March 2016

SRI: Additional Financing of Local Government Enhancement Sector Project – Uththupitiya Water Supply Subproject

Prepared by the Ministry of Provincial Councils and Local Government for the Asian Development Bank

CURRENCY EQUIVALENTS

(as of 15 March 2016)

Currency unit	_	Sri Lankan Rupee (Rs)
Rs1.00	=	\$0.0069
\$1.00	=	Rs 145

ABBREVIATIONS

ADB	-	Asian Development Bank
AF	-	Additional Financing
BPL	-	below poverty line
CEA	-	Central Environmental Authority
CKD	-	chronic kidney disease
DCCCRM	-	Department of Coast Conservation and Coastal Resource Management
DSC	-	Design and Supervision Consultants
EDP	-	Economically Displaced Person
EIA	-	environmental impact assessment
EMP	-	environmental management plan
EPL	-	Environmental Protection License
FGD	-	focus group discussion
IEE	-	initial environmental examination
IGS	-	Income Generating Schemes
IOL	-	Inventory of Losses
GRC	-	Grievance Redress Committee
GRM	-	grievance redress mechanism
GSMB	-	Geological Service and Mine Bureau
LGESP	-	Local Government Enhancement Sector Project
LGIIP	-	Local Government Infrastructure Improvement Project
MIS	-	management information system
MPR	-	Monthly Progress Report
MPCLG	-	Ministry Provincial Councils and Local Government
NCP	-	North Central province
NGO	-	nongovernment organization
NWSDB	-	National Water Supply and Drainage Board
NIRP	-	National Involuntary Resettlement Policy
O&M	-	operation and maintenance
PS	-	Pradeshiya Shabha
PAM	-	project administration manual
PMU	-	project management unit
PPTA	-	project preparatory technical assistance
PMC	-	Project Management Consultants
RDA	-	Road Development Authority
PRDA	-	Provincial Road Development Authority
SPCU	-	subproject coordination unit
SPS	-	Safeguard Policy Statement

GLOSSARY

Pradeshiya – Local authorities established under the Pradeshiya Sabha – Sabhas Act Number 15 of 1987. Smallest political unit in periurban and rural areas.

NOTE

In this report, "\$" refers to US dollars.

This Initial Environmental Examination is a document of the borrower. The views expressed herein do not necessarily represent those of ADB's Board of Directors, Management, or staff, and may be preliminary in nature. Your attention is directed to the "terms of use" section on ADB's website.

In preparing any country program or strategy, financing any project, or by making any designation of or reference to a particular territory or geographic area in this document, the Asian Development Bank does not intend to make any judgments as to the legal or other status of any territory or area.

CONTENTS

EXE	ECUTIVE SUMMARY	Page
L		1
••	A Introduction	1
	B. Background of the IEE	2
١١.	DESCRIPTION OF THE SUBPROJECT	3
	A. Present Status	3
	B. Need for the Subproject	4
	C. Details of the Subproject	5
	D. Implementation Schedule	6
III.	POLICY, LEGAL AND ADMINISTRATIVE FRAMEWORK	6
	A. ADB Policy	6
	B. National Laws	7
	C. Environmental Standards	10
IV.	DESCRIPTION OF THE EXISTING ENVIRONMENT	10
	A. Methodology Used for the Baseline Study	10
	B. Physical Characteristics of the Subproject Area	11
	C. Ecological Characteristics of the Project Area	13
	D. Socio Economic Profile	14
	E. Social and Cultural Characteristics	17
	F. Site Specific Description of Environmental Conditions	17
V.	ANTICIPATED IMPACTS AND MITIGATION MEASURES	17
	A. Pre-Construction	18
	B. Construction	18
	C. Operation and Maintenance	20
Pre-	-Construction Phase	22
Cons	nstruction Phase	22
Ope	eration and Maintenance Phase	25
VI.	PUBLIC CONSULTATION AND INFORMATION DISCLOSURE	25
	A. Consultations Conducted	25
	B. Future Consultation and Disclosure	26
	C. Disclosure of information	27
VII.	GRIEVANCE REDRESS MECHANISM	27
VIII.	. ENVIRONMENTAL MANAGEMENT PLAN	30

	A.	Safeguards Implementation Arrangements	31
	В.	Institutional Capacity Development Program	33
	C.	Staffing Requirement and Budget	36
	D.	Environmental Management Plan	37
	E.	Environmental Monitoring Program	37
IX.	MONI	ORING AND REPORTING	57
Х.	CONC	LUSIONS AND RECOMMENDATIONS	58

APPENDIXES

59
62
64
65
67
71
86
87
88
90
92
93
94
98
100

EXECUTIVE SUMMARY

1. The Local Government Enhancement Sector Project (LGESP) was approved by ADB on 29 September 2012 with an amount of \$59 million equivalent from ADB's Special Fund Resources. The loan became effective on 29 November 2011 and the loan closing date is 31 December 2016. Ministry of Provincial Council and Local Government (MPCLG) is the executing agency, and subproject coordination unit (SPCU) is established in each provincial council (total seven) to supervise and coordinate and project implementation. LGESP has been supporting local infrastructure improvement and basic service delivery in less-developed areas in seven provinces (excluding the Northern and Eastern Provinces), based on a bottom-up, demand-driven approach. The additional financing is required to scale up a well-performing project. It includes (i) improvement of water supply systems in areas affected by chronic kidney diseases (CKD); (ii) improvement of local infrastructure and basic services delivery; and (iii) advancing policy reform of local government and strengthening their capacity.

