Environmental Assessment and Review Framework

July 2018

Sri Lanka: Health System Enhancement Project

Prepared by the Ministry of Health, Nutrition and Indigenous Medicine for the Asian Development Bank.

CURRENCY EQUIVALENTS
(as of 1 July 2018)

Currency unit	–	Sri Lanka Rupee/s (SLRe/SLRs)}
SLRe1.00	=	$0.00632
$1.00	=	SLRs158.300

ABBREVIATIONS

ADB	-	Asian Development Bank
CEA	-	Central Environmental Agency
DE&OH	-	Directorate of Environmental and Occupational Health
DMA	-	disaster management act
EARF	-	environmental assessment and review framework
EIA	-	environmental impact assessment
EPL	-	environmental protection license
ETU	-	emergency treatment unit
HCWM	-	healthcare waste management
HSEP	-	health sector enhancement project
IEE	-	initial environmental examination
MOHNIM	-	Ministry of Health, Nutrition and Indigenous Medicine
NBRO	-	National Building Research Organization
NEA	-	national environmental act
NGO	-	nongovernmental organization
NCCWM	-	national committee on clinical waste management
OPD	-	outpatients' department
PDHS	-	provincial director of health services
PHC	-	primary health care
PHCF	-	primary health care facilities
PIU	-	project implementation unit
PMCU	-	primary medical care units
PMU	-	project management unit
RDHS	-	regional director of health services
SLS	-	Sri Lanka standards
SPS	-	safeguards policy statement
SWL	-	schedule waste license
WHO	-	World Health Organization

CONTENTS

I. INTRODUCTION

A. Overview

1. Sri Lanka's health system today is facing challenges to sustain its performance due to rapidly changing demographics and epidemiological transitions. The cost of health care is increasing due to the sharp rise in noncommunicable diseases linked to lifestyles and rapidly aging population. The national health system needs to further improve to expand services to vulnerable populations with lagging health indicators. In addition, there is increased threat of emerging and resurging infectious diseases linked to environmental factors and increased cross-border migration. The status quo of the health system is inadequately prepared to deal with these evolving challenges without significant reorientation and further improvements. The Asian Development Bank (ADB) is proposing to finance the enhancement of the Sri Lanka health system to adapt to emerging challenges and deal with shifting disease burdens.

2. Strengthening primary healthcare (PHC)— both primary medical care and preventive health services—in Sri Lanka needs priority attention to tackle the rising costs of health care as well as to improve basic health services to lagging populations to meet the emerging public health challenges. The current health system under-invests in primary care, and limited government funds largely cater to higher level hospitals. The underinvestment at the primary care level has led to inadequate facilities and generally poor utilization of primary care level institutions and increased burden on higher-level health care facilities. As hospital care is costly, overuse of hospital services also creates inefficiency in the use of government health expenditures.

3. The cost pressures arising from increased non-communicable diseases and population aging, however, have catalyzed the beginning of government reforms to rationalize health care utilization with increased focus and orientation towards PHC. However, the actual reform model is still evolving, and there is a need for external assistance to further inform and help operationalize PHC reform initiatives.

4. The proposal is aligned with the government priorities identified in the Public Investment Program (2017–2020), as well as with the Health Master Plan's National Strategic Framework for Development of Health Services (2016–2025). It is also included in ADB Sri Lanka Country Partnership Strategy (2018–2022) and reinforces the inclusive growth agenda in the Midterm Review of Strategy 2020.

II. DESCRIPTION OF PROJECT

A. Program impacts and outcomes

5. The impact of the proposed investment in the project will lead to improved primary health care management in selected lagging regions of the country for Sri Lanka's health system to adapt to emerging challenges and deal with shifting disease burdens. Some of the key outputs of the project will include (i) development of primary medical care and preventive outreach infrastructure, (ii) improved service support in PHC facilities and increased service utilization (iii) enhanced capacity of preventive health care institutions for better public health and disease surveillance and (iv) policy reforms to facilitate PHC development.

B. Program Locations

6. The program will be implemented in four lagging provinces in the country through the Ministry of Health, Nutrition and Indigenous Medicine (MOHNIM) and Directorates of Health Services at the provincial and district levels. The provinces are Central, North Central, Sabaragamuwa, and Uva, and include 9 districts in all. The program will focus on improving service delivery in the most vulnerable areas. Therefore, the Health Sector Enhancement Project (HSEP) implementation will be rolled out in areas prioritized according to a vulnerability index that has been developed using selected criteria.[1]

C. Scope of Civil Work

7. Civil works under the program will be focused mainly on expanding facilities within the Out-Patient's Department (OPD) in Primary Medical Care Units (PMCUs) and Divisional Hospitals, typically adding between 1,000 to 2,000 sq. feet to the existing building footprint within the same premises depending on the institution's requirements. Upgrades to OPDs will typically include new consultation rooms, dressing rooms, and expanding patient waiting areas, addition/renovation of emergency treatment units (ETU), laboratories, dispensary, drug stores, staff rest rooms and toilets. Some work could also include minor renovations such as tiling of floors and walls, electrical re-wiring and lighting, plumbing and repair to toilets and septic systems, fixing ceilings and roofing, new furniture, lighting, fixtures and other fittings.

D. Purpose of the Environmental Assessment and Review Framework

8. Projects and programs financed by ADB need to comply with ADB's safeguard policies as detailed in the Safeguards Policy Statement (SPS) of 2009. Therefore, sub-projects and components eligible for funding under this project will be required to satisfy the ADB's safeguard policies, in addition to conformity with environmental legislation of the Government of Sri Lanka.

9. While the full list of PHC facilities that will be supported under the project is identified, specific activities that will comprise investments at each facility remain unknown for most of the sites at the time of ADB board approval. Hence, it is not possible to conduct site specific environmental assessments for those facilities for which details are yet to be developed. What is

[1] (i) percentage of the places with basic facilities more than 5 kilometers from the *Grama Niladhari* division; (ii) percentage of households which used kerosene and other sources of non-electricity for lighting; (iii) percentage of low quality households; (iv) percentage of households using unprotected water sources; and (v) percentage of houses with low quality sanitation facilities.

possible at this stage would be to carry out an identification of generic issues that are typically associated with the type of developments proposed and agree on safeguard procedures and instruments to be applied as and when subprojects become technically ready for implementation.

10. Therefore, the main purpose of this document is to provide a template to plan and manage environmental safeguards under the project in accordance with ADB and national requirements. It will (i) describe the proposed subproject investments planned to be funded under the project; (ii) describe the potential environmental impacts; (iii) specify safeguards requirements that will need to be followed in subproject screening, categorization, assessment and planning; (iv) specify arrangements for meaningful consultation with affected people and interested stakeholders and information disclosure requirements; (v) assess the adequacy of the client's capacity to implement national laws and ADB requirements and identify needs for capacity building; (vi) specify safeguards implementation procedures, institutional arrangements and budgetary requirements; (vii) specify monitoring and reporting requirements; and (viii) describe respective responsibilities of the client and ADB in relation to preparation, implementation and progress review of safeguards documents of sub-projects.

11. The Environmental Assessment and Review Framework (EARF) is prepared based on the ADB's SPS (2009) and relevant government laws and regulations, of which the National Environmental Act and its amendments are key. All sub-projects financed under the project is expected to be prepared following procedures laid out in the EARF to ensure that the HSEP will not contribute towards environmental deterioration in the project area but rather improve environmental quality. This EARF is linked to ADB's Report and Recommendation of the President and the loan covenant making it binding for ADB and MOHNIM to effectively implement its provisions. While the EARF covers the entire project, most of the project's environmental assessment and review efforts will be under Component 1, which includes the project's civil works activities.

E. Project Components

12. The proposed solutions will further enhance Sri Lanka's health system through support for strengthened primary health care and improved health and disease surveillance capacity. ADB's assistance is expected to (i) further inform and operationalize government PHC reform initiatives, while improving underserved communities' access to essential health services, and (ii) address selected gaps in core public health capacities in line with the international health regulations (2005).

13. This project output intends to strengthen the PHC services in the target provinces of Central, North Central, Sabaragamuwa, and Uva, with a special focus on the socially, economically and geographically disadvantaged populations. The PHC services are defined as primary health care services that are provided via curative level facilities (PMCUs) and the Divisional Hospitals, and via the preventive health network of Medical Officer of Health areas led by the Medical Officers of Health). Approximately, 469 PMCUs and Divisional Hospitals and 132 Medical Officer of Health areas are in the target provinces.

Output 1: PHC enhanced in Central, North Central, Sabaragamuwa, and Uva Provinces

14. Output 1 of the project intends to address the following aspects of PHC services defined into four sub-outputs:

(i) Development of primary medical care services;
(ii) Development of primary preventive care services;
(iii) Public awareness and behavior change communication for increasing PHC utilization and creating demand; and
(iv) Strengthen PHC management for continuity of care.

1. Development of primary medical care services

15. Under this sub-output, the project supports the development of curative PHC facilities (this includes Divisional Hospitals and PMCUs). The health facilities were identified by a two-stage objective analysis using a vulnerability index[2] and the geographic information system (GIS) tool[3] in consultation with the MOHNIM and the four provinces. In the first stage, the vulnerability index was used to identify the vulnerable population in the target provinces and the GIS tool was able to link the nearest PHC to the vulnerable populations. Based on this calculation, the priority list of PMCUs and Divisional Hospitals that require development was identified. Thereafter, in the second stage, in discussion with the provinces, the respective districts, and the MOHNIM, two additional criteria, (i) any facility without basic services water, electricity, sanitation services, (ii) any facility that needed development based on local knowledge and needs were considered to finalize a list of 15 facilities per district as the priority list of PMCUs and Divisional Hospitals that require to be developed under the project. This amounts to 29% (135/469) of all PMCUs and Divisional Hospitals in the four provinces.

16. This sub-output will develop the physical infrastructure of the identified facilities based on a prior agreed, MOHNIM approved, physical space norm for providing the expected expanded service functions in PMCUs and Divisional Hospitals outpatient care units. The designs for the renovation and upgradation will be based on this standard.

17. This sub-output will also support to purchase the immediate medical equipment needs which were identified by carrying out a stocktaking of gaps against current guidelines. Equipment required for improving laboratory services, emergency treatment services, dental services, and non-communicable disease related clinical services are included.

2. Development of primary preventive care services

18. The preventive health services are provided via the medical officer of health areas which are geographically demarcated. Each Medical officer of health area serves a catchment population of about 60,000 to 100,000. Preventive health services are provided by field level officers from grass root level (public health midwives) to public health Inspectors and are supervised by the medical officers of health at the divisional level and at the regional level by

[2] The vulnerability index of the Census Department identifies the most vulnerable *Grama Niladhari* divisions (the smallest administrative division in Sri Lanka) based on five variables: (i) percentage of the places with basic facilities more than 5 kms away from the *Grama Niladhari* division; (ii) percentage of households which used kerosene and other sources of non-electricity for lighting; (iii) percentage of low quality households; (iv) percentage of households using unprotected water sources; and (v) percentage of houses with low quality sanitation facilities using the Census 2012 data .

[3] A model was developed by the ADB team in consultation with the MOHNIM and the 4 provinces, to identify the target population of the project. The model used 3 variables to develop the list of *Grama Niladharis*: (i) the census vulnerability index, (ii) the dependency ratio of the *Grama Niladhari* populations (population over 60 years and the children below 15 years/ population of adults 15 to 59 years) and (iii) the distance to the nearest primary medical care facility (PMCU or a Divisional Hospital).

the medical officers for maternal and child health, for epidemiology, for noncommunicable diseases, for mental health, dental services etc. The preventive health clinics for maternal, child health, nutrition services are held at medical officer of health offices or in the field health centers. There are approximately 8–15 field health centers distributed across each of the 132 medical officer of health areas in the 4 provinces. The field health centers also include the staff quarters required for field health staff (public health midwives) and office space for the field health staff (PHMs) and Public Health Inspectors.

19. Under this sub-output, the project intends to renovate and refurbish at least one field health center per medical officer of health area (132 medical officer of health areas in the four provinces). The designs and renovations will also be based on the MOHNIM approved physical space norm for PHCs. The identified list of 127 field health centers are in **Annex 2**.

20. In addition, under this sub-output, the project will enhance the mobility levels of the field health staff, especially the medical officers to expand and further improve and better supervise the preventive health services.

