

Executive Summary

Environmental Management & Assessment Framework

Water Supply and Sanitation Improvement Project (WSSIP)



**Ministry of Urban Development, Water Supply and
Drainage**

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Chapter 1 – Introduction

Since Sri Lanka successfully ended the 30 year long civil war, it has accelerated its social and economic development and has achieved the state of a middle income country. The government's vision is for every Sri Lankan family to enjoy decent and healthy living conditions by 2020. Some of the key challenges it faces in achieving this are persistent inequalities and pockets of poverty in lagging regions, plight of vulnerable groups including displaced people and plantation workers, persistent malnutrition across all segments of the population, and emergence of a new form of Chronic Kidney Disease of uncertain etiology (CKDu) with public health implications for the country.

The country has high national coverage for access to improved water supply and sanitation and has achieved the Millennium Development Goal (MDG) set for the sector. This is a significant achievement which is not matched by any other country in the region. However, these figures mask considerable disparities across the country and the need for appropriate solutions in underserved areas, including remote rural areas, the plantation sector, and pockets in the north and the east of the country.

The proposed project will support development in the lagging regions and the estates sector where access to water supply and sanitation is lower and poverty level is higher compared to the national average. The development objectives of the project will be to increase access to piped water services and improved sanitation, and to strengthen rural service delivery arrangements, in selected Districts.

The project will comprise of the following components:

- **Component 1 –Water Supply and Sanitation Infrastructure**
This component would finance infrastructure investments to support expansion of piped water services in urban, rural and estate areas in the selected districts. Sanitation will include construction of Septage Treatment Plants in each of the districts for the collection and treatment of septage and hygienic sanitary units for community, supported by hygiene education and awareness Programs.
- **Component 2 - Strengthened Rural Service Delivery**
This component will support the operationalization of the Department of National Community Water Supply through various capacity building initiatives.
- **Component 3–Sector Capacity Building**
This component will finance (i) Preparation of a comprehensive Water Supply and Sanitation Sector Program and (ii) National Program to develop a strategy to mitigate the aggravating effects of drinking water quality on CKDu
- **Component 4 – Project Management**
This Component will finance the entire administration and management of project implementation both at the head office of in the Ministry of Water Supply and Drainage (MWSD) and at the district level.

Projects and Programs financed with IDA resources need to comply with World Bank Operational Policies. Therefore, sub-projects and components eligible for funding under this project will be required to satisfy the World Bank's safeguard policies, in addition to conformity with environmental legislation of the Government of Sri Lanka (GOSL). Given the demand responsive

nature of the project, site-specific Environmental Assessments (EA) cannot be conducted as details for many of the investments are yet to be developed. As such the preparation of an Environmental Assessment and Management Framework (EAMF) has been carried out. The main purpose of the EAMF is to (a) carry out a generic assessment of environmental impacts under WSSIP and recommend appropriate mitigatory measures (b) outline a framework and safeguard procedures for environmental screening, assessment & management and monitoring (C) specify institutional arrangements to implement the EAMF and requirements for consultation and information disclosure. The EAMF will serve as the basis for carrying out safeguards due diligence for all sub-projects under WSSIP.

Chapter 2 – Institutional, Policy and Legal Framework for Water Resources and Environmental Management

A review of several legislative enactments in Sri Lanka with a direct or linked mandate for environmental/natural resources management and water supply & sanitation services has been undertaken. In Sri Lanka, several laws have been enacted for the control and effective use of water for a range of requirements, which have been amended from time to time to meet with various demands. The major provisions pertaining to the domestic usage of water are covered under several legal acts and policies. The national drinking water policy and the rural water supply & sanitation policy promote all citizens to have access to safe drinking water and recommend a people centred, participatory and demand responsive approach towards project development. This policy framework gives due recognition for downstream needs for water and for adopting a holistic approach for water source and watershed protection. It states that safety of drinking water supplied to the people need to be measures at all times by all water service agencies through the adoption of appropriate instruments. Further, the National Action Plan for water surveillance, which is an important step in the right direction, recommends that each water provider must prepare a Water Safety Plan (WSP) for each pipe water scheme managed by the provider itself and that comprehensive water quality testing and catchment surveillance activities should mandatorily be part of the WSP.

Sri Lanka has a fairly well developed policy and regulatory framework for natural resources management (NRM). Of this, the National Environmental Act No 47 of 1980 and its amendments is the most important as it is the umbrella legislation that covers environmental protection within the country and is administered by the Central Environmental Authority. Under the NEA, development projects that fall within stipulated categories require EIA/IEE approval before proceeding to implementation, Application of the NEA to WSSIP cannot be fully assessed as of now. It will be assessed at the time of project development but it is deemed that its application will be limited given that most of the investments will be at a scale below the prescribed EIA/IEE thresholds. The relevance of other NRM legislation, such as on coast conservation and management of environmentally sensitive areas, will apply only if project components intercept these areas in a significant way. This is unlikely but will be assessed under site specific assessments.

Of the World Bank's safeguard policies, the following will apply.

- OP 4.01 on Environmental Assessment

- OP 4.04 on Natural Habitats

While OP 4.01 is triggered as the project is likely to cause (i) adverse environmental impacts due to civil works (mostly localized and lasting only during the construction period) and (ii) environmental management during design and operational stage will determine project sustainability, OP 4.04 has been triggered more on a precautionary basis (as the project takes a framework approach) as siting of water sources and method of extraction can cause concerns on natural habitats. However, the scale of infrastructure development anticipated under WSSIP is relatively small, hence no major impacts are expected to take place

Given the nature and magnitude of anticipated environmental impacts, WSSIP has been placed under environment **category B**.

Chapter 3 – Project Locations

The project will be implemented in 7 high priority districts, which have been selected based on (a) % of people with access to unimproved/unsafe water (ii) % households with access to non-piped water sources and (iii) location in the dry zone. Poverty, measured by the poverty head count, has a strong co-relation with access levels and is therefore implicitly captured in the district selection process. The districts are;

- ☒ Mullaithivu and Kilinochchi Districts in Northern Province
- ☒ NuwaraEliya District in Central Province
- ☒ Badulla and Monoregala Districts in Uva Province
- ☒ Kegalle and Ratnapura Districts in Sabaragamuwa Province

The Mullaithivu and Killinochchi district share similar physical environmental conditions due to their location within the Northern Province. Physical features of Mullaithivu district consists of flat land terrain, with a 70 Km long coastal belt and four key lagoons. Its highest elevation is 36.5 m, and has a land area of 2617 km². Of this about 64.1% of the total land area consists of forests, agriculture nearly 16.9%, range land 5.2%, homesteads about 5.1% and the rest constitute of water bodies. Urban centres are small with relatively new infrastructure built after the cessation of the conflict in 2009. Kilinochchi district covers about 1237.11 Km² of land area and has an average population density of 96 persons per Km². Terrain in Kilinochchi is also flat dotted with many irrigation tanks and a big tank that supplies water to the local population. Climatically, both districts are dry and humid with an average rainfall of about 1325mm of which nearly 75% is received during September to December North East Monsoons. Water is scarce in the district and varies in terms of quality, with salinity and hardness being a major issue that renders water sources undrinkable near coastal areas. In both districts, apart from a few surface reservoirs, groundwater is the main source of drinking water.

In contrast, the Nuwera Eliya (NE) district is in the central highlands of the country which is located in the highest plain. The terrain is mountainous with deep valleys, forming a complex of massifs, mountain ranges, plateaus and basins. The NE town is located near the highest peak, Piduruthalagala. The district The scenic grasslands of Horton Plains, Moon Plains, Kandepola-Sita Eliya Plains and Elk plains all are situated in this altitude range of 6000 to 7000 feet , few tens of kilometers away from Nuwara Eliya. The district is Sri Lanka's center for tea production with

numerous tea estates dotting the main areas and the central city of Nuwara Eliya as the terrain and climatic conditions are ideal for tea. The district has a subtropical highland, with a mean annual temperature of 16 °C (61 °F). Temperatures get as cold enough to create frost in the night time during the winter months but, it rapidly warms up as the tropical sun climbs higher during the day. The wet weather and terrain make NE a scenic area with numerous streams and rivers flowing and forming cascading waterfalls/ across the many valleys. The main environmental issues in NE are soil erosion from land exposed for cultivation and other development and contaminated run off originating from tea and vegetable cultivations where chemical fertilizer and pesticides are intensively used.

The Badulla and Monaragala Districts have very different terrain even though they are both located in the Uva Province. Badulla District covers a land area of approximately 2,861 Km² and has a highland terrain with ample rainfall. Much of the mountainous terrain has been utilized for tea and vegetable cultivation and the lower region where climatic conditions are drier and the terrain is flat, for paddy cultivation. The mountainous terrain of the upper region is susceptible to earth slips and landslides, especially during the rainy seasons. The Monaragala District has a similar terrain to the lower regions of Badulla, where the land is flat and dry. It is the largest of the 25 districts of Sri Lanka, with an area of 7,133 Km². The district is mainly made up of rubber, cocoa and sugar cane plantations and paddy lands. The valley is mostly dry and rainfall is sparse, thus cultivation is linked to the monsoonal seasons. The townships are located in the flat land and are fairly small settlements, with the city of Monaragala being the main township. The Savanna like plains situated along the Southern parts of Monaragala, bordering the Hambantota District, has been designated as part of the Yala National Park. Parts of the Badulla district bordering the North Central Province has recorded high number of patients with CKDu.

The Kegalle District encompasses a land area of 1663 km² of mountainous terrain of transitional slopes between the high land and of the central hills. Elevations within the district as you start from its periphery and move towards the central regions, are 50m to 1800m above sea level. The mountainous terrain from the east meanders down to valleys in the western parts of the district, where a number of rivers and streams are located. These include the Kaleni River, Ma Oya and Rambukan Oya. Annual rainfall varies from 2,500 mm to 3,000 mm and temperature varies from 25.7 °C-30°C. Settlements are centered on rubber cultivation, which has stretched over most of the area of the District, and minor export crops such as coffee, cocoa, pepper, clove and nutmeg. Population densities in the rural regions are dispersed while there is high population density in the major cities such as Kegalle, Mawanella and Ambepussa.

Situated in a Valley, the Ratnapura District (3,275 Km²) has a rich environment with numerous streams and waterfalls and is located in the wet zone of the island. The district receives rainfall mainly from south-western monsoons from May to September. During the remaining months of the year also, there is considerable precipitation due to convective rains. The average temperature varies from 24 to 35 °C, and there are high humidity levels. Ratnapura is the center of a long-established industry of precious stone mining including rubies, sapphires, and other gems. Apart from gem mining, large plantations of tea and rubber surround the main settlements of Ratnapura, Embilipitiya and Balangoda. Segments of the Sinharaja Forest Reserve and the Udawalawe National

Park are also located in the South East of the District. Ratnapura experiences frequent floods and is prone to landslides

Chapter 4 – Assessment of Potential Environmental Impacts & Impact Management Measures

From an environmental point of view, the overall project outcome is expected to be overwhelmingly beneficial. And, as has been witnessed through the previous World Bank engagements in the sector, constructional impacts of water supply and sanitation projects of the proposed scale are not very serious and can be managed with good planning and construction management as outlined in the EAMF. However, there are larger issues with regard to water resources management that the project should focus on during the design and operational phases.

The key environmental factors to be considered during the design stage are (i) impacts to the water resource and its current uses from proposed abstraction and (ii) impacts from improper selection of sources with inferior water quality. It is necessary to identify these challenges early in the sub-project cycle. Projects should consider the sub-catchment water balance and the cumulative impacts of all abstractions in the sub-catchment as part of feasibility studies, so that schemes designed are sustainable to serve the communities for its design lifetime. This should mandatorily include yield studies of the particular water source to determine what would be the safe yield.

Water source selection should also follow full raw water quality tests, repeated under different climatic conditions, and treated to comply with SLSI standard for drinking water in Sri Lanka. Water quality is a highly variable factor and the country does not have a comprehensive water quality monitoring network that regularly monitors trends and pattern. However, research studies have pointed to various geographical patterns of quality issues, originating from both natural and anthropogenic sources that can potentially give rise to health concerns. The CKDu is one such issue in the country although not very prominent in the project area. The EAMF has discussed a range of reported issues with water quality in the country and the NWSDB's approach in providing safe water to its consumers. The project shall also pay attention to source protection through water safety planning in order to mitigate against subsequent contamination. In the minimum, water quality monitoring during the operational phase and protection of immediate catchment shall be undertaken.

In terms of urban sanitation, land clearing, dust, noise, vibration, possible destruction of habitats, traffic on transport routes etc will be the main issues during the construction of septage plants. Effluents will be treated to meet regulatory discharge standards, hence water quality of the receiving body will not be a major issue but will need to be monitored. The risk is that improper operations and maintenance, due to lack of capacity and resources within the Local Authority, that could lead to partially or untreated effluents being discharged to the environment. The project should identify capacity constraints within the relevant LA as part of planning and address the challenges with necessary technical capacity building, maintenance arrangements and adequate annual budgetary allocations. Additionally, O&M manual will need to be prepared for the LA and training on plant maintenance requirements should be provided.

In addition to the above key issues, landslide hazards when constructing in hilly areas need to be strongly considered and mitigated against with the help of the National Building Research Organization. The project is not anticipated to cause any concerns for physical cultural resources, however, a chance find procedure has been included in the EAMF to deal with accidental discoveries.

Chapter 5 – Environmental Management Framework

All sub-projects under the WSSIP will be subjected to a preliminary environmental screening at the concept design stage on completion of the feasibility study. This will help identify the anticipated environmental impacts, risks and benefits based on the intervention at an early stage and determine if the anticipated impacts, public concern and/or national regulation warrant further stand-alone environmental assessments and management plans, and if so, recommend the level of analysis. The EA/EMP will be prepared in tandem with the detail designs, as the two are inter-dependent. Water Safety Plans will be part of the EMP and carried out in parallel to sub-project implementation, together with the scheme operator and community.

It is anticipated that most of the sub-projects will require only the screening report with a site specific EMP. Those on urban sanitation and water schemes that require barriers built across rivers to abstract water will need at least IEE level of environmental analysis. Most importantly, the EMP should be budgeted and finalized prior to tendering. The EMP should be part of the tender document and the cost of implementing the EMP should be included in the BOQs.

During the construction phase, WSSIP will focus strongly on effective environmental monitoring on a daily on-going basis, supported by periodic environmental audits (at least 3) throughout project implementation.

Chapter 6: Institutional Arrangement for Implementing the EAMF

The project will be implemented and managed by a self-standing and ring-fenced Project Management Unit (PMU) which will be established under the Ministry of Water Supply and Drainage (MWSD). The PMU will operate under the oversight of a Steering Committee, chaired by MWSD Secretary and composed relevant stakeholder agencies.

- Urban/small town projects will be planned by the PMU and NWSDB and carried out by the District Support Units (DSU)
- Rural and plantation sub-projects will be planned and implemented by the DSUs with close support from the implementing agencies and the PMU

The PMU will be responsible towards the Bank for the overall safeguard aspects of the project, for monitoring project compliance with EAMF and for overall project monitoring and evaluation (M&E) against results indicators. Planning, implementation and supervision of environmental safeguards will take place at three levels;

- **Project Management Unit** - The overall responsibility of ensuring compliance with environmental and other safeguards requirements of the project will be borne by the main PMU. It will be supported by a full-time environmental specialist, who is suitably qualified and

experienced in planning/managing environmental issues in the water and sanitation sector development, directly reporting to the Project Director.

- **District Support Units** - The responsibility of day to day planning, implementation and supervision of environmental safeguards specific to sub-projects will be borne by the DSUs, supported by the implementing agencies such as NSWDB, PHDT, DNCWS. For this, the DSUs will be supported by an environmental officer (EO) who will ensure timely and sound application of the EAMF to the planned investments.

Initially, one EO to support a Province will be adequate and as the work load increases the PMU can increase its environmental cadre, depending on the requirement.

- **Contractor** - Implementation of EMPs will largely be the contractor's responsibility (apart from those provisions relating to technical designs and other specified tasks indicated in the EMPs) and for this the contractor will nominate an environmental officer who will be directly responsible for ensuring compliance with the EMP during construction.

Chapter 7: Stakeholder Consultation and Information Disclosure

For all types of environmental analyses conducted under the WSSIP (including screening), communities in the project sites should be consulted within a structured and culturally appropriate manner. Further, environmental assessment documentation and EMPs should be made available to the public (in accordance with the World Bank's policy on Access to Information) by the PMU prior to tendering of works contracts through the website of the project and notices through media, as appropriate. In addition, it may be necessary to conduct discussions with the regulatory agencies (such as the CEA, CCD on relevant issues) and other implementing agencies who would have a stake in the project due to various reasons. Consultation will enable the project implementing agency to understand the stakeholder's requirements and for the stakeholders to develop an understanding of the project so that potential conflicts could be eliminated or minimized. The process of consultation should be documented and account taken of the results of consultation, including any actions agreed resulting from the consultation.

Chapter 8: Terms of Reference

This chapter contains sample TORs for EMPs, IEEs for Spetage Treatment Plants and Water Supply Projects that require low flow weirs built across rivers and the periodic independent environmental audit.