

**Ministry of Higher Education and
Highways**

Road Development Authority



CENTRAL EXPRESSWAY

**Meerigama (37.1km) to Kurunegala (76.8km) section
and
Ambepussa link road (9.3km)**

Environmental Assessment and Review Framework (EARF)

Final Report

April 2016

**Prepared by
Road Development Authority
Ministry of Higher Education and Highways**

**Submitted to
Asian Development Bank**

CURRENCY EQUIVALENTS

(as of 1st April 2016)

| | | |
|---------------|---|------------------------|
| Currency unit | – | Sri Lanka rupee (SLRs) |
| SLRs 1.00 | = | \$ 0.006803 |
| \$1.00 | = | SLR 147.00 |

ABBREVIATIONS

| | |
|-------|---|
| ADB | Asian Development Bank |
| BIQ | Basic Information questionnaire |
| BOQ | Bill of Quantities |
| CEA | Central Environmental Authority |
| CEP | Central Expressway Project |
| CKE | Colombo - Katunayake Expressway |
| DBH | Diameter at Breast Height |
| DWLC | Department of Wildlife Conservation |
| EA | Executing Agency |
| EARF | Environmental Assessment Review Framework |
| EIA | Environmental Impact Assessment |
| EMP | Environment Management Plan |
| ESDD | Environmental and Social Development Division |
| GN | Grama Niladhari (Village Officer) |
| GND | Grama Niladhari Division |
| GoSL | Government of Sri Lanka |
| GPS | Geological Positioning System |
| GRC | Grievance Redress Committee |
| GRM | Grievance Redress Mechanism |
| IA | Implementing Agency |
| IEE | Initial Environmental Examination |
| MoHEH | Ministry of Higher Education and Highways |
| MoT | Ministry of Transport |
| NEA | National Environmental Act |
| OCH | Outer Circular Highway |
| PAA | Project Approving Agency |
| PIC | Project Implementing Agency |
| PIU | Project Implementation Unit |
| RDA | Road Development Authority |
| REA | Rapid Environmental Assessment |
| ROW | Right of Way |
| SE | Southern Expressway |
| SPS | Safeguard Policy Statement |

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I. INTRODUCTION

A. Background

1. The National Master Plan for 2007-2017 of Government of Sri Lanka (GOSL) has identified *inter alia*, the Central Expressway as one of the key expressways to be implemented in the near future. The need of an efficient transport infrastructure is mandatory for development. GoSL has identified the need of improving the existing land based transport systems, i.e. road and rail road transport systems. Under the improvement of the road network, the importance of developing an expressway network with inter connectivity is of paramount importance. Road Development Authority (RDA) under the guidance of Ministry of Higher Education and Highways (MoHEH) has designed a network of expressways to suit the country's emerging economic and transport needs. Few sections of this expressway network have already started their operations such as Southern Expressway (SE) from Kottawa to Matara, Colombo - Katunayake Expressway (CKE) and Kottawa to Kadawatha section of the Outer Circular Highway (OCH). The proposed expressway network for the country is presented in figure I.1.

2. Under the directives of MoHEH, RDA has initiated a study to find out a suitable road corridor to construct the expressway from Kadawatha to Dambulla via Kurunegala under Central Expressway Project (CEP) with a link to Kandy under the phase 1 of the project, considering present and future development scenarios of the country. Under the phase 2 of the project, it is expected to extend the expressway to Northern and Eastern areas of the country. Under the phase 1, it is expected to start the Central Expressway at Kadawatha from Kadawatha – Kerawalapitiya section of OCH which is currently under construction. Subsequently the expressway will cross Gampaha, Meerigama, Kurunegala while ending at Dambulla. The Kandy link will branch off at Pothuhera and terminate at Galagedara which is about 10km away from Kandy City.

3. Phase 1 of the CEP has been sub divided in to four stages as follows;

Stage 1 - Kadawatha (0.0km) to Meerigama (37.1km)

Stage 2 – Meerigama (37.1km) to Kurunegala (76.8km) and Ambepussa link road (9.3km)

Stage 3 – Pothuhera (0.0km) to Galagedara (Kandy) (32.5km)

Stage 4 – Kurunegala (76.8km) to Dambulla (137.1km)

4. Out of the four stages, Asian Development Bank (ADB) will finance the stage 2 which consists of the expressway from Meerigama to Kurunegala of 39.7km long and Ambepussa link road having length of 9.3km. The location map of the particular section is presented in Appendix I.1.

B. Need of Environmental Assessment Review Framework (EARF)

5. As mentioned, the Meerigama to Kurunegala section and Ambepussa link road of Central Expressway Project (CEP) will be financed by ADB under Multi tranche Financing

Facility (MFF) therefore Environmental Assessment and Review Framework (EARF) is a requirement under ADB Safeguards Policy Statement (SPS), 2009 for the stage II of CEP following the MFF modality. Accordingly, this EARF is prepared to guide project screening, categorization, impact assessments, and compliance to fulfil the requirements of the ADB SPS as well as the environmental policies of the GOSL. All environmental assessments prepared for the stage 2 need to follow the procedures outlined in this EARF and particular environmental documents will be endorsed and approved by MoHEH and will be implemented by RDA and monitored by ADB and Central Environmental Authority (CEA).

6. The EARF also serves as a tool to assess the adequacy of the Executing Agency (EA) and Implementing Agency's (IA) capacity to implement National laws and ADB's environmental requirements. Therefore this document also specifies implementation procedures, institutional arrangements, and need for capacity development.

