

Environmental Assessment and Review Framework

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SRI: Mahaweli Water Security Investment Program

Prepared by Ministry of Mahaweli Development and Environment
Democratic Socialist Republic of Sri Lanka for the Asian Development Bank.

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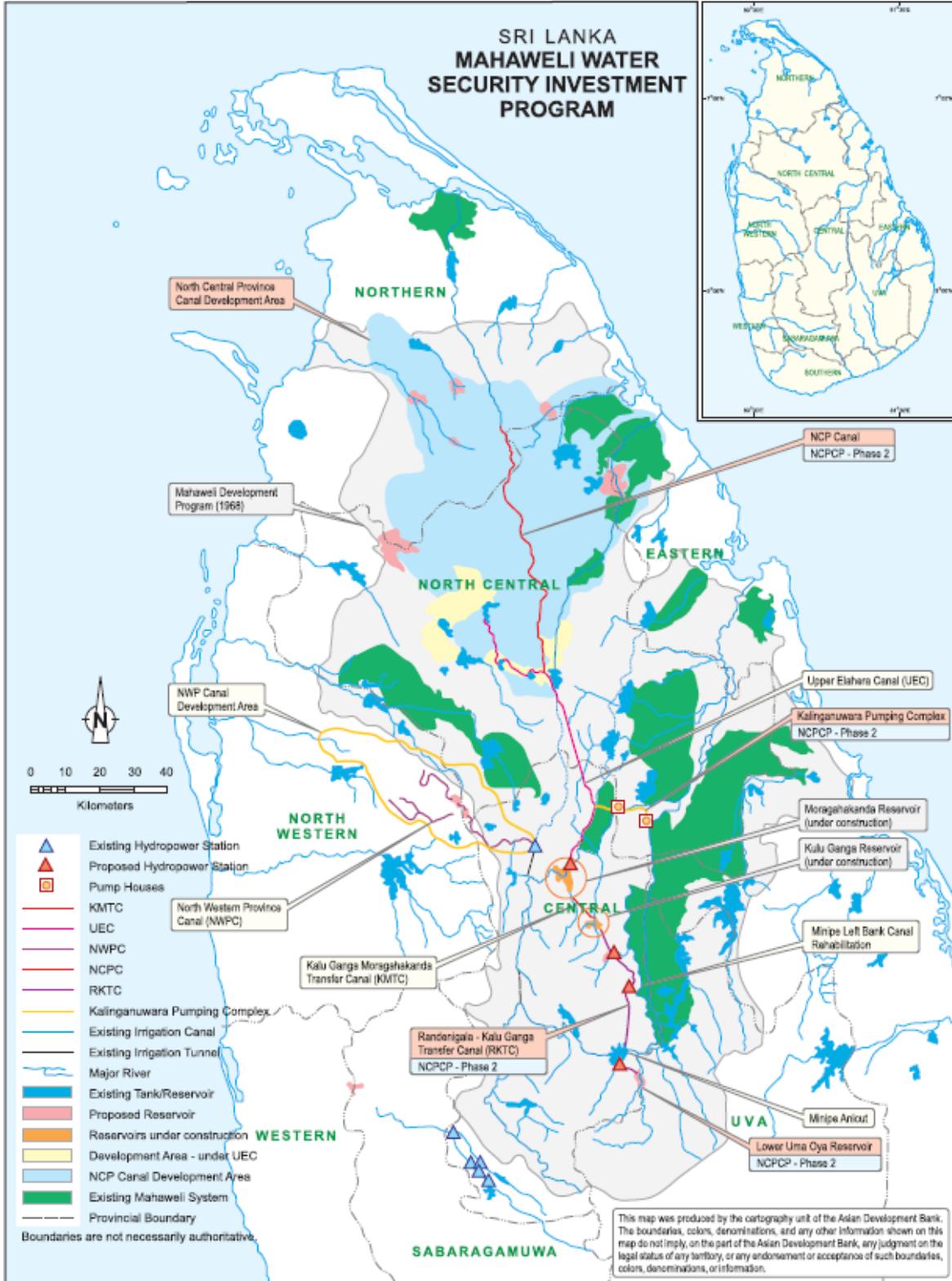
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Abbreviations

ADB	Asian Development Bank
CBO	Community-based organization
CEA	Central Environmental Authority
EA	Environmental Assessment
EAR	Environmental Assessment Report
EARF	Environmental Assessment and Review Framework
EIA	Environmental Impact Assessment
EIAR	Environmental Impact Assessment Report
EMP	Environmental Management Plan
IA	Implementing Agency
IEE	Initial Environmental Examination
IEER	Initial Environmental Examination Report
GNO	Grama Niladhari Officer
GRM	Grievance Redress Mechanism
GRC	Grievance Redress Committee
MI&WRD	Ministry of Irrigation and Water Resources Development
MOE&RE	Ministry of Environment and Renewable Energy
NGO	Non-Governmental Organization
NEA	National Environmental Act, 1980
PAA	Project Approving Authority
PAP	Project-affected person
PP	Project Proponent
SPS	Safeguard Policy Statement of ADB (2009)
TOR	Terms of Reference
MWSIP	Mahaweli Water Security Investment Program

SRI LANKA MAHAWELI WATER SECURITY INVESTMENT PROGRAM



Mahaweli Water Security Investment Program
Environmental Assessment and Review Framework

I. Introduction

1. This Environmental Assessment and Review Framework (EARF) outlines the requirements that the executive agency of the Mahaweli Water Security Investment Program (MWSIP) will comply with in conducting an environmental assessment (EA), and in planning and implementing an environmental management plan (EMP) for a project of the MWSIP. Among these requirements are screening and categorizing potential project environmental impacts and risks; assessment of environmental policy and legal frameworks applicable to the project; its anticipated environmental impacts and risks; assessment of socioeconomic conditions in the project area; public consultation and information disclosure arrangements; grievance redress mechanisms; institutional arrangements to ensure environmental soundness and sustainability of the project and their adequacy; monitoring of EMP implementation; adequate budget, and a time schedule. These requirements are found in Sri Lanka's environmental policies, laws, regulations and guidelines, and in the ADB's Safeguard Policy Statement of 2009 (SPS). The Central Environmental Authority (CEA) and ADB will review and approve each environmental assessment report (EAR) prepared according to this EARF. An EA can take the form of an Environmental Impact Assessment (EIA), Initial Environmental Examination (IEE), or environmental due diligence/audit.

2. The Ministry of Mahaweli Development and Environment (MMDE) is the executing agency of the MWSIP. It will conduct an EA or a due diligence exercise to formulate an EIA report or IEE report together with an EMP or a due diligence report for each project which indicates potential environmental impacts and risks. The MMDE will submit the above environmental planning instruments to project approving authorities (PAAs) in Sri Lanka and ADB for review and approval prior to the commencement of project implementation.

3. In the context of the WRIDP, the need for an EARF arises from the fact that it will be implemented as a multi-tranche financing facility (MFF). A MFF requires an EARF before ADB approves a MFF to state and clarify environmental safeguard principles and requirements that govern projects of tranches of MWSIP in order to ensure that projects implemented under WRIDP comply with local environmental regulatory framework and ADB's environmental safeguard objectives, principles and requirements.

4. The MWSIP will have three projects implemented in three tranches. Implementation of all three projects will be initiated in Tranche 1. Therefore, all three projects have been categorized and assessments prepared prior to ADB Board approval. This EARF outlines the measures and procedures to be followed if there are any changes to the layout, design and scope of the projects subsequent to ADB's approval.

II. The Mahaweli Water Security Investment Program

5. ADB supports the Government of Sri Lanka to plan and implement the WRIDP through the MMDE by financing the following three investment projects of the planned North Central Province Canal Program (NCPCP). WRIDP amounts to about \$675 million. The MFF will comprise three tranches financing three loan “Projects”. The Projects will comprise the following individual investment projects:

- (i) The Upper Elaheera Canal Project (UECP) comprises two main components. The first component is the 9 km Kalu Ganga-Moragahakanda Transfer Canal that will convey up to 771 MCM of water annually between Kalu Ganga and Moragahakanda Reservoirs, both of which are currently under construction. The reservoirs will retain local runoff and Mahaweli River flow diversions before supplying downstream irrigation and water supply schemes. The second component is the 65.5 km Upper Elaheera Canal (UEC) that will annually convey up to 974 MCM northwards from Moragahakanda Reservoir to the existing Huruluwewa Reservoir, and a further 16.7 km of canals to supply the existing Manankattiya, Eruwewa and Mahakanadarawa Reservoirs; these existing reservoirs supply existing irrigation and water supply schemes. The project is divided into three stages: (a) stage 1 will construct the first 6.2 km of UEC’s open canals and associated structures; (b) stage 2 will construct the Kalu Ganga-Moragahakanda Transfer Canal and a 26 km tunnel of the UEC; and (c) stage 3 will construct the remaining 50 km of open and cut-cover canal sections, and four tunnels with lengths ranging from 70 m to 1.7 km.
- (ii) The North Western Province Canal Project (NWPCP) will construct 96 km of new and upgraded canals, including a new 940 m tunnel and two new 25 m tall earth gravity dams impounding the planned Mahakithula and Mahakirula Reservoirs to annually withdraw 130 MCM from Dambulu Oya River and the existing Nalanda Reservoir (via the existing Wemedilla Reservoir) to command new and existing irrigation and water supply reservoirs located throughout North Western Province. The project is divided into two stages: (a) stage 1 will construct two new dams impounding the new Mahakithula and Mahakirula Reservoirs, the 26.7 km of open canals between the Wemedilla tank and the new Mahakithula and Mahakirula Reservoirs, and the tunnel; and (b) stage 2 will construct the remaining open canal sections and associated structures.
- (iii) Minipe Left Bank Canal Rehabilitation Project (MLBCRP), located downstream of the Mahaweli Hydro Power Complex on the Mahaweli River, will: (a) add upstream storage by heightening the headwork’s weir by 3.5 m to regulate generation inflows, (b) construct new automatic downstream-controlled intake gates to the left bank canal; (c) construct new emergency spill weirs to both left and right bank canals; and (d) rehabilitate the 74 km Minipe Left Bank Canal, including regulator and spill structures, to improve conveyance and reliability of service to existing farmers.

6. The investment program will be implemented over ten years and its proposed structure is shown in Table 1. The investment program will also include three consulting packages comprising: (i) “improving system efficiencies and water productivity” (ISEWP); (ii) “strengthening of integrated water resources management” (SIWRM); and (iii) the Program Management, Design and Supervision Consultant (PMDSC) which will support the MMDE to manage the investment program and prepare packages.

Table 1: Investment Program Structure and Implementation Schedule

Project	Subproject	Schedule
Civil Works		
Project 1 (Tranche 1)	UECP Stage 1 NWPCP Stage 1 MLBCRP	Q1 2015 – Q4 2019
Project 2 (Tranche 2)	UECP Stage 2 KMTCP Stage 1	Q1 2017 – Q4 2024
Project 3 (Tranche 3)	UECP Stage 3 NWPCP Stage 2 KMTCP Stage 2	Q1 2018 – Q4 2024
Consulting Services		
PMDSC	Stage 1 (tranche 1) Stage 2 (tranche 3)	Q1 2015 – Q4 2019 Q1 2020 – Q4 2024
ISEWP		Q3 2015 – Q3 2017
SIWRM		Q1 2019 – Q4 2020

ISEWP = improving system efficiencies and water productivity, MLBCRP = Minipe Left Bank Canal Rehabilitation Project, NWPCP = North Western Province Canal Project, PMDSC = program management, supervision and design consultant, SIWRM = strengthening integrated water resources management, UECP = Upper Elehera Canal Project

Source: Asian Development Bank

III. Environmental Assessment and Review Framework

7. The MMDE recognizes that rehabilitation and construction activities under the MWSIP will generate positive social and economic benefits as well as adverse environmental impacts and risks. As an environmentally informed and socially responsible Ministry of the Government, the MMDE is committed to avoid, minimize, or at least to mitigate adverse environmental and social impacts of the MWSIP. By combining national environmental safeguard regulatory frameworks and ADB's environmental safeguard policy principles, this EARF will guide the MMDE on screening and categorizing potential environmental impacts and risks, consultations, conducting assessments and the formulation of EA reports and EMPs, their disclosure, establishment of grievance redress mechanism, implementation of EMPs, monitoring of results, and adequate reporting of monitoring results.

8. The EARF focuses on environmental safeguard compliance of the MWSIP, and is guided by the MMDE's commitment to integrate environmental protection into the MWSIP in a proactive manner in order to contribute towards sustainable development of water sources. To achieve a balance among developmental imperatives, environmental sustainability, and social well-being of its operations, the MMDE:

- (iv) Will identify adverse environmental and social impacts and risks of the MWSIP at early stages of the project cycle, and will avoid, minimize, and mitigate them
- (v) Is committed to comply with all environmental policies, laws, and regulations of the Government, and will remain fully responsive to environmental and social safeguard policy requirements of ADB and other development partners
- (vi) Will apply the EARF to projects of the MWSIP as per the safeguard principles and procedures, outlined in the EARF.

Objectives of the EARF

9. The EARF:

- (i) Outlines safeguard best practices that will be applied to MWSIP
- (ii) Provides a screening and categorizing system to screen potential environmental impacts of the MWSIP
- (iii) Guides MMDE in conducting meaningful consultations with all project stakeholders.
- (iv) Guides the MMDE in the preparation and updating of IEEs, EIAs, EMPs, and environmental due diligence reports
- (v) Guides the MMDE in the disclosure of environmental information to all project stakeholders
- (vi) Outlines institutional arrangements for the implementation of safeguard planning instruments, monitoring and reporting, and for undertaking corrective action plans, if any
- (vii) Helps enhance institutional capacity for safeguard compliance at MMDE, affiliated institutions and local government agencies, and among MWSIP contractors.

IV. Environmental Regulatory Framework of Sri Lanka

10. The regulatory framework for environment comprises policies, laws, regulations and guidelines form a composite framework for environmental planning, implementation and monitoring of development projects.

The National Environmental Policy of Sri Lanka, 2003

11. The Constitution of Sri Lanka makes it “the duty of every person in Sri Lanka to protect nature and conserve its riches”. The National Environmental Policy (Policy) acknowledges this duty and provides directions according to which steps will be taken to conserve and manage all aspects of Sri Lanka’s environment.

12. The Policy renews the commitment of the government, in partnership with the people, to effectively manage the environment for the benefit of present and future generations. The Policy aims to ensure sound environmental management within a framework of sustainable development in Sri Lanka. This Policy is supported by many other policies and strategies for other sectors.

13. The Policy emphasizes that caring for the environment is the bounden duty of any institution, government or non-government, and of any individual that uses, or otherwise carries out an activity that has an impact on environmental resources.

14. The Policy binds all organisations and individuals who use environmental resources or otherwise have an impact on the resources to exercise due care to avoid environmental degradation. The implementation of the Policy will pave the way for sustainable development.

Policy Objectives

15. The Policy anticipates achieving the following objectives:

- (i) To promote the sound management of Sri Lanka’s environment in its entirety without compromise, balancing the needs for social and economic development

and environmental integrity, to the maximum extent possible, while restricting inimical activities

- (ii) To manage the environment by linking together activities, interests, and perspectives of all groups, including the people, nongovernment organizations and government at both the central and the local levels
- (iii) To assure environmental accountability

Policy Principles

16. Policy principles are:

- (i) The guiding principles of environmental management will be “polluter pays” and the need to reduce consumption, and recycle and reuse materials to the maximum extent possible.
- (i) When living natural resources are used, it will be ensured that such use is wise, sustainable, and consistent with the integrity of ecosystems and evolutionary processes.
- (ii) When non-living resources are used, it will be ensured that such use is consistent with environmental best-practices, bearing in mind the need to provide also for future generations.
- (iii) Traditional knowledge and practices will be respected in the development of environmental management systems.
- (iv) Effective governance will be ensured through the decentralization of environmental management services to the maximum extent possible.

Policy Statement

17. The following statement summarizes its key aims:

- (i) Resources such as land, water, air, minerals, and biodiversity will be managed in a manner consistent with the viability of ecological processes.
- (ii) Environmental management will be through participatory, transparent, predictable and accountable decision-making processes at all levels.
- (iii) In addition to protecting the environment from abuse, management systems will take into account the need to restore environments damaged in the past.
- (iv) Environmental management systems will be encouraged to be flexible so as to adapt to changing situations and adopt the precautionary principle.
- (v) The economic value of environmental services will be recognized so as to assure the sustainability of such services for the benefit of the people.
- (vi) The state of the environment will continuously be assessed and reported on, through an appropriate institutionalized monitoring framework based on a comprehensive set of indicators.
- (vii) The institutional framework for sound environmental management will be strengthened through capacity building, legislative enactments, and improved inter-institutional coordination and linkages.
- (viii) “Life cycle” and “cleaner production” principles will be applied to improve the efficiency of natural resource use and to improve environmental quality.

Environmental Laws

The Constitution of Sri Lanka

18. The Constitution of Sri Lanka contains several provisions relating to the environment such as Article 18 ("It is the duty of every person of Sri Lanka to protect nature and conserve its riches") and Article 27 (14) ("The state shall protect, preserve and improve the environment for the benefit of the community"). The 13th Amendment to the Constitution created a new institution at the provincial level for environmental protection and management. Each provincial government under this Amendment has legislative and executive powers over environmental matters (Articles 154 (A), 9, 19 and (III) 17). Using such provincial legislative and executive powers, the North Western Provincial (NWP) Council, adopted the North Western Provincial Environmental Authority to supervise and monitor environmental activities in the North Western Province of Sri Lanka. To date of the nine provincial councils it is only the NWP that has adopted its own authority.

National Environmental Act No. 47 of 1980 (and its Subsequent Amendments)

19. The National Environmental Act (NEA) provides conservation and development guidelines for natural resources management including water, forest, flora and fauna in Sri Lanka. The 1988 amendment to the Act appointed the CEA as the enforcement and implementing agency of the Act. The CEA has special powers to assess and monitor critical environmental conservation programs and to advise the government on environmental protection, conservation, management and development issues.

20. Types of projects that need mandatory environmental clearance ("prescribed projects") were made public after the amendments to NEA was approved in 1988. The Act 1988 states that all prescribed projects undertaken by any government department, corporation, statutory board, local authority, company, firm or an individual will be required to obtain approval before their implementation. The approval will have to be obtained from the appropriate PAAs who are concerned or connected with such prescribed projects. At present, there are 31 such PAAs to deal with review and approval of environmental plans. The CEA has an oversight function over the PAAs.

21. Projects under the MWSIP could also come under the purview of the following Acts according to the specific circumstances. However, screening, scoping, formulation of any EIAs, IEEs, EMPs and procedures for their disclosure and public consultations will be governed by NEA of 1980 and its subsequent amendments of 1988 and 2000, and by environmental regulations (see below).

Pradeshiya Sabha Act No. 15 of 1987

22. Section 12 (2) of the Pradeshiya Sabha Act authorizes the appointment of a committee at the divisional level to advice on environmental matters. Section 105 of the Act prohibits polluting water or any streams, while Section 106 refers to pollution caused by industry and related offences. The Pradeshiya Sabha grants permission for construction activities within its jurisdiction. Such construction will have to comply with environmental requirements stipulated in permits.

Flood Protection Ordinance, Act No. 22 of 1955

23. This ordinance provides for the acquisition of land or buildings or part of any land or building for the purpose of flood protection.

State Land Ordinance, Act No. 13 of 1949

24. The State Land Ordinance provides guidelines for:

- (i) The protection of natural water springs, reservoirs, lakes, ponds, lagoons, creeks, canals, and aqueducts.
- (ii) The protection of the source, course and bed of public streams.
- (iii) The construction or protection of roads, paths, railways, and other means of internal communication systems.
- (iv) The prevention of soil erosion.
- (v) The preservation of water supply sources.

25. Section 75 of the Ordinance highlights riparian proprietors' rights and duties. The occupier of land on the banks of any public lake or public stream has the right to use water in that water body for domestic purpose, but cannot diverted water through a channel, drain or pipe or by any other mechanical device.

Soil Conservation Act, No. 25 of 1951

26. The Soil Conservation Act provides for the conservation of soil resources, prevention or mitigation of soil erosion, and for the protection of land against damage by floods and droughts. Under the Act, it is possible to declare any area defined as an 'erodible area' and prohibit any physical construction. The following activities are also prohibited under Act:

- (i) Weeding of land or other agricultural practices that cause soil erosion;
- (ii) Use of land for agriculture purposes within water sources and banks of streams
- (iii) Exploitation of forests and grassland resources and setting fire in restricted areas

Mines and Minerals Act No. 33 of 1992

27. Under this Act, mining falls within the purview of the Geological Survey and Mines Bureau (GSMB). Mining of minerals including sand must be done with a license issued by the GSMB. Mining is not permitted within archaeological reserves or within specified distances from such monuments. New mining licenses are subject to the EIA process, if the type and extent of mining is listed under the EIA regulations. Additionally, the GSMB has the power to stipulate conditions including cash deposits and insurance policy for the protection of environment. Regulations made by the GSMB under the Act cover a variety of environmental stipulations, criteria and conditions for licensing and operating mines. This also covers the disposal of mine wastes. The Act also deals with the health, safety and welfare of miners. Mining rights on public and private land are subject to licensing by the GSMB, and all minerals wherever situated belonging to the State. The right to mine public land parcels are subjected to EA procedures.

Fauna and Flora Protection Ordinance, Act No. 49 of 1983 (and Subsequent Amendments)

28. The Act provides for the protection, conservation, and preservation of the fauna and flora of Sri Lanka. Under the Act, five categories of protected areas are established, namely, strict nature reserves, national parks, sanctuaries, nature reserves, jungle corridors, and intermediate zones. The Section 9 (a) states that “no person or organization, whether private or state, shall within a distance of 1 mile of the boundary of any national reserve declared by an order issued under Section 2 of the Ordinance carry out any development activity of any description whatsoever, without obtaining the prior written approval of the Director”. Each application for a development activity has to follow the procedures stipulated under NEA. An application falls within the meaning of Section 9(a) has to be supported by an EIA or an IEE according to the significance of expected environmental impacts. Since some of the activities under the MWSIP are within areas under the jurisdiction of the FFPO this law is applicable to the investment program.

Forest Ordinance, No 17 of 1907 (and its Amendments)

29. The Forest Ordinance of 1907 was amended by Act No. 13 of 1966, No. 56 of 1979, No. 13 of 1982, No. 84 of 1988, No. 23 of 1995 and No. 65 of 2009. It is now cited as the 'Forest Conservation Ordinance'. The four categories of forests protected by the Forest Conservation Ordinance are Conservation Forest, Reserved Forest, Village Forest and Other forests (with the exception of Conservation, Reserved and Village forests). Each category is declared under the Forest Ordinance. Provisions to protect and manage them are provided in the Ordinance. Acts prohibited in conservation forests are given in Section 6, in reserved forest in Section 7, in village forest in Section 14, in forest other than conservation, reserved forest or village forest in Section 20. Protected Areas under the Department of Wildlife Conservation are National Reserves - Strict Natural Reserves, National Parks, Nature Reserves, Jungle Corridors, Refuge, Marine Reserves, Buffer Zone, and Sanctuaries. Under Section 5 of the Ordinance, a Forest Officer has power to stop any public or private watercourse which goes through a reserved forest. It shall be lawful for the District Secretary to determine the amount of compensation to be paid in case that the water course adversely affects the interests or one or more individuals. Under Section 6 of the Act, the following activities are prohibited: trespassing or permits cattle to trespass; damage by negligence in felling any tree, cutting or dragging any timber; wilfully strip off the bark or leaves from, or girdles, lop, taps, burns or otherwise damage any trees; poison water; mine stone, burns lime or charcoal, or collect any forest produce; and extracts coral or shells or digs or mines for gems or other minerals

The Urban Development Authority, Law, No 41 of 1978

30. The Urban Development Authority (UDA) promotes integrated planning and implementation of social, economic and physical development of areas which are declared as urban development areas under the UDA Act. UDA provides technical support to local councils who require assistance in developing plans. It has the authority to develop plans when local authorities fail to do. The UDA monitors urban areas, and develops land use policies for designated development areas. Municipal Council Ordinances and Acts – Urban Council Ordinance 61 of 1939, Act 29 of 1947, Act 18 of 1979, and Act 13 of 1979.

31. The Municipal Councils and Urban Councils share with Pradeshiya Sabhas powers regarding the approval of buildings plans, control of solid waste disposal, sewerage and other public utilities. Under these laws, new constructions and modifications to current buildings require approval of Municipal or Urban Council or Pradeshiya Sabha. Municipal and Urban councils follow planning and building guidelines of UDA.

32. The Environmental Policy, NEA and its amendments, and several other policies and Acts relevant to the MWSIP outlined above show that environmental policies and the legal or regulatory framework is comprehensive and adequate to address and manage potential environmental impacts and risks associated with canal refurbishment and construction of new canals and related facilities under the MWSIP.

Antiquities Ordinance

33. An Archaeological Impact Assessment (AIA) for new projects is required under section 47 and 43A of the Antiquities Ordinance. (Extraordinary Gazette no 1154/14 dated 4th October 2000.)

V. Environmental Assessment Process in Sri Lanka

34. The EA processes is primarily concerned with assessing direct and indirect impacts of a project on the biophysical and human environment, and ensuring that these impacts are addressed by appropriate environmental protection and enhancement measures.

35. The laws, regulations, and procedures that govern an EA of a project are found in the NEA and environmental regulations. They are supported and elaborated by sector specific laws and their regulations, outlined above.

36. The NEA of 1980 recommends the adoption of an environmental assessment for each development project. The amendment to NEA in 1988 made an environmental assessment mandatory for each project with significant potential environmental impacts. The 31 types of projects that need EIAs are listed in the Gazette Extraordinary No 772/22 and No 1104 of 1993. Under the National Environmental Act, prescribed projects are stipulated in three parts listed in the schedule of the respective Gazette. Part I identifies prescribed projects based on type and magnitude; Part II identifies prescribed projects as, all subprojects identified in Part I, irrespective of their magnitude and selected high-polluting industries, if near culturally and/or environmentally sensitive areas defined in Part III of the schedule Gazette Extraordinary of 772/22 of 24 June 1993. All industrial projects that are located close to environmental, archaeological, or culturally-sensitive areas require full environmental impact assessments.

37. The evaluation and approval of environmental assessment reports (EARs) are delegated by CEA to various agencies depending on the nature of the project. Among these PAAs are Ministries of National Planning, Lands and Land Development, Irrigation and Water Resources Management, Transport and Highways, Energy, Agriculture and Forests, Urban Development authority, Board of Investments, Department of Wildlife Conservation, GSMB, Ceylon Tourist Board, and the Mahaweli Development Authority. A project proponent cannot perform the functions of PAA for the same project, and but should refer the project's environmental planning documents to CEA for approval.

38. The EA process guides projects to report on viable alternatives to ensure that environmentally less damaging options are also considered.

39. Project proponents will provide relevant, adequate, and accurate information and data required by the PAA to conduct an effective review of a project proposal. The PAA conducts scoping of the proposed project to determine its potential environmental impacts and risks.

40. The PAA solicits project-affected persons' views and opinions, queries project proponents for clarifications, and decides the categorization of the project as "prescribed" or "non-prescribed". If categorized as a prescribed project, the PAA will decide based on the significance of potential environmental impacts of the project, whether an EIA is required or a less comprehensive environmental assessment such as an IEE is sufficient to address and resolve identified adverse environmental impacts of the project. It will prepare the terms of reference of the EA in either case.

41. Project proponents formulate an EIA or IEE with subject matter specialists following the approved ToR and submits the EIA or IEE report to the PAA in Sinhala or Tamil or English for review and approval. It will be translated into the other two national languages.

42. The PAA discloses the EA for public comments. The PAA will announce in national newspapers in three national languages that the EIA is available for 30 working days for comments. It will also disclose the locations where it could be read. Such comments will be considered in finalizing EA reports.

43. The PAA and/or CEA review an EIA report. An IEE is reviewed by PAA based on the information provided by project proponents. A review of an EA report by the CEA and/or the PAA is guided by the following criteria:

- (i) Environmental considerations are integrated into overall project planning
- (ii) Environmental assessment is sound
- (iii) Proposed environmental mitigation measures are adequate and effective

44. If the proposed project is controversial, the PAA or CEA may decide to conduct public hearings on the project and the EA. A public hearing can also be initiated if such hearing would help in verifying facts and findings of the EA, and the adequacy of proposed mitigation measures.

45. The PAA in consultation with the CEA approves or disapproves the EA. Alternatively, an EA can be approved subject to conditions to be met within the stipulated timeframe. If the project is rejected because of an unsatisfactory EA, project components can appeal against the decision to the CEA.

46. If the project is approved, the project proponents and PAA monitor the implementation of the EMP prepared together with the EA to set out remedial actions and to ensure that they meet the standards established.

47. Generally, the application of environmental laws and regulations to development projects is satisfactory. The EA process is well understood by officials and by the public. The courts have interpreted environmental laws proactively and insist on close adherence to procedures in formulating environmental planning documents and their implementation. The EA process has succeeded in introducing mechanisms for transparency, consultation, and disclosure of EA reports, their results and monitoring reports.

48. The environmental training programs conducted by the Ministry of Environment and Renewable Energy (MERE), the CEA, universities, and development partners have produced hundreds of trained environmental professionals in the government and private sectors, among civil society organizations and academia. In addition, the EA process is being taught at

postgraduate level at local universities. As a result, the capacity to formulate, implement and monitor environmental plans exists adequately in Sri Lanka.

49. Sri Lanka has ratified several international environmental conventions, protocols, and framework conventions. Several of them apply to the investment program. Each EIA of the Program will follow applicable international environmental agreements to examine its environmental impacts and risks, and to propose remedial and mitigation actions (see below)

Figure 1: International Environmental Agreements Ratified by Sri Lanka

Agreement	Ratification Date	Key Objectives
Atmosphere		
Vienna Convention for the Protection of the Ozone Layer (1985)	15 December 1989	Protection of the Ozone Layer through international cooperation in scientific research, monitoring and information exchange.
Montreal Protocol on Substances That Deplete the Ozone Layer (1987)	12 December 1989	Reduction and the eventual elimination of the consumption and production of Un-anthropogenic Ozone Depleting Substances
United Nations Framework Convention on Climate Change (UNFCCC 1992)	23 November 1993	Stabilization of greenhouse gas (GHG) concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climatic systems
Kyoto Protocol (1997)	3 October 2002	The Annex 1 parties (Developed Countries) to reduce their collective emissions of greenhouse gases by at least 5% of the 1990 level by the period 2008 –2012.
Biodiversity		
International Plant Protection Convention (1951)	12 February 1952	To maintain and increase international co-operation in controlling pests and diseases of plants and plant products, and in preventing their introduction and spread across national boundaries
Plant Protection Agreement for Asia and Pacific Region (1956)	27 February 1956	To prevent the introduction into and spread within the region of destructive plants
CITES - Convention on International	4 May 1979	To protect certain endangered species from being over-exploited by adopting a system of import/export permits, for regarding the procedure.

Agreement	Ratification Date	Key Objectives
Trade in Endangered Species of Wild Fauna & Flora (1973)		
Convention on the conservation of Migratory Species (CMS-1979)	6 June 1990	To protect those species of wild animals which migrate across or outside national boundaries
Convention on Biological Diversity (CBD-1992)	23 March 1994	Conservation of biological diversity, sustainable use of its components and the fair and equitable sharing of the benefits arising out of the utilization of genetic resources, including appropriate access to genetic resources and by appropriate transfer of relevant technologies and appropriate funding
Cartagena Protocol on Bio Safety (2000)	28 April 2004	To ensure adequate level of protection in the field of the safe transfer, handling and use of living modified organisms resulting from modern biotechnology that may have adverse effects on the conservation and sustainable use of biological diversity, taking also into account risks to human health, and specially focusing on trans boundary movements.
Land		
United Nations Convention to Combat Desertification (UNCCD-1994)		To combat desertification and to mitigate the effects of drought in countries experiencing serious droughts and/ or desertification with the final aim being to prevent land degradation in the hyper arid, arid, and semi-arid, dry sub humid areas in the countries that are parties of the Convention
Chemicals		
Basel Convention on the Control of Trans-boundary movements of Hazardous Wastes and Their Disposal (1989)	28 August 1992	To reduce trans-boundary movements of hazardous waste; to dispose of hazardous and other waste as close as possible to the source; to minimize the generation of hazardous waste; to prohibit shipments of hazardous waste to countries lacking the legal, administrative and technical capacity to manage & dispose of them in an environmentally sound manner; to assist developing countries in environmentally sound management of the hazardous waste they generate
Rotterdam Convention (1998)	19 January 2006	To promote shared responsibility and cooperative efforts in the international trade of certain hazardous chemicals, to protect human health and the environment; to contribute to the environmentally sound use of those hazardous chemicals by

Agreement	Ratification Date	Key Objectives
		facilitating information exchange, providing for a national decision-making process on their import/export
Stockholm Convention on Persistent Organic Pollutants (POPs -2001)	22 December 2005	To protect human health and the environment from persistent organic pollutants (POPs).

VI. ADB's Environmental Safeguard Policy Principles

50. The environmental safeguard policy principles of ADB are embodied in the SPS (2009). It applies to all projects and programs supported by ADB. The SPS aims to (i) help avoid adverse project impacts on the environment and on affected people and communities, (ii) minimize, mitigate and/or compensate for adverse project impacts, if unavoidable, (iii) help borrowers to strengthen their safeguard systems; and (iv) develop their capacity in managing the environmental and social risks.

51. The environmental safeguards policy principles are:

- Use screening process for each proposed project to determine the appropriate extent and type of environmental assessment so that appropriate studies are undertaken commensurate with the significance of potential impacts and risks.
- Conduct an EA for each proposed project to identify potential direct, indirect, cumulative, and induced impacts and risks to physical, biological, socioeconomic (including impacts on livelihood through environmental media, health and safety, vulnerable groups, and gender issues), and physical cultural resources in the context of the project's area of influence. Assess potential trans-boundary and global impacts, including climate change. Use strategic EA where appropriate.
- Examine alternatives to the project's location, design, technology, and components and their potential environmental and social impacts and document the rationale for selecting the particular alternative proposed. Also consider the no project alternative.
- Avoid, and where avoidance is not possible, minimize, mitigate, and/or offset adverse impacts and enhance positive impacts by means of environmental planning and management. Prepare an environmental management plan (EMP) that includes the proposed mitigation measures, environmental monitoring and reporting requirements, related institutional or organizational arrangements, capacity development and training measures, implementation schedule, cost estimates, and performance indicators. Key considerations for EMP preparation include mitigation of potential adverse impacts to the level of no significant harm to third parties, and the polluter pays principle.
- Carry out meaningful consultation with affected people and facilitate their informed participation. Ensure women's participation in consultation. Involve stakeholders, including affected people and concerned nongovernment organizations, early in the project preparation process and ensure that their views and concerns are made known to and understood by decision makers and taken into account. Continue consultations with stakeholders throughout project implementation as necessary to address issues related to environmental assessment. Establish a grievance redress

- mechanism to receive and facilitate resolution of the affected people's concerns and grievances regarding the project's environmental performance.
- Disclose a draft EA (including the EMP) in a timely manner, before project appraisal, in an accessible place and in a form and language(s) understandable to affected people and other stakeholders. Disclose the final environmental assessment, and its updates if any, to affected people and other stakeholders.
 - Implement the EMP and monitor its effectiveness. Document monitoring results, including the development and implementation of corrective actions, and disclose monitoring reports.
 - Do not implement project activities in areas of critical habitats, unless (i) there are no measurable adverse impacts on the critical habitat that could impair its ability to function, (ii) there is no reduction in the population of any recognized endangered or critically endangered species, and (iii) any lesser impacts are mitigated. If a project is located within a legally protected area, implement additional programs to promote and enhance the conservation aims of the protected area. In an area of natural habitats, there must be no significant conversion or degradation, unless (i) alternatives are not available, (ii) the overall benefits from the project substantially outweigh the environmental costs, and (iii) any conversion or degradation is appropriately mitigated. Use a precautionary approach to the use, development and management of renewable natural resources.
 - Apply pollution prevention and control technologies and practices consistent with international good practices as reflected in internationally recognized standards such as the *World Bank Group's Environmental, Health and Safety Guidelines, 2007*. Adopt cleaner production processes and good energy efficiency practices. Avoid pollution, or, when avoidance is not possible, minimize or control the intensity or load of pollutant emissions and discharges, including direct and indirect greenhouse gases emissions, waste generation, and release of hazardous materials from their production, transportation, handling, and storage.
 - Avoid the use of hazardous materials subject to international bans or phase-outs. Purchase, use, and manage pesticides based on integrated pest management approaches and reduce reliance on synthetic chemical pesticides.
 - Provide workers with safe and healthy working conditions and prevent accidents, injuries, and disease. Establish preventive and emergency preparedness and response measures to avoid, and where avoidance is not possible, to minimize, adverse impacts and risks to the health and safety of local communities.
 - Conserve physical cultural resources and avoid destroying or damaging them by using field-based surveys that employ qualified and experienced experts during environmental assessment. Provide for the use of "chance find" procedures that include a pre-approved management and conservation approach for materials that may be discovered during project implementation.

52. The MWSIP is likely to trigger all environment safeguard policy principles of the SPS. In order to ascertain how well the national environmental regulatory framework meets ADB's environmental safeguard policy principles, a comparison between the two is done in the next section. (See Annex 1 for details).

VII. National Environmental Regulatory Framework and ADB's Environmental Safeguard Policy – A Comparison

53. The NEP addresses all relevant aspects of environment protection, environmental sustainability and enforcement. The Policy matches the environmental safeguard policy principles of the SPS. The NEA, its amendments, and sector level legislation that support it have sufficiently transformed the Policy into a satisfactory environmental regulatory framework.

54. The composite government environmental clearance process, in principle, is consistent with ADB's environmental assessment process and public disclosure requirements. Disclosure of the EIAs for development projects that are categorized as "prescribed" projects is mandatory. The prescription is based on the magnitude and potential for adverse environmental impacts of a proposed project. The CEA and PAAs have been reviewing and approving the EIAs for prescribed projects since 1993 and have developed a solid technical expertise and capacity for this task with technical assistance projects from United States Agency for International Development (USAID), the Netherlands, ADB, and the World Bank over the past two decades.

55. Both ADB and NEA prescribe that the implementation of an EMP will be a part of construction contract. Both CEA/PAA will monitor the progress in implementing an EMP.

56. ADB and the CEA require that EAs would not award contracts until the EIAs/IEEs and EMPs are endorsed by them.

57. The procedures of ADB and CEA differ on categorisation of environmental impacts and risks. ADB's environmental categorisation has four categories, namely, A, B, C and FI, whereas the CEA uses 'prescribed' and 'non-prescribed' projects. As outlined earlier, the criteria for determining whether the EA should take the form of an EIA or IEE are also different.

58. In the following key areas, Sri Lanka's environmental assessment displays some weaknesses and deficiencies for which the following gap-filling measures are adopted from ADB's environmental safeguard policy principles and international best practices.

59. As per the NEA and its amendments of 1988 and 2000, and regulations, a project proponent provides the PAPs and other stakeholders an opportunity to express their views, comments, and complaints before finalising an EA report. The draft EIA report is usually made available to the public for 30 working days in the local government offices, at district CEA offices, and at the CEA Head Office at Battaramulla. In many projects, the PAPs do not know about the project or its EA report, until it is too late. Often the project proponents do not provide sufficient project information to the PAPs or adequately disclose the EA reports. As a result, the PAPs often fail to interpret and understand EA reports. These difficulties are partially alleviated by public hearings conducted on EA reports. In such gatherings project proponents and EA consultants could explain in local languages the salient features of the project and its environmental impacts and measures to avoid or at least to mitigate them. But such public hearings are held at the discretion of the PAA. Moreover, the IEEs are not required to be presented for public consultation. These weaknesses can be overcome by following the public consultation and participation, and disclosure procedures of the EARF, which outlines how to conduct meaningful consultations with all stakeholders including the PAPs. Such consultations are to be conducted periodically starting from project planning through implementation and monitoring.

The local environmental regulatory framework does not prescribe a due diligence or environmental audit to check existing facilities at project site(s) to determine whether they could

cause or is causing environmental impacts and risks. The SPS requests environmental due diligence or audit in such circumstances. If the project does not foresee any major expansion except refurbishment of existing buildings and facilities, the due diligence or environmental audit constitutes the environmental assessment for the project.

VIII. Screening and Categorization of Potential Environmental Impacts

60. In screening a project for environmental impacts and risks, use the screening and categorisation system outlined in the SPS to determine whether it will have any significant potential environmental impacts and risks and their magnitude. ADB with project authorities will screen each proposed project at the earliest stage of project preparation when sufficient project information is available. The purpose of the exercise is to identify environmental impacts and risks, their significance, and to identify the level of assessment and institutional sources required to prepare safeguard planning instruments. It will also indicate disclosure requirements of such planning instruments. The environmental impact category of a project is determined by its most environmentally-sensitive component, including direct, indirect, cumulative, and induced impacts within the project area of influence.

61. The project screening and categorization system applicable to MWSIP is given below:

- (i) **Category A:** The project is likely to have significant adverse environmental impacts that are irreversible, diverse, or unprecedented, and may affect an area larger than the sites or facilities subject to physical works. An EIA and a comprehensive EMP are required.
- (ii) **Category B:** The project is likely to have adverse environmental impacts that are less adverse than those of Category A, which are site-specific, few, mostly reversible, and in most cases, mitigation measures can be designed more readily than in Category A projects to address them. An IEE and EMP are required.
- (iii) **Category C:** The project is likely to have minimal or no adverse environmental impacts. No EA is required although environmental implications of the project need to be reviewed and addressed.

62. Fill in environmental categorisation form (to be obtained from ADB) in consultation with ADB to submit to the Chief Compliance Officer at ADB for endorsement. The category endorsed in the preliminary categorisation phase can be revised at any time with the permission of CCO. Under this MFF all subprojects have been screened and categorized as follows: (i) The Kalu Ganga-Moragahakanda Transfer Canal and Upper Elahera Canal Project – Category A; (ii) North Western Province Canal Project – Category A; and (iii) Raising of Minipe Anicut and Rehabilitation of Minipe Left Bank Canal Project – Category B. Since the investment is a time slice investment, all three sub projects will be initiated in Tranche 1. With the exception of the Minipe Anicut and Rehabilitation Project the other two projects continue through to Tranche 3. Therefore, all three tranches are categorized as A. Under the National Environmental Act too the first two projects require EIA's and the last project required an IEE. Therefore, categorization based on SPS and NEA was equivalent. The terms of reference initially drafted by CEA were amended to incorporate ADB's SPS requirements. Since all three projects will be initiated in tranche 1, the two EIAs and IEE will need to be approved by ADB prior to Board approval and contract award, and by CEA prior to contract award.

63. During project implementation if there is any change in the alignment or scope of the project MMDE will inform CEA and ADB. Once ADB is informed of these changes, ADB will reassess the category of the project and if required re-categorize the project and also assess the need for additional studies or fresh assessments to update the EIA's and/or IEE.

IX. Consultation and Participation

64. The MMDE will conduct meaningful consultations with PAPs and other stakeholders throughout the project life. Consultations: (i) begin early in the project preparation phase and continue through all phases of the project; (ii) share adequate information with the PAPs and stakeholders in a timely manner, (iii) conduct consultations in an atmosphere which is conducive to arrive at decisions that are beneficial to the project, the PAPs, and other stakeholders; and (iv) include women and vulnerable groups in discussions. This ensures that the views of all affected parties are taken into consideration in environmental planning. For environment category 'A' projects, such consultations will at least include a round of consultations at the early stage of EIA fieldwork, and again when the draft EIA report is available for disclosure and discussion before the project is appraised by ADB.

65. The MMDE will prepare a consultation plan and inform the PAPs and other stakeholders the locations where consultations will be held. The Environmental Group at the Program Management Unit (PMU) of the MWSIP will lead the consultations with the help of environmental officer at the Project Implementation Unit (PIU). The proceedings and outcome of such consultations will be recorded. The EA report will have summaries of such consultations – who attended, the manner in which they were conducted, key topics discussed, and the decisions arrived at with participants' support and participation.

66. The MMDE will actively seek the PAPs' participation in formulating the EA reports and EMPs and their implementation. The MMDE will discuss with the PAPs and other stakeholders the draft EIA/IEE and EMP to obtain their views on the EIA/IEE and EMP. Through periodic consultations and grievance redress mechanism, the MMDE will engage them in project planning, implementation, and monitoring.

X. Anticipated Environmental Impacts of WRIDIP

67. Both beneficial and adverse environmental impacts of a project will be identified during the environmental assessment. Direct, indirect; reversible and irreversible; long-term and short-term; and cumulative impacts on physical, biological, socioeconomic, and physical and cultural resources will be examined to determine their significance and scope. Impact identification focuses on design and planning (pre-construction), construction, and post-construction phases. Initial stakeholder consultations and field surveys would reveal key impacts that need further study to formulate comprehensive mitigation measures. In the WRIDIP, some of them have already been avoided or at least minimized through design modification and route realignment.

68. Impacts and risks of a project will be analysed in the context of project's area of influence. In the context of three projects – UECP, NWCP and MLBCR – such impacts and risks have already been analysed and the beneficial and adverse impacts are discussed based on the environmental assessment undertaken at each of the projects.

Anticipated Beneficial Impacts

Income and Employment Benefits

69. The MWSIP aims to improve agricultural production through better irrigation facilities in several regions of the dry zone. The positive impact of the diversion of the Mahaweli River water to medium and small reservoirs in the dry zone, where acute problem of water scarcity prevails, will be significant. The MWSIP is geared towards to increasing the cropping intensities and agricultural production under reservoirs by providing water to cultivate total cultivable area in the Yala (dry) season as well. This will generate more employment opportunities for agricultural labourers, thereby increasing their income and living standards. These changes will have direct beneficial impact on food security and rural poverty.

Community Benefits

70. The investment program will also provide drinking water to rural communities. Such benefits directly impact on households' health, sanitation and labour. The availability of drinking water, for example, releases women from fetching water daily from faraway places. This would provide time for them to engage themselves in productive activities such as home gardening and other income-generating activities and also to participate in community activities.

Benefits to Wildlife

71. Canals will act as a barrier to encroachment by people onto protected areas. The provision of water bodies along canals will benefit wild life especially during drought seasons. On the other hand, the canals will act as a barrier to wild animals crossing into human settlements thereby removing the need to maintain electric fences at those locations.

Impacts Requiring Mitigation, Compensation and Correction

72. Most of these impacts need careful planning of mitigation measures at pre-construction, construction and post-construction phases. Mitigation measures together with resources, institutional support and a time table are to be elaborated in EMP against each adverse impact identified.

Impacts on Physical Resources

Water and Hydrology

73. Anticipated environmental impacts of the MWSIP on water and hydrology are possible impacts on groundwater levels, changes in stream flow including environmental flows, changes in drainage patterns and their impacts on ecosystems. Impacts may include soil erosion, water contamination, drains and waterways blockages during site clearances. Vegetation not properly disposed of could also spread invasive species causing environmental degradation. Pools of stagnant water could generate health risks by creating vector populations. Site clearance could also lead to or aggravate soil erosion, especially during the rainy season.

Waste Generation

74. Any construction will generate construction debris which unless disposed of appropriately and in a timely manner will pollute adjoining areas, including potentially sensitive sites and residential areas. The lack of proper construction waste disposal could also block natural drainage systems and create breeding grounds for mosquitoes and for waterborne

diseases. The lack of appropriate mechanisms to dispose of hazardous and toxic waste could lead to the contamination of soil and water resources.

Resource Extraction

75. The construction and refurbishment of irrigation canals will result in high quantities of cut and fill. Sand mining in nearby rivers and stream and extraction of gravel from borrow pits and quarries could negatively impacts on nearby communities.

Impact on Air Quality

76. Air quality can deteriorate during the pre-construction and construction phases of a project owing to dust and exhaust fumes, transportation of construction materials and rock blasting. Transportation of construction material will increase traffic on most roads in the project area, and the amount of dust released into air will be significant. Resettlement site development, building of worker camps, land clearance, drilling, tunnelling and other construction activities will impact air quality during the construction period.

Noise Pollution

77. Tunnel excavation, particularly through drill and blast methods will increase noise pollution. Noise and vibrations generated by excavation, cutting, filing and compaction work as well as operation of heavy vehicles during the construction phase will cause disturbance especially to the fauna that inhabits in project areas. Birds and mammals will also be affected as some projects will traverse through sanctuaries and nature reserves. Most of the tunnel sections will be constructed using tunnel boring machines reducing noise and vibration.

Soil Stability and Soil Erosion

78. Loss of soil stability and soil erosion can take place due to the removal of vegetation cover for project activities. It can cause loss of soil fertility and induce slope instability. Such risks are expected during the construction phase. Dumping of excavated soil and rocks on river banks and slopes could cause environmental damage by soil wash and subsequent siltation of downstream land areas or water bodies.

Impact on Mineral Resources

79. Canal sections, cut and cover sections, conduits and tunnel sections, all of which are concrete lined, comprise restricted cross sections. Along their lengths, the canals pass several types of mineral deposits, and especially through some quartz veins of high purity. Tunnelling has to pass through marble in confined areas. The excavation method adopted for tunnelling would determine the usability and disposability of marble coming out as tunnel muck.

Ecological Impacts

Fauna

80. The MWSIP will construct canals which will traverse through protected areas and modified habitats. The main habitat types observed along the canal traces include undisturbed and degraded dry-mixed evergreen forest, scrubland, riverine forests, vegetation associated with rock outcrops, grasslands, home gardens, paddy lands, abandoned land, chena (slash-and-burn) land, and teak tree plantations. Each habitat supports a rich faunal and floral

assemblage especially in protected areas. The main negative impact of the MWSIP on them will be the loss of habitat and the blockage of movement paths of animals, especially, elephants and other ground-dwelling species. Canal design alternatives considered, tunnelling, cut and cover areas to minimize such impacts.

Impact on Biodiversity

81. The projects will be located in low country dry zone of Sri Lanka, with the exception of the Minipe rehabilitation project. The dry zone habitat and rich repositories of indigenous flora, fauna, especially large animals such as elephants and leopards. In project areas, dry-mixed evergreen forests, disturbed evergreen forests and scrubland function as rich biodiversity repositories. Some of these areas will be lost permanently to the MWSIP which will have an irreversible impact on the biodiversity inhabiting these habitats. Environmental assessments will assess impacts on habitat and introduction of invasive alien species and on the use of natural resources in unsustainable manner.

Impacts on Archaeological Sites

82. All archaeological remains are to be located and identified and recorded on maps with the assistance of the Archaeological Department. The project authorities will identify each of such archaeological remains and decide whether they fall within the identified areas of proposed project activities. Preliminary findings of a survey conducted in several project areas indicate that there are a large number of archaeological remains in the proposed project areas.

Socioeconomic Impacts

Loss of Property and Physical Relocation

83. Acquisition of land belts along canals will directly affect many households. Some of them will lose their residences or land or both. Disturbances to human settlements, forced relocation, social conflicts between resettlers and their host communities, loss of income sources, livelihoods, social networks and safety nets are associated with land loss and relocation. These key project impacts will be addressed through the Resettlement Implementation Plans (RIPs) formulated for each project of the MWSIP. Both social and environmental safeguard planners will work together on this impact by sharing information and data.

Exposure of Construction Workers to Occupational Hazards

84. The recruitment of construction workers for project activities will necessitate the establishment of campsites and they will generate sewerage, waste water, and solid waste. Workers may engage in activities that are detrimental to natural habitats such as hunting, gem excavation, and illegal extraction of timber. On the other hand, construction workers are exposed to occupational hazards, unless proper safety procedures are followed at construction sites.

Environmental Management Plans

85. An EMP provides a link between the impacts predicted and mitigation measures to address them. While there is no standard format for an EMP, it should reflect a project's specific environmental circumstances and requirements. In case of three projects of the investment program, detailed EMPs have already been completed.

86. Each EMP clearly indicates different phases of a project's physical activities. For each phase, it includes proposed mitigation measures against adverse environmental impacts and risks, institutional arrangements to deliver them, capacity development and training measures, implementation schedule, cost estimates, environmental monitoring indicators, and reporting requirements. The EMP will define expected outcomes as measurable events and include performance indicators or targets that can be tracked over a defined period of time. The investment program will not support any activities identified in ADB's Prohibited Investment Activities List in the EIA and EMP (Annex 3)

XI. Disclosure of Safeguard Planning Documents

87. Project specific safeguard planning documents – the EIAs, IEE, EMPs, due diligence reports, mitigation plans, and corrective action plans will be disclosed to the PAPs and other stakeholders. Environmental safeguard monitoring reports of projects will also be disclosed to the PAPs and other stakeholders, and copies will be made available at project offices, the MWSIP PMU Office and at the MMDE. These documents will also be uploaded to the ADB website. Each of these documents will be translated into Sinhala or Tamil or both in its entirety based on the locations of the project. The translated documents too are disclosed. In addition, key environmental information about the project will be kept at project locations which are accessible to all the PAPs and others for reference. The translation of documents and their disclosure will be done in a timely manner by competent translators.

88. All environmental planning documents will be sent to ADB and the CEA for review. The Program Director of the MWSIP will submit to ADB and the CEA the following documents for review and disclosure on ADB's website:

- (i) Draft EIA/IEE (including the draft EMP)
- (ii) Final EIA/IEE with EMP
- (iii) New or updated EIA/IEE and corrective action plans, if any, during implementation
- (iv) Environmental monitoring reports (bi- annually for the two sub-projects requiring EIAs and annually for the sub-project requiring an IEE)

XII. Institutional Arrangements and Responsibilities

Executing Agency and Implementing Agencies

89. The MMDE will be the executing agency of the MWSIP, and it will be responsible for the overall coordination of MWSIP's planning, implementation, and monitoring. The proposed package on 'Strengthening of Integrated Water Resources Management' (SIWRM) will strengthen the MMDE's water resources management capacity and will also help strengthening water resources management and irrigation sector policies, legislation and institutions.

Project Management Unit

90. Each project of the MWSIP will get advice on safeguard policy issues and safeguard compliance from the environmental unit at the PMU of the MWSIP located in Colombo in the MMDE. The unit will be operated by an environmental safeguard specialist who possesses good academic background and at least 10 years of field experience in environmental safeguards. Three project implementation units (PIU) will be established for the implementation of the three projects and will be based in the locality of the project sites. The PMU environment specialist will be supported by three environment officers based in each of the three PIUs. An international and national environmental specialist attached to the Program Design Management Consultancy group will provide technical guidance and support the PMU and PIU environmental officers in their tasks.

91. The environmental unit at the PMU together with a safeguard focal person at each PIU will be responsible for the (i) preparation of checklists (if there are any changes in scope or alignment during implementation that warrant more studies), updating the EIAs, IEEs, and EMPs; (ii) conductance of due diligence and preparing reports; and (iii) monitoring of safeguard compliance. It will also formulate and use safeguards awareness training models on environment safeguards. Such activities could be outsourced; but the responsibility for environmental planning, implementation, environmental sustainability of projects and monitoring of their results will stay with MMDE.

92. The environmental unit at the PMU of the MWSIP will ensure that the EMPs are included in contract documents. It will also ensure that contractors will adhere to the implementation and mitigation measures listed in the project EMPs.

93. The environmental unit at the PMU will organize awareness programs and training sessions for implementation staff at the project level on environmental safeguard requirements and safeguard compliance. It will prepare safeguard training materials and pamphlets for the benefit of project personnel, safeguard monitors, the PAPs and project contractors.

94. The environmental unit will establish direct links with all projects of the MWSIP and will develop and maintain an environmental safeguard database. It will be shared with project personnel, monitors and project stakeholders. The environmental unit could obtain the services from outside, if required, for EA, safeguard awareness programs, and training sessions.

Project Implementing Unit (PIU)

95. PIU of each project will be responsible for overseeing project construction works and for ensuring such works are in compliance with safeguard requirements, outlined in this EARF. Each PIU will appoint an environmental officer who will be in direct contact with the

environmental unit of PMU at MMDE for all safeguard issues at the project level. The official will coordinate with district and provincial CEA offices and divisional secretariats. The official will help the contractor to obtain permits and licenses and other clearance for project activities that would trigger environmental impacts. The safeguard official's key role is to ensure that all new construction and refurbishment of canals and other facilities comply with environmental safeguards, and EMPs are implemented in a timely and satisfactory manner.

96. It is necessary to prepare a full plan of institutional arrangement for each project indicating the agencies involved, their TORs, time tables, and budgets. A diagram should outline the proposed institutional arrangements and their links with the PMU.

XIII. Grievance Redress Mechanism

97. At the state level, the CEA is the agency which deals with grievances and complaints regarding environmental safeguard compliance. The CEA has district offices, but they often lack resources to carry out safeguard compliance functions. Complaints pertaining to environmental adverse impacts are initially dealt with by district CEA offices with the help of the line department and or agency. Delays in hearings are frequently noted. Resorting to the court system for redress is always an option available to a grieved party; but it could delay project construction works by months or years.

98. The GRM is a part of any project supported by ADB. The GRM is a bottom-up multi-tiered structure. The local environmental regulatory framework does not provide for an institutionalized GRM at the project level.

99. The MMDE will establish a GRM at each project and will develop procedures of establishing a grievance redress committee (GRC), its functions, powers, membership, and budget.

100. The GRCs will receive and facilitate the resolution of the PAPs' grievances regarding the project's activities that will have environmental impacts. The GRM at the project level will have to be scaled to the environmental impacts and risks anticipated. The PMU will facilitate the establishment of a GRM at each project and determine the responsibilities of GRC, its organizational structure, and powers.

101. A two tier GRC is proposed for this program. All complaints regarding social and environmental issues will be received either orally or in writing by the Project Proponent (PP) or the Construction Contractor (CC). A key part of the GRM is the requirement for the PP /CC to maintain a registry of complaints received at the respective project site offices. All complainants shall be treated respectfully, politely and with sensitivity. Every possible effort should be made by the PP or the CC to resolve the issues referred to in the complaint within their purview. However, there may be certain problems that are more complex and cannot be solved through project-level mechanisms. Such grievances will be referred to the Grievance Redress Committee. The GRC at the local level will be headed by the Grama Niladhari. The committee will comprise of Village level government officer (agrarian services/ irrigation department), community based organization leaders, Project representative (environment and social resettlement officers). Project affected parties, Contractor or his representative and any other person/government officer if required based on the issue. If the issue is not resolved at this level it will be forwarded to the second tier committee at the divisional secretary level. The GRC at the divisional secretariat level will comprise of Divisional Secretary (Chair). Grama Niladaris of relevant GNDS, Project director or his representative of PIU, CBO leaders, Contractors or his

representative, relevant line agencies. If issues still remain unresolved they will be raised at the national steering committee.

102. The GRC will be responsive to the PAPs' needs, and to facilitate this, it will develop approaches that would enable all PAPs to gain access to the GRC. Cultural appropriateness of the constitution of the committee and procedures of hearings will be governed by cultural traditions in the project area. A feedback mechanism has to be built into the GRM to check how its clients treat it and their acceptance of it as an impartial and fair mechanism open to all project-affected persons. The Committee will address the PAPs' concerns and complaints promptly, using a transparent process that is gender responsive, culturally appropriate, and readily accessible to the PAPs at no cost.

103. Each complaint will be recorded and acknowledge by the GRC's Secretary. A complaint will be dealt with within four weeks and the decision of the GRC will be conveyed to the complainant in writing soon after the decision is made.

104. A GRC's decision can be challenged at the district-level CEA Office. If not satisfied with the district level decision, the complainant could appeal to the CEA in Colombo.

105. The GRM will not impede a PAP's desire to access judicial remedies.

106. The Program Director in consultation with the PMU environmental unit will examine the possibility and desirability of establishing one GRC to deal with environmental and resettlement issues, complaints and grievances. The MMDE will inform PAPs and other stakeholders the scope of the GRM in each project.

XIV. Monitoring and Reporting

107. The MWSIP will ensure that environmental safeguard impacts and risks are adequately addressed. Periodic monitoring by the PMU and PIUs and ADB's assistance in addressing any weaknesses will help enhancing the quality of the application of environmental safeguards to projects of the investment program. The PMU will develop a mechanism with ADB's assistance to reduce safeguard risks through an environmental monitoring system.

108. An environmental monitoring system will be a part of the EMP(s). It will ensure that the proposed mitigation measures have the intended results and meet national environmental standards and ADB's environmental safeguard policy requirements.

109. The PMU's environmental unit will establish an environmental monitoring system. The monitoring system will have the following components:

- Monitoring indicators for evaluating the performance of each mitigation measure
- Monitoring mechanisms and methodologies
- Monitoring staff
- Monitoring frequency
- Monitoring locations
- Safeguard compliance reporting plan
- A budget

110. The PMU environmental unit will:

- Verify a project's compliance with safeguard requirements
- Document and disclose monitoring results and identify necessary corrective and preventive actions in biannual monitoring reports
- Submit safeguard monitoring reports to ADB
- Follow up on recommended actions to ensure desired outcomes are achieved

111. The monitoring data of each project will be fed into the safeguard database maintained at the PMU Office. Such data will be the baseline for verification of results in the spheres of environmental safeguard application, adequacy, and sustainability.

112. The Contractors will submit an environment method statement in keeping with the EMP at start of contract and obtain approval from the Project Engineer. The Contractor in his periodic progress reports should described the implementation of the EMP and any issues arising from it.

113. For the two category A projects MIWR will submit semi-annual and for the Category B project annual environmental monitoring reports to ADB and CEA. During loan review missions, ADB will monitor environmental safeguard compliance of selected projects of the MWSIP and work with the PMU to develop action plans, if significant lapses in safeguard compliance are noted. A draft environmental monitoring report format is presented in Annex 2.

Annex 1

Comparison between Local Safeguard Regulatory Framework and Environmental Safeguard Policy Principles of ADB

Policy Principle	Triggered by the Investment Program	Gap Analysis	
		Congruence Between Local Environmental Regulatory System and ADB's Environmental Safeguard Requirements	Assessment of Implementation Capacity
1. Use a screening process for each proposed project, as early as possible, to determine the appropriate extent and type of environmental assessment	Yes	<p>The NEA of 1980, its 1988 amendment and Gazette Extraordinary No. 772/22 and No. 11064 of 1993 provide for screening of each proposed project by a PP. The PP submits preliminary information about the project to PAA to initiate EIA/IEE process. The PP submits preliminary information through the Basic Information Questionnaire which could be obtained from the CEA Head Office or Provincial/District Offices, or downloaded from CEA website.</p> <p>As in case of SPS screening criteria, NEA screening guidelines use the type, scale, and magnitude of the proposed project as well as its location in determining the category— prescribed or non-prescribed. If the category is “prescribed”, then PAA decides whether EIA or IEE should be prepared for the project. The environmental safeguard policy principle and procedures of SPS are congruent with that of Sri Lanka’s environmental screening process applicable to MWSIP. SPS provides more details of environmental categorization which could easily be adapted to the local regulatory system. The difference between NEA and SPS requirements is that NEA applies a prescribed list whereas in ADB’s case all projects will be categorized.</p>	The CEA, MMDE and MASL have adequate experience in screening and categorization of projects for environmental impacts and risks.

Policy Principle	Triggered by the Investment Program	Gap Analysis	
		Congruence Between Local Environmental Regulatory System and ADB's Environmental Safeguard Requirements	Assessment of Implementation Capacity
2. Conduct an environmental assessment for each proposed project to identify potential direct, indirect, cumulative, and induced impacts and risks to physical, biological, socioeconomic, and physical cultural resources in the project's area of influence.	Yes	PAA provides the TOR for environmental assessment. It guides project proponents in selecting qualified experts to do necessary fieldwork and consultations. The local regulatory system applicable to MWSIP is adequate for this task. Guidelines for environmental assessment in local regulatory framework is compatible with environmental principles and procedures of SPS	MMDE has environmental safeguard expertise. This is augmented by hiring qualified specialists or outsourcing environmental assessment to competent agencies or persons to complete under the supervision of PMU of MWSIP
3. Examine alternatives to the project's location, design, technology, components, and their potential environmental and social impacts and document the rationale for selecting the particular alternative proposed. Also consider the "no project" alternative.	Yes	The local environmental regulatory framework through PAA provides sufficient guidelines on examining alternatives to the project location, design, and technology. In tranche 1, preliminary traces of canals were selected after considering several alternatives to avoid harm to environment and human settlements.	See above.

Policy Principle	Triggered by the Investment Program	Gap Analysis	
		Congruence Between Local Environmental Regulatory System and ADB's Environmental Safeguard Requirements	Assessment of Implementation Capacity
4. Avoid, and where avoidance is not possible, minimize, mitigate, and/or offset adverse impacts and enhance positive impacts by means of environmental planning and management. Prepare an EMP that includes the proposed mitigation measures, environmental monitoring and reporting requirements, related institutional or organizational arrangements, capacity development and training measures, implementation schedule, cost estimates, and performance indicators.	Yes	See note on Principle 1 above. Each "prescribed" project with environmental impacts will require an EIA or IEE and an EMP. The environmental regulatory framework provides limited directions on the actual formation of IEE and EMP when compared with ADB's safeguard requirements, although through TOR, PAA provides guidance for IEE and actions to overcome the adverse environmental impacts. The MWSIP's EARF will provide sufficient and comprehensive guidance in this regard. The EMP is considered an integral part of IEE and is not submitted separately to PAA for review. IEE includes all action plans to overcome adverse impacts. A detailed outline of EMP and a format of an EMP are provided below to overcome this gap (Annex 2).	MMDE is aware of the importance of avoidance and minimization of adverse environmental impacts and enhancement of positive impacts. Its past projects reflect these capabilities and their adequacy. Capacity building measures such as the appointment of the Environmental Group at PMU of MWSIP would certainly further augment this capacity.
5. Carry out meaningful consultation with affected people and all other stakeholders. Continue consultations during project implementation.	Yes	The environmental regulatory framework provides limited opportunity for consultation with PAPs and other stakeholders although consultations are part of IEE/EIA formulation and approval under NEA. It is limited to presenting comments, complaints, and recommendation at the EIA/IEE review phase. 30 working days are given for such public response in case of an EIA. PAA could hold a public hearing to ascertain facts and to get affected persons views and recommendation which will be incorporated	There is no institutional vehicle to ensure consultation with all stakeholders at MMDE, with the exception of consultation with farmers prior to water issuance. This needs development as part of capacity development of MWSIP. The establishment of the Environmental officer at PMU and the appointment of a

Policy Principle	Triggered by the Investment Program	Gap Analysis	
		Congruence Between Local Environmental Regulatory System and ADB's Environmental Safeguard Requirements	Assessment of Implementation Capacity
		into EIA when the final document is prepared. Consultation during implementation of a project is the responsibility of PP and PAA.	focal safeguard officer at each project would help resolve this capacity deficiency.
6. Disclose a draft environmental assessment (including the EMP) in a timely manner, before project appraisal, in an accessible place and in a form and language(s) understandable to affected people and other stakeholders. Disclose the final environmental assessment, and its updates if any, to affected people and other stakeholders.	Yes	Environmental regulatory framework directs PAA to disclose draft EIA/IEE to the public and to seek their views, comments and recommendations. Public meetings could be organized by PAA for public hearing. The Framework however, does not provide for the disclosure of final EIA/IEE to the public. EARF provides an adequate framework for the disclosure of planning documents.	To enable MMDE to ensure timely disclosure of safeguard documentation in local languages, it is necessary to build institutional capacity at PMU and PIU levels. The establishment of an Environmental officer at PMU would help to address this gap.
7. Implement the EMP and monitor its effectiveness. Document monitoring results, including the development and implementation of corrective actions, and disclose monitoring reports.	Yes	Limited scope in the local regulatory framework to monitor the implementation of actions in EIA/IEE and the formulation of corrective actions, if required. The EARF has elaborated these requirements and provide guidance on this aspect.	An EMP is sometimes not a part of the contract documents of a project. Hence, the probability that contractors follow good safeguard practices is low. Training and capacity building are needed in the implementation of EMP at the project level. Also EMP should be part of a contract.

Policy Principle	Triggered by the Investment Program	Gap Analysis	
		Congruence Between Local Environmental Regulatory System and ADB's Environmental Safeguard Requirements	Assessment of Implementation Capacity
8. Do not implement project activities in areas of critical habitats. If a project is located within a legally protected area, implement additional programs to promote and enhance the conservation aims of the protected area. Use a precautionary approach to the use, development, and management of renewable natural resources.	YES-located within legally protected areas	The regulatory framework provides for adequate protection of critical habitats and environmentally sensitive areas. Projects in environmentally sensitive areas will fall into EIA category of "prescribed" projects under NEA 1980.	MMDE has sufficient experience in implementing programs to promote the conservation aims of protected and reserved areas. It applies the precautionary approach in selecting project traces to avoid critical habitats and to manage renewable natural resources.
9. Apply pollution prevention and control technologies and practices consistent with international good practices as reflected in internationally recognized standards such as the World Bank's Environmental, Health and Safety Guidelines. Adopt cleaner production processes and good energy efficiency practices. Avoid pollution, or, when avoidance is not possible, minimize or control the intensity or load of pollutant emissions and	Yes	NEA and its amendments and regulations provide sufficient instructions in this regard. Environmental regulatory framework generally meets the World Bank's Environmental, Health and Safety Guidelines. The EARF has elaborated them further.	The general recommendation for more training, awareness creation and capacity building among project personnel and contractors is valid here too.

Policy Principle	Triggered by the Investment Program	Gap Analysis	
		Congruence Between Local Environmental Regulatory System and ADB's Environmental Safeguard Requirements	Assessment of Implementation Capacity
discharges, including direct and indirect greenhouse gases emissions, waste generation, and release of hazardous materials from their production, transportation, handling, and storage. Avoid the use of hazardous materials. Purchase, use, and manage pesticides based on integrated pest management approaches and reduce reliance on synthetic chemical pesticides.			
10. Conserve physical cultural resources and avoid destroying or damaging them by using field-based surveys that employ qualified and experienced experts during environmental assessment. Provide for the use of "chance find" procedures that include a pre-approved management and conservation approach for materials that may be discovered during project implementation.	Yes	The environmental regulatory framework provides for the conservation of physical cultural resources and to protect such resources.	Sufficient expertise and programs are available with MMDE to conserve affected cultural resources.

Policy Principle	Triggered by the Investment Program	Gap Analysis	
		Congruence Between Local Environmental Regulatory System and ADB's Environmental Safeguard Requirements	Assessment of Implementation Capacity
11. Provide workers with safe and healthy working conditions and prevent accidents, injuries, and disease. Establish preventive and emergency preparedness and response measures.	Yes	The local laws and procedures cover sufficiently these aspects.	Need better training on safety of workers and communities and resources.

ADB = Asian Development Bank, CEA = Central Environmental Authority, EIA = environmental impact assessment, EMP = Environmental Management Plan, IEE = initial Environmental Examination, MMDE = Ministry of Mahaweli Development and Environment, NEA = National Environmental Act, PAA = project approving agency, SPS = Safeguard Policy Statement, 2009, TOR = terms of reference, MWSIP = Mahaweli Water Security Investment Program.

ANNEX 2
Draft Outline for Environmental Monitoring Report:

A safeguard monitoring report may include the following elements:

- (i) Background/context of the monitoring report (adequate information on the project, including physical progress of project activities, scope of monitoring report, reporting period, and the monitoring requirements including frequency of submission as agreed upon);
- (ii) Changes in project scope and adjusted safeguard measures, if applicable;
- (iii) Qualitative and quantitative monitoring data;
- (iv) Monitoring parameters/indicators and methods based on the EMP previously agreed upon with ADB;
- (v) Monitoring results compared against previously established benchmarks and compliance status (e.g., obtaining necessary approvals for establishment of certain facilities, national environmental emission and ambient standards and/or standards set out in the WB's EHS guidelines; timeliness and adequacy of environmental mitigation measures; and training; budget for implementing EMP, timeliness and adequacy of capacity building, etc.);
- (vi) Monitoring results compared against the objectives of safeguards or desired outcomes documented (environmental impacts avoided or minimized, etc.);
- (vii) If noncompliance or any major gaps identified, include a corrective action plan;
- (viii) Records on disclosure of monitoring information to affected communities;
- (ix) Identification of key issues, or grievances from affected people, or recommendations for improvement;
- (x) Monitoring adjustment measures recommended based on monitoring experience/trends and stakeholders response;
- (xi) Information about actual institutional arrangement for implementing the monitoring program/plan provided or adjusted, as may be required;
- (xii) Proposed items of focus for the next report and due date.

ANNEX 3 ADB Prohibited Investment Activities List

The following investment activities will not qualify for ADB support:

- (i) Production or activities involving harmful or exploitative forms of forced labour¹ or child labour;²
- (ii) Production of or trade in any product or activity deemed illegal under host country laws or regulations or international conventions and agreements or subject to international phase outs or bans, such as (a) pharmaceuticals,³ pesticides, and herbicides,⁴(b) ozone-depleting substances,⁵ (c) polychlorinated biphenyls⁶ and other hazardous chemicals,⁷(d) wildlife or wildlife products regulated under the Convention on International Trade in Endangered Species of Wild Fauna and Flora,⁸ and (e) trans boundary trade in waste or waste products;⁹
- (iii) Production of or trade in weapons and munitions, including paramilitary materials;
- (iv) Production of or trade in alcoholic beverages, excluding beer and wine;¹⁰
- (v) Production of or trade in tobacco;¹⁰
- (vi) Gambling, casinos, and equivalent enterprises;¹⁰
- (vii) Production of or trade in radioactive materials,¹¹ including nuclear reactors and components thereof;
- (viii) Production of, trade in, or use of unbonded asbestos fibres;¹²
- (ix) Commercial logging operations or the purchase of logging equipment for use in primary tropical moist forests or old-growth forests; and
- (x) Marine and coastal fishing practices, such as large-scale pelagic drift net fishing and fine mesh net fishing, harmful to vulnerable and protected species in large numbers and damaging to marine biodiversity and habitats.

¹ Forced labor means all work or services not voluntarily performed, that is, extracted from individuals under threat of force or penalty.

² Child labor means the employment of children whose age is below the host country's statutory minimum age of employment or employment of children in contravention of International Labor Organization Convention No. 138 "Minimum Age Convention" (www.ilo.org).

³ A list of pharmaceutical products subject to phaseouts or bans is available at <http://www.who.int>.

⁴ A list of pesticides and herbicides subject to phaseouts or bans is available at <http://www.pic.int>.

⁵ A list of the chemical compounds that react with and deplete stratospheric ozone resulting in the widely publicized ozone holes is listed in the Montreal Protocol, together with target reduction and phase-out dates. Information is available at <http://www.unep.org/ozone/montreal.shtml>.

⁶ A group of highly toxic chemicals, polychlorinated biphenyls are likely to be found in oil-filled electrical transformers, capacitors, and switchgear dating from 1950 to 1985.

⁷ A list of hazardous chemicals is available at <http://www.pic.int>.

⁸ A list is available at <http://www.cites.org>.

⁹ As defined by the Basel Convention; see <http://www.basel.int>.

¹⁰ This does not apply to investee companies who are not substantially involved in these activities. Not substantially involved means that the activity concerned is ancillary to an investee company's primary operations.

¹¹ This does not apply to the purchase of medical equipment, quality control (measurement) equipment, and any equipment for which ADB considers the radioactive source to be trivial and adequately shielded.

¹² This does not apply to the purchase and use of bonded asbestos cement sheeting where the asbestos content is less than 20%.

ANNEX 4

Environmental Safeguard Requirements in Contracts

The following environmental safeguard requirements are to be included in the section on employers requirements in the bid documents together with the individual EMPs prepared for each project.

A. General

- (i) The Contractor and contractor's employees adhere to the mitigation measures set down in the EMP and take all necessary measures required to prevent harm, and to minimize the impact of operations on the environment.
- (ii) The contractor on completion of construction should take full responsibility in ensuring a clean and safe construction premises.

B. Disposal of solid waste and debris

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

C. Protection of Ground Cover and Vegetation

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

D. Soil Erosion

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

E. Labour Camps

- (i) Labour camps shall be provided with adequate and appropriate facilities for disposal of sewage and solid waste. The sewage systems shall be properly designed, built and operated so that no pollution to ground or adjacent water bodies/watercourses takes place. Garbage bins shall be provided in the camps and regularly emptied. Garbage should be disposed of in a hygienic manner.
- (ii) Contractor shall ensure that all camps are kept clean and hygienic. Necessary measures shall be taken to prevent breeding of vectors and diseases.

- (iii) Contractor shall report any outbreak of infectious disease of importance at a labour camp to the Medical Officer of Health (MOH) or to the Public Health Inspector (PHI) of the area immediately.
- (iv) Contractor shall remove the labour camps fully after its need is over, empty septic tanks, if instructed by the engineer shall be closed, remove all garbage, and debris; and clean and restore the area back to its former condition.

F. Dust Management

- (i) To prevent dust pollution during the construction period, the Contractor shall carry out regular watering of the construction site and shall cover material stocks onsite to prevent dust and other particles getting airborne.
- (ii) All vehicles delivering materials shall be covered to avoid spillage and dust emission.

G. Health and Safety

- (i) Contractor shall take necessary actions to prevent breeding of mosquitoes at places of work, labour camps, material stores, etc. Stagnation of water in all areas including gutters, used and empty cans, and containers shall be prevented.
- (ii) Contractor shall keep all places of work, labour camps, plus office and store buildings clean and devoid of garbage to prevent breeding of rats and other vectors such as flies.
- (iii) Construction vehicles, machinery, and equipment shall be used and stationed only in designated areas of the work site and should not pose any danger to nearby communities, if any.
- (iv) Material stockpiles shall be located sufficiently away from the areas from human settlements and water bodies.
- (v) Construction sites should be fenced out temporarily in order to avoid any risk posed to people who live nearby areas from construction activities.
- (vi) The contractor shall enforce vehicle speed limits for construction vehicles in areas near and inside construction premises

H. Sourcing of Raw Material

The contractor shall ensure that all raw materials such as sand, rubble, metal, and timber required for the construction of the building are sourced from licensed sources. If the contractor plans to operate own quarry/sand pit, all necessary approvals should be obtained from relevant authorities.