2. **Additional Financing**. The additional financing will scale up the project that is performing well, by supporting water supply systems improvement in CKD-affected areas, and improving local infrastructure and basic services delivery and advancing local government policy reform and capacity strengthening in Pradeshiya Sabhas not supported previously.

3. **Impact and Outcome.** The impact will be local authorities' capacity financially and technically strengthened in less-developed areas of seven provinces in Sri Lanka. The outcome will be improved local infrastructure and services delivered effectively by local authorities or NWSDB in less-developed areas of seven provinces in Sri Lanka. The impact statement is unchanged. The outcome statement was changed because most of the water supply schemes in areas affected by CKD will be operated by NWSDB.

4. The additional financing has three outputs. Output 1 has been added for the additional financing.

Output 1: Water supply systems in CKD-affected areas improved. The additional 5. financing will finance development and expansion of water supply systems in CKD-affected areas in the four provinces (Central, North Central, North Western, and Uva) to provide safe drinking water. The schemes include development of new water supply systems and expansion of existing systems, mostly run by NWSDB. Facilities such as raw water intakes, water treatment plants, overhead tanks, and transmission and distribution networks are eligible for financing. About 30 schemes will be developed or expanded, and will be implemented by respective provincial councils with technical inputs and supervision support from NWSDB. Considering the nature and complexity of the schemes, the piped-network will be operated by NWSDB, except in local authorities which have adequate operational capacity. If local authorities are identified to be the appropriate entity to implement the subprojects, such local authorities will first have to submit a reform plan, as practiced in the original project, prior to the subproject implementation. PMU, through design and supervision consultants (DSCs), will provide capacity augmentation for construction supervision, when the resources available from NWSDB are insufficient.

6. **Output 2:** Local infrastructure and basic service delivery improved. Social and economic infrastructure will be improved by newly participating local authorities. The approach will remain the same: 29 new Pradeshiya Sabhas from five provinces (Central, North Western, Southern, Uva, and Western) which have not been supported under the LGIIP and LGESP will first have to submit a reform plan approved through a council resolution, which will be reviewed and

confirmed by the Ministerial Committee of MPCLG to ensure that the minimum reform requirements are met. Then they will be qualified for the provision of a capital grant for infrastructure improvement. Eligible subprojects include (i) environmental infrastructure, (ii) economic infrastructure, (iii) public health infrastructure, and (iv) other local authority facilities. PMU, through DSCs, will support preparation of design and ensure the quality of the work. For both outputs 1 and 2, only the subprojects that meet the subproject selection criteria will be implemented.

7. **Output 3**: Local government policy reform advanced and capacity strengthened. The additional financing will support establishment of IT solutions, which were developed under the original project and installed in the original 108 Pradeshiya Sabhas, in 29 new Pradeshiya Sabhas, and further advance business process reengineering in both original and new Pradeshiya Sabhas. The activities will include (i) implementation support of the guidelines developed under the capacity development TA (CDTA), (ii) development and installation of additional software to simplify and increase efficiency of local administration, and (iii) capacity building programs to strengthen technical, financial, and administrative capacity of the original and new Pradeshiya Sabhas, provincial councils, and MPCLG.

The subproject. The Proposed Uththupitiya water supply project is an extension of the 8. Kekirawa water supply scheme located in the Thirappane DS division of the Anuradhapura district. The existing water tower at a place called Thonigala supplies water to Kekirawa, Maradankadawala areas in addition to Ganewalpola area. The proposed water supply project of NWS&DB starts from Ganewalpola town and ends at Uththupitiya and Bamunugama village areas belonging to GN Divisions of Uththupitiva. Behethleliwela and Kandugoda. The Thonigala water tower providing water to the proposed water supply project has the capacity of supplying 5,800 m3/day. The total length of the proposed water project is 5.6 km which includes 1 km long 225 mm main pipe line to be laid from the Ganewalpola town to Uththupitiya junction and another 4.6 km long 160 mm main supply pipe line to be laid from Uththupitiya junction to Uththupitiya and Bamunugama village areas as shown in the figure 02. Uththupitiya GN Division is situated approximately 3 km away from the Maradankadawala-Habarana Road along the Ganewalpola-Dachchi Hammillewa Road. The distribution extension proposed for the Uttupitiya GN Division covers three more villages namely; Kandugoda, Behethlelivala and Bamunugama which are situated nearby the Ganewalpola-Dachchi Hammillewa Road. The current population in these areas is around 1,200. The people living in these villages are presently using well water for drinking purpose. Around 16 numbers of CKD patients have been identified in these areas.