21. The sub-output also supports to expand the targeted nutrition related services available to the mothers and children in the 4 provinces with a special focus of more vulnerable populations in the estate and rural areas. This output will support the hiring of a firm to review of the available nutrition related information, education and communications material with a view to updating and developing information, education and communication material and for developing material for nutrition advice and guidance on complimentary feeding with suggestions on quantity, diversity and frequency for feeding children between 6 months to 2 years, to provide training in nutrition and reproductive health counselling and to further support interventions for mothers and children under 5 years and to promote community health and nutrition promotion and use of PHC. In addition, this output will support the hiring of an individual consultant to review the reproductive health information, education and communication material and related guidelines for further improving and scaling up reproductive health interventions in the provinces.

3. Public awareness and behavior change communication for increasing PHC utilization and creating demand

22. The objective of this sub-output is to create demand and support a behavior change of health seekers who regularly bypass PHC services. This output will also demand creation for nutrition services and wellness and healthy living promotion in the community. Public awareness campaign will inform and encourage the community, adult men and other difficult to reach groups, mothers of children under 2 years etc. to seek care at the nearest PHC facility (MOH office or the PMCU or Divisional Hospital) for preventive and curative care respectively.

4. Strengthen PHC management for continuity of care

23. This sub-output will support provincial and regional health staff to propose and implement strategies to improve PHC using discretionary resources from the PHC Innovation Fund. Each of the nine districts in the four provinces is expected to have one cluster managed by a cluster manager to explore these strategies. While the proposed scope is flexible, three broad areas are envisioned: (i) improving PHC efficiency by creating a cluster of shared care services across primary and secondary levels, and across curative and preventive providers with an overall objective of improving continuity of care to health seekers; (ii) initiatives to improve the range, quality and equity of preventive and curative PHC including services for

NCD, elderly care, emergencies, and diagnostics; and (iii) initiatives related to supervision, monitoring, and evaluation of interventions.

Output 2: Health information and disease surveillance capacity strengthened

24. Output 2 of the project intends to address the following 2 sub-outputs:

(i) Adopt health Information technology (HIT) for better continuity of care and disease surveillance; and
(ii) Implement International Health Regulations recommendations.

25. This output intends to strengthen health and disease surveillance to provide real time sharing of health information across levels of facilities and across different episodes of care for an individual patient. This will help enhance the disease surveillance capacity of the system and will establish a system for continuity of care to health seekers. This system will initiate to establish a real time link from curative to preventive primary health care for early initiation of disease investigation of the notifiable diseases by the field based public health inspectors attached to the medical officer of health areas.

26. In addition, this output intends to also support the government of Sri Lanka to implement the recommendations of the Joint External Evaluation of the International Health Regulations with a special focus at the points of entry and inbound health assessment services. In addition, this output will support infection prevention and control (IPC) via capacity development and strengthened health care waste management initiatives introduced in the pilot 9 clusters.

Output 3: Policy development, capacity building, and project management support

27. Output 3 of the project intends to support the following tasks described in the three sub-outputs.

(i) Policy development support;
(ii) Capacity development; and
(iii) Project management and results monitoring.

28. Output 3 of the project intends to support policy development to enhance the impact of the project activities. As the project envisages to strengthen PHC in Sri Lanka with a focus in the lagging provinces to provide a responsive and a comprehensive package of services to the population, it is essential to focus in a few prioritized policy areas that need to be addressed for successful implementation of the project. This output will support policy related tasks to improve PHC services in Sri Lanka, as well as capacity development, and support to project management and results monitoring.

III. ASSESSMENT OF THE LEGAL FRAMEWORK AND INSTITUTIONAL CAPACITY

A. Existing Health care waste management framework in the country

1. Draft National Policy on health care waste management

29. In 2001, the Government of Sri Lanka drafted a comprehensive national policy on health care waste management. It has three main sections covering:

(i) General considerations on Healthcare Waste Management (HCWM) and the institutional mechanism for policy implementation that should be set up at national level.
(ii) Provisions for the safe management of HCW in medical Institutions, including regulations and HCWM plans.
(iii) Provisions for the implementation of and the monitoring of HCWM plans at national and provincial levels including legislation, provision of human and financial resources, training and awareness and participation of private sector.[4]

30. Some salient features of the draft policy are highlighted below.

(i) Healthcare waste generated by the medical institutions of the public and private sector must be safely handled and disposed of. HCWM as an integral part of hospital hygiene and infection control, hence each healthcare facility (HCF) is legally responsible for the proper management of waste that it generates until its final disposal.

(ii) Major hospitals must prepare specific HCWM plans outlining needs, objectives, and strategies, procedures for approved management and disposal of HCW and timeframe for implementation. The PDHS must set up annual Provincial and District HCWM plans presenting the strategy for HCWM that should be developed at the regional level. The provincial/regional plan shall be a compilation of individual HCWM plans of each HCF the province is responsible for. All plans need to be validated and supported by the Central or Provincial Health Services before implementation.

(iii) Specific budget lines need to be developed relating to hospital hygiene and HCW management in the National Accountancy of the Health System to ensure sufficient human and financial resources are allocated to implement the HCWM plans in medical institutions.

(iv) Policy implementation needs to be monitored based on specific objectives defined in the National Action Plan (the plan developed to implement the policy country wide - see section below) and that institutionally, the National Steering Committee on Clinical Waste Management is responsible for the overall monitoring and evaluation and the PDHS for the implementation of monitoring procedures in HCFs within their area of jurisdiction.

[4] Government of Sri Lanka, Ministry of Health. 201. *Draft National Policy on Health Care Waste Management.* Colombo.

(v) Other key aspects highlighted relate to approved HCWM practices, equipment for treatment and disposal, training and awareness, involvement of civil society and private sector participation.

31. The institutional mechanism for implementing the national policy is envisaged under three levels of management:

(i) At the central level, coordination and development of strategies and mechanisms to implement policy commitments, in accordance with national requirements, has been vested with the National Committee on Clinical Waste Management (NCCWM). In addition, development of training and capacity building packages, training implementation supervision, setting up of HCW monitoring protocols, overall monitoring and evaluation has been assigned to the NCCWM. The central health services are responsible for technically backstopping HCFs under its management purview.

(ii) At the provincial level, implementation of the policy has been vested with the Provincial Councils. The PDHS is responsible for setting up provincial HCWM plans, synthesized from individual hospital HCWM plans coming under its area of jurisdiction, development of financial resources and for the implementation of HCW monitoring/auditing procedures.

(iii) At the local level, setting up of HCWM plans that outline needs, objectives, strategies, procedures and timeframes for medical institutions has been vested with the hospital management.

32. The national policy on HCWM to this date remains a draft as all attempts for its formal adoption in the past has not been successful.

2. National Guidelines on health care waste management

33. In 2001, the government drafted national guidelines for healthcare waste management with the aim of (i) providing a better understanding of the fundamentals of HCWM planning and (ii) directing HCFs in setting necessary procedures and standards to comply with policy and legislative requirements. These have been drafted in a form that provides all fundamental elements that should be integrated into future legislation specific to HCW. Although guidelines were reviewed by the NCCWM as well as the Ministry of Health it did not receive formal endorsement by the government.

34. The draft national guidelines contain both practical and conceptual information on HCWM covering four main sections:

(i) Definition and categorization of HCW including potential harmful effects that can result from its improper management.
(ii) Procedures for segregation, packaging, labelling, collection, storage, transportation and disposal (including selection of appropriate treatment and disposal technologies for HCW) that should be applied and followed by all HCFs in the country.
(iii) Instructions for the implementation of health care waste management plans including detail description of duties and responsibilities of health care provider at various levels.

(iv) Instruction for personnel of Central and Provincial Health Services who oversee HCWM to ensure smooth implementation of the guidelines and to set up regular monitoring mechanisms.

35. In 2007, concise guidelines for HCWM were prepared under the Hospital Efficiency and Quality component of the Sri Lanka Health Sector Development Project based on the detailed draft guidelines prepared in 2001. The concise guidelines which mainly contain sections in waste categorization and health care waste management procedures have been formally adopted and incorporated into the Handbook of Infection Control.

a. Code of Hygiene

36. Management of HCW is an integral part of hospital hygiene and infection control that must be reinforced with internal rules. In 2008, the government developed a comprehensive Code of Hygiene that completed the existing Infection Control Handbook. The national code of hygiene contains recommended HCWM procedures and is seen as part of an overall set of actions to control the hygiene conditions within the hospital. It sets out duties and responsibilities of medical and non-medical staff regarding hygiene procedures to be applied, recommended practices to maintain high level of hygiene and ongoing management and managerial activities to be carried out in the hospital. The code of practice must be implemented along with the HCWM guidelines.

37. **National Color code.** In 2006, the MOH developed a national color code for implementing a uniform system for separating HCW streams based on the type of waste, treatment and disposal methods. The code recommends technical specifications for bags and bins to be used for different waste types. The national color code identifies 7 specific categories.

Table 1: National Color Code for segregation of HCW

Color	Category	Contents
Yellow	Infectious	Cultures or stocks from microbiology, tissues from surgeries/autopsies, material or equipment in contact with blood or body fluids soiled linen, dialysis equipment such as tubing and filters.
Yellow with red stripes	Sharp waste	Sharps, needles and IV sets contaminated with body fluids
Black	General waste	General or municipal waste that is uncontaminated
Green	Biodegradable waste	Garden, kitchen and food waste
Red	Glass waste	Uncontaminated drink bottles, water bottles
Blue	Paper waste	Paper, cardboard and office stationary
Orange	Plastic waste	Uncontaminated plastic medicine bottles, saline bottles without IV sets, plastic bags

38. The national policy on HCWM to this date remains a draft as all attempts for its formal adoption in the past have not been successful. As a result, there have been no legal enactments made to operationalize the policy. As such, to this date, the national policy and guidelines on HCW management serves as a broad guideline only with no mandatory binding legal requirement. The only legal requirement for HCW in Sri Lanka stems from the National Environmental Act, as explained below.

B. Environmental Legislation

39. The requirement for environmental assessment and environmental pollution control in Sri Lanka is established by the National Environmental Act No 47 of 1980 and its amendments

(No 56 1988 and No 53 of 2000). The three main regulatory tools implemented under the NEA are Environmental Impact Assessment (EIA)/Initial Environmental Examination (IEE), Environment Protection License (EPL) and Schedule Waste Management License supported by standards for discharge and waste disposal guidelines.

40. The procedures for EIA/IEE are defined in the EIA regulations gazette No 772/22 (1993). The regulations prescribe the activities for which EIA/IEE is mandatorily required in three separate schedules. The need for an environmental assessment and the level of analysis required (EIA or IEE) for each development activity is screened by the CEA based on the submission of a Basic Information Questionnaire by the developer. There are two possible screening outcomes

(i) Exclusion from EIA/IEE – the activity does not fall under the prescribed category or located in a sensitive area as defined in the regulations.

(ii) EIA/IEE required – the activity falls under the prescribed category, has potentially serious environmental impacts and/or is in a sensitive area. With a positive screening decision, the CEA appoints a scoping committee to decide on the level of analysis and prepare the TOR or if the project falls within the jurisdiction of government authority which is an appointed project approving authority to administer the EIA process, the CEA will hand over the process to the said authority.

41. The second regulatory tool under the National Environmental Act is the Environmental Protection License (EPL). The EPL procedure has been introduced to prevent or minimize the release of discharges and emissions into the environment from industrial activities in compliance with national discharge and emission standards, to provide guidance on pollution control for polluting processes and to encourage the use of pollution abatement technology. The EPL regulations define the prescribed activities for which a license is required and procedures for obtaining one. Since 2008, the NEA requires all medical institutions to obtain a valid Environmental Protection License (EPL).

(i) Part II of the National Environmental (Protection & Quality) regulation No. 01 of 2008 includes “Health care service centers generating infectious wastes, including medical laboratories and research centers” as a prescribed activity that requires a license.

(ii) Schedule VIII lists Healthcare waste as a scheduled waste from specific sources that no person shall generate, collect, transport, store, recover, recycle or dispose except under the license issued by the Authority and in accordance with standards and other criteria as may be specified by the Authority.

42. Accordingly, every HCF is legally responsible for the proper management of health care waste from the point of generation until its final disposal to ensure minimum environmental and public health impacts. However, the NEA does not contain any definition of HCW or characterization of the type and degree of hazards associated with different medical wastes. Nor does it carry any guidance on treatment and disposal technologies that might be considered acceptable in Sri Lankan.

43. The third regulatory tool under the NEA deals with the disposal of scheduled waste as defined though the gazette notification No 1534/18 of 2008. It deals with waste from specific and

nonspecific sources. The notification has three parts and eight schedules of which Part I deals with the issue of environmental protection license for emission/disposal of waste, part II deals with the issue of license for the management of scheduled waste (Hazardous Waste) and part III on general matters including definitions and the effectiveness and validity of the license issued under National Environment (protection and quality) regulation No 1 of 1990 published in extraordinary gazette No 595/16 of February 1990. The eight schedules include the tolerance limits, applications, formats for reporting, categorization of nonspecific and specific waste etc.

44. There are several other key national legislations for environmental management and protection. The Flora and Fauna Protection Ordinance and the Forest Ordinance does not permit any construction activities in protected areas managed by the Department of Wildlife Conservation and Forest Department, respectively. If any development is bound to have an impact on protected areas clearance from the two departments, as the case is, must be obtained.

45. The Antiquities Ordinance No 9 of 1940 prohibits any activity within declared archaeological reserves. If a certain development activity has the potential to cause structural or non-structural damage to an archaeological resource clearance from with the Department of Archaeology must be obtained and if required, the Director of the Department could request for an Archaeological Impact Assessment before clearance is granted.

46. The Agrarian Development Act No 46 of 2000 prohibits any filling of paddy land for development without the written permission of the Commissioner General of Agrarian Services.

47. Under the Disaster Management Act, construction in identified land slide hazard areas will require approval from the National Building Research Organization.

48. The Urban Development Authority Act No. 41 of 1978 and the Sri Lanka Land Reclamation & Development Corporation Act No. 15 of 1968 require clearance to be sought when carrying out development work in areas that are declared under these acts.

49. In addition to the above, approval from local authority is required for all new constructions.

Table 2: National level clearances that are applicable to the project

Activity	Relevant legislation	Statutory requirement	Authorizing body
Disposal of Health Care Waste	NEA	EPL/SWL	CEA
Discharge of wastewater effluents	NEA (Protection and Quality) Regulation No. 1 of 1990 published in Gazette Extraordinary No. 595/16 of February, 1990	EPL	CEA
Air emissions	National Environmental (Ambient Air Quality) Regulations, 1994, published in Gazette Extraordinary, No. 850/4 of December 1994 and amendment gazette No. 1562/22 of 2008	EPL	CEA
Disposal of solid waste	National Environmental (Municipal Solid Waste) Regulations, No. 1 of 2009	Approval for disposal site	CEA
Emission of noise and vibration	National Environmental (Noise Control) Regulations No.1 of 1996 and its amendments	Compliance	CEA
Construction on steep slopes in the central province	DMA	Compliance	NBRO

NEA= National Environment Act; DMA= Disaster Management Act; EPL=Environmental Protection License; CEA= Central Environment Agency; NBRO = National Building Research Organization; SWL=Schedule Waste License

50. Apart from the above, none of the other clearances are likely to be required as the infrastructure development proposed under the project will be limited to a modest expansion/upgrade of the existing building footprint/facilities on land owned by the HCF. In a rare scenario, a completely new building could be supported to relocate the OPD functions to a different part of the hospital to be near wards and ETU. In the worst case, land will be acquired for the proposed expansion, but this will be unlikely.

C. Safeguard Requirements of ADB

51. All projects funded by ADB must comply with the SPS (2009). The SPS includes operational policies that seek to avoid, minimize, or mitigate adverse environmental and social impacts, including protecting the rights of those likely to be affected or marginalized by the development process. It sets out the policy objectives, scope and triggers, and principles for three key safeguard areas: (i) environmental, (ii) involuntary resettlement, and (iii) indigenous peoples. All three safeguard policies involve a structured process of impact assessment, planning, and mitigation to address the adverse effects of projects throughout the project cycle. The safeguard policies require that impacts are identified and assessed early in the project cycle, plans to avoid, minimize, mitigate, or compensate for the potential adverse impacts are developed and implemented and affected people are informed and consulted during project preparation and implementation. A basic principle of the three existing safeguard policies is that implementation of the provisions of the policies is the responsibility of the borrower/client. Borrowers/clients are required to undertake social and environmental assessments, carry out consultations with affected people and communities, prepare and implement safeguard plans, monitor the implementation of these plans, and prepare and submit monitoring reports.

52. All projects funded by the ADB are first screened and categorized into one of the following categories in the early stages of project preparation. Screening and categorization is undertaken to (i) reflect the significance of potential impacts or risks that a project might present; (ii) identify the level of assessment and institutional resources required for the safeguard measures; and (iii) determine disclosure requirements.

(i) **Category A**. A proposed project is classified as category A if it is likely to have significant adverse environmental impacts that are irreversible, diverse, or unprecedented. These impacts may affect an area larger than the sites or facilities subject to physical works. An environmental impact assessment is required.

(ii) **Category B**. A proposed project is classified as category B if its potential adverse environmental impacts are less adverse than those of category A projects. These impacts are site-specific, few if any of them are irreversible, and in most cases mitigation measures can be designed more readily than for category A projects. An initial environmental examination is required.

(iii) **Category C**. A proposed project is classified as category C if it is likely to have minimal or no adverse environmental impacts. No environmental assessment is required although environmental implications need to be reviewed.

(iv) **Category FI**. A proposed project is classified as category FI if it involves investment of ADB funds to or through a FI.

53. The HSEP is categorized as an Environmental Category B. As such, the project will establish an environmental review process commensurate with the level of anticipated impacts and policy requirements of a category B to ensure that it is environmentally sound and are designed to operate in compliance with applicable regulatory requirements. Rehabilitation works to be funded by the PHC Innovation Fund will also be subject to SPS 2009 even if they may be exempted from national environmental regulations.

54. **Hazardous Waste Handling.** The ADB SPS (2009) stipulates that the borrower will avoid the manufacture, trade, and use of hazardous substances and materials subject to international bans or phaseouts because of their high toxicity to living organisms, environmental persistence, potential for bioaccumulation, or potential for depletion of the ozone layer and will consider the use of less hazardous substitutes for such chemicals and materials. The only hazardous material generated under HSEP is the demolished AC sheet wastes and requires careful handling and safe disposal.

D. Review of Institutional Capacity of Executing Agency

55. The MOHNIM through the PMU and PIUs will deliver the project. Management of environmental safeguards of the project is linked to component 1 only which involves upgrades/expansion to physical infrastructure in primary care health facilities. Component 2 and 3 only involve soft development and vehicle/equipment procurement, a safeguard review process will not be relevant.

56. The MOHNIM through its PMU and the provinces through the project implementation units (PIUs) will be responsible for conducting environmental screening and follow up assessments, preparing relevant documents and monitoring compliance. The MOHNIM has a Directorate of Environmental and Occupational Health (DE&OH) headed by a Deputy Director General and has a separate budget line under the MOHNIM. The DE&OH has a staff strength of 39 with capacity for occupational health and safety, food and drug safety, health care waste management, etc. Regarding HCWM, the DE&OH has facilitated 28 EPLs/SWLs for major hospitals in all nine provinces so far through the provision of training, evaluation and follow up support. The MOHNIM will be directly involved in the project as the chair of the Ministerial Project Steering Committee. The MOHNIM also has prior experience implementing projects funded by other multi-lateral banks such as the World Bank with similar safeguards requirements as well as by several bi-lateral donors.

57. The PMU will closely collaborate with the provincial and regional directorates of health services through their representation in the province level PIUs. Since HCW management planning will be a crucial component of safeguards assessments and monitoring, it is important to note the province level capacity for same. None of the PDHSs have a formal program or dedicated staff for HCWM that sets direction and follows up with HCFs. The existing capacities between the provinces also vary as seen by the difference in status quo regarding HCWM.

58. The implementing agencies, the PIUs in each of the four provinces, and relevant other staff from the PDHSs and the RDHSs will require training and capacity building in better understanding of project related environmental issues, application of safeguard procedures under the project, and for the planning and monitoring of HCWM. The PMU under the MOHNIM will have a full-time dedicated environmental specialist to overcome capacity constraints within

the implementing agencies and to provide the necessary implementation support. The PMU will design and deliver training and capacity building program as necessary for safeguards management. A structured and phased out training and evaluation program will also need to be implemented to improve the current level of awareness and understanding for HCWM, which would be done in close collaboration with the DE&OH.

IV. ANTICIPATED ENVIRONMENTAL IMPACTS

59. The scope of work proposed under the project involves the upgrading of selected primary health care facilities in the four provinces and would typically involve expansion/rehabilitation of existing OPD facilities (patient waiting area, laboratory, drug stores, consultation rooms, dressing rooms, ETU, staff quarters etc.) and in rare instances the construction of new building complexes to relocate OPD facilities in the vicinity of wards and ETUs, to provide better point of care services to the serving population. The scale of construction work for upgrade/rehabilitation work envisaged is small to medium with a typical building footprint of 1000 to 2000sq. feet.

60. The project will bring many benefits to the local community through savings in out-of-pocket medical expenses and time spent on travel as well as to the country by reducing the burden on higher grade hospitals through better utilization of primary health care facilities. The construction period will generate employment opportunities for the local people.

A. Construction Phase

61. The potential adverse impacts envisaged during the construction phase of the project consist of the following. A majority of the potential construction related impacts are localized, temporary in nature and can be mitigated with good construction and site management practices.

(i) Full or partial demolition of old buildings, material stock piling, cement and timber work, plastering, cutting of tiles, construction vehicle movement etchant generate significant amounts of dust, noise and hence impairment of air quality within the site. This is a temporary and localized impact.

(ii) Surface runoff mixed with construction waste water (cement mixed water) can run in open drains and contaminate soil and surface waters.

(iii) Blocking of drainage due to stockpiling of material and debris can possibly cause localized flooding and stagnation of water which can consequently provide breeding grounds for mosquitoes.

(iv) Site preparation, trenching for foundations and material stock piling can potentially lead to erosion of soil during wet weather, especially in the Central Province causing siltation, blockage of drainage downstream and even collapse of soil banks.

(v) The demolition and construction work will produce considerable amounts of debris consisting of concrete, bricks, discarded pipes, wiring, cement bags and mixed spoilage which if improperly disposed can cause a range of adverse environmental impacts. Some buildings earmarked for reconstruction currently use Asbestos Cement (AC) sheet as roofing material. Hence, AC sheets will be among construction debris which needs careful disposal to protect public health. The capacity of the contractors to carry out safe demolition, handling and transportation of discarded AC sheets will very much depend on the experience and expertise of the contractor. Given the civil works under the project will be relatively smaller value contracts, it is unlikely that the type of contractors who will come forward have well-developed systems to ensure occupational health

and safety during removal of AC waste. Hence, a training specifically focused on AC sheet removal, handling, storing and final disposal should be provided to the contractor by the PMU prior to commencement of any civil works in the sites. The PMU will prepare a risk assessment and mitigation plan to guide the removal of AC sheets from sections of HCFs that will undergo renovation and/or expansion in which training and capacity building of contractors will be a key task. Annex 1 provides details guidelines on handling and disposal of discarded AC sheets.

(vi) Demolition and construction work, movement of heavy vehicles, onsite storage of construction material and equipment and the generation of dust will pose a significant threat on occupational health and safety both to workers, hospital staff and people visiting the facility seeking medical treatment. Patients with poor respiratory health will be at high risk from air borne pollutants.

(vii) Large labor forces are not envisaged for the proposed reconstruction activities. However, establishment of labor camps can potentially cause environmental pollution and various social issues in the lack of provision of adequate facilities.

(viii) Site preparatory activities for the expansion of the hospital building footprint can result in a limited felling of large trees and clearing of ground cover affecting air quality, shade and other benefits of vegetation within hospital grounds.

Table 3: Anticipated impacts and mitigation measures

Construction Activity	Potential environmental issues/impact	a. Likelihood of occurrence and b. Level of impact	Recommended mitigation measures
1.Site preparation, excavations, building demolition, material stock piling and construction	• Dust and noise • Nuisance to hospital staff, patients and neighborhood	a. Dust and noise is likely to be a significant impact, especially since the facilities are visited by patients with certain medical condition sensitive to deteriorated air conditions. b. Moderate to high	• Regular watering of the construction site for dust suppression. • Covering of excavated soil temporary stored on site with tarpaulin or other locally sourced suitable material. • Covering up materials and spoil to and from construction sites during transportation. • Daily cleaning of the construction site that are affected by soil and dust. • Imposing speed controls for construction vehicles. • Restricting use of noisy machines or use of noise-reducing means for construction machines, keeping in mind that the construction site is within a sensitive receptor. • Stopping construction activity by 6 pm daily to avoid noise and vibration that may cause discomfort for in-patients and neighborhood. • Any unavoidable night-time activities should be done using noise reducing means or low-noise technologies. • Using vehicles and equipment that meet standards for noise and vibration in Sri Lanka. • Scheduling noisy construction machines/activities (such as pouring concrete for slabs) to non-clinic and non-OPD times as much as possible or on days that patient visitation to the facility is minimum.
2. Construction waste water polluting nearby drains and waterways	• Generation of solid waste which if improperly disposed can cause pollution, drainage impairment and safety risks.	a. Generation of solid waste of mixed nature will be a key impact. b. Moderate to high	• Work sites should be cleared of residual solid waste and wastewater before work commences. • Temporary storage of solid wastes shall be done with appropriate containment to avoid spreading of waste, odor and avoid dust. • Temporary storage of solid waste on-site should be done to avoid interfering with vehicle movement, aesthetics and other hospital activities. As such, these sites for collecting solid waste within the hospital premises or adjacent land should be determined prior to commencement of construction. • Provision for the Ambulance to reach the hospital units (ETU) must be always maintained with a clear pathway devoid of debris piles defined. • Construction wastes should be removed as much as possible within 24 hours from the site to ensure safety of hospital staff and users.

Construction Activity	Potential environmental issues/impact	a. Likelihood of occurrence and b. Level of impact	Recommended mitigation measures
			• All waste should be collected and disposed in compliance with the local and national laws, in sites identified by the respective local authority. • Any kind of waste shall not be disposed to un-authorized locations whatsoever. • Excavated soil, if suitable, should be used for levelling and backfilling • Solid waste burning on-site should be completely avoided. • The construction site should be cleaned of solid wastes, wastewater etc. and removed of all obstacles before handing the site back to hospital management.
	• Dismantling of existing buildings (full or partial) will result in waste containing Asbestos Cement (AC) sheet which if improperly disposed can cause a risk to public health from air borne asbestos fiber	a. Likely to be a significant impact given widespread usage of AC sheets in local buildings. b. Low to moderate	• Breaking the AC sheets while dismantling should be avoided or minimized. • If the sheets are bolted in place, bolts should be dampened and cut while avoiding contact with the AC. • Large pieces should be slowly lowered to the ground but not dropped or used as rubble. • The removed sheets should be stacked carefully on-site temporarily and covered in thick polythene sheets. • Remove the sheets to a permanent store within the premises or in a central location for all AC waste in the district/province. • Transport should be done carefully with the sheets covered in thick polythene or tarpaulin. • Finally transport the AC sheets in bulk to Sri Lanka's first licensed sanitary landfill cell once it is ready by 2019. • Workers should wear protective masks and gloves during all types of AC handling. • A training program should be designed by the PMU to build the capacity of the contractor in handling and disposal of waste AC sheets prior to commencement of any demolition on site.
	• Soil erosion	a. Likely to be an impact especially in areas with sloping land. b. Low	• Wastewater from the construction site should not be directly discharged into natural surface waters or irrigation systems without any treatment. • Cement mixed wastewater runoff from the site should be first directed to a pit to allow siltation and percolation to protect surface waters from being directly polluted before connecting to a lead away drain.
		c. Likely to be a significant impact in the mountainous areas of the Central and Sabaragamuwa provinces	• Stockpiling of earth should be done a safe distance away from water sources and should be fully covered with a suitable material on all sides. • A weight (sand bags or rocks) should be placed at the base of the

Construction Activity	Potential environmental issues/impact	a. Likelihood of occurrence and b. Level of impact	Recommended mitigation measures
		d. Moderate	stockpiles to prevent the cover from getting displaced and exposing earth to erosion. • Other construction materials containing small/ fine particles shall be stored in a place not subjected to flooding and in such a manner that these materials will not be washed away by runoff. • Earthwork should be carried out during dry weather periods. • Uncovered steep slopes should be protected with surface covers (and if needed fortified with sand bags or low-cost check dams), and silt fences. • Retention walls should be built where land slopes are at risk of collapsing. • Drains leading away storm water from the construction area should be protected with earthen/sand bag berms during wet weather. • If necessary, silt/sedimentation traps should be used to prevent soil particles from getting into drains.
3.Stockpiling of construction material and debris	• Blocking of drainage paths leading to water stagnation and localized flooding within the facility • Water stagnation eventually leading to breeding of mosquitoes	a. Blocking of drainage could potentially occur during monsoons in the absence of good site management. Construction sites are known to be breeding grounds for mosquitoes. b. Moderate	• Maintain cross drainage within the site always during construction. Hence stockpiles and debris must be safely stored away from these drainage paths. • Where blockage of drainage is unavoidable, alternative paths must be created to facilitate storm water flows from the site to outside.
4.Vehicle/construction machinery repairs and maintenance	• Spillage and disposal of oil and waste lubricants that can lead to pollution of soil and water	a. Unlikely to be a significant impact b. Low given small quantities and low probability of on-site repairs/maintenance	• Oil and lubricant waste should not be buried or burnt in the project site but collected and stored in proper oil-cans and disposed for re-use or LA approved designated sites.
5.Labour camps	• Soil and water pollution from labor camp discharges • Social conflicts • Spread of infectious diseases	a. Large labor camps are unlikely to be required as the scale of construction envisaged is small. b. Low	• Priority should be given to hiring local labor for the unskilled category to generate employment opportunities as well as to minimize social conflicts. • Labor camps should be sited appropriately with consent from the necessary public authority or the implementing agency. • Labor camps shall be provided with adequate and appropriate facilities for disposal of sewage and solid waste • Domestic solid waste shall be collected and disposed of daily at the LA designated site or given for collection by the LA • Discharge and disposal domestic waste from worker camps into water sources should be strictly avoided • Burying and burning domestic waste in the project site should also

Construction Activity	Potential environmental issues/impact	a. Likelihood of occurrence and b. Level of impact	Recommended mitigation measures
			be strictly avoided • Avoid construction workers staying overnight in the construction sites • Mobilizing maximum capacity of skilled and unskilled labor force from the surrounding project area • Identify location of camps with consultation of LA. • Camps should not be located near water ways, human settlements or near drinking water intakes.
6.Extraction of earth and quarry	• Destruction of vegetation at the burrow/quarry site • Spread of invasive species • Community health issues	a. Large quantities of earth are unlikely to be required only in cases where ground filling and leveling will be required, which would be rare. b. Low	• All quarry/burrow sites operated by the contractor should be licensed with the LA/CEA/GSMB, as appropriate. • Establishment of burrow pits/areas and its operational activities should not endanger properties and cause a health hazard to the people. • All burrow pits /areas shall be rehabilitated at the end of their use by the contractor in accordance with the requirement of the EMP or as instructed by the Engineer • If contractor would procure earth/quarry material, he should do so from sources that are operating with the required licenses.
7.Extraction of water	• Depletion of the water source in water stressed areas/time periods. • Water user conflicts resulting from sharing common water sources • Supply of poor quality water to labor camps leading to health impacts	a. Likely to be a concern in certain areas of all provinces where water scarcity (yield and/or quality) is already experienced. b. Moderate	• Contractor shall not obtain water for his purposes from public or community water supplies without approval from the local authority and hospital management. • For drinking purposes, the contractor should ensure supply of safe water that meets the SLS standards for drinking water quality. • For construction purposes, the contractor should arrange an adequate supply of water throughout the construction period either from the area or outside depending on its availability. In water scarce areas existing sources shall not be stressed that could lead to further compromising community water needs.
8.Occupational health and safety	• Accidents • Public health impacts	a. Occupational health and safety issues are likely to occur in all sites given that construction will take place within hospital premises while health care services are continuing to be delivered and that a large majority of hospital users are patients. b. Moderate to high	All sub-projects should observe safety regulations during construction. Some key aspects; • Construction site should be delineated from the rest of the hospital preferably using among metal sheets or any other suitable material. • All digging and installing work items that are not accomplished should be isolated and warned of by signposts and flash lamps during night-time. • Delineation devices such as cones, lights, tubular markers, barricades tapes, warning signposts etc. should be erected to inform hospital users about work zones. • Dangerous warning signs should be raised to inform public of dangers and to keep them away from such hazards.

Construction Activity	Potential environmental issues/impact	a. Likelihood of occurrence and b. Level of impact	Recommended mitigation measures
			• Standard Personal Protective Equipment (PPEs), tools and protective clothing should be provided to workers and the contractor must ensure that safe working methods are applied. • The constructors should carry out suitable training programs and regular tool box meetings on occupational health and safety for workers • All electrified cables use for power tools, camp wiring, and any other electrification work should be firmly insulated. • Machinery and equipment that could easily electrocute should be kept safely within the site and always under the supervision of an experienced worker. • Construction camps with adequate sanitation facilities should be provided to construction workers to control the transmission of infectious diseases. • Experienced and well-trained workers should be used for the handling of machinery, equipment and material processing plants. • The contractor should establish his own procedure for receiving, documenting and addressing complaints. • Notice should be provided to hospital staff and users about the schedule of construction activities with hazards such as preparing the concrete slab for multi-story buildings.
9.Removal of trees and vegetation	• Loss of shade and other benefits of trees • Loss of aesthetics • Loss of biodiversity	• Removal of large trees is likely to occur in some sites but will not be widespread • Low	• Large trees with DBH more than 30 cm should be removed only if they impinge on the design. • Large trees providing share should be preserved as much as possible and incorporated into the building design • A compensatory tree planting program should be developed to replant native species wherever available space within the hospital premises and maintained until grown well.
10.Impact on water resources	• Pollution of water sources • Impacts on aquatic habitats	• Unlikely to occur widely • Low	• The contractor should identify reliable water resources and obtain necessary approvals from the relevant authorities to extract water prior to commencement of construction work. • Work should not obstruct or prevent water flow when working closer to water bodies. • Silt traps and erosion control measures should be used where the construction sites are near water bodies. • Construction material and stock piles should be covered to avoid wash off to water bodies.
11.Expansion of building footprint	• Encroachment into ecologically sensitive areas	• Extremely unlikely • Low	• Work shall not interfere with ecologically sensitive areas or with wildlife

B. Operational phase

62. The potential adverse impacts envisaged during the operational phase of the project are related to the generation, handling and disposal of health care waste. All types of solid, liquid and gaseous waste that is generated during diagnosis, treatment or in medical research that can cause detrimental effects on human health and environment when discharged or disposed is considered medical waste. Generally, only a small percentage of the wastes produced by health care facilities is hazardous while a large percentage is general or non-hazardous waste. Even though the proportion of hazardous health care waste is relatively small the risk they carry in terms of transmitting disease and polluting the environment due to careless disposal is very high.

63. Over the program period, support will be provided to expand/improve the services of primary health care facilities in the four provinces. This is likely to generate more HCW which in the absence of safe management and disposal practices can lead to the following risks:

a. **Occupational risks**: During handling of wastes, medical and ancillary staff (including sanitary laborers) can be injured if the waste has not been safely packed. Sharps are the most dangerous in this respect and can cause serious injury and transmit diseases such as HIV / AIDs, hepatitis B and skin diseases.

b. **Risks to the public and environment**: The public can be infected by HCW directly or indirectly through several routes of contamination. Open dumping of untreated or inappropriately treated HCW within or outside hospital premises is one of the main causes of such contamination. With storm water runoff this waste can potentially find its way to surface waterbodies causing widespread pollution and spread of diseases.

   Many HCFs report that plastics refuse such as saline bottles and used syringes are sent for recycling. Recycling ‘used’ syringes pose a very serious threat if they are not sterilized after usage, especially if the needle has not been discarded. Discarded syringes that are intact can also be re-used by people. This has been identified by the WHO as the most serious threat for the spread of infections such as Hepatitis and HIV. Therefore, collectors of plastic items, workers in the factory and the general public face a grave risk from untreated syringes that are improperly discarded or put to secondary use.

1. Management of Solid HCW

64. Implementing adequate systems to safely manage HCW generated within the HCF is the only way to control and reduce risks of accidental injury and disease transmission inside a hospital and to ensure health of hospital staff and the population are protected. Health care waste management should be considered a part of hospital hygiene control and hence it is imperative that each HCF supported under the project implements adequate measures to safely manage and dispose HCW.

65. In the last 15 years Sri Lanka has made noteworthy progress in implementing a national framework for the safe management of health care waste in the country. Several critical initiatives aimed at implementing a standardized system has been taken and they include (i) drafting of a national policy for HCWM (ii) development of national guidelines, color codes and code of hygiene HCFs (iii) drafting of a National Action Plan (NAP) (iv) consolidation of National Environmental Act by gazetting HCW disposal as a prescribed activity requiring an

Environmental Protection License (EPL) (v) creation of a budget line for HCWM in the national budget for health services. Implementation of the NAP has been selective but HCWM systems have been successfully implemented in the public hospitals within Greater Colombo and several major provincial hospitals. A recent environmental audit conducted by the Ministry of Health, Nutrition and Indigenous Medicine under the World Bank funded Second Health Sector Development Project observes a steady increase in implementation of safe procedures for HCWM within secondary and tertiary HCFs. The audit reports that health care waste segregation in these facilities according to the national color code is close to 100%and that a higher percentage of hospitals practice environmentally-friendly disposal and possess a valid EPL and SWL.

66. The status about the primary health care sector is somewhat different. The PHC sector in Sri Lanka, which consists primarily of Primary Health Care Units (PMCUs) and Divisional Hospitals (DH) A, B, and C, has long been neglected and underutilized resulting in the over-burdening of the larger centrally and provincially managed hospitals. The Government's current thinking intends to change this approach and to strengthen community-based health services supported by the PHC sector to address some of the health challenges faced by the country. As such, some of the successes achieved in environmentally friendly and safe management of HCW in the secondary and tertiary sector, as highlighted above, are not representative of the primary sector.

67. The production of hazardous HCW in primary facilities such as PMCUs and DHs is generally limited to general infectious waste (that consists of cotton swabs, wound dressings, plasters, bandage, gloves etc.) and sharps (injections, surgical blades, cannulas) in small quantities. Where laboratory services are available such as in DH A and B type of HCFs, blood and urine samples from patients generate small volumes of hazardous liquid infectious waste. The fewer categories and smaller quantities of HCW generated in the primary sector are due to the specific level of services primary care health facilities offer (no surgeries, rare deliveries) and the generally low bed occupancy rates. There are no records of HCW quantities produced in any of the primary facilities which is a major gap. Reasonably accurate data on waste production is essential as it forms the basis on which suitable HCWM strategies are identified. As such it is important for medical institutions to collect data on hazardous health care waste generation as a first step to implementing a HCWM program. A very rough characterization of HCW production, based on a survey questionnaire carried out in 45 PMCUs/DHs in support of the preparation of this framework, suggest the following approximated values.

Table 4: Services typically offered and approximate quantities of HCW produced by primary care facilities.

Type of HCF	**Services Offered**	**HCW**		
		Sharps	**General Infectious Waste**	**General Waste**
PMCU	OPD and clinics Treatment for medical illnesses such as flu, cold cough, hypertension diabetes wound dressings, vaccinations	Varies between > 1 Kg to 2 Kg per month based on vaccination programs	Varies between 250 g to 500 g per day based on patient load	Not estimated
DH (C)	OPD and in medical ward facilities (up to 50 beds), drug stores and	Varies between 2-	Roughly about 1 Kg a day	Not estimated

	dispensary, labor room, ETU, dental clinic	3 Kg per month		
DH (B)	OPD and in medical ward facilities (up to 50-100 beds), drug dispensary, labor room, ETU, dental clinic, laboratory, dental clinic	10 Kg per month	Between 1 – 2 Kg a day	Not estimated
DH (A)	OPD and in medical ward facilities (more than 100 beds), drug dispensary, labor room, ETU, dental clinic, laboratory, dental clinic	250 g per day	2 Kg per day	Not estimated

NOTE 1: The values given above are only **indicative**. The exact quantities must be calculated based on a waste audit. The amount of waste generated varies widely based on the catchment area drained and the number of OPD patients received per day.

NOTE 2: Deliveries are extremely rare in all categories of PMC facilities (on average 2 a month) as patients prefer to go to major hospitals.

HCF= Health Care Facility; HCW= Health Care Waste; DH = Divisional Hospital; OPD= Out Patient Department; ETU = Emergency Treatment Unit

68. In general, current HCWM practices in primary care hospitals, as observed in the sample hospitals visited, are not safe and pose significant risks to public health and environmental quality. The risk will increase with higher quantities of HCW generated post project investments.

69. The assessment carried out in the primary HCFs in the four provinces show that there is a good attempt to segregate waste at the source to a minimum of three categories into standardized color-coded containers – as general, infectious, and sharps – which is a very positive aspect. Waste segregation is key to effective HCW management as it minimizes the volume of hazardous waste to be safely disposed of. However, this is not maintained during disposal and thus final disposal methods currently followed undermine efforts to segregate waste in wards, OPDs and ETUs.

70. While the management of HCW in primary facilities is significantly less problematic due to very low generation compared to major hospitals, the risk of accidental disease transmission and injury remains significant. As such, each primary care facility strengthened under the project should mandatorily develop a HCWM plan for implementing/improving procedures for the safe collection, on-site transportation, storage and disposal of HCW generated within the facility. In doing so, it is important to ensure that individual HCWM plans are compatible with thinking at the provincial level and that collectively they will contribute to a strategic HCWM plan at the province and district level.

71. The Draft National Policy and National Guidelines for HCWM in Sri Lanka developed in 2001 by the Ministry of Health and Indigenous Medicine are two important documents to refer to in developing such plans. It provides clear a framework in directing HCFs in setting necessary procedures and standards to comply with the policy and legislative requirements. As per the Draft National Policy for HCWM of 2001, it is envisaged that the Provincial Directorate of Health Services (PDHS) will set up provincial and district HCWM plans presenting the overall strategy for HCWM at the province and district level.

72. The specific objectives of a HCWM plan for a HCF include the following;

(i) Improving occupational health conditions for health care staff, caretakers and waste handlers
(ii) Reducing the risk for people (patients, attendants, visitors, public, scavengers etc.) and animals (stray dogs, cattle, pet, etc.)
(iii) establishing and operating environmentally sound treatment and final disposal of hazardous medical waste

73. The HCWM plan should typically contain details on[5]:
(i) An estimation of the quantities of hazardous and non-hazardous HCW generated
(ii) Clear procedures and practices for the management of hazardous HCW from the point of generation to final disposal covering segregation, handling, collection, internal transportation, storage, treatment and final disposal. It should also include standardized waste collection time tables from each ward and department and locations
(iii) Allocation of resources and provision of equipment required for the implementation of the HCW plan
(iv) Strategy for raising awareness among hospital staff about risks associated with HCW
(v) Annual training and capacity building programs for HCF staff members.
(vi) Designation of duties and responsibilities for each of the different categories of HCF staff members who will generate or be involved in the management of HCW
(vii) Contingency plans for the storage or disposal of hazardous HCW in the event of a breakdown of the treatment system

74. In determining treatment and final disposal methods for HCW generated in the primary sector, it is important to consider strategies that are practical, cost-effective and compatible with regional and district vision. The waste could be either (i) treated and safely disposed on-site in each HCF or (ii) transported to larger facilities in the region where treatment capacity is already installed but under-utilized through an appropriately designed centralized system for collection and transport. Selection of technology and sizing of capacity need to consider volumes of HCW produced, financial and staffing allocations needed, availability of technical backstopping support, availability of treatment facilities in major hospitals located within a reasonable distance from the primary HCFs are some of the important aspects to consider in evaluating available options. This would require the project to carry out detail assessments of viable options and hold close consultations with the relevant Regional and Provincial Directorates of Health Services as well as the Department of Environment and Occupational Safety (DE&OS) in the MOHNIM.

75. In the last 5 years, considerable capacity for treatment of HCW has been installed in the provinces, with funding assistance from Australia. A brief inventory of the existing HCW treatment capacity within the four provinces is provided in the following table. In the development of HCWM plans for individual primary HCFs, adequate consideration should be given to utilizing the installed treatment capacity within the region that is currently under-utilized or not used.

[5] National Guidelines for Health Care Waste Management 2001

Table 5: Inventory of HCW treatment equipment already installed in the provinces

Province	HCF	Equipment established	Remarks
Uva	Badulla TH	Metamizer	Functioning
		Incinerator	
	Moneragala GH	Metamizer	Gold award winner – Presidential Environmental Awards
	Diyatalawa BH	Incinerator	Functioning
	Haputale BH	Incinerator	Functioning
	Bandarawela BH	Incinerator	Functioning
North Central	Anuradhapura TH	Incinerator	Functioning
	Polonnaruwa GH	Metamizer	Functioning
		Incinerator	Functioning
Sabaragamuwa	Ratnapura	Incinerator Metamizer	Functioning
	Kahawatte	Incinerator	Functioning
	Kegalle	Incinerator	Functioning
	Karawanella	Incinerator	Functioning
Central	Kandy TH	Waste collection and disposal has been contracted out to a company named SisiliHanaro who operates a 3-chamber incinerator with a capacity of 10 MT per day in the Mulleriyawa Hospital for Mental Health	
	Peradeniya TH		
	Nawalapitiya GH	Incinerator	Functioning
	Dik Oya BH	Incinerator	Not yet commissioned
	Theldeniya BH	Incinerator	Functioning

TH – Teaching Hospital, GH – General Hospital

76. The draft HCWM plan for each primary HCF supported by the project will need to be submitted to the RDHS and PDHS for validation and formal adoption. Health Care Waste Management under the Project will thus, consist of:

(i) Training to provincial, district and HCF level staff on the preparation of health care waste management plans.
(ii) Training to HCF level staff on conducting waste audits to quantify the volumes of hazardous health waste produced.
(iii) Facilitation with Provincial Directorate of Health Services (and District Health Services as applicable) on determining most cost-effective treatment and disposal strategies (*mainly to determine whether treatment and disposal will be centralized at the district/province level where waste will be transported from PH facilities to base hospitals OR decentralized to HCF level*)
(iv) Supervision of the waste audit.
(v) Facilitation and supervision of the preparation of HCWM plans for each HCF funded by the project. The HCWM plan should include:
    a. Clear procedures for the segregation, handling, collection, internal transportation, storage, treatment, and final disposal of hazardous HCW.
    b. Standardized waste collection time tables from each ward and department.
    c. Strategy for raising awareness among hospital staff about risks associated with HCW.
    d. Training and capacity building program for health workers on HCWM.
    e. Determine most economical final treatment and disposal option.

f. Determination of other equipment required for the implementation of the HCW plan such as needle burners, segregation bins, etc.
g. Provision of storage facilities with separate compartments for each category of waste.
h. Provision of PPEs for health workers to start using immediately.
i. A structured training program.
j. A budget for implementing the HCWM plan.

(vi) Financing full or part of the HCWM plan, depending on the final disposal strategy selected.

2. Management of liquid HCW

77. Health care waste water in the primary sector consists of (i) black water containing high concentrations of fecal matter, urine and toxic chemical with high potential for pollution and (ii) grey water containing discharge from washing, cooking, bathing, laundering with low potential for pollution. Sewage generated in HCFs is potentially hazardous and infectious as they carry pharmaceutical chemicals and disease-causing bacteria, viruses and parasites. None of the institutions in the primary sector considered under the project have piped sewerage and the sewage is disposed of in septic tanks. There are many risks associated with current sewage disposal practices, especially if septic tanks are not water tight, old and leaking or if the groundwater table in the area is naturally high, such as (i) contamination of local drinking water sources (ii) degradation of aquatic habitats and (iii) outbreaks of water-borne diseases. In addition, pharmaceuticals, detergents, antiseptics in wastewater may act as endocrine disruptors and antibiotics can breed antibiotic resistant pathogens once they are released in the environment without prior treatment.

78. Mitigation measures for hospital sewage and wastewater is to implement a treatment system. The volumes of waste water produced in primary HCFs are not significant compared to higher grade hospitals and the treatment options should be evaluated in a site-specific way during project implementation.

79. **Provision/development of drinking water supply.** Sources of adequate and good quality water are scarce in many parts of the project area and the demand from HCFs to provide safe and reliable supply of drinking water is high. Any water supply scheme developed under the project should ensure (i) chemical and biological investigation of raw water quality (ii) pre-treatment to meet SLS standards for drinking water (iii) protection of water use for drinking and livelihood by the local community and (iv) periodic (once in six months) quality monitoring of water supply to ensure that safe water is continued to be delivered to patients and health workers.

V. ENVIRONMENTAL ASSESSMENT FOR SUBPROJECTS AND COMPONENTS

A. Environmental screening and categorization

80. All HCFs strengthened under the project will be screened to assess the nature and extent of potential environmental impacts using the environmental screening checklist provided in the framework. This checklist has been built on ADB's rapid environmental assessment checklist for buildings and consists of two parts: Part I focusing on construction related environmental impacts and Part II focusing on health care waste related impacts. Based on the screening the PMU will propose the environmental categorization for each sub-project in accordance with the ADB's SPS 2009 and recommend the level of environmental assessment required to manage project level environmental impacts.

B. Environmental Assessment

81. An IEE has been prepared as part of project preparation for 45 primary HCFs in the 4 provinces. The findings of the IEE provide a good overview of the type and extent of environmental issues to be expected for the balance HCFs that will be developed during project implementation. The IEE includes a comprehensive EMP and environmental monitoring plan and clear institutional arrangements for implementing them which can guide the preparation of IEEs during project implementation.

82. Given the limited scale of physical infrastructure proposed to be built at the HCF level, which would basically involve rehabilitation and/or expansion of OPD services, standardized constructional designs and the general geographical setting of these facilities (usually centrally located in built up areas of small rural townships and villages with low population density) almost all the sub-projects will be either environmental category B or C. The ADB will review and confirm the sub-project environmental categorization as well as the screening recommendation. For category B type of sub-projects an IEE will be prepared using data collected through the checklist attached to this EARF (see Annex 2). If warranted, due to the occurrence of significant unanticipated environmental impacts from a specific sub-project, the PMU will prepare an EIA although this is highly unlikely. The ADB would require the IEEs to include a comprehensive EMP that will specify (see Annex 3 for the contents of an EMP) environmental management measures required to mitigate negative impacts and enhance positive impacts, environmental monitoring requirements, institutional arrangements and budgetary requirements for EMP implementation. The EMPs will mandatorily form a part of the bidding documents. The HCWM plan will be part of the overall EMP. For practical reasons, the HCWMP will be developed as a separate document and will not be included in the bidding documents.

83. The scope of the IEE should ideally cover more than one sub-project, as has been done in the present IEE as it would be too cumbersome to conduct IEEs for each facility. In fact, it is recommended that umbrella IEEs are carried out focusing on the next tranche of health facilities to be surveyed and renovated. The packaging of health facilities for umbrella IEEs could also be done at a district level, as deemed suitable by the PMU.

84. Given the nature of the project, it is unlikely that any of the sub-projects would warrant an environmental clearance from the CEA. However, in the rare instance it does so, the PMU shall comply with the national requirements in addition to that of the ADB.

C. Review of Environmental Assessment Reports

85. The environmental screening checklist will be filled by the Project Implementation Units at the province level and sent to the PMU for review and approval. The IEEs will be prepared by the PMU and forwarded to ADB for review and endorsement. In instances where national environmental clearance is needed, the IEEs will be sent to the relevant agency for their approval.

VI. CONSULTATION, INFORMATION DISCLOSURE AND GRIEVANCE REDRESS MECHANISM

A. Consultation and Participation

86. Meaningful stakeholder consultation has been held during project preparation and will continue throughout project implementation. Stakeholders consulted during the preparation of the EARF include officials of the MOHNIM, provincial and regional health services, health workers of a sample of primary care facilities and patients using these facilities. Stakeholder consultations allow opportunities to incorporate needs/views of the stakeholders in the final sub-project design and mitigation measures, raise implementation issues and enhance the 'ownership of the project'. Meaningful stakeholder involvement and participation in decision making contributes to project sustainability. A list of people met during consultations is provided in Annex 5.

87. The key stakeholders to be consulted during project screening, assessment and implementation under the project include staff of the HCF, staff of regional and provincial health services, patients seeking treatment in the HCF, other government bodies, NGOs (if any) and local communities. Consultations must be carried out in a free and friendly environment in a culturally appropriate manner and could be done through formal/informal meetings, focus group discussions, and interviews as deemed suitable. It is important for consultations to encourage women participation and engage as many relevant stakeholders as possible. It is also important to document outcomes of all consultations, stakeholders met, time and location.

88. The consultation process carried out so far has solicited views and information from medical and nursing staff of HCFs, staff of the regional/provincial directorates of health services and patients. The information thus obtained, where relevant, has been incorporated into the EARF and the IEE.

B. Information Disclosure

89. While stakeholder consultations will be a main source of information disclosure, the PMU will ensure that environmental safeguards documents prepared in support of project implementation such as IEEs, HCWMPs and monitoring reports are disclosed via its website. In addition, the PMU will take necessary steps to make these documents available in appropriate locations, in a manner that is timely and in a language that is understood by local community/affected people for those who do not have access to the internet. The PMU will also send a written endorsement to ADB for disclosing these documents on the ADB website.

C. Grievance Redressal Mechanism

90. A project-specific grievance redress mechanism (GRM) will be established to receive, evaluate, and facilitate the resolution of affected person's (AP's) concerns, complaints and grievances about the social and environmental performance at the level of the project. It is important that the GRM is established before any site works commence.

91. The objective of the GRM is to provide a timely and transparent mechanism to raise and find resolution to social and environmental issues arising out of the project. While the following institutional mechanism is recommended for project specific grievances, it will not replace, override or bypass other GRM systems that exist at the government/community level but provide another route through which concerns of affected parties can be swiftly addressed.

92. The proposed structure will have 2 tiers as defined below and is shown in Figure 1. The grievance redress committee (GRC) has to be appointed and established before commencement of construction site works and the design and supervision firm should be briefed of the GRM system for the HSEP. Only written grievance (format for such is attached in PAM) will be forwarded to the GRC who will call a hearing, if necessary, with the complainant. The process will facilitate resolution through mediation. The GRC (both at PIU or PMU levels) will meet as required and direct the field level with clear instructions and responsibilities to attend to the agreed actions within one to two weeks of meeting. If the grievance is related to construction, the contractor will sit in the GRC as an observer.

93. **Levels of GRM resolution**.

(i) **Tier 1:** Project Implementation Unit at the provincial level will be the first level to resolve grievances. The Deputy Project Director (DPD) will be the focal point for grievance redressal and will act as the chairman of GRC. Its members will include the respective district regional director of health, the social and environment responsible officers from the PIU (secretary to the committee), one nominated officer from the provincial council, and a representative of the community.

(ii) **Tier 2:** The Deputy Project Director at the PIU in consultation with the environmental specialist / social safeguards specialist or any other relevant official of the PMU will activate the second level for grievances that are not resolved at tier 1. In addition, via an officer of local authority, chief secretary, *Grama Niladhari*, construction site office or directly by a community member or any other individual can also directly report a grievance to the tier two. The GRC at the PMU level (Second tier) will be headed by the Project Director of HSEP (Chairman of the committee) and its members will include: Deputy Director General (planning) of the MOHNIM, a nominated representative of Chief Secretary of the respective province, Deputy Project Director of the respective province, environment officer and social safeguards officer (Secretary to the committee) and a representative from the respective community.

94. The GRM will not impede the AP's decision to use the legal system at any time.

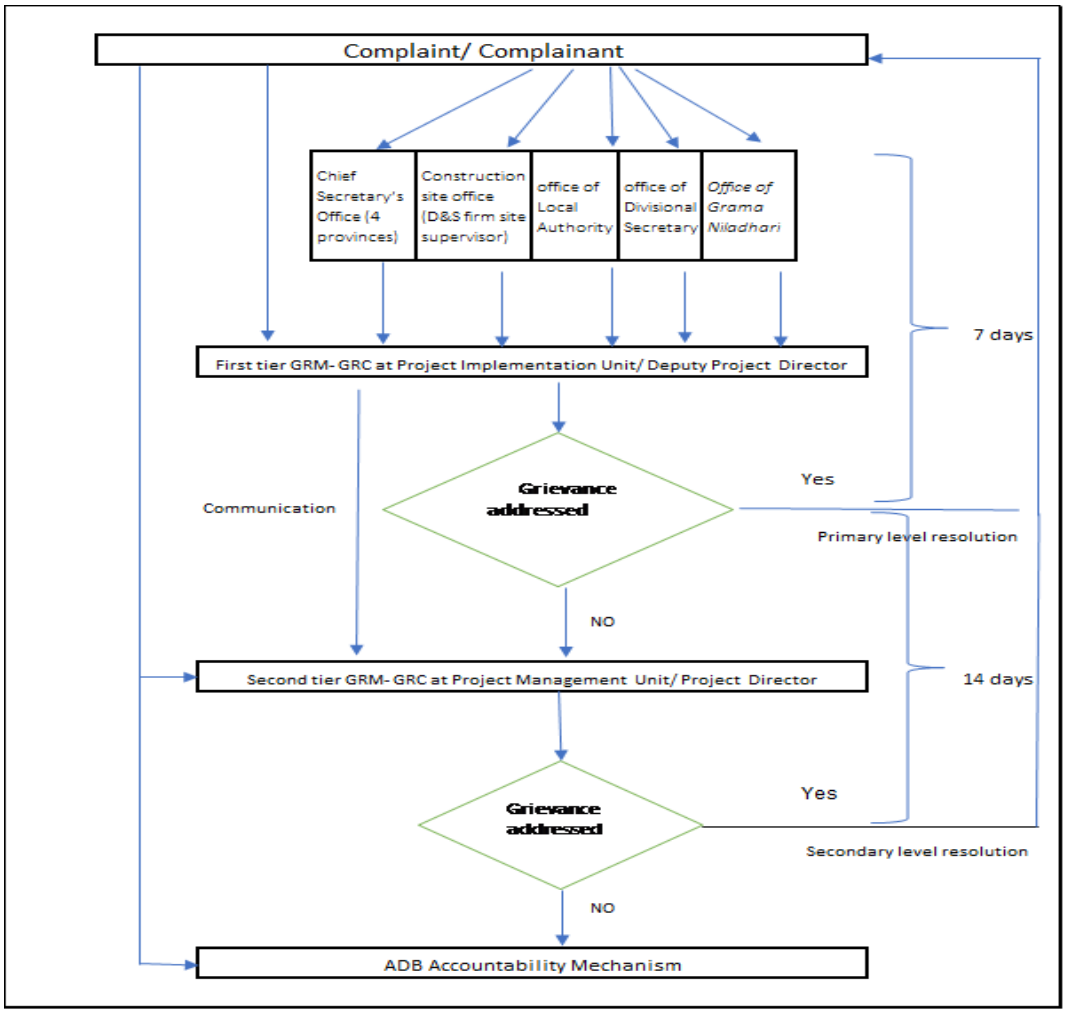
95. On receiving a grievance (via an office of local authority, chief secretary, *Grama Niladhari*, construction site office or directly by a community member or any other individual), the PIU or the PMU will:

(i) enter the grievance in the Complaints register of the respective PIU or the PMU
(ii) open a grievance file for the specific case
(iii) maintain records of the GRC meetings
(iv) close the grievance filling a closure sheet that will be signed by the complainant agreeing that the concern has been satisfactorily resolved.

96. Grievances will be attended to within a week based on site investigations and consultations with relevant parties. All grievances will be properly recorded with personal details unless otherwise requested.

97. It is important to ensure that the project's mechanism for grievance redressal is widely disseminated to the public and other affected stakeholders through (i) public consultation meetings (ii) media advertisement (iii) locally erected notices and other means.

Figure 1: Grievance Redressal Mechanism



VII. INSTITUTIONAL ARRANGEMENTS AND RESPONSIBILITIES

A. Institutional Arrangements

98. The MOHNIM will be the implementing agency and the PMU will be established there. A national project steering and coordination committee chaired by the Secretary, MOHNIM will provide policy direction to the project. The additional secretary, MOPCLG, will act as the vice-chair of the steering committee and the provincial chief secretaries and provincial health directors will serve as committee members. The PMU, headed by a Project Director (PD), will be responsible for the overall co-ordination, management, administration, and project implementation and monitoring. At each province level, a Project implementation unit (PIU) will be established and will be headed by a Deputy PD.

99. The PMU will function as the project office for the MOHNIM, carry out sub-project appraisal and approval and ensure compliance with ADB loan covenants. A qualified specialist, full-time dedicated for environmental safeguards will be stationed at the PMU throughout the project implementation to:

(i) Assist the PMU/PIUs in overall implementation of the project's EARF.
(ii) Review and endorse the safeguards screening checklist and conduct follow up assessments (IEE).
(iii) Assist the PMU in checking the provisions of civil works contracts to ensure that EMPs are integrated in the bidding documents.
(iv) Monitor compliance of the civil works contractors with \ EMP provisions.
(v) Prepare and submit to the ADB environmental monitoring reports for review and disclosure.
(vi) In case unanticipated environmental impacts become apparent, advice the MOHNIM and ADB the needed assessment to be undertaken and resources to implement mitigation measures.
(vii) Assist the PD in all matters pertaining to environmental safeguards.

100. The PMU will also be supported by a consultant specialised in HCW planning and management (which is part of the EMP requirement) who will be responsible for supporting the PMU on achieving its goals on HCWM in the primary health sector facilities selected under the project. The consultant will be report to the Project Director and the environmental specialist at the PMU who will manage the contract on a day to day basis. A TOR for the consultant is in Annex 6.

B. Key roles and responsibilities of various parties involved in environmental management safeguards

Environmental Specialist (ES) - Project Management Unit / MOHNIM
• Provide overall policy and technical direction for environmental safeguards management under the HSEP (as defined by this framework). • Ensure suitably qualified and committed personnel are designated as Environmental Focal Points in the local PIUs to support safeguards implementation in the provinces. • Coordinate closely with the Environmental Focal Points in the local PIUs in planning and managing the safeguards cycle in relation to the project implementation schedule; and provide necessary technical assistance to facilitate the implementation, management

and monitoring of environmental safeguards.

- Carry out a quick hazard risk assessment of all 135 HCFs and 127 field centres in terms of the quantity of AC sheets that will need removal; prepare an Asbestos risk mitigation and disposal plan for each district with common disposal sites and transportation means identified; and prepare a cost estimate for the disposal plan.
- Facilitate and monitor the preparation of HCWM plan and play a strong coordination role between consultant, PDHS/RDHS, and HCFs in finalizing these plans.
- Prepare the Asbestos Risk Assessment and Mitigation Plan and ensure implementation of the plan during project implementation.
- Review and endorse environmental screening reports, site specific IEEs; obtain concurrence from the environmental safeguards specialist in the ADB team on all IEEs and the Asbestos Risk Mitigation and Disposal Plan.
- Ensure that applicable measures in the EMP are included in the design, and condition on compliance with EMP is included in the bidding documents.
- Develop, organize and deliver environmental training programs and workshops for the staff of PIU, contractors, health care workers, as needed, on safeguard requirements of the project and their management.
- Develop a training plan to be implemented in the provinces for implementation of the EARF. Contractor training and awareness on Asbestos handling and management is crucial to be given prior to commencement of any demolition work.
- Coordinate preparation and submission of semi-annual monitoring reports for ADB.
- Hold regular review meetings with the environmental focal points of the local PIUs and visit construction sites to monitor implementation of the EMP by the Contractors.
- Ensure public complaints relating to nuisance and inconvenience caused by sub-project implementation are addressed with corrective action and adequately documented.

Environmental Focal Points – Provincial PIU offices

- Assist the ES of the PMU to conduct environmental screening for each site and in collecting necessary data for the preparation of IEE/EMPs.
- Ensure compliance with EMPs during the construction period and maintain close co-ordination with the site engineer of the implementing agency and the contractor.
- Report to the ES on site level EMP compliance, issue and challenges.
- Prepare and submit regular environmental monitoring and implementation progress reports to the PMU as specified by the ES.
- Assist ES in ensuring public complaints relating to nuisance and inconvenience caused by sub-project implementation are addressed with corrective action and adequately documented.

Environmental Consultants

The PMU will hire environmental consultants to provide technical support to the PMU where specialized services are required. A consultant to support HCW planning and management has been identified as a necessity to address a key environmental issue under the project. The TOR for this consultant is in Annex 6.

(a) Key responsibilities of the HCWM specialist will include.
    i. Providing training to provincial HCFs in conducting waste audits and preparing HCWM plans.

ii.	Supervise the audit process and set milestones for the preparation of the HCWM plan and monitor same.
iii.	Technically facilitate and guide the discussion on final treatment and disposal option between the HCF, PDHS and the RDHS.
iv.	Report to the PMU on issues, challenges and outcomes.
v.	Provide training on the implementation of the HCWM plans.

C. Institutional Capacity Development

101. The environmental specialist at the PMU will be responsible for designing and delivering a training program during the first year to the staff of the PIU who will assist in the filling the environmental checklist. The training will cover basic principles of screening and safeguards categorization, environmental assessment and management, monitoring methods and tools.

102. The PMU will also design and a deliver a comprehensive training and awareness building program for HCWM to all the HCFs, both preventive and curative, and in doing so it will collaborate closely with PDHS and RDHS.

VIII. MONITORING AND REPORTING

103. The project will focus strongly on effective environmental monitoring. As majority of the anticipated constructional stage environmental impacts from the project are general in nature and related civil works, site management, public safety etc., monitoring will be largely carried out in the form of compliance monitoring through regular site supervision. Each sub-project will have a site-specific Environmental Monitoring Plan corresponding with the project's risks and impacts. A monitoring checklist to be used and filled during site supervision is provided in Annex 4.

104. Monitoring of environmental parameters such as air quality, noise, vibration and water quality will be conducted based on the requirements specified in the individual EMPs. However, given the limited scope of construction and the location of primary HCFs in largely low population density areas no significant impact on the environment quality of the project areas is anticipated. As such, the need for regular and systematic measuring of air, noise and water quality to monitor contribution to environmental degradation from the project per se is not considered essential.

105. The responsibility of monitoring and assessing the progress of EMP implementation will lie primarily with the PMU. It will work closely with the PDHS/RDHS and the hospital management in monitoring progress regarding HCWM planning and implementation. The PMU will be supported by the technical staff of the PIUs in monitoring activities. Actions required to improve compliance status of mitigation measures together with agreed deadlines and follow up measures shall be formally communicated with relevant parties in a timely manner during implementation and all such records should be documented, updated and maintained at respective project offices

106. The environmental specialist will prepare monthly monitoring reports documenting the progress made in EMP implementation and implementation issues with emphasis on compliance with HCWM planning and submit to the PD for his review (alternatively the GIS platform developed by the ADB can be used to report monitoring progress). Based on these, the PMU will prepare and submit to the ADB semi-annual environmental monitoring reports summarizing progress and issues for each province. The PMU will also conduct an environmental audit focusing on HCWM every two years to assess the progress and challenges regarding planning and implementing HCW systems in the selected HCFs. The PMU will retain qualified and experienced external experts to conduct the audit and the final reports will be submitted to ADB for review. Progress monitoring should be supplemented with photo documentation of good and bad practices of sites and should be included in the progress monitoring reports.

107. The ADB will review project performance against MOHNIM's commitment as outlined in this EARF and the legal documents. It will do so by conducting periodic site visits to the project sites, conducting supervision missions with close review by ADB' safeguards specialist, reviewing monitoring reports.

108. Regarding the GIS database that is being set up by the ADB to facilitate progress monitoring in its Sri Lanka project portfolio, it is suggested that further guidance is sought by the PMU on the use of this tool. The GIS platform has been already developed by integrating geographical locations of PHCs and PHC related information, all progressive information during implementation can be incorporated to the same, which is easy and reliable. Hence, digital photographs taken during progress monitoring taken in geo-referenced mode by using a smart

phone, GPS with camera facilities, digital camera with GPS facilities or a tab can be uploaded to the database requiring less manual reporting. More guidance on the use of the database will need to be obtained by the PMU from the ADB's Sri Lanka Resident Mission.

ANNEX 1: Guidelines for removing asbestos cement (AC) sheets from buildings

Background: Asbestos cement sheets are still widely used as roofing material in Sri Lanka, which accounts for most of asbestos use in the country. While many countries have banned the use of all forms of asbestos, Sri Lanka has not yet imposed a total ban although many policy level discussions are going on in assessing this risk and identifying how to address it.

In AC, the chrysotile (or white asbestos) fiber is encapsulated in a cement matrix. While this fiber-cement bond is regarded to be relatively safe, if it is released into the air during (I) assembling, cutting, removing asbestos sheets during construction and (ii) aging and fungal attacks on AC sheets or (ii) the process of aging and fungal attack, and is inhaled over a long period of time, it can cause great risks to public health. The Rotterdam Convention of Hazardous chemicals lists asbestos containing material as hazardous that requires to follow a prior informed consent procedure in importation etc. The National Environmental Act of Sri Lanka identifies 'waste arising from repairing/renovation processes and demolition/construction debris containing asbestos' as a scheduled waste in Part II (specific sources) requiring licensed approval for disposal.

Under HSEP, renovation of PHC facilities that will generate AC sheets will not be disposed of in an irresponsible way. The following note is a further guide to the provisions contained in the EMP for the safe handling and disposal of used AC sheets.

Some images of PHC facilities in the current package using AC sheets (Hambegama DH, Ettampitiya DH, Meegahakiwula DH)

The following guidelines have been extracted from the Health and Safety Executive (http://www.hse.gov.uk/) which is an independent regulator for safe working environments in the UK.

Preparing the work area

- Ensure safe access to the roof. If necessary, use a mobile access platform.
- Restrict access to the working area to minimize the number of people present. This is extremely important as the construction sites are sensitive receptors constantly used by those who are sick.
- Delineate the area using tape and notices to warn others.
- Ensure adequate lighting.

Equipment needed

- Thick polythene sheeting and duct tape
- Barricade tape and warning signs
- Bolt cutter
- Straps and ropes
- Water sprayer
- Buckets of water and rags
- Sealable bags for large AC pieces broken away from the roof
- Personal protective equipment such as masks, overalls, gloves and boots

Guidelines during removal

- Avoid or minimize breaking the AC.
- If fasteners hold the sheets in place, dampen and remove them and place them in the asbestos waste bag.
- If the sheets are bolted in place, dampen and cut the bolts while avoiding contact with the AC.
- Remove the bolts or fixings carefully and place them in the asbestos waste bag.
- Unbolt, or use cutters to release gutters, drain pipes, ridge caps etc. Avoid contact with the AC.
- Lower large pieces to the ground. Don't drop them or use rubble chutes. Stack sheets carefully.
- Where there are several AC sheets and other large items, place them in a lockable skip.
- Double-wrap large pieces in 1000-gauge polythene sheeting. Seal with duct tape.
- Attach asbestos warning stickers.
- Place small pieces in the asbestos waste bag.

Guidelines for cleaning and disposal

- Clean the equipment and the area with damp rags.
- Check for debris in fasteners or bolt holes. Clean with damp rags.
- Put debris, used rags, polythene sheeting and other waste in the asbestos waste bag and tape it closed.
- Dispose of contaminated webbing and rope as 'asbestos waste'.
- Put the asbestos waste bag in a clear polythene bag and tape it closed.

- For disposal of the discarded AC sheets;
    - Store the sealed asbestos sheets in a safe corner of the hospital premises or transport to a central disposal yard where waste from all sites in the district can be stored.
    - Transfer to the sanitary landfill at Aruwakkalu which will be ready for operation in 2019

1 – Safe wrapping of removed asbestos in thick polythene
2 – Construction workers wearing full PPE
3 – Asbestos bags
4 – Walking on AC sheets can crack them and release fiber into the air. Here they use plans to walk on
5 – Using a mobile platform to remove the sheets minimizing the risk of breaking up AC sheets

ANNEX 2: Environmental Screening Checklist

Instructions:

A. The project team completes this checklist to support the environmental classification of a project. It is to be attached to the environmental categorization form and submitted to the Environment and Safeguards Division (SDES) for endorsement by Director, SDES and for approval by the Chief Compliance Officer.

(ii) Answer the questions assuming the "without mitigation" case. The purpose is to identify potential impacts. Use the "remarks" section to discuss any anticipated mitigation measures.

Basic Information on the Health Care Facility (HCF)

Name of the HCF	
Location	Province District Divisional Secretariat Division
Type of HCF	
Number of beds and bed occupancy rate	
No of out-patients a day	
No of staff	
Proposed rehabilitation interventions	
Contact person in the HCF	

PART 1

B. General construction related impacts

Screening Questions	Yes	No	Remarks
C. Project Siting Is the project site within or adjacent to any of the following areas:			
▪ Densely populated area			
▪ Cultural heritage site			
▪ Protected Area			
▪ Wetland and water bodies			
▪ Mangrove			
▪ Estuarine			
▪ Buffer zone of protected area			
▪ Special area for protecting biodiversity			
D. Potential Environmental Impacts Will the Project involve or cause…			
▪ Encroachment on historical/cultural areas?			

Screening Questions	Yes	No	Remarks
▪ Encroachment on precious ecology (e.g. sensitive or protected areas)?			
▪ Unsatisfactory raw water supply			
▪ Conflicts in abstraction of water with other beneficial water uses of the same sources			
▪ Over pumping of groundwater			
▪ Increase in production of general solid waste			
▪ Increase in production of hazardous waste			
▪ Increased sewage flow			
▪ Generation of sludge from waste treatment plants			
▪ Use of or dismantling of structures that contain Asbestos			
▪ Noise and dust from construction activity?			
▪ Soil erosion and silt run off from construction activity?			
▪ Accident risks associated with increased vehicular traffic?			
▪ Increased noise and air pollution resulting from increased traffic volume?			
▪ Risks and vulnerabilities related to occupational health and safety due to physical hazards during project construction and operation?			
▪ Requirements for disposal of fill, excavation, and/or spoil materials?			
▪ Loss of large trees (more than 30 cm DBH); how many?			
▪ Long-term impacts on groundwater flows as result of needing to drain the project site prior to construction?			
▪ Long-term impacts on local hydrology as a result of building hard surfaces in or near the building?			
▪ Large population influx during project construction and operation that causes increased burden on social infrastructure and services (such as water supply and sanitation systems)?			
▪ Risks to community safety caused by fire, electric shock, or failure of the buildings safety features during operation?			
▪ Risks to community health and safety caused by management and disposal of waste?			
▪ Procurement of x-ray machines or any other equipment containing radioactive material			
▪ Procurement of incinerators?			
▪ Is siting and/or routing of the project (or its components) likely to be affected by climate conditions including extreme weather-related events such as floods, droughts, storms, landslides?			

Part II
Health Care Waste Assessment

Generation

Source	**Waste type[6]**					
OPD	**General**	**Sharps**	**Infectious**	**Chemical**	**Pathological**	**Pharmaceutical**
Medical Ward						
Surgical Ward						
Theatre						
ETU						
Laboratory						
Pharmacy/Drug Store						
Labor room						
Other						
Kg/Day						

Waste Segregation

Questions	**Yes**	**No**	**Description**
Is clinical waste segregated from general waste? If yes, into which categories are HCW separated?			No segregation
			General waste
			General Infectious waste
			sharps
			Pathological waste
			other
Where does the segregation take place?			
What type of bags/primary containers are used in segregating wastes?			
What type of labelling/color coding is used in segregation			
What types of equipment are used for internal transport of wastes?			
Where is the segregated waste stored until final disposal?			
Describe the final disposal method	Sharps		
	Infectious waste		
	Pathological waste		
	General waste		
	Other		

[66]Sharps: items that could cause cuts or puncture wounds, including needles, hypodermic needles, scalpel and other blades, knives, infusion sets, saws, broken glass, and nails; Pathological waste: consisting of tissues, organs, body parts, human fetuses and animal carcasses, blood, and body fluids; Infectious waste: suspected to contain pathogens (bacteria, viruses, parasites, or fungi) in sufficient concentration or quantity to cause disease in susceptible hosts. Chemical waste: consists of discarded solid, liquid, and gaseous chemicals, used for diagnostic and experimental work and for cleaning, housekeeping, and disinfecting procedures; Pharmaceutical waste: expired, unused, spilt, and contaminated pharmaceutical products, drugs, vaccines, and sera that are no longer required and need to be disposed of; Radioactive waste: waste that contains radioactive material.

Waste handling and treatment

Equipment	Yes	No	Description/Capacity/Number of units	Location (within hospital or nearest facility with approximate distances)	Status (used/functioning or not)
Incinerator					
Metamizer					
Autoclave					
Lined burial pits					
Unlined burial pits					
Waste cards					
Color-coded waste bins					
Waste storage space					

Waste Handling

Questions	Yes	No	Remarks
Is there a designated person (s) responsible for organization and management of waste collection, handling, storage, and disposal at the hospital administration level?			
Does the waste management staff have job descriptions detailing their tasks?			
Has he/she received any training on hospital waste management?			
Are there clearly defined procedures for collection and handling of wastes from specified units in the hospital?			
Does your hospital have a written Waste Management Plan?			
Are waste handlers provided with adequate personal protective equipment (PPE)			

Water supply and sewerage

Questions	Yes	No	Remarks
Does the hospital have a sewer treatment plant? If not, is it disposed to on-site soakage pt.?			
If a sewer treatment is available, when was it built?			
Does the HCF have a water supply provided by drinking water scheme?			
Is the water treated?			
Is the water supply adequate?			
Does the HCF have Reverse Osmosis units for treating raw water supply?			

Screening decision and recommendation

Project Safeguard Category	**A**	**B**	**C**
	IEE needed		
	EIA needed		
	Any other		
Recommendations for improving health care waste management (in line with the district strategy envisioned by the RHDS)			

Details of person conducting screening

Screening checklist completed by ***Name/Designation/Contact information***	**Date** ***Signature***
Screening report reviewed and approved by ***Name/Designation/Contact information***	**Date** ***Signature***

ANNEX 3: Information to be included in Environmental Management Plans

A. Identification of impacts and description of mitigation measures

Firstly, Impacts arising out of the project activities need to be clearly identified. Secondly, feasible and cost-effective measures to minimize impacts to acceptable levels should be specified with reference to each impact identified. Further, it should provide details on the conditions under which the mitigatory measure should be implemented (ex; routine or in the event of contingencies) The EMP also should distinguish between type of solution proposed (structural &non-structural) and the phase in which it should become operable (design, construction and/or operational).

B. Enhancement plans

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

C. Monitoring program

To ensure that the proposed mitigatory measures have the intended results and complies with national standards and donor requirements, an environmental performance monitoring program should be included in the EMP. The monitoring program should give details of the following;

- Meaningful Monitoring indicators to be established and periodically measured for evaluating the performance of each mitigatory measure (for example national standards, engineering structures, extent of area replanted, etc.).
- Monitoring mechanisms and methodologies
- Monitoring frequency
- Monitoring locations

D. Institutional arrangements

Institutions/parties responsible for implementing mitigatory measures and for monitoring their performance should be clearly identified. Where necessary, mechanisms for institutional co-ordination should be identified as often monitoring tends to involve more than one institution.

E. Implementing schedules

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

F. Reporting procedures

Feedback mechanisms to inform the relevant parties on the progress and effectiveness of the mitigatory measures and monitoring itself should be specified. Guidelines on the type of information wanted and the presentation of feedback information should also be highlighted.

G. Cost estimates and sources of funds

Implementation of mitigatory measures mentioned in the EMP will involve an initial investment cost as well as recurrent costs. The EMP should include costs estimates for each measure and identify sources of funding.

H. Contract clauses

This is an important section of the EMP that would ensure recommendations carried in the EMP will be translated into action on the ground. Contract documents will need to be incorporated with clauses directly linked to the implementation of mitigatory measures. Mechanisms such as linking the payment schedules to implementation of the said clauses could be explored and implemented, as appropriate.

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

ANNEX 4: Environmental Field Monitoring Data Sheet

Health Sector Enhancement Project
Project Management Unit

Date of visit:
Name of HCF:
Location:

	EMP COMPLIANCE						
	Mitigation measures from the EMP	**Progress Level (Activity Implementation Status)**		**Level of Execution (Environmental Rank)**		**Remarks - During this Field Visit**	
		%	**Color**	**Rank**	**Color**	**Photo Taken***	**Observations**
1							
2							
3							
4							
5							
6							
7							
8							
9							
10							

Color code	**Level of execution**
	Good
	Moderate
	Poor

ANNEX 5: List of people met during consultations

Consultation with ADB		
Environmental and Social Safeguards	Dr Bandara, Environmental Specialist, SLRM	16th February 2018
Consultation with MOHNIM		
Meeting with DDG/Directorate of Environment and Occupational Health	Dr Gamlath, DDG - MOHNIM	21st of February 2018
Workshop with provincial and regional health services	PDHS, RDHS, MO planning from all districts and provinces as well as DDG planning from MOHNIM participated.	23rd February 2018
Consultation with Central Environmental Authority		
Department of Hazardous Waste	Mr Sujeewa, Assistant Director	21st of February 2018
Consultations in Moneragala District		
Meeting in Moneragala RDHS office	Dr Adikari, RDHS Dr Dimuthu, MO Planner	March 02nd 2018
Dambagalla DH C	Dr H P Hatharasinghe, MOIC	March 02nd 2018
Deliwa PMCU	D M Dissanayake, Dispenser	March 02nd 2018
Dombagahawela	Dr A M A Gunawardane, MOIC	March 02nd 2018
Handapanagala DH C	Dr Adikari, RDHS	March 02nd 2018
Tanamalwila	Dr Amal Panambalana, DMO	March 02nd 2018
Hambegama		
Consultations in Badulla District		
Kandaketoya DH B	Dr Gayani Perera, MOiC	March 03rd 2018
Meegahakivula DH B	Nurse in Charge	March 03rd 2018
Athampitiya DH C	MOIC	March 03rd 2018
Haldamulla DH C	Dr R Ratnayake, RMO	March 03rd 2018
Consultations in Polonnaruwa District		
Meeting in Polonnaruwa RDHS office	Regional Director & Dr Kumara, MO planner	March 07th 2018
Damminna PMCU	Mr Viraj, Dispenser	March 07th 2018
Dombagahawela PMU	Dispenser, Health workers	March 07th 2018
Sevenapitiya PMCU	Dr M P R Mendis, MO	March 07th 2018
Ellawela PMCU	Dr R M K J Herath, MOIC	March 07th 2018
Aranganwila DH B	Dr Gamunu Wijeratne, MO	
Consultations in Kegalle District		
Bolagama PMCU	Dr Priyani Rajapakse, RMO in Charge	March 08th 2018
Aranayake DH A	Dr Palitha Dissanayake, MO	
Minuwangamuwa PMCU	Ms Marasinghe,Development Officer Ms Shiromi, Health Assistance	March 08th 2018
Uyanwatte PMCU	Dispenser	March 08th 2018
Consultations in Ratnapura District		
Meeting in Ratnapura RDHS office	Dr C Jayawardane. MO Planning	March 09th 2018
Delwala PMCU	Dispenser	March 09th 2018
Andana DH C	MOIC	March 09th 2018
Ranwala DH C	MOIC	March 09th 2018
Narissa PMCU	D S Opanayake, Dispener	March 09th 2018
Dodambe PMCU	Health Assistant	March 09th 2018
Consultations in Kandy District		
PDHS Office	MO Planning	
Galaha DH B	Dr Asela Jayasekera, MOIC	April 19th 2018
Delthota	Dr W I A De Silva, MO	April 19th 2018
Hataraliyadda DH B	Dr Imali Dissanayake, MO	April 19th 2018

ANNEX 6: TOR for the Health Care Waste Management Specialist

1. Provide technical training to provincial, district and HCF level staff on the process of preparation of health care waste management plans as per the draft national policy and national guidelines.
2. Provide technical training and written guideline to staff of HCF on conducting waste audits to quantify the volumes of hazardous health waste produced in each facility.
3. Lead technical discussions (together with PMU and necessary technical facilitation such as preparing cost estimates) with the Regional Directorate of Health Services and Provincial Directorate of Health Services on determining the most cost effective treatment and disposal strategies for HCW to be included in the final HCWM plan for each facility (*mainly to determine whether treatment and disposal will be centralized at the district/province level where waste will be transported from PH facilities to base hospitals OR decentralized to HCF level vis a viz the provincial HCW strategy/vision*)
4. Provide technical supervision and backstopping for the HCF level waste audits.
5. Provide technical supervision and backstopping for the preparation of HCWM plans for each HCF funded by the project.
6. Develop a suitable format for the HCWM plan that includes:
   a. Clear procedures for the segregation, handling, collection, internal transportation, storage, treatment and final disposal of hazardous HCW.
   b. Standardized waste collection time tables from each ward and department.
   c. Strategy for raising awareness among hospital staff about risks associated with HCW.
   d. Training and capacity building program for health workers on HCWM.
   e. Determine most economical final treatment and disposal option.
   f. Determination of other equipment required for the implementation of the HCW plan such as needle burners, segregation bins, etc.
   g. Provision of storage facilities with separate compartments for each category of waste.
   h. Provision of PPEs for health workers to start using immediately.
   i. A structured training program.
   j. A budget for implementing the HCWM plan.
7. Review each HCWM plan and provide feedback for finalizing the same.
8. Provide technical training to staff of HCF in implementing the final approved HCWM plans and consultatively develop a monitoring plan to record progress of them on an annual basis.