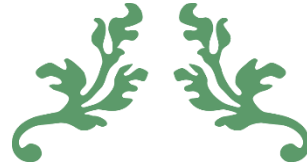


THE GOVERNMENT OF SRI LANKA



# Environmental Assessment and Management Framework

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Ecosystems Management and Conservation  
Project



**Ministry of Mahaweli Development and Environment  
Ministry of Sustainable Development and Wildlife  
Forest Department  
Department of Wildlife Conservation  
January 15, 2016**

## Table of Contents

ACRONYMS .....	ii
EXECUTIVE SUMMARY .....	iii
Chapter 1: Introduction to Eco-systems Conservation and Management Project.....	1
1.1. Background .....	1
1.2 The project objective and description .....	2
1.3 Objective of the Environmental Assessment and Management Framework .....	5
Chapter 2: Introduction to Protected Area Network of Sri Lanka .....	7
Chapter 3: Environmental laws, regulations and institutions in Sri Lanka and World Bank environmental safeguard policy requirements .....	14
3.1 National Environmental (Amendment) Act No. 53 of 2000 .....	14
3.2 Coast Conservation Act (CCA) No. 57 of 1981 .....	16
3.3 Fauna and Flora Protection Ordinance (FFPO) Amended Act No. 49 of 1993 .....	16
3.4 The North Western Provincial Environmental Statute No. 12 of 1990.....	17
3.5 Key Institutions in Environmental Management and Governance.....	17
3.6 Compliance with World Bank Operational Policies .....	19
Chapter 4: Generic assessment of environmental issues and mitigation measures.....	24
4.1 Overview .....	24
4.2 Component specific impacts .....	24
Chapter 5: Environmental Management Framework.....	34
5.1 Environmental screening of sub-projects.....	34
5.2 Description of further Environmental Management Tools .....	35
5.3 Stakeholder Consultation and Information Disclosure.....	38
Chapter 6: Institutional Arrangement for Implementation of the project .....	45
6.1 Project Institutional and Implementation Arrangements.....	45
6.2 Institutional arrangements for implementation of the EAMF .....	46
6.3 Monitoring and evaluation .....	49
Chapter 7: Capacity Building and Training .....	50
7.1 Institutional capacity for safeguard management.....	50
7.2 Capacity Building requirements.....	51
Annex 1: Policy Framework: Environmental Assessment and Impact Mitigation.....	53
Annex 2: Basic Information Questionnaire for the CEA.....	59
Annex 3: Guidelines for Developing EMPs .....	62
Annex 4: Suggested Format for the Environmental Screening Form.....	64
Annex 5: Guidelines for Health and Safety of Workers, Communities and Visitors .....	70
Annex 6: Chance find procedure for Physical Cultural Resources .....	73

Annex 7: Procedures for Physical Cultural Resource Impact Screening, Assessment & Management .	74
Annex 8: Generic EMPs and Environmental Codes for some of the proposed investments.....	92
Annex-9 Meeting Minutes: ESCAMP Consultation with Wildlife NGO Community .....	145

## ACRONYMS

CBO	Community Based Organization
CCD	Coast Conservation Department
CEA	Central Environmental Authority
DWC	Department of Wildlife Conservation
EA	Environmental Assessment
ECA	Elephant Conservation Area
EIA	Environmental Impact Assessment
EAMF	Environment Assessment and Management Framework
EMP	Environmental Management Plans
EPL	Environmental Protection License
ESCAMP	Eco-Systems Conservation and Management Project
FD	Forest Department
FFPO	Fauna and Flora Protection Ordinance
FO	Forestry Ordinance
GoSL	Government of Sri Lanka
HEC	Human Elephant Conflict
HECOEX	Human Elephant Co-existence
IDA	International development Association
IEE	Initial Environmental Examination
IUCN	International Union for Conservation of Nature
LA	Local Authority
MER	Managed Elephant Range
MoMDE	Ministry of Mahaweli Development and Environment
MoSDW	Ministry of Sustainable Development and Wildlife
NEA	National Environmental Act
NGO	Non-governmental Organization
OP	Operational Policy
PA	Protected Area
PC	Provincial Council
PEA	Provincial Environmental Act
PDO	Project Development Objective
PMC	Project Management Committee
PMU	Project Management Unit
PPRC	Project Progress Review Committee
PSC	Project Steering Committee
REDD+	Reducing Emissions from Deforestation and Forest Degradation Plus
SCD	Strategic Country Diagnostic
SEA	Strategic Environmental Assessment
TRC	Technical Review Committee
US\$	United States Dollar
WCPA	World Commission of Protected Areas
WWF	World Wildlife Fund

## EXECUTIVE SUMMARY

This report is the Environmental Assessment and Management Framework (EAMF) for the Eco-Systems Conservation and Management Project (ESCAMP) of the Ministry of Mahaweli Development and Environment (MoMDE), Ministry of Sustainable Development and Wildlife (MoSDW) Forest Department (FD) and Department of Wildlife Conservation (DWC), Sri Lanka. The purpose of this document is to outline a framework for environmental assessment and management, giving details of potential environmental issues and guidelines on what type of environmental assessment tools to be applied for various sub-project activities. It will be made available for public review and comment in appropriate locations in Sri Lanka and in IDA's Public Information Center in accordance with World Bank's policy of Access to Information.

Sri Lanka recently prepared *Punarudaya* – Accelerated National Environment Conservation Program (2016-2018) identifying the importance of conservation of the country's natural resources, particularly forestry and wildlife resources. Specifically, objectives relating to (a) Forest conservation and development, (b) Bio-resource conservation, (c) Wildlife-human co-existence, and (d) Institutional restructuring and promotion in *Punarudaya* are of importance to the Project. The Project will assist the Government in achieving these objectives of *Punarudaya* - – Accelerated National Environment Conservation Program (2016-2018), Biodiversity Conservation Action Plans, critical areas of up-coming REDD+ strategy and PA management requirements of the Fauna and Flora Protection Ordinance. The project design reflect the emerging priorities identified in Sri Lanka Strategic Country Diagnostic and achieving the World Bank's twin goals of eradicating extreme poverty and promoting shared prosperity and Government of Sri Lanka's priority on inclusive development that can be achieved by, inter alia, strengthening the protection of environmental assets for sustainable development.

The Project is designed to ensure support for the overall management of environment and natural resources by FD and DWC. The project design includes current standards and principles of PA management which are integrated into project activities as relevant, such as using an ecosystem approach for adaptive management of resources, ensuring carrying capacity and sustainable limits of resource use are taken into consideration in management decisions, mainstreaming of long-term forests and wildlife resource monitoring and evaluation, use of a demand-driven approach to site-specific investments, appropriate use of new systems and technology, and balancing the knowledge and experience for decision-making.

The project comprises four components focusing on the following:

***Component 1: Pilot Landscape Planning and Management.*** This Component will pilot landscape planning and management involving all stakeholders in two selected landscapes comprising contiguous areas with unique ecological, cultural and socio-economic characteristics. The two landscapes that will be selected include (i) the biodiversity rich landscape, and (ii) the dry and arid zone forest ecosystems. The selection of these landscapes will be based on high fragmentation, presence of parts of the largest PA networks in the country and different types of development pressures they face.

***Component 2. Sustainable use of natural resources and human-elephant co-existence.*** This Component will support communities living in the buffer-zones of PAs and other sensitive ecosystems to plan the natural resource use and develop biodiversity compatible, productive and climate resilient livelihood activities including activities to reduce deforestation and forest degradation. This component will also scale up successful pilot models to address human-elephant conflict, which impacts the lives and livelihoods of communities living in the elephant ranges.

**Component 3: Enhance Protected Area Conservation and Management and Institutional Capacity and Investment Capability.** This Component will focus on demand-driven interventions in PAs in compliance with the Fauna and Flora Protection Ordinance (FFPO) and the Forest Ordinance (FO) that govern the management of different PA categories of DWC and FD respectively, strengthening the institutional capacity and investment capability for conservation and management, and provide assistance to develop the long-term financial sustainability for managing the PAs by improving quality of nature-based tourism in PAs.

**Component 4: Project Management.** This Component will finance the Project Management Unit and implementing agencies in project management, project monitoring and evaluation, through the provision of incremental operating funds, consulting services, transportation, equipment and training of administrators covering range of topics, such as administration, planning, budgeting, fiduciary activities, safeguards and monitoring and evaluation of project results.

The national environmental legislation and regulations that may be applicable for the project include National Environmental (Amendment) Act No. 53 of 2000, Environmental Impact Assessment regulation, **Strategic Environment Assessments**, Coast Conservation Act (CCA) No. 57 of 1981, Fauna and Flora Protection Ordinance (FFPO) Amended Act No. 49 of 1993 and the North Western Provincial Environmental Statute No. 12 of 1990.

The project is categorized as environmental category “B”. Based on the potential types of activities that would be supported and potential areas of support, the project triggers World Bank Operational Policies (OPs) 4.01 – Environmental Assessment, 4.04 – Natural Habitats, 4.09 – Pest Management, 4.11 – Physical Cultural Resources, and 4.36 – Forests.

**Potential Impacts of Component 1.** Overall, the component 1 will bring about positive environmental impacts. Since type of activities that will be supported will be only identified once the landscape plans are developed, activity-specific impacts cannot be identified at this stage of the project.

**Potential Impacts of Sub-Component 2.1.** This sub-component is also designed to ensure improved land, water and forest resources management by communities living adjacent to projected areas or other critical natural ecosystems that are overall beneficial to the environment. However, as some of these activities entails small-scale civil works, changes to land use, etc. environmental impacts such as construction-stage temporary issues including soil erosion, water contamination, destruction of vegetation, waste generation, etc. are anticipated. In addition, promotions of agriculture systems may give rise to over utilization of agro-chemical including pesticides. Provision of portable water also may also bring about issues such as water quality and unsustainable extraction.

**Mitigation of Potential Impacts of 2.1.** The mitigation of the above issues requires adherence to planning, assessment of resources (such as water quality and sustainable level of extraction), good construction practices (soil conservation measures, proper disposal of silt, rehabilitation of borrow pits, protection of vegetation or compensatory planting, waste management onsite and off-site disposal in a manner that is non-disruptive to the environment and people), implementation of integrated pest management, etc. The project will ensure the communities are provided with improved awareness on the potential issues and mitigation measures,

**Potential Impacts of Sub-Component 2.2.** This component is not likely to any negative environmental impacts beyond the existing issue of human-elephant conflict. If scaled up successfully, it will bring about positive environmental impacts, including regulating the currently illegal *chena* cultivation.

***Potential Impacts of Sub-Component 3.1.*** This sub-component will support activities that will improve protected area conservation and management and therefore will be environmental beneficial. However, there will be some physical activities such as small-scale civil works, management of invasive species, etc. that may give rise to environmental issues. Environmental impacts due to civil works soil erosion, water contamination, destruction of vegetation, waste generation, etc. Impacts of management of invasive species include habitat changes of species dependent on invasives, spread of invasives into new areas, etc.

***Mitigation of Potential Impacts of Sub-Component 3.1.*** Civil works should include good construction practices such as inclusion of soil conservation measures, proper disposal of silt, rehabilitation of borrow pits, protection of vegetation or compensatory planting, waste management onsite and off-site disposal in a manner that is non-disruptive to the environment and people. Invasive species management should be carried out with some understanding of the ecological functions of a given habitat, re-establishment of the dynamics of habitat forming processes, etc. In addition, it is important to contain the possible spread of invasives, particularly those that removed need to be destroyed. In addition, mechanisms for future prevention, rapid responses to new invasions, etc. will be also necessary to management invasive species.

***Potential Impacts of Sub-Component 3.2.*** Activities that may be supported under this sub-component may give rise to environmental impacts such as soil erosion, extensive paving, impacts to wildlife and vegetation due to improper siting of new infrastructure. In addition, improved visitor facilities can increase the number of tourist arrivals, putting pressure on the natural ecosystems due to over visitation.

***Mitigation of Potential Impacts of Sub-Component 3.2.*** Development of tourism must exercise greater caution to ensure the investments contribute to conservation and management and not to degrade the habitats on which the tourism depends. It is important to ensure adequate information is available of the tourism carrying capacity of each site. Tourism development should be based on a plan that takes these into consideration. All structure introduced should be aesthetically pleasing and environmentally benign as much as possible. Civil related impacts as described in earlier sub-components will be also applicable in this sub-component.

***Potential Impacts of Sub-Component 3.3.*** This component includes developing the capacity to conserve and manage natural ecosystems and therefore, will bring positive impacts on medium to long term. Since there will be some infrastructure development in support of improving the training facilities and other management related structures outside the PAs, impacts associated with civil-works as described earlier will be applicable under this sub-component.

***Mitigation of Potential Impacts of Sub-Component 3.3.*** Civil related impacts as described in earlier sub-components will be also applicable in this sub-component.

***Environmental Assessment and Management Framework:*** This EAMF provides detailed guideline to ensure environmental screening of sites/activities and environmental management tools such as EIAs, EMPs, etc. It also provides detailed, but generic assessment of potential impacts of various types of interventions under the project and mitigation measures.

***Institutional arrangements for environmental safeguards management.*** The primary responsibility for coordinating work related to EAMF will rests with DWC and FD. The departments will ensure EIAs/EMPs are prepared for all Project sites where negative environmental impacts can be expected and that suitable mechanisms are mobilized to ensure the implementation of the EIAs/EMPs.

***Consultation.*** The project has been designed with consultation as a cross-cutting requirement across all project activities. As part of the project preparation consultations with communities of potential areas

have been undertaken and documented as part of Social Management Framework of the project. In addition, protected areas managers and staff, as well as conservation community have been consulted.

***Monitoring and evaluation.*** Monitoring of environmental issues and compliance towards environmental safeguards will be required as part of the overall monitoring of activities. Monitoring of compliance with EAMF specifications by the contractor or project proponent is essential for proper environmental management and will primarily be conducted by the implementing agency or by an environmental committee appointed for each site. The project will also prepare periodical reports to highlight environmental safeguard performance.

***Summary.*** Many of the mitigations measures are expected to be incorporated in the project design and specified under the operational guidance to the Project. The final approved EAMF will be disclosed within Sri Lanka and in World Bank's Infoshop.

## Chapter 1: Introduction to Eco-systems Conservation and Management Project

The Government of Sri Lanka (GOSL) has requested financing from the World Bank to strengthen environmental protection by enhancing environmental governance, safeguarding natural habitats and biodiversity and restoring critically damaged ecosystems so as to contribute to conservation, poverty alleviation and sustainable development.

Eco-systems Conservation and Management Project (ESCAMP) contributes to key national strategies and actions plans, including (i) *Punarudaya*- Accelerated National Environment Conservation Program of 2015 which identifies the importance of conservation of the country's natural resources, particularly forest and wildlife resources and strengthening and reforming the institutions to ensure effective management; (ii) emerging strategic priorities for Reducing Emissions from Deforestation and Forest Degradation Plus (REDD+); and (iii) other priorities of sectoral strategies on water, agriculture and energy. The project will also contribute directly to the government policies of increasing forest cover and harnessing of ecosystem benefits including protection of watersheds necessary for agriculture productivity, developing mechanisms for human-elephant co-existence, improving the revenue generating capability of wildlife and forest resources and developing the capacity for delivering institutional mandates of key natural resources management agencies.

The higher level objective to which this Project contributes is the long-term environmental sustainability and inclusiveness of growth and development in and around the ecologically sensitive areas of rural Sri Lanka. The Project seeks to create the appropriate incentives to enhance conservation outcomes and benefits to communities, which responds to national priorities. It will contribute to poverty reduction by protecting and improving the natural resource base on which many of the rural communities are dependent. The Project will promote inclusion of communities in decision making of resource use and management, thereby also contributing to shared prosperity. These will be achieved through a range of complementary measures that will create a mechanism for sustainable use and protection. Improved management of natural resources can also mitigate effects of climate change through increased adaptive capacity of natural ecosystems and reduced emissions, which will further increase the resilience rural communities.

This document is the Environmental Management and Assessment Framework (ESAMF) for ESCAMP prepared in keeping with World Bank's safeguard policies and submitted in lieu of a specific project environmental assessment for appraising the environmental aspects of the project.

### 1.1. Background

The history of wildlife conservation and environmental protection in Sri Lanka dates back more than 2000 years in recorded history when Mihintale was declared a sanctuary by ancient Kings for the benefits of plants, animals and people. Fostered by the Buddhist philosophy of respect for all forms of life, the subsequent rulers upheld this noble tradition and took various initiatives to protect the forests and its wildlife resources for future generations. Then came the colonial era, where exploitation of forests and its resources became the order of the day as opposed to the royal tradition of sustainable utilization. This is evident by some of the earlier government ordinances which promoted and paved the way for logging, hunting and conversion of natural areas to large plantations for economic gain. During this time and later, much of the wet zone forests, where the bio-diversity is highest, were lost. In the post-independence era, some of these exploitative trends continued, even accelerated with land settlements, large scale irrigation and agriculture, energy generation, etc. becoming key priorities of successive governments. As such,



today, Sri Lanka's natural resources are faced with many threats and require deliberate interventions by the state to protect and conserve whatever is left for the well-being of its present and future generations.

Conservation of bio-diversity is of special significance to Sri Lanka. The country, although small in land area, has a varied climate and topography resulting in rich biodiversity distributed in a number of different eco-systems. With the highest bio-diversity per unit area, SL is ranked as a global bio-diversity hot spot. Yet, at present, the country is faced with a serious erosion of its eco-systems and the bio-diversity they host. The country's high population density, high levels of poverty and unemployment and widespread dependence on natural resources by some of the key economic sectors such as agriculture, mining, tourism has exerted considerable pressure on the country's precious natural resources. A recent survey has shown that 33% of the inland vertebrate fauna and 61% of its flora are nationally threatened. Around two thirds of the threatened bio-diversity is endemic to Sri Lanka. Twenty one species of endemic amphibians have not been recorded for the last 100 years and these species are, for most purposes, considered extinct. One in every 12 species of inland indigenous vertebrates of Sri Lanka is currently facing an immediate and extremely high of extinction in the wild. This trend will continue, and even worsen, unless more stringent and corrective measures are not taken.

The economic value of services that the country's natural resources currently provide and can provide in the future are significant. Flood protection, integrity of landscapes to support agricultural production, drinking water supply, mitigation of climate variability impacts, high economic return on nature-based tourism, etc. are among the significant services and benefits that the country derives from these assets. But they are currently undervalued and often poorly understood, managed, and governed. Inefficiencies in the management of natural resources are continuing to result in acute environmental challenges. These challenges are also accelerating because of a nearly exclusive focus on protection rather than more integrated management combined with outdated institutional capacity, infrastructure and financing models, that are no longer capable of effectively governing the sustainable use and management or enforcing compliance with rules and regulations as pressure on natural resources is growing. Institutional mandates of many of the institutions are overlapping. Coordination of institutions, investments, incentives, information and resulting impacts is extremely weak, due to majority of planning and implementation efforts been limited to their respective jurisdictions. Strengthened integrated management of natural resources will yield a triple dividend by unleashing incentives for shared prosperity and reducing poverty while enhancing the sustainability of resource use by the local communities and the country. Conditions are now converging, with right leadership for more effective policy decisions and strategies for greater economic and more sustainable use of natural resources, particularly actions that will invigorates local communities and ensures more inclusive growth

## **1.2 The project objective and description**

### **1.2.1 Project objective**

ESCAMP's project development objective (PDO) is to improve the management of sensitive ecosystems in selected locations in Sri Lanka for conservation and community benefits.

### **1.2.2 Project description**

The project comprises four components, which are summarized below. A detailed project description is provided in Annex 2.

#### **Component 1: Pilot Landscape Planning and Management (US\$ 2.8 million)**

Component 1 will provide technical assistance, training and capacity building to develop the guiding framework for landscape-level management planning and support the piloting of landscape planning and management in two selected landscapes comprising contiguous areas of unique ecological, cultural and socio-economic characteristics. The two landscapes will include (a) the biodiversity rich Wet Zone, and (b) the dry and arid zone forest ecosystems, which have been identified in the Protected Area Gap Analysis Study (2006) of the DWC and Drivers of Deforestation and Forest Degradation in Sri Lanka (2015) of FD.

The strategic landscape plans will focus on broad guidelines and principles for the management of PAs and other ecosystems within a landscape and involve: (a) defining opportunities and constraints for conservation action within the landscape; (b) identification of effective ecological networks; (c) identification of measures to secure the integrity of ecosystems and viable populations of species; (d) developing rapid assessment systems for landscape scale ecosystem quality including the identification of high conservation value ecosystems; (e) setting out a stakeholder negotiation framework for land and resource use decisions and for balancing the trade-offs inherent in such large-scale approaches; and (f) recognizing and using overlapping cultural, social, and governance “landscapes” within biologically defined areas.

The component will be implemented by the Sustainable Development Secretariat of MoSDW. The component will use consultative and participatory approaches to ensure all relevant stakeholders views and opinions are considered in the development of the two landscape plans and their participation during implementation of the plans.

## **Component 2. Sustainable use of natural resources and human-elephant co-existence (US\$ 17.0 million)**

Component 2 will support communities living adjacent to PAs and other ecologically sensitive areas to plan for natural resource use and to develop biodiversity compatible, productive and climate resilient livelihood activities and to scale-up successful models that address the human-elephant conflict.

***Sub-component 2(a): Sustainable use of natural resources for livelihood enhancement (US\$ 6.0 million).*** This sub-component will finance the identification and implementation of biodiversity-friendly and climate-smart existing or new livelihood options through participatory Community Action Plans (CAPs). Typical activities in the CAPs will include: (a) improvements of small-scale social infrastructure such as rehabilitation of local irrigation tanks; (b) the establishment of woodlots; (c) improving the productivity of home gardens; (d) promotion of sustainable agricultural and non-agricultural income-generation activities; (e) development of agro-forestry; and (f) promotion of community-based ecotourism that promotes sustainable use of natural resources. The project will also provide financing for capacity development in livelihood and business development and management, and facilitate access to finance. It will also assist in the capacity development of participating community groups on natural resources management and co-management of forest and wildlife resources.

***Sub-component 2(b): Human-elephant co-existence for livelihood protection (US\$ 11.0 million).*** This sub-component has four key areas of interventions.

***2(b)i: Human-elephant co-existence activities (US\$ 10 million).*** This will support scaling up successful human-elephant coexistence pilot projects within high HEC areas. It will fund the implementation of: (a) a landscape conservation strategy aimed at allowing elephants to range outside DWC PAs providing protection to farmers and village communities through protective solar electric fencing; and (b) management of elephants in Elephant Conservation Areas (ECA) and Managed Elephant Ranges (MERs)

outside the DWC PA network without transfer or change in land ownership through elephant compatible development.

*2(b)ii: Identification of economic incentives for affected communities (US\$ 0.1 million).* This will support studies to identify viable economic incentives to affected local communities and development of policies and procedures and a governance mechanism for provision of such economic incentives. Such provisions include, for example, improving the existing insurance schemes or indication of new insurance schemes, compensation mechanisms to mitigate the impact of elephant destruction and promotion of opportunities for community-managed nature-based tourism (such as elephant viewing) in order to demonstrate the economic benefits to communities of coexistence with elephants.

*2(b)iii: Implementation of economic incentives for affected communities (US\$ 0.50 million).* This will support and implement economic incentives identified and approved through the process in 2(b)ii.

*2(b)iv: Update the national master plan for HEC mitigation and development of HECOEX models for other areas (US\$ 0.20 million):* This will support the updating of the national master plan for mitigation of the human-elephant conflict and developing practical models for HECOEX in other areas.

### **Component 3: Protected Area Management and Institutional Capacity (US\$ 24.2 million)**

Component 3 will support interventions in PAs in compliance with the Fauna and Flora Protection Ordinance (FFPO) and the Forest Ordinance (FO); support nature-based tourism development, and strengthen the institutional capacity and investment capability for conservation and management.

*Sub-component 3(a): Protected area conservation and management (US\$ 11.6 million).* This sub-component will finance the updating and/or developing of PA management plans where needed and the implementation of PA management plans. Priority PAs in the DWC and FD PA network are eligible for support under this sub-component, covering terrestrial, marine and wetland PAs. Conservation and management activities eligible for funding include: (a) the rehabilitation and development of water resources within PAs for wildlife; (b) habitat management, including control of invasive species, habitat creation and habitat enrichment, etc.; (c) rehabilitation and expansion of the road network within PAs for reducing tourism pressures and improving patrolling; (d) improvements to PA management infrastructure for better management of forest and wildlife resources; (e) species monitoring and recovery programs; (f) protection of inviolate areas for species conservation; (g) implementation of real time field based monitoring systems; (h) strengthening enforcement through the introduction of SMART (Spatial Monitoring and Reporting Tool) patrolling; and (i) improving mobility of PA staff for better enforcement.

The project will reward innovation, performance and accountability in PA conservation and management. A review of performance of this sub-component will be carried out at mid-term adopting the management effectiveness tracking tool (METT) of the World Bank/World Wide Fund for Nature (WWF, 2007). Based on the findings of such review, project funds may be reallocated to better performing PAs or to other PAs. This competitive element is expected to improve efficiency and promote more cost-effective and relevant interventions.

*Sub-component 3(b): Nature-based Tourism in protected areas (US\$ 6 million).* This sub-component aims at enhancing the quality of nature-based tourism through planning of nature-based tourism and visitor services in PAs, based on needs and carrying capacity assessments. The sub-component will support the: (a) preparation of plans for enhancing nature-based tourism in selected PAs, including establishing the optimum number of visitors; (b) development and renovation of visitor services infrastructure, such as construction and renovation of visitor centers, comfort facilities; eco-friendly park bungalows and camp sites, and infrastructure for new visitor experiences; (c) construction of nature trails,

wayside interpretation points, observation towers, wildlife hides, and canopy walks; and (d) development of comprehensive accreditation systems for nature-based tourism services, including related guidelines and others.

***Sub-component 3(c): Institutional capacity and investment capability of DWC and FD (US\$ 6.6 million).*** This sub-component will support activities to strengthen the institutional capacity of the DWC and FD to implement reforms and decentralized decision making. It will finance activities to improve skills and capacity in for adaptive and effective management of PAs. It will also support capacity strengthening including the infrastructure development at the National Wildlife Research and Training Center and the Sri Lanka Forestry Institute and its affiliated institutions, setting up of the DWC Marine Unit and forensic laboratory. It will also finance development of monitoring and evaluation capabilities, targeted studies, technical assistance and equipment for long-term monitoring of status of critical biodiversity and forest resources, setting up of the project website and maintenance, monitoring and evaluation of project results and development of capacity to co-manage wildlife and forest resources with communities and other stakeholders.

#### **Component 4: Project Management (US\$ 1.0 million)**

Component 4 will finance the Project Management Unit (PMU) and implementing agencies in project management, project monitoring and evaluation (M&E), through the provision of incremental operating funds, consulting services, transportation, equipment and training of administrators covering range of topics, such as administration, planning, budgeting, fiduciary activities, safeguards and monitoring and reporting on project implementation.

#### **1.2.3 Project location**

The field level activities of the proposed project will focus on ecosystems in priority areas identified in Sri Lanka's Biodiversity Conservation Action Plan, the National Conservation Strategy, Protected Area Gap Analysis Study and up-coming REDD+ strategy. The project focuses on two pilot landscapes, PAs and other critical and sensitive ecosystems, land adjacent to PAs and areas with high HEC prevalence. The two landscapes will be selected to represent (i) the biodiversity rich wet zone, and (ii) the dry and arid zone forest ecosystems. The project will support crucial and high priority interventions to conserve and manage such ecosystems and include, where appropriate, close collaboration with the local population to ensure long-term sustainability of project efforts. In addition, to reduce further fragmentation of critical forest areas that provide ecosystems goods and services beyond biodiversity conservation, sites will be selected for community forestry initiatives on the basis of conservation issues faced by the respective forest reserves, including the vulnerability of forests to deforestation and forest degradation. (Ref: ISDS Appraisal Stage – ESCAMP)

#### **1.3 Objective of the Environmental Assessment and Management Framework**

Projects and Programs financed with IDA resources need to comply with World Bank Operational Policies. Therefore, components and related activities eligible for funding under this project will be required to satisfy the World Bank's safeguard policies, in addition to conformity with environmental legislation of the GOSL.

However, since details of sites and specific investments of the project are not available at this stage, site-specific Environmental Assessments (EA) cannot be conducted. What is possible at this stage would be to carry out an identification of generic issues that are typically associated with activities that would potentially be funded by the project and apply the information to site specific environmental assessments, as and when the need arises.

Therefore, the purpose of this document is to outline a framework for environmental assessment and management, giving details of potential environmental issues and guidelines on what type of environmental assessment tools to be applied for various sub-project activities. This will serve as the basis in the preparation of, site-specific specific Environmental Assessments and/or Environmental Management Plans (EMPs). As stated earlier, it is being submitted in lieu of a project EA and has formed the basis for appraising the environmental aspects of the project. It will be made available for public review and comment in appropriate locations in Sri Lanka and in IDA's Public Information Center in accordance with World Bank's policy of Access to Information.

It is expected that detailed environmental assessments (EAs and EMPs) for sites and/or for activities will be carried out (in accordance with this Framework) by the implementing agencies and will be reviewed and cleared by the Central Environmental Authority or designated Project Approving Agency (PAA), as applicable, under prevailing national environmental legislation in Sri Lanka for nationally prescribed projects (refer sections 2.1 to 2.4) if applicable and by IDA for all physical activities prior to the approval of disbursement of funds.

The objectives of this Environmental Assessment and Management Framework are:

- a. To establish clear procedures and methodologies for the environmental planning, review, approval and implementation of subprojects to be financed under the Project
- b. To carry out a preliminary assessment of environmental impacts from project investments and propose generic mitigation measures.
- c. To specify appropriate roles and responsibilities, and outline the necessary reporting procedures, for managing and monitoring environmental and social concerns related to subprojects
- d. To determine the training, capacity building and technical assistance needed to successfully implement the provisions of the ESMF
- e. To provide practical resources for implementing the ESMF

## Chapter 2: Introduction to Protected Area Network of Sri Lanka

Despite its small size, the island exhibits a wide array of ecosystems with a remarkable diversity of species: considered to be the richest per unit area in the Asian region. Sri Lanka has several distinct climatic zones, each with characteristic forests and wildlife. Sri Lanka's wetlands are also diverse, comprising 103 major rivers with their associated marshes and over 10,000 irrigation tanks that harbour wetland species. The country has rich marine and coastal biodiversity along its 1,620 km coastline, including coral reefs, mangroves, sea grass beds, salt marsh vegetation, sand dunes and beaches. The high biodiversity has been influenced by a complex geological history, altitudinal variation, climate determined mainly by the distribution of rainfall both spatially and temporally, and the island's placement in the Indian Ocean. Isolation for over 20 million years has resulted in an exceptional degree of endemism, including a large number of geographic relicts and many point endemics that are restricted to extremely small areas within a single forest. Due to a long history of agriculture that stems from a unique hydraulic civilization (in which the exercise of authority was linked to the control of water sources and distribution using advanced technology) that flourished for many centuries, Sri Lanka also has rich agrobiodiversity, resulting from selection by farmers and adaptation to varied ecological conditions.

### Forests

Due to its geo-evolutionary history and marked differences in spatial distribution of rainfall, altitude and soil, Sri Lanka, exhibits a multitude of different forest types. Each major climatic zone has characteristic vegetation and forest types, with most of the endemics being concentrated in the Wet Zone forests. The temperature and altitudinal differences in the Wet Zone have in turn contributed to the presence of certain species that are characteristic of the Low, Mid and Montane Zones. The lowland forests occurring at 0-1,000 m are characterized by a dense canopy of trees, dominated by dipterocarps, reaching heights of up to 45 m. In addition to timber species, these forests contain many Non Timber Forest Products (NTFPs) and serve important watershed functions. The cloud forests of the Montane Zone are critically important for fog interception and the maintenance of hydrological cycles. The lowland Intermediate Zone contains the distinct tropical moist evergreen forests. The Dry Zone has characteristic tropical dry mixed evergreen forests, which are more open than Wet Zone rainforests. Due to historical factors, the Dry Zone forests are secondary, although climax vegetation can be found in small isolated hills of this region. These forests change into the characteristic thorny scrub in the very dry north-western and south-eastern regions of the country.

The importance of Sri Lanka's forests at the global level is apparent by the presence of four International Biosphere Reserves (i.e. the Sinharaja forest, Hurulu Forest Reserve, KanneliyaDediyagala-Nakiyadeniya Forest Reserve Complex and the Bundala National Park) and two Natural World Heritage Sites (Sinharaja forest and the Central Highlands Serial World Heritage Site comprising, Knuckles Conservation Forest (KCF), Peak Wilderness Protected Area (PWPA), and Horton Plains National Park (HPNP). High biodiversity and endemism of the Wet Zone forests, is also partly why Sri Lanka (together with the Western Ghats of India) is ranked among the world's 34 biodiversity hotspots.

### Status of forest cover

The total dense and open forest cover of the island (excluding forest plantations and other forms of vegetation) was estimated at 1.9 million ha in 2010. This includes 16,037 ha of mangroves.<sup>23</sup> In addition, there are 79,941 ha of forest plantations. The demand for wood and wood products is mainly met from home gardens, rubber, coconut and tea plantations, and privately held woodlots, considerably reducing the pressure on natural forests.

### The Wild Life Protected Area Network

Up to 14% of the island's land mass falls within protected areas, ranging from 22 National Parks and 65 Sanctuaries, to 3 Strict Nature Reserves, 5 Nature Reserves and 1 Jungle Corridor, under the jurisdiction of the Department of Wildlife Conservation (DWC). Dotting the different climatic regions of the island, each of these areas offer diverse and unique experiences and have high conservation value. The large expanse of landscape of wildlife habitats, within which National Reserves and other Protected Areas form the core, enables the long term conservation prospects of charismatic and wide ranging species such as elephants, leopards and sloth bear. These are all species which are gradually reaching highly endangered status globally.

Apart from preserving the biological resources rich in diversity together with their natural habitats, the network of PAs protects almost all the large scale reservoirs of the country which provide water for agriculture and generation of hydro-power. Since 1950s, all the reservoirs in the Gal Oya Valley including Senanayake Samudra, all Mahaweli reservoirs and those fed with Mahaweli water in the Central and North Central Provinces, all the reservoirs in the Southern Part of the country including Udawalawa, Mau Ara, Lunugamvehera and Veheragala are protected together with their catchment areas, within the network of PAs.

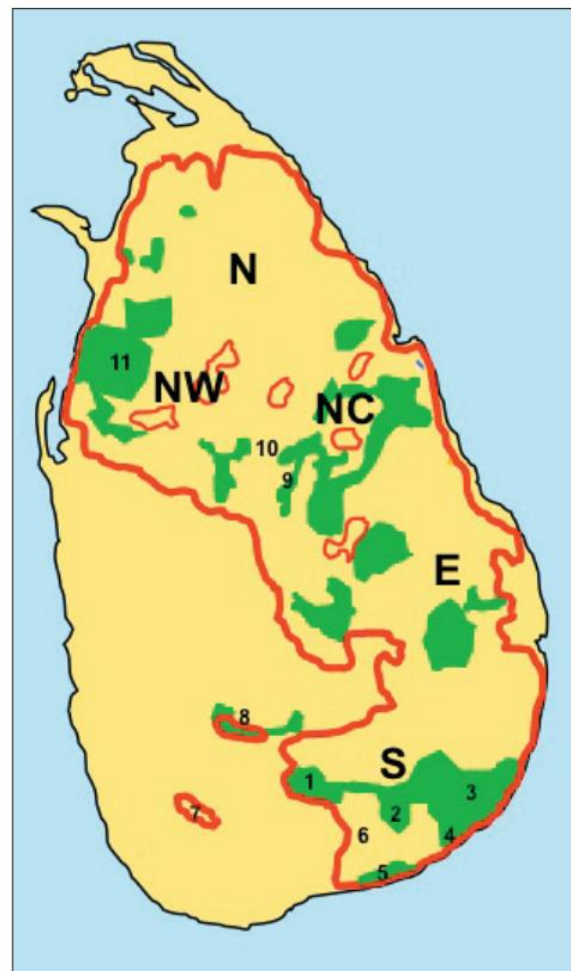
### Elephant Habitats

Elephants are found over almost the entire dry zone in an area approximately 60% of the island. Development activities have a major impact on elephant densities and distribution at a fine scale, with permanent settlements and cultivations excluding elephants entirely.

However, given that their home ranges in Sri Lanka are 50-250 km<sup>2</sup> elephants in Sri Lanka can still be considered a single contiguous population. It does not make sense to give exact elephant numbers for a particular park or administrative area given the many shortcomings of counts and as elephant home ranges are not limited to such areas but overlap with adjacent areas. However elephants are also not limited to protected areas and higher densities are found outside where food and water is more plentiful.

#### Elephant Distribution Range (DWC, 2011)

Current elephant distribution in Sri Lanka is depicted in the map above. Areas of distribution are demarcated by a heavy red line. Elephants are absent in polygons demarcated by a thin red line. Green polygons denote DWC protected area.



## **Role and Importance of Forests**

***Biodiversity and ecosystem values.*** Conservation of Sri Lanka's forests is of considerable importance for maintenance of numerous ecosystem services essential for the country's 20 million people and for future national development. The Wet Zone forests have been identified as the most important in terms of biodiversity, as well as for soil and water conservation, by the National Conservation Review (NCR) of natural forests carried out by the Forest Department in the 1990s. These rainforests harbor nearly all the country's woody endemic flora, about 75% of the endemic fauna, all the endemic genera.<sup>37</sup> The level of endemism in Wet Zone forests ranges from 37-64% for woody plants and 14-52% for animals.<sup>37</sup> The NCR also revealed that 79% of the woody plant diversity (including 88% of endemic woody plant species) and 83% of faunal diversity (including 85% of endemic faunal species) in the island are represented in just eight units of contiguous forests. Although endemism at 10-16% in the Dry Zone forests for species is lower and generally less diverse.<sup>37</sup> they are extremely important as habitats for the charismatic large mammals that are of great value to the tourist industry and the country's economic development. Sri Lanka's forests also maintain hydrological cycles and provide freshwater for agricultural and domestic use and to produce hydroelectricity (comprising 52.6% of power generation in 2010).<sup>205</sup> A key ecosystem service provided by forests was also revealed in the aftermath of the 2004 tsunami to provide protective coastal shelterbelts through coastal afforestation.

The Wet Zone forests in particular (even the degraded forest fragments) have a high watershed value, as rural villagers near Wet Zone forests depend heavily on freshwater for their daily domestic requirements – either directly or for recharge of ground water from wells. The montane cloud forests are deemed extremely important for fog interception and the maintenance of the island's water balance and hydrological cycles. Many of the critical watersheds in the uplands fall within the protected area network of the DWC (e.g. Horton Plains, Peak Wilderness).

***Economic importance.*** A conservative estimate in 1995 identified a 6% contribution of the forestry sector to the national economy of Sri Lanka, mainly from the production of timber, sawn wood and firewood.<sup>206</sup> Eleven percent of the share of the national wood supply is from forest plantations, while home gardens provide 42% (considered less than its potential). Rubber and coconut plantations add another 29% to the national wood supply. The State Timber Corporation obtains timber harvested from state lands, mostly from forest plantations annually released by the FD. Forests of all zones are important in terms of domestic and industrial uses to medicine, and other cottage industries. Although forest dependency in villages near Wet Zone forests has declined perceptibly during the past few decades, due to a shift towards cultivation of cash crops, many villagers continue to obtain firewood, medicinal plants, food items and small wood requirements from adjacent forests. Sri Lankan forests - both natural and planted - provide a variety of NTFPs, such as seeds, fruits, mushrooms, herbaceous material, oils, exudates such as gum resin, sap, stems, latex and gums and several plants of high medicinal value to local people. The aesthetic and recreational value of forests under the management of the FD and the DWC will be an essential component of the socio-economically important tourism industry, which aims to attract 2.5 million tourists in 2016. Currently, the FD maintains six forests as recreational areas for the public. The revenue to the government from 66,903 visitors to these areas amounted to LKR 8.9 million in 2008. Likewise, the National Parks of the DWLC are major tourist attractions. The FD and DWC are in charge of two UNESCO Natural World Heritage Sites, featuring 4 forests; and four International Man and the Biosphere Reserves. With the improved security situation following the liberation of areas affected by the separatist conflict over a 30-year period, a significant increase in both local and foreign visitors is expected to these forest areas. In view of the recognition of forests to the national economy, a methodology is being developed to value the forestry sector contributions to the national economy by accounting for NTFPs, timber, fuelwood and ecosystem services, including carbon sequestration and biodiversity values.



***Cultural values of forests.*** Many forests are of cultural and religious value to people due to the presence of Buddhist and Hindu shrines and temples. The most famous of these are the Peak Wilderness Forest (a component of the serial Central Highlands World Heritage Site) which has the world famous Adam's Peak Shrine featuring the footprint of Lord Buddha. Villagers living near forests also pay obeisance to forest living local deities who play an important part in their daily lives, agricultural practices and health related rituals.

### **Governance aspects for forest conservation**

***Legal provisions to reduce deforestation and forest degradation.*** Overall, there are about 80 laws to conserve Sri Lanka's environment, many of which are of direct relevance for conservation of forests.<sup>44</sup> Of prime importance is the Forest Ordinance (FO), followed by the National Heritage Wilderness Area Act No. 3 of 1988 and the Flora and Fauna Protection Ordinance (FFPO). Both the FO and FFPO have been revised periodically to enhance their efficacy to improve governance. Chief among the other laws that have significant impact on forest conservation are the National Environmental Act, the Coast Conservation Act and the Soil Conservation Act. All laws that have bearing on forest conservation and management are given Table A2a-2; the main laws are discussed below.

*The Forest Ordinance No. 16 of 1907, and its subsequent amendments including Act No. 23 of 1995 and Act No. 65 of 2009.* The Forest Department is responsible for the implementation of this Ordinance which has been subject to many revisions. This Ordinance contains provision to: declare forests as a particular category of Reserved Forests; protect state forests from illegal felling, clearing, encroachment, removal of produce etc.; impose penalties for violation of the law; control felling and other forms of forest uses; and regulate transportation of timber. Initially promulgated to protect and create Reserved Forests primarily for timber production, the FO has become greener with recent amendments. The amendment Act of 1995 created Conservation Forests for strict protection, while the 2009 amendment empowered the Conservator General of Forests to enter into agreements with stakeholders to carry out community participatory programs for the development of other categories of forests. It also made provision for the preparation of management plans mandatory for Conservation forests and Reserved forests managed by the FD. A shortcoming in the FO is that it contains no provisions for the control of mining in state forests which is an increasing cause of forest degradation. Enforcement of the law with regard to control of illegal felling and forest encroachment for tea cultivation and housing is fairly strong, although at times weakened due to external influences. Further, the FO does not legally define buffer zones to Conservation Forests or prohibit activities in such areas.

*The National Heritage Wilderness Area Act No. 3 of 1988.* The Forest Department is the implementing agency for this very powerful Act, which was enacted to enable the preservation of unique natural ecosystems under the jurisdiction of the Forest Department. Thus far, only Sinharaja forest has been declared under this Act.

*The Fauna and Flora Protection Ordinance No. 2 of 1937, and its subsequent amendments including Act No. 49 of 1993 and Act No. 22 of 2009.* The Department of Wildlife Conservation is responsible for implementing this Act. It recognizes six categories of wildlife reserves as Protected Areas (PAs). The Act provides a list of protected species wherever they are found in the country, and states the penalties for violation of the law. The FFPO of Amendment Act No 1 of 1970 recognizes rights of indigenous people acquired prior to establishment of a national reserve or sanctuary, but these rights would lapse if not exercised for a continuous period of 2 years. This Act also enables the DWC to request an EIA for developmental activities in areas within one mile from the boundary of any National Reserve declared under the FFPO. The 2009 revision makes the preparation of management plans for the national reserves or sanctuaries mandatory, establishes buffer zones for PAs, and contains many other new features that facilitate an efficient management of reserves by the DWC. There have been many amendments to this

Act for the purpose of strengthening it, but enforcement remains fairly weak with regard to protected species and encroachments.

*Felling of Trees Control Act No. 9 of 1951.* The Agriculture Department is the implementing agency for this Act, which makes provision for the prohibition, regulation or control of the felling of specified valuable tree species, including cultivated species such as jak and breadfruit. This Act is in fairly effective with respect to stemming the felling of the listed species, but transportation of such timber is controlled more effectively by the FO.

*The National Environmental Act No. 47 of 1980 and the amendment No. 56 of 1988 and Act No. 53 of 2000.* The NEA served to create the Central Environmental Authority, while its amendment of 1988 empowers all project approving agencies to obtain an EIA for prescribed developmental projects from any developer (including the State). The NEA provides for the establishment of District Environmental Agencies (DEAs) in each administrative district for devolution of powers to the regions in relation to environmental management through the Provincial Councils and the DEAs. Environmental Protection Areas administered by the CEA are gazetted under the NEA, but due to lack of regulations limiting development in EPAs this does not achieve desired objectives. For example, although EPLs are necessary, monitoring, to check whether the prescribed pollution limits are adhered to, is very weak and capacity for EIAs that address biodiversity issues adequately is also weak in the country.

*The Coast Conservation Act No. 57 of 1981 as amended by Act No. 64 of 1988.* This Act requires the Coast Conservation Department to survey the coastal zone and inventory the resources available therein, including coastal ecosystems (such as mangroves and other coastal vegetation including forests under the FD) and material regularly removed for commercial or industrial purposes from this area, and to draw up Coastal Zone Management Plans periodically. The Act vests the administration, custody and management of the coastal zone in the State, while the responsibility of administering and implementing the Act is devolved to the Director of the Coast Conservation Department who is empowered to issue permits for all development activities undertaken within the coastal zone (including by the State) after consideration of an EIA. Implementation of this Act is weak with regard to coastal habitat conservation, and there are gaps in the control of development actions in the coastal zone.

*Soil Conservation Act, No. 25 of 1951 as amended in 1996.* This act empowers the Minister of Agriculture to declare and acquire “erodible areas”; to specify measures regulating the use of land in such areas; and to acquire land for carrying out measures to prevent erosion. Deficiencies in the original Act have been rectified in the Amended Act of 1996. Accordingly, there has also been a shift of focus from the control of soil erosion to land resource management, while covering damage by floods, stream bank erosion, salinity, alkalinity and water logging.

***Policy and institutional context.*** The Forest Policy governs the forestry sector while its implementation is furthered by the Forestry Sector Master Plan of 1995 which covers the period 1995-1920. Both effectively set the stage for control of deforestation and forest degradation The Forest Policy of 1995 and implementation of the Forestry Sector Master Plan, together with revisions of the FFPO and the FO, and various measures for institutional strengthening and decentralization of the FD and DWLC, have contributed to reduce the rate of deforestation in the island from 1995. Sri Lanka has a host of other policies and plans that have a positive impact on reducing deforestation and forest degradation.

*The National Fore* amendment in 1938, national forest policy has evolved through the 1953 revision, the restatements of 1972 and 1980, and the present comprehensive revision in 1995. 213 Initial policies focused more on timber and firewood production, with environmental protection measures being secondary. In contrast, the main objectives of the 1995 policy are: to conserve forests for posterity, with particular regard to biodiversity, soils, water, and historical, cultural, religious and aesthetic values; to

increase the tree cover and productivity of forests to meet the needs of present and future generations for forest products and services; and to enhance the contribution of forestry to the welfare of the rural population, and strengthen the national economy, with special attention to equity in economic development. The 1995 policy thus emphasizes conservation of forests as its primary aim and multiple-use as a secondary aim and has clear objectives and policy statements. It is progressive in advocating a complete reorientation of the traditional “command and rule” approach to forest and protected area management by promoting involvement of local people in planning and managing forests. This policy also emphasizes the importance of retaining the present natural forest cover and increasing overall tree cover as a whole, including non-forested areas. It also reiterates that the State will observe international forest-related conventions and principles that have been agreed upon by Sri Lanka. In pursuance of this policy, the functions of the Forest Department have become ‘greener’ since 1995 and shifted from a production orientation to conservation of the nation's forest biodiversity.

*The Forestry Sector Master Plan of 1995.* This is a macro-level development plan which provides a short-term, medium-term and long-term plan and strategy for implementation of the National Forest Policy of 1995. Its expected impacts are described in programs outlining the immediate, medium-term and long-term actions. It provides a clear framework for: detailed project formulation, implementation and resource allocation; institutional strengthening for implementation; and information dissemination to facilitate planning. It shares the objectives of the Forest Policy, which can be summarized as halting deforestation to conserve biodiversity and soil and water resources, and to provide for various forest products sustainably to the people. For the first time, due recognition is given for partnerships as a basic forestry development and forest conservation strategy. It explores possibilities for achieving people-driven “people’s forestry” rather than state-driven community or “participatory forestry”, but also recognizes that local people will only help manage and protect forests if they have tangible incentives to do so. Although the public sector role as forest authority and manager of protected areas is reiterated, the plan also explores and recommends effective forms of partnerships with communities, the private sector and NGOs for joint forestry management or leasehold forestry. The core elements of the plan development program are: conservation, comprising biodiversity conservation in forests, forestry and soil and water conservation; multiple use natural forests; home gardens and other non-forest tree resources; forest plantations; and forest product utilization. It also identifies support programs under policy, legislation and institutions; human resources; forestry research; forestry extension and support services; planning, monitoring and evaluation. It is significant that there is an Environmental Assessment of the plan to identify its environmental and social impacts and ways of mitigating negative impacts. The plan also accepts the need for a system to monitor threats to Protected Areas (e.g. encroachment) and assisting with EIAs, and recognizes the need for information networks to be established between *bona fide* institutions to make information accessible, with adequate steps to prevent data pillage.

*The National Wildlife Policy of 2000.* This policy spells out the commitment of Government to conserve wildlife resources for the benefit of present and future generations in a transparent and equitable manner. It addresses policy needs that respond to the evolving needs of Sri Lankan society and the mandate conferred as obligations under the Convention on Biological Diversity. It also recognizes the need for appropriate and effective management of PAs, taking into consideration the needs of local communities and providing support to wildlife resource managers by way of reorientation of perception and institutional strengthening and decentralization.

*The National Environmental Policy and Strategies of 2003.* This policy aims to ensure sound environmental management within a framework of sustainable development in the country to balance the needs for social and economic development and environment integrity. It presents the course of action to be taken by Sri Lanka for safeguarding the environment and ensuring that economic development is sustainable. The policy addresses environmental dimensions under conservation and management of four basic groupings of natural resources, namely: land, water, atmosphere and biological diversity. It

addresses restoration and conservation of ecosystems; conservation of threatened species; conservation of forest and agro-biodiversity and the threat from invasive species. It also underscores the need for valuation of biodiversity in national accounting, research on conservation and sustainable use of biodiversity, protection of traditional knowledge on biodiversity and measures to limit access to genetic resources by external parties unless equitable benefits to the country are assured.

*The National Agricultural Policy of 2007.* Amongst other matters, this policy promotes home gardening and urban agriculture to enhance household nutrition and income; conservation of water resources, efficient water management and soil moisture retention techniques; prevention of water pollution from agriculture; adhering to the National Land Use Policy when allocating land for cultivation purposes; land conservation within watershed areas; enforcing the provisions of the Soil Conservation Act; and facilitating exchange of relevant knowledge among the farming community.

*Sri Lanka's Biodiversity Conservation Action Plan or BCAP (Biodiversity Conservation in Sri Lanka: A framework for Action).* This plan gives a comprehensive overview of the country's species diversity, as well as the biodiversity within the forest, wetland, coastal and marine and agricultural systems; the policies relating to them; and the institutions that have administrative powers over these systems. The document gives conservation objectives and recommended action for the forestry systems as well as several priority cross-cutting and inter-sectoral thematic areas. Sustainable use, research and awareness creation needs are identified where specifically applicable under the forestry systems. Key threats and issues affecting forest biodiversity conservation, objectives to be reached, recommended actions, and the main implementing institutions for such actions have been identified. The Plan also introduces, for the first time, 15 terrestrial and coastal bio-regions to address biodiversity conservation issues in the country. During preparation of the BCAP, the essence of the Forest Sector Master Plan, pertaining to conservation, was reiterated in the actions proposed for forestry systems.

## Chapter 3: Environmental laws, regulations and institutions in Sri Lanka and World Bank environmental safeguard policy requirements

In Sri Lanka, there are over 80 legislative enactments that directly or indirectly relates to protecting and conserving the natural environment and human health. While most of these laws address specific issues pertaining to environment in the respective sector, it was the introduction and enactment of the National Environmental Act (NEA) that provided the overarching legal basis for regulation of pollution and protection of the environment from all sources in a comprehensive manner. The following section outlines the broad legal and institutional framework in Sri Lanka for environmental management and World Bank's environmental safeguards requirements, which will be relevant to the proposed project.

### 3.1 National Environmental (Amendment) Act No. 53 of 2000

As mentioned earlier, a law to incorporate and cover all aspects of environment was made for the first time in 1980. This is the National Environmental Act (NEA) No. 47 of 1980, the basic national decree for protection and management of the environment. The NEA has seen several amendments in the past in a bid to continually make improvements and to respond to the challenging needs of the time. There are two main regulatory provisions in the NEA implemented by the Central Environmental Authority (CEA) through which impacts on the environment from the process of development is assessed, mitigated and managed.

- The Environmental Impact Assessment (EIA) procedure for major development projects. Regulations pertaining to this process have been published in 1993 and are available with the CEA.
- The Environmental Protection License (EPL) procedure for the control of pollution. Regulations pertaining to this process have been published in 1990 and are available with the CEA.

#### 3.1.1 Environmental Impact Assessment

Sri Lankan Government recognizes EIA as an effective tool for the purpose of integrating environmental considerations with development planning. The application of this technique is considered as a means of ensuring that the likely effects of new development projects on the environment are fully understood and taken into account before development is allowed to proceed. The importance of this management tool to foresee potential environmental impacts and problems caused by proposed projects and its use as a means to make projects more suitable to the environment are highly appreciated.

The legal provision for EIA in Sri Lanka was first included in the Coast Conservation Act No. 57 of 1981 (see below). These provisions were restricted to the Coastal Zone as defined by this Act. The broader legal framework for the EIA process in Sri Lanka was laid down by the amendments made to NEA in 1988 through National Environmental (Amendment) Act No. 56 of 1988. The provision relating to EIA is contained in Part IV C of the National Environmental Act. The procedure stipulated in the Act for the approval of projects provides for the submission of two types of reports Initial Environmental Examination (IEE) report and Environmental Impact Assessment (EIA) report. Such reports are required in respect of "prescribed projects" included in a Schedule in an Order published by the Minister of Environment in terms of section 23 Z of the act in the Gazette Extra Ordinary No. 772/22 dated 24th June 1993. This amendment makes EIA mandatory for whole of Sri Lanka and transformed Central Environment Authority (CEA) into enforcement and implementing agency.

Further, any developmental activity of any description whatsoever proposed to be established **within one mile of the boundary of any National Reserve**, should receive the prior written approval of the Director

of Wildlife Conservation. The Fauna and Flora (Protection) Ordinance mandates that the project proponent should furnish an IEE of EIA report in terms of the National Environmental Act for this purpose. In order for a project to be approved the project proponent should submit either an Initial Environmental Examination (IEE) report or an Environmental Impact Assessment (EIA) report. If it's an EIA report that has been submitted there is mandatory period of 30 days during which the public can inspect the document and comment on the report. Further, a public hearing may be held to provide an opportunity to any member of the public to voice their concerns. A decision whether to approve the project will be made only after public consultation is done and necessary major issues are resolved.

The EIA process is implemented through designated Project Approving Agencies (PAAs). PAA's are those organizations that are directly connected with such a prescribed project. At present, 23 state agencies have been recognized by the Minister as PAAs which include the DWC, FD and CEA. A given organization cannot act both as the PAA as well as the project proponent. In such cases the CEA will designate an appropriate PAA. Similarly when there are more than one PAA the CEA must determine the appropriate PAA. In the event of doubt or difficulty in identifying the appropriate PAA, CEA itself will function as the PAA.

Application to ESCAMP – The EIA/IEE regulations will apply to any new activity proposed for the adjacent areas of PAs or any other sensitive eco-system outside the PA system if initial screening reveals they have potential to trigger adverse environmental impact.

### **3.1.2 Environmental Protection License**

The Environmental Protection License (EPL) is a regulatory/legal tool under the provisions of the National Environmental Act. The EPL procedure has been introduced to prevent or minimize the release of discharges and emissions into the environment from industrial activities in compliance with national discharge and emission standards, to provide guidance on pollution control for polluting processes and to encourage the use of pollution abatement technology such as cleaner production, waste minimization etc. Here the industries are classified into three lists named A, B and C. List A comprise of 80 potentially high polluting industries, List B comprise of 33 medium polluting industries and List C comprise of 25 low polluting industrial activities.

For List A and List B industries the project proponent must submit a duly filled application (can be obtained from CEA headquarters, provincial and district offices or downloaded from [www.cea.lk](http://www.cea.lk)) for each prescribed activity to provincial or district office of CEA who will evaluate the application and determine the relevancy of issuing an EPL and the adequacy of the details furnished and determine and appropriate inspection fee. Then the project proponent must pay the prescribed fee to CEA headquarters, provincial or district office of CEA and submit the receipt to the relevant provincial or district office of the CEA. Then a team of officers will carry out an inspection and submit a report based on the site visit and the information provided. If the Issue of EPL is recommended the project proponent can obtain the EPL upon payment of license fee.

For List C industries issue of EPL is delegated to local authorities (Municipal councils, Urban councils or *Pradeshiya Sabha*). The procedure to be followed is the same except the Local Authority will appoint a Technical Evaluation Committee that will make the final decision regarding the issue of EPL based on the field assessment report and information furnished by the industrialist. The EPL can be renewed by submitting a renewal application three months prior to the date of expiry to the relevant authority who will conduct an inspection and determine whether the EPL should be renewed.

Application to ESCAMP – It is unlikely that EPL regulations will apply to activities under ESCAMP.

### **3.1.3 Strategic Environment Assessments**

Although project level EIA is an effective tool in addressing environmental impacts at project level, it often fails to take into account cumulative impacts of several projects. Under such circumstance Strategic Environment Assessment (SEA) is a more effective tool in identifying cumulative impacts on the environment of a specific policy or programme of works. At present SEA is still not a mandatory requirement in Sri Lanka. However, the Cabinet of Ministers has approved implementation of SEA for policies, programs and plans in Sri Lanka. Therefore, all Ministries, Departments and Authorities who are responsible for implementing a new policy, plan or programme should carry out a SEA for the new policy, plan or programme prior to its implementation and submit a copy of the SEA report to the Central Environmental Authority for review and comments.

Application to ESCAMP – May apply to ESCAMP for developing landscape plans.

### **3.2 Coast Conservation Act (CCA) No. 57 of 1981**

The projects located wholly or partly within the coastal zone (the area lying within a limit of three hundred meters landwards of the Mean High Water line and a limit of two kilometers seawards of the Mean Low Water line) must undergo the approval process that is laid down in the Coast Conservation Act irrespective of its size. Only those projects located totally outside the Coastal Zone will be subject to the approval process laid down in the National Environmental Act. Therefore, any development work taking place within this zone falls under the jurisdiction of Coast Conservation Department (CCD). According to the CCA, Director of the CCD has the discretion to request for an EIA/IEE from the project proponent if the initial screening reveals significant impacts in the coastal areas by the project. The process is very much similar to the NEA excepting that the Director of the CCD reserves the right to request for an EIA/IEE and also to make a final decision.

Application to ESCAMP – Since most sub-project activities are likely to take place inside terrestrial and marine PAs under the DWC and FD or in the adjacent areas, application of CCA is unlikely. However, any activity with potential to cause negative impacts on the coastal environment (that do not fall within DWC or FD jurisdiction) need to comply with the EIA/IEE regulations of the CCA in addition to the coastal laws.

### **3.3 Fauna and Flora Protection Ordinance (FFPO) Amended Act No. 49 of 1993**

EIA provisions are also included in the Fauna and Flora (Amended) Act No. 49 of 1993. According to this Act, any development activity of any description what so ever proposed to be established within a national reserve or within one mile from the boundary of any national reserve, is required to be subjected to EIA/IEE, and written approval should be obtained from the Director General, Department of Wildlife Conservation prior to implementation of such projects. The FFPO follows a similar process as the NEA in conducting scoping, setting the terms of reference, preparation of EA, review of EA and public

consultation and disclosure. The decision of project approval or disapproval is finally granted by the Director of the Department of Wildlife Conservation.

Application to ESCAMP – Sub-projects will be implemented inside and adjacent areas of wildlife reserves and hence this legislation will have important implications to project activities.

### **3.4 The North Western Provincial Environmental Statute No. 12 of 1990**

Provincial Environmental Act (PEA) of 1991 implemented by the North Western Provincial Council applies 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 27<sup>th</sup> 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 process is similar to that of the NEA and will be headed by one of the two listed PAAs; (a) Provincial Environmental Authority or (b) Provincial Ministry of Fisheries and Aquaculture.

*(A detailed account of the EIA/IEE procedure under each of these acts are provided in Annex1)*

Application to ESCAMP – Similar to IEE/EIA regulations applicable under the NEA. In areas of the North Western Province, this Act will supersede the NEA if it is not an area under the DWC or CCD.

### **3.5 Key Institutions in Environmental Management and Governance**

#### **3.5.1 Ministry of Mahaweli Development and Environment (MoMDE) and the Ministry of Sustainable Development and Wildlife (MoSDW)**

The subject ministry of environment was first established in 1990, and is responsible for providing 'leadership to manage the environment and natural resources in order to ensure national commitment for sustainable development for the benefit of the present and future generations'. The ministry formulated the National Environmental Policy in 2003, and the Caring for the Environment in 2003 followed up by Greening Lanka in 2008 as action plans towards the implementation of the National Environment Policy. Department of Forest Conservation, Marine Environment Protection Authority, Central Environmental Authority and the Geological Surveys and Mines Bureau are some of the key agencies coming under this Ministry.

The MoMDE as the lead Ministry for environmental and natural resources management and based on its current capacity to manage externally financed projects will lead the implementation of ESCAMP. The Project will be primarily implemented by FD (an agency under MoMDE) and DWC (an agency under the Ministry of Sustainable Development and Wildlife - MoSDW) with the involvement of their sub-national level offices, particularly those activities that are under their jurisdiction and mandates.

Landscape planning will be led by the Sustainable Development Secretariat of MoSDW in collaboration with relevant planning agencies of the Government. As the human-elephant conflict management requires a multi-stakeholder approach, MoSDW will also take the lead in implementation of the HECOEX activities. Implementation of community-led activities will be through selected and registered



community-based organizations (CBOs) supervised and monitored by FD and DWC and in partnerships with local authorities, non-governmental agencies and/or private sector.

### **3.5.2 Central Environmental Authority (CEA)**

The Central Environment Authority established under the National Environment Act is primarily responsible for enforcing the National Environment Act as well as formulating and implementing other environmental policies. In order to achieve this objective the CEA is empowered adequately through the provisions of the NEA. The CEA operates provincial, regional and sub-regional offices that handle most of the compliance and enforcement functions. In the head office, the Environmental Impact Assessment (EIA) unit and the Environment Pollution Control Unit take care of the EIA and EPL processes respectively. All development activities in areas which come under the jurisdiction of the NEA have to fill in Basic information Questionnaire (see Annex2) based on which the CEA carries out its initial screening of impacts and decides on the next steps. The CEA will be a relevant stakeholder on a variety of issues in the implementation of ESCAMP.

### **3.5.3 Department of Wildlife Conservation (DWC), Coast Conservation Department (CCD) and Forest Department (FD)**

These three agencies respectively, as the titles imply, are responsible for managing designated wildlife areas, coastal zone and all forest areas of the country. Any activity within the wildlife areas will require prior consent of the DWC. The DWC will generally not allow any land-use changes or extractive uses within protected wildlife areas and similarly, the Forest Department has its restrictions on usage of forest land depending on the category of protection. All building activities within the coastal zone will need to apply for a permit from the CCD and will also need to adhere to the set-back zones determined by the Department for each coastal stretch. All three departments operate through a decentralized administrative structure. However, all important decisions are generally made in the head offices located in Colombo. The DWC and the FD will be two key implementing partners for the ESCAMP.

### **3.5.4 Provincial Councils**

Within this unitary system, considerable powers were devolved from the center to the provinces through the thirteenth amendment to the Constitution in 1987. The provincial councils [PCs] were established to devolve powers and administrative authority to the sub-national level. The responsibilities assigned to the PCs were categorized as “devolved” and “concurrent” subjects. For the former, both legislative and executive powers were transferred to the PCs. Thus, each PC has the power to pass statutes regarding devolved subjects that will then override existing national laws within that province. A PC may also pass legislation regarding concurrent subjects, but only after “consultation” with the central government. As such, environment is a subject on the concurrent list. However, only the North Western Provincial Council has passed a statute for environmental management (refer section above) and in its area of jurisdiction the aforementioned statute supersedes the NEA. While all the other PCS have the same right to do so, only the North Western PC has implemented a separate environmental statute. Most PCs have Environmental Officers who assist in environmental planning and monitoring. They may also implement their own environmental programs if they have the administrative, technical, and financial capacity to do so.

### **3.5.5 The Local Authorities (LA)**

Local authorities consist of Municipal Councils, Urban Councils and *Pradeshiya Sabhas* and constitute the third level of governance. Because environmental management is a devolved responsibility under 13<sup>th</sup>

amendment of the constitution, LAs are expected to play a major role in protecting the environment. Activities related to environmental management in the LA are generally coordinated by an environmental officer attached to the LA. All complaints from the public concerning environmental issues in the LA are received by the EO. This may lead to investigation of complaints and recommendations to responsible authorities for further action. In some LAs the environmental officers are not available either because the position is not filled or is not approved. In such instances environmental management activities may be carried out as a collateral duty by the development assistant, or by an Environmental Officer attached to the Divisional Secretariat office

Industries/Organizations proposing to undertake activities of low polluting nature must obtain an Environmental Protection License (EPL) from the LA where the activity will be undertaken, an authority delegated to the LAs through the NEA. The LAs are empowered to issue EPLs for 25 types of low polluting activities. However, in general, the knowledge of staff members in the LAs regarding environmental issues and industrial pollution is quite limited, and LAs mostly rely on the CEA for technical guidance. The inspection committees set up to review the EPL will seldom reject applications or revoke existing EPLs unless they are encouraged by an environmental NGO, or advised by a government expert, to do so. Therefore, the environmental planning and management skills in the LAs are rather limited.

The role of PCs and LAs in ESCAMP may become important with regard to Human Elephant Conflict resolution sub-projects.

### 3.6 Compliance with World Bank Operational Policies

World Bank policies and guidelines, pertaining to environmental and social safeguards that may require consideration under this project are as follows:

<b>Safeguard Policies Triggered by the Project</b>	<b>Yes</b>	<b>No</b>
Environmental Assessment (OP/BP/GP 4.01)	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Natural Habitats (OP/BP 4.04)	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Pest Management (OP 4.09)	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Physical Cultural Resources (OP 4.11)	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Involuntary Resettlement (OP/BP 4.12)	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Indigenous Peoples (OD 4.20, being revised as OP 4.10)	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Forests (OP/BP 4.36)	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Safety of Dams (OP/BP 4.37)	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Projects in Disputed Areas (OP/BP/GP 7.60)	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Projects on International Waterways (OP/BP/GP 7.50)	<input type="checkbox"/>	<input checked="" type="checkbox"/>

The main environmental safeguard policy to be triggered under this project will be OP/BP/GP 4.01 on Environmental Assessment. The other two environmental safeguard policies namely, OP/BP/GP 4.36 and 4.04 on forestry and natural habitats respectively, have been identified as there will be activities inside such habitats and will be considered to ensure minimal adverse environmental impacts due to the project.

OP/BP/GP 4.09 on Pest Management has been triggered as some of the proposed forest conservation and human-elephant conflict mitigation strategies may involve increasing efficiency and productivity of farm lands and promoting agricultural production systems in the buffer zones of the supported landscapes. These activities could typically involve pest management and regulation of the rampant use of pesticides by the communities. However, the project will not be procuring pesticides.

OP/BP/GP 4.11 Physical Cultural Resources has been triggered given the uncertainty regarding the exact locations of activities to be carried out under the project. Some forests or landscapes considered by the project may have sites of historical or cultural significance.

### **3.6.1 Compliance with OP 4.01 on Environmental Assessment**

This policy is triggered if a project is likely to have potential (adverse) environmental risks and impacts in its area of influence. The policy requires environmental assessment (EA) of projects proposed for World Bank financing to help ensure that they are environmentally sound and sustainable, and thus to improve decision making. The EA should take into account the natural environment, human health and safety and social aspects in an integrated way. It should also take into account the variations in project and country conditions, the findings of country environmental studies, national environmental action plans, the country's overall policy framework and national legislation, the project sponsor's capabilities related to the environment and social aspects, and obligations of the country, pertaining to project activities, under relevant international environmental treaties and agreements.

When OP 4.01 is triggered, the World Bank classifies proposed projects into one of four categories, depending on the type, location, sensitivity, and scale of the project and the nature and magnitude of its potential environmental impacts.

- (1) A proposed project is classified as Category A if it is likely to have significant adverse environmental impacts that are sensitive, diverse or unprecedented. These impacts may affect an area broader than the sites or facilities subject to physical works.
- (2) A proposed project is classified as Category B if its potential adverse environmental impacts on human populations or environmentally important areas including wetlands, forests, grasslands and other natural habitats are less adverse than those of Category A projects. These impacts are site specific; few if any are irreversible; and in most cases mitigatory measures can be designed more readily than for Category A projects. The scope of an EA for Category B projects may vary from project to project, but it is narrower in scope when compared with Category A projects.
- (3) A proposed project is classified as Category C if it is likely to have minimal or no adverse environmental impacts. For example, technical assistance projects on institutional development, computerization, and training fall in Category C.
- (4) A proposed project is classified as FI when the Bank provides funds to participating national banks, credit institutions and other financial intermediaries (FIs) for on lending at the FIs' risk to final borrowers. In the case of such projects, the FI screens each subproject proposed for financing, and classifies it into any one of three categories: A, B or C. FIs must prepare an Environmental and Social Management Framework, following the Bank's consultation and disclosure requirements as in the case of other safeguards documents (e.g., EAs, RAPs, IPPs). The ESMF, including the screening process for categorization of subprojects, must be spelled out in the operational manual.

World Bank OP 4.01 is very clear that for all Category A projects and as appropriate for Category B projects during the EA process, the project sponsor should consult project-affected groups and local non-governmental organizations (NGOs) about the project's environmental aspects and take their views into account. The project sponsor should initiate such consultations as early as possible. For Category A projects, the project sponsor should consult these groups at least twice (a) shortly after environmental screening and before the terms of reference for the EA are finalized, and (b) once a draft EA report is prepared. The EA should particularly incorporate such comments to improve the project's social acceptability and environmental sustainability. In addition, the project sponsor should consult with such groups throughout project implementation, as necessary to address EA related issues that affect them.

ESCAMP has been placed under environment **Category B**. Although project activities are expected to be environmentally beneficial in the long-term, implementation of certain activities will have the potential to trigger adverse environmental impacts which are likely to be localized and can be mitigated. Since the project will operate in areas of high ecological sensitivity and vulnerability, great care will be taken to address environmental issues at the earliest stage possible in order to minimize their potential impacts.

This means that (a) all activities that fall under the prescribed categories stipulated in the NEA and other local laws (as mentioned earlier) environmental assessments will be done according to local regulations and reviewed by the World Bank for clearance. (b) all other sub-projects that do not require screening according to local regulations but having some level of environmental impacts will be screened using appropriate methodology (as proposed in this manual), depending on the nature and scale of potential impacts, and mitigated. The borrower is responsible for carrying out the EAs and for implementing the necessary safeguards.

### **3.6.2 Compliance with OP 4.01 Annex C Environmental Action Plans (or Environmental Management Plans)**

According to annex C of the World Bank OP4.01 an Environmental Management Plan (EMP) is an essential element of EA reports for Category A projects. The EMP should consist of a set of mitigation, management, monitoring, and institutional measures to be taken during implementation and operation to eliminate adverse environmental and social impacts, offset them, or reduce them to acceptable levels. The plan should also include the actions needed to implement these measures. In preparation of an EMP, the EA consultant should:

- (a) Identify the set of responses to potentially adverse impacts;
- (b) Determine requirements for ensuring that those responses are made effectively and in a timely manner
- (c) Describe the means for meeting those requirements.

More specifically, the EMP should include the following components:

- The EMP should identify feasible and cost-effective measures that may reduce potentially significant adverse environmental impacts to acceptable levels. The plan includes compensatory measures if mitigation measures are not feasible, cost-effective, or sufficient.
- The EMP should define monitoring objectives and specify the type of monitoring needed, with linkages to the impacts assessed in the EA report and the mitigation measures described in the EMP.
- To strengthen the project sponsor's environmental management capability, EMPs should mention any technical assistance that may be needed by the borrower.
- For all three aspects (mitigation, monitoring, and capacity development), the EMP should provide (a) an implementation schedule for measures that must be carried out as part of the project, showing phasing and coordination with overall project implementation plans; and (b) the capital and recurrent cost estimates and sources of funds for implementing the EMP.
- The EMP must be integrated into the project's overall planning, design, budget, and implementation.

During project implementation, the project sponsor should report on compliance with:

- (a) Measures agreed with World Bank on the basis of the findings and results of the EA, including implementation of any EAP, as set out in the project documents
- (b) The status of mitigatory measures; and

- (c) The findings of monitoring programs.

### **3.6.3 Compliance with OP 4.04 Natural Habitats**

The World Bank's Operational Policy OP 4.04 recognizes that conservation of natural habitats and other measures that protect and enhance the environment is essential for long-term sustainable development. The Bank therefore supports the protection, maintenance, and rehabilitation of natural habitats and their functions. The Bank supports, and expects borrowers to apply, a precautionary approach to natural resource management to ensure opportunities for environmentally sustainable development. The Bank does not support projects that, involve significant conversion or degradation of critical natural habitats unless there are no feasible alternatives for the project and its siting, and comprehensive analysis demonstrates that overall benefits from the project substantially outweigh the environmental costs. In projects with natural habitat components, project preparation, appraisal, and supervision arrangements include appropriate environmental expertise to ensure adequate design and implementation of mitigation measures. The Bank expects the borrower to take into account the views, roles, and rights of groups, including local nongovernmental organizations and local communities, affected by Bank-financed projects involving natural habitats, and to involve such people in planning, designing, implementing, monitoring, and evaluating such projects. Involvement may include identifying appropriate conservation measures, managing protected areas and other natural habitats, and monitoring and evaluating specific projects. The Bank encourages governments to provide such people with appropriate information and incentives to protect natural habitats.

The proposed project's objective is similar to that of OP 4.04 and it is highly unlikely that the policy will be triggered in its full force project as the project will not directly affect natural areas in an adverse way. However, some sub-project activities inside natural areas, such as development of tourism facilities inside PAs, may have some degree of negative bearing on the functions of natural areas and hence as a precautionary measure the protective measures recommended by this policy have been considered. Also, as National laws make it mandatory to address issues in natural areas OP 4.04 will be complied with during project implementation.

### **3.6.4 Compliance with OP 4.36 Forestry**

The policy is triggered whenever any Bank-financed investment project (i) has the potential to have impacts on the health and quality of forests or the rights and welfare of people and their level of dependence upon or interaction with forests; or (ii) aims to bring about changes in the management, protection or utilization of natural forests or plantations. The proposed project may finance some eco-tourism activities in protected areas fund tourist facilities to be built but it is highly unlikely that this policy will be triggered in full force. However, as a precautionary measure the policy has been considered so that safeguard measures can be built into the design of the project. The project will not fund any logging activities or forest conversions. All activities inside PAs will be based on strategic PA management plans.

Aside from EA documentation that may be required for sub-projects, there is no free-standing document that is automatically required by the trigger of OP 4.04 and 4.36 as it applies to ESCAMP.

### **3.6.5 Compliance with OP 4.09 Pest Management**

This policy is triggered whenever any bank financed projects (a) procure pesticides or pesticide application equipment and (b) lead to the substantially increased pesticide usage and subsequent increase in health and environmental risk. The policy promotes reduced reliance on chemical pesticides and increased IPM approaches while supporting the necessary policy reform and institutional capacity at the country level to achieve these objectives.

ESCAMP will not be involved in procuring pesticides or in directly facilitating policy discussions. However, some activities in the buffer zones and in strategic landscapes for managing human-elephant conflicts may involve productivity issues in agricultural landscapes. In many buffer zone areas, excessive usage of pesticides has resulted in many environmental and health hazards and intervention may be necessary to promote IPM approaches and organic agriculture by way of knowledge transfer and technical assistance. Hence, this policy is triggered on a precautionary basis.

### **3.6.6 Compliance with OP 4.11 Physical Cultural Resources (PCR)**

Cultural resources are important as sources of valuable historical and scientific information, as assets for economic and social development, and as integral parts of a people's cultural identity and practices. The loss of such resources is irreversible, but fortunately, it is often avoidable. The objective of OP/BP 4.11 on Physical Cultural Resources is to avoid, or mitigate, adverse impacts on cultural resources from development projects that the World Bank finances. Identification and assessment of impacts to PCRs is generally undertaken as part of the EA process and any mitigation measures will be included in the EMPs. Where restoration of heritage assets are undertaken, an approved restoration plan will be necessary. Under this policy too it is essential to ensure any formal clearances/approvals are taken from relevant government authorities as per National legislations.

This policy has been triggered on a precautionary basis as the project area is vast and some of the conservation forests are known to harbor historic sites. There are no sacred forests and landscapes in Sri Lanka and PCRs are mostly in the form of remnants of old civilizations and monasteries. A large majority of these old archeological remains within protected areas have been documented and actions that are needed for their conservation and management are outlined in the respective Protected Area Management Plans that are implemented by the FD and DWC. Once they are documented the management responsibility is transferred to the Department of Archeology, which holds the technical expertise to manage PCRs within Sri Lanka, by the relevant department.

ESCAMP is not expected to trigger PCR impacts, but rather ensure PCRs within PAs are protected. All known sites will be taken into account during the preparation. Chance find procedure and PCR screening and management mechanisms have been included to deal with any discoveries during project implementation.

### **3.6.7 Adequacy of GOSL Environmental Clearance**

The composite GOSL environmental clearance process, in principle, is consistent with World Bank environmental and public disclosure requirements. The exception being the screening criteria adopted in the GOSL process under the NEA, where project thresholds are used to determine the type of clearance required and the content of public consultation. However, all activities with an impact on the environment under the proposed project will be subjected to environmental analysis regardless of the project threshold, prior to disbursement of funds. The CEA's regulated EA procedure is more than two decades old and substantial experience has been made by the CEA in evaluation of EIAs/IEEs. Hence, there will be no need for the project to provide technical assistance to the CEA and other PAAs to provide support to the project on environmental matters. Although the GOSL's clearance procedure is adequate fairly reliable, IDA will still review **all Environmental Assessments/Screening Forms**, prepared under the project and provide necessary concurrence for the approval of disbursements of funds.

## Chapter 4: Generic assessment of environmental issues and mitigation measures

### 4.1 Overview

While the project is classified as environmental category B, the overall project outcome is expected to be overwhelmingly beneficial from an environmental perspective. However, the risks associated with implementation of project activities inside protected areas, which are areas of ecological sensitivity and of high conservation value, both nationally and internationally, could be high requiring extra diligence. Past experience has shown that when protected area and forest reserve improvement/development activities which may have adverse environmental impacts are undertaken by responsible national agencies, the need to carry out environmental assessments has been overlooked.

This ESMF has been designed to achieve sound environmental practice in ESCAMP. The ESMF provides the mechanism to allow program implementation by screening out or enhancing acceptability of sub-project proposals on the basis of environmental criteria. By a simple process of elimination, the first step in the screening process is to identify subproject activities not suitable for funding. All processes described in the ESMF can be adjusted based on implementation experience.

The ESMF will be a living document and will be reviewed and updated periodically as needed.

It is recommended that the following types of subprojects are not financed and therefore should be considered as a "Negative List":

- Sub-projects that involve the significant conversion or degradation of critical natural habitats such as sensitive ecosystems.
- Activities that could lead to invasion or spread of weeds and feral animals or the use of toxic chemicals.
- Activities that could dangerously lead to the exposure of sensitive/critical/vulnerable habitats
- Construction of large new infrastructure within protected areas
- Illegal Activities as defined specifically under the Forest Ordinance and Fauna and Flora Protection Ordinance.
- Extraction of raw material from PA areas
- Filling of wetlands within PAs and outside in strategic landscapes.

### 4.2 Component specific impacts

The following section of the framework tries to identify possible environmental impacts that could arise in each component and how best they could be assessed and addressed during project implementation.

#### *Component 1: Pilot landscape planning and management*

This component will demonstrate integrated planning at the landscape level, bring all stakeholders together in managing landscape level biodiversity management issues. Activities to be implemented will depend on the landscape plan itself which will be prepared in a very participatory manner. It is not known presently what activities will constitute plan implementation but some of the likely activities may include securing the integrity of ecological networks at the landscape level, introduction of green infrastructure, providing alternative benefits for community affected by conservation decisions etc. Since the nature of activities cannot be known with better clarity at present, a full appraisal of the kind of impacts to be expected is difficult to be carried out.

***Component 2: Promote sustainable use of natural resources and human-elephant co-existence for community livelihood enhancement and protection***

This component will focus on communities living in buffer zones of PAs and other sensitive eco-systems to reduce deforestation and forest degradation by adopting alternative livelihoods that are ecologically compatible. It will also implement a researched and trialed model to address the human-elephant conflict.

***Sub-component 2.1: Sustainable use of natural resources for livelihood enhancement***

The type of activities are yet to be identified in consultation with the national conservation agencies and the communities themselves. However, it is envisaged that alternative livelihoods that use natural resources sustainably that could qualify for funding under this component will include (i) community based eco-tourism and nature interpretation activities (ii) community forestry (iii) optimizing productivity in existing agro-systems outside the PAs, which involves better land, soil, water, pest and crop management (iv) rehabilitation of small tanks, anicuts, canals, etc. that have fallen into disuse or those that are not effectively performing hydraulically (v) provision of community drinking water and (vi) skill development for other types of livelihoods etc.

**Environmental Impacts and mitigation:** Community based nature tourism is expected to be encouraged in a low scale and within the PAs these activities will need to be carried out in compliance with all the rules and regulations laid out by the respective agency. Outside the PAs, there is a risk of pollution from solid waste and wastewater generation and from unethical behavior that can intrude the conservative rural culture. As for mitigation, the overall strategy should focus on some form of regulation of such activities by the site FD or DWC office, training and awareness to the communities on responsible eco-tourism, display of warning signs and information boards etc.

Agriculture is the main form of livelihood among buffer zone communities. However, these communities commonly face a number of issues in terms of managing land productivity which often results in encroachment of the forest for search of new land for cultivation. Soil erosion, crop disease management, water use efficiency, water pollution from excessive use of chemicals, cultivation of unsuitable crop varieties are a few issues that were raised during consultations. The project will provide technical assistance to build farmer knowledge and awareness and facilitate agricultural extension services in order to address some of these knowledge gaps. Water and soil pollution from excessive use of chemicals is a serious hazard that has been highlighted by communities. Over-dependence on agricultural chemicals often stems from poor land and crop management. The project **will not procure any chemical fertilizers or pesticides** but will focus on promoting alternative methods of soil, water, pest management that result in increased efficiency of the land and reduced pollution. Hence, the environmental impacts will be mostly positive. The main mitigation measure in working with agricultural landscapes in the buffer zone is to ensure that the right understanding of the landscape and the practices that lead to these challenges are ensued.

For community forestry, simple environmental screening and codes of practice will be used to ensure that community forestry activities (which are on a very small scale, in any case) will do minimal harm to the environment. The codes of practice will ensure that the community adopts good environmental management practices in their villages and forest areas.



Rehabilitation of dilapidated irrigation structures will ensure less wastage of water and more water for cultivation. During rehabilitation environmental issues such as temporary increases in turbidity, re-suspension of contaminants, destruction of riparian vegetation, increased siltation due to improper disposal of silt, un-rehabilitated borrow pits, etc. can occur. Increased water diversions in upstream channels can deprive uses downstream. During the planning stage, sub-basin hydrology and water user dependence must be properly understood. Annex 7 contains some environmental codes of practices to be followed in managing temporary environmental issues associated with minor irrigation rehabilitation.

Provision of community drinking water supplies and sanitation has many public health and environmental benefits. Water supply planning must take into account the suitability of the raw water quality of the source and its safe yield. Although community schemes do not plan to extract large quantities of water, it is imperative to take into account other sub-basin level water users and to ensure that no water user conflicts will be created. Disposal of sludge from water treatment plants is important to consider and where necessary sludge treatment facilities should be included in the design.

### ***Sub-component 2.2: Human-elephant co-existence for livelihood protection***

**Environmental Impacts:** Addressing the HEC has become a national priority due to the alarming proportions it has reached causing the death of approximately 60 people and 150 elephants each year. In 2006 a national policy for conservation and management of wild elephants was ratified by the Cabinet of Ministers. The project hopes to support the policy by piloting an innovative approach where elephants will be managed according to ecological boundaries as opposed to administrative boundaries of land belonging to conservation agencies as is the present practice. In that, elephants will be managed in DWC PAs, FD PAs and Managed Elephant Ranges (MER) which will comprise mainly of state land where seasonal agriculture is practiced. This approach will involve removal or relocation of electric fences in the pilot area to identified ecological boundaries. The project will also explore opportunities for the community to gain economic benefits from elephant conservation. As such, adverse environmental impact of this pilot project per say is minimal or none. The only risk associated is the risk of failure commonly associated with pilot projects. However, groundwork for this approach has been already completed with 10 years of extensive research in the southern region of Sri Lanka by the DWC and conservation organizations. Hence, the pilot is based on solid scientific research data and evidence of successful management of the HEC. Such success will have far reaching impacts, not only for Sri Lanka but across the south and south-east Asian states that harbor the Asian elephant.

Failure of the HECOEX pilots will not lead to any adverse environmental impacts that are not already present. Traditional approaches to management of HEC have been translocations, drives and electric fences on administrative boundaries of PAs. This approach has led to exceeding the elephant carrying capacity of PAs resulting in excessive damage by elephants to the vegetation in PAs, which results in adverse impacts on the environment and the elephant population. Whereas the pilots will involve electric fencing on the ecological boundaries, boundaries of villages and permanent agriculture, creating larger habitats for the elephants and reducing the stresses on both elephants and the environment. Therefore no significant or irreversible adverse environmental impacts are likely under this component.

Potential social impacts of activities that may take place to manage human-elephant conflicts are likely to be on livelihood patterns of community members as some solutions may attempt to change land use practices of local communities.

**Mitigation Measures:** Based on the proposed strategies, presence or absence of negative environmental impacts will need to be identified. For example, traditional approaches to management of particularly HEC have been translocations, drives and electric fences on administrative boundaries of PAs. This approach has led to exceeding the elephant carrying capacity of PAs resulting in damage to the vegetation in PAs. Whereas these new solutions may involve electric fencing on the ecological

boundaries, boundaries of villages and permanent agriculture, creating larger habitats for the elephants that would reduce the stresses on elephants and pressure on the environment. Project funds, however, would not be used to fund translocations and elephant drives which have had limited success in terms of sustainability and are ethically controversial as well as have adverse impacts on elephant populations. Therefore no significant or irreversible adverse environmental impacts are likely under this component, as the only physical intervention will be the construction of electric fences with concrete fence posts. There will be no clearing of forests for erection of these fences.

### ***Sub-component 3.1: Protected area conservation and management***

Priority PAs will be eligible for accessing funds under this window for activities in conservation, protection and management within protected areas. Most PAs have management plans and activities that are likely to be included in proposals are: (i) rehabilitation and development of water resources in PAs; (ii) habitat management including control of invasive species; (iii) rehabilitation of existing roads and trails; (iv) improvements in existing park infrastructure; (v) species monitoring and recovery programs; (vi) strengthening enforcement; and (vii) logistical support such as communication equipment, solar PV lighting, water supply and disinfection systems for remote beat offices, forestry and wildlife management equipment, basic office equipment, camping equipment and supplies etc.

#### **(a) Rehabilitation and development of water resources within PAs**

**Environmental Impacts:** Availability of water inside PAs plays a crucial role in maintaining the balance of plant and animal life in these sensitive ecological zones. Water is generally available in tanks, waterholes or flowing streams/rivers. During the dry season, especially in the dry and arid zones of the country, water scarcity becomes a huge problem for sustaining life inside PAs. Some tanks/waterholes could dry up completely and as a result large herbivores move out of park boundaries into human territory (especially elephants) in search of food and water, often ending up in the escalation of the human-wildlife conflict. Where water scarcity is a problem during the dry season, PA management plans identify that improvement to water sources is a vital factor for conservation. Hence, some of the activities such as rehabilitation of existing tanks and waterholes, rehabilitation of abandoned tanks and waterholes and development of artificial waterholes in places where water shortages become acute may be considered. A decision to improve/develop water resources within a PA will be based on the respective management plan and a sound technical assessment of the need for such intervention. In the long run, increased water availability will be extremely beneficial in terms of increasing diversity and visitor satisfaction inside PAs and reduce the potential for human-wildlife conflicts outside the PA. Hence, this will have positive impacts on conservation.

However, the implementation phase will be associated with certain adverse environmental impacts as improving water sources would involve desilting, excavation and expansion of water bodies requiring both human power and machinery. Environmental impacts may include disturbance to habitats and wildlife populations of conservation importance in the surrounding area due to use of machinery and earth work, noise and dust pollution due to frequent movement of vehicles as well as use of machinery, spread of invasive species from vehicles and material brought into the park from outside, disposal of dredged silt/soil, etc. Other risks may include technical defects that would end up with dry tanks and drawing domestic cattle herds to the site causing other problems.

The development of water resources will be beneficial such as access to water particularly in water scarce areas as well as may pose physical threats due to concentration of wildlife to the communities that may live within PAs/FRs such as IPs. The construction of water bodies may also provide employment opportunities for villagers living in the vicinity.

**Mitigation Measures:** It is proposed that any new water resource development activities within PAs should be assessed for environmental impacts with an IEE while rehabilitation of existing

water resources such as water holes, lakes etc., will require a site-specific EMP, prior to commencement of implementation. The IEEs (which includes an EMP) and site specific EMPs should include details for mitigating identified adverse environmental impacts and a comprehensive monitoring plan to observe the changes to habitat/species diversity around the water body. Minimal disturbance to the sites should be maintained at all times. The contractors should be supervised adequately either through the FD/DWC staff or through supervisory consultants to ensure that EMPs are implemented in all stages of the works. All attempts should be made for equal distributions of employment opportunities among interested parties in the community in relation to construction work. Providing wide publicity to these opportunities in order to inform all interested parties to apply for such positions would be useful for ensuring equal opportunities. Adequate protection to the villages if located within PAs/FRs should be provided to reduce any potential long-term impacts due to regular convergence of animals in water holes closer to villagers.

**(b) Habitat management including control of invasive species**

**Environmental Impacts:** While habitat management is beneficial to wildlife, particularly when area covering PAs is limited, it also can become detrimental to certain species that are dependent on the existing habitats. Biological invasions come about when a species is introduced to an area (or ecosystem) to which it is not native and when it establishes there, spreads and causes damage to biodiversity. These species causing the problem is then called an invasive species (or invasive alien species). Existence of invasive species is an indication of degraded habitat. However, control of invasive species, particularly invasive flora has always been a challenge and requires careful planning, implementation and long-term management in order to avoid spread in other areas and to benefit from any removal activities.

**Mitigation Measures:** Habitat management activities should be undertaken with some understanding of the ecological functions of a given habitat. If there are degraded habitats and restoration is needed restoration measures should attempt to re-establish the dynamics of habitat forming processes that naturally create and maintain habitats, rather than implanting habitat structures in appropriate or unsustainable locations. Restoration/habitat management tasks should initiate or accelerate natural processes. Areas that require minor alterations and maximize ecosystem functions and processes offer a high certainty of outcomes and may be more cost-effective and self-sustaining. Where some artificial manipulation maybe required, the best ecological practices should be applied using all available ecological knowledge and which shall promote the acceleration of natural processes. Management should be related to agreed objectives of the protected area – such as removal of all alien species, restoration of damaged habitats or ecosystems, or careful observation of alien species for possible invasive traits.

Management of invading species is possible through mechanical means, chemical means (if allowable in the PAs concerned) or biological control – or a combination of these three main methods, termed “integrated management”. Details of methods of management for particular species or types of invasions are readily available once the species has been identified.

Following are some links that would be useful in planning these types of activities:

- The IUCN World Commission on Protected Areas (WCPA) has been promoting the concept of management effectiveness as a way of ensuring good practice in protected areas to achieve the results intended by a PA management plan. One of the resolutions of the World Parks Congress in 2003 was to include invasive species issues in management effectiveness as a matter of course and to assess and manage this threat to biodiversity. WCPA has been preparing guidelines and information to support invasive plant control which can be used.
- The Nature Conservancy has prepared a set of guidelines for addressing biological invasions in protected areas: “Assessing and Managing Invasive Species within Protected Areas. A Quick

Guide for Protected Area Practitioners” available at <http://www.cbd.int/invasive/doc/iastnc-guide-2009-en.pdf> as well as on <http://www.gisp.org/>

- Much useful information is available on the website of the Global Invasive Species Programme <http://www.gisp.org/> and detailed information on many potentially invasive species on the Global Invasive Species Database to be found on <http://www.issg.org/>

An EIA with a comprehensive management and monitoring plan (for long-term monitoring) will be needed to ensure that great care is exercised when undertaking habitat management and dealing with invasive species within the PAs. Maintaining habitat quality subsequent to the removal of invasive species from a particular area is of utmost importance. Removal of invasive species within the country and successes/failures recorded from these experiences should be well taken into account. If a given PA has a potential to attract invasive species, it would be beneficial to develop an invasive species management program that takes the following solutions into account:

- Awareness – the first requirement is to be aware of the likelihood of biological invasion in any protected areas. This is significant and has been shown to be amongst the greatest threats to the integrity of biodiversity in protected areas, if not the greatest threat. Awareness can be spread to all who work in a protected area so that any staff (or even visitors) may contribute to the noting of “new or unusual” species. Awareness can be enhanced by the availability of guides for recognition of alien species, those that can become invasive and their management.
- Recognition – this requires some capacity for “seeing” species that are not part of the resident vegetation or fauna and then access to information to take this further to identification. Many protected areas have resident biologists or ecologists or they occur with a PA network. Following identification is the need for an assessment of the risk that any new species may pose to the biodiversity of the area. This is possible with general information that is available in the literature and on the internet but still need to develop local inventories and guides for particular ecosystems and country.
- Prevention, pathways – It is likely that alien species will enter (or be introduced to) a protected area along the pathways mentioned above – or through others that are special to a particular PA. Prevention related to pathways is carried out by preventing any new species, or species judged to be unwanted (see below), from establishing in the PA. If the species is a plant, it can be removed on first recording by uprooting all individuals and destroying them, preferably before the species flowers or sets seed that may develop into a seed bank that will germinate later and enhance spread. If the new species is an animal, some means of preventing its establishment should be carried out as soon as possible – again, to prevent its possibility of reproducing and becoming too numerous to prevent invasion.
- Prevention of unwanted species and known invasive pests and weeds – a list of likely invasive species that are already present nearby or in the country can be prepared – including known pests and weeds that are considered a risk to the protected area. Then any species detected that is on that list can be eliminated from the protected area as soon as it is detected without need for further identification or risk assessment.
- Rapid responses – if prevention has not been possible and an alien species judged to be a risk to biodiversity has established in the area, the next most effective procedure is to move as quickly as possible to prevent its continued reproduction and later spread. Action at this stage to eradicate or remove a risky species is far less expensive than “waiting to see” if it becomes a problem – by which time expensive management may be needed. Rapid response is the capacity to act quickly based on correct technical information and risk assessment – action that can prevent invasion.
- Containment – if the rapid response has not been possible and a foreign species begins to spread, it may be possible to curtail that spread through some form of containment – to reduce the likelihood of the spread of propagules (seeds, plant parts, bulbs, corms, eggs, larvae,

other immature stages of animals or those stages of the new plant or animal most likely to move to other places).

- Management in response to desired objectives – if prevention, rapid response or containment have not been possible or were not effective and a biological invasion has become established, then management is required to remove the threat to biodiversity. This has been discussed in detail in earlier part of this section.
- Capacity building – an essential part of invasive species prevention and management in protected areas is the capacity to understand the issue, to recognize non-native species or unusual growths of native (but unexpected) species, to be able to respond by quick action or eventual management to retain the integrity of the biodiversity of a protected area. Capacity building in this area is possible through projects devoted to that end and through training courses offered by such organizations as the Global Invasive Species Programme. Self-training is also possible through many internet websites and familiarity with species likely to cause biological invasions can be developed through the many databases of invasive species information on the web.

### **(c) Improvements in existing park infrastructure**

**Environmental Impacts:** Improvement in existing park infrastructure may include improvements to the road network and construction of small buildings such as guard posts, range offices, staff quarters, visitor facilities, etc. Possible interventions on road network could include road widening, clearing and resurfacing with gravel, or in some cases developing new tracks. In PAs such as Kumana, Wilpattu, some parts of Yala, Maduru Oya, Lahugala, Gal Oya, etc where visitation has been very little in the past due to the security situation, the need for improvement of the road network will be high on the list of priorities. This is especially so in view of the improved security and visitors wanting to travel more to the unexplored PAs, given the opportunity. While better accessibility within the park will serve well in the long run for monitoring, patrolling and visitor satisfaction, care has to be exercised during implementation not to cause any ecological damage.

Transportation of material and vehicles from outside the park may pose the threat of introducing invasive species, noise and pollution associated with road work and the resultant disturbance to animals, loss of plants including ones that are of conservation value, burning of uprooted vegetation are some of the factors that will need to be carefully considered. Extraction of raw material for construction such as gravel, sand, etc. within the PA could also take place creating further disturbance to the ecosystem including contributing to habitat degradation. Also, most importantly, one of the major risks would be the possibility of increased wildlife poaching during construction. The siting of ranger offices, staff quarters, visitor facilities, etc. is crucial and has potential to disturb wildlife if the site selection is not done properly. For example, there would be certain species of wild animals that migrate within or among PAs for foraging and establishing buildings in such migratory paths may affect the wildlife. Issues that may arise during the construction of the buildings are similar to road network improvements related issues discussed earlier.

With improvement of park infrastructure, likelihood of increase in visitation would be high. Studies should be undertaken to ascertain the carrying capacity of PAs and PAs should be zoned to include areas open to visitation and areas closed to unsupervised visitation. Unmanaged visitation beyond the carrying capacity of the park will be also detrimental to these sensitive ecosystems.

Improvements to park infrastructure are likely to improve visitations to the parks by local and foreign tourists. This will undoubtedly have positive and negative impacts on local communities. A positive impact would be an improved market for the villagers' products. For example, cultivated fresh vegetables and fruits are a popular item bought by local tourists. Likewise, small boutiques for the sale of refreshments for tourists or handicrafts would also improve income generation for community members.

A negative impact of improved visitations by tourists will be the impact it can have on local culture. Some of these potential impacts can be subtle impacts such as those on local attitudes, consumption patterns and fashion. Others may be the more obvious and serious impacts such as the abuse of drugs, changes in relationship patterns that may pose threats of sexually transmitted diseases such as HIV/AIDS and the use of child labor to improve profits.

**Mitigation measures:** All activities within a PA should be undertaken with adequate measures to reduce disturbance to the ecosystem. The following general measures should be followed.

- There shall be no extraction of raw material for construction purposes within PA areas.
- New infrastructure should be located in areas that are least sensitive to wildlife and land.
- Sites within primary forests will be excluded for any construction work.
- Within secondary forests, multiple site alternatives within already disturbed areas will be given consideration. For visitor facilities etc, certain site criteria will need to be met, hence multiple sites will be examined and through the screening process the least damaging site will be selected.

The type of environmental assessment to be done will depend on the type of road development intervention proposed. While new roads within parks will need a thorough assessment such as an EIA/IEE, an EMP would suffice for rehabilitation of existing roads.

For construction of small buildings such as range offices, staff quarters, visitor facilities, etc.

(1) A simple screening form or an EMP, as necessary, would be sufficient to initially screen and assess the sites and on-site environmental impacts. Based on the findings of the screening, site selection will be made and a decision whether further detailed environmental assessments is needed or not will be determined by the PMU;

(2) If any land filling is required for site preparation such as filling of low lying lands in sensitive sites such as wetlands, a full EIA or a detailed EMP will be a condition for IDA financing, depending on the nature of the site and expected impacts; and

(3) In addition, all building constructions and renovations should adhere to existing building and other applicable codes in the country. Borrow pits and quarries if directly managed by the implementing agency or contractors, should not be established within PAs/RFs and even if located outside should be screened for appropriateness and necessary licenses should be sought. If purchasing from commercial sources, those sources should also have required licenses. It is recommended that green infrastructure guidelines to be used and the structures blend within the environment they are established. In order to ensure that the contractor is responsible for adherence to the Codes of Practice, the relevant codes (specifications) as well as any safeguard measures highlighted in the screening should be included in the contract documents.

As part of sub-component 3.2 the communities will be made aware of possible detrimental impacts of interacting with visitors, and visitors will be made aware of ethics and cultural norms of interacting with rural communities, which are part of the project design.

#### **(d) Boundary survey and demarcation of PAs**

This activity will have little or no adverse environmental impacts. In fact, establishment of protective fences will serve as a deterrent for most illegal activity as well as for large herds of cattle entering PAs which has become a major problem. It is recommended that best management practices are adhered to in establishing fences such as conservation of large trees etc.

***Sub-component 3.2: Improve quality of nature-based tourism in PAs.***

**Environmental Impacts:** Numerous examples from places as diverse as Namibia to Australia have demonstrated that ecotourism can be used as a tool for turning wildlife from a liability to an economic asset that creates a powerful constituency in support of conservation. Sri Lanka with its immense endowment of rare and charismatic species and unique ecosystems has much to offer by way of ecotourism potential. Structural development within PAs and their buffer zones if highly intrusive and poorly planned could cause damage to the ecosystem and scenic landscape. As highlighted under the park infrastructure development, ecotourism development could increase visitation to PAs beyond their carrying capacities contributing towards degrading natural habitats and disturbing the wildlife.

Examples of issues include air and noise pollution due to vehicles, solid waste and littering, trampling, tourism leisure activities, etc. For example, wildlife viewing can bring about stress for the animals and alter their natural behavior when tourists come too close. Safaris and wildlife watching activities have a degrading effect on habitat as they often are accompanied by the noise and commotion created by tourists as they chase wild animals in their vehicles. This puts high pressure on animal habits and behaviors and tends to bring about behavioral changes. In some cases, as in Kenya, it has led to animals becoming so disturbed that at times they neglect their young or fail to mate.

Attractive landscape sites, such as sandy beaches, lakes, riversides, and mountain tops and slopes, are often transitional zones, characterized by species-rich ecosystems. Physical impacts are caused not only by tourism-related land clearing and construction, but by continuing tourist activities and long-term changes in local economies and ecologies. The development of tourism facilities such as accommodation, water supplies, restaurants and recreation facilities can involve sand mining, beach and sand dune erosion, soil erosion and extensive paving. In addition, improper siting can lead to land degradation and loss of wildlife habitats and deterioration of scenery. Wetlands are often drained and filled due to lack of more suitable sites for construction of tourism facilities and infrastructure. These activities can cause severe disturbance and erosion of the local ecosystem, even destruction in the long term. Furthermore, extraction of building materials such as sand affects hinterland forests, leading to erosion and destruction of habitats.

The project is expected to support studies that would be useful for figuring out the optimum number of visitors to identified PAs/FRs and help implementing agencies implement such programs. Just as over visitation may cause damage to the ecosystem, limited visitations would inhibit full capacity to generate income through tourism-related employment. Striking a balance between these two is imperative in order to sustain tourism opportunities and to attract locals towards such employment possibilities.

**Mitigation Measures:** Experience suggests that great caution must be exercised in the design of ecotourism development to ensure that they contribute to conservation and do not degrade the habitats upon which they depend. While at this point of time, the type of activities that will be put forward for funding are not known, some of the likely developments within PAs that require environmental due diligence are listed below:

- New visitor centers - an IEE or a detailed EMP to be prepared, depending on the location of the center, type and extent of work involved, prior to construction taking construction materials sourcing and issues that arise at operational phases (discussed in an earlier section) and completion of works into consideration.
- Renovation of existing visitor centers and visitor accommodation – a simple EMP to be completed prior to civil works focused mainly on operation and completion phases
- Development of nature trails, picnic/camp, sites tree-top canopy walks, construction of observatory for bird watching - an EMP will be prepared for these activities prior to commencement of construction. Site selection for such activities should be done with great care particularly ensuring minimal disturbance to wildlife and their habitats.

- Development of watersports in water bodies within PAs such as boating, rafting and kayak safari may have little impact if done adhering to good practices. Non-motorized transportation should be promoted as much as possible. Hence, for such interventions specific guidelines of environmental best practices will be written and strictly implemented.
- Establishment of recreation zones – EIA or EMP, as appropriate, depending on the nature of proposed intervention.

All constructions within PAs should be aesthetically pleasing and environmentally benign as much as possible. Based on the findings of screening, a decision would be taken on further analysis, as recommended above. In addition, the country would also benefit to develop green infrastructure guidelines for locating and developing ecotourism that should be used by the tourist industries.

***Sub-component 3.3: Strengthen institutional capacity and investment capability of DWC and FD***

The component relates to capacity building of the DWC and FD through strengthening their training capabilities and conservation management skills. Hence, there are no adverse environmental impacts to be managed during project implementation, except for the possible construction and renovation of buildings at the Sri Lanka Forestry Institute and the Wildlife Training Center. Since neither of these institutions are located within PAs, the use of EMPs commonly used in Sri Lanka under World Bank projects for building construction will be adhered to. This sub-component will bring about environmentally positive impacts where staff would be adequately skilled to ensure facilities such as forensic laboratory and wildlife recovery and rehabilitation centers are properly managed.

***Generic EMPs and environmental guidelines for potential investments types are given in annex 7.***



## Chapter 5: Environmental Management Framework

### 5.1 Environmental screening of sub-projects

Environmental screening is reckoned to be a useful tool in identifying environmental safeguard issues in large investment programs consisting of many sub-projects. As such, most sub-projects that have some level of civil work and land management under ESCAMP will be subjected to an environmental screening using the form provided in Annex 4. Only those sub-projects that are focused on soft development such as training and capacity building will be excluded from screening and EMP preparation as such activities will not have any adverse impacts on the physical environment.

The main objective of Environmental Screening of sub-projects will be to (a) determine the anticipated environmental impacts, risks and opportunities of the sub-project (ii) determine if the anticipated impacts and public concern warrant further environmental analysis, and if so to recommend the appropriate type and extent of Environmental Assessment needed. The previous chapter provides recommendation on the level of environmental analysis for selected activities as broad guidance; however, the final judgment will be made post the screening exercise. Screening should go hand in hand with project concept development. This way environmental opportunities and risks can be appropriately and easily integrated into subsequent design stages, rather than being brought in at the last minute. The environmental screening report should be prepared by an environmental expert/s with field visits and available data and information (*implementation arrangements are given in the subsequent chapter*). Once the report is ready it will be made available to the project implementing agency to take necessary actions particularly in relation to the recommendation given in the report.

#### Screening Method

Preparation of the screening reports will be conducted in four distinct stages, namely (i) field visits, data collection and stakeholder consultation; (ii) data analysis and interpretation; (iii) impact identification; and (iv) filling the screening including recommendations for next steps. The methodologies for each of these steps are explained briefly below. The proposed screening report format is given in Annex 4.

#### Data collection and stakeholder consultations

Data will be primarily collected through field visits, discussion with stakeholder agencies and known sources of literature. In addition, supportive tools such as GIS based mapping using GPS coordinates covering the sub project sites, where ever possible is encouraged.

Literature Survey will broadly cover the following aspects and attributes necessary for environmental screening:

- Project details/ Reports/ Maps/ documents including design details available with the implementing agencies
- Literature on flora/ fauna/ biodiversity/land use/soil/geology/ hydrology/ climate /socio economic profiles and environmental planning collected from GOSL agencies
- Hydrological/ rainfall/ drainage datasets

#### Field Visits:

Each sub-project sites will be visited by the expert/s filling the screening form together with representatives from the design team to assess the existing environment (physical, biological and socio

economic environment) and gather information with regard to the proposed sites and scale of the proposed sub projects and any prevalent issues. During these visits rapid reconnaissance surveys will be conducted in order to record the faunal, floral diversity, where necessary, to verify and support information gathered through the literature survey.

### **Focus Group Discussions/ Meetings:**

Focus group discussions will be carried out with other stakeholder agencies, local authorities and community to discuss pertinent issues. In addition, the community/visitors will be consulted to record their views and opinions about the proposed site-specific investment.

### **Data Analysis and Interpretation**

Data collected from field visits and stakeholder discussions will be analyzed by the expert and discussed with the technical team of the project proponent for feedback.

### **Impact identification**

This will be carried out by the safeguards expert through discussion with the technical team.

### **Filling screening reports**

The screening report will be filled with details on the proposed project intervention, physical/ecological baseline conditions of the site, assessment of potential impacts, feedback from community/public/visitor consultations and recommendations for the type of environmental assessment required. If the findings confirm that anticipated impacts are not significant enough for a stand-alone EA and that an EMP would suffice to mitigate the likely impacts, the screening exercise would be completed with the preparation of a site specific EMP. If the likely impacts are significant and would require greater environmental analysis, the screening report would recommend the appropriate assessment type for the implementation agency to carry out before designs are finalized. A description of the commonly used environmental management tools are given below.

*Annex 3 provides guidelines for EMP preparation.*

## **5.2 Description of further Environmental Management Tools**

### **5.2.1 Environmental Impact Assessment (EIA)**

EIA and IEE are effective tools for evaluating the environmental risks and opportunities of project proposals and improving the quality of outcomes. Ideally the EIA/IEE should be carried out at the end of the preliminary design phase so that the impacts of each planned activity can be evaluated and alternatives can be worked out for activities that have major impacts. The outcomes of the EIA/IEE should then be used to finalize the project design which should ensure that the impacts of the given project are minimal. The importance of this management tool as means of foreseeing potential environmental impacts caused by proposed projects and its use in making projects more suitable to the environment has been highly effective. Since its introduction in 1969 in the US, many countries and international organizations have accepted EIA as an important planning and environmental management tool.

As a decision making tool, EIA has its strengths and weaknesses. It plays a crucial role at the project level decision making. However, in the entire development process application of EIA as a tool to bring in

environmental sustainability comes fairly at a late stage. At this point, it may be too late to change certain policy decisions and the choices are limited. With SEA, environmental decisions can be moved further upstream where better alternatives to environmentally unsustainable policies and programs can be sought at a broader strategic level. See the section below for a comparison between SEA and EIA.

If a specific subproject requires environmental assessment the first step will be to provide CEA the preliminary information on the proposed project, in order for the process to be initiated (See annex 1 for the description of major steps of the environmental assessment process with responsibilities and time frames). The best time for a project proponent to submit the preliminary information on the proposed project is as soon as the project concept is finalized and the location of the project is decided.

### 5.2.2 Strategic Environment Assessment (SEA)

Development agencies have years of experience in using environmental impact assessment (EIA) to integrate environmental concerns into their funding programmes. EIA procedures, methods and techniques, used to address environmental impacts of development projects, will continue to be applied. However, EIA has limited utility when applied to the more strategic levels of development assistance such as policies, plans and programmes, as these are also influenced by political bargaining in addition to technical criteria. Further, significant indirect or secondary environmental effects can arise as a result of changes in people’s behaviour induced by policy reforms. But these changes, and their environmental consequences, are extremely difficult to predict. For these reasons, SEA has been developed and is being increasingly used as a tool to be applied at the level of policies, plans and programs.

A comparison between SEA and EIA

EIA	SEA
Applied to specific and relatively short-term (life-cycle) projects and their specifications	Applied to policies, plans and programmes with a broad and long-term strategic perspective
Takes place at early stage of project planning once parameters are set	Ideally, takes place at an early stage in strategic planning
Considers limited range of project alternatives.	Considers a broad range of alternative scenarios
Usually prepared and/or funded by the project proponents	Conducted independently of any specific project proponent
Focus on obtaining project permission, and rarely with feedback to policy, plan or programme consideration	Focus on decision on policy, plan and programme implications for future lower-level decisions
Well-defined, linear process with clear beginning and end (e.g. from feasibility to project approval)	Multi-stage, iterative process with feedback loops
Preparation of an EIA document with prescribed format and contents is usually mandatory. This document provides a baseline reference for monitoring	May not be formally documented
Emphasis on mitigating environmental and social impacts of a specific project, but with identification of some project opportunities, off-sets, etc	Emphasis on meeting balanced environmental, social and economic objectives in policies, plans and programmes. Includes identifying macro-level development outcomes
Limited review of cumulative impacts, often limited to phases of a specific	Inherently incorporates consideration of cumulative impacts

project. Does not cover regional scale developments or multiple projects

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An SEA is not an alternative to EIA and it does not replace the need to do project specific environmental assessment. A good SEA can reduce the scope of EIAs within its geographical scope and make it limited to specific project level issues. The SEA ideally will identify opportunities to minimize the range of environmental issues that will have to be dealt at the project level.

At present SEA is not mandatory in Sri Lanka. However, all Ministries, Departments and Authorities who are responsible for implementing a new policy, plan or programme should carry out a SEA for the new policy, plan or programme prior to its implementation and submit a copy of the SEA report to the CEA for review and comments. To facilitate this process a document has been developed by the CEA titled “**A SIMPLE GUIDE TO STRATEGIC ENVIRONMENTAL ASSESSMENT (SEA)**” that can be downloaded from the CEA website.

The project most likely will not include SEAs but may involve updating existing SEAs for landscapes selected under Component 1. For this, the project will select pilot areas for which a good deal of information is already available such as Hambantota district in the southern PA block, Trincomalee in the Eastern Province, Northern Province etc for which comprehensive SEAs have been done.

### **5.2.3 Environmental Management Plan (EMP)**

Certain activities will have explicit impacts on the natural environment and thus require a specific plan to institute and monitor mitigation measures and take desired actions as timely as possible. An Environmental Management Plan (EMP) must be kept as simple as possible, clearly describing adverse impacts and mitigation actions that are easy to implement. The scale of the subproject will determine the length of the EMP. A small-scale subproject’s EMP can be elaborated in a few paragraphs or in tabular format, keeping it as simple as possible with concrete mitigation actions, timelines and responsible persons.

The basic elements of an EMP are;

- a. A description of all possible significant adverse impacts that are likely to arise due to the project that the EMP is intending to deal with;
- b. A description of planned mitigation measures, and how and when they will be implemented;
- c. A programme for monitoring with measurable indicators that will allow to determine the effectiveness of the mitigation actions
- d. A description of who will be responsible for implementing the EMP
- e. A cost estimate and source of funds

*(refer Annex 3 for guidelines for developing EMPs)*

It is essential to involve local communities during the development of the EMP since they are likely to be the most affected parties due to the proposed development. Further, most of the local knowledge is important in identifying, designing and planning the implementation. In addition, the success of the implementation of the EMP will depend on community support and action.

The PAA will request the project proponent to prepare an Environmental Management Plan (EMP), to address any potential environmental and social issues as well as incorporate the PAA/CEA’s approval conditions. Ideally, all EIAs and IEEs which identifies adverse environmental impacts should prepare an EMP as part of the report. In World Bank funded projects, an EMP only is considered appropriate in

situations where a detailed environmental analysis is not required (as in the case of rehabilitation of a provincial/rural road). Implementation of the EMP should be regularly monitored.

#### **5.2.4 Environment Audits**

Most of the development projects go through the SEA and EIA process and develop EMP's that are not implemented at the end which will render the entire process an exercise in futility. Therefore, monitoring of the project during the construction and implementation phase is a must to ensure environmental compliance of a project. This could be achieved through regular environmental audits.

The purpose of the environmental audit is to

- Collect, analyze and interpret monitoring results to detect changes related to implementation and operation of specific activities
- To verify the monitoring parameters are in compliance with national set standards
- To compare the predicted impacts with actual impacts and evaluate the accuracy of predictions
- To evaluate the effectiveness of implementation of the EMP
- To identify shortcomings in the EMP if any and incorporate it into the EMP if deemed necessary
- To identify and report if there is non-compliance with the EMP

The auditors must first develop a structured questionnaire based on the EMP for the purpose of conducting the audit. Then during the site visit data can be collected using this questionnaire through interview surveys of officers responsible for implementation of the EMP and site records, logs etc., The audits can be carried out at regular intervals or on a *ad hoc* basis or when mitigation is not carried out as defined by the EMP leading to public concern.

Expected outcomes of the Environment Audit are

- Ensure that EMP is implemented properly
- Ensure that the mitigation measures are effectively minimizing the identified impacts as well as identify new impacts that may have been excluded in the EMP that require mitigation. Then make necessary adaptive changes to the EMP to ensure that the all significant impacts are effectively mitigated.
- Identify noncompliance with EMP if any and provide recommendations as to how to deal with such non compliance

#### **5.2.5 Environmental Codes and Best Management Practices**

In addition to the above tools following environmental codes and best practices may be sufficient where impacts of a particular activity are very minor and easily mitigatable.

### **5.3 Stakeholder Consultation and Information Disclosure**

#### **Consultations held**

In keeping with consultation requirements with Category B projects, the project has had extensive consultations with the stakeholder groups as part of project preparation in order to obtain a wide spectrum of views, ideas and concerns about conservation priorities in the country. These consultations have fed the project design and implementation arrangements and are directly relevant to safeguard concerns as well.

During the preparation of the EAMF, two consultations specifically focusing on buffer zone communities were held, one covering the Knuckles conservation Forest in the central hills and the other covering Bundala National Wildlife Park in the south. The minutes of these consultations are attached. These consultations have been very useful in understanding the relationship between the forest and the buffer zone communities. In Knuckles it was stated that one of the reasons for forest encroachment results from poor agricultural productivity owing to unscientific management of lands and water resources. Here, the communities brought up the issues of rampant use of chemical fertilizer and pesticides as a reason for drop in land productivity and the conflict with wildlife such as Monkey and Elephant. During implementation too DWLC and FD will need to consult with such groups as necessary to address mandatory EA-related issues that affect them.

### **Requirements during implementation**

For all types of environmental analyses conducted under ESCAMP (including screening), communities in the project sites (excepting for those investments that are inside PAs and have no direct bearing on the communities) should be consulted within a structured and culturally appropriate manner. Consultations with the NGO sector and wildlife enthusiasts should also be continued to be held on a regular basis.

Further, environmental assessment documentation and EMPs should be made available to the public (in accordance with the World Bank's policy on Access to Information) by the PMU prior to tendering of works contracts through the website of the project and notices through media, as appropriate. This EAMF would also be disclosed to the public via the website of the project executing ministry and through World Bank's Infoshop.

In addition, it may be necessary to conduct discussions with the regulatory agencies (such as the CEA, CCD on relevant issues) and other implementing agencies who would have a stake in the project due to various reasons. Consultation will enable the project implementing agency to understand the stakeholder's requirements and for the stakeholders to develop an understanding of the project so that potential conflicts could be eliminated or minimized. This would especially be so for component 1 which looks at integrated planning of landscapes.

The process of consultation should be documented and account taken of the results of consultation, including any actions agreed resulting from the consultation. Public disclosure of the relevant safeguards documentation will be a pre-requisite for tendering civil works contracts. The contract documents for each contract package will mandatorily include the relevant environmental mitigation provisions stipulated in the EMPs (which would have community concerns reflected, if any) for the given sub-projects. Where, work is implemented by the FD and DWC staff themselves, EMPs will not enter into a formal bidding document but will be still complied with.

Given below is a brief framework for planning consultation under ESCAMP. It has to be noted that only the appropriate consultation method will be applied to sub-projects during implementation and the responsibility of consultation lie primarily with the project implementing agencies.

#### **5.3.1 Objectives of stakeholder consultations**

The prime objectives of stakeholder consultation are;

- Provide the stakeholders an opportunity to inform and influence the decision making process.
- Partner with the stakeholders so as to make the project widely accepted and to lower the potential impacts

#### **5.3.2 Elements of Effective Stakeholder Consultations**

Some of the most concerned elements of effective consultations are as follows;

- well targeted
- early enough so as to make sure to get the stakeholder views adequately reflected in the project decisions
- transparent – provide all the information without hiding anything
- make the consultation process very simple and understandable so that clear answers and comments can be obtained
- ensure gender equity
- documentation of consultation
- based on the principle of "Two way Process"
- focus the consultation on Risks, impacts, mitigation measures and opportunities.

### **5.3.3 Suggested Methods**

Participatory workshops, focus group meetings and face to face and informal individual interviews are the three most commonly adopted methods of stakeholder consultations and a mix of these can be employed under ESCAMP, as determined by the requirement.

#### **(i) Participatory workshops**

Participatory workshops are effective when a large number of stakeholders with different interests and specializations get involved. Conducting effective participatory consultation workshops should consist of following elements;

- (ii) Orient the workshop towards a clear destination. In this connection it is necessary for the evaluator to present a very good project brief and the purpose of the consultation.
- (iii) The evaluator should be able to build bridges and consensus among stakeholders.
- (iv) Divide the participants into sub groups to represent adequate mixture of different interest groups and allow the sub groups to brainstorm among the group members and submit their views and comments as those of not individuals but of the sub groups.

This method is recommended for technical assistance sub-projects such the formulation of strategic landscapes plans where mostly conservation agencies, local planning bodies, NGOs and communities would get involved.

#### **(ii) Focus groups discussions**

The focus group consultation meetings are relevant when the stakeholders have similar interest thus their objectives are focused towards one common objective. This kind of consultation meetings are recommended for projects that serve common interests such as provision of basic services in the buffer zone areas, agriculture development, etc.

#### **(iii) Stakeholder group meetings**

Stakeholder consultations are extremely useful in creating the right kind of understanding about the project among those it will likely affect or interest, and to learn how these external parties view the project and its attendant risks, impacts, opportunities and mitigation measures. During ESCAMP preparation, listening to stakeholder concerns and feedback has been a valuable source of information that has helped improve project design and outcomes and also control external risks.

#### **(v) Individual - face to face interviews**

When the stakeholders are not large in number and represent specialised areas of interest face to face interviews which are informal are very effective. This system is very flexible, permits in depth

discussions to understand the issues and is low cost. However individual stakeholder consultations should be well planned as if not it may lead to "heavy focus on individual issues and interest". This method is recommended for the kind of consultation envisaged as part of sub-project screening as the sub-projects under ESCAMP, are relatively small in size, potential impacts are very specific, and stakeholders are small in numbers.

The stakeholder consultation process should be continuous. However since practical difficulties exists for continued consultation, at least consultation needs to be carried out at three stages; project preparatory / design stage, project implementation stage and project end stage so as to make sure that stakeholder concerns, interest, comments are adequately built into the whole project management process.

### *Summary findings of the local level consultations*

The consultation held in Illukkumbura for communities in the buffer zone of Knuckles Conservation Forest raised the following issues and the solutions that project can provide:

<b>Community comments/suggestion</b>	<b>Responses from FD and project opportunities</b>
Not receiving technical support on managing outbreaks of pests	To be linked to relevant agriculture extension officers and supported through sub-component 2.1
Poor conditions of irrigation structures	To be linked to relevant irrigation/agriculture extension officers and supported through sub-component 2.1
Negative impacts of local visitors – entering villages, drunken behavior, etc.	As part of component 3, making restricted or regulated access to villages creating designated areas for bathing, sight-seeing, etc. Revival of some of the inactive CBOs to take on the task of enforcement, more awareness about the rules and regulations to those who visit the Knuckles range
Technical assistance to increase income from agriculture. Chena cultivation has been prohibited a decade back	Assistance that is required to increase incomes through the existing community land through improved land use efficiency and productivity which can be supported through sub-component 2.1
Support to develop other income sources such as plant nurseries, handloom, sewing, masonry, forest guides	Linking to necessary technical departments and training needs, facilitation of markets for identified sources have already been included in the proposed list of activities under the project
Guides brought from outside depriving opportunities for communities	Build a team of guides consisting of the youth from surrounding villages. Necessary awareness raising of the availability of such guides.
No treatment of Drinking water for villages are supplied through streams running through the forest. Water tanks are not cleaned and soil erodes into the tanks Assistance to upgrade the community drinking water system with proper treatment and storage	The project through sub-component 2.1 can provide support. However for sustainability, the project will facilitate the relevant authority to take over the responsibility.
Issue of human elephant conflict - noted that a	The project will look in to the issue through sub-



<p>program is already in place to build electric fences surrounding the villages and cultivable land</p> <p>Likelihood of incidents relating to wild elephants increasing in the area once Moragahakanda irrigation system is commissioned and stressed the importance of recognizing elephant corridors and identification of proper traces for electric fences</p> <p>Assurance of a greater chance of success if the maintenance work by the Civil Defense Committee goes unhindered</p>	<p>component 2.2. In addition, the project will facilitate to the solutions coming from the Moragahakanda project and will also provide the suggestions coming from the project to the management team of the Moragahakanda project.</p>
<p>All societies are facing issues of registration and requested the proposed project to facilitate the process.</p> <p>Grama Niladhari indicated with proper documentation, this should not be an issue</p>	<p>The project will facilitate and support the societies to register</p>
<p>On the provision of CBO training, noted that most CBOs lacked capacity on accounting, reporting and IT use</p>	<p>These can be provided through the project</p>
<p>Change in the attitude of the villages, visitors was a prerequisite to protect the environment.</p> <p>Farmers could gain a better price for their produce if they were to come together as a group / team</p> <p>irrational use of inorganic fertilizer and pesticides by the farmers and the careless practices that lead to pollution of the waterways in the village.</p> <p>Agriculture extension is a service that is badly needed and its absence is strongly felt by the farmers.</p> <p>The need for community centres, village networking, and awareness on organic agriculture are some of the other key points</p>	<p>The project will facilitate the agriculture extension services needed through the relevant department.</p> <p>The project can also provide necessary training, development of low cost facilities for community activities.</p>
<p>Monkey (rilaw)/giant squirrel conflict as a major obstacle for increased revenue as these animals would destroy the produce, e.g. coconut, fruits (mangoes)</p>	<p>While the project can look into the issue, there is still no easy solution other than moving away from growing crops that attracts these animals</p>
<p>In terms of dependence on the forest by the community, it was mentioned that it is very less at present.</p> <p>In the past, bee honey, nelli and bim kohomba were key collectibles from the forest but bees, nelli and bim kohomba are rare in the forest now</p>	
<p>Few HHs still using a dug up hole for their sanitary purposes and noted that these were unhygienic practices that needed to be changed if the environment was to be preserved</p>	<p>The project will look into this matter and come up with solutions</p>
<p>There is at least one death a year as a result of negligent bathers</p> <p>Land-slides on roads in certain parts of the area that causes restricted access to certain households</p>	<p>The project will ensure adequate awareness and designated bathing areas identified</p> <p>The FD can also facilitate linking the community to Road Development Authority or Provincial</p>

	Road Development Division to provide solutions in time
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The consultation held in for communities in the buffer zone of Bundala National Park raised the following issues and the solutions that project can provide:

<b>Community comments/suggestion</b>	<b>Responses from DWC and project opportunities</b>
There were 14 community development societies surrounding the Bundala NP and asked why the Government / DWC could not make use of these societies to plant trees and protect the environment	The project will develop a suitable mechanism with these societies to engage in protecting the environment
Clear sign posts indicating the electric fence	The project will ensure this is done
Societies require (a) Leadership; (b) financial management; (c) investment opportunities; (d) motivation to bring out the inner skills of the poor.	The project will support these through sub-component 2.1
How to retain societies created through projects	The project during implementation will discuss further with the societies to come up with the solutions
Limitation of providing loans through societies for self-employed society members and demand is for larger loans	The project will facilitate the access to formal Banking sector
If well regulated, the advantages of increased tourists can have a major economic impact on the neighboring villages and should look to developing the village to a standard where home stays can be introduced to interested tourists, giving them a unique village experience coupled with the beauty of the Bundala NP	Agreed
Help improve village agriculture	Possible through sub-component 2.1
Due to scarce resource within the park and animals wonder over to neighboring villages in search of food. Suggested that this project makes use of the 14 wild life cum community development societies to take charge of planting nutritious food within the park boundaries	The project will look into this matter through Component 3
Regulating tourism preserving the village (and its traditions) and its environs. It is up to the community to take in what is appropriate and leave out what is not	The project will be developing necessary regulations for tourism activities including creating awareness among the visitors and communities to ensure correct behavior
Most women in the village were left with nothing to do once the children go off to school and would really appreciate an opportunity to contribute to the household and / or village economy.	The project will support these through sub-component 2.1
HEC is not an issues to the villages. However, during paddy season, the elephants come into	The project will be discussing solutions with communities for the HEC issues and proving

the fields and the farmers face a tough task in safeguarding their crop	support to implement them
There is no dependency on the forest any more	Noted.
Building a sales centre in an appropriate location as this would help the villagers to sell their products / produce to visitors	Possible as part of sub-component 2.1
No infrastructure facility such as roads	Will facilitate linking to the relevant authority to ensure the road is developed.
Bringing in advisory and job opportunities for unemployed youth in villages.	Will facilitate with relevant organizations and opportunities including training the outh to identify areas that has job potential
HEC is a problem for chena cultivation	The project will be discussing solutions with communities for the HEC issues and proving support to implement them
Some of the Chena cultivators (close to Yala) are known to have ventured in to tourism related activities by erecting tree houses bordering the Chena cultivation. Government was now promoting tourism and that the people should be ready to take advantage of it	These are potential alternative income sources. The project can support providing necessary training and publicity for business
Technical know-how for agriculture	Possible as part of sub-component 2.1
Sand mining is going on a major scale. This has serious consequences on the environment, the village and their cultivable land. Need alternative livelihood options	The project will support these through sub-component 2.1

## Chapter 6: Institutional Arrangement for Implementation of the project

### 6.1 Project Institutional and Implementation Arrangements

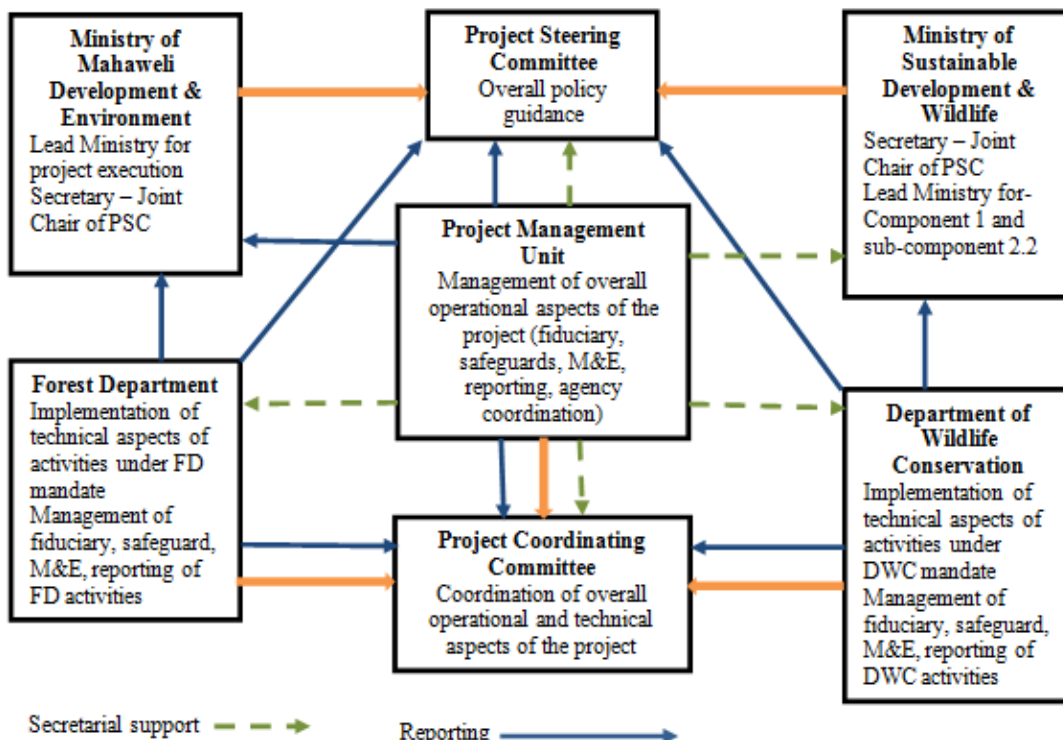
#### Overall arrangements

Project implementation will entail the creation of a project management unit (PMU) at Ministry of Mahaweli Development and Environment. A PMU has been proposed to reduce the potential risks associated with lack of coordination amongst the two lead implementing agencies - Forest Department (FD) and Department of Wildlife Conservation (DWC) - under two different ministries - Ministry of Mahaweli Development and Environment (MoMDE) and Ministry of Sustainable Development and Wildlife (MoSDW) – respectively and to ensure adequate capacity to manage the Project in place in response Bank’s operational requirements – especially financial management, procurement and safeguards. MoMDE was selected as the lead Ministry taking into considerations the lead role it plays in environmental and natural resources management as mandated by the National Environmental Act and its experience in managing World Bank financed projects.

The Project will be primarily implemented by FD (an agency under MoMDE) and DWC (an agency under MoSDW) with the involvement of their sub-national level offices, particularly those activities that are under their jurisdiction and mandates. Landscape planning will be led by the Sustainable Development Secretariat of MoSDW in collaboration with relevant planning agencies of the Government. As the human-elephant conflict management requires a multi-stakeholder approach, MoSDW will also take the lead in implementation of the HECOEX activities. Implementation of community-led activities will be through selected and registered community-based organizations (CBOs) supervised and monitored by FD and DWC to ensure sustainability and in partnerships with local authorities, non-governmental agencies and/or private sector. The overall project oversight, policy direction, coordination, implementation and monitoring and evaluation arrangements are **diagrammatically presented in the figure below**.

#### Project Management Unit

- The PMU’s main role will be to ensure operational compliance as per the World Bank policies as defined in the Project Appraisal Document, Financing Agreement and Operations Manual and Government policies as applicable.
- The PMU will be led by a Project Director and will include a team of specialized staff responsible for project management, financial management, procurement, environmental safeguards, social safeguards, monitoring and evaluation, civil works design review and contract management, as well as support staff such a secretary, fiduciary support staff and a driver.
- The PMU will provide additional support to (i) MoSDW to lead the piloting of landscape approach (Component 1) and human-elephant co-existence activities (sub-component 2.2) by providing a Coordinator; and (ii) environmental and social safeguard officers to FD and DWC.
- The PMU will also recruit specialized consultants necessary for specific technical assistance for overall implementation of activities.
- The PMU will liaise closely and also ensure overall coordination of all Project entities to ensure necessary data and information are shared and collated for reporting to Project Steering Committee and the World Bank. (*Ref Appraisal stage PAD, 2015*)



## 6.2 Institutional arrangements for implementation of the EAMF

Since the project will be implemented by the staff of the two departments, environmental focal points will be appointed in the respective teams to carry out screening, prepare EMPs and monitor/report enforcement of EMP conditions. These focal points will be assisted by a full-time Safeguards Co-ordinator who will be appointed to the PMU. At this point, it is envisaged that most project activities will require EMPs. However, in the event IEE/EIA is required, the PMU will outsource detail studies to consultants and manage them. Further, provision has been kept in the project safeguards budget to recruit additional safeguard officers, if needed.

### Illustration of the environmental safeguards due diligence process (screening, review and approval) at the sub-project level

	Key steps in a sub-project cycle (in chronological order)	Responsibility			
		PMU	DWLC/FD	Contractor	WB
1	Identification of sub-project ; Proposal preparation and submission to PMU		X		
2	Review of sub-project application; Endorsement/rejection	X			
3	Completion of environmental screening /EMP		X		
4	Review and endorsement of screening report and decision Category B and C type Category B sensitive	X			X
5	EIA/IEE financing and preparation (if determined by screening output)	X financing	X Preparation (through		

			consultants)		
6	Review and clearance of EIA/EMP	X	Note 1		X
7	Obtain clearances from local environmental/regulatory authorities such as CEA, GSMB, CCD, NBRO		X		X
8	Implement sub-project in line with EMP		X	X	
9	Monitor environmental compliance based on EMP	X sample basis	X	X	
10	Reports to PPA and PLA on EMP compliance			X	
11	Reports to PMU on EMP compliance		X		
12	Maintaining records of safeguards documents for all sub-projects		X		

**Note 1:** The DWLC and FD are nationally appointed EIA approving agencies in their designated areas, however, when the project proponent is the regulator as well conflicts of interest can arise. Hence, all Category B sensitive projects which involve new infrastructure and land management in previously undisturbed areas will be reviewed by the WB. Once proposals from the two departments are identified and finalized, the PMU will make a tentative list of those projects requiring prior review by the WB and other national agencies such as the CEA, CCD, GSMB and NBRO.

#### Key roles and responsibilities of safeguards staff

<b>Safeguards Co-ordinator - Project Management Unit / Ministry of Mahaweli Development and Environment</b>
<ul style="list-style-type: none"> <li>• Provide overall policy and technical direction for environmental safeguards management under the ESCAMP (as defined by this framework).</li> <li>• Ensure suitably qualified and experienced personnel are in place as environmental safeguards focal points within the DWLC and FD</li> <li>• Review and endorse environmental screening reports, site specific environmental assessment and management plans prepared for each Category B and C sub-project ; Obtain concurrence from the environmental safeguards specialist in the World Bank team for Category B sensitive type of sub-projects</li> <li>• Facilitate recruitment of Environment Consultants (EC) to assist the DWLC and FD to prepare safeguard documents as part of sub-projects preparation, when needed; Assist in drafting necessary TORs</li> <li>• Ensure that applicable measures in the EMP are included in the design, and condition on compliance with EMP is included in the bidding documents</li> <li>• Assist the DWLC and FD to develop, organize and deliver conservation and environmental management focused training and capacity building programs for the staff of the two departments, contractors, field supervision staff, as needed, including safeguard requirements and their management</li> <li>• Prepare additional technical guidelines, if necessary, to support the EMF in order to strengthen the implementation of environmental safeguards</li> <li>• Assist the two departments in obtaining clearances from local environmental/regulatory authorities, where applicable.</li> <li>• Report to WB and MMDE on the overall environmental performance of the project as part of PMU's periodic progress reporting.</li> </ul>

- Hold regular review meetings with the environmental focal points of the DWLC & FD and visit selected construction 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 DWLC and FD

#### **Environmental Focal Points – Project Implementation Units at the DWLC and FD**

- Ensure environmental screening is carried out for each sub-project as soon as its 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; obtain necessary clearances from local environmental/regulatory authorities for sub-projects, where applicable.
- Ensure relevant EMP provisions are included in the design; and EMPs are included in the bid documents; and condition on compliance with EMP is included in the contractor’s agreement.
- Ensure compliance with EMPs during the construction period and maintain close co-ordination with the site supervisor of the implementing agency and the Environmental focal point of the contractor.
- Co-ordinate with PMU for planning and delivering short training programs and workshops for the contractors and field supervision staff on the project’s safeguards requirements and procedures
- Prepare and submit regular environmental monitoring and implementation progress reports to the PMU
- Ensure public consultation, where applicable, during environmental screening and EA/EMP preparation; encourage community participation in sub-project planning, management and monitoring
- Ensure public complaints caused by sub-project implementation are addressed with corrective action and adequately documented

#### **Environmental Focal Point - Contractor**

- Ensure implementation of relevant provisions of the EMP during sub-project implementation; prepare contractor’s plan for implementing the EMP
- Ensure close co-ordination with the Environmental focal points of the DWLC and FD and report progress on compliance on a regular basis

#### **World Bank**

- Provide close supervision and necessary implementation support in the initial stages of the project.
- Undertake prior review of screening reports, EA/EMPs for all sensitive projects (as determined on a case by case basis); Subsequently, undertake post review of sub-projects on a sample basis
- Ensure regular missions to review overall safeguards performance and provide further implementation support
- Share knowledge on technologies and best practices

- Provide training support on Bank's safeguard policies and requirements of the project.

### **6.3 Monitoring and evaluation**

As part of the overall sub-project monitoring, environmental issues will be required to be monitored. Monitoring of compliance with EMP specifications by the contractor is essential for proper environmental management and will be conducted primarily by the implementing agency or by an appointed environmental committee for each site which requires regular monitoring (as appropriate). Ensuring compliance with environmental safeguards is an integral part of the monitoring program. The project will accommodate receipt of impartial observations on work carried out in the country's most sensitive areas and for facilitating mid-course correction. Also, regular IDA missions will include specialists to monitor the project's compliance with World Bank safeguard policies. The progress of environmental monitoring will be formally communicated to IDA through regular progress reports and updates. (See annex 7 for a suggested format for monitoring)



## Chapter 7: Capacity Building and Training

### 7.1 Institutional capacity for safeguard management

Sri Lanka's environmental clearance process has been in place for almost three decades and most of the experience and knowledge of EIAs were built by the Central Environmental Authority (CEA) and other institutions. FD and DWC have been designated Project Approving Agencies for EIA/IEE approvals within areas under their jurisdiction since 1993. Therefore, the DWC and FD are quite familiar with IEE/EIA procedures. However, an area that can be improved is post EA and EMP clearance monitoring. Such monitoring tends to be the weakest aspect of the Sri Lankan EIA cycle. The project will place strong emphasis on post-EMP clearance monitoring and will provide training necessary within the implementing agencies to strengthen their capacity.

#### 7.1.1 Department of Wildlife Conservation (DWC)

The Department of Wildlife Conservation is a designated PAA according to the provision of the NEA and is responsible for conducting EIAs for activities that fall within a national reserve or within 100m from the boundary of a national reserve. In addition, provisions within the FFPO empower the department to carry out EIA regulations within its area of jurisdiction. However, the FFPO does not specify regulations on how to conduct an EA and hence the NEA regulations are followed. Although the DWC has several years of experience acting as PAA the capacity within the department in effectively implementing EA procedures is rather limited. All EIAs/IEEs are handled in the head office but there is no specialized unit for this purpose and hence handling an EA becomes an additional task. As a result, operationally, the DWC often seeks the support of the CEA and other technical experts from the public and private sectors to assist in EIA evaluations. In instances where controversial projects fall within the purview of the DWC, it has requested CEA to take a lead role in EIA approval for such projects. Involvement of the DWC under the proposed project will be extensive as there will be activities funded in wildlife protected areas and its buffer zone of 100 meters. Hence, while there is capacity in DWC, it could do with strengthening for processing environmental assessments coming under its area of jurisdiction. It is unlikely that complex EIAs will be prepared under ESCAMP, but the project could strengthen DWC's capacity to be able to evaluate complex EIAs that may come to DWC for review in the future due to other activities, particularly large development projects of the Government.

#### 7.1.2 Forest Department (FD)

Similar to the DWC, the Forest Department is also a designated PAA responsible for handling EIAs in forest areas owned by the department. All EIAs are handled by the head office and is a responsibility that is not exclusively entrusted to any unit. Involvement of the FD under the project will be extensive as it is one of the key implementing agencies for the project. While the FD is able to manage EAs and EMPs etc., from project activities, it will be necessary to build capacity in FD in terms of additional personnel and training, for them to be able to review more complex EIAs that may arise from large development activities, especially by the Government.

#### 7.1.3 Provincial Councils (PCs)

As stated earlier, of the 9 provinces in Sri Lanka, only the North Western Provincial Council (NWPC) has a separate statute for environment. None of the other PCs have adequate experience in handling environmental assessments for development projects. Even in the NWPC, where there is a separate Ministry for Environment, capacity is not considered adequate to handle the environmental challenges in

the province effectively. The only role envisaged for PCs at this point is as a joint project proponent with the two departments under the landscape component. The PCs will not be expected to provide a major input and will be led by either the FD or the DWLC and the project design includes capacity building within the main component itself, if such a requirement arises.

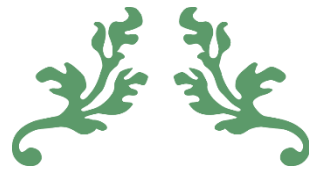
### 7.2 Capacity Building requirements

The project will have training and capacity building for the two departments which will essentially focus on conservation and environmental management. Both departments (the main conservation agencies in the country) are Project Approving Agencies under EIA regulations and they conduct their own IEE/EIAs. Hence, the skill required for the level of safeguard management envisaged under the project is deemed there within the departments. They may lack understanding on bank safeguards and procedures, which will be provided by the safeguards specialist.

The PMU will have a safeguards co-ordinator and the two departments will appoint focal points who will be responsible for ensuring screening and necessary follow up is carried out for PA level activities. If necessary, the project will recruit safeguard specialists, and provision has been kept in the project budget for this. This is especially so where additional staff will need to be mobilized for monitoring work. Anything more detailed than an EMP will be outsourced to consultants and provision has been made for this too.

### 7.3 Estimation of Environmental Safeguards implementation cost

Activity	Quantity	Unit Rate in US\$	Total in US\$
Environmental Staff			
- Safeguards Co-ordinator	1	1,000	48,000
- Environmental Safeguards Officers (if required)	2	600	57,600
<b>Sub-total</b>			<b>105,600</b>
Environmental training and capacity building - (these will be mainly delivered as part of the main conservation management related training. Hence cost for safeguard training on WB policies only has been indicated)			15,000
Recruitment of consultants to prepare stand alone EAs and EMPs (provisional)			50,000
Environmental monitoring that includes sampling and laboratory testing (if needed)			
-Noise/Vibration samples	10	1300	13,000
-Water quality samples	20	100	2,000
- Unspecified			10,000
<b>Total</b>			<b>196,600</b>



# Annexes



## **Annex 1: Policy Framework: Environmental Assessment and Impact Mitigation**

The importance of the Environmental Impact Assessment as an effective tool for the purpose of integrating environmental considerations with development planning is highly recognized in Sri Lanka. The application of this technique is considered as a means of ensuring that the likely effects of new development projects on the environment are fully understood and taken into account before development is allowed to proceed. The importance of this management tool to foresee potential environmental impacts and problems caused by proposed projects and its use as a mean to make project more suitable to the environment are highly appreciated. The Environmental Impact Assessment (EIA) unit of the Central Environmental Authority (CEA) is involved in the implementation of the EIA procedure under the National Environmental Act.

### **ENVIRONMENTAL IMPACT ASSESSMENT (EIA)**

Realizing the need for integrating environment, economic and social considerations with the planning and decision making process in a more formal manner, the Government of Sri Lanka decided to introduce Environmental Impact Assessment for development projects. The importance of the Environmental Impact Assessment as an effective tool for the purpose of integrating environmental considerations with development planning is highly recognized in Sri Lanka.

The Environmental Impact Assessment (EIA) unit of the Central Environmental Authority (CEA) is involved in the implementation of the EIA procedure under the National Environmental Act. Administration of the EIA process, co-ordination between Project Approving Agencies (PAA's) that have been appointed for this purpose, preparation of manuals and guidelines on EIA and maintenance of a data base on EIA is done by the CEA.

### **EIA under the National Environmental Act (NEA)**

EIA was mandated island wide by the 1988 amendments to the National Environmental Act. Part IV C of the Amendment Act No. 56 of 1988 mandated that CEA require “prescribed” development project proposals to be subjected to Environmental Impact Assessment, where adverse and beneficial impacts of the proposed projects on the environment would be identified together with measures to minimize such adverse impacts.

The procedure stipulated in the Act for the approval of projects provides for the submission of two types of reports Initial Environmental Examination (IEE) report and Environmental Impact Assessment (EIA) report. If the environmental impacts of the project are not very significant then the project proponent may be asked to do an Initial Environmental Examination (IEE), which is a relatively short and simple study. However, if the potential impacts appear to be more significant, the project proponent may be asked to do an Environmental Impact Assessment (EIA) which is a more detailed and comprehensive study of environmental impacts. Such reports are required in respect of “prescribed projects” included in a Schedule in an Order published by the Minister of Environment in terms of section 23 Z of the act in the Gazette Extra Ordinary No. 772/22 dated 24th June 1993 (ANNEX II). Once an EIA report is submitted NEA provides for a public inspection and comment on the report during a mandatory period of 30 days. A public hearing may be held to provide an opportunity to any member of the public (who has submitted his comments) to be heard in support of his comments if the PAA considers it to be in the public interest to do so. A decision whether to approve the project has to be arrived at thereafter. IEE reports have been exempted from this requirement. However, an Initial Environmental Examination report shall be deemed to be a public document for the purposes of sections 74 and 76 of the Evidence Ordinance (Chapter 21) and shall be open for inspection by the public.

The EIA process is implemented through designated Project Approving Agencies (PAAs) specified under Section 23 Y of the NEA. At present 23 state agencies, including Ceylon Tourist Board have been specified by the Minister as contained in Gazette Extra Ordinary No. 859/14 dated 23<sup>rd</sup> February 1995 and Gazette Extra Ordinary No. 1373/6 of 29<sup>th</sup> December 2004. The National Environmental Act stipulates that all “prescribed projects” must receive approval from the appropriate project approving agencies (PAAs), which must be those that are “concerned with or connected with such prescribed projects”. A PAA, which is also the project proponent, is disqualified from acting as the PAA for the project by NEA-EIA Regulation 2(1) of June 1993. When the PAA is also the project proponent, the CEA is required to designate an appropriate PAA. Again in cases where there are more than one PAA is involved, the CEA must determine the appropriate PAA. In the event of doubt or difficulty in identifying the appropriate PAA, it has been practice for the CEA to take on the role of PAA.

### **Prescribed projects**

Prescribed projects are listed in two groups in Schedule included in the first ministerial order of June 24, 1993. Part I of the Schedule includes 31 projects and undertakings if located wholly or partly outside the Coastal Zone. The projects in this group irrespective of size if located wholly or partly within the coastal zone must undergo the approval process that is laid down in the Coast Conservation Act. In other words only those projects located totally outside the Coastal Zone will be subject to the approval process laid down in the NEA.

Item 19 in this list of 31 projects and undertakings is described as the “Development of Industrial Estates and Parks exceeding an area of 10 hectares”. Once an industrial estate or industrial park is approved under Part IV VC of the NEA, any individual project or undertaking located in it, even though prescribed, will be exempted from the approval process. Projects and undertakings, which are listed as Items 20 to 30, belong to the category of high polluting industries. They will be required to go through the EIA process only if they are located outside an approved industrial estate or industrial park.

Implementation of projects in environmentally sensitive areas that are listed in Part III of the Schedule is not prohibited, but regardless of their magnitude such projects and undertakings must go through the approval process. This itself acts as a disincentive to project proponents. Similarly, even though Part I of the Order exempts projects and undertakings proposed to be established within the Coastal Zone from the approval process set out in Part IV C of the NEA, the law requires that such projects must be subject to the NEA approval process if they are located in environmentally sensitive areas of the Coastal Zone. In short, the EIA process set out in the Coast Conservation Act applies to projects prescribed under the NEA only when they are located wholly within the Coastal Zone but not in any environmentally sensitive area therein.

Part II of the Schedule of prescribed projects includes Item 32 industries (Items 33 to 52). Item 32 is described as “All projects and undertakings listed in Part I irrespective of their magnitudes and irrespective of whether they are located in the coastal zone or not, if located wholly or partly within the areas specified in Part III of the Schedule”. The industries included as Items 33 to 52 are not described by magnitude and are subject to the approval process only if located within the environmental sensitive areas mentioned in Part III of the Schedule.

### **Operational Procedure for EIA/IEE**

The Basic Information Questionnaire (BIQ) form prepared by the CEA (**Annex 2**) has to be filled by the project proponent and submitted to the CEA. On examination of the BIQ, the CEA decides on the need

for an EIA/IEE. If it is determined that an EIA/IEE is required, the CEA will decide a suitable Project Approving Agency (PAA).

The PAA in turn will appoint a technical committee (TC) to scope the project based on the preliminary information. If the PAA determines that the project would have no long-term adverse environmental impacts, an initial environmental examination (IEE) would be considered adequate. The project proponent must submit a detailed IEE for review and approval by the PAA. The IEE should identify potential environmental and social issues and the possible remedial actions. Upon reviewing the IEE, if the TC identifies any substantial environmental issues that may arise as a result of the proposed project, the proponent will be advised to undertake a detailed EIA and issue the Terms of Reference (TOR) for the EIA. In developing the TOR, the PAA will also consider the views of other state agencies and the public. If the PAA decided that no further environmental analysis is needed, the process ends with approval/rejection of the IEE.

If an EIA is a necessity, then the project proponent must conduct the EIA according to the TOR issued, prepare the report in all three languages and submit it to the PAA. The PAA will then declare open the EIA report for a period of 30 days for public comments and the comments received will be conveyed to the proponent. The project proponent can then prepare a response to the public comments and submit it to the PAA. The TC will then evaluate the report with respect to adherence to the TOR, quality of the report contents and adequacy of the responses to public comments.

Based on the recommendations of the TC, the PAA in concurrence with CEA would either grant approval for the implementation of the proposed project subject to specific conditions or refuse approval for implementation of the project, giving reasons for doing so. The PAA will also specify a period within which the approved project should be completed. If the project proponent is unable to complete the project within the specified period, written permission for an extension must be obtained from the PAA, 30 days prior to the expiration of the approved completion date.

### **EIA in the Coast Conservation Act**

The Coast Conservation Act No. 57 of 1981 together with the Coast Conservation (Amendment) Act, No. 64 of 1988 governs the Coastal Zone. This Zone comprises mainly “the area lying within a limit of three hundred meters landwards of the Mean High Water line and a limit of two kilometers seawards of the Mean Low Water line”. The EIA process is part of the permit procedure mandated in Part II of the Coast Conservation Act (CCA) for the approval of prescribed development projects and undertakings within the Coastal Zone. The Act states that the Minister in charge of the subject of Coast Conservation “may, having regard to the effect of those development activities on the long term stability, productivity and environmental quality of the Coastal Zone, prescribe the categories of development activity, which may be engaged in within the Coastal Zone without a permit”. Such activity should not however include any development activity already prescribed under the NEA.

Section 16 of the Coast Conservation Act (CCA) confers on the Director of Coast Conservation the discretion to request a developer applying for a permit (to engage in a development activity within the Coastal Zone) to furnish an Environmental Impact Assessment relating to the proposed development activity. The CCA does not however specify how and when this discretion should be exercised. The Coast Conservation Department (CCD) interprets this provision as requiring an EIA when the impacts of the project are likely to be significant. The application form for a permit includes several questions, the answers to which would help determine whether the development activity is likely to have significant impacts on the environment.

The Act requires the Director of Coast Conservation, on receiving an EIA Report, to make it available for public inspection and to entertain comments on it. The Act also requires the Director of Coast Conservation to refer the EIA report to the Coast Conservation Advisory Council for comment. The Council is an inter-department, inter-disciplinary advisory body. The Director of Coast Conservation may decide to.

(1) Grant approval for the implementation of the proposed project subject to specified conditions,

Or

(2) Refuse approval for the implementation of the project, giving reasons for doing so.

Part I of the Schedule (annex II) containing the list of projects prescribed under the NEA states that the CCA applies in the case of those projects, which lie wholly within the Coastal Zone. This indicates that the NEA expects the Coast Conservation Dept. to consider these projects as prescribed and that an Environmental Impact Assessment is required albeit under the provisions of the CCA.

In practice however the Coast Conservation Department is guided by their own rules and regulations in determining whether any of the prescribed projects under the NEA require an Environmental Impact Assessment.

Certain parts of the Coastal Zone, which are considered environmentally sensitive and declared as “no-build” areas automatically, rule out the need to consider development projects in such areas. Similarly, development projects proposed for location in environmentally sensitive areas within the Coastal Zone are required to be submitted to the approval process specified in the NEA. Many of these environmentally sensitive areas have already been identified and listed by the Coast Conservation Department as “set-back” areas comprising reservation areas and restricted areas in which development activities are prohibited or significantly restricted.

CCD Planning Division officers submit their recommendations regarding proposed development projects to the Planning Committee of the Coast Conservation Department. The three technical divisions of the Coast Conservation Department recommend the issue of a permit with or without an EIA. Where an EIA is recommended, scoping sessions are convened with representatives of concerned state agencies to determine the Terms of Reference for the EIA.

The long title of the Coast Conservation Act states that the Act is established to regulate and control development activities within the Coastal Zone. Therefore, the Coast Conservation Department is the final authority in determining whether to permit a development activity in terms of the CCA, even though such activity may be required go through the approval process laid down in the NEA.

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### **EIA in the Fauna and Flora (Protection) Ordinance**

The Fauna and Flora (Protection) Ordinance No. 2 of 1937, as amended by the Fauna and Flora (Amendment) Act No. 49 of 1993, requires that any development activity of any description whatsoever proposed to be established within one mile of the boundary of any National Reserve, should receive the prior written approval of the Director of Wildlife Conservation. The Ordinance as amended mandates that the project proponent should furnish an IEE or EIA report in terms of the National Environmental Act. The information that a project proponent applying for permission to establish a development project within one mile of any National Reserve has to submit is much more comprehensive than the information required for the approval process stipulated under the NEA. This is because every development project or activity to be established within one mile of any National Reserve is subject to the approval process of the Department of Wild Life Conservation regardless of its magnitude or category. Success in the implementation of this requirement will be tested to the extent that the term “development activity” is not defined in the Act. This procedure could also discourage any development activity however environmentally compatible it is, proposed to be established within any environmentally sensitive area.

### **EIA in the Provincial Administration**

The Provincial Level environmental protection and management is introduced in Sri Lanka through the 13th amendments to the constitution certified in November 1987, which specifies three lists, the Reserved list, the Provincial Council list, and the Concurrent list. Provincial Councils have the exclusive right to legislate through statutes on matters specified in the provincial Council list. The subject of environmental protection is placed in the Concurrent list as well as on the Provincial Council list. Provincial councils and Parliament can both legislate on matters on the Concurrent list provides it is done in consultation with each other. Only the North Western Provincial Council (NWPC) enacted legislation on environmental protection by Statute No. 12 of 1990. The National Environmental Act remains suspended and inoperative within the NorthWesternProvince with effect from 10th January 1991.

### **Strategic Environment Assessment (SEA)**

Although project level EIA is effective in addressing environmental impacts at project level, it often fails to take into account cumulative impacts of several projects. Under such circumstance SEA is a more effective tool in identifying cumulative impacts on the environment of a specific policy or programme of works. At present SEA is still not a mandatory requirement in Sri Lanka. However, the Cabinet of Ministers has approved implementation of SEA for policies, programs and plans in Sri Lanka. Therefore, all Ministries, Departments and Authorities who are responsible for implementing a new policy, plan or programme should carry out a SEA for the new policy, plan or programme prior to its implementation and submit a copy of the SEA report to the Central Environmental Authority for review and comments.

### **Operational Framework for Implementation of EIA under national regulations**

<b>Activity</b>	<b>Agency</b>	<b>Duration</b>
<b>Submitting Preliminary information</b> - A project proponent is required to provide the CEA with preliminary information on the proposed project, in order for the EIA process to be initiated. The best time for a project proponent to submit the preliminary information on the proposed project is as soon as the project concept is finalized and the location of the project is decided. The Basic Information Questionnaire (BIQ) form prepared by the CEA can be used for this purpose (Annex 2). When a prescribed project is referred to CEA, the CEA will decide a suitable Project Approving Agency (PAA).	CEA	2 months
<b>Environmental Scoping</b> - Then the PAA will carry out scoping and Terms	PAA	2 month



of Reference (ToR) for the EIA/IEE will be issued to the project proponent		
<b>EIA/ IEE report preparation</b>	Proponent	3 months
<b>Public participation and evaluation</b> - On receipt of an EIA report, it will be subjected to an adequacy check in order to ensure that the ToR issued by the PAA has been met. It will then be open for public inspection / comments for a period of 30 working days. If there are any public comments on the EIA report, they will be sent to the project proponent for response. Subsequent to the public commenting period the PAA will appoint a Technical Evaluation Committee (TEC) to evaluate the EIA report and make its recommendations. IEE reports are not required to be opened for public comments and are thus subjected to technical evaluation only.	PAA	3 months
<b>Decision making</b> - Based on the recommendation of the TEC, the PAA makes it's decision on whether to grant approval for a project. If the PAA is not the CEA, it should obtain the concurrence of the CEA prior to granting approval	PAA	2 months

Generally the approval is valid for 3 years. If the Project Proponent does not commence work within 3 years of the decision, renewal of the approval from the Project Approving Agencies is necessary. The validity period is usually stated in the letter of approval.

## Annex 2: Basic Information Questionnaire for the CEA

APPLICATION NO	
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CENTRAL ENVIRONMENTAL AUTHORITY

### BASIC INFORMATION QUESTIONNAIRE

(Essential information to determine the environmental approval requirement of projects)

- 1 Name of the Project:
- 2 Name of the Developer:  
(Company/firm/individual)  
  
Postal Address:  
  
*Phone No:* *Fax No:*  
  
Contact person  
*Name*  
*Designation:*  
*Phone No:* *Fax No:*
- 3 Brief description of the project ( Use a separate sheet)  
Attach copy (ies) of pre-feasibility / feasibility study report (s) if available
- 4 Scale / magnitude of the project:  
(eg. For a road project: Length of the trace; Tourist hotel: No. of rooms; Agriculture project:  
Extent of land, solid waste management projects : capacity per/day etc.)
- 5 Main objective(s) of the project:
- 6 Investment and Funding sources:
- 7 Location of the Project
  - i Pradeshiya Sabha:
  - ii Divisional Secretariat:
  - iii District
  - iv Provincial Council

***Provide a location map indicating the project site, access to the site, surrounding development and infrastructure within 500 m of the site (1:50000 scale).***
- 8 Extent of the project area (in ha):  
A copy of the survey plan of the site

9 Does the project wholly or partly fall within any of the following areas?

Area	Y e s	N o	Unaware
100m from the boundaries of or within any area declared under the National Heritage Wilderness Act No 4 of 1988			
100m from the boundaries of or within any area declared under the Forest Ordinance (Chapter 451)			
Coastal zone as defined in the Coast Conservation Act No 57 of 1981			
Any erodable area declared under the Soil Conservation Act (Chapter 450)			
Any Flood Area declared under the Flood Protection Ordinance (Chapter 449)			
Any flood protection area declared under the Sri Lanka Land Reclamation and Development Corporation Act 15 of 1968 as amended by Act No 52 of 1982			
60 meters from the bank of a public stream as defined in the Crown Lands Ordinance (Chapter 454) and having width of more than 25 meters at any point of its course			
Any reservations beyond the full supply level of a reservoir			
Any archaeological reserve, ancient or protected monument as defined or declared under the Antiquities Ordinance (Chapter 188).			
Any area declared under the Botanic Gardens Ordinance (Chapter 446).			
Within 100 meters from the boundaries of, or within, any area declared as a Sanctuary under the Fauna and Flora Protection Ordinance (Chapter 469)			
100 meters from the high flood level contour of or within, a public lake as defined in the Crown Lands Ordinance (Chapter 454) including those declared under section 71 of the said Ordinance			
<i>Within a distance of one mile of the boundary of a <u>National Reserve</u> declared under the Fauna and Flora Protection Ordinance</i>			

10 Present ownership of the project site:

State	Private	Other-specify

If state owned, please submit a letter of consent of the release of land from the relevant state agency

11 Present land use:

12 Present land use : (Please tick the relevant cage/s)

Land use Type		Land use Type	
Paddy		Marsh / Mangrove	
Tea		Scrub / Forest	
Rubber		Grassland / Chena	
Coconut		Built-up area	
Other Plantations / Garden		Other (pl. specify)	

13 Does the site /project require any

	Yes	No	If yes give the extent (in ha)
Reclamation of land, wetlands			
Clearing of forest			
Felling of trees			

14 Does the project envisage any resettlement

Yes	No	If yes, give the number of families to be resettled

15 Does the project envisage laying of pipelines

Yes	No	If yes, give the length of the pipeline (km)

16 Does the project involve any tunneling activities

Yes	No

17 Proposed timing and schedule including phased development:

18 Applicable laws, regulations, standards and requirements covering the proposed project:

19 Clearances / permits obtained or should be obtained from relevant state agencies and / or local authorities. *(Attach required copies of the same)*

The above information is accurate and true to the best of my knowledge. I am aware that this information will be utilized in decision-making by the relevant state authorities.

.....  
**Date**

.....  
**Signature of Applicant**

### Annex3: Guidelines for Developing EMPs

Having identified the potential impacts of the relevant sub-component, the next step of the EA process involves the identification and development of measures aimed at eliminating, offsetting and/or reducing impacts to levels that are environmentally acceptable during implementation and operation of the project (EMP). EMPs provide an essential link between the impacts predicted and mitigation measures specified within the EA and implementation and operation activities. World Bank guidelines state that detailed EMP's are essential elements for Category A projects, but for many Category B projects, a simple EMP alone will suffice. While there are no standard formats for EMPs, it is recognized that the format needs to fit the circumstances in which the EMP is being developed and the requirements, which it is, designed to meet. EMPs should be prepared after taking into account comments from the PAA and IDA as well as any clearance conditions. Annex C of OP 4.01 (see main report for annex C) of the World Bank safeguards outlines the important elements of the EMP and guides its preparation. Given below are the important elements that constitute an EMP.

#### *a. 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 minimise 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 & non structural) and the phase in which it should become operable (design, construction and/or operational).

#### *b. Enhancement plans*

Positive impacts or opportunities arising out of the project need to be identified during the EA process. Some of these opportunities can be further developed to draw environmental and social benefits to the local area. The EMP should identify such opportunities and develop a plan to systematically harness any such benefit.

#### *c. 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

#### *d. 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.

*e. Implementing schedules*

Timing, frequency and duration of mitigation measures with links to overall implementation schedule of the project should be specified.

*f. 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.

*g. 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.

*h. 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.

Consultation with affected people and NGOs in preparing the MP will be an integral part of all Category A projects and is recommended for Category B projects.

#### Annex 4: Suggested Format for the Environmental Screening Form

**Title of sub-project:**

No	Item	Details			
<b>INTRODUCTION</b>					
1	Name of the Site				
2	Province				
3	District				
4	Divisional Secretary Division (s)				
5	Local Authority				
6	Grama Niladari Division (s)				
7	Brief description of the project (Be as brief as possible, confining to main elements only, provide a 1:10,000 scaled site map inclusive of area within 500m radius from the project site)				
8	Does the site /project require any;				
		<b>Yes</b>	<b>No</b>	If yes give the extent (in ha)	
	Reclamation of land, wetlands				
	Clearing of forest				
	Felling of trees				
9	Distance from Coast line				
10	Minimum land area required for the proposed development (based on urban guidelines) (ha)				
11	Available total land area within the identified location (ha)				
12	Expected construction period				
13	Responsible contact person with contact Information				
14	Present Land Ownership	State	Private	Other (specify)	
15	Total Cost of the Project				
16	Anticipated Date of Completion				
<b>DESCRIPTION OF THE ENVIRONMENT</b>					
<b>PHYSICAL</b>					
17	Topography & Landforms (map)	Attach an extract from relevant 1: 50,000 topographic sheet/ if detailed maps are available provide them			
18	Relief (difference in elevation)	Low <20m	Medium 20-40m	High 40-60	>60m
19	Slope	Low <30%	Medium 30-40 %	High 40-60 %	Very High > 60%
20	Position on Slope	Bottom	Mid-slope	Upper-slope	
21	Soil type				
22	Depth of top soil	Shallow < 20cm	Moderate 20 – 100 cm	Deep >100cm	

23	Soil Erosion	Low	Medium	High			
24	Climate	Wet Zone	Intermediate Zone	Dry Zone/ Semi Arid Zone			
25	Annual dry period						
26	Source of fresh Surface Water	Spring/canal	Tank/Reservoir	Perennial Stream	Seasonal Stream	None	
28	Surface Water Use	Domestic	Washing/Bathing	Irrigation	Animal use		
29	Surface Water Quality	Poor	Moderate	Good			
30	Ground Water Availability	Dug Well	Tube Well	Other (specify)			
31	Ground Water Use	Domestic	Washing/Bathing	Irrigation	Animal use		
32	Ground Water Quality	Poor	Moderate	Good			
33	Incidence of Natural Disasters	Floods	Prolonged droughts	Cyclones/tidal waves	Other		
34	Geological Hazards	Landslides	Rock falls	Subsidence	Other		
<b>ECOLOGICAL</b>							
35	Habitat Types in the Project Site (indicate the % of each habitat type)	Natural forest	Degraded forest	Natural scrubland	Degraded scrubland	Riverine forest	
		Grassland	Abandoned agricultural land	Marsh	Lagoon	Estuary	
		Coastal scrub	Mangrove	Salt marsh	Home-gardens	Other (list)	
36	Habitat types within 500m radius from the site periphery (indicate the % of each habitat type)	Natural forest	Degraded forest	Natural scrubland	Degraded scrubland	Riverine forest	
		Grassland	Abandoned agricultural land	Marsh	Lagoon	Estuary	
		Coastal scrub	Mangrove	Salt marsh	Home-gardens	Other (list)	
37	Are there any environmentally and culturally sensitive areas within 250m?	Protected Areas	Migratory pathways of animals	Archeological sites	Wetlands	Mangroves strands	
38	<b>Screening Questions</b>	<b>Yes</b>	<b>No</b>	<b>Scale of Impact</b>			<b>Remarks</b>
				<b>H</b>	<b>M</b>	<b>L</b>	
<b>A</b>	Siting of the activity						
a.	Are there any environmentally and culturally sensitive areas within the project site and 500 meters from the project boundary?						



b.	Protected Areas / Forest Reserve						
c.	Migratory pathways of animals						
d.	Archeological sites						
e.	Wetlands						
f.	Mangroves strands						
g.	Estuarine						
h.	Bufferzone of PAs/FRs						
i.	Special area for protecting biodiversity						
j.	Are there any plants (endemic and threatened species) of conservation importance within the project site and 500 meters from the project boundary?						
k.	Are there any animals (endemic and threatened species) of conservation importance within the project site and 500 meters from the project boundary?						
<b>B</b>	<b>Potential Environmental Impacts</b>						
	<b>Will the activity / sub-project cause</b>						
	• Land disturbance or site clearance?						
	• Negative effects on rare (vulnerable), threatened or endangered species of flora or fauna or their habitat?						
	• Negative effects on designated wetlands?						
	• Spread of invasive plants or animals?						
	• Negative effects on wildlife habitat, populations, corridors or movement?						
	• Destruction of trees and vegetation?						
	• Impact on fish migration and navigation?						
	• Obstruction of natural connection between river and wetlands inside project area or natural drainage system?						
	• Water logging due to inadequate drainage?						
	• Insufficient drainage leading to salinity intrusion?						

• Negative effects on surface water quality, quantities or flow?						
• Negative effects on groundwater quality, quantity or movement?						
• Increased demand of water requirements leading to reduction of water supply for competing uses?						
• Increase probability of spread of diseases and parasites?						
• Increase the use of agricultural chemicals and pesticides?						
• Significant sedimentation or soil erosion or shoreline or riverbank erosion on or off site?						
• Loss of existing buildings, property, economic livelihood?						
• Negative impact on soil stability and compactness?						
• Impacts on sustainability of associated construction waste disposal?						
• Changes to the land due to material extraction?						
• Traffic disturbances due to construction material transport and wastes?						
• Increased noise due to transportation of equipment and construction materials?						
• Increased noise due to day-to-day construction activities?						
• Increased wind-blown dust from material (e.g. fine aggregate) storage areas?						
• Degradation or disturbance of historical or culturally important sites?						
• Health and safety issues?						
<b>Will the activity / sub-project require</b>						
• Setting up of ancillary production facilities?						
• Significant demands on utilities and services?						
• accommodation or service amenities to support the workforce during construction						

Note: Please add any other screening questions relevant to the proposed activity / sub-project. Also provide additional explanation of the responses and/or positive impacts in the remarks column.

**CONTACT DETAILS OF OFFICIALS AND RECOMMENDATIONS**

39	Name of the officer completed the form (From the Developer)	
40	Designation and contact Information	
41	List of team members	
42	Overall observation and recommendation	
43	Signature and date	

**FINAL OBSERVATIONS & RECOMMENDATIONS**

(a)	<p>Does the project meet any of the following exclusion criteria?</p> <ul style="list-style-type: none"> <li>• Significant conversion or degradation of critical natural habitats</li> <li>• Lead to invasion or spread of weeds and feral animals or involves the use of toxic chemicals.</li> <li>• Lead to the exposure of sensitive/critical/vulnerable habitats</li> <li>• Construction of large new infrastructure within protected areas</li> <li>• Illegal Activities as defined specifically under the Forest Ordinance and Fauna and Flora Protection Ordinance.</li> <li>• Extraction of raw material from PA areas</li> <li>• Filling of wetlands within PAs and outside in strategic landscapes.</li> </ul>	
(b)	Does this site require an Initial Environmental Examination/Environmental Impact Assessment (IEE/EIA) or any other Environmental Assessments (EA) under the national regulations and please state the reasons?	
(c)	Although national regulations may not require IEE/EIA at this Site, are there environmental issues which need to be addressed through further environmental investigations and/or EA based on the guidance provided in ESMF? If the answer is “Yes” briefly describe the issues and type of investigations that need to be undertaken.	
(d)	Will this site be abandoned based on the current observations? If yes, please state the reasons.	

(e)	Does the proposed site meet the national urban planning requirements (only applicable for activities outside PAs)? If the answer is “No”, what needs to be done to meet these requirements; if the answer is “Yes”, has the project site obtained the necessary approvals?	
(f)	In addition to the above issues, please indicate any additional observations, recommendations if any	

Name and Contact Information of the officer who made the final observations and recommendations (PMU)
Signature and Date

## **Annex 5: Guidelines for Health and Safety of Workers, Communities and Visitors**

Health and safety of workers and the public should be designed into constructions, before and during and after the building phase. It is cheaper and easier to control risks in construction to workers as well as the public before work starts on site by proper planning, training, site induction, worker consultation and incorporating strict safety procedures in construction plans. The proposed project interventions will mostly involve small to medium scale construction sites. As such, extreme dangers posed by working in environments such as great heights, deep water and involving dangerous chemicals and radioactive material will not be present. Potential dangers associated with ESCAMP sites will include falling from moderate heights, vehicle accidents, falling into trenches, drowning, breathing dust and other air pollutants, back aches caused by handling heavy material, wildlife attacks, etc. and can be mitigated with following safety guidelines.

EA/EMP for each site should mandatorily include a risk assessment as to what are the hazards involved in the work site, who might be harmed and how seriously, how likely this harm might happen and what actions are required to eliminate or reduce the risk and incorporate such measures in the EMP and clearly set out in the tender documents. All sub-projects must observe health and safety regulations, hence during implementation it is important to check if these control measures are put in place and are meeting the legal requirement.

### **Training**

- Ensure constructors carry out suitable training programs on occupational health and safety for workers prior to commencement of construction, especially with regard to working in wild territory.
- Ensure only experienced and well trained workers are used for the handling of machinery, equipment and material processing plants
- Ensure all persons, including managers, are trained and able to carry out their work without risk to the safety or health of themselves, other workers or the public

### **Personal Protective Equipment**

- Ensure appropriate safety equipment, tools and protective clothing are provided to workers and that safe working methods are applied. A safety inspection checklist should be prepared taking into consideration what the workers are supposed to be wearing and monitored.
  - Any person who works or operates in an area where there is a risk of flying objects, such as splinters, should wear safety goggles at all time. These should be securely fitted to the face. Welders should protect the entire face from hot sparks and bright rays by using a welding mask.
  - Any person exposed to high levels of dust or hazardous gases (when working in tunnels) should wear respiratory protection in the form of disposal masks or respiratory masks which fit more snugly around the nose and mouth.
  - Any person working in an area where there is the risk of being struck on the head by a falling or flying object should wear a hard hat at all times. These should be well maintained in order to be fully effective, and any helmets or hard hats that are damaged or cracked should immediately be replaced.
  - All workers will be required to wear shoes or strong boots to prevent sharp objects from penetrating or crushing the foot. Those working in muddy conditions and in canals with

polluted water should avoid hand/foot contact with water and should never wear slippers.

- Road workers should wear reflective vests to avoid being hit by moving vehicular traffic.

### **Site Delineation and Warning Signs**

- Ensure delineation devices such as cones, lights, tubular markers, orange and white strips and barricades are erected to inform about work zones.
- Ensure all digging and installing work items that are not accomplished are isolated and warned of by signposts and flash lamps in nighttime (for those sites outside PAs).
- Ensure dangerous warning signs are raised to inform public of particular dangers and to keep the public away from such hazards, such as warning for bathing when working on river sites and irrigation works.
- Ensure rehabilitation of trenches progressively once work is completed.
- The safety inspection checklist must look to see that the delineation devices are used, whether they are appropriately positioned, if they are easily identifiable and whether they are reflective.

### **Equipment safety**

- Work zone workers use tools, equipment and machinery that could be dangerous if used incorrectly or if the equipment malfunctions. Inspections must be carried out to test the equipment before it is used, so that worker safety can be secured. Inspections should look for evidence of wear and tear, frays, missing parts and mechanical or electrical problems.

### **Material management**

- Ensure easily flammable materials are not stored in construction site and that they are transported out of project site

### **Emergency Procedures**

- Ensure an emergency aid service is in place in the work zone.
- Ensure all site staff is properly briefed as to what to do in the event of an emergency, such as who to notify and where to assemble for a head count. This information must be conveyed to employees by the site manager on the first occasion a worker visits the site.

### **Construction camps**

- Ensure installation of adequate construction camps and sanitation facilities for construction workers to control of transmission of infectious diseases.
- Ensure that adequate warning is provided on issues of poaching and wildlife attacks

### **Information management**

- Develop and establish contractor's own procedure for receiving, documenting and addressing complaints that is easily accessible, culturally appropriate and understandable to affected communities.
- Provide advance notice to local communities by way of information boards about the schedule of construction activities.

### **Worker consultation**

- Consulting the workforce on health and safety measures is not only a legal requirement, it is an effective way to ensure that workers are committed to health and safety procedures and

improvements. Employees should be consulted on health and safety measures and before the introduction of new technology or products.

**Annex 6: Chance find procedure for Physical Cultural Resources**

Contracts for civil works involving earth moving and excavation activities, especially in areas known to be sites of old civilizations and now returned to forest, should normally incorporate procedures for dealing with situations in which buried PCRs are unexpectedly exposed.

**Recognition of unknown PCRs** – This is the most difficult aspect to cover, especially if the contractor is not full-time accompanied by a specialist. **Upon discovery of such material** during project implementation work, the following should be carried out;

- Immediately stop construction activities.
- With the approval of the resident engineer delineate the discovered site area.
- Secure the site to prevent any damage or loss of removable objects. In case of removable antiquities or sensitive remains, a night guard should be present until the responsible authority takes over.
- Through the Resident Engineer, notify the responsible authorities, the Department of Archaeology and local authorities within 24 hours.
- Submit a brief chance find report, within a specified time period, with date and time of discovery, location of discovery, description of finding, estimated weight and dimension of PCR and temporary protection implemented.
- Responsible authorities would be in charge of protecting and preserving the site before deciding on the proper procedures to be carried out.
- An evaluation of the finding will be performed by the Department of Archaeology who may decide to either remove the PCR deemed to be of significance, further excavate within a specified distance of the discovery point and conserve on-site, and/or extend/reduce the areas demarcated by the contractor etc. This should ideally take place within about 7 days.
- Construction work could resume only when permission is given from the Department of Archaeology after the decision concerning the safeguard of the heritage is fully executed.



## Annex 1: Procedures for Physical Cultural Resource Impact Screening, Assessment & Management

### Physical Cultural Resources Safeguard Processing Steps

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

In addition to the Environmental Screening and Management Process, any proposed project intervention to be conducted either within or in close proximity to a heritage asset should follow the following procedure of due diligence outlined, as outlined in the project Environmental Assessment and Management Framework (EAMF).

### Due Diligence Procedure for PCRs within the SCDP

STAGE	PERIOD OF COMMENCEMENT	KEY OUTCOMES AND GUIDELINES TO FOLLOW	
		Key Out Come	Procedure to be followed
Step 1	At identification and finalization of proposed subproject area	Preliminary Documentation of Site and PCR Screening	Section A of Screening Report to be completed as per the format provided in Form-1: PCR Profiling and Screening Report Format and Guidelines
	Once final design of intervention have been completed	Identification of Impacts Based on Proposed Projects	Section B of Screening Report to be completed as per the format provided in Form-1: PCR Profiling and Screening Report Format and Guidelines
Step 2	Once Step 1-screening and impact identification have been completed	Categorization of Impacts on OUV and Recommendations for Follow up Assessments Instruments	Form 2-Criteria for categorization of Impacts on OUV and Recommendations for Follow up Assessments Instruments should be used to deduce follow up assessment and should be indicated in screening report.
Step 3	Once impact categorization has been completed and follow up assessment instrument has been identified	Inclusion of PCR management aspects in Protected Area Management Plan	The generic scope of a PCR Specific Mitigation measures that need to be included in the Protected Area Management Plan Conservation presented in Form 3. All plans and assessments should be submitted to the World Bank task team for review and clearance.
	Clearance/Ownership of prepared plans from	Written clearances from respective ,Heritage	Copies of all relevant clearances, should be

	Relevant Authorities who will manage the heritage asset and subsequent implementation.	Committees of Cities, Department of Archeology where applicable	maintained in the project file.
Step 4	Monitoring implementation of Mitigation and Conservation Plan	Monitoring of field level implementation of respective plan (mitigation, conservation, adaptive reuse). The identification and management of implementation stage issues/ new issues that can come about during the lifetime of the subproject.	Form 4: Generic Monitoring Checklist of Mitigation and Conservation Plan should be completed on a monthly basis by the PMU safeguards team and submitted to the World Bank for review.

## **Key Terms in Physical Cultural Resource Management**

The following definitions of the major processes involved in safeguarding heritage are consistent with the Burra Charter (revised in 1992), Australia's International Committee on Monuments and Sites (ICOMOS) charter for the conservation of places of historic significance. Experts consider the Burra Charter one of the most comprehensive and up-to-date statements of conservation principles.

- *Conservation.* Encompasses all aspects of protecting a site or remains so as to retain its cultural significance. It includes maintenance and may, depending on the importance of the cultural artefact and related circumstances, involve preservation, restoration, reconstruction, or adaptation, or any combination of these.
- *Preservation.* Maintaining the fabric of a place in its existing state and retarding deterioration. It is appropriate where the existing fabric itself constitutes evidence of specific cultural significance, or where insufficient evidence is available to allow other conservation processes to be carried out. Preservation is limited to the protection, maintenance, and, where necessary, stabilization of the existing fabric.
- *Restoration.* Returning the existing fabric of a place to a known earlier state by removing accretions or reassembling existing components without introducing new materials. It is appropriate only (a) if there is sufficient evidence of the earlier state of the fabric, and (b) if returning the fabric to that state reveals the significance of the place and does not destroy other parts of the fabric.
- *Reconstruction.* Returning a place to a known earlier state, as nearly as possible. It is distinguished by the introduction of materials (new or old) into the fabric. Reconstruction is appropriate only where a place is incomplete through damage or alteration and could not otherwise survive. Reconstruction is limited to the completion of a depleted entity and should not constitute the majority of the fabric.
- *Adaptation.* Modifying a place for compatible use. It is acceptable where the adaptation does not substantially detract from its cultural significance and may be essential if a site is to be economically viable.
- *Maintenance.* The continuous protective care of the fabric, contents, and setting of a place. Maintenance is to be distinguished fro

**Form 1-PCR Profiling and Screening Report Format and Guidelines**

<b>PHYSICAL CULTURAL RESOURCE PROFILING AND SCREENING SHEET</b>		
	Assessment Date	Date the assessment was conducted on
	Name and Designation of Assessor	Name of individual conducting assessment
<b>Profiling and Documentation of PCR Site</b>		
1	Name of PCR (Names)	Clearly Indicate Name of the PCR being reviewed, include multiple names if used to address this property
2	Location	All subcategories under location should be noted for the geographic location of the site the PCR is found in.
	· GN Division	
	· DS Division	
	· City	
	· District	
	· Province	
	· Country	
	· GPS Coordinates'	
2	Salient Nature (movable or immovable; natural or manmade; registered or unregistered) List all applicable	Indicate if the site is of the following salient nature, denote all categories applicable: Further examples Page 15
		· Movable- can be moved from current location- ex-statue
		· Immovable- fixed to the location ex- building
		· Natural- naturally occurring structure
		· Manmade- made by man
	· Registered- has been recorded at local authority/archeological department/ has protected status	
	· Unregistered- not been recorded/new find	
3	Category (List all applicable)  Archaeological, Paleontological, Colonial, Architectural, Religious/Sacred, Sites of Aesthetic Value, Cultural significance	Indicate if the site is of the following nature, denote all categories applicable.
		· Archeological-site has a historic value in relation to ancient civilizations
		· Paleontological-fossils, early human/anima remains, prehistoric site
		· Colonial-site has reference to Colonia era- Dutch, Portuguese, British (Indicate relevant era)
		· Architectural- site is known for its historic/cultural architectural uniqueness
		· Religious/Sacred- place of worship/religious ritual
		· Sites of Aesthetic Value- Site denoted for its pleasing appearance/ view point
	· Cultural Significance- Has a connection to a cultural practice, particular group of people of cultural ritual	

<b>4</b>	Location (map reference) and Satellite Image Showing Aerial View	A map/satellite image indicating the geographic location of the site should be Annexed to the Screening Report. Indicate Annex Number hear.
<b>5</b>	Type of asset	Indicate What the asset is, in the event it serves two or more purposes use the relevant descriptive terms (Example-Archeological remains, manmade pond, palace, Buddhist temple, Hindu temple, colonial building, church, mosque, fort, rampart, monastery, landscape, Unique Human Settlements, Tombs, Burial Grounds, stone structure, Sacred Groves or Trees, natural asset (e.g.-waterfalls, mountains),
<b>6</b>	Photograph of Site (High Resolution Image, Front View, Back View)	Please annex clear photographs of site, taking the surrounding in to consideration, key features etc. Provide the Annex Number hear.
<b>7</b>	Date/Time Period Built	Indicate the date built, in some cases if dates are unknown, the Era is the minimum requirement
<b>8</b>	Statutory designation (e.g. on national or local register, World Heritage Site)	The site is a designated World Heritage Site, Nationally designated monument (Sacred City, Cultural Heritage Property etc.)- Indicate the type of designation and relevant dates
<b>9</b>	Brief description of Site	Describe the site as it visually appears
<b>10</b>	Brief description of surrounding area	Describe the locality in which the site is found, what land use patterns exist around the site
<b>11</b>	Brief history of site, including names, dates etc.	Indicate the history of the site, by whom it was built, for what purpose, any relevant folk law or tales, historic/religious and/or cultural significance of site to local people etc.
<b>12</b>	Condition (Based on Visual Assessment)	Indicate what the current condition of the site is, play close attention to aspects such as encroachments, current use, structural damage and deterioration etc.
<b>14</b>	Integrity (Has the Site been Modified?)	Has the site been modified in any way to its original form and purpose, is it being reused for any other purpose than that originally intended?

15	Inter-relationships (list) (Connection to other sites. Cultural and religious practices, people, festivals etc.)	Is the site part of a larger complex (ex archaeological remains of a temple within a monastic complex), connected to other PCRs or cultural practices, people or festivals (People conduct practices of worship, pilgrimages, cultural pageants etc. at this site)
16	Sensitivity (Describe observed external threats/ risks to Site)	What external threats are seen to the site, are their encroachments, threats from industry-pollution etc.
17	Ownership/Management Responsibility	Indicate Institutions the national, regional, and local authorities and institutions with responsibility for the management of this PCR. Answer the following two key questions
		Who owns the land the PCR is located in?
		Who Manages and Maintains the PCR?
18	Capacity of Management Agency (High, Moderate, Low)	Indicate if the Agency in charge of managing and maintaining this PCR (Identified in Question-6) has the technical expertise to care for the PCR, ensuring it is impacted by the lack of conservation and protection practices.

#### Identification of Impacts Based on Proposed Projects

19	Describe planned intervention proposed	Describe the nature of the proposed project intervention. For interventions that focus on the heritage indicated if the site will be demarcated and protected, rehabilitated, restored and/or used for adaptive reuse purpose
20	Status of Stakeholder Consultation	Indicate if stakeholder consultations have been undertaken for the proposed project, provide dates and place conducted and include minutes as Annex
21	Status of Management of Construction Stage Impacts	Will the construction stage impacts be managed via and EMP. If so indicate the date of expected completion of the EMP and indicate if PCR specific mitigation measures have been included in the EMP.
22	Project Implementation and Monitoring Responsibility	Who will implement the project intervention and monitor the implementation progress
23	Management and Operation Responsibility	Post completion of the project, who will be responsible for the management of the PCRs and the implementation of the Plans prepared as follow up assessments.

24	Value of PCR (Very High/High/Medium/Low/Negligible/Unknown Potential)	Follow ICOMOS Example Guide for Assessing Value of Heritage Assets- Appendix 3a- Indicate Categorization
25	Development magnitude of impact – construction (Major, Moderate, Minor, Negligible, No change)	Follow ICOMOS Example Guide for assessing magnitude of impact-Appendix 3b- -Indicate Categorization
26	Operational magnitude of impact (Neutral, Slight, Neutral/Slight, Moderate/Slight, Moderate/Large, Large/Very Large, Very Large)	Based on criteria provided in Annex-7
27	Status of Follow up Assessment Date of Commencement Date of Expected Completion Assessment Conducted By	Based on criteria provided in Annex-7. What Assessment has been proposed, provide dates of commencement and completion. Provide names of institutions working on the follow up assessment.

- **Data Sources Used:** List all data sources used
- **Supporting Documents:** Annex all Maps, meeting notes, and minutes of stakeholder consultations photographs accordingly and provide a list of Annexes.

## ICOMOS Guide for Assessing Value of Heritage Assets

### Appendix 3A:

Due diligence mechanisms on WH properties will need to consider their international heritage value and also other local or national values, and priorities or recommendations set out in national research agendas. They may also need to consider other international values which are reflected in, for example, international natural heritage designations.

Professional judgment is used to determine the importance of the resource. The value of the asset may be defined using the following grading scale:

- Very High
- High
- Medium
- Low
- Negligible
- Unknown potential.

The following table is not intended to be exhaustive.

Grading	Archaeology	Built heritage or Historic Urban Landscape	Historic landscape	Intangible Cultural Heritage or Associations
<b>Very High</b>	<p>Sites of acknowledged international importance inscribed as WH property.</p> <p>Individual attributes that convey OUV of the WH property.</p> <p>Assets that can contribute significantly to acknowledged international research objectives.</p>	<p>Sites or structures of acknowledged international importance inscribed as of universal importance as WH property.</p> <p>Individual attributes that convey OUV of the WH property.</p> <p>Other buildings or urban landscapes of recognized international importance.</p>	<p>Landscapes of acknowledged international importance inscribed as WH property.</p> <p>Individual attributes that convey OUV of the WH property.</p> <p>Historic landscapes of international value, whether designated or not.</p> <p>Extremely well preserved historic landscapes with exceptional coherence, time depth, or other critical factors.</p>	<p>Areas associated with Intangible Cultural heritage activities as evidenced by the national register.</p> <p>Associations with particular innovations, technical or scientific developments or movements of global significance.</p> <p>Associations with particular individuals of global importance</p>



<p><b>High</b></p>	<p>Nationally-designated Archaeological Monuments protected by the State Party's laws</p> <p>Undesignated sites of the quality and importance to be designated.</p> <p>Assets that can contribute significantly to acknowledged national research objectives.</p>	<p>Nationally-designated structures with standing remains.</p> <p>Other buildings that can be shown to have exceptional qualities in their fabric or historical associations not adequately reflected in the listing grade.</p> <p>Conservation Areas containing very Important buildings.</p> <p>Undesignated structures of clear national importance.</p>	<p>Nationally designated historic landscape of outstanding interest.</p> <p>Undesignated landscapes of outstanding interest.</p> <p>Undesignated landscapes of high quality and importance, and of demonstrable national value.</p> <p>Well preserved historic landscapes, exhibiting considerable coherence, time depth or other critical factors.</p>	<p>Nationally designated areas or activities associated with globally important Intangible Cultural Heritage activities .</p> <p>Associations with particular innovations, technical or scientific developments or movements of national significance</p> <p>Associations with particular individuals of national importance</p>
<p><b>Medium</b></p>	<p>Designated or undesignated assets that can contribute significantly to regional research objectives.</p>	<p>Designated buildings.</p> <p>Historic (unlisted) buildings that can be shown to have exceptional qualities or historical associations.</p> <p>Conservation Areas containing buildings that contribute significantly to its historic character.</p> <p>Historic townscapes or built-up areas with important historic integrity in their buildings, or built settings.</p>	<p>Designated special historic landscapes.</p> <p>Undesignated historic landscapes that would justify special historic landscape designation.</p> <p>Landscapes of regional value.</p> <p>Averagely well preserved historic landscapes with reasonable coherence, time depth or other critical factors.</p>	<p>Areas associated with Intangible Cultural heritage activities as evidenced by local registers.</p> <p>Associations with particular innovations or developments of regional or local significance.</p> <p>Associations with particular individuals of regional importance</p>

<p><b>Low</b></p>	<p>Designated or undesignated assets of local importance.</p> <p>Assets compromised by poor preservation and/or poor survival of contextual associations.</p> <p>Assets of limited value, but with potential to contribute to local research objectives.</p>	<p>“Locally Listed” buildings.</p> <p>Historic (unlisted) buildings of modest quality in their fabric or historical associations.</p> <p>Historic Townscape or built-up areas of limited historic integrity in their buildings, or built settings.</p>	<p>Robust undesignated historic landscapes.</p> <p>Historic landscapes with importance to local interest groups.</p> <p>Historic landscapes whose value is limited by poor preservation and/or poor survival of contextual associations.</p>	<p>Intangible Cultural heritage activities of local significance</p> <p>Associations with particular individuals of local importance</p> <p>Poor survival of physical areas in which activities occur or are associated</p>
<p><b>Negligible</b></p>	<p>Assets with little or no surviving archaeological interest.</p>	<p>Buildings or urban landscapes of no architectural or historical merit; buildings of an intrusive character.</p>	<p>Landscapes little or no significant historical interest.</p>	<p>Few associations or ICH vestiges surviving</p>
<p><b>Unknown potential</b></p>	<p>The importance of the asset has not been ascertained.</p>	<p>Buildings with some hidden (i.e. inaccessible) potential for historic significance.</p>	<p>n/a</p>	<p>Little is known or recorded about ICH of the area</p>

<b>Impact Grading</b>	<b>Archaeological attributes</b>	<b>Built heritage or Historic Urban Landscape attributes</b>	<b>Historic landscape attributes</b>	<b>Intangible Cultural Heritage attributes or Associations</b>
<b>Major</b>	<p>Changes to attributes that convey OUV of WH properties</p> <p>Most or all key archaeological materials, including those that contribute to OUV such that the resource is totally altered.</p> <p>Comprehensive changes to setting.</p>	<p>Change to key historic building elements that contribute to OUV, such that the resource is totally altered.</p> <p>Comprehensive changes to the setting.</p>	<p>Change to most or all key historic landscape elements, parcels or components; extreme visual effects; gross change of noise or change to sound quality; fundamental changes to use or access; resulting in total change to historic landscape character unit and loss of OUV.</p>	<p>Major changes to area that affect the ICH activities or associations or visual links and cultural appreciation.</p>
<b>Moderate</b>	<p>Changes to many key archaeological materials, such that the resource is clearly modified.</p> <p>Considerable changes to setting that affect the character of the asset.</p>	<p>Changes to many key historic building elements, such that the resource is significantly modified.</p> <p>Changes to the setting of an historic building, such that it is significantly modified.</p>	<p>Change to many key historic landscape elements, parcels or components; visual change to many key aspects of the historic landscape; noticeable differences in noise or sound quality; considerable changes to use or access; resulting in moderate changes to historic landscape character.</p>	<p>Considerable changes to area that affect the ICH activities or associations or visual links and cultural appreciation.</p>

<b>Minor</b>	Changes to key archaeological materials, such that the resource is slightly altered.  Slight changes to setting.	Change to key historic building elements, such that the asset is slightly different.  Change to setting of an historic building, such that it is noticeably changed.	Change to few key historic landscape elements, parcels or components; slight visual changes to few key aspects of historic landscape; limited changes to noise levels or sound quality; slight changes to use or access; resulting in limited change to historic landscape character.	Changes to area that affect the ICH activities or associations or visual links and cultural appreciation.
<b>Negligible</b>	Very minor changes to key archaeological materials, or setting.	Slight changes to historic building elements or setting that hardly affect it.	Very minor changes to key historic landscape elements, parcels or components; virtually unchanged visual effects; very slight changes in noise levels or sound quality; very slight changes to use or access; resulting in a very small change to historic landscape character.	Very minor changes to area that affect the ICH activities or associations or visual links and cultural appreciation.
<b>No change</b>	No change.	No change to fabric or setting.	No change to elements, parcels or components; no visual or audible changes; no changes in amenity or community factors.	No change

### Examples of Common Physical Cultural Resources/ Heritage Assets

From Annex-3 of the World Bank Physical Cultural Resources Safeguard Policy Guidebook-  
Page 60

## EXAMPLES OF COMMON PHYSICAL CULTURAL RESOURCES

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### Human-made

- Religious buildings such as temples, mosques, churches
- Exemplary indigenous or vernacular architecture
- Buildings, or the remains of buildings, of architectural or historic interest
- Historic or architecturally important townscapes
- Historic roads, bridges, walls, dams, fortifications, water works
- Archaeological sites (unknown or known, excavated or unexcavated)
- Commemorative monuments
- Historic sunken ships

### Natural

- Holy waters and holy wells
- Sacred waterfalls
- Sacred groves and individual sacred trees
- Historic trees
- Sacred mountains and volcanoes
- Caves currently or previously used for human habitation or social activity
- Paleontological sites (ie., deposits of early human, animal or fossilized remains)
- Natural landscapes of outstanding aesthetic quality

### Combined Human-made and Natural

- Sites used for religious or social functions such as weddings, funerals, or other traditional community activities
- Places of pilgrimage
- Burial grounds
- Family graves in the homestead
- Historic gardens
- Cultural landscapes
- Natural stones bearing historic inscriptions
- Historic battlegrounds
- Combined human and natural landscapes of aesthetic quality
- Cave paintings

### Movable

- Historic or rare books and manuscripts
- Paintings, drawings, icons, jewelry
- Religious artifacts
- Historic costumes and fabrics
- Memorabilia relating to the lives of prominent individuals or to events such as historic battles
- Statues, statuettes and carvings
- Modern or ancient religious artifacts
- Pieces broken off from monuments or historic buildings
- Unregistered archaeological artifacts
- Antiquities such as coins and seals
- Historic engravings, prints and lithographs
- Natural history collections such as shells, flora, minerals

## Form 2-Criteria for categorization of Impacts on OUV and Recommendations for Follow up Assessments Instruments

Developed from ICOMOS Guidelines for Heritage Impact Assessment for Physical Cultural World Heritage Properties- 2011

Table 1: Categorization of Significance of Impact

VALUE OF HERITAGE ASSET/PCR	MAGNITUDE OF CHANGE/IMPACT				
	NO CHANGE	NEGLIGIBLE	MINOR	MODERATE	MAJOR
World Heritage Properties- Very High Attributes which convey OUV	<b>Significance of Impact</b>				
	Neutral	Slight	Moderate/ Large	Large/very Large	Very Large
For Other Heritage Assets or Attributes with Value not designated	<b>Significance of Impact</b>				
	Neutral	Slight	Moderate/Slight	Moderate/ Large	Very Large
<b>VERY HIGH</b>	Neutral	Slight	Moderate/Slight	Moderate/ Large	Very Large
<b>HIGH</b>	Neutral	Slight	Moderate/Slight	Moderate/ Large	Large/very Large
<b>MEDIUM</b>	Neutral	Neutral/Slight	Slight	Moderate/Slight	Moderate/ Large
<b>LOW</b>	Neutral	Neutral/Slight	Neutral/Slight	Slight	Moderate/Slight
<b>NEGLIGIBLE</b>	Neutral	Neutral	Neutral/Slight	Neutral/Slight	Slight

For example:

- Total demolition of a key building which is the main conveyance of OUV for a WH property to make way for a new road would be a major adverse effect or overall major adverse impact.
- Removal of a later road from the immediate vicinity of a key building which conveys OUV and which is not directly related to its OUV attributes would be a major beneficial effect or overall impact.

Table 2: Required Assessments/ Further Processing Based on Significance of Impact

Significance of Impact	Assessments Required	Further Recommendations	Guidance Documents/Formats/TORs
Neutral	PCR Profiling	Profiling is part of the screening so that the site is documented for record purposes	Annex-1
Neutral/Slight	PCR Profiling and documentation	Profiling is part of the screening so that the site is documented for record purposes	Annex-1

Significance of Impact	Assessments Required	Further Recommendations	Guidance Documents/Formats/TORs
Slight	Mitigation and Conservation Plan	Adaptive reuse plan as an add on to the conservation plan can be taken up, if adaptive reuse is envisioned	Annex 1-3
Moderate/Slight	Mitigation and Conservation Plan	Adaptive reuse plan as an add on to the conservation plan can be taken up, if adaptive reuse is envisioned	Annex-1-3
Moderate/ Large			
Large/very Large	Heritage Impact Assessment (HIA)	Mitigation and Conservation Plans will be part of the HIA and if adaptive reuse is envisioned it will be included as well	Annex-1 and 6
Very Large			

- The management of atypical construction stage related impacts will be addressed via the Environmental Management Plan of the specific subproject.
- Stakeholder consultation requirements are presented in Annex-7

### **Form 3- Scope of PCR Specific Mitigation Plan to be included in Protected Area Management Plans**

If any negative impacts are identified during the screening, a mitigation plan must be outlined. A mitigation plan will be tailored to the unique conditions and cultural heritage value or interest of a given property.

Negative impacts on a cultural heritage resource(s) typically include, but are not limited to:

- Destruction of any, or part of any, significant heritage attributes or features
- Alteration that is not sympathetic, or is incompatible, with the historic fabric and appearance
- Shadows created that alter the appearance of a heritage attribute or change the viability of an associated natural feature or plantings, such as a garden
- Isolation of a heritage attribute from its surrounding environment, context or a significant relationship
- Direct or indirect obstruction of significant views or vistas within, from, or of built and natural features
- A change in land use (such as rezoning a church to a multi-unit residence) where the change in use negates the property's cultural heritage value
- Land disturbances such as a change in grade that alters soils, and drainage patterns that adversely affect a cultural heritage resource, including archaeological resources

The following list represents a summary of the more common types of mitigation that may be appropriate:

- Avoidance protocols to isolate development and land alterations to minimize impacts on significant built and natural features and vistas;
- Architectural design guidelines for buildings on adjacent and nearby lots to help integrate and harmonize mass, setback, setting, and materials;
- Limiting height and density of buildings on adjacent and nearby lots;
- Ensuring compatible lotting patterns, situating parks and storm water ponds near a heritage resource;
- Allowing only compatible infill and additions;
- Vegetation buffer zones, tree planting, site plan control, and other planning mechanisms;
- Heritage Designation, Heritage Conservation Easement;
- Opportunities to commemorate historical land uses, past owners, landscape and landform features through the naming of streets and other public assets such as parkettes and storm ponds; interpretative plaques may also be required.

#### **Stakeholder Consultation Requirements**

- Stakeholders for this project include communities and individuals living around protected areas, local officials responsible for safeguarding and the conservation of cultural property, such as local authorities, the department of archeology, heritage committees and clergy, heritage focused non-governmental agencies.



- In keeping with consultation requirements with Category B projects, the project will require to conduct extensive consultations with the stakeholder groups as part of project implementation in order to obtain a wide spectrum of views, ideas and concerns about conservation and management priorities with regard to PCRs. In addition, during implementation the relevant agencies will need to consult with such groups as necessary to address mandatory Environmental and Physical Cultural resource requirements.
- The Environmental Specialists assigned to the two projects from the two Departments are responsible for organizing stakeholder consultations for projects that have been categorized as MODERATE or more under the Criteria for categorization of Impacts on OUV and Recommendations for Follow up Assessments Instruments, presented in Annex 2, post the PCR Screening. The stakeholders identified above need to be specifically consulted during such stakeholder engagements and minutes of meetings need to be annexed to the Screening Form accordingly.
- Management and conservation plans prepared for subprojects should be disclosed via the project website as per the requirements of the Environmental Assessment and Management Framework.

**Form 4: Generic Monitoring Checklist of Mitigation and Conservation Plan**

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

#	Issue	Proposed mitigation measures/conservation measure <b>Mitigation and Conservation Plan</b>	Implementing Responsibility	Compliance Yes/No	Reason for non-compliance	Follow up Action


**Photo documentation of Issue Identified Above**

Issue # (from description above)	Date of photograph	Photograph depicting issue

## Annex 8: Generic EMPs and Environmental Codes for some of the proposed investments

### Generic Impacts and their Significance

Following impacts are for the proposed physical intervention activities to be financed under the project  
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	Short-term	High

stored chemicals		
Increased noise nuisance and vibration issues to public living close to construction areas and quarries	Short-term	Moderate

*Impacts on ecosystems, fauna and flora*

<b>Impact description</b>	<b>Duration of the impact</b>	<b>Level of impact</b>
Clearing of vegetation for construction activities may lead to disturbance to natural habitats (wetlands, forest areas, lagoons, etc.)	Long-term	High
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*

<b>Impact description</b>	<b>Duration of the impact</b>	<b>Level of impact</b>
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)

**Environmental Conditions to be Included in Contracts for Gravel Road Rehabilitation**

The following environmental conditions should be followed, by the contractor, during rehabilitation of gravel roads within Protected Area (PA) boundaries. The relevant implementing agency, Forest Department (FD) or Department of Wild Life Conservation (DWC) officers will be responsible for the monitoring and reporting of all mitigation measures outlined below

### **1. Material Sourcing**

- a. Construction material such as sand, aggregates and other quarry material should only be sourced from licensed sources.
- b. All burrow and/or quarry material may only be sourced from sources that hold a valid mining license from the GSMB.
- c. The contractor is required to maintain updated copies of all necessary licenses and environmental clearances for all burrow and quarry material they are sourcing.
- d. Sourcing of any material from within any PA, tank bed and/or designated natural areas are strictly prohibited.
- e. The will need to maintain the numbers and relevant details, including dates licenses were issues and expiration dates, of all relevant licenses and report of their status accordingly.

### **2. Transport of Construction Material**

- a. Construction material will be brought in to the PA with the prior discretion of the Park Warden/Beat Officer, who will stipulate the approved time for construction material to be brought on/removed from the site.
- b. Material shall not be transported in to the site post PA closing times and should avoid times where visitation to the PA are high to avoid congestion at the entrance.
- c. No construction material should be stored within the PA and should be transported to the site as per the daily requirement for the work.
- d. All material should be transported in fully covered trucks. Overloading of vehicles with materials should be controlled and done in a manner to suit the trucks capacity.

### **3. Onsite and Offsite Storage of construction materials**

- a. Sites for storage of construction materials should be identified, without affecting the local communities, traffic and other common utilities that will lead to access issues.
- b. All construction material should be stored in a site approved by the PSE.
- c. All earth material, sand and/or metal should be stored in a contained manner at all times to avoid dust and runoff due to rain.
- d. Plastic sheeting (of about 6 mm minimum thickness) can be used and held in place with weights, such as old tires or cinder blocks, with the edges of the sheeting buried, or by the use of other anchoring systems.

### **4. Management of Dust**

- a. All construction material should be stored and transported as per the recommendations provided above (Point 3), where the measures stipulated will ensure dust levels are mitigated.
- b. Water sprinkling should be carried out in the work and fill areas and the access road if dust stir is observed. Water sprinkling should be done more frequently on days that are

dry and windy (at least four time's day) as the levels of dust can be elevated during dry periods.

- c. Dust masks should be provided to the laborers for the use at required times.

#### **5. Control of Spread of Invasive Species**

- a. There is a possibility of introducing / spreading of invasive species during material transportation and disposing cleared vegetation from one site to another, thus the following measures are to be undertaken.
- b. Close monitoring of transportation, storage of borrowing material for the spread of any invasive species must be done.
- c. Vehicles should be covered during transportation of cleared vegetation to and from the construction site.
- d. Borrow material to be brought from properly identified borrow pits and quarry sites, the sites should be inspected in order to ensure that no invasive plant species are being carried with the burrow material.
- e. Washing the vehicles should be conducted periodically to prevent carrying any invasive species
- f. The construction site should be inspected periodically to ensure that no invasive species are establishing themselves at the site.

#### **6. Water for work purposes and dust management**

- a. The contractor should arrange adequate supply of water for the project purpose throughout the construction period from a source agreed upon with the engineer.
- b. Water may not be obtained for project purposes, including for labor camps, from public or community water supply schemes without a prior approval from the relevant authority.
- c. Extraction of water from ground water or surface water bodies without the permission from Engineer and the relevant authority
- d. Permission for the extraction of water should be obtained prior to the commencement of the project, from the relevant authority.

## Generic Environmental Management Plan (EMP) for Rehabilitation of Roads

### Outside PA boundaries/up to the entrance of PAs

	Activities and Associated Impacted	Protection and preventive measures	Mitigation cost	Responsibility	
				Implementation	Monitoring
<b>PRE-CONSTRUCTION AND SITE PREPERATION</b>					
<b>1.</b>	<b>Tree Removal</b>	<ul style="list-style-type: none"> <li>❖ The contractor shall make every effort to avoid removal and/or destruction of trees, including those of religious, cultural and aesthetic significance.</li> <li>❖ If such action is unavoidable the Engineer shall be informed in advance to verify and report on the technical justification for the trees that will be required to be removed.</li> <li>❖ The following steps are to be followed if trees are identified for removal during the rehabilitation of the road.                             <ul style="list-style-type: none"> <li>○ Identify and document the number of trees that will be affected with girth size &amp; species type</li> <li>○ Trees shall be removed from the construction sites before commencement of construction with prior permission from the concerned department (LA/FD/DWC).</li> <li>○ Compensatory plantation by way of Re-plantation of at least twice the number of trees cut should be carried out in the project area.</li> <li>○ The 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.</li> <li>○ Removed trees of economic value must be handed over to the Timber Corporation.</li> </ul> </li> </ul>	Engineering Cost	Contractor	(FD/DWC)
<b>2.</b>	<b>Labor and Labor Camps</b>	<ul style="list-style-type: none"> <li>❖ The contractor should give priority to hiring labor from the surrounding areas to avoid the need for labor camps.</li> <li>❖ If labor camps are required to house migrant workers, they should be placed well away from Protected Area (PA) boundaries and buffer zones.</li> <li>❖ The location, layout and basic facility provision of the labor camp must be submitted to Engineer of the relevant managing department prior to their construction.</li> <li>❖ The construction will commence only upon the written approval of the Engineer.</li> <li>❖ The contractor shall maintain necessary living accommodation and ancillary facilities in a functional and hygienic manner and as approved by the Engineer.</li> </ul>	Engineering Cost	Contractor	(FD/DWC)

		<ul style="list-style-type: none"> <li>❖ All temporary accommodation must be constructed and maintained in such a fashion that uncontaminated water is available for drinking, cooking and washing.</li> <li>❖ The sewage system for the camp must be planned and implemented with concurrence from the Local Public Health Officer (PHI)</li> <li>❖ Adequate health care is to be provided for the work force.</li> <li>❖ Labor camp sites after use should be cleared and the site should be reinstated to previous condition at the close of the construction work.</li> </ul>			
<b>3.</b>	<b>Material Sourcing</b>	<ul style="list-style-type: none"> <li>❖ The contractor is required to ensure that sand, aggregates and other quarry material is sourced from licensed sources.</li> <li>❖ The contractor is required to maintain the necessary licenses and environmental clearances for all burrow and quarry material they are sourcing –including soil , fine aggregate and coarse aggregate.</li> <li>❖ Sourcing of any material from protected areas and/or designated natural areas, including tank beds, are strictly prohibited.</li> <li>❖ If the contractor uses a non-commercial burrow/quarry sites, the sites should be remediated accordingly once material sourcing has been completed.</li> <li>❖ The contractor should submit in writing all the relevant numbers and relevant details of all pre-requisite licenses etc. and report of their status accordingly.</li> </ul>	Engineering Cost	Contractor	(FD/DWC)
<b>4.</b>	<b>Water for Construction activities</b>	<ul style="list-style-type: none"> <li>❖ The contractor should arrange adequate supply of water for the project purpose throughout the construction period from a source agreed upon with the engineer.</li> <li>❖ Water may not be obtained for project purposes, including for labor camps, from public or community water supply schemes without a prior approval from the relevant authority.</li> <li>❖ Extraction of water from ground water or surface water bodies without the permission from Engineer and the relevant authority</li> <li>❖ Permission for the extraction of water should be obtained prior to the commencement of the project, from the relevant authority.</li> </ul>			
<b>5.</b>	<b>Work Site for construction materials</b>	<ul style="list-style-type: none"> <li>❖ The contractor should identify an area to store construction materials and equipment at a site which should be approved by the engineer.</li> <li>❖ Storage yards cannot be located in community areas, such as playgrounds, close to water ways, cause access issues to locals or forested areas that require clearing.</li> <li>❖ Parking, repairing vehicles, machinery and equipment shall be done stationed only at the work site and/or in any other designated areas by the engineer.</li> <li>❖ The contractor should provide instruction and advice should be given to drivers and operators (both company owned and hired) to park vehicles and store equipment at the work site or designated areas by the engineer.</li> </ul>			



6.	<b>Information Disclosure among Stakeholders</b>	<ul style="list-style-type: none"> <li>❖ Discussions should be conducted with the residents who reside along the corridor of the road; <ul style="list-style-type: none"> <li>○ Residents have to be briefed of the project, purpose and design and outcomes via a documented community consultation session</li> <li>○ This should be done immediately once the contractor is mobilized.</li> <li>○ The contractor should take note of all impacts, especially access issues and safety hazards that will be of concern to the residents and take necessary measures as stipulated in the EMP to mitigate them.</li> </ul> </li> <li>❖ The contractor will maintain a log of any grievances/complains and actions taken to resolve them.</li> <li>❖ A copy of the EMP should be available at all times at the project supervision office on site.</li> </ul>	Engineering Cost	Contractor/ PIA	(FD/DWC)
<b>CONSTRUCTION PHASE</b>					
7.	<b>Clearing of road shoulders and Removal and Disposal of construction debris and excavated materials</b>	<ul style="list-style-type: none"> <li>❖ During site clearance activities, removal of vegetation and debris must be carried out swiftly and in well-planned manner.</li> <li>❖ The contractor shall identify the sites for disposal of material cleared.</li> <li>❖ Plants, shrubs and other vegetation cleared should not be burned on site.</li> <li>❖ Spoil and other disposal materials should only be dumped at sites for which prior approval from relevant authorities such as the LA have been obtained. Taking into account the following <ul style="list-style-type: none"> <li>○ The dumping does not impact natural drainage courses</li> <li>○ No endangered / rare flora is impacted by such dumping</li> <li>○ Should be located in nonresidential areas located in the downwind side</li> <li>○ Located at least 100m from the designated forest land.</li> <li>○ Avoid disposal on productive land.</li> <li>○ should be located with the consensus of the local community , in consultation with the engineer and shall be approved by the highways department</li> <li>○ Minimize the construction debris by balancing the cut and fill requirements.</li> </ul> </li> <li>❖ The contractor should avoid any spillage of spoil when transporting such materials to the approved material dumping sites.</li> </ul>	Engineering Cost	Contractor	FD/DWC
8.	<b>Protection of top soil</b>	<ul style="list-style-type: none"> <li>❖ 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, as directed by the</li> </ul>	Engineering Cost	Contractor	

		<p>engineer.</p> <ul style="list-style-type: none"> <li>❖ 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</li> <li>❖ Removed top soil could be used as a productive soil when replanting trees and during turfing.</li> <li>❖ Stockpiled topsoil must be returned to cover the areas 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.</li> <li>❖ Topsoil thus stockpiled for reuse shall not be surcharged or overburdened.</li> <li>❖ As far as possible multiple handling of topsoil stockpiles should be kept to a minimum.</li> </ul>			
<b>9.</b>	<b>Protection of Ground Cover and Vegetation</b>	<ul style="list-style-type: none"> <li>❖ 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.</li> <li>❖ Entry and exit of construction vehicles and machinery should be restricted to particular points as directed by the engineer</li> <li>❖ Contractor should provide necessary instructions to drivers, operators and other construction workers not to destroy ground vegetation cover unnecessarily.</li> </ul>	Engineering Cost	Contractor	
<b>10.</b>	<b>Transport and Storage of construction materials</b>	<ul style="list-style-type: none"> <li>❖ All material should be transported in fully covered trucks. Overloading of vehicles with materials should be controlled and done in a manner to suit the trucks capacity.</li> <li>❖ Construction material such as cement, sand and metal should be stored in closed structures or in a contained manner as per those specified under mitigatory measures to</li> <li>❖ All construction materials such as sand, metal, lime, bricks etc. should be transported under cover to the site and stored under cover at the sight. Plastic sheeting (of about 6 mm minimum thickness) can be used and held in place with weights, such as old tires or cinder blocks, with the edges of the sheeting buried, or by the use of other anchoring systems.</li> </ul>	Engineering Cost	Contractor	
<b>11.</b>	<b>Emission of Dust</b>	<ul style="list-style-type: none"> <li>❖ In order to minimize the levels of airborne dust all construction material/debris should be stored as per the instructions provided above.</li> <li>❖ Mud patches caused by material transporting vehicles in the access road should be immediately cleaned</li> <li>❖ Continual water sprinkling should be carried out in the work and fill areas and the access road if dust stir is observed. Water sprinkling should be done more frequently on days that are dry and windy (at least four time's day) as the levels of dust can be elevated during dry periods.</li> <li>❖ Dust masks should be provided to the laborers for the use at required times.</li> </ul>	Engineering Cost	Contractor	
<b>10</b>	<b>Burrowing of Earth and Management of Self Operated Burrow Sites</b>	<ul style="list-style-type: none"> <li>❖ In the event the contractor will use a self-operated burrow site <ul style="list-style-type: none"> <li>○ 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</li> </ul> </li> </ul>	Engineering Cost	Contractor	

		<p>excavation and transportation of earth from such sites.</p> <ul style="list-style-type: none"> <li>○ Contractor can also find suitable soil materials from currently operated licensed burrow pits in the surrounding area, subject to approval of the engineer</li> <li>○ No burrow-sites be used (current approved) or newly established within areas protected under FFPO and FO</li> <li>○ 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.</li> <li>○ 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.</li> <li>○ 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.</li> <li>○ Contractor shall take all steps necessary to ensure the stability of slopes including those related to temporary works and burrow pits.</li> </ul>			
11.	<b>Quarry Operations and Management of Self Operated Quarry Sites</b>	<ul style="list-style-type: none"> <li>❖ In the event the contractor manages a self-owned existing quarry sites available in the project area</li> <li>❖ The should be approved by GSMB with valid EPL and Industrial Mining Licenses;</li> <li>❖ Prior approval should be obtained from GSMB, CEA and local authorities such as Pradeshiya Sabha.</li> <li>❖ 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.</li> <li>❖ Quarry sites should not be established within protected sites identified under the FFPO and FO</li> <li>❖ It is recommended not to seek material from quarries that have ongoing disputes with community.</li> <li>❖ The maintenance and rehabilitation of the access roads in the event of damage by the contractors operations shall be a responsibility of the contractor.</li> <li>❖ Copies of all relevant licenses should be maintained by the contractor for review and documentation by the engineer</li> </ul>	Engineering Cost	Contractor	
12.	<b>Control of Sedimentation and Soil Erosion</b>	<ul style="list-style-type: none"> <li>❖ Debris material shall be disposed in such a manner that existing drainage paths are not blocked.</li> <li>❖ Drainage paths associated with irrigation structures should be improved / erected to drain rain water properly.</li> <li>❖ Silt traps will be constructed to avoid siltation into the water ways. where necessary along the road corridor.</li> <li>❖ To avoid siltation, drainage paths should not be directed to waterways and irrigation canals and they should be separated from such water bodies</li> <li>❖ In Hilly terrain and areas with slopes</li> </ul>	Engineering Cost	Contractor	

		<ul style="list-style-type: none"> <li>○ Embankment slopes, slopes of cuts, etc. shall not be unduly exposed to erosive forces.</li> <li>○ These exposed slopes shall be graded and covered by grass or other suitable materials per the specifications.</li> <li>○ During the rainy season open cuts/slopes should be covered with fixed polythene sheeting to avoid excessive erosion.</li> <li>❖ All fills, back fills and slopes should be compacted immediately to reach the specified degree of compaction and establishment of proper mulch.</li> <li>❖ 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.</li> <li>❖ 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. <ul style="list-style-type: none"> <li>○ Typical measures include the use of berms, dikes sediment basins, fiber mats, mulches, grasses, slope drains and other devices.</li> <li>○ 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.</li> </ul> </li> </ul>			
<b>12.</b>	<b>Noise from vehicles, machinery and equipment</b>	<ul style="list-style-type: none"> <li>❖ Noise generating work should be limited to day time (6:00AM to 6:00PM). No work that generates excessive noise should be carried out during night hours where in close proximity to sensitive receptors (temples, schools, hospitals) and residential areas (from 6:00PM to 6:00AM on the following day).</li> <li>❖ All equipment and machinery should be operated at noise levels that do not exceed the permissible level of 75 dB (during construction) for the day time. For all construction activities undertaken during the night time, it is necessary to maintain the noise level at below 50 dB as per the Central Environmental Authority (CEA) noise control regulations</li> <li>❖ All equipment should be in good serviced condition. Regular maintenance of all construction vehicles and machinery to meet noise control regulations stipulated by the CEA in 1996 (Gazette Extra Ordinary, No 924/12) must be conducted for vehicles/machinery that will be used in construction on site and for transport.</li> <li>❖ Ideally noise generating work should not be carried out during public holidays and religious days. Special care should be taken as there is a temple nearby.</li> <li>❖ Labor gangs should be warned to work with minimum noise. Strict labor supervision should be undertaken in this respect. Number of night time resident laborers should be minimized.</li> </ul>	Engineering Cost	Contractor	
<b>13.</b>	<b>Vehicular noise pollution at residential / sensitive receptors</b>	<ul style="list-style-type: none"> <li>❖ Idling of temporary trucks or other equipment should not be permitted during periods of loading / unloading or when they are not in active use.</li> <li>❖ The practice must be ensured especially near residential / commercial / sensitive areas.</li> </ul>	Engineering Cost	Contractor	

		<ul style="list-style-type: none"> <li>❖ Stationary construction equipment will be kept at least 500m away from sensitive receptors, where possible. These include places of worship and households.</li> <li>❖ All possible and practical measures to control noise emissions during drilling shall be employed.</li> <li>❖ Contractor shall submit the list of high noise/vibration generating machinery &amp; equipment to the engineer for approval.</li> <li>❖ Servicing of all construction vehicles and machinery must be done regularly and during routine servicing operations, the effectiveness of exhaust silencers will be checked and if found defective will be replaced.</li> <li>❖ Maintenance of vehicles, equipment and machinery shall be regular and up to the satisfaction of the Engineer to keep noise levels at the minimum.</li> </ul>			
14.	<b>Pollution of Soil and Water via Fuel and Lubricants</b>	<ul style="list-style-type: none"> <li>❖ The contractor shall ensure that all construction vehicle parking locations, fuel/lubricants storage sites, vehicle, machinery and equipment maintenance and refueling sites shall be located away from rivers, at least 200m away, and irrigation canal/ponds.</li> <li>❖ Contractor shall ensure that all vehicle/machinery and equipment operation, maintenance and refueling will be carried out in such a fashion that spillage of fuels and lubricants does not contaminate the ground.</li> <li>❖ Contractor shall arrange for collection, storing and disposal of oily wastes to the pre-identified disposal sites (list to be submitted to Engineer) and approved by the Engineer. All spills and collected petroleum products will be disposed of in accordance with standards set by the CEA/MoE.</li> <li>❖ Engineer will certify that all arrangements comply with the guidelines of CEA/MoE or any other relevant laws.</li> </ul>	Engineering Cost	Contractor	
15.	<b>Public Safety</b>	<ul style="list-style-type: none"> <li>❖ At all times, the Contractor shall provide safe and convenient passage for vehicles, pedestrians and livestock.</li> <li>❖ Work that affects the use of existing accesses shall not be undertaken without providing adequate provisions to the prior satisfaction of the Engineer.</li> <li>❖ The construction corridor should be barricaded at all time in a day with adequate marking, safety tape, flags, reflectors etc. for safety of individuals using the site daily basis. ( Items such as parking cones, lights, tubular markers, orange and white strips and barricades of a luminous nature for night visibility shall be procured where deemed necessary)</li> <li>❖ Safety signboards should be displayed at all necessary locations.</li> <li>❖ The contractor should obtain a Third party insurance to compensate any damages, injuries caused to the public or laborers during the construction period.</li> <li>❖ All construction vehicles should be operated by experienced and trained operators under supervision.</li> <li>❖ Basic onsite safety training should be conducted for all laborers during the EMP training prior to the start of the construction activities.</li> <li>❖ All digging and installation work should be completed in one go, if this task is not accomplished the area should be isolated using luminous safety tape and</li> </ul>	Engineering Cost	Contractor	

		<p>barricading structures surrounding the whole area.</p> <ul style="list-style-type: none"> <li>❖ Trenches should be progressively rehabilitated once work is completed.</li> <li>❖ Material loading and unloading should be done in an area, well away from traffic and barricaded</li> <li>❖ Construction wastes should be removed within 24 hours from the site to ensure public safety.</li> </ul>			
<b>16.</b>	<b>Safety of Workers</b>	<ul style="list-style-type: none"> <li>❖ Contractor shall comply with the requirements for safety of the workers as per the ILO Convention No. 62 and Safety &amp; Health Regulations of the Factory Ordinance of Sri Lanka to the extent that those are applicable to this contract.</li> <li>❖ The contractor shall supply all necessary safety measures at site.</li> <li>❖ Protective footwear and protective goggles should be provided to all workers employed on mixing of materials like cement, concrete etc.</li> <li>❖ Welder's protective eye-shields shall be provided to workers who are engaged in welding works.</li> <li>❖ Earplugs shall be provided to workers exposed to loud noise, and workers working in crushing, compaction, or concrete mixing operation.</li> <li>❖ The contractor shall supply all necessary safety appliances such as safety goggles, helmets, safety belts, ear plugs, mask etc. to workers and staffs.</li> <li>❖ In addition, the contractor shall maintained in stock at the site office, gloves, ear muffs, goggles, dust masks, safety harness and any other equipment considered necessary.</li> <li>❖ A safety inspection checklist should be prepared taking into consideration what the workers are supposed to be wearing and monitored on a monthly basis and recorded.</li> </ul>	Engineering Cost	Contractor	
<b>17.</b>	<b>Prevention of accidents</b>	<ul style="list-style-type: none"> <li>❖ Prevention of accidents involving human beings, animals or vehicles falling or accidents due to open trenches/manholes during construction period. This needs to be ensured with proper barricading, signage boards and lighting etc.</li> <li>❖ A readily available first aid unit including an adequate supply of sterilized dressing materials and appliances should be available at the site office at all times</li> <li>❖ Availability of suitable transport at all times to take injured or sick person(s) to the nearest hospital should also be insured.</li> <li>❖ Names and contact information for emergency services such as Ambulance services, hospitals, police and the fire brigade should be prepared as a sign board and displayed at the work site.</li> </ul>	Engineering Cost	Contractor	
<b>18.</b>	<b>Operation of labor camps</b>	<ul style="list-style-type: none"> <li>❖ The Contractor shall construct and maintain all labor accommodation in such a fashion that uncontaminated water is available for drinking, cooking and washing.</li> <li>❖ Supply of sufficient quantity of potable water (as per IS) in every workplace/labor camp site at suitable and easily accessible places and regular maintenance of such facilities.</li> <li>❖ The sewage system for the camp are designed, built and operated in such a fashion that no health hazards occurs and no pollution to the air, ground water or adjacent water courses take place. Ensure adequate water supply is to be provided in all</li> </ul>	Engineering Cost	Contractor	

		<p>toilets and urinals.</p> <ul style="list-style-type: none"> <li>❖ The contractor shall provide garbage bins in the camps and ensure that these are regularly emptied and disposed of in a hygienic manner</li> </ul>			
<b>19.</b>	<b>Traffic Management</b>	<ul style="list-style-type: none"> <li>❖ Contractor shall develop a traffic management plan to minimize inconvenience to road users as well as prevent road accidents and implement it.</li> <li>❖ Road signs and trained flagmen should be used to divert traffic as per the required traffic management measures.</li> <li>❖ Clear instructions should be given if detours are used.</li> <li>❖ Also any pits should be enclosed to prevent pedestrians or vehicles falling into them</li> <li>❖ Improvement of the road surface and width will result in an increase of both the number of vehicles and the vehicle operating speeds.</li> <li>❖ Therefore, after the construction is completed the contractor should erect relevant road signs and road markings to guide the drivers to ensure the safety of the vehicles and pedestrians</li> </ul>			
<b>20.</b>	<b>Loss of Access due to construction</b>	<ul style="list-style-type: none"> <li>❖ Temporary access will be provided when permanent access is blocked for construction.</li> <li>❖ When construction work is in progress in one side, the other side will be opened for traffic &amp; properly</li> <li>❖ At the end of each day, debris that blocked access path will be cleared away under the supervision of a supervisor.</li> </ul>			
<b>21.</b>	<b>Loss, Damage and disruption to Flora</b>	<ul style="list-style-type: none"> <li>❖ All works shall be carried out in a manner that the destruction to the flora and their habitats is minimized.</li> <li>❖ 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.</li> <li>❖ Contractor shall make every effort to avoid removal and/or destruction of trees of religious, cultural and aesthetic significance.</li> <li>❖ 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.</li> <li>❖ Contractor shall adhere to the guidelines and recommendations made by the CEA, if any with regard to felling of trees and removal of vegetation.</li> <li>❖ Removed trees of significant value must be handed over to the Timber Corporation. Documentation on the process should be shared with the engineer and maintained by the contractor.</li> <li>❖ The contractor shall plant over 5 year old root-balled native trees suitable for the location as identified by the Engineer.</li> <li>❖ The planting should take place in public land suitable for the purpose</li> <li>❖ The contractor shall build hardy structures around the trees for protection.</li> <li>❖ The contractor shall be responsible for ensuring the well-being of the trees/plants</li> </ul>	Engineering Cost	Contractor	

		until the end of the contract			
22.	Loss, Damage and disruption to Fauna	<ul style="list-style-type: none"> <li>❖ All works shall be carried out in such a manner that the destruction or disruption to the fauna and their habitats is minimum.</li> <li>❖ Construction workers shall be instructed to protect fauna including wild animals and aquatic life as well as their habitats. Hunting, poaching and unauthorized fishing by project workers is not allowed.</li> <li>❖ No solid or liquid waste should be dumped into natural habitats.</li> </ul>	Engineering Cost	Contractor	
23.	Chance find procedures for PCRs and Archeological Property	<ul style="list-style-type: none"> <li>❖</li> </ul>			
24.	Surface Drainage and Possible Water Stagnation	<ul style="list-style-type: none"> <li>❖ Provide storm water drain system in the premises which will discharge water to existing storm water drainage networks</li> <li>❖ Carry out overall storm water management in the premises during construction using temporary ditches, sand bag barriers etc.</li> <li>❖ Proper drainage arrangements to be made, to avoid the overflowing of existing drains due to cutting, excavation and other activities</li> </ul>	Engineering Cost	Contractor	
<b>POST CONSTRUCTION</b>					
25.	Clearing/Closure of Construction Site/Labor Camps	<ul style="list-style-type: none"> <li>❖ Contractor to prepare site restoration plans for approval by the engineer. The plan is to be implemented by the contractor prior to demobilization. This includes burrow sites and storage yards as well</li> <li>❖ On completion of the works, all temporary structures will be cleared away, all rubbish cleared, excreta or other disposal pits or trenches filled in and effectively sealed off and the site left clean and tidy, at the contractor's expenses, to the entire satisfaction of the engineer.</li> </ul>	Engineering Cost	Contractor	
26.	Environmental Enhancement/ Landscaping	<ul style="list-style-type: none"> <li>❖ Landscape plantation, including turfing of shoulders, 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.</li> <li>❖ The contractor also shall remove all debris, piles of unwanted earth, spoil material, away from the dam site and from other work places and disposed at locations designated or acceptable to the Engineer or as per the stipulated waste management criteria of this EMP.</li> </ul>	Engineering Cost	Contractor	



## Environmental Guidelines for Improvement to Park Infrastructure and Establishment of New Infrastructure

- All new infrastructure should be located in areas least sensitive to wildlife and land and will not require extensive land clearing. The relevant department will identify such sites with a clear justification as to why they are best suited to meet the intended person while causing the least level of intrusion to the environment.
- All new construction and/or rehabilitation work should be undertaken post the completion of a site specific environmental plan, prepared with the guidance of the Generic Environmental Management Plan (EMP) for Construction of New Infrastructure and Rehabilitation of Existing Infrastructure, presented in the EAMF.
- All building construction and renovation will adhere to the existing building and other applicable codes of practice in Sri Lanka. The contractor will be responsible for adherence to Codes of Practice such as the ICTAD specifications and any other Standard Specifications approved by the Government of Sri Lanka.
- In the event labor camps are required they should be established in close proximity to protected area boundaries and should be located in a suitable site identified with clearance from the relevant authorities. Specific measures to be followed during establishment of labor camps is presented in the Generic EMP.
- Protected area rules and regulations that apply to all visitors as mandated will be applicable to contractor staff as well.
- All entry and exit to the protected area should be carried under the prior discretion of park warden, beat officer or other relevant officer in charge of the management of the PA.
- The relevant officer in charge should maintain a log of the names and contact information of all contractor staff who will be working on the site in order to ensure the safe passage of staff in and out of the PA during the construction phase.
- All vehicles entering and exiting the park should follow a security check and clearance procedure.
- Construction sites should be cleaned and managed in an organized manner, all construction material should be stored on site in a contained manner, as recommended in the EMP and the relevant official in charge should supervise to ensure this is done daily as the contractor staff leaves the site.

## Generic Environmental Management Plan (EMP) for Construction of New Infrastructure and Rehabilitation of Existing Infrastructure.

Activities	Protection and preventive measures	Locations/ Project phase	Mitigation cost	Institutional Responsibility	
				Implementation	Supervision
<b>1.0</b>	<b>Advance Works</b>				
<b>1.1</b>	<b>Identifying Location for new infrastructure</b>				
	New infrastructure to be set up should be located in areas that are least sensitive to wildlife and land. At all times attempts should be made to identify areas where minimal land clearance impacts are envisioned	Design stage	Design cost	FD, DWC	
<b>1.2</b>	<b>Incorporation of Green Building Design</b>				
	Green infrastructure guidelines should be followed in designing and construction. The use of natural material sourced from sustainable sources (not from within the protected areas) should be used where suitable. Structures built should incorporate earthy and natural colors that will mingle in with the natural scape and not hinder the aesthetic value of the area	Design stage	Design cost	FD, DWC	
<b>1.3</b>	<b>Design of slope protection / land-slide management structures</b>				
	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	FD, DWC	
<b>1.3</b>	<b>Environmental Management Plan (EMP)</b>				
	A site specific EMP and relevant guidelines should be included as a Special	Prior to bidding	To be	FD, DWC	

Activities		Protection and preventive measures	Locations/ Project phase	Mitigation cost	Institutional Responsibility	
					Implementa tion	Supervision
		Condition in the Bid Document; and EMP should be attached to contract to form part of the contract requirement		provided as a provisional sum and/or as part of the engineering cost		
<b>2.0 Construction Phase</b>						
	<b>2.1</b>	<b>Earthwork and Soil Conservation</b>				
	<b>2.1.1</b>	<b>Site Clearance and Land Development</b>				
		Prevention of the removal of trees should be carried out as far as possible. No trees that are of rare endemic value are to be removed for the purpose of the project During removing, attention should be paid to maintain minimum disturbances to soil cover and also care should be taken not to damage adjoining trees. Compensation for the trees removed should be conducted at 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	Contractor, FD, DWC	FD, DWC
	<b>2.1.2</b>	<b>Disposal of Debris and Spoil</b>				
	(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	FD, DWC
	(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;				

Activities	Protection and preventive measures	Locations/ Project phase	Mitigation cost	Institutional Responsibility	
				Implementation	Supervision
	(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 disposal, recommended by the engineer. During transportation, dispose materials should be covered with tarpaulin.	Applicable throughout the 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			
<b>2.1.2</b>	<b>Conservation and reuse of top soil</b>				
	(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	FD,DWC
	(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			

Activities	Protection and preventive measures	Locations/ Project phase	Mitigation cost	Institutional Responsibility	
				Implementa tion	Supervision
(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	-		
<b>2.1.3</b>	<b>Protection of Ground Cover and Vegetation</b>				
(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	FD, DWC
(b)	Contractor should provide necessary instructions to drivers, operators and other construction workers not to destroy ground vegetation cover unnecessarily	Within the project areas			
<b>2.1.4</b>	<b>Burrowing of Earth</b>				
(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	FD, DWC
(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		

Activities		Protection and preventive measures	Locations/ Project phase	Mitigation cost	Institutional Responsibility	
					Implementa tion	Supervision
	<b>2.1.5</b>	<b>Prevention of soil erosion</b>				
	(a)	<p>Debris material shall be disposed in such a manner that waterways, drainage paths would not get blocked.</p> <p>Drainage paths associated with the infrastructure should be improved / erected to drain rain water properly.</p> <p>Silt traps will be constructed to avoid siltation into water ways where necessary.</p> <p>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 bodies / sea</p>	Applicable throughout project sites	Engineering cost	Contractor	FD, DWC
	(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)	<p>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.</p> <p>All fills, back fills and slopes should be compacted immediately to reach the specified degree of compaction and establishment of proper mulch.</p>				
	(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		

Activities	Protection and preventive measures	Locations/ Project phase	Mitigation cost	Institutional Responsibility	
				Implementation	Supervision
<b>2.1.6</b>	<b>Contamination of soil by fuel and lubrications</b>				
(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	FD, DWC
(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				FD, DWC
(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			
(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			FD, DWC
<b>2.1.7</b>	<b>Disposal of harmful construction wastes</b>				
(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	FD, DWC
(b)	All disposal sites should be approved by the engineer and approved by CEA and relevant local authority.				FD, DWC
(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
<b>2.1.8.</b>	<b>Quarry operations</b>				
(a)	Utilizing the existing quarry sites available in the project influential area as	All, quarry sites	Engineering	Contractor	FD, DWC

Activities	Protection and preventive measures	Locations/ Project phase	Mitigation cost	Institutional Responsibility	
				Implementa tion	Supervision
	<p>much as possible which are approved by GSMB with valid EPL and Industrial Mining Licences;</p> <p>If new quarries are to be opened, prior approval should be obtained from GSMB, CEA and local authorities such as Pradeshiya Sabha.</p> <p>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.</p> <p>Quarry sites should not be established within protected sites identified under the FFPO and FO</p>	which will be used during construction phase.	cost		
(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		
<b>2.2</b>	<b>Storage and handling of construction material</b>				
<b>2.2.1</b>	<b>Emission of dust</b>				
(a)	<p>Storage locations of sand, metal, soil should be located away from settlements and other sensitive receptors and covered (with artificial barriers or natural vegetation).</p> <p>Measures given under clauses 2.5.1 (c), (d), (e) should be considered within material storage site to minimize dust during handling of material.</p> <p>All access roads within the storage site should be sprinkled with water for dust suspension.</p>	At all material storage locations (stock piles of sand, gravel and metal)	Engineering cost	Contractor	FD, DWC
<b>2.2.2</b>	<b>Storage of fuel, oil and chemicals (avoid fumes and offensive odor)</b>				
(a)	<p>All cement, bitumen (barrels), oil and other chemicals should be stored and handled on an impervious surface (concrete slab) above ground level.</p> <p>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.</p> <p>A ridge should be placed around the storage facility to avoid runoff getting in to the structure.</p> <p>Adequate ventilation should be kept to avoid accumulation of fumes and offensive odor that could be harmful to material handlers.</p> <p>Measures given under clause 2.9 should be considered to avoid any accidents</p>	At all material storage locations (cement, bitumen, fuel, oil and other chemicals used for construction activities)	Engineering cost	Contractor	FD, DWC



Activities	Protection and preventive measures	Locations/ Project phase	Mitigation cost	Institutional Responsibility	
				Implementation	Supervision
	and risks to worker population and public.				
<b>2.2.3</b>	<b>Transportation of material</b>				
(a)	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. 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	Within the project locations and the vicinity	-	Contractor	FD, DWC
<b>2.3</b>	<b>Water – Protection of Water Sources and Quality</b>				
<b>2.3.1.</b>	<b>Loss of minor water sources and disruption to water users</b>				
(a)	Contractor should make employees aware on water conservation and waste minimization in the construction process.	Project sites and worker camps	-	Contractor	FD, DWC
(b)	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. 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.		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.	Wells and other public water sources locations within the project sites			

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	-		
	<b>2.3.2</b>	<b>Siltation into water bodies</b>				
	(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	FD, DWC
	(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				
	(e)	All fills, back fills and slopes should be compacted immediately to reach the				

Activities	Protection and preventive measures	Locations/ Project phase	Mitigation cost	Institutional Responsibility	
				Implementation	Supervision
	specified degree of compaction and establishment of proper mulch				
<b>2.3.3</b>	<b>Alteration of drainage paths</b>				
(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	FD, DWC
(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.				
<b>2.3.4.</b>	<b>Contamination of water from construction wastes</b>				
(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	FD, DWC
(b)	Avoid / minimize construction works near / at such drainage locations during heavy rainy seasons				
(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.		Engineering cost		
<b>2.3.5.</b>	<b>Contamination from fuel and lubricants</b>				
(a)	All vehicle and plant maintenance and servicing stations shall be located and	Vehicle and plant	Engineering	Contractor	FD, DWC

Activities		Protection and preventive measures	Locations/ Project phase	Mitigation cost	Institutional Responsibility	
					Implementa tion	Supervision
		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.	maintenance and servicing centers	cost		
	(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			
	<b>2.3.6.</b>	<b>Locating, sanitation and waste disposal in construction camps</b>				
	(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	FD, DWC
	(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 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.		-		

Activities		Protection and preventive measures	Locations/ Project phase	Mitigation cost	Institutional Responsibility	
					Implementa tion	Supervision
	(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		
	<b>2.3.7.</b>	<b>Wastage of water and waste minimization</b>				
	(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	FD, DWC
	(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.				
	<b>2.3.8.</b>	<b>Extraction of water</b>				
	(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	FD, DWC
	(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 sources of water shall be made good entirely by the contractor	At all natural water sources used for construction works			
	<b>2.4.</b>	<b>Flood Prevention</b>				
	<b>2.4.1.</b>	<b>Blockage of drainage paths and drains</b>				
	(a)	Contractor's activities shall not lead to flooding conditions as a result of	All construction	Engineering	Contractor	FD, DWC

Activities	Protection and preventive measures	Locations/ Project phase	Mitigation cost	Institutional Responsibility	
				Implementation	Supervision
	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.	work sites	cost		
(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.				
<b>2.4.2</b>	<b>Work in Flood Prone Areas</b>				
(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	FD, DWC
(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.				
<b>2.5</b>	<b>Air Pollution</b>				
<b>2.5.1.</b>	<b>Generation of Dust</b>				
(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 attention to sensitive locations.	Engineering cost	Contractor	FD, DWC
(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 suppression on all exposed areas as required (note: the use of waste water / waste oil for dust suppression is prohibited)				
(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-				

Activities		Protection and preventive measures	Locations/ Project phase	Mitigation cost	Institutional Responsibility	
					Implementa tion	Supervision
		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.				
	<b>2.5.2</b>	<b>Emission from Hot-Mix Plants and Batching Plants</b>				
	(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	FD, DWC
	(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				
	<b>2.5.3.</b>	<b>Odor and offensive smells</b>				
	(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	Within construction and work sites including all sites used for store all chemicals and places where	Engineering cost	Contractor	FD, DWC

Activities	Protection and preventive measures	Locations/ Project phase	Mitigation cost	Institutional Responsibility	
				Implementation	Supervision
	with any health issue arisen out of bad odor and offensive smells.	chemical reactions take place.			
(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			
<b>2.5.4.</b>	<b>Emission from construction Vehicles, Equipment and Machinery</b>				
(a)	The emission standards promulgated under the National Environment Act shall be strictly adhered to.	All plants, machinery and vehicles used for construction	-	Contractor	FD, DWC
(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				
<b>2.5.5.</b>	<b>Air Pollution from Crusher</b>				
(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	FD, DWC
(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 cost		
<b>2.6</b>	<b>Noise Pollution and Vibration</b>				
<b>2.6.1</b>	<b>Noise from Vehicles, Plants and Equipment.</b>				
(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	FD, DWC



Activities	Protection and preventive measures	Locations/ Project phase	Mitigation cost	Institutional Responsibility	
				Implementation	Supervision
(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).	All equipment, machinery and vehicles used for construction works	-		
(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.		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.	Within the construction sites and their vicinity			
<b>2.6.2</b>	<b>Vibration</b>				
(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 and their vicinity	-	Contractor	FD, DWC
(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.				
(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				

Activities	Protection and preventive measures	Locations/ Project phase	Mitigation cost	Institutional Responsibility	
				Implementation	Supervision
	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.				
<b>2.6.3</b>	<b>Noise from Blasting or Pre splitting Operations</b>				
(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. Only chemical blasting where rocks have to be removed for landslide mitigation measures	At quarry sites and landslide mitigation sites	-	Contractor	FD, DWC
<b>2.7</b>	<b>Impacts to Flora</b>				
<b>2.7.1</b>	<b>Loss or Damage to Trees and Vegetation</b>				
(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	FD, DWC
(b)	Contractor shall make every effort to avoid removal and/or destruction of trees 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.				
		Indicative number of trees / plants and	Engineering cost		

Activities		Protection and preventive measures	Locations/ Project phase	Mitigation cost	Institutional Responsibility	
					Implementa tion	Supervision
		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 planting structures necessary are to be identified by the contractor. Planting should take place as soon as the plant removal takes place			
	<b>2.7.3</b>	<b>Spread of Invasive Plant Species</b>				
		There is a possibility of introducing / spreading of invasive species during material transportation and disposing cleared vegetation from one site to another, thus the following measures are to be undertaken. Close monitoring of transportation, storage of borrowing material for the spread of any invasive species must be done. Vehicles should be covered during transportation of cleared vegetation to and from the construction site. Borrow material to be brought from properly identified borrow pits and quarry sites, the sites should be inspected in order to ensure that no invasive plant species are being carried with the burrow material. Washing the vehicles should be conducted periodically to prevent carrying any invasive species The construction site should be inspected periodically to ensure that no invasive species are establishing themselves at the site.			Contractor	FD, DWC
	<b>2.7.2</b>	<b>Chance finds of important Flora</b>				
	(a)	During construction, if a rare/threatened/endangered flora species is found, it shall be immediately informed to the relevant agency 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	FD, DWC
<b>2.8.</b>	<b>Impact on Fauna</b>					

Activities		Protection and preventive measures	Locations/ Project phase	Mitigation cost	Institutional Responsibility	
					Implementation	Supervision
	<b>2.8.1.</b>	<b>Loss, Damage or Disruption to Fauna</b>				
	(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	FD, DWC
	(b)	Construction workers shall be instructed to protect fauna including wild animals and aquatic life as well as their habitats. Hunting, poaching and unauthorized fishing by project workers is not allowed.				
	(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		
	<b>2.8.2</b>	<b>Chance found important Fauna</b>				
	(a)	During construction, if a rare/threatened/endangered fauna species is found, it shall be immediately informed to the relevant agency 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	FD, DWC
	<b>2.9</b>	<b>Disruption to people</b>				
	<b>2.9.1</b>	<b>Loss of Access</b>				
	(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	FD, DWC
	(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		

Activities		Protection and preventive measures	Locations/ Project phase	Mitigation cost	Institutional Responsibility	
					Implementa tion	Supervision
	(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.				
	<b>2.9.3</b>	<b>Traffic Control and Safety</b>				
	(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	FD, DWC
	(b)	Vehicles travelling in and out of the PA should maintain low speeds when transporting material inside the boundaries of the PA in order to avoid disturbing the wildlife and avoid the risk of accidents. In the event the road within the PA is blocked by wildlife the contractor will not disturb the wildlife until they move away from the path, with noise or other means.	Construction areas			
	<b>2.10</b>	<b>Accidents and Risks</b>				
	<b>2.10.1</b>	<b>Public and Worker safety</b>				
	(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	FD, DWC
	(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 facilities where operation is underway should be conducted post times of operation, post operational hours of the center if on the same site.				
	<b>2.10.2</b>	<b>Prevention of Risks of Electrocutation</b>				
	(a)	All electrical wiring and supply related work should conform 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	FD, DWC
	<b>2.10.3</b>	<b>Risk at Hazardous Activity</b>				
	(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	FD, DWC
	(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.				
	<b>2.10.4</b>	<b>Lead Pollution</b>				
	(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	FD, DWC
	<b>2.10.5</b>	<b>Handling of Explosives</b>				

Activities	Protection and preventive measures	Locations/ Project phase	Mitigation cost	Institutional Responsibility	
				Implementation	Supervision
(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	FD, DWC
(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		FD, DWC
<b>2.11</b>	<b>Health and Safety</b>				
<b>2.11.1</b>	<b>Prevention of Vector based Diseases</b>				
(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	FD, DWC
(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.				
<b>2.11.2</b>	<b>Workers Health and Safety</b>				
(a)	Contractor shall comply with the provisions in Health and Safety regulations under the Factory Ordinance with regard to provision of health and safety measures and amenities at work place(s).	Within construction sites, workshops and worker camps	-	Contractor	FD, DWC
<b>2.11.3</b>	<b>First Aid</b>				

Activities		Protection and preventive measures	Locations/ Project phase	Mitigation cost	Institutional Responsibility	
					Implementation	Supervision
	(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	FD, DWC
	<b>2.11.4</b>	<b>Potable Water</b>				
	(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	FD, DWC
	<b>2.11.5</b>	<b>Hygiene</b>				
	(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	FD, DWC
	(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 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				



Activities	Protection and preventive measures	Locations/ Project phase	Mitigation cost	Institutional Responsibility	
				Implementation	Supervision
	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.				
<b>2.12</b>	<b>Protection of Archaeological, Cultural and Religious Places and Properties</b>				
<b>2.12.1</b>	<b>Prevention of damage to Cultural and Religious Places and Properties</b>				
(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	FD, DWC
<b>2.12.2</b>	<b>Chance finds of Archaeological property</b>				
(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	FD, DWC
(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		
(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.				
<b>2.13</b>	<b>Environmental Enhancement</b>				
<b>2.13.1</b>	<b>Landscaping</b>				
(a)	Landscape plantation, re-vegetation etc, 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	FD, DWC

Activities	Protection and preventive measures	Locations/ Project phase	Mitigation cost	Institutional Responsibility	
				Implementa tion	Supervision
	Special care should be taken to ensure that the species selected for replanting are not invasive to the said site.				
	(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.				
	(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			
<b>2.14</b>	<b>Handling Environmental Issues during Construction</b>				
	(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	FD, DWC
	(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.				
<b>3.0</b>	<b>Operational stage</b>				
<b>3.1</b>	<b>Hygienic Conditions</b>				

Activities		Protection and preventive measures	Locations/ Project phase	Mitigation cost	Institutional Responsibility	
					Implementa tion	Supervision
	(a)	Regular clearing/ cleaning and maintenance of the facility should be conducted, especially of Kitchens and Sanitary facilities in bungalows/ tourist facilities in order to maintain hygienic conditions.	All buildings supported by the project	Maintenance cost	FD, DWC	FD, DWC
	<b>3.2</b>	<b>Solid Waste Management</b>				
	(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. Daily collection should be conducted in facilities located within the PA boundaries.	In all project sites	Maintenance cost	FD, DWC	FD, DWC
	<b>3.3</b>	<b>Mosquitoes and Vector Breeding</b>				
	(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	Maintenance cost	FD, DWC	FD, DWC

## Environmental Conditions for Establishment of Forensic Laboratory

- 1) Site Selection Criteria
  - a) The site selected for the forensic laboratory should be located in areas least sensitive to wildlife and land and will not require extensive land clearing.
  - b) The relevant department should identify such sites with a clear justification as to why they are best suited to meet the intended person while causing the least level of intrusion to the environment.
  - c) The site selected should be away from existing residential areas
  - d) The site selected should have adequate space to facilitate proper waste management, laboratory safety and access systems.
  - e) In order to ensure the site is not located in an area where the potential contamination of water sources may take place
    - i) The site selected should be located away from surface water such as rivers and lakes.
    - ii) The site selected may not be in an area where the known ground water levels are shallow.
- 2) The construction of the forensic laboratory should be undertaken post the completion of a site specific environmental plan, prepared with the guidance of the Generic Environmental Management Plan (EMP) for Rehabilitation/New Construction presented in the EAMF of the project.
- 3) The EMP should look in to operational management aspects such as the following and provide clear mitigation measures.
  - a) Management of hazardous solid and liquid waste
  - b) Laboratory Occupational health & safety guidelines
  - c) Inclusion and operation Safety equipment such as Emergency shower and eyewashes and floor drains, Caustic (acid/alkali) waste systems, i.e., neutralization/hazardous waste systems, fume hood and biological hood plumbing utilities, water treatment systems etc.
- 4) The operation of the forensic lab should include a safety management plan, identifying safety requirements and procedures to be followed during emergency situations.
- 5) National/international laboratory accreditation specifications should be followed.
- 6) Building construction and renovation will adhere to the existing building and other applicable codes of practice in Sri Lanka. The contractor will be responsible for adherence to Codes of Practice such as the ICTAD specifications and any other Standard Specifications approved by the Government of Sri Lanka.

## Environmental Conditions for Establishment of Wildlife Recovery & Rehabilitation Centers

- 1) Site Selection Criteria
  - a) The site selected for the Wildlife recovery and rehabilitation center should be located in areas least sensitive and land and will not require extensive land clearing.
  - b) The relevant department should identify such sites with a clear justification as to why they are best suited to meet the intended person while causing the least level of intrusion to the environment.
  - c) The site selected should be away from existing residential areas
  - d) The site selected should have adequate space to facilitate the construction of spacious enclosures for large animals to facilitate animals to rest/ move about.
- 2) Design Recommendations
  - a) Encloses built should be based on simulation of natural habitats, with adequate space.
  - b) Safe access paths should be set up for cleaners and for food and water to be provided to the animals housed.
  - c) The enclosures should hold areas for continuous supply of water to the animals.
  - d) Adequate mechanisms should be put in place to ensure that the site is isolated from the surrounding environment, in order to limit exposure to wildlife outside the facility during recovery & rehabilitation of animals housed at the facility.
- 3) The construction of the facility should be undertaken post the completion of a site specific environmental plan, prepared with the guidance of the Generic Environmental Management Plan (EMP) for Rehabilitation/New Construction presented in the EAMF of the project.
- 4) Building construction will adhere to the existing building and other applicable codes of practice in Sri Lanka. The contractor will be responsible for adherence to Codes of Practice such as the ICTAD specifications and any other Standard Specifications approved by the Government of Sri Lanka.
- 5) In addition to the EMP, Planning tools should look in to operational management aspects such as the following and provide clear mitigation measures and procedural guidance to operators.
  - a) Management of solid and liquid waste
  - b) Occupational health & safety guidelines
  - c) Quarantine protocols
  - d) Hygiene and sanitary protocols
  - e) Safety equipment requirements& monitoring requirements
  - f) Protocols & methodologies animal release after rehabilitation
  - g) Plan for sourcing of food for animals (extraction of food from natural habitats should be carried out with minimal disruption to the natural system)

## Guidelines for the 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 ground water 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 waterbodies, agricultural lands, marshlands or any environmentally sensitive areas.
- Pit should be sealed off to prevent the spread of waterborne diseases.
- Once area is cleared of all debris, it is advisable to landscape area.

## **Environmental Conditions 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 well 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 ground water 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 in ing 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 headwall 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.

## **Environmental Best Practices for Minor Tank Rehabilitation**

### ***Desilting***

- There are many aspects which need to be taken care of during desilting of canals and ponds.
- It will be highly critical and important to instruct the labour that, they should take care of the canal sides and the banks, so that they are not damaged. During desilting and disposal this should be supervised by the departmental entity to ensure intactness of structures.
- The protection of existing canal outlets needs to be ensured, so that its blockage is avoided. The water through outlets reaches the fields as usual however otherwise there may be serious resentment among the water users which may leads to law and order problem.
- Although the current activities are proposed to serve the farming community, still there will be certain short-term problems for the natives of that area, such as – blocking of the access and hindrances in villagers movement. Desilting activities in sensitive areas should be done manually as much as possible and concern should be made on ensuring uninterrupted access to village communities.

### ***Disposal of desilted matter***

- The disposal of desilted matter is a critical exercise, which if not done properly and as per disposal plan may lead to many environmental and socio-political problems. So the contractor has to ensure strict compliance in this regard. The departmental field officers need to prepare a Silt Disposal Plan which should be made available to contractor's representative well in advance. Such a plan should clearly spell the disposal sites with quantum of desilted matter to be disposed.
- Prior to preparation of Silt Disposal Plan, the consent of villagers for disposal of desilted matter onto their land is mandatory, so that there is no room for any confusion and conflict in this regard.
- There is another key aspect i.e. quality of desilted matter from minors It needs to be ensured whether it is fit for the farms or not. For this, the desilted matter needs to be tested and analyzed by the Mobile and Base Laboratories of the consultant.
- Various plants, bushes, shrubs etc. are likely to be damaged during transportation of desilted matter. Even the machinery/vehicles may also trample the floral species available on the canal banks. In addition to this, the labour movement may also damage the flora.
- The unplanned deposition of desilted matter on the canal banks lead to choking and destruction of flora present over there, thereby leading to temporary termination of their growth and if the desilted matter is not immediately disposed off to pre-decided disposal sites, it would cause killing of floral varieties buried under the desilted matter.
- The water-bodies (which are located in the vicinity of canal systems) such as – ponds, lakes, wetlands are prone to sedimentation, pollution and overall destruction due to ill-planned Silt Disposal or inadequate adherence to a comprehensive plan. Water-bodies are lifeline for the villagers. These water-bodies are used by cattle for bathing and drinking etc. Such bodies also cater to a wide range of domestic needs of



villagers and especially during lean period these water-bodies are vital for their survival.

- A provision to grow a vegetative cover on the disposal site after disposal is complete can be very helpful in further curbing adverse impacts of desilted matter in the vicinity. Such an activity has to be executed by the contractor under the supervision of the departmental field functionary.
- The silt from the canals mainly in branches and head reaches of distributaries contains pure sand. Such a desilted matter may reduce the fertility of the native soil and in addition to this, it may also change the current chemical composition of soil thereby leading to other problems related to compatibility, inhibited growth and reduced yield.
- If due care is not taken during disposal of the desilted matter placed on the banks after excavation, the banks and slopes would get damaged. This may also lead to weakening of banks. The awareness of labour in this regard will be quite critical in this regard.
- The contractor should carefully undertake this exercise and the departmental field functionary should supervise such activities, so that any damage to bunds and slopes can be avoided.

#### ***Borrow Area Rehabilitation***

- The executing entities (contractor) borrow the area for soil digging for the purpose of construction or strengthening of structures/banks of the canals. It has been often found that, these entities rarely take environmental protection measures. Listed below are certain issues, which requires due consideration –
- In an event when the borrowed area is not compensated from environment viewpoint, it may causes soil degradation and removal of all floral and faunal species of that area, if any.
- Proper disposal of left over material after construction/other-maintenance-related-activity has to be ensured, the patch of area borrowed should be appropriately compensated from environment point of view. Surplus excavated material should be used for construction in fill, or be disposed off at suitable places. These places of dumping should be provided with a vegetative cover
- Loss of vegetation may also leads to
- Soil erosion
- Stagnation of water leading to vector proliferation and thereby causing diseases related to mosquitoes or other biting flees etc.
  - The loss of vegetation is another issue which needs to be dealt with, so that impact can be minimized in this aspect. The executing entities can be directed to ensure growth of vegetation in certain patch as a return for the destruction it has done to some other area in the name of “Borrow Area”.
  - At this juncture, one needs to understand the significance of the ‘vegetative – cover’. The vegetative cover allows the native floral and faunal species to grow and propagate. It also hampers removal of top layer of earth i.e. soil (which is generally productive in nature) either by wind or rainfall/run-off water.

- Removal of vegetation and cutting of trees should be done judiciously and limited to minimum possible extent. It is advised that cutting of any such tree (if highly essential) should be done in consultation with the forest authorities.

### ***Drains***

Under the rehabilitation work numbers of drainage systems are also to be rehabilitated including the earthwork.

- Silt cleared from the bed of a drain should be used to fill up holes and ruts on the inspection bank. This silt should not be thrown up in heaps in such a way as to interfere with the ingress of drainage.
- The silt should not be disposed off on the inner slopes of the drain to safeguard its re-entrance into the drains during rains, as this may potentially lead to choking or disruption of usual path of drain.
- Trees which grow on the inner slopes of drains should not be felled without taking required permission from the competent authority in the Forest Department. The compensatory plantation/afforestation should be ensured. The dead branches and rubbish that may have accumulated in the drains should also be cleared.
- Bunds should not be permitted in drains, as this may damage the drain and should be removed if found.
- All vegetative growth on distributaries and minors should be cleared from toe to toe of the outer slopes of the banks. Shrubs, large grass should be dug out by the roots. Stumps of trees that have been standing should be cut down to atleast below the ground. Ant hills shall be dug out and leveled off.
- All vegetative growth on escapes and drains should be cleared from the outer edge of the riding bank to the inner edge of the opposite bank.
- Grass and jungle should never be allowed to grow on masonry works; it should be dug out by the roots and the masonry then plastered. Grass against masonry works should be scrapped off, as the masonry may get damaged in the process.
- No trees, jungle of any kind and tall grass should be allowed to grow within 10 meters of a masonry work. No big trees such as should be allowed within 25 meters of an important masonry works, as the roots of these trees may extend up to the joints and damage the masonry.
- When a tree is to be felled, a hollow should be dug around the base and the trunk cut through as low down as possible, the hollow should then be filled-up to cover the root.
- No grass or similar bushy plants be allowed at the internal section of canals and drains as they will severely hamper the pace of water flow.
- Shade-line trees should not be felled without special approval from concerned authorities.
- Pruning of trees if at all is necessary should not be carried out with axe. The branch should first be sawn about half through on the underside and then completely through from the top, so that the bank may not be torn off.

### ***Water quality***

- Irrigation works must be planned to be carried out during times of lowest flow
- Silt traps using sand bags should be used when desilting and bank and other structural maintenance work is carried out in order to protect downstream users

## **Environmental Guidelines for Construction of Micro Hydro Systems**

Mini and micro hydroelectric projects includes weirs, small scale storage areas, canals, penstocks and powerhouses. Excessive weir heights are not anticipated in any of the subprojects. Temporary diversion of river water could result in environmental impacts with regard to partial dewatering of a section of the riverbed from the intake until the water is returned to the river downstream of the powerhouse and consequent impacts on aquatic life in the dewatered section; however, significant effects normally associated with hydrology and limnology of the river systems where large storage dams are constructed is not anticipated in run of the river micro hydro systems anticipated to be financed under project. Yet minor changes in aquatic biota and sedimentation dynamics is to be expected in the river. Potential soil erosion caused by flushing flows discharged from sedimentation basins and by overflows at forebays could result in environmental impacts. There is a tendency for suspended particles carried by the river to settle in the area behind the weir or in the diversion canal. However, sediment traps in the canals collect and subsequently discharge collected sediment into the river, thereby minimizing its long term impacts. Minor and temporary land disturbances arising out of construction of the power house and associated infrastructure as well as potential ground instability caused by canal/pipe construction could result in air and water pollution as a result of construction and waste disposal. Soil erosion, destruction of vegetation, and possible loss of agricultural land in the trace of the canal and power house as well as scouring of the riverbed at the point water is returned to the stream, potential disruption of riverine fisheries between the weir and the point of water return, impediments to fish migration, cutting of trees for use as power poles in micro hydro projects and impacts due to access road construction are potential sources of adverse environmental impacts

### ***Bio Physical Impacts***

The following are the major measures taken to avoid loss of biodiversity.

- Understanding the influence of the project on the surrounding environment, and selection and implementation of appropriate conservation measures based on the environmental impact assessment
- Restricting the impacts on the ecosystem by constructing various types of structures underground
- Regeneration of vegetation by planting
- Conservation of a river ecosystem by maintaining flows capable of maintaining the river
- Implementing measures to prevent invasion of foreign species throughout the duration of projects ,including the construction period
- Follow-up studies after the measures are taken and evaluation of their effectiveness
  - As an example, a construction period can be limited to certain periods of the year to protect reproductive activities of known species of conservation importance

### ***Hydrological Impacts***

The following are the major measures taken to mitigate the influence of changes in hydrological regime.

- Recovery of a river ecosystem by keeping flow rates required for river maintenance
- Reservoir management considering the influence on local stakeholders
- Raising and maintaining river levels by installing weirs around estuaries
- Follow-up studies after the measures are taken and evaluation of effectiveness
  - As a specific example, investigations to determine the hydrological regime capable of maximizing hydropower can take into account the flow rate and water temperature suitable for the life cycle of endemic fish

### ***Fish Migration and River Navigation***

The following are the major measures taken to promote fish migration and to reduce mortality rates and damage to fish which pass through hydraulic turbines or spillways.

- Installation of a fishway in an existing dam, and implementation of measures to attract fish with a sodium lamp
- Installation of measures to direct fish at the intake (acoustic type, mercury lamp)
- As a specific example, mortality rates of fish caused by passing through hydraulic turbines were lowered in a Canadian site by installing a screen for sorting out fish entering the intakes and returning them, through a bypass pipe, to the river.

### ***Sedimentation***

The following are the major measures taken to reduce or eliminate sedimentation.

- Reduction of sediment by constructing flood bypass tunnels
- Construction of small-scale weirs to trap earth and sands and subsequent removal by dredging.

### ***Water Quality***

The following are the major measures taken to improve water quality in downstream areas.

- Temperature control considering the growth of fish by installing selective water intake facilities
- Reduction in water turbidity by constructing bypass tunnels
- Elimination the occurrence of abnormal odor or taste of the water by installing full thickness aeration and circulation facilities

## **Environmental Guidelines for management of productivity in agricultural land in PA buffer zones.**

The project does not carry a direct mandate in pest management. However, agricultural landscapes in PA buffer zones are considered important in managing wildlife and wildlife related conservation issues. Excessive usage of chemical fertilizer and pesticides that decrease productivity of agricultural landscapes in strategic buffer zone areas have adverse consequences for PA management as decreased productivity could result in increased dependence on forest/wildlife resources. It has been shown through studies that the use of pesticides in Sri Lanka has become a common precautionary measure and is practiced even before pest damage has exceeded economic threshold levels.

Component 1 and HECOX that will focus on landscapes (rather than administrative boundaries of PAs) may have to address some of these issues where farmer wellbeing is closely linked with forest protection. In some sites, such as the buffer zone of Knuckles forest reserve, communities have brought up issues with regard to lack of knowledge to deal with pests or IPM practices and has pointed to cases of severe environmental pollution. As such, the following information will provide the project with some useful planning guidelines in dealing with the use of agricultural chemicals in the selected areas.

### **Typical activities in approaching more sustainable pest management in agricultural landscapes**

#### *1. Assessment of existing situation and preparation of action plan*

There is no considerable information to implement a reasonable IPM program in the project area. Therefore, it is proposed that a rapid assessment of pest management practices in the area is first conducted to understand the nature and type of the issue. The results of this assessment should be then used in the strengthening of the proposed action plan, prior to full implementation.

#### *2. Awareness creation and preparation of strategic communication materials*

Awareness creation will be done targeting various stakeholders residing in the project area, mainly the community, government officers and project staff. Awareness material developed should be technically sound, comprehensive and made legible for layman in order to disseminate the message effectively. These will be prepared in the native languages, either Tamil/Sinhala, based on the project area. Awareness materials include posters, flyers, brochures, etc. These will be made available via the Village Organization (VO) and farmer groups should be targeted.

#### *3. Training*

This would be the most important step. Training of relevant stakeholders on pesticide management and safe use of pesticides should be conducted with the following areas in mind.

- Detrimental effects of pesticide use to human health/environment
- Decision making in use of pesticides
- Transport, storage, handling and distribution of pesticides
- Safe application of pesticides
- Safe disposal of pesticide containers
- Risks on handling and use of pesticides
- Managing risks and pesticide poisoning via green mechanisms
- Integrated Pest Management

Training programs must first be conducted among the project/field staff and should also target local DOA and Agrarian officers, stationed in the project area and should be structured as Training for Trainers Program. It is proposed that this program be conducted by reputed pest management specialists/NGOs with experience working in Sri Lanka. This will thus provide the existing project staff with the capacity to conduct training programs in the field. Training material will be prepared comprehensively and cover the key areas highlighted prior, fashioned as a guidance book for long term use and support post training.

#### *4. Linking with Research and Development and technical backstopping*

The project will not get directly involved in supporting IPM research and development but can play a facilitating role by linking the DOA's on-going and/or past successful research with the identified problems in the area.

#### *5. Field Demonstrations*

Field demonstrations are the most practical way of convincing farmers on IPM practices, establishment of a Farmer Field School (FFS). FSSs can actually show farmers the successful crop yields that can be expected by IPM implementation and demonstrate user friendly mechanisms. This will assist in changing set mindsets and educate farmers on the programs, driving them to implement them as well. Further, organized exposure visits to areas/farms where IPM is successfully carried out should be carried out to link producer groups and to strengthen their potential markets.

#### **Monitoring indicators**

Activities that require regular monitoring and evaluation during project supervision missions include the following:

- IPM capacity building for membership in farmer groups (FGs) in the affected landscape. Numbers of farmers who have successfully received IPM training in IPM methods; evaluate the training content, methodology and trainee response to training through feedback.
- Numbers of (VOs) village organizations that nominated members for IPM training; emphasize the number of women trained; assess VOs understanding of the importance of IPM for sustainable crop production.
- Numbers of farmers who have adopted IPM practices as a crop protection strategy in their crop production efforts; evaluate the rate of IPM adoption.
- In how many crop production systems is IPM applied?; Are the numbers increasing and at what rate?
- How has the adoption of IPM improved the production performance of FGs ?
- What are the major benefits that members of PGs derive by adopting IPM ?
- Extent to which pesticides are used for crop production ?
- Efficiency of pesticide use and handling
- Level of reduction of pesticide purchase and use by the FGs for crop production.
- Overall assessment of (i) activities that are going well (ii) activities that need improvements and (iii) remedial actions required.

### Environmental Monitoring Checklist for Construction Activities

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

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

#### Photo-documentation of Issue Identified Above

<b>Issue # (from description above)</b>	<b>Date of photograph</b>	<b>Photograph depicting issue</b>

## Annex-9 Meeting Minutes: ESCAMP Consultation with Wildlife NGO Community

### Minutes of the consultations held with communities living in the buffer zone of the Knuckles Range

Held at the Forest Department's Conservation Centre – Illukkumbura  
13/11/15 @ 9.30 am

The facilitation was carried out by the Extension Officer based at the Conservation Centre, while the Range Forest Officer welcomed the GramaNiladhari's and the community representatives present.

After a round of self-introductions by everyone present, the District Forest Officer introduced the proposed project to the people, its positive impacts on the World Heritage site and its neighboring communities as well as its potential adverse impacts that would need to be mitigated. He stressed that it was a great opportunity to the people to bring out their own suggestions in shaping the project to suit the needs of their environment.

A member of the community, representing the village of Dammathanna, said that their main livelihood was agriculture and that their lives depended on the success of the pepper cultivated. However, these days almost all the crops are faced with a yellow disease and the farmers did not possess the necessary technical know-how to deal with such issues. The DFO responded by saying that it was a good point to raise this here as this was potentially something that the project could facilitate by introducing the relevant Government authorities to attend to. The community also raised the issue of dilapidated conditions of irrigation structures and requested assistance to reconstruct anicuts and to have a better water management system.

Another member of the community raised the negative effects of promoting eco-tourism. It has already become impossible for village women to bathe in the river as they had been traditionally accustomed to. It was revealed that visitors to the site do not pay any regard to the inhabitants of the surrounding villages and the drunken behavior has created a tension between these visitors and the villagers. They claimed that these types of visitors are mainly locals and lived in tents alongside the river bank, which was neither controlled nor regulated by the Forest Department. They requested that these visitors be given suitable accommodation so that the impact on the neighboring villages can be mitigated. A need for allowing restricted or regulated access to villages was another suggestion but the fact that it was a public road going through the Knuckles range created some doubt among the audience. However, the DFO took in the suggestion of creating designated areas for bathing, sight-seeing, etc but cited the Department's limitation of staff for active enforcement. The revival of some of the inactive CBOs to take on the task of enforcement, more awareness about the rules and regulations to those who visit the Knuckles range were some of the other suggestions made.

One of the villagers noted that *Chena* cultivation used to be their primary income earner but with the restriction of access to the forests almost a decade ago, they were now dependent on mostly paddy and bean cultivation and they would require some technical support to increase incomes. The GN, on behalf of the community, made it an opportunity to request the Forest Department to consider giving back land to continue their traditional *Chena* cultivation. The DFO was quick to respond that cultivation (or any other activity) inside the forest is strictly prohibited but that he will make available any assistance that is required to increase incomes through the existing land extent through improved land use efficiency and productivity.

Another member of the community noted the option of establishing plant nurseries as a major income source. Given the rich environment, it was noted that some people were already doing this a growing business and sell these plants locally as well as on contract basis (e.g.



Mahaweli). Other sources of income identified with the potential of increased incomes were handloom, sewing, masonry, forest guides. The DFO responded by saying that the Forest Department, via the proposed project, can easily link up the relevant departments (e.g. AgriDept) to support the community needs. He further said that the training needs, facilitation of markets for identified sources have already been included in the proposed list of activities under the project.

The issue of guides being brought from outside the Knuckles range was also identified. The DFO suggested that this was an issue that the Department was aware and that there was a requirement to build a team of guides consisting of the youth from surrounding villages. Necessary awareness raising of the available resource was also mentioned as a critical item. Drinking water for villages are supplied through streams running through the forest. At the moment, there is no treatment of the water which becomes a problem during the rainy seasons as the water becomes very murky. Water tanks are not cleaned and soil erodes into the tanks. The villagers requested assistance to upgrade the community drinking water system with proper treatment and storage.

One of the GNs present also raised the issue of human elephant conflict and noted that a program was already in place to build electric fences surrounding the villages and cultivable land. As this is an ongoing program, the people were still in doubt about the success of the methodology but felt assured of a greater chance of success if the maintenance work by the Civil Defense Committee goes unhindered. They also mentioned about the likelihood of incidents relating to wild elephants increasing in the area once Moragahakanda is commissioned and stressed the importance of recognizing elephant corridors and identification of proper traces for electric fences.

The currently functioning societies were identified as (i) the Maranaadarasamithiya; (ii) DiviNegumasamithiya; and (iii) Govijanasevasamithiya. All societies, however, are facing issues of registration and requested the proposed project to facilitate the process. While the GN noted that this was easily done if all relevant documents were in place, the DFO mentioned that this can be something that the project takes on as a facilitation role.

Representing the village of Puvakpitiya, a young farmer acknowledged the issues raised by other community members and noted that these were representative across all eight villages. However, drilling down further, he noted that the rehabilitation of *weli-amunu*, the establishment of a collection centre for pepper cultivators spanning all eight villages (for demanding a higher price for the produce), the introduction of new varieties (e.g. sudu gam miris) were of utmost importance and requested the project to contribute towards the technical knowledge, provision of plants and the linking of markets. On the provision of CBO training, he noted that most CBOs lacked capacity on accounting, reporting and IT use.

Explaining further, the NVQ level 4 qualified young farmer highlighted a change in attitude as the need of the hour. He said that a change in the attitude of the villages, visitors was a prerequisite to protect the environment. Also needed was a change in attitude so that communities can work together to achieve even greater success. He noted this as he sees the villagers working towards individual gain. Citing an example, he said that the farmers could gain a better price for their produce if they were to come together as a group / team. He also pointed out to the irrational use of inorganic fertilizer and pesticides by the farmers and the careless practices that lead to pollution of the waterways in the village, He said that agriculture extension is a service that is badly needed and its absence is strongly felt by the farmers. The need for community centres, village networking, awareness on organic agriculture are some of the other key points he highlighted.

The GN of Illukkukbura noted the human – monkey (rilaw)/giant squirrel conflict as a major obstacle for increased revenue as these animals would destroy the produce, e.g. coconut, fruits

(mangoes). The DFO mentioned that a few proposals have been discussed by the DWLC as this was a problem that is rampant in other parts of the country too but mentioned there is no easy solution.

In terms of dependence on the forest by the community, it was mentioned that it is very less at present. In the past, bee honey, nelli and bim kohomba were key collectibles from the forest but the community mentioned that bees, nelli and bim kohomba are rare in the forest now. The DFO speaking on the conservation of traditional knowledge, explained that the project proposed to carry out the documentation of traditional knowledge, medicines used, and the meals prepared so that these will be preserved for future generations. Citing an example, he noted that these villages had been traditionally involved in manufacturing *Kuda*(baskets)out of cane that needed to be revived by the present population.

On sanitation, a suggestion was made to help the few HHs still using a dug up hole for their sanitary purposes and noted that these were unhygienic practices that needed to be changed if the environment was to be preserved.

On safety, it was alleged that there was at least one death a year as a result of negligent bathers and noted this as something the project should look into. They also mentioned minor land-slides on roads in certain parts of the area that causes restricted access to certain households.

### **Consultation with the conservation community**

Date: 23<sup>rd</sup> December 2015 Colombo

#### **Structure**

Presentation of project components and explanation of project activities followed by a discussion. Q and A session

#### **Key Points Highlighted**

##### **Stakeholder Engagement and Dissemination**

- Clarifications were made on whether the World Bank's stakeholder engagement set within the project allow for third monitoring of project activities.
  - **Response:** The project includes independent monitoring under a number of facets, self-monitoring done by the relevant agencies will also be verified by a third party, thus the appropriate filters are inbuilt to the design so that independent monitoring is part of the due process.
- Transparency of what the project is doing to a greater audience is key, does the project have a plan for information dissemination. Including dissemination of ideas, plans and results under the preview of the project.
- There should be a platform where the project activities can be shared with the general public as a whole, online would be the best, where information can easily be shared by the project and relevant departments.
- It was acknowledged that FD has been proactive in doing consultations with stakeholders, this should continue.

##### **Site Selection**

- It was recommended that the National Physical plan and other development plans belonging to authorities such as the Megapolis Ministry, Urban Development Authority should be looked.
  - **Response:** The Ministry of Sustainable Development and Wildlife will be setting up a Sustainable development secretariat who will coordinate with the

above mentioned institutions and other planning departments of the government to look in to overlaps between plans to develop sites etc.

- When identifying sites it will be beneficial, especially in terms of the North and East provinces, to ensure the identification criteria will capture areas where future resettlement is planned.

## **HEC**

- It was inquired if the project will support the relocation of villages in buffer areas affected by Human Elephant Conflict.
- The project will not finance relocation as activity. However it will facilitate the identification of such areas via analytical work, leaving the relevant authority to finance and carry out relocation where necessary. However at this time such crucial areas where relocation is necessary have not been identified.
  - **Response:** The selection criteria of HEC areas will depend on the criticality of the HEC issue in a given areas. The project will focus on the pilot sites where HEC management will be followed- technical committees will assist in site identification.
- Surveys have shown that in Sri Lanka people have no issue of coexisting with Elephants if the conflicts are minimized.
- Will the human animal conflict activities only focus on elephants, or will it look at management of conflict issues between humans and other species as well?
  - **Response:** The project will focus on recovery and rehabilitation of other species as well and look at how human animal conflict as a whole can be managed in buffer areas identified for project activities.

## **Implementation Capacity and Issues within Implementing Agencies**

- It was stated that finance ministries ask for large sums of money to be allotted to agencies via projects, however these agencies/departments are unable to absorb these sums nor manage them and thus projects have not shown fruitful results after they have closed. What safeguards does this project have to avoid this?
  - **Response:** the project team and relevant agencies are well aware of this factor and thus have focused on the sustainability and self-sufficiency of project interventions post project closure. The aim is to develop systems that will self-run after project closure.
  - For example, the Bank and relevant agencies will review progress closely, providing quarterly updates of progress and consulting stakeholders on progress as well to ensure systems are bringing results.
- It was communicated that under the PAM project a preservation fund was set up but as this was not utilized the money was taken back in to the treasury and it was reiterated that the agencies do not even fully utilize their existing allocations.
  - It was agreed that if departments do show results and justify their need for funds in a sound manner there will be no issues
- On staffing, a suggestion was made that it would be good to fill existing Cadre positions with the relevant agencies (Not project vacancies but actual departmental cadre positions), where there is a deficiency of people, from places like the University of Moratuwa. This new blood will be good for the relevant agencies as well as to driver the project.
  - It was recommended that as staff motivation is a key aspect in the success of a department, jobs and work within the relevant departments should be made appealing to people via educational opportunities, opportunities for growth and development and space to move up the ladder within the departments.

- It was agreed upon however that getting cadre positions filled through the Management Services department can be extremely burdensome and lead to delays and thus appropriate policy decisions to ensure a good process in place will help.
- The department should have a planned approach to hiring and retaining good staff with good capacity.
- The staff should be incentivized to work well.
- Leadership programs, team building programs, better HR management will also assist in ensuring staff are motivated and work well.
- It was mentioned that it is crucial for the two departments to collaborate on many aspects where there are areas of overlap, for example in buffer areas, and this will be pushed via the project. Links have to be established between the two departments for both to operate their mandates fully and efficiently.

### **Management Plans**

- Management plans prepared by the relevant departments should not be fancy documents but be practical ones that will capture what can actually be done in the ground
- It was inquired whether the existing management plans take into account the communities living in the buffer areas.
  - **Response:** The FD does but DWC doesn't, however this will be an area of focus to be included in the management plans to be developed.
- It was communicated that both departments have a wealth of data from research work done by independent researchers lying in a database that is not collated nor utilized in the planning process. It was recommended that this data be used as it has a lot of information that will be vital in assisting in planning.

### **Community Development Aspects**

- It was recommended that it is key to ensure that people living in buffer zones have a sense of belonging and pride towards the areas they live in and their relationship with the Pas.
  - **Response:** a number of models have been tested in other bank projects that will be piloted here as well
- The DWC has a history of poor outreach to buffer zones, it was noted as a crucial area where a planned and more proactive approach is necessary.
- Community outreach has been good during project periods but post projects there have been poor follow up and continuation, thus maintaining the relationship between departments and buffer zone communities is a key area that needs to be sustainable and needs to continue.
- The Forest Department was noted to have a better experience in maintaining their outreach initiatives with communities.

### **General Recommendations**

- The five year period of the project was agreed upon.
- It was inquired how buffer zones within the project be defined, either legally or biological?
  - **Response:** the project will firstly work only in buffer areas around identified project sites, not all island, these will be selected based on the legal demarcation of the buffer area.
- REDD++ outcomes will be taken into full consideration and included in the project by the relevant department.

- UNDP is working on a project that has a component engaging largely with policy aspects relevant to this project as well and would like to collaborate on this in the future across cross sectoral organizations.
- It was recommended that a matrix be prepared looking at all projects under the two departments to ensure we are aware of what is being done and where to ensure there are no overlaps and good synergy between all activities being done for the objective of the project as a whole.
- Government's Divisional secretariats in project areas need to be consulted and educated on the importance of PA conservation to get there by in in managing these sites.
- It was inquired project has the flexibility to move money from one component to another, in the event there are surplus and deficits in one.
  - **Response:** The banks Financing Agreement is broad based enough to allow this level of flexibility when needed. The allotment of funds will depend on performance and how well they will be managed by the implementation agency as an additional safeguards to ensure the funds flow in to where results are being shown.