9. **Screening and assessment of potential impacts.** ADB requires the consideration of environmental issues in all aspects of the Bank's operations, and the requirements for environmental assessment are described in ADB's Safeguard Policy Statement (SPS), 2009. The subproject is a considered small-scale project and potential environmental impacts have been assessed using ADB Rapid Environmental Assessment Checklist for Water Supply. Then potential negative impacts were identified in relation to pre-construction, construction and operation of the improved infrastructure.

10. **Categorization.** Based on results of the assessment and ADB SPS, the subproject is classified as environmental Category B, i.e., the subproject is judged to be unlikely to have significant adverse environmental impacts. An initial environmental examination (IEE) is required to determine whether significant environmental impacts warranting an environmental impact assessment are likely.

This IEE aims to (i) provide critical facts, significant finding, and recommended actions; 11. (ii) present the national and local legal and institutional framework within which the environmental assessment has been carried out; (iii) provide information on existing geographic, ecological, social and temporal context including associated facilities within the subproject's area of influence; (iv) assess the subproject's likely positive and negative direct and indirect impacts to physical, biological, socioeconomic, and physical cultural resources in the subproject's area of influence; (v) identify mitigation measures and any residual negative impacts that cannot be mitigated; (vi) describe the process undertaken during project design to engage stakeholders and the planned information disclosure measures and the process for carrying out consultation with affected people and facilitating their participation during project implementation; (vii) describe the subproject's grievance redress mechanism for resolving complaints about environmental performance; (viii) present the set of mitigation measures to be undertaken to avoid, reduce, mitigate, or compensate for adverse environmental impacts; (ix) to describe the monitoring measures and reporting procedures to ensure early detection of conditions that necessitate particular mitigation measures; and (x) identify indicative costs and who is responsible for carrying out the mitigation and monitoring measures.

12. **Location of the subproject.** Uttupitiya GN Division is situated approximately 3 km away from the Maradankadawala – Habarana Road along the Ganewalpola- Dachchi Hammillewa Road. The distribution extension proposed for the Uttupitiya GN Division covers three more villages namely; Kandugoda, Behethlelivala and Bamunugama which are situated nearby the Ganewalpola-Dachchi Hammillewa Road. The Uththupitiya GN division belongs to the Thirapane DS division. NWS&DB is planning to lay around 1km long pipe line along Habarana Road from Ganewalpola Junction up to starting point of Ganewalpola–Dachchi Hammillewa Road up to Uttupitiya.

13. **Environmental Management Plan.** The subproject is unlikely to cause significant adverse impacts because: (i) the rapid sand filters will involve straightforward construction and operation, so impacts will be mainly localized; (ii) predicted impacts are localized and likely to be associated with the construction process and are produced because the process is invasive, involving excavation and earth movements; and (iii) being located mainly in an existing built-up area, will not cause direct impact on terrestrial biodiversity values. An environmental management plan (EMP) has been developed to provide mitigation measures to reduce all negative impacts to acceptable levels.

14. The EMP will guide the environmentally-sound construction of the subproject and ensure efficient lines of communication between PMU, SPMU, consultants and contractors. The EMP will (i) ensure that the activities are undertaken in a responsible non-detrimental manner; (i) provide a pro-active, feasible and practical working tool to enable the measurement and monitoring of environmental performance on site; (ii) guide and control the implementation of findings and recommendations of the environmental assessment conducted for the subproject; (iii) detail specific actions deemed necessary to assist in mitigating the environmental impact of the subproject; and (iv) ensure that safety recommendations are complied with. The EMP includes a monitoring program to measure the environmental condition and effectiveness of implementation of the mitigation measures.

15. The contractor will be required to submit to SPMU, for review and approval, a site environmental plan (SEP) including (i) proposed sites/locations for construction work camps, storage areas, hauling roads, lay down areas, disposal areas for solid and hazardous wastes; (ii) specific mitigation measures following the approved EMP; (iii) monitoring program as per

SEP; and (iv) budget for SEP implementation. No works are allowed to commence prior to approval of SEP.

16. A copy of the EMP/approved SEP will be kept on site during the construction period at all times. The EMP included in the bid and contract documents. Non-compliance with, or any deviation from, the conditions set out in this document constitutes a failure in compliance.

17. **Consultations and disclosure.** Consultations with stakeholders, NWSDB engineers, and CEA have been conducted to discuss engineering and potential environmental issues. The main comments discussed at the meetings include requirement to carry out maintenance plan as scheduled by qualified staff, speed up the construction process, supply of water to all households, continuous supply of water, reduction of CKD affected people in the future and formation of committee on project monitoring. CEA confirms environmental clearance is not required for the subproject as the capacity and activities do not fall under category of "Prescribed Projects" in the National Environmental Act (NEA) of CEA. The public participation processes undertaken during project detailed design ensure that stakeholders and affected people are engaged during the preparation/finalization of the IEE. The planned information disclosure measures and process for carrying out consultation with affected people will facilitate their participation during project implementation. This IEE and any update/s and environmental monitoring reports will be publicly disclosed in ways and languages understood by stakeholders and affected people.

18. **Grievance Redress Mechanism**. The subproject will follow the existing GRM process established in the on-going LGESP. Assessment of the existing GRM shows that it has provided citizens with an effective platform for redress of their grievances. This IEE describes the existing GRM including informal and formal channels, time frame and mechanisms for resolving complaints about environmental performance.

