractor	SMCA, PMU, PHDT Engineer to the sub-project
	(b)	The contractor shall educate and made employees aware on water conservation, waste minimization and safe disposal of waste following guidelines given by CEA and LA.				
	2.3.8.	Extraction of water				
	(a)	The contractor is responsible for arranging adequate supply of water for the project purpose throughout the construction period. Contractor shall not obtain water for his purposes including for labor camps from public or community water supplies without approval from the relevant authority. Such extraction (if approved) should be under direct supervision of the engineer	Within project sites and labor camps	Engineering cost	Contractor	SMCA, PMU, PHDT Engineer to the sub-project
	(b)	Extraction of water by the contractor for the project purposes shall comply with the guidelines and instructions issued by relevant authority. The Contractor shall not extract water from groundwater or from surface water-bodies without permission from the Engineer.		-		
	(c)	Construction over and close to rivers, minor streams and lagoon shall be undertaken in dry season.	All drainage and irrigation activities			
	(d)	The Contractor may use the natural sources of water subject to the provision that any claim arising out of conflicts with other users of the said natural	At all natural water sources used for			

Activities		Protection and preventive measures	Locations/ Project phase	Mitigation cost	Institutional Responsibility	
					Implementa tion	Supervision
		sources of water shall be made good entirely by the contractor	construction works			
2.4.	Flood Prevention					
	2.4.1.	Blockage of drainage paths and drains				
	(a)	Contractor's activities shall not lead to flooding conditions as a result of blocked drainage paths and drains. The contractor shall take all measures necessary or as directed by the Engineer to keep all drainage paths and drains clear of blockage at all times.	All construction work sites	Engineering cost	Contractor	SMCA, PMU, PHDT Engineer to the sub-project
	(b)	If flooding or stagnation of water is caused by contractor's activities, contractors shall provide suitable means to (a) prevent loss of access to any land or property and (b) prevent damage to land and property. Contractor shall compensate for any loss of income or damage as a result.				
	2.4.2	Work in Flood Prone Areas				
	(a)	Contractor's activities shall not lead to aggravate floods in flood prone areas when working in flood prone areas.	All construction work sites and their impacts areas	-	Contractor	SMCA, PMU, PHDT Engineer to the sub-project
	(b)	When working in flood prone areas during rainy season the contractor shall avoid storing materials, chemicals and other items of work in areas where those can be washed away by the floods.				
	2.5	Air Pollution				
	2.5.1.	Generation of Dust				
	(a)	The contractor shall effectively manage the dust generating activities such as topsoil removal, handling and transporting sand, rubble, bitumen, and cement during periods of high winds or during more stable conditions with winds directed towards adjacent residences and other facilities.	Within the construction area where earth work will take place, storage locations of sand, rubble, bitumen, cement and all sub roads used for material transportation, paying special	Engineering cost	Contractor	SMCA, PMU, PHDT Engineer to the sub-project
	(b)	All stockpiles shall be located sufficiently away from sensitive receptors.				
	(c)	All vehicles delivering materials shall be covered to avoid spillage and dust emission.				
	(d)	The Contractor should avoid, where possible and take suitable action to prevent dirt and mud being carried to the roadway (particularly following wet weather).				
	(e)	The contractor should enforce vehicle speed limits to minimize dust generation.				
	(f)	The Contractor shall employ a water truck to sprinkle water for dust				

Activities		Protection and preventive measures	Locations/ Project phase	Mitigation cost	Institutional Responsibility	
					Implementa tion	Supervision
		suppression on all exposed areas as required (note: the use of waste water / waste oil for dust suppression is prohibited)	attention to sensitive locations.			
	(g)	All cleared areas shall be rehabilitated progressively.				
	(h)	All earthwork shall be protected in a manner acceptable to the minimize generation of dust.				
	(i)	All existing roads used by vehicles of the contractor, or any of his sub-contractor or supplies of materials or plant and similar roads which are part of the works shall be kept clean and clear of all dust/mud or other extraneous materials dropped by such vehicles or their tires.				
	(j)	Clearance shall be affected immediately by manual sweeping and removal of debris, or, if so directed by the Engineer, by mechanical sweeping and clearing equipment. Additionally, if so directed by the Engineer, the road surface will be hosed or sprinkled water using appropriate equipment.				
	(k)	Plants, machinery and equipment shall be handled (including dismantling) so as to minimize generation of dust.				
	(l)	The contractor shall take every precaution to reduce the level of dust emission from the hot mix plants and the batching plants up to the satisfaction of the Engineer in accordance with the relevant emission norms.				
	2.5.2	Emission from Hot-Mix Plants and Batching Plants				
	(a)	The hot mix plants and batching plants shall be sited in accordance with CEA guidelines. It is recommended that hot mix plants and batching plants to be located sufficiently away from sensitive receptors such as vulnerable habitats, religious and cultural sites, residential areas, schools and industrial areas	Locations at which hot mix plant/s and concrete batching plant/s to be located	-	Contractor	SMCA, PMU, PHDT Engineer to the sub-project CEA
	(b)	The exhaust gases shall comply with the requirements of the relevant current emission control legislation. All operations at plants shall be undertaken in accordance with all current rules and regulations protecting the environment as well as the conditions given in the EPL.				
	(c)	The hot mix plant be sited in accordance with CEA guidelines and operated with an EPL. The hot mix plants shall be fitted with the requirements of the relevant current emission control legislation. Road side mixing should be avoided				

Activities		Protection and preventive measures	Locations/ Project phase	Mitigation cost	Institutional Responsibility	
					Implementa tion	Supervision
	2.5.3.	Odor and offensive smells				
	(a)	Contractor shall take all precautions such as storing all chemicals used for construction works in properly closed containers with good ventilations to prevent odor and offensive smell emanating from chemicals and processes applied in construction works or from labor camps. In a situation when/where odor or offensive smell does occur contractor shall take immediate action to rectify the situation. Contractor is responsible for any compensation involved with any health issue arisen out of bad odor and offensive smells.	Within construction and work sites including all sites used for store all chemicals and places where chemical reactions take place.	Engineering cost	Contractor	SMCA, PMU, PHDT Engineer to the sub-project, CEA
	(b)	The waste disposal and sewerage treatment system for the labor camps shall be properly designed, built and operated so that no odor is generated. Compliance with the regulations on health and safety as well as CEA and LA guidelines shall be strictly adhered to.	At all labor camps			
	2.5.4.	Emission from construction Vehicles, Equipment and Machinery				
	(a)	The emission standards promulgated under the National Environment Act shall be strictly adhered to.	All plants, machinery and vehicles used for construction	-	Contractor	SMCA, PMU, PHDT Engineer to the sub-project ,CEA
	(b)	All vehicles, equipment and machinery used for construction shall be regularly serviced and well maintained to ensure that emission levels comply with the relevant standards.		Engineering cost		
	(c)	Contractor should obtain the certificate issued by the Vehicular Emission Test (VET) for all construction vehicles, plants and other machineries and it should be renewed annually				
	2.5.5.	Air Pollution from Crusher				
	(a)	Crusher plants should operate under an EPL and shall confirm to relevant dust emission levels as stated in the EPL. Only the quarries approved by GSMB and holding current EPL shall be used for material extraction.	Location of crusher plants	-	Contractor	SMCA, PMU, PHDT Engineer to the sub-project
	(b)	Crushing plants shall be sited sufficiently away from sensitive receptors such as houses, place of worships and outdoor recreation areas (locations given under item 2.4.1) or as required by the Engineer.				
	(c)	Sprinkling of water (through a sprinkler system) for dust suppression.		Engineering		

Activities		Protection and preventive measures	Locations/ Project phase	Mitigation cost	Institutional Responsibility	
				cost	Implementa tion	Supervision
				cost		
	2.6	Noise Pollution and Vibration				
	2.6.1	Noise from Vehicles, Plants and Equipment.				
	(a)	All machinery and equipment should be well maintained and fitted with noise reduction devices in accordance with manufacturer’s instructions.	All machinery and vehicles used for construction works	Engineering cost	Contractor	SMCA, PMU, PHDT Engineer to the sub-project, CEA
	(b)	In construction sites within 150 m of the nearest habitation, noisy construction work such as crushing, concrete mixing and batching, mechanical compaction, etc., will be stopped between 20.00 hours to 06.00 hours. No construction shall take place within 100m around hospitals between 20.00 hours to 06.00 hours. Near noise sensitive sites, such as schools noisy equipment shall not be used during noise sensitive times of the day.	Within the construction sites and their vicinity	-		
	(c)	All vehicles and equipment used in construction shall be fitted with exhaust silences. During routine servicing operations, the effectiveness of exhaust silencers shall be checked and if found to be defective shall be replaced. Notwithstanding any other conditions of contract, noise level from any item of plant(s) must comply with the relevant legislation for levels of sound emission. Non-compliant plant shall be removed from site.		Engineering cost		
	(d)	Noise limits for construction equipment used in this project (measured at one meter from the edge of the equipment in free field) such as compactors, rollers, front loaders, concrete mixers, cranes (moveable), vibrators, and saws shall not exceed 75 dB(A).		-		
	(e)	Maintenance of vehicles, equipment and machinery shall be regular and proper, to the satisfaction of the Engineer, to keep noise from these at a minimum.	Within the construction sites and their vicinity	Engineering cost		
	(f)	Workers in vicinity of strong noise, and workers working with or in crushing, compaction, batching or concrete mixing operations shall be provided with protective gear.				
	2.6.2	Vibration				
	(a)	Contractor shall take appropriate action to ensure that construction works do not result in damage to adjacent properties due to vibration.	Within the construction sites	-	Contractor	SMCA, PMU, PHDT

Activities		Protection and preventive measures	Locations/ Project phase	Mitigation cost	Institutional Responsibility	
					Implementa tion	Supervision
	(b)	Prior to commencement of excavation, blasting activity, the Contractor shall undertake a condition survey of existing structures within the zone of influence, as agreed with the relevant government agencies and the engineer.	and their vicinity			Engineer to the sub-project, CEA
	(c)	Contractor shall carry out monitoring at the nearest vibration sensitive receptor during blasting or when other equipment causing vibrations are used.				
	(d)	The contractor shall modify the method of construction until compliance with the criteria, if vibration levels exceed the relevant vibration criteria.				
	(e)	Contractor shall pay due consideration on vibration impacts of blasting on adjoining structures. Explosive loads shall be determined so that excessive vibration can be avoided and blasts shall be controlled blasting in nature. Notwithstanding to these provisions contractor is liable for any damage caused by blasting work.				
	2.6.3	Noise from Blasting or Pre splitting Operations				
	(a)	Blasting shall be carried out during fixed hours (preferably during mid-day), as permitted by the Engineer. The timing should be made known to all the people within 500 m (200 m for pre-splitting) from the blasting site in all directions. People, except those who actually light the fuse shall be excluded from the area of 200 m (50 m for pre-splitting) from the blasting site in all directions at least 10m minutes before the blasting. Use chemical blasting where rocks have to be removed for landslide mitigation measures	At quarry sites and landslide mitigation sites	-	Contractor	SMCA, PMU, PHDT Engineer to the sub-project t, GSMB
	2.7	Impacts to Flora				
	2.7.1	Loss or Damage to Trees and Vegetation				
	(a)	All works shall be carried out in a manner that the destruction to the flora and their habitats is minimised. Trees and vegetation shall be felled / removed only if that impinges directly on the permanent works or necessary temporary works. In all such cases contractor shall take prior approval from the Engineer.	All project sites	-	Contractor	SMCA, PMU, PHDT Engineer to the sub-project FD, CEA
	(b)	Contractor shall make every effort to avoid removal and/or destruction of trees				

Activities		Protection and preventive measures	Locations/ Project phase	Mitigation cost	Institutional Responsibility	
					Implementa tion	Supervision
		of religious, cultural and aesthetic significance. If such action is unavoidable the Engineer shall be informed in advance and carry out public consultation and report on the same should be submitted to the Engineer.				
	(c)	Contractor shall adhere to the guidelines and recommendations made by the Central Environmental Authority, if any with regard to felling of trees and removal of vegetation.				
	(d)	Removed trees must be handed over to the Timber Corporation.				
	(e)	The contractor shall plant over 5 year old root-balled native trees suitable for the location as identified by the Engineer. The planting should take place in public land suitable for the purpose The contractor shall build hardy structures around the trees for protection. The contractor shall be responsible for ensuring the well-being of the trees/plants until the end of the contract	Indicative number of trees / plants and indicative number of planting structures necessary are to be identified by the contractor. Planting should take place as soon as the plant removal takes place	Engineering cost		
	2.7.2	Chance finds of important Flora				
	(a)	During construction, if a rare/threatened/endangered flora species is found, it shall be immediately informed to the PMU by the contractor through the engineer. All activities that could destroy such flora and/or its habitat shall be stopped with immediate effect. Such activities shall be started only after obtaining the Engineer’s approval. Contractor shall carry out all activities and plans that the Engineer instructed him to undertake to conserve such flora and/or its habitat.	All project sites	-	Contractor	SMCA, PMU, PHDT Engineer to the sub-project, FD, DWLC
2.8.	Impact on Fauna					
	2.8.1.	Loss, Damage or Disruption to Fauna				
	(a)	All works shall be carried out in such a manner that the destruction or disruption to the fauna and their habitats is minimum.	All project sites	-	Contractor	SMCA, PMU, PHDT Engineer to the sub-project,
	(b)	Construction workers shall be instructed to protect fauna including wild				

Activities		Protection and preventive measures	Locations/ Project phase	Mitigation cost	Institutional Responsibility	
					Implementa tion	Supervision
		animals and aquatic life as well as their habitats. Hunting, poaching and unauthorized fishing by project workers is not allowed.				FD, DWLC
	(d)	Siting of all hot mix plants, crushing plants, workshops, depots and temporary worker camps and storing of toxic and hazardous materials at approved locations, and recycling and dumping of solid waste matter at locations approved by local authorities, maintenance of vehicles and equipment in good operable condition, ensuring no leakage of oil or fuel and the fitting of proper exhaust baffles. Any solid waste should not be dumped into natural habitats.	Locations selected for erecting the asphalt, crusher and concrete batching plants and workshops	Engineering cost		
	2.8.2	Chance found important Fauna				
	(a)	During construction, if a rare/threatened/endangered fauna species is found, it shall be immediately informed to the PMU by the contractor. All activities that could destroy such fauna and/or its habitat shall be stopped with immediate effect. Such activities shall be started only after obtaining the Engineer’s approval. Contractor shall carry out all activities and plans that the Engineer instructed him to undertake to conserve such fauna and/or its habitat.	All project sites	-	Contractor	SMCA, PMU, PHDT Engineer to the sub-project, FD, DWLC
	2.9	Disruption to people				
	2.9.1	Loss of Access				
	(a)	At all times, the Contractor shall provide safe and convenient passage for vehicles, pedestrians and livestock. Work that affects the use of existing accesses shall not be undertaken without providing adequate provisions to the prior satisfaction of the Engineer.	All project sites	Engineering cost	Contractor	SMCA, PMU, PHDT Engineer to the sub-project, FD, DWLC
	(b)	The works shall not interfere unnecessarily or improperly and ensure convenience of public at all times		-		
	(c)	On completion of the works, all temporary obstructions to access shall be cleared away, all rubbish and piles of debris that obstruct access be cleared to the satisfaction of the Engineer.		Engineering cost		
	(d)	Providing advance information to the public about the planned construction works and activities causing disruption to access and the temporary arrangements made to give relief to public in order to avoid any inconveniences due to the construction activities.				
	2.9.3	Traffic Control and Safety				

Activities		Protection and preventive measures	Locations/ Project phase	Mitigation cost	Institutional Responsibility	
					Implementa tion	Supervision
	(a)	The Contractor shall take all necessary measures for the safety of traffic during construction and provide, erect and maintain such barricades, including signs, markings, flags, lights and flagmen as may be required by the Engineer for the information and protection of traffic approaching or passing through the section of the highway under improvement. The provision of traffic safety measures shall be considered incidental to work and follow The Institute for Construction Training and Development (ICTAD) guidelines and instructions given by the Police, if any.	Road-side construction sites	Engineering cost	Contractor	SMCA, PMU, PHDT Engineer to the sub-project
	(b)	Informing the public through newspapers/ announcements/ radio/ TV etc. about the construction activities in order to avoid any inconveniences due to the construction activities.	Project influence area			
	2.10	Accidents and Risks				
	2.10.1	Public and Worker safety				
	(a)	All reasonable precautions will be taken to prevent danger of the workers and the public from accidents such as fire, explosions, blasts, falling rocks, falling to excavated pits, chemical sprays, unsafe power supply lines etc.	Construction areas, material storage and worker camps	Engineering cost	Contractor	SMCA, PMU, PHDT Engineer to the sub-project Engineer to the sub-project
	(b)	The Contractor shall comply with requirements for the safety of the workmen as per the international labor organization (ILO) convention No. 62 and Safety and Health regulations of the Factory Ordinance of Sri Lanka to the extent that those are applicable to this contract. The contractor shall supply all necessary safety appliances such as safety goggles, helmets, masks, boots, etc., to the workers and staff. The contractor has to comply with all regulations regarding safe scaffolding, ladders, working platforms, gangway, excavations, trenches and safe means of entry and egress.				

Activities		Protection and preventive measures	Locations/ Project phase	Mitigation cost	Institutional Responsibility	
					Implementa tion	Supervision
	(c)	Construction activities on existing ECD facilities where operation is underway should be conducted post times of operation, post operational hours of the center if on the same site.				
	2.10.2	Prevention of Risks of Electrocutation				
	(a)	All electrical wiring and supply related work should confirm to British Standards (BS) or relevant Sri Lankan Standards. Adequate precautions will be taken to prevent danger of electrocuting from electrical equipment and power supply lines including distribution boards, transformers, etc. Measures such as danger signboards, danger/red lights, fencing and lights will be provided to protect the public and workers. All electric power driven machines to be used in the construction shall be free from defect, be properly maintained and kept in good working order, be regularly inspected and as per BS provisions and to the satisfaction of the Engineer.	Construction areas, material storage and worker camps	Engineering cost	Contractor	SMCA, PMU, PHDT Engineer to the sub-project
	2.10.3	Risk at Hazardous Activity				
	(a)	All workers employed in hazardous activities shall be provided with necessary protective gear. These activities include mixing asphalt material, cement, lime mortars, concrete etc., welding work, work at crushing plants, blasting work, operators of machinery and equipment such as power saws, etc.	Construction areas, material storage and worker camps	Engineering cost	Contractor	SMCA, PMU, PHDT Engineer to the sub-project
	(b)	The use of any toxic chemical shall be strictly in accordance with the manufacturer's instructions. The Engineer shall be notified of toxic chemicals that are planned to be used in all contract related activities. A register of all toxic chemicals delivered to the site shall be kept and maintained up to date by the Contractor. The register shall include the trade name, physical properties and characteristics, chemical ingredients, health and safety hazard information, safe handling and storage procedures, and emergency and first aid procedures for the product.				

Activities		Protection and preventive measures	Locations/ Project phase	Mitigation cost	Institutional Responsibility	
					Implementa tion	Supervision
	2.10.4	Lead Pollution				
	(a)	No paint containing lead or lead products will be used except in the form of paste or readymade paint. Facemasks shall be supplied to workers who are working in spray painting or scraping lead paints.	Workshops, yards where spray painting is done	-	Contractor	SMCA, PMU, PHDT Engineer to the sub-project
	2.10.5	Handling of Explosives				
	(a)	Except as provided in the contract or ordered or authorized by the Engineer, the Contractor shall not use explosives. Where the use of explosives is so provided or ordered or authorized, the Contractor shall comply with the requirements of the following Sub-Clauses of this Clause besides the law of the land as applicable.	All locations where blasting activities will commence	-	Contractor	SMCA, PMU, PHDT Engineer to the sub-project
	(b)	The Contractor shall at all times take every possible precaution and shall comply with relevant laws and regulations relating to the importation, handling, transportation, storage and use of explosives. Contractor shall obtain Ministry of Defense (MoD) approval for importing and handling explosives and keep the Local Police informed of the same.		Engineering cost		SMCA, PMU, PHDT Engineer to the sub-project
	2.11	Health and Safety				
	2.11.1	Prevention of Vector based Diseases				
	(a)	Contractor shall take necessary actions to prevent breeding of mosquitoes at places of work, labor camps, plus office and store buildings. Stagnation of water in all areas including gutters, used and empty cans, containers, tires, etc. shall be prevented. Approved chemicals to destroy mosquitoes and larvae should be regularly applied. All burrow sites should be rehabilitated at the end of their use by the contractor in accordance with the requirements/guidelines issued by the Central Environmental authority and relevant local authorities	At worker camps, stores, yards	Engineering cost	Contractor	SMCA, PMU, PHDT Engineer to the sub-project
	(b)	Contractor shall keep all places of work, labor camps, plus office and store buildings clean devoid of garbage to prevent breeding of rats and other vectors such as flies.				
	2.11.2	Workers Health and Safety				
	(a)	Contractor shall comply with the provisions in Health and Safety regulations	Within construction	-	Contractor	SMCA, PMU,

Activities		Protection and preventive measures	Locations/ Project phase	Mitigation cost	Institutional Responsibility	
					Implementation	Supervision
		under the Factory Ordinance with regard to provision of health and safety measures and amenities at work place(s).	sites, workshops and worker camps			PHDT Engineer to the sub-project
	2.11.3	First Aid				
	(a)	At every workplace, first aid kit shall be provided as per the regulations. At every workplace an ambulance room containing the prescribed equipment and nursing staff shall be provided.	Within construction sites, quarry, crusher, concrete batching plants, workshops and worker camps	Engineering cost	Contractor	SMCA, PMU, PHDT Engineer to the sub-project
	2.11.4	Potable Water				
	(a)	In every workplace and labor camps portable water shall be available throughout the day in sufficient quantities.	Within construction sites, quarry, crusher, concrete batching plants, workshops and worker camps	Engineering cost	Contractor	SMCA, PMU, PHDT Engineer to the sub-project
	2.11.5	Hygiene				
	(a)	The contractor shall provide and maintain necessary (temporary) living accommodation and ancillary facilities for labour to standards and scale approved by the engineer.	Worker camps and temporary sheds at work sites	Engineering cost	Contractor	SMCA, PMU, PHDT Engineer to the sub-project
	(b)	At every workplace and labor camps sufficient number of bathing facilities, latrines and urinals shall be provided in accordance with the Health and Safety regulations and/or as directed by the Engineer. These bathroom and toilet facilities shall be suitably located within the workplace/buildings. Latrines shall be cleaned at least three times daily in the morning, midday and evening and kept in a strict sanitary condition. If women are employed, separate latrines and urinals, screened from those for men and marked in the vernacular shall be provided. There shall be adequate supply of water, within and close to latrines and urinals.				
	(c)	The sewage system for the camp must be properly designed, built and operated				

Activities		Protection and preventive measures	Locations/ Project phase	Mitigation cost	Institutional Responsibility	
					Implementa tion	Supervision
		so that no health hazard occurs and no pollution to the air, ground or adjacent watercourses takes place.				
	(d)	Garbage bins must be provided in the camp, work sites and regularly emptied and the garbage disposed of in a hygienic manner. Construction camps shall have a clean hygienic environment and adequate health care shall be provided for the work force.				
	(e)	Unless otherwise arranged for by the Local Authority, the contractor shall arrange proper disposal of sludge from septic tanks. The contractor shall obtain approval for such disposal from the Public Health Inspector of the area.				
	2.12	Protection of Archaeological, Cultural and Religious Places and Properties				
	2.12.1	Prevention of damage to Cultural and Religious Places and Properties				
	(a)	During construction activities the contractor should take all necessary and adequate care to minimize impacts on cultural properties which includes cultural sites and remains, places of worship. Workers should not be allowed to trespass in to such areas.	Near physical cultural resources	-	Contractor	SMCA, PMU, PHDT Engineer to the sub-project, Department of Archeology, religious leaders
	2.12.2	Chance finds of Archaeological property				
	(a)	All fossils, coins, articles of value of antiquity and structures and other remains or things of geological or archaeological interest etc. discovered on the site and/or during construction work shall be the property of the Government of Sri Lanka, and shall be dealt with as per provisions of Antiquities Ordinance of 1940 (Revised in 1956 & 1998)	In all project sites	-	Contractor	SMCA, PMU, PHDT Engineer to the sub-project, Department of Archeology
	(b)	The contractor shall take reasonable precaution to prevent his workmen or any other persons from removing and damaging any such article or thing and shall, immediately upon discovery thereof and before removal acquaint the Engineer of such discovery and carry out the Engineer's instructions for dealing with the same, awaiting which all work shall be stopped within 100m in all directions from the site of discovery.		Engineering cost		

Activities		Protection and preventive measures	Locations/ Project phase	Mitigation cost	Institutional Responsibility	
					Implementa tion	Supervision
	(c)	If directed by the Engineers the Contractor shall obtain advice and assistance from the Department of Archaeological of Sri Lanka on conservation measures to be taken with regard to the artefacts prior to recommencement of work in the area.				
	2.13	Environmental Enhancement				
	2.13.1	Landscaping				
	(a)	Landscape plantation, re-vegetation of road embankments and other slopes, edge treatment of water bodies shall be taken up as per either detailed design or typical design guidelines given as part of the Bid Documents. The contractor also shall remove all debris, piles of unwanted earth, spoil material, away from the roadsides and from other work places and disposed at locations designated or acceptable to the Engineer or as per Clause 2.1.1.	All project sites and associated sites	Engineering cost	Contractor	SMCA, PMU, PHDT Engineer to the sub-project
	(b)	On completion of the works, the temporary structures shall be cleared away in full, all rubbish burnt, waste dumps and septic tank shall be filled and closed and roadsides, workplaces and labor camps, cleared and cleaned.				
	2.13.2	Utilities and Roadside Amenities				
	(a)	Contractor shall take care not to damage/destroy or affect the functional purposes of utilities such as water, electricity, telephone posts. The arrangements the contractor made with those service providers shall be informed to the Engineer in writing (advance work). Contractor shall assist the service providers in whatever possible manner to minimize disruption to such services.	At all locations where electricity, telecommunication and water supply lines need to be shifted	-	Contractor	SMCA, PMU, PHDT Engineer to the sub-project
	(b)	In case of an inadvertent damage cause to a utility, the contractor shall immediately inform the service provider and help to restore the service without delay.	All project sites			
	2.13.3	Safety signage				
	(a)	Safety signage for slope/landslide protection structures will be provided as appropriate	Sites where slope/landslide protection takes place	Engineering cost	Contractor	SMCA, PMU, PHDT Engineer to the sub-project
	2.14	Handling Environmental Issues during Construction				

Activities		Protection and preventive measures	Locations/ Project phase	Mitigation cost	Institutional Responsibility	
					Implementa tion	Supervision
	(a)	For large contracts, the Contractor will appoint a suitably qualified Environmental Officer following the award of the contract. The Environmental Officer will be the primary point of contact for assistance with all environmental issues during the pre-construction and construction phases. He/ She shall be responsible for ensuring the implementation of EMP.	Relevant construction sites during the construction period	Engineering cost	Contractor	SMCA, PMU, PHDT Engineer to the sub-project
	(b)	The Contractor shall appoint a person responsible for community liaison and to handle public complaints regarding environmental/ social related matters. All public complaints will be entered into the Complaints Register. The Environmental Officer will promptly investigate and review environmental complaints and implement the appropriate corrective actions to arrest or mitigate the cause of the complaints. A register of all complaints is to be passed to the Engineer within 24 hrs. they are received, with the action taken by the Environmental Officer on complains thereof.				
	(c)	Contractor shall develop suitable method to receive complaints. The complaint register shall be placed at a convenient place, easily accessible by the public.				
	(d)	Contractor shall prepare detailed Environmental Method Statement (EMS) clearly stating the approach, actions and manner in which the EMP is implemented. It is required from the contractor to prepare the EMS for each work site, if work will be carried out at more than one site at once and time plan for implementation. The EMS shall be updated regularly and submit for Engineers review.				
3.0 Operational stage						
	3.1	Hygienic Conditions				
	(a)	Regular clearing/ cleaning and maintenance of the ECD center should be conducted, especially of Kitchens and Sanitary facilities in order to maintain hygienic conditions.	All ECD centers supported by the project	Maintenanc e cost	ECD Center Operator	LA/PS/SMCA/ PHDT
	3.2	Solid Waste Management				
	(a)	Solid Waste should be collected in covered bins and arrangements should be made with the LA for removal of solid waste from the site as per the set solid waste management scheme in the area.	In all project sites	Maintenanc e cost	ECD Center Operator	LA/PS/SMCA/ PHDT
	3.3	Mosquitoes and Vector Breeding				

Activities		Protection and preventive measures	Locations/ Project phase	Mitigation cost	Institutional Responsibility	
					Implementa tion	Supervision
	(a)	Regular checks should be conducted to ensure that there is no storm water collection and stagnation at the site which will facilitate the breeding of mosquitoes. Clearing should be conducted accordingly to prevent collection and stagnation of water.	In all project sites	Maintenanc e cost	ECD Center Operator	LA/PS/SMCA/ PHDT

5 ENVIRONMENTAL MANAGEMENT FRAMEWORK

The environmental management framework (EMF) outlines the framework for planning, implementation and monitoring of environmental management measures required to ensure that potential adverse environmental impacts from the project activities are eliminated, offset, or reduced to an acceptable level. At the same time, it is expected that the framework will help the project enhance environmental benefits from the project interventions. The EMF has been built on relevant existing national policies, legislation, regulations and guidelines and on World Bank safeguard policy requirements.

The World Bank's safeguard policy on Environmental Assessment takes into account the natural environment, human health and safety, and social aspects as well as the impacts on surrounding environment need to be considered, these include aspects such as the prevention of water borne diseases, location of latrines in such a manner that does not pollute existing water ways etc. As a requirement under this policy, construction phase impacts that will come to be due to the construction of new structures, replacement and renovation of existing structures will need to be managed via site specific environmental management plans.

In order to avoid encouraging illegal extraction of resources required for construction, all contracts under this project will 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
- SCA/4 - Building Works (Vol I) SCA/4
 -Building Works (Vol II)
- SCA/6 - Coastal Harbor Engineering Works
- SCA/8 - Electrical & Mechanical Works
-

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 in the Environmental Management Plans (EMPs)

- i. Electromagnetic radiation– issues such as the location of telecommunication towers and consequences of permitting such towers to be built on top of school buildings, buildings near H/T cables etc.
- ii. Addressing noise pollution during construction activities.
- iii. Cultural Features preservation of culturally significant buildings.
- iv. Ecological issues of the sites
- v. Transport and access to site.
- vi. Overshadowing and access to daylight and sunlight, with possible options for passive solar design and its effect on site layouts.
- vii. External appearance (aesthetics)
- viii. Floodwater protection provisions.
- ix. Designing appropriate landscaping.
- x. Energy conservation and efficiency.
- xi. Waste disposal, salvage, re-use and recycling of materials.
- xii. Avoidance of hazardous materials.
- xiii. Safety, security and fire.
- xiv. Energy efficient lighting options.
- xv. Potential for sick building syndrome

If any land filling is required for site preparation such as filling of low lying lands a full Environmental Impact Assessment (not only an Environmental Management Plan) will be a condition for IDA financing. If any site is located near an environmentally sensitive area identified by the initial identification checklist, the Implementing Agencies will be required to undertake a full EIA and obtain the clearance from the Central Environmental Authority of Sri Lanka and IDA prior to commencing any activities in these locations.

5.1 Negative List of Activities

Environmental approach proposed is to emphasize early consideration of environmental risks and factors, avoidance of higher risks, and value-addition to the projects by timely environmental inputs and long-term sustainability of interventions. Any activity that falls within the negative list below will not be included under the project for funding.

- Any activity located in the protected area or area proposed for protection or area of known high conservation value or nearby an area, which is known to be a critical wildlife habitat (irrespective of whether or not inside a protected area). Critical wildlife habitats would essentially include habitats of globally threatened species as per the red list prepared by the IUCN and those that are listed as totally protected species in the FFPO, or project/ activity that depend on resources from those areas.

- Any activity that will require full Environmental Assessment by the Sri Lanka EIA legislation and associated regulations
- Any activity that involves cutting of trees or land clearance within 100m on either side of the banks or edge of the rivers, streams, water courses or water sources kept as riparian reserve for conservation
- Any activity that may adversely impact nationally and/or internationally renowned/ listed physical cultural resource (within 50 m of its premise).

5.2 Environmental Safeguards Processing Steps

Implementation of environmental requirements will follow the following steps closely linking with activity planning, design and implementation steps.

Step 1: Preliminary Environmental Information and Analysis

Step 2: Preparing Environmental Assessment/or Environmental Management Plan

Step 4: Environmental Clearances

Step 5: Inclusion of Environmental Specifications and Environmental Management Plan in bid documents

Step 7: Environmental Method Statements (for large investments)

Step 6: Compliance and Monitoring

Based on type of construction required, Table 1 below will provide guidance on appropriate processes to be followed. All preliminary information analysis, Environmental Assessments, Environmental Management Plans must be completed prior to awarding of contracts for construction.

Table 1. Type of Environmental Assessment required based on type of construction

Construction Type	Compliance Requirements and Tools	Responsibility
Construction of new building on existing ECD premises	Preliminary Environmental Information Analysis, Environmental Management Plan, Guidelines for construction of latrines, asbestos use (Annex 2-4)	EO,PMU,SMCA, PHDT
Construction of new ECD center on new location	Site Clearance from Relevant authority. Preliminary Environmental Information Analysis, Environmental Management Plan, Guidelines for Asbestos and Asbestos based product use in construction, Guidelines of construction of Latrines (Annex 2-4)	EO,PMU,SMCA, PHDT

Renovations to existing buildings	Preliminary Environmental Information Analysis, Adherence to existing building codes and practices and Environmental Management Plan, (Annex 4)	EO,PMU,SMCA, PHDT
Extensions to existing buildings that will increase building foot print	Preliminary Environmental Information Analysis, Environmental Management Plan, Guidelines for Asbestos and Asbestos based product use in construction	EO,PMU,SMCA, PHDT
Construction of Outside Play Areas	Preliminary Environmental Information Analysis, Environmental Management Plan,	EO,PMU,SMCA, PHDT
Dug Wells for Water Supply	Environmental Guidelines for Construction of Dug Wells	EO,PMU,SMCA, PHDT
Construction of new sanitation facilities	Environmental Guidelines for Latrine Construction (Annex 2)	EO,PMU,SMCA, PHDT
Renovations/extensions to existing sanitation facilities	Conformity to Environmental Guidelines for Latrine Construction (Annex 2)	EO,PMU,SMCA, PHDT

5.2.1 Preliminary Environmental Information and Analysis

During the pre-feasibility and feasibility field investigations for each subproject, the project teams with the participation of an environmental officer will check environmental risks by collecting environmental information of the project site and its surroundings. A checklist has been prepared to assist in this process in **Annex 1**. Based on this checklist the environmental officer will proceed with the preparation of the EMP/EA and obtain required clearances as indicated in Chapter 4.

The team will observe the sites, make simple measurements and also discuss with the local people and stakeholders. The team will analyze the environmental risks, and identify possible measures for avoidance, minimization, or mitigation of the risks/ impacts. These will be shared with the technical members of the team for consideration while detailing the project plans and designs. The initial analysis of project-supported activities and proposed mitigation measures are provided under the Chapter 4.

5.2.2 Preparing Environmental Assessment and/or Environmental Management Plan

The preparation of site-specific EMPs for simple activities can be undertaken by the environmental officer of the implementing agency and/or PMU, while the complex activities should be assessed by a consultant. The terms of reference to undertake EAs for complex activities should be prepared by the implementing agency and clearances should be obtained by the relevant PAA if necessary and IDA.

The EA report is expected to generate the following information and should be presented as part of the report:

- Detailed description of the project activity
- Description of the environment (physical, biological and socio-cultural) to develop the baseline condition
- Legislative, regulatory and policy considerations (both national and World Bank)
- Determination of potential environmental impacts (with focus on significant positive and negative impacts, direct, indirect and cumulative impacts, and immediate and long-term impacts)
- Analysis of alternatives (focused on siting and design of new alignments, rehabilitation techniques and phasing, and operating and maintenance procedures)
- Public consultations and the key findings and recommendations
- Development of the environmental management and monitoring plan

The following areas are expected to be included as contents of the environmental management and monitoring plan

- *Identification of impacts and description of mitigation measures:* Firstly, Impacts arising out of the project activities need to be clearly identified. Secondly, feasible and cost effective measures to minimize impacts to acceptable levels should be specified with reference to each impact identified. Further, it should provide details on the conditions under which the mitigatory measure should be implemented (ex; routine or in the event of contingencies) The EMP also should distinguish between type of solution proposed (structural & nonstructural) and the phase in which it should become operable (design, construction and/or operational).
- *Enhancement plans:* Positive impacts or opportunities arising out of the project need to be identified during the preparation of the check list and Environmental Assessment process where applicable. Some of these opportunities can be further developed to draw environmental and social benefits to the local area. The Environmental management and Monitoring Plan (EMP) should identify such opportunities and develop a plan to systematically harness any such benefit.
- *Monitoring programme:* In order to ensure that the proposed mitigatory measures have the intended results and complies with national standards and donor requirements, an

environmental performance monitoring programme should be included in the EMP. The monitoring programme should give details of the following;

- Monitoring indicators to be measured for evaluating the performance of each mitigatory measure (for example national standards, engineering structures, extent of area replanted, etc).
- Monitoring mechanisms and methodologies
- Monitoring frequency
- Monitoring locations
- *Institutional arrangements:* Institutions/parties responsible for implementing mitigatory measures and for monitoring their performance should be clearly identified. Where necessary, mechanisms for institutional co-ordination should be identified as often monitoring tends to involve more than one institution.
- *Implementing schedules:* Timing, frequency and duration of mitigation measures with links to overall implementation schedule of the project should be specified.
- *Reporting procedures:* Feedback mechanisms to inform the relevant parties on the progress and effectiveness of the mitigatory measures and monitoring itself should be specified. Guidelines on the type of information wanted and the presentation of feedback information should also be highlighted.
- *Cost estimates and sources of funds:* Implementation of mitigatory measures mentioned in the EMP will involve an initial investment cost as well as recurrent costs. The EMP should include costs estimates for each measure and also identify sources of funding.
- *Contract clauses:* This is an important section of the EMP that would ensure recommendations carried in the EMP will be translated into action on the ground. Contract documents will need to be incorporated with clauses directly linked to the implementation of mitigatory measures. Mechanisms such as linking the payment schedules to implementation of the said clauses could be explored and implemented, as appropriate.

During this stage, the environmental officer or the EA consultant will liaise closely with the design teams to ensure environmental requirements are integrated into the final design of the infrastructure.

5.2.3 Environmental Clearances

The implementing agency will be required to share sample of EMPs of simple activities with IDA during the initial stages of project implementation. All site-specific EMPs should be made available at the project sites with the relevant field officers of the implementing agency for review as and when required. The draft and final EAs of complex project will be reviewed, commented and cleared by the relevant PAA if necessary and by IDA.

5.2.4 Inclusion of Environmental Specifications and Environmental Management Plan in bid documents

It is important to ensure the environmental specifications and EMP is included in the bid documents prior to commencement of the bidding process. It will be necessary to include a provisional sum for the EMP as part of the Bill of Quantities for those mitigations measure that are not part of the engineering costing. The environmental specifications should also include penalty clauses for non-compliance, specifically for complex and large contracts. The procurement staff of the relevant implementing agency and PMU together with environmental officer(s) will be responsible for this step.

5.2.5 Compliance and Monitoring

Regular supervision and quality control of the construction will be done by the site team (site engineer and implementing agency (PSs/LSs)). The environmental officer(s) assigned to the project will carry out periodic environmental compliance monitoring. The monitoring will focus on the site-specific EMPs and key monitoring indicators in the two tables for compliance and impact monitoring presented at the end of this sub-section description.

The monitoring will include representative sample of simple activities and all sites of complex activities at least once in 3 months and monitoring report will be prepared to document the findings, recommendations given and actions taken on non-compliance. These documents should be shared with IDA. However, if new environmental issues not identified during the assessments have risen or the mitigations measures agreed have not been adequately implemented, monitoring will need to be done more frequently.

All construction activities will need to be visited by the environmental officer(s) prior to issuance of the final payment for the activity to ensure the project sites are in environmentally acceptable status, demobilization of temporary structures have taken place and redevelopment of associated project sites such as burrow, disposal and quarry sites have taken place to the level acceptable to the land owners. Consolidated monitoring report will be prepared bi-annually by the PMU on behalf of the SMCA and PHDT will be shared with IDA.

Two independent environmental audits will be conducted by end of second year of project implementation and six months before the closure of the project. The terms of reference for the environmental audit will be prepared by the PMU and agreed with IDA and the audit reports (drafts and final) will be shared with IDA for comments and recommendations. A sample terms of reference for the environmental audit is presented in Chapter 7.

Compliance Monitoring Indicators, Schedule and Responsible Agency

Parameters /Indicator	Verifiable Indicators	Verification Methods	Location	Schedule	Responsible Implementation and Monitoring Agency
Awareness and orientation training	Training programs for skill development, occupational safety and environmental protection	Training records, feedback from participants	At construction area	Beginning of construction and during construction	PMU, SMCA, PHDT
Compliance to occupational health and safety matters	Health and safety regulations, first aid and medical arrangements, number and type of safety equipment such as mask, helmet, glove, safety belt, accidental insurance	Spot checks at work sites, photos, accident records, interviews	At key construction sites	Throughout construction period	PMU, SMCA, PHDT
Vegetation clearance	Actual number of trees felled during construction works	Record, counting, observation, inspection and interview with local people	At construction sites	Before construction work, construction period	PMU, SMCA, PHDT
Measures to protect environment from air & noise pollution	Dust level and noise level at work sites, major settlements and sensitive spots like health centers and schools	Visual observation and discussion with residents and workers	At construction sites	Every three months during construction	PMU, SMCA, PHDT
Measures to protect water bodies from pollution	Visual observation, observation of open defecation and waste disposal around water sources near construction sites, camp sites, and laboratory test results	Site inspections and laboratory sections if necessary.	Rivers and water sources used particularly drinking water	Every three months during construction	PMU, SMCA, PHDT
Adequate	Adequate number of technicians	Number and type of	At	During construction	PMU, SMCA, PHDT

Parameters /Indicator	Verifiable Indicators	Verification Methods	Location	Schedule	Responsible Implementation and Monitoring Agency
technical and environmental supervision	regularly at site with ability to implement the EMP	technicians available at site, discussion	construction sites		
Compensatory plantation	Number of trees planted	Records, field observation	Planted area	During project implementation	PMU, SMCA, PHDT

Impact Monitoring Indicators, Schedule and Responsible Agency

Parameters /Indicator	Verifiable Indicators	Verification Methods	Location	Schedule	Responsible Implementation and Monitoring Agency
Slope stability and erosion	Slope failures, causes; fresh gullies and erosion; sedimentation of waterways	Site observation, discussion with local people, photos	Near steep slopes and at landslide areas and sites	Continuously during construction	PMU, SMCA, PHDT
Debris disposal	Affected aesthetic value, water stagnation	Site observation and interviews, photos	At debris disposal sites	During construction	PMU, SMCA, PHDT
Quarrying	Dust, erosion, landslide due to quarrying, degradation of vegetation	Site observation, photos,	Quarry site areas	During construction	PMU, SMCA, PHDT
Habitat degradation	Changes to vegetation cover, signs of land degradation such as soil erosion	Site observation, interview	Natural habitat sites	During project implementation and operation	PMU, SMCA, PHDT
Water quality	Visual observation of reduced quality due to solid and liquid waste, sedimentation, etc. and laboratory test results.	Visual observation, laboratory test	Local water sources and streams (particularly drinking water source)	During construction and operation	PMU, SMCA, PHDT

Parameters /Indicator	Verifiable Indicators	Verification Methods	Location	Schedule	Responsible Implementation and Monitoring Agency
Air quality	Dust level in ambient air	Visual inspection	At construction sites	During construction and operation	PMU, SMCA, PHDT
Forest and vegetation	Numbers of trees felled, presence of ground vegetation cover, completion of replanting programs	Observations, records, photos, interview , counting	In and around the construction sites	During construction and operation	PMU, SMCA, PHDT
Occupational safety and hazard	Type and number of accident occurred during construction; adequacy of occupational safety measured provided; compensation provided in case of fatal accidents	Observations, photos, spot checks, health center records, interview with workers, accident number	Throughout subproject area	During construction	PMU, SMCA, PHDT

5.3 Environmental consultation and grievance addressing

Consultations are inbuilt in the project planning, design and implementation approach. The Environmental officer will conduct and record consultations with the local stakeholders and project affected persons during preliminary environmental data gathering at the sites. During construction, the site supervision team will consult regularly with the affected people/community as well as local stakeholders for their observations and feedback.

For the grievances, the project implementation and/or supervision team at site will keep a feedback register and let the local stakeholder know that they can register their project related complaints or comments or suggestions. The project team will review the feedback and take appropriate actions. The overall environmental grievance process will be in line with the social grievance process proposed in the Social Management Framework.

5.4 Chance find procedures on physical cultural resources

If any person discovers a physical cultural resource, such as (but not limited to) archeological sites, historical sites, remains and objects, or a cemetery and/or individual graves during excavation or construction, the Contractor shall:

1. Stop the construction activities in the area of the chance find;
2. Delineate the discovered site or area;
3. Secure the site to prevent any damage or loss of removable objects. In cases of removable antiquities or sensitive remains, a night guard shall be arranged until the responsible authorities take over;
4. Notify the Supervising Officer who in turn will notify the responsible authorities immediately (within 24 hours or less);
5. Responsible authorities are in charge of protecting and preserving the site before deciding on subsequent appropriate procedures. This would require a preliminary evaluation of the findings to be performed by archeologists. The significance and importance of the findings should be assessed according to the various criteria relevant to cultural heritage; those include the aesthetic, historic, scientific or research, social and economic values used by the GoSL;
6. Decisions on how to handle the finding shall be taken by the responsible authorities. This could include changes in the layout (such as when finding an irremovable remain of cultural or archeological importance) conservation, preservation, restoration and salvage;
7. Implementation for the authority decision concerning the management of the finding shall be communicated in writing by relevant local authorities; and
8. Construction works could resume only after permission is granted from the responsible local authorities concerning safeguard of the physical cultural resource.

The Supervising Officer must have capacity to manage the processes in the plan. At a minimum, expert opinion should be sought from government agencies or specialist consultants for the following:

- Issues with relocation / removal that cannot be resolved through the procedures in this plan.
- Restoration of damages to physical cultural resources or graves caused by construction-related

6 INSTITUTIONAL ARRANGEMENTS AND CAPACITY

6.1 Institutional arrangements

The institutional entity and the roles and responsibilities to ensure the EMF is implemented are given below:

State Ministry of Children's Affairs will have the overall responsibility to ensure the EMF is implemented by the relevant IAs including the PHDT. The PMU established at the SMCA will take this responsibility on behalf of Ministry. The PMU will recruit an environmental officer (EO) for the project who will be responsible for the following in line with the project activities they will be implementing (A Sample TOR for the EO is presented in Chapter 7). His/ Her key responsibilities are outlined below:

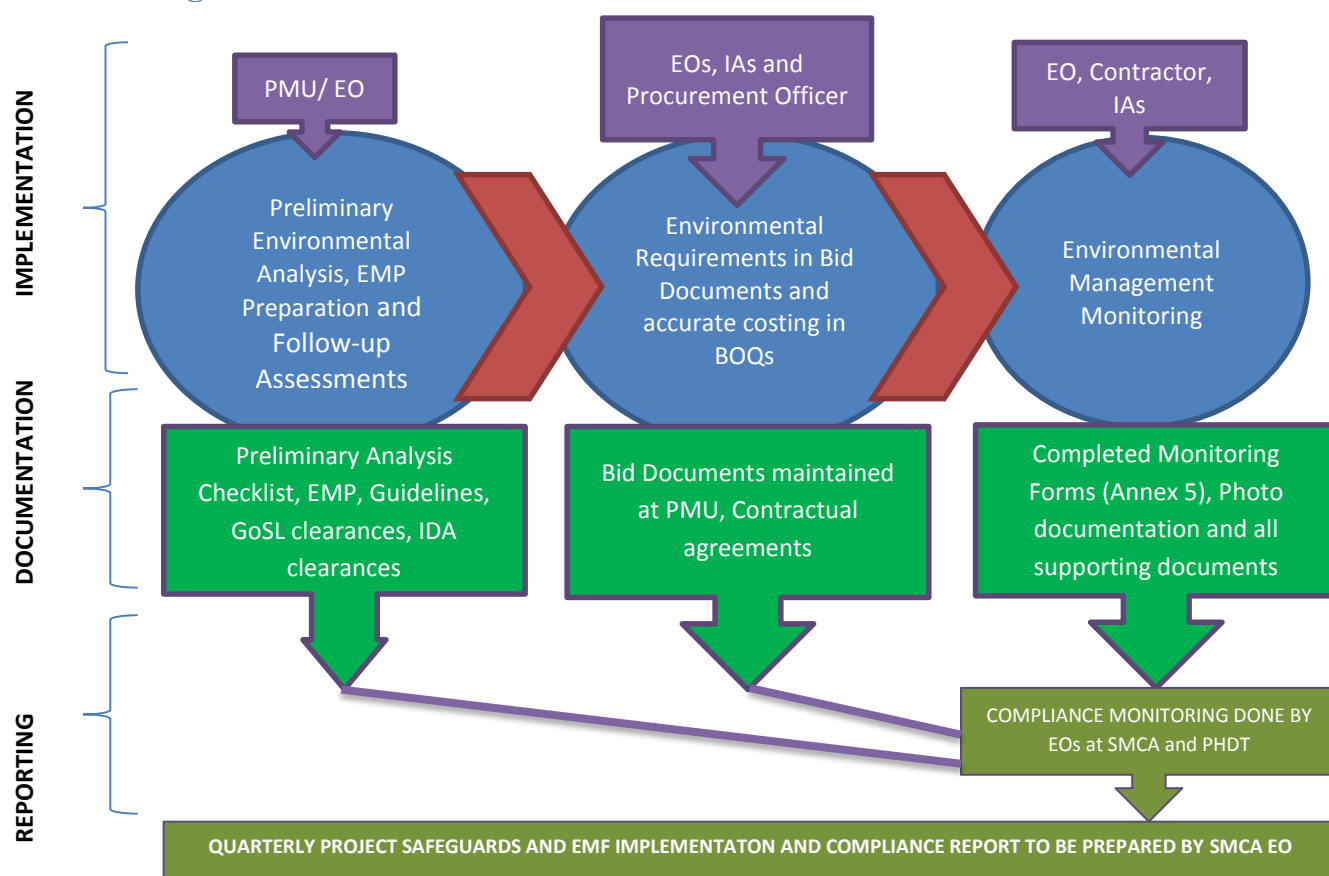
- Conduction preliminary screening and Prepare EMPs for simple activities for all SMCA physical intervention subprojects
- Prepare terms of references to undertake EAs for complex activities such as large building constructions and obtain necessary clearances
- Manage the EA/EMP consultants and provide coordination support with relevant agencies and individuals
- Review draft and final EAs for quality and obtain necessary clearances
- Ensure environmental specifications and EMP's are included into bidding documents of all physical infrastructure related investments via collaboration with procurement team.
- Monitor the ongoing physical intervention subprojects and provide recommendations to PS/LAs and engineers and report
- Consolidate monitoring reports from PHDT and IAs under SMCA and submit it as per the schedule to IDA.
- Liaise closely with the Engineer and Project Team assigned for activities allocated to the PS/LAs to ensure monitoring reports are obtained
- Provide training to PS/LA staff, contractor staff on environmental management requirements of the project
- Prepare terms of references for environmental audits for all project components and obtain clearances
- Review and comment on audit reports, take necessary actions to address audit issues raised and obtain comments from IDA.

The Plantations Human Development Trust: will be responsible for the implementation of the EMF for all sub-projects managed by them and report on implementation to the SMCA. The project management team based in the PHDT will recruit an environmental officer (EO) for the project who will be responsible for following the EMF in line with the project activities they

will be implementing (A Sample TOR for the EO is presented in Chapter 7). His/Her key responsibilities are outline below:

- Conduction preliminary screening and Prepare EMPs for simple activities for all PHDT managed physical intervention subprojects
- Prepare terms of references to undertake EAs for complex activities such as large building constructions and obtain necessary clearances
- Manage the EA consultants and provide coordination support with relevant agencies and individuals
- Review draft and final EAs for quality and obtain necessary clearances
- Include environmental specifications and EMP into bidding documents of all physical infrastructure related investments
- Monitor the ongoing physical intervention subprojects and provide recommendations to engineers based at the plantation level and report
- Provide monitoring report for all PHDT activities to the EO based in the SMCA as per scheduled and agreed upon.
- Liaise closely with the Engineer and Project Team assigned for activities allocated to the plantations to ensure monitoring reports are obtained
- Provide training to plantation engineering staff, contractor staff on environmental management requirements of the project

6.2 Schematic of Project Implementation, Documentation and Reporting Arrangements



6.3 Capacity Assessment and Strengthening

Consultations and interactions with the SMCA and the PHDT have shown that inadequate capacity at various levels is a constraint in effective and efficient environmental management of the project. The EOs assigned to both institutions will have to immediately commence undertaking the initial functions of project preparation. The PMU will therefore be required to recruit a qualified EO to take the environmental safeguards responsibilities of this project prior to the project implementation commencement in the ground. Similarly, the PHDT will be also required to recruit or assign a qualified EO who will be working on the physical interventions allotted to them. Initial capacity building for the EOs on World Bank Safeguard Policies and guidance on good field level implementation of the EMF will be provided by IDA.

While many of the large contractors now have capacity to understand environmental requirements and implement EMPs, the small contractors lack capacity. In addition, sensitivity of field staff of the implementing agencies is still low towards integration of environmental management in project activities. In order to overcome the capacity weaknesses identified above, the project will include the following specific measures for strengthening capacity:

Type of Training/ capacity building	Duration	Target Group	Expected results
Training on understanding the EMF including initial environmental screening, reporting on preliminary environmental information and EIA	2 days per program (maximum 25 participants per program)	Field engineers/ technical officers of PSs/ LAs implementing the project, SMCA staff and PHDT staff	A well informed IA field staff on project environmental safeguards requirements
Training on environmental specifications of contract documents, EMPs and preparation of EMSs	3 days per program (maximum 25 participants per program)	Field engineers/ technical officers of PSs/ LAs implementing the project, SMCA staff and PHDT staff	A well informed IA field staff and contractor staff on project environmental safeguards implementation

Further training needs will be identified as the project commence implementation to be supported through the project.

7 TERMS OF REFERNCES

Terms of Reference for the Environmental Audit

1. Introduction to the project

To be filled

2. The Need for Environmental Assessment

All sub-projects financed under ECD Project are required to comply with World Bank Operational and Safeguard Policies triggered, in addition to conformity with the environmental legislation of GOSL. Thus all sub-projects are required to conform to:

- (a) the Environmental Assessment and Management Framework (EMF) adopted by GOSL and accepted by the World Bank, and
- (b) the terms of the Central Environmental Authority (CEA) as mandated by the National Environmental Act (NEA) of Sri Lanka, **where it is applicable**.

According to the EAMF, each sub-projects needs to be subjected to an environmental screening using the recommended template. Based on the screening information and concerns of the public the need to pursue further stand-alone assessments and if so the type of assessment is determined. All preliminary environmental assessment is done by environmental officers supporting the IAs and reviewed and cleared by the PMU.

According to CEA procedures, all sub-project requiring NEA approval need to fill in a Basic Environmental Information Questionnaire (BEIQ). Upon reviewing the BEIQ, the CEA will determine whether no further environmental analysis is required or whether the proponent is required to prepare an Initial Environmental Examination (IEE) or an Environmental Impact Assessment (EIA).

3. Objectives

The primary objective of this assignment is for the Consultant to carry out an environmental audit for ECD Project. The consultant will review the application of the EMF to the ECD Project. In particular, the consultant will review a sample of (i) the preliminary checklists prepared by the EOs based in the Ministry of Children's Affairs and the Plantations Human Development Trust and (ii) standalone environmental assessments/management plans (iii) application of the NEA and its clearance procedures followed by the project, as the case be, and based on site visits ensure conformity with conditions, guidelines and comments stipulated in these and other related documents. The Consultant is expected to be familiar with the EMF, the applicable safeguard policies of the WB, NEA and the approval procedure of the CEA.

4. Tasks of the Consultant

- Obtain the required information from the sub-project proponent, PMU offices, on the sub-project under implementation as well as under preparation of the ECD Project. This may include, but not be limited to, relevant plans, drawings, reports, standalone EA/EMP (if it has been necessary), and comments of the World Bank.
- Review the above documents, discuss with the sub-project proponent as well as the surrounding community and visit the location and environs of the sub-project.
- Check for conformity of the sub-project in relation to the guidelines, conditions and comments stipulated in the item above.
- Examine monitoring reports and whether standards, procedures and controls are in place to respond to safeguards requirements stipulated in EMF.

- Examine significant new risks and propose remedial actions
- Highlight any deviations from the guidelines, conditions and comments stipulated in the aforesaid documents and assist the sub-project proponent to improve the safeguard documents incorporating the necessary mitigatory measures.
- Document any adverse environmental impacts that were not anticipated in the screening and follow up assessments that may have occurred during project construction and implementation.
- Examine procedures of corrective action if monitoring parameters are out of monitoring limits and if such incidents are actually reported, investigated and followed up

Document and submit the environmental audit report which should include (i) an Executive Summary, (ii) Overall audit opinion on the level of compliance, (iii) for each sub-project reviewed (a) a description of the sub-project, (b) the list of documents reviewed and persons interviewed, (c) observations made at the site, (d) conformity and/or deviations to guidelines (CEA and EMF), clearance conditions (World Bank and GOSL) and plans, (e) status of progress reporting and actions taken to address issues (f) actions need to be taken to respond to negative deviations, (g) new risks and recommendations to address the risks (mitigation actions), (h) any other relevant information to support the findings.

5. Application Procedure

Qualified consultants may apply for the assignment listed above. Applications should be submitted using the format below:

- Title of assignment
- Name and address of the consultant/firm
- Name, designation and telephone number of contact person
- Brief consultant/company profile
- Key staff members of the firm (giving priority to assignment-specific staff; for each staff member provide name, position in the team, number of years in the firm, relevant qualifications and assignment-specific experience and proficiency in languages – read, write and speak)
- Relevant experience of the consultant/firm (Details of assignment-specific tasks undertaken during the past 10 years with client references)

Expressions of interest should focus on aspects relevant to the particular assignment, and reach the PMU by [Date].

General Terms of Reference for Environmental Specialist at the ECD Project

- Provide overall policy and technical direction for environmental safeguards management under the ECD Project (as defined by this framework).
- Co-ordinate closely with the Environmental Officers in the local IAs in planning and managing project implementation as per the EMF; and provide necessary technical assistance to facilitate the implementation, management and monitoring of environmental safeguards
- Ensure environmental analysis is carried out for each sub-project as soon as conceptual technical design and scope have been defined; Closely co-ordinate with the PMU for review and endorsement of the screening decision and recommendation
- Ensure timely preparation of Environmental Assessments/Management Plans for sub-projects, as necessary (depending on screening outcome); co-ordinate with PMU for hiring technical assistance, where necessary, and for review and endorsement of these safeguard documents
- Ensure consistency of safeguard documents with national environmental regulations; work with the PMU to obtain necessary clearances from local environmental/archaeological regulatory authorities for sub-projects, where applicable.
- Prepare terms of references to undertake EAs for complex activities such as large building constructions and obtain necessary clearances
- Manage the EA/EMP consultants, where applicable, and provide coordination support with relevant agencies and individuals
- Review draft and final EAs for quality and obtain necessary clearances
- Ensure that applicable measures in the EMP are included in the design, and condition on compliance with EMP is included in the bidding documents
- Develop, organize and deliver environmental training programs and workshops for the Implementing Agencies at the field level, contractors, field supervision staff and other implementing agency officials as needed, on safeguard requirements and their management
- Ensure compliance with EMPs during the construction period and maintain close co-ordination with the site engineer of the implementing agency and the Environmental focal point of the contractor.
- Prepare additional technical guidelines, if necessary, to support the EMF in order to strengthen the implementation of environmental safeguards
- Obtain clearances from local environmental//archaeological/other regulatory authorities, where applicable.
- Report to Higher Project Management and IDA on the overall environmental performance of the project as part of PMU's periodic progress reporting.
- Maintain close cooperation with IAs to monitor the O&M during the operation of the project;
- Hold regular review meetings with the environmental officer of the PHDT and visit selected project sites to monitor implementation of the EMP by the Contractors
- Promote community participation in the process of planning, management and monitoring of environmental impacts of sub-projects; provide guidelines on community participation in environmental monitoring to the IAs
- Prepare terms of references for environmental audits for all project components and obtain clearances
- Review and comment on audit reports, take necessary actions to address audit issues raised and obtain comments from IDA.

Qualifications for EO at SMCA

A degree of a recognized university with a M.Sc. in Environmental Science or Environmental Management with a minimum of 5 years' experience in the field. Experience on donor funded projects and prior implementation of donor safeguards is an advantage. Prior experience in World Bank funded projects will be a further advantage.

8 ANNEXES

9 Annex 1: Sample checklist to identify environmental risks and related information

Will the subproject and/or activity likely to affect the following? Where, why, and to what extent? What can be done to avoid, minimize, or mitigate?

1. Protected Areas and known natural habitat (national parks, wildlife reserve, legally protected or area proposed for protection, unprotected but of known high conservation value) or biodiversity corridor, or nearby an area which is known to be a critical wildlife habitat, and those area that are listed as totally protected species in the FFPO.
2. Forest (national forest, reserve forest, religious forest, community forest, private forest – core forest or fringe forest)
3. Known route of wildlife or wild bird movement
4. High risk of landslides and erosion prone areas
5. Flood Prone / River Cutting / Low Lying Areas
6. Water Sources / Water Bodies such as pond, lakes, springs, drinking water sources etc.
7. Historical / religious / Cultural Sites such as monastery, temple, fort, palace, other religious sites, etc.
8. Aesthetically important places / valued natural landscapes / viewpoints
9. Local/ Community Infrastructures (Irrigation canal, water supply, foot trails, trails bridges, religious trees & resting places, electricity poles, telephone poles etc.)
10. Agricultural land, private property (land, house, structure), local resources, community forests, etc.
11. Increased use of chemical pesticide and fertilizer
12. Risk of disaster (such as from dam break or from fire, or from accidental release of chemicals, etc.).

Are there any other visible and/or significant environmental not covered above? What are they? Where, why, and to what extent? What can be done to avoid, minimize, or mitigate?

10 Annex 2: 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 this 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 groundwater 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

See table provided for a general guidelines on the selection of appropriate latrine type.

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:

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

- Debris should not be disposed to water bodies, agricultural lands, marsh lands or any environmentally sensitive areas.
- Pits should be sealed off to prevent the spread of waterborne diseases.
- Once area is cleared of all debris, it is advisable to landscape area.

11 Annex 3: ENVIRONMENTAL GUIDELINES FOR THE CONSTRUCTION OF DUG WELLS

Since dug wells take water from the highest water table, they are extremely susceptible to those activities that take place in the immediate vicinity of the well. Hence, selection of the proper location is an important aspect in dug well construction, especially if the water in the well will be used for drinking purposes.

Some basic rules to keep in mind before selecting a location for constructing a drinking water well.

- Survey of any existing DW in the area should be made to find out water availability and quality in the general area (if geo-tech investigations are not done). Any unused DW should be noted and causes found out.
- Well site must be above the flood level of rivers, tanks or other low lying areas that are prone to flood during rain
- Drinking water wells should not be built in paddy fields (pollution by agro-chemicals)
- Areas of peaty soil should be avoided for DW as these cause the water to have an unpleasant taste and smell.
- Distance to the nearest possible source of pollution must not be less than at least 15 meters in the direction of the groundwater flow. Sources of pollution can be latrine pits, cattle sheds, drains, burial grounds, garbage disposal dumps, roads etc.

Some tips for hand dug well-construction

- Select technology suited for the ground condition of the area
- Do not embark on well construction during or immediately after a rainy season
- The first 2.5m of wall lining below ground level should compulsorily be water sealed to avert surface water intrusion. The well should be protected with a head wall and an apron around it.
- The required depth of the dug well will depend on the soil and water table conditions. It is better to construct dug well in the dry season, with the objective of achieving about two meters of water in the DW upon completion. This procedure will ensure a sufficient depth of water to remain serviceable year-round.
- DW should be covered to protect it from outside contamination ensuring proper ventilation and sunlight. A wire mesh with a suitable mesh size to protect the water quality to be placed on the head wall is ideal. If a concrete cover is placed, then adequate measures should be taken to ensure aeration.

Water Quality

- Water quality in the new dug well should be tested prior to it being used. The first sample should be taken after the well has been cleaned after construction which will take a few days.
- Water should be tested for bacteriological and chemical properties (the National Water Supply and Drainage Board has a standard test for drinking water sources and can be tested in any of the NWSDB laboratories). The local PHI should be contacted in this regard.
- Chlorination should be carried out if presence of fecal coliform bacteria is determined.
- It is important not to over-chlorinate. Hence, this should be done by or under the supervision of the PHI.
- Ideally, the water quality of the well should be tested twice a year to ensure no contamination is taking place.

12 Annex-4 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 strength⁴.

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 fiber produced today is chrysotile which is found in these products⁵. 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 applications⁶.

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 school infrastructure requirements that will need to be met through the project.
- Cadjan roofs while environmentally friendly, need to be replaced frequently, causes leaks and will not be acceptable on school 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 Labor 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 the

⁴⁴ Good Practice Note: Asbestos: Occupational and Community Health Issues, World Bank Group, May 2009.

⁵ Ibid

⁶ Ibid

Convention, 17 of them have banned asbestos use⁷. 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 fibers are easily made air borne under little pressure, such as cutting of A-C products that can release fibers. 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 fiber is present in the non-friable form which means that fiber 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 disturbed⁸.

Although IDA 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 school 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.

⁷ <http://www.ilo.org/ilolex/cgi-lex/convde.pl?C162>

⁸ Nadeera Rajapakse Rubaroe, Aide Memoir: Contribution On Environmental Safeguards – NEHRP, May 2010.

- 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 fibers), 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:
 - o a pre-assignment medical examination;
 - o periodic medical examinations at appropriate intervals (at least every 3 years);
 - o 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;
 - o a copy of their medical record⁹.

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

⁹ <http://www.chrysotile.com/en/sfuse/guide.aspx>

13 Annex 5: Environmental Monitoring Checklist for Construction Activities

Title of project :
Proponent :
Contractor's Name :
Monitoring Date :
Monitor's Name & :
Designation

Issue	Proposed mitigation measures (<u>from the EMP</u>)	Implementing Responsibility	Compliance Yes/No	Reason for non-compliance	Follow up Action