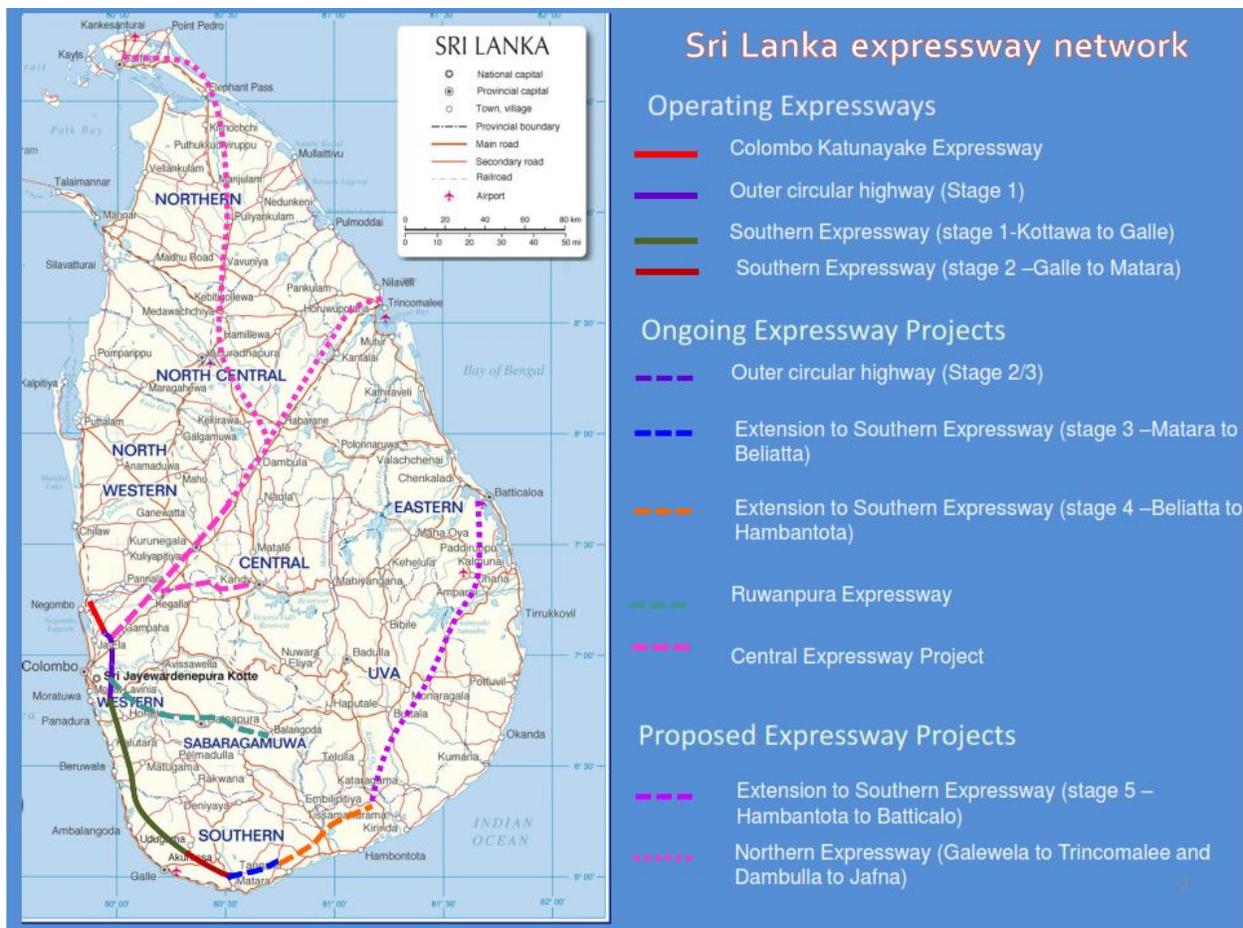


Figure I.1: Proposed expressway network of the country

II. LEGAL FRAMEWORK AND INSTITUTIONAL CAPACITY

A. National Policy Framework

7. The National Environment Act (NEA) No. 47 is the key environmental policy framework which is administered through the Central Environment Authority (CEA) of the Ministry of Mahaweli Development and Environment (MoMDE). NEA No. 47 was enacted in 1980 and NEA amendment Act No. 56 of 1988 stipulated the regulations for assessing and managing environmental impacts and obtaining the environmental clearance in a timely and systematic manner. The environmental clearance process is implemented through the designated Project Approving Agency (PAA) as prescribed by the Minister under section 23 Y of the NEA. The procedure that should be followed for obtaining environmental clearance is described under section 23CC and 32 of the NEA.

8. The environmental clearance process should be initiated by submitting the completed Basic Information Questionnaire (BIQ) to CEA with preliminary information about the project including exact locations of the project components, extent and environmental sensitivity related to project activities. Based on this CEA decides whether the project is a "Prescribed Project"¹ or not and who the PAA will be for administering the Initial Environmental Examination (IEE) or Environmental Impact Assessment (EIA) process to obtain environmental clearance if the proposed project is a prescribed project.

9. RDA submitted the BIQ for CEP to CEA who is the PAA for the project and the project has been categorized as a prescribed project based on Gazette Extra-ordinary No. 772/22 of 24th June 1993 and subsequent amendments and subsequently CEA has issued Terms of Reference (TOR) for two separate EIAs for Kadawatha – Dambulla and Pothuhera – Galagedara sections of the CEP.

10. In addition to the NEA, if the project road falls adjacent to the boundary or inside a conservation area, necessary clearance will need to be sought from the Department of Wildlife Conservation (DWLC) in case of protected areas and the Forest Department with respect to forest reserves. No works are allowed within Strict Nature Reserves.

11. While the NEA is the key environmental legislation under GoSL there are a number of other environmental laws and regulations that are applicable to the project as given in Table II.1.

¹ Under the NEA, a prescribed project means that the project requires a full Initial Environmental Examination or Environmental Impact Assessment (EIA) study depending on the TOR issued by CEA for securing the environmental clearance

Table II.1: Applicable National Laws and Regulations for the Investment Program

| | Legislation | Relevance and main content | Authorizing Institution |
|----|---|--|--|
| 1. | National environmental protection and quality regulations under Extraordinary gazette notification No. 1534/18 and No. 1533/16 of 2008 under NEA section 32 & 23A, 23B | This regulates the discharge and deposit of any kind of waste or emission into the environment and stipulates requirements for an Environmental Protection License (EPL) depending on the project activity. Examples of activities requiring and EPL are: asphalt processing plant, concrete batching plants, treatment plants, sewerage networks, mechanized mining activities etc. | CEA |
| 2. | National Environmental (Protection and Quality) Regulation No. 1 of 1990 published in Gazette Extraordinary No. 595/16 of February, 1990 | Provides standards for discharging effluents into inland surface water during proposed project activities. | CEA |
| 3. | National Environmental (Ambient Air Quality) Regulations, 1994, published in Gazette Extraordinary, No. 850/4 of December, 1994 and amendment gazette No. 1562/22 of 2008 | Provides standards for emissions to the air during proposed project activities. | CEA |
| 4. | National Environmental (Noise Control) Regulations No.1 of 1996 and its amendments | Regulates maximum allowable noise levels for construction activities during proposed project activities | CEA |
| 5. | National Environmental (Vehicle Horns) Regulations, No. 1 of 2011 | Regulates maximum allowable noise emanating from vehicular horns on a highway or road any motor vehicle use during project construction activities | CEA |
| 6. | National Environmental (Municipal Solid Waste) Regulations, No. 1 of 2009 | Regulates dumping municipal solid waste along sides of any national highway or at any place other than places designated for such purpose by the relevant local authority during proposed project activities | CEA |
| 7. | North Western Province Environmental Statute No. 12 of 1990 | Includes provisions for the establishment of the North Western Province Environmental Authority and its powers, function and duties for the protection, management and enhancement of the environment. Environmental clearance maybe required from the Environmental Authority as per requirements of the statute | North Western Province Environmental Authority |
| 8. | Fauna and Flora Protection Act (FFPO) No.2 of 1937 amended in 1993 and 2009 | The act specifies that any development activity taking place within one mile from the boundary of a National Reserve declared under the Ordinance | Department of Wildlife Conservation |

| | Legislation | Relevance and main content | Authorizing Institution |
|-----|---|---|---|
| | | requires an EIA/IEE which provide for the protection and conservation of fauna and flora of Sri Lanka and their habitats; for the prevention of commercial and other misuse of such fauna and flora and their habitats for conservation of biodiversity of Sri Lanka; and to provide for matters connected there with. | |
| 9. | Forest Act No. 34 of 1951 | This act is to consolidate and amend the law relating to the conservation, protection and management of forest and forest resources for the control of felling and transport of timber and Forest and for matters connected therewith or incidental thereto. | Forest Department |
| 10. | Felling of Trees Control Act No. 9 of 1951 as amended through Act No. 30 of 1953 | This Act sought to prohibit and control felling of specified trees (mainly intended to stop indiscriminate felling of specified trees) in the country. | Forest Department |
| 11. | Water Resources Board Act, No. 29 of 1964 and (Amendment) Act, No. 42 of 1999 | The act controls and regulates developments (including conservation and utilization) of water resources; prevention of pollution of rivers, streams and other water resources; formulation of national policies relating to control and use of water resources. | Ministry of Irrigation and Water Resources Management |
| 12. | Soil Conservation Act, No. 25 of 1951 and Amended No. 24 of 1996 | This Act makes provisions for the enhancement of productive capacity of soil; to restore degraded land for the prevention and mitigation of soil erosion; for the conservation of soil resources and protection of land against damage by floods, salinity, alkalinity, water logging; and to provide for matters connected therewith or incidental thereto | Department of Agriculture |
| 13. | Explosives Act No. 36 of 1976 | To provide control of explosions and regulations of matters connected with explosive activities related with the project. | Ministry Of Defense |
| 14. | Municipal Councils Ordinance No. 29 of 1947, the Urban Councils Ordinance No. 61 of 1939 and the Pradeshiya Sabha Act No. 15 of 1987 as amended in 2010 | Regulates and control actions pertaining to socioeconomic development such as roads, culverts, bridges, ferries, waterways and other means of local transport and related site clearance for constructing worker camps, site offices etc. and methods taking place within the command area relevant to government laws and regulations | Ministry Of Local Government And Provincial Council |
| 15. | Flood Protection Ordinance | An ordinance for protection of areas | Irrigation Department |

| | Legislation | Relevance and main content | Authorizing Institution |
|-----|---|---|--|
| | No. 04 of 1924, No 22 of 1955 | subjected to damage from floods. This includes declaration of flood areas, preparation of schemes for flood protection and other rules and regulations regarding flood in the country | |
| 16. | Land Acquisition Act No. 09 in 1950 and amendment acts | An Act to make provision and sets out the procedures for acquiring land and for payment of compensation at market rates for acquired land. The Chapter 460 of the Act describes the land acquisition process related to the project activities | Ministry of Land and Land development |
| 17. | Crown Land Ordinance | An ordinance to make provision for the grant and disposition of crown lands in Sri Lanka; for the management and control of such lands and the foreshore; for the regulation of the use of the water of lakes and public streams; and for other matters incidental to or connected with the matters related to proposed project | Land Commissioners Department |
| 18. | Agrarian Development Act No. 46 of 2000 (Section 32) | This act regulates using paddy land for a purpose other than agricultural cultivation without the written permission of the Commissioner General. | Agrarian Services Department |
| 19. | Land development statuette No. 7 of 2002 the western province provincial council, amendment No. 1287/26 of 2003 | A statute for regularizing utilization of state lands situated within the western province either by state or the provincial council, for regulating the distributing of the aforesaid lands and lands in possession of the provincial council, for augmenting productivity of lands and for matters connected with or incidental to them this statute is in compliance with the crown lands ordinance no. 08 of 1947 (chapter 454) and the land development ordinance no.19 of 1935 chapter 464 as amended by land development (amendment) acts, no. 16of 1969 no.27 of 1981,no 22 of1998,no, 22 of 1995 1996. Of divesting of state lands, no. 07 of 1979 | Governor – Western Province – Provincial Council And Land Commissioners Department |
| 20. | Sri Lanka Land Reclamation and Development Corporation Act 15 of 1968 as amended by Act No 52 of 1982 | This act established Sri Lanka Land Reclamation and Development Corporation which grants permission for the public to fill marshy land subject to provision of storm water drainage. | Sri Lanka Land Reclamation and Development Corporation |
| 21. | National Thoroughfares Act, No. 40 of 2008 | This act is known as RDA act which provide for planning, design construction, development, maintenance and administration an | Road Development Authority |

| | Legislation | Relevance and main content | Authorizing Institution |
|-----|--|---|--|
| | | integrated public road network in Sri Lanka. | |
| 22. | Urban Development Authority (UDA) Law No 41 of 1978 and Urban Development Projects (Special Provisions) Act No 2 of 1980 | This law provides for the establishment of an UDA to promote integrated planning and implementation of economic, social and physical development of certain areas as may be declared by the minister to be urban development areas and for matters connected with the relevant project activities. Urban Development Projects (Special Provisions) Act No 2 of 1980 is an act to provide for the declaration of lands urgently required for carrying out urban development projects and to provide for matters connected there with relevant project activities. | Urban Development Authority (UDA) under the ministry of Urban Development and Defence |
| 23. | Town and country planning ordinance No. 13 of 1946 and The Town & Country Planning (Amendment) Act, No. 49 of 2000 | This regulates the National Physical Plan with transport as the main component | National Physical Planning Department (NPPD) under the Ministry of Urban Development and Defense |
| 24. | Buddhist Temporalities Ordinance No. 19 of 1931 | This act provides necessary assistance to administer and protect the property of Viharas (Buddhist temples), interventions to settle disputes regarding property of Viharas and makes recommendations to release money to be paid as compensation in respect of property of Viharas acquired by government for any development project | Department of Buddhist Affairs |
| 25. | Cemeteries and burial grounds ordinance No. 9 of 1899 and amendments | The act regulates any disturbance, removal of burial, monuments and use of such areas for development project | Local Government Authority |
| 26. | Antiquities Ordinance No. 9 of 1940 and amendments | The act regulate activities of projects located in close proximity of any archeological reserves | Department of Archaeology |
| 27. | Town and country planning ordinance No. 13 of 1946 and The Town & Country Planning (Amendment) Act, No. 49 of 2000 | This regulate the National Physical Plan which includes transport as main aspect and the proposed project related activities should be included for the purposes of this Ordinance | National Physical Planning Department (NPPD) under the Ministry of Urban Development and defence |

12. Under the NEA No 47 and some of the laws and regulations listed in table II.1, there are specific requirements for clearances, permits and licenses required for road projects as listed in Table II.2.

Table II.2: Applicable Approvals required for the Investment Program

| Project stage | Approvals | Project related activity | Relevant agency |
|---|---|--|---|
| <p>Pre-Construction Stage</p> <p>Note: Although clearances and approval should be obtained during preconstruction stage it is valid throughout the project cycle. However this should be renewed before expiry date</p> | Environment clearance | Implementation of the project | Central Environment Authority |
| | Consent from North Central Province Environmental Authority | Implementation of the project | North Western Province Environmental Authority |
| | Clearance for the land ownership | Implementation of the project | If it is a state land from land commissioners department after obtaining consent from the relevant authority (i.e. Wild life, Forest, local government, Sri Lanka Railway, Irrigation etc...) If it is a private land from the ministry of land and land development after concurrence received from relevant parties If it paddy lands approval from commissioner general, Agrarian department |
| | Approval from UDA | Finalizing the road design according to National physical plan | UDA |
| | Clearance from Department of Forest | Implementation of the project within or adjacent to forest areas | Department of Forest |
| | Approval from Department of Irrigation and Provincial Irrigation Department | Implementation of the project within or adjacent to irrigation schemes, structures, tanks etc... | Department of Irrigation and Provincial Irrigation Departments of Western, North Western and Sabaragamuwa Provincial Councils |
| | Approval for Paddy Lands to be filled | Ground preparation for road trace and interchange locations | Commissioner of Agrarian Services |
| | Archaeological Approval | Implementation of the project | Department of Archeology |
| | Industrial Mining License (IML) | Operation of quarries, borrow areas and other material extraction sites | Geological Survey and Mines Bureau (GSMB) |
| | Environmental Protection License (EPL) | Operation of material extraction sites and operation of asphalt plants, | CEA |

| Project stage | Approvals | Project related activity | Relevant agency |
|--------------------|---|---|--|
| | | crusher plants, batching plants, treatment plants etc. | |
| | Local Government Authority Trade license and machinery permits | Material storage and sites for worker camps and other project stations Trade license should be obtained for asphalt plants, batching plants, quarries etc... | Respective local authorities including Provincial Councils and Pradeshiya Sabhas |
| | Approval for waste disposal sites | Approval for disposal sites for unsuitable material, debries and other wastes | CEA |
| | Explosive Permits | Blasting activities | Ministry of Defence |
| | Approval for removal of trees | Road clearance for construction | Forest department, CEA and local authorities |
| Construction stage | Consent from relevant government agencies | Construction of bridges, culverts and other drainage systems, land filling, dredging activities | Department of Irrigation, Department of Agrarian services, Local government authority, Sri Lanka Land Reclamation and Development Cooperation |
| | Approval from relevant state /local agencies for the removal/ temporary disturbances for existing utilities | Surfacing, construction of bridges and side drains, embankment filling works | NWSDB for water lines, Ceylon Electricity Board for Electric cable/poles, Sri Lanka Telecom for land line telephone cables, poles, Pradeshiya sabha, other local authorities for drainage, sewer systems etc |

13. Sri Lanka is also a signatory to a number international agreements and conventions related to environmental conservation. Out of them, relevant agreements for this project are provided below:

- Conventions on Wetlands of International Importance Especially as Water Fowl habitats (Ramsar)
- Convention concerning the protection of the World Cultural and Natural Heritage
- Convention on International Trade in Endangered Species of Wild Fauna & Flora (CITES)
- Convention on the conservation of Migratory Species of Wild Animals (CMS 1979)
- United Nations Framework Convention on Climate Change

- Convention on Biological Diversity
- Plant Protection Agreement for Asia and the Pacific region

14. As can be seen from the above sections, the GoSL has a comprehensive coverage of policies and regulations to safeguard environmental impacts under the investment program.

B. ADB Safeguard Policy Statement

15. ADB's safeguard policy framework consists of three operational policies on the Environment, Indigenous People and Involuntary Resettlement. All three safeguard policies involve a structured process of impact assessment, planning, and mitigation to address the adverse effects of projects throughout the project cycle. The safeguard policies require that (i) impacts are identified and assessed early in the project cycle; (ii) plans to avoid, minimize, mitigate, or compensate for the potential adverse impacts are developed and implemented; and (iii) affected people are informed and consulted during project preparation and implementation. The policies apply to all ADB-financed projects, including private sector operations, and to all project components.

16. Proposed projects are screened according to type, location, scale, and sensitivity and the magnitude of their potential environmental impacts, including direct, indirect, induced, and cumulative impacts. Projects are classified into the following four categories:

17. Category A: A proposed project is likely to have significant adverse environmental impacts that are irreversible, diverse, or unprecedented. These impacts may affect an area larger than the sites or facilities subject to physical works. An EIA, including an Environmental Management Plan (EMP), is required. The draft EIA is required to be disclosed 120 days before consideration for approval by the ADB board.

18. Category B: The proposed project's potential adverse environmental impacts are site-specific, few if any of them are irreversible, and in most cases mitigation measures can be designed more readily than for category A projects. An Initial Environmental Examination (IEE), including an EMP, is required.

19. Category C: A proposed project is likely to have minimal or no adverse environmental impacts. An EIA or IEE is not required, although environmental implications need to be reviewed.

20. Category FI: A proposed project involves the investment of ADB funds to or through a financial intermediary. The financial intermediary must apply and maintain an environmental and social management system, unless all of the financial intermediary's business activities have minimal or no environmental impacts or risks.

C. Institutional Capacity

21. The Project Implementation Unit (PIU) under RDA, MoHEH is responsible for overall conduction of environmental assessments, implementation and monitoring of environment safeguards for the project. Within RDA there is a separate unit, the Environment and Social Development Division (ESDD) to cover social and environment safeguards. ESDD was established in response to capacity building needs identified in earlier ADB projects such as the Southern Transport Development Project. This division comprises of approximately 8 environment safeguard officers and 9 social safeguard officers who are well experienced in implementing ADB projects². The division is responsible for developing manuals and guidelines, providing assistance in conduction of proper safeguard assessments, and implementation and monitoring of environment and social safeguards in accordance with environmental policies of GoSL and donor agencies. However since ESDD is responsible for all projects under RDA and given the large scale of the investment program this division will not have adequate time and resources to involve in fulltime monitoring of the project. Therefore, a separate safeguards team dedicated to the project will be created within the PIU for managing safeguards. ESDD will provide technical support and monitor the implementation of safeguards for the project on a monthly basis and as necessary.

22. The safeguards team will comprise of sufficient social and environment safeguards officers as necessary to cover the quantum and geographic distribution of works throughout the trace of the stage II of CEP. The safeguards team will be supported by a team of environmental consultants under the Project Implementation Consultants (PIC) for daily monitoring of EMP implementation and compilation of monitoring checklists and reports. A detailed safeguards training workshop will be conducted for the PIU, safeguards team and PIC to clarify the roles and responsibilities of each party, method of consultation and record keeping and reporting requirements before the implementation of the project. After the award of civil works contract and before the start of physical works another training workshop will be conducted for the PIU, safeguards team, PIC and contractor on roles and responsibilities of each party for EMP implementation and monitoring methods, record keeping and reporting requirements. Thereafter other subject specific or on the job training may be organized by the PIU on a need basis.

² ESDD is currently involved in implementation and monitoring of environment and social safeguards for: the Northern Road Connectivity Project (L2639/2640) and its Additional Financing (L2890/2891), Southern Road Connectivity Project (L3027/3028) as well as Tranche 1 of i Road program (L3171).

III. ANTICIPATED ENVIRONMENTAL IMPACTS

23. The project is currently in the preliminary design phase. Land acquisition (preliminary works) is carried out along a corridor wide enough to construct six (6) traffic lanes on Meerigama to Kurunegala section of the expressway; however the initial construction will be only four (4) lanes. Land acquisition on the Ambepussa link will be undertaken to allow construction of only two (2) traffic lanes. The expressway will be constructed as an elevated structure mostly running on embankments, viaducts and bridges. All roads that will be connected to the expressway through interchanges will be developed into proper two lane configuration up to the nearest town centre.

24. A summary of key impacts to the physical, biological and social environments of the project area is provided in table III.1 below.

Table III.1: Anticipated project induced environmental and social impacts

| Stage | Component | Field of impact | Nature of impact |
|------------------|----------------------|--|--|
| Pre-construction | Social environment | Land acquisition and resettlement impacts | A considerable proportion of the road trace runs through private lands which are predominantly used for residential and agricultural purposes. Acquisition of such lands will result loss of houses, commercial buildings and agricultural lands. Most of the lands to be acquired are ancestral in nature therefore they have cultural values attached to. Therefore land acquisition for the project will result involuntary resettlement, loss of livelihood activities, cultural shocks etc... |
| Construction | Physical environment | Hydrological impacts | The expressway will cross streams which have perennial flow as well as flood plains. Therefore it is expected that the natural hydrological pattern and flow will be disturbed if adequate cross and side drainage facilities are introduced to the expressway and flood conditions may get aggravated in flood plains such as Maha Oya and Kuda Oya (streams). Further hydrological impacts will be possible if construction wastes, temporary dumps are stored in flood plains. |
| | | Impacts on irrigation structures and drainage canals | As proposed trace will traverse along paddy lands, irrigation systems which feed such lands will be adversely impacted. Further, construction activities may disturb the smooth functioning of the irrigation systems with temporary and/ or permanent blockage or closure of canals. Paddy owners and other cultivators are likely to need to wait for a considerable period of time until alternative canals are constructed or the removal of temporary blockage of irrigation systems. |
| | | Air quality | Construction activities such as operation of plants, machineries, material extraction and transportation, excavations and disturbing of earth etc... will emit dust and fumes which will deteriorate air quality of the surrounding. The impact will be severe at sensitive receptors such as residential areas, hospitals, schools, religious places. |
| | | Surface water quality | Mobilization of settled silt materials, run-off from stockpiled materials, and chemical contamination from fuels and lubricants during construction works, wastewater and solid wastes from camps can contaminate downstream surface |

| Stage | Component | Field of impact | Nature of impact |
|-------|----------------------------|--|--|
| | | | water quality. |
| | | Ground water level and quality | Localized decrease in groundwater levels and changes in groundwater flow patterns from dewatering due to excavation, cuts and possible contamination during drilling activities |
| | | Noise and vibration | Construction activities such as operation of machineries, plants, compaction and material extraction and transportation will create noise and vibration which will be a nuisance to the residents of the project area. The impact will be more sensitive at sensitive receptors (hospitals, schools, religious places). |
| | | Construction waste | Excavations will produce additional amounts of waste soil. Accumulation of debris waste materials and stockpiling can cause environmental visual pollution. Improper dumping of these waste material will be washed away with runoff and will be deposited in agricultural lands, streams beds etc... reducing water quality, land productivity. |
| | Biological | Ecological resources | Most sections of the stage 2 of CE traverses along a rural setup which are rich in faunal and floral habitats and touches two forest areas by the main trace and Ambepussa link road. Therefore construction of the expressway will result felling of trees, destruct natural habitats and disturb movements of animals. |
| | Socio-economic Environment | Loss of income | Affected Persons (AP) who loose agricultural lands, commercial buildings and other income generation activities will be affected due to reduction of their income and this will be an irreversible impact. |
| | | Loss of access | As most of the sections of the expressway are built on embankments, access to the other side of the expressway is limited. Therefore this will restrict easy access to relatives, schools, temples, markets etc... |
| | | Social and cultural resources | Expressway trace does not intercept temples, churches and other cultural important sites. However, these sites may get impacted due to vibrations if they are located closed to the trace. |
| | | Land uses | The expressway trace and the interchanges are located mainly over paddy lands. Therefore construction of such interchanges will also have a permanent effect on existing land use resulting a reduction of cultivation land with a rapid access being created with the commercial capital of the country, it is expected that most land use patterns in the project affected GN divisions will also gradually change over time to more developed land uses. This will provide a beneficial impact from the economic point of view, while being an adverse impact especially to the ecological environment. |
| | | Existing infrastructure and facilities | Disruption of service and damage to existing infrastructure located alongside and across the proposed trace, in particular electric lines and poles, telecommunication lines, water supply lines including community water supply schemes. Disruption to these facilities will interrupt relevant users during the construction phase. |

| Stage | Component | Field of impact | Nature of impact |
|-----------------------------|--|---------------------------|--|
| | | Health and safety | <p>Danger of construction-related injuries, open fires in construction camp can result in accidents.</p> <p>Poor waste management practices and unhygienic conditions at temporary ablution facilities can breed diseases.</p> <p>Standing water due to inadequate storm water drainage systems and inadequate waste management practices poses health hazard by providing breeding grounds for disease vectors such as mosquitoes, flies, and snails.</p> <p>The use of hazardous chemicals in the construction of a road can pose potential environmental, health, and safety risks.</p> <p>Road safety may be affected during construction, especially when traffic is detoured</p> |
| | | Employment generation | <p>The subproject will provide employment opportunities for local people during construction.</p> <p>Expectations regarding new employment will be high, especially among the unemployed individuals in the area.</p> <p>The training of unskilled or previously unemployed persons will add to the skills base of the area.</p> |
| Operational and maintenance | Physical Environment Social environment | Air quality | <p>With an increase of vehicle numbers it is apparent that more quantities of vehicular emissions will be released to the atmosphere. This will be a long term impact requiring long term effective mitigation measures.</p> |
| | | Noise and vibration | <p>Noise levels generated by moving vehicles (at speeds above 80 km/h) along the expressway will be at a higher level compared to the baseline condition. As per information available in literature, the vehicle noise levels may be in the magnitude of 70 to 80 dB (A). Prolonged exposure to such noise levels will be a nuisance to public in the settlement areas as well as fauna in the habitats close to the ROW. Therefore this impact could be considered as a long term permanent impact which needs to consider as significant.</p> |
| | | Biological impacts | <p>During the operational period, mortality of animals due to collision and run over by vehicles moving along the expressway will be an adverse impact to domestic and wild animals. Already animals' deaths (especially dogs, lizards, land monitors and birds) due to hitting of the fast moving vehicles have become an issue in currently operating expressways in Sri Lanka. Most of the areas of the stage 2 are paddy lands and more low flying birds could be found. These birds could easily be hit by fast moving vehicles and killed them and also damage vehicles.</p> |
| | | Transportation efficiency | <p>With operation of the project it is anticipated that the traffic loads on A001, A006 roads will be reduced, which is a major beneficial impact of the project. There will be a saving in travel time and improved road passenger safety compared to vehicle movement along A001 and A006 roads. As all feeder roads to the expressway will also be developed to at least two lane condition (and at least up to immediate town centre) there will be no traffic congestions along these roads.</p> |

IV. ENVIRONMENTAL ASSESSMENT PROCEDURES

25. All construction activities related to stage 2 and Ambepussa link road CEP will follow environmental assessment procedures to meet the requirements of GoSL and the ADB SPS as described in this section.

A. Screening and Classification

26. The project is initially screened to understand the nature and significance of anticipated environmental impacts by completing the Rapid Environmental Assessment (REA) checklist as required by the ADB SPS. REA checklist includes location of the project with respect to environmentally sensitive entities and possible project induced environmental and social impacts. Based on the REA checklist the project will be put in to the environmental category. RDA has already prepared the final REA checklist and submitted to ADB and it is likely that stage 2 and Ambepussa link road of the CEP will be put in to category A as per the ADB SPS.

27. To fulfil requirements of the CEA a Basic Information Questionnaire (BIQ) was completed and submitted by RDA and the project has been categorized as a “prescribed project” based on extra ordinary Gazette No. 772/22 of June 1993 under the NEA of Sri Lanka which needs an EIA and the TOR has been issued accordingly.

B. Preparation of Environmental Assessment Report

28. Environmental assessment documents under the project shall be prepared in such a manner that it will meet the requirements of both ADB and GoSL in order to have a streamlined approach to address requirements of both agencies. For preparing EIA relevant primary data will be generated and secondary data will be collected for project-influenced sites. An assessment of project impacts and risks on biodiversity and natural resources will also be undertaken. As mentioned above two ToRs have been issued by the CEA for two separated EIAs with respect to Kadawatha – Dambulla and Pothuhera – Galagedara sections of the CEP. The EIA prepared for Kadawatha – Dambulla section will be modified to be specific to the stage 2 of the CEP and will be submitted to ADB for review and clearance. The EIA report will be disclosed on the ADB website for 120 days before approval of the project by the ADB Board.

C. Environmental Management and Monitoring

29. The Environmental Assessment report shall include an Environment Management Plan (EMP) detailing the following: (i) mitigation measures for all identified adverse impacts during pre-construction, construction stages of the subproject roads; (ii) monitoring requirements to assess environmental performance and impacts to ambient environment; (iii) implementation arrangements including responsibilities and schedule. The monitoring will be conducted during project preparation and construction phases and also at the project completion and operation stages.

30. Under the EIAs, Environmental Management Plans (EMP) will be prepared for the entire Kadawatha – Dambulla and Pothuhera – Kandy section sections of the CEP however specific EMP prepared for the stage 2 and Ambepussa link road will be annexed to the EIA which will be submitted for ADB clearance. This EMP will have location specific mitigation measures

restricted to the stage 2 and Ambepussa link road. Further an Environmental Monitoring Plan (EMOP) will also be prepared specifically for stage 2 and Ambepussa link road and will be annexed to the EIA which will be submitted to ADB.

31. Once the contract will be awarded to a suitable contractor, he will be asked to prepare Site Specific Environmental Management Action Plans (SEMAP) based on the EMP prepared for the stage 2 and Ambepussa link road. Here, contractor may prepare several SEMAPs based on the diversity of the project sites in order to increase the specificity. These SEMAPs will be supported by site plans in which location specific mitigation measures relevant to each sites are marked.

32. Safeguards team appointed for the PIU is primarily responsible for monitoring of the implementation of EMP. In addition ESDD of RDA will act as internal independent monitor of environmental safeguards compliance of the project and any other contract requirements including registration of grievances and how they have been resolved. This will include review of monthly monitoring reports prepared on environmental and social safeguards submitted by the contractor through the Project Implementation Consultant (PIC). Consolidated monitoring reports, along with other reports such as Quarterly Progress reports which will also cover safeguard activities, will be submitted to ADB and responsible PAA.

33. During the construction work and commissioning of work on the project, if unexpected impacts arise, the Environmental Assessments will be reviewed and the EMP will be updated in response to new circumstances or assumptions on construction and operational issues or any unpredicted impacts.

34. All monitoring reports, in addition to assessments produced, will be disclosed (as described in the next section).

V. CONSULTATION, INFORMATION DISCLOSURE AND GRIEVANCE REDRESS MECHANISM

A. Public consultation

35. The public consultation and information disclosure is an important part of the environmental safeguard requirements under ADB SPS (2009). In addition the NEA of GoSL also considers stakeholder engagement as a key element for successful management of environmental impacts.

36. Meaningful public consultations will be held early on and continuously throughout the project development stage to allow the incorporation of relevant views of the stakeholders in the final project road design, mitigation measures, implementation issues, and enhance the distribution of benefits. Stakeholders will include project beneficiaries, local affected people, government bodies, and non-governmental organizations. The consultations must encourage participation of women and vulnerable groups (handicapped people, senior citizens, school children) and engage as many stakeholders as possible.

37. Consultations will be carried out in an environment free of influences and will be done during conduction of environment assessments and/or through focus group discussions and/or household level or key person interviews which will start with the description of the project road design and initial identification of potential impacts. Feedback and recommendations received during the consultations will be addressed and where relevant incorporated in the environmental assessment and EMP.

B. Information disclosure

38. According to the National Environment Act no. 47 and its amendment no. 56, for Prescribed Projects requiring an EIA, the final report will be kept for public comments for 30 working days. Here the EIA will be made available to the public through Divisional Secretary of the Divisional Secretariat (DS) Division of the area, Local Authorities, Secretary Office at MoHEH, Chairmen's office of RDA, Office of the Director at ESDD of RDA. CEA or the respective PAA will forward all comments received to the PIU for review and incorporation in the project design. CEA or the respective PAA will evaluate the responses and revisions of the PIU before making a decision to issue the environmental clearance. For category A projects according to the ADB SPS, the draft EIA will be disclosed on the ADB website for at least 120 days before approval of the project.

C. Grievance redress mechanism

39. Preventative measures need to be taken to minimize grievances rather than going through a redress system. Grievances can be minimised through careful project design and implementation by ensuring full and honest participation and consultation with DPs, supported by a constructive dialogue between the community and project staff through frequent interactions, transparency and monitoring.

40. A Grievance Redress Mechanism (GRM) was introduced to this project at the inception to address the issues raised by the public with regard to the project implementation since a

GRM provides a predictable, transparent and credible process to all parties, resulting in outcomes that are seen as fair, effective and lasting. Accordingly, Grievance Redress Committees (GRC) have been appointed to take necessary steps in order to harmonize project activities as well as the wellbeing of the General Public.

i. Objectives of GRM

41. The main objective of establishing GRM is to resolve problems in an efficient, timely and cost effective manner in a cordial environment with the participation of all stakeholders including affected parties. Under the GRM, it shall describe the options available to the project for grievance redress. Any environmental or social impacts (other than issues of valuation and compensation) that would be adversely affecting the general public in the project area should be resolved at the GRC.

ii. Implementation of GRM

42. The GRM designed for CEP is two staged. Accordingly two (2) GRCs will be appointed for these two stages. The higher level GRC will be formulated at Divisional Secretariat level, while the lower level (ground level) GRC will be formulated at Grama Niladari (GN) Level.

• Step 1 - Grievance Redress Committee

43. Step 1 GRC is comprised by following members.

- | | |
|--|-------------|
| I. Social Safeguards Officer/Resettlement Officer | - Chairman |
| II. Grama Niladari | - Secretary |
| III. Project Engineer/PIU | - Member |
| IV. Representative of Contractor | - Member |
| V. Representatives from a Social Organization (if necessary) | - Member |
| VI. Community member (if necessary) | - Member |

44. Committee meetings will be conveyed by the GN (Secretary of Step 1 GRC). The chairman of Step 1 GRC is expected to take appropriate action with the consultation of other committee members within given three week time and to be informed immediately to DPs.

• Step 2 - Grievance Redress Committee

45. The issues that could not be resolved by Step 1 GRC, will be forwarded to Step 2 GRC within seven days (working days) of the final decision of Step 1 GRC. Step 2 GRC is comprised by following members.

- | | |
|--|-------------|
| I. Divisional Secretary / Asst. Divisional Secretary | - Chairman |
| II. Social Safeguards Officer of PIU | - Secretary |
| III. Chief Engineer RDA | - Member |
| IV. Chairmain, Samatha Mandalaya | - Member |
| V. A respective clergy from the area | - Member |
| VI. Community Leader | -Member |

46. The main objective of Step 2 GRC is to review the issues in a policy point of view and to take appropriate policy measures to overcome such issues. Accordingly Step 2 GRC is requested to convey its decisions to Step 1 GRC and other relevant parties within four (4) week time (from the date of receiving issues from Step 1 GRC) without further delay to take immediate actions.

47. The Chairman of Step 2 GRC has no casting vote since the Chairman of this GRC should be an independent person and he/she is expected to consult relevant parties to take policy decisions for the issues in a broad point of view. Recommended steps with timeline on the operation of the GRM is provided in Figure 1.

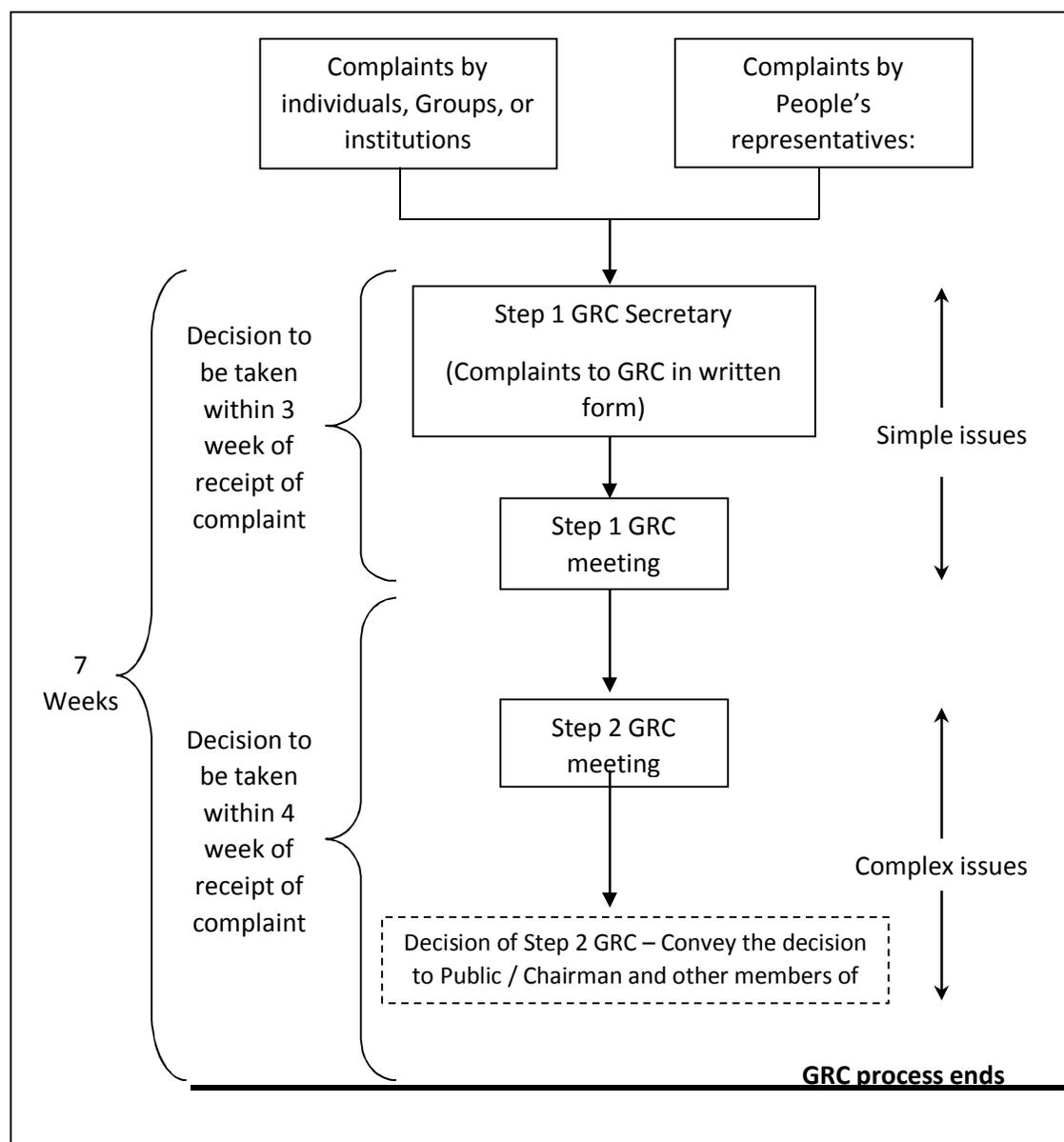


Figure 1: Summary of GRM procedures

VI. INSTITUTIONAL ARRANGEMENT

A. Institutional arrangement

48. The MoHEH is the Executing Agency (EA) and the secretary to the ministry will be responsible for decisions on overall approvals and operational policies of the project.

49. Project Implementation Unit - The PIU already established in RDA will be augmented sufficiently to implement the project and manage detailed design and supervision of construction. The PIU is headed by a full-time Project Director (PD) and supported by a team consisting of staff and consultants engaged under different project arrangements.

50. Project Implementation Consultant (PIC) will keep close coordination and communication with the contractor through an Environmental Engineer.

51. ESDD of RDA directly under the Director General of RDA will ensure the environmental and social safeguard compliances within the project and will be responsible of implementing EARF during the project cycle.

52. PIU needs to recruit environmental safeguards staff who can receive training and capacity building under different stages of this project such as design and feasibility stage, detailed design stage, bidding stage and construction supervision stage.

B. Responsibilities

53. MoHEH being the EA of the proposed project will be the main authorised and responsible body to decide on ensuring that all the project interventions will comply with ADB and GoSL environmental safeguard policies and regulations and the RDA will be the Implementing Agency (IA) by recruiting required Environmental, Social and Resettlement Experts to the Project Team under PIU to prepare relevant safeguard frameworks, conduct required surveys and complete Environmental and Social Assessment Reports including Environmental Management and Monitoring Plan. The responsibilities for the implementation of environmental safeguard matters are presented in Table VI.1.

Table VI.1: Responsibilities for Environmental Safeguards Implementation

| | Agency | Responsibility |
|----|--|--|
| 1. | Ministry of Higher Education and Highways (EA) | <ul style="list-style-type: none">- Overall responsibility for project design, feasibility, construction and operation and guide RDA to play its role as the Project Implementing Agency (PIA)- Ensure that sufficient funds are available to properly implement all agreed environmental safeguards measures- Ensure that the Project, regardless of financing source, complies with the provisions of ADB's SPS 2009- Ensure that Project complies with GoSL environmental laws and regulations- Ensure that tender and contract documents for civil works include all relevant parts of the environmental assessment and project agreements |

| | Agency | Responsibility |
|----|---|--|
| | | <ul style="list-style-type: none"> – Submit semi-annual safeguards monitoring reports to ADB |
| 2. | Road Development Authority (PIA) | <ul style="list-style-type: none"> – Responsible for coordination and environmental management of safeguard issues of all road sub-projects through ESDD – Support implementation of EMP and undertake monitoring during operation |
| 3. | Environmental and Social Development Division | <ul style="list-style-type: none"> – Assist ADB and project consultants to ensure Environmental safeguards compliance – Assist PIU to obtain feedback on draft Environmental Assessment report findings from major stakeholders and revise ensuring procedural requirements and substantive aspects satisfied – Facilitate public disclosure and obtain clearances from ADB, CEA and other appropriate agencies – Training and increasing the awareness among staff of PIU, PIC and contractor on environment safeguards compliance – Provide technical advice and support as necessary to the PIU – Monitor implementation of safeguards of the CEP on monthly basis and as necessary |
| 4. | Project Management Unit | <ul style="list-style-type: none"> – Ensure that EMP provisions are implemented to mitigate environmental impacts to acceptable levels – Ensure that Project complies with ADB's SPS and GoSL laws and regulations – Employ adequate number of full time Environmental and Social safeguard specialists and environmental officers attached to PIU – Ensure that environmental protection and mitigation measures in the Environmental Assessment report and EMP are incorporated into the detailed design – Ensure that requisite measures from the Environmental Assessment report and EMP are incorporated into the bid and contract documents – Facilitate environmental management capacity building activities for RDA and orientation and awareness training for contractors as described in the EA and EMP. – Ensure that RDA has obtained necessary environmental license(s) from CEA and other agencies as specified by EARF (Table 2.2) prior to award of civil works contracts – Ensure that contractors obtain necessary environmental license(s) from respective agencies as specified by EARF (Table 2.2) prior to commencement of civil works contracts – Assist RDA/ESDD to establish an environmental grievance redress mechanism, as described in the Environmental Assessment, to receive and facilitate resolution of affected peoples' concerns, complaints, and grievances about the Project's environmental performance |

| | Agency | Responsibility |
|----|---------------------------------------|---|
| | | <ul style="list-style-type: none"> – Carry out environmental monitoring as per the EMOP during construction and operation phases – Prepare quarterly or semi-annual environmental monitoring reports for submission to ADB and other agencies as required – Identify environmental corrective actions and prepare a corrective action plan, as necessary, for submission to ADB and during project implementation – Implement all mitigation and monitoring measures for identified project interventions of each subproject specified as PIU's tasks in the EMP |
| 5. | Contractor | <ul style="list-style-type: none"> – Participate in induction training on EMP provisions and requirements delivered by the PIU – Prepare the SEMAP and submit to PIU for approval – Obtain necessary environmental license(s) from relevant agencies as specified by EARF (Table 2.2) for associated facilities for subproject works, quarries, hot-mix plant etc. prior to commencement of civil works contracts – Ensure that all workers, site agents, including site supervisors and management participate in training sessions delivered by PIU. Maintain a record of training and conduct of awareness sessions for staff to ensure compliance with environmental and safety statutory and contractual obligations including the approved EMP – Ensure compliance with environmental statutory and contractual obligations and proper implementation of ADB requirements including approved EMP – Based on the results of EMP monitoring, cooperate with the PIU to implement environmental corrective actions and corrective action plans, as necessary. – Based on the results of EMP monitoring, cooperate with the PIU to implement environmental corrective actions and corrective action plans, as necessary. – Respond promptly and efficiently to requests and instructions from PIU for environmental corrective actions and corrective actions and implement additional environmental mitigation measures, as necessary. – Provide sufficient funding and human resources for proper and timely implementation of required mitigation measures in the EMP |
| 6. | Project Implementing Consultant (PIC) | <ul style="list-style-type: none"> – Close monitoring of contractor about the implementation of EMP – Modifications to EMP where required depending on site specific environmental issues – Take part in Grievance redress in primary level of GRM – Close communication with PIU and ESDD |
| 7. | ADB | <ul style="list-style-type: none"> – Review REA checklist and endorse or modify the project classification and recommend the ToR for the Environmental Assessment report – Review EIA or IEE reports and disclose the draft and final reports through ADB's website as required |

| | Agency | Responsibility |
|----|--------|---|
| | | <ul style="list-style-type: none"> – Issue subproject’s approval based on EIA or IEE reports; – Monitor implementation of the EMP through due diligence missions – Provide assistance to the EA and IA of subprojects, if required, in carrying out its responsibilities and for building capacity for safeguard compliance – Monitor overall compliance of the subprojects to this EARF – If necessary provide further guidance to the IA on the format, content, and scope of the EIA reports and annual and/or semi-annual monitoring reports for submission to ADB |
| 8. | CEA | <ul style="list-style-type: none"> – Review and approve Environmental Assessment reports required by the project as per GoSL Environmental Act – Issue, and renew environmental licenses as required by the contractor and PIU during the project cycle – Undertake monitoring of the project’s environmental performance based on their mandate – Advise GRC where necessary |

C. Environmental management costs

54. Environmental management cost for the project is unable to estimate at this stage as the designs and some of the road alignments are not yet finalized. Most mitigation measures to be implemented during the construction phase will be included in the construction contract according to EMP and be covered by the contractor. Implementation of mitigation measures will be part of the construction costs, and will be included in the Bill of Quantities (BOQ) as a monthly line item for implementation of EMP.

VII. MONITORING AND REPORTING

55. Monitoring of EMP implementation will be carried out during the preconstruction, construction and operation phases of the project. The monitoring of implementation of environmental safeguards including the approved EMP will form part of the overall project monitoring. The PIC will support the PIU to monitor implementation of EMP by the contractor and other contract requirements. Any requirements for monitoring of environmental baseline conditions (i.e. noise & vibration, air and water quality) and follow-up survey will be set out in the Environmental Assessment report. The ESDD of RDA will provide support to PIU in monitoring implementation of the EMP.

56. The EMP to be incorporated into the bid and contract documents will contain a monitoring plan which identifies what is required, responsibilities and a time frame for monitoring. The PIC will support the PIU to conduct environmental monitoring in accordance with the monitoring procedures set out in the EIA for the construction and operation period and submit monthly reports to the EA based on the monitoring data/laboratory results (for parameters identified in the Environmental Assessment report) and contractor's monthly reports. Further the PIC will prepare semi-annual safeguards monitoring reports for submission to the PIU and CEA and further submission to ADB for disclosure on the ADB website.