19. **Findings and Recommendations.** The negative environmental impacts arising due to execution of the proposed water supply scheme are minor and negligible as compared to the long-term socio-economic and health benefits to be delivered to people of the project area. Negative impacts can be mitigated to standard levels without difficulty through proper engineering design and the incorporation or application of recommended mitigation measures and procedures as per EMP. It is recommended that (i) IEE be made part of the bid and contract documents to ensure that mitigation measures are appropriately budgeted and legally binding to the contractors; (ii) monitor diligently contractor/s EMP implementation by PMU, SPMU and consultants on EMP implementation by contractors; (iii) involve stakeholders in all phases of implementation and disclose relevant project related documents; and (iv) continue existing GRM process.

20. **Conclusion.** The subproject is unlikely to cause significant adverse impacts. As per ADB SPS, the subproject is classified as environmental Category B and does not require further EIA.

I. INTRODUCTION

A. Introduction

1. The Local Government Enhancement Sector Project (LGESP) was approved by ADB on 29 September 2012 with an amount of \$59 million equivalent from ADB's Special Fund Resources. The loan became effective on 29 November 2011 and the loan closing date is 31 December 2016. Ministry of Provincial Council and Local Government (MPCLG) is the executing agency, and subproject coordination unit (SPCU) is established in each provincial council (total seven) to supervise and coordinate and project implementation. LGESP has been supporting local infrastructure improvement and basic service delivery in less-developed areas in seven provinces (excluding the Northern and Eastern Provinces), based on a bottom-up, demand-driven approach. The additional financing is required to scale up a well-performing project. It includes (i) improvement of water supply systems in areas affected by chronic kidney diseases (CKD); (ii) improvement of local infrastructure and basic services delivery; and (iii) advancing policy reform of local government and strengthening their capacity.

2. **Additional Financing.** The additional financing will scale up the project that is performing well, by supporting water supply systems improvement in CKD-affected areas, and improving local infrastructure and basic services delivery and advancing local government policy reform and capacity strengthening in *Pradeshiya Sabhas* not supported previously.

3. **Impact and Outcome.** The impact will be local authorities' capacity financially and technically strengthened in less-developed areas of seven provinces in Sri Lanka. The outcome will be improved local infrastructure and services delivered effectively by local authorities or NWSDB in less-developed areas of seven provinces in Sri Lanka. The impact statement is unchanged. The outcome statement was changed because most of the water supply schemes in areas affected by CKD will be operated by NWSDB.

4. The additional financing has three outputs. Output 1 has been added for the additional financing.

- Output 1: Water supply systems in CKD-affected areas improved. The (i) additional financing will finance development and expansion of water supply systems in CKD-affected areas in the four provinces (Central, North Central, North Western, and Uva) to provide safe drinking water. The schemes include development of new water supply systems and expansion of existing systems, mostly run by NWSDB. Facilities such as raw water intakes, water treatment plants, overhead tanks, and transmission and distribution networks are eligible for financing. About 30 schemes will be developed or expanded, and will be implemented by respective provincial councils with technical inputs and supervision support from NWSDB. Considering the nature and complexity of the schemes, the piped-network will be operated by NWSDB, except in local authorities which have adequate operational capacity. If local authorities are identified to be the appropriate entity to implement the subprojects, such local authorities will first have to submit a reform plan, as practiced in the original project, prior to the subproject implementation. PMU, through design and supervision consultants (DSCs), will provide capacity augmentation for construction supervision, when the resources available from NWSDB are insufficient.
- (ii) Output 2: Local infrastructure and basic service delivery improved. Social

and economic infrastructure will be improved by newly participating local authorities. The approach will remain the same: 29 new *Pradeshiya Sabhas* from five provinces (Central, North Western, Southern, Uva, and Western) which have not been supported under the LGIIP and LGESP will first have to submit a reform plan approved through a council resolution, which will be reviewed and confirmed by the Ministerial Committee of MPCLG to ensure that the minimum reform requirements are met. Then they will be qualified for the provision of a capital grant for infrastructure improvement. Eligible subprojects include (i) environmental infrastructure, (ii) economic infrastructure, (iii) public health infrastructure, and (iv) other local authority facilities. PMU, through DSCs, will support preparation of design and ensure the quality of the work. For both outputs 1 and 2, only the subprojects that meet the subproject selection criteria will be implemented.

(iii) Output 3: Local government policy reform advanced and capacity strengthened. The additional financing will support establishment of IT solutions, which were developed under the original project and installed in the original 108 *Pradeshiya Sabhas*, in 29 new *Pradeshiya Sabhas*, and further advance business process reengineering in both original and new *Pradeshiya Sabhas*. The activities will include (i) implementation support of the guidelines developed under the capacity development TA (CDTA), (ii) development and installation of additional software to simplify and increase efficiency of local administration, and (iii) capacity building programs to strengthen technical, financial, and administrative capacity of the original and new *Pradeshiya Sabhas*, provincial councils, and MPCLG.

5. **The subproject.** The Proposed Uththupitiya water supply project is an extension of the Kekirawa water supply scheme located in the Thirappane DSDs of the Anuradhapura district. The existing Thonigala water tower supplies water to Kekirawa, Maradankadawala areas in addition to Ganewalpola area. The proposed water supply project of NWS&DB starts from Ganewalpola town and ends at Uththupitiya and Bamunugama village areas belonging to GN Divisions of Uththupitiya, Behethleliwela and Kandugoda. The Thonigala water tower providing water to the proposed water supply project has the capacity of supplying 5800 m³/ day. The total length of the proposed water project is 5.6 km which includes 1 km long 225 mm main pipe line to be laid from the Ganewalpola town to Uththupitiya junction and another 4.6 km long 160mm main supply pipe line to be laid from Uththupitiya junction to Uththupitiya and Bamunugama village areas as shown in the figure 02. Uththupitiya GN Division is situated approximately 3 km away from the Maradankadawala - Habarana Road along the Ganewalpola-Dachchi Hammillewa Road. The distribution extension proposed for the Uththupitiya GN Division covers three more villages namely; Kandugoda, Behethlelivala and Bamunugama which are situated nearby the Ganewalpola-Dachchi Hammillewa Road. The current population in these areas is around 1.200. The people living in these villages are presently using well water for drinking purpose. Around 16 numbers of CKD patients have been identified in these areas and it has become the responsibility of National Water Supply and Drainage Board (NWSDB) to provide drinking water to these villages.

B. Background of the IEE

6. **Screening and assessment of potential impacts.** ADB requires the consideration of environmental issues in all aspects of the Bank's operations, and the requirements for environmental assessment are described in ADB's Safeguard Policy Statement (SPS), 2009. The subproject is considered small-scale and potential environmental impacts have been

assessed using ADB Rapid Environmental Assessment Checklist for Water Supply then potential negative impacts were identified in relation to pre-, construction and operation of the improved infrastructure.

7. **Categorization.** Based on results of the assessment and ADB SPS, the subproject is classified as environmental Category B, i.e., the subproject is judged to be unlikely to have significant adverse environmental impacts. An initial environmental examination (IEE) is required to determine whether significant environmental impacts warranting an environmental impact assessment are likely.

This IEE aims to (i) provide critical facts, significant finding, and recommended actions; 8. (ii) present the national and local legal and institutional framework within which the environmental assessment has been carried out; (iii) provide information on existing geographic, ecological, social and temporal context including associated facilities within the subproject's area of influence; (iv) assess the subproject's likely positive and negative direct and indirect impacts to physical, biological, socioeconomic, and physical cultural resources in the subproject's area of influence; (v) identify mitigation measures and any residual negative impacts that cannot be mitigated; (vi) describe the process undertaken during project design to engage stakeholders and the planned information disclosure measures and the process for carrying out consultation with affected people and facilitating their participation during project implementation; (vii) describe the subproject's grievance redress mechanism for resolving complaints about environmental performance; (viii) present the set of mitigation measures to be undertaken to avoid, reduce, mitigate, or compensate for adverse environmental impacts; (ix) to describe the monitoring measures and reporting procedures to ensure early detection of conditions that necessitate particular mitigation measures; and (x) identify indicative costs and who is responsible for carrying out the mitigation and monitoring measures.

9. **Scope of IEE.** The IEE was based mainly on secondary sources of information and field reconnaissance surveys; as the subproject is of small scale, construction of the rapid sand filters will involve straight forward construction methods and impacts were assessed to be site-specific, short in duration and limited mostly to construction phase only, no field monitoring (environmental) survey was conducted. However, baseline monitoring on noise and dust levels will be conducted by the contractors prior to start of civil works to activities will be limited within permissible values, or not above the background values if these are above the permissible limits. Stakeholder consultation was an integral part of the IEE.

II. DESCRIPTION OF THE SUBPROJECT

A. Present Status

10. Due to geochemical condition of the province and use of agrochemicals in the agricultural sector of the NCP, the ground water quality and surface water quality have been dramatically deteriorated causing CKD to considerable number of people living in the Anuradhapura district and the people in adjoining villages of the Northern Province. The fluoride in soils is high and it gets dissolved and readily available in the groundwater. The main cause for CKD is due to consumption of inferior quality of water with high fluoride content by the poor farming community in these areas. It is crucial to mention that CKD is spreading very fast in the NCP and with the objective of avoiding and minimizing the spread of CKD affected people in the NCP, Government of Sri Lanka requested ADB to extend the existing ADB funded "Puraneguma project" giving more priority to expand large scale water supply projects

in the NCP in collaboration with NWSDB who has established and are managing large scale water supply schemes in the NCP.

11. The Kekirawa water supply scheme is one of the large scale water supply schemes commenced in 1985 with the objective provision of clean drinking water for the people of Kalawewa, Kekirawa, Nikiniyawa,Maradankadawala, Ipalogama,Ihalagama and Dayagama Grama Niladhari Divisions (GNDs) and other surrounding suburbs. The main water source for this scheme is the Kalawewa water tank situated in the Anuradhapura district. The treatment plant of scheme located at Ihalagama has the capacity to purify 18,000 m³ of water/day. Also, it covers 4684 families in above GNDs. There are three water towers established at Ranaviru, Ihalagama and Thonigala areas distributing water respectively in the capacity of 4,800 m³/day, 6,800 m³/day and 5,800 m³/day as shown in the figure 01. It is found that two pumps installed at Ihalagama water treatment plant needs to be replaced with two new pumps under the Uththupitiya proposed water supply scheme.

12. The main water treatment plant located at Ihalagama village operates under following steps to purify the water

- Aeration
- Flocculation
- Sedimentation
- Filtration
- Chlorination

13. Appendix 1 provides the detailed water treatment process. The water quality of treated water complies with given Sri Lanka Institute for standards (SLS) for drinking water as shown in Appendix 3.

14. The sludge is removed and spread in the nearby forested areas (not protected forest). The supernatant water is released to the nearby natural water body. It was observed and proved through discussions with the water engineers of NWSDB that Kekirawa water supply project has been in operation without creating any environmental hazards and social disharmony due to disposing of sludge and waste water to outside waters.

15. The water quality of treated water is at highest quality standard complying with the given SLS standards for drinking water. It is important that biological matters in the form of total Coliform bacteria and E-coli Bacteria are not present in the delivered water samples. In addition, overall war water samples tested were at high quality drinkable status as compared to other numerous water sources of the Anuradhapura district.

B. Need for the Subproject

16. In order to fulfill the water requirement of 1200 people in the Uththupitiya GN division, NWS&DB is planning to lay around 1km long pipe line along Habarana Road from Ganewalpola Junction up to starting point of Ganewalpola–Dachchi Hammillewa Road and around 4.6km long pipe line along the Dachchi Hammillewa Road from the starting point of Dachchi Hammillewa Road up to Uttupitiya GN Division. In addition to the above pipe laying works, it is required to replace the existing 02nos. of pumps being used to pump treated water to Thonigala Tower due to inadequate pumping capacity of the available pumps.

C. Details of the Subproject

17. NWSDB has prepared the details of the subproject and has first submitted to the office of the Commissioner of Local Government (CLG) in the Provincial Council (PC) along with the brief project report. A detailed project report (DPR) including detail designs, bill of quantities and cost estimates will be submitted to the CLG with the assistance of the subproject coordinating unit (SPCU) in the PC office and the Resource Development Consultant Ltd (RDC) who work as the Consultants of the subproject.

18. The DPR is then submitted to the office of LGESP for its appraisal and approval of the subproject. Once the Project is approved, SPCU initiates the tender procedure to select a contractor to carry out the work. The work will be supervised by the technical staff of the NWSDB with the assistance of the staff of SPCU. The NWSDB will be responsible for the management of the construction work of the subproject. Select a contractor to carry out the work. The work will be supervised by the technical staff of the subproject. The NWSDB with the assistance of the staff of SPCU. The NWSDB with the assistance of the staff of the subproject. Select a contractor to carry out the work. The work will be supervised by the technical staff of the NWSDB with the assistance of the staff of SPCU. The NWSDB will be responsible for the management of the construction work of the subproject.

19. **Location.** Uththupitiya GN Division is situated approximately 3 km away from the Maradankadawala – Habarana Road along the Ganewalpola- Dachchi Hammillewa Road. The distribution extension proposed for the Uttupitiya GN Division covers three more villages namely; Kandugoda, Behethlelivala and Bamunugama which are situated nearby the Ganewalpola-Dachchi Hammillewa Road. The Uththupitiya GN division belongs to the Thirapane DS division. NWS&DB is planning to lay around 1km long pipe line along Habarana Road from Ganewalpola Junction up to starting point of Ganewalpola–Dachchi Hammillewa Road up to Uttupitiya GN Division.

20. **Details of the component:** NWS&DB is planning to lay around 5.6km long pipe line from Ganewalpola Junction up to Uththupitiya small town area. In addition, it is required to replace the existing 02nos. of pumps being used to pump treated water to Thonigala Tower due to inadequate pumping capacity of the available pumps. The detailed design has been made and relevant Bill of Quantities (BOQ) has been finalized for bidding process. The detailed design was finalized after meeting with the local community other stake holders at the consultation meeting held on 8th February 2016 Figure 7 provides the layout of main pipe lines and transmission lines as per detailed design. Table 1 provides the major features of the subproject.

Major Features	Description	Location
Transmission and distribution pipe line network	The 1 km long transmission pipe line in 225 mm diameter will be laid from Ganewalpola town to starting point of Uththupitiya Junction and two other transmission pipe lines one in 110mm and other one in 160 mm will be laid for 4.6 km length to distribute the water to either side of the community areas. The distribution lines will be in 90 mm diameter pipes for total length of 3.3 km as shown in the figure 02. The pipes to be fitted in the system are in good quality as mentioned in the	As mentioned in the schematic diagram Figure 5.
	project proposal leasibility report.	A
Chlorination	Chlorine is added to the storage tank to disinfect the biological	At identified
	properties of water prior to distribution. Additional residual	points of the

 Table 1: Major Features of the Proposed Water Supply Subproject

Major Features	Description	Location
	chlorine (RCL) is added to meet the standards of the Sri Lanka Standards Institute (SLSI) (0.2mg/l) at the last dead end of the distribution system. 20 minutes of retention period is provided for RCL at the storage tank.	storage tank
Two pumps	It is required to replace the existing 02nos. of pumps being used to pump treated water to Thonigala Tower due to inadequate pumping capacity of the available pumps.	Kalawewa intake

D. Implementation Schedule

21. The subproject is to be implemented over a period of 15 months. This excludes period for procurement of contractors. Fifteen months would be for construction and finally commissioning of the new rapid sand filters.

III. POLICY, LEGAL AND ADMINISTRATIVE FRAMEWORK

A. ADB Policy

22. ADB requires the consideration of environmental issues in all aspects of ADB's operations, and the requirements for environmental assessment are described in ADB SPS, 2009. This states that ADB requires environmental assessment of all ADB investments.

23. **Screening and categorization.** The nature of the environmental assessment required for a project depends on the significance of its environmental impacts, which are related to the type and location of the project; the sensitivity, scale, nature, and magnitude of its potential impacts; and the availability of cost-effective mitigation measures. Projects are screened for their expected environmental impacts, and are assigned to one of the following four categories:

- (i) **Category A.** Projects could have significant adverse environmental impacts. An EIA is required to address significant impacts.
- (ii) Category B. Projects could have some adverse environmental impacts, but of lesser degree or significance than those in category A. An IEE is required to determine whether significant environmental impacts warranting an EIA are likely. If an EIA is not needed, the IEE is regarded as the final environmental assessment report.
- (iii) **Category C.** Projects are unlikely to have adverse environmental impacts. No EIA or IEE is required, although environmental implications are reviewed.
- (iv) **Category FI.** Projects involve a credit line through a financial intermediary or an equity investment in a financial intermediary. The financial intermediary must apply an environmental management system, unless all projects will result in insignificant impacts.

24. ADB Rapid Environmental Assessment (REA) Checklist for water supply and for urban development for municipal infrastructures will be used for the screening and categorization.

25. **Environmental Management Plan.** An EMP, which addresses the potential impacts and risks identified by the environmental assessment, shall be prepared. The level of detail and complexity of the EMP and the priority of the identified measures and actions will be commensurate with the project's impact and risks.

26. **Public disclosure.** ADB will post thee safeguard documents on its website as well as disclose relevant information in accessible manner in local communities:

- (i) for environmental category A projects, draft EIA report at least 120 days before Board consideration;
- (ii) final or updated EIA and/or IEE upon receipt; and
- (iii) Environmental monitoring reports submitted by the Project Management Unit (PMU) during project implementation upon receipt.

27. LGESP will not consider Category A subprojects. Preparation of IEE for Category B and Due Diligence Report for Category C subproject will follow the updated environmental assessment and review framework.

B. National Laws

28. **Responsibility of Environmental Management in Sri Lanka.** The National Environmental Act (NEA) was passed in 1981, and in 1982 the Central Environmental Authority (CEA) as a regulatory and enforcement agency was created. A cabinet-level ministry with the appointment of a Minister of Environment was created in 1990to handle the subject of environment and to ensure that environmental issues are given the required attention. The Ministry of Environment Policy (NEP) in 2003, which is now being implemented. This policy set out the course of action needed in order to maintain Sri Lanka's natural resources and the living environment whilst allowing development projects to be implemented. Ministry of Mahaweli Development and Environment has been established on January 2015 and the mandate of environmental management of the country is now held with this new Ministry.

29. **Applicable environmental legislations:** The implementation of LGESP Additional Financing will be governed by Government of Sri Lanka environmental acts, rules, regulations, and standards. These regulations impose restrictions on the activities to minimize/mitigate likely impacts on the environment. It is the responsibility of the project executing and implementing agencies to ensure that projects are consistent with the legal framework whether national, state, or municipal/local. Compliance is required in all stages of the project, including design, construction, and operation and maintenance. National laws and regulations that can be relevant to the project are briefly described in the Table below.

Laws and Regulations	Provisions and Main Content
National Environmental Act No.47 of 1980, Amendment No.56 of 1988, and other Amendments	The NEA is a framework environmental statue that makes provision for the protection, management and enhancement of the environment, for the regulation, maintenance and control of the quality of the environment, and for the prevention and control of pollution by implementing the subproject.
National Environmental (Noise Control) Regulations No. 01 of 1996	Regulates maximum allowable noise levels for construction activities during subproject activities
National Environmental (Protection & Quality) Regulations, No. 01 of 1990	Provides standards for discharging effluents into inland surface water during subproject activities.
Fauna and Flora Protection	An act to amend the fauna and flora protection ordinance

 Table 2: Applicable National Laws and Regulations

Laws and Regulations	Provisions and Main Content
Act (1993)	(Chapter 469) of 1938, which provide for the protection and conservation of the fauna and flora of Sri Lanka and their habitats; for the prevention of commercial and other misuse of such fauna and flora and their habitats, for the conservation of the biodiversity of Sri Lanka; and to provide for matters connected there with or incidental there to.
Felling of Trees Control Act No. 09 of 1951 as Amended through Act No. 30 of 1953	This Act sought to prohibit and control the felling of specified trees (mainly intended to stop indiscriminate felling of specified trees) in the country.
Water Resources Board Act No. 29 of 1964, Amendment No.42 of 1999	Control, regulation and development (including the conservation and utilization) of the water resources; the prevention of the pollution of rivers, streams and other water resources; the formulation of national policies relating to the control and use of the water resources.
The Soil Conservation Act, No. 25 of 1951 Amended in 24 of 1996	An act to make provisions for the enhancement and substances of productive capacity of the soil, to restore degraded land for the prevention and mitigation of soil erosion, for the conservation of soil resources and protection of land against damage by floods, salinity, alkalinity and drought and to provide for matters connected there with or incidental there to
Explosive Act No. 36 of 1976	To provide the control of explosions and regulations of matters connected with explosive activities.
Fisheries and Aquatic Resources Act 1996	The Act addresses the management, regulation, conservation and development of fisheries and aquatic resources during subproject activities.
Flood Protection Ordinance No. 04 of 1924	An ordinance for the protection of areas subjected to damage from floods. This includes declaration of flood areas, preparation of schemes for flood protection and other rules and regulations regarding flood in the country.
Geological Survey and Mines Bureau (GSMB) Act No. 33 of 1992	Regulates the exploration for minerals, mining, transportation, processing, trading in export of mineral products and usage of quarries and sand mines in the country.
Crown Land Ordinance Act No. 1947	The act dealing with allocation and control of Crown lands In Sri Lanka for private and government activities.
Irrigation Act No. 23 of 1983	An act to formulate policies and programs in regard to the subjects of irrigation, reservoirs, water resources management and prevention of pollution of rivers, streams and other water recourses. Promotion, construction, operation and maintenance of irrigation schemes, drainage and flood control in the country.
Regulations of Local Authorities	Regulates and control actions and methods taken place within the command area relevant to the government laws and regulations.
National Water Supply and Drainage Board Act No 2 of 1974	This Act governs the supply and distribution of quality and safe drinking water to the Sri Lankan community. There are amendments made to this Act at different times.

30. **Applicability to the subproject.** The Uththupitiya Water Supply Subproject does not fall within the category of "Prescribed Projects" listed in Gazette Extra-ordinary No. 772/22 of 24th June 1993 and subsequent amendments, which needs to go through the EIA process and subsequent conditional approval from the CEA of the Ministry of Environment and Natural

Resource (MENR). These may, however be subjected to an environmental review, if the Project Approving Agency (PAA) and the CEA deem it necessary. Further,

- The subproject **is not located within 100** m from the boundaries of or within any area declared under the National Heritage Wilderness Act no 4 of 1988.
- The subproject **is not located within 100 m** from the boundaries of or within any area declared under the Forest Ordinance (Chapter 451).
- The subproject **is not located within** coastal zone as defined in the Coast Conservation Act No 57 of 1981.
- The subproject **is not located within** any erodible area under the Soil Conservation Act (Chapter 450).
- The subproject **is not located within** flood prone areas declared under Flood Protection Ordinance (Chapter 449).
- The subproject **is not located within** low lying area of North Central Province which is a flood protection area declared under the Sri Lanka Land Reclamation and Development Corporation Act 15 of 1968 as amended by Act No 52 of 1982.
- The subproject **is not located within** 60 meters from the bank of a public stream as defined in the Crowns Lands Ordinance (Chapter 454) and having width of more than 25 meters at any point of its course.
- There **are no** reservations beyond the full supply level of a reservoir within the proposed subproject site.
- The subproject **is not located within** any archaeological reserve, ancient or protected monument as defined or declared under the Antiquities Ordinance (Chapter 188).
- The subproject **is not located within** any area declared under the Botanic Gardens Ordinance (Chapter 446).
- The subproject **is not located within**100 meters from the boundaries of, or within, any area declared as a Sanctuary under the Fauna and Flora protection Ordinance (Chapter 454).
- The subproject **is not located** within 100m from high flood level contour of a public lake as defined by the Crown Land Ordinance (1947, 1949, and 1956) including those declared under Section 71 of the ordinance.
- The subproject **is not located** within 100m from the boundaries of or within any area declared under the Forest Ordinance (Chapter 451)
- The subproject **is not located** within the area declared under the Urban Development Authority Act No. 41 of 1978 and Act No. 4 of 1982 Section 29.

31. Table 3 summarizes the permits required for the subproject relevant to its implementation and activities.

Project stage	Clearance and Permits Activity		Relevant Agency
Pre-construction stage (Although the clearances and approval should be obtained during the pre-construction	Industrial Mining License (IML)	Operation of borrow areas (material extraction sites)	GS&MB
stage and it is not valid throughout the project cycle.	Environmental Protection License (EPL)	Operation of borrow areas (material extraction sites)	CEA

Table 3: Key Permits needed for the subproject activities

Project stage	Clearance and Permits	Activity	Relevant Agency
However this should be renewed	Explosive Permits	Blasting activities	MoD
once before the expiry date)	Local Government Authorities Trade License	Operation of metal quarries, crushers, borrow areas, dispersal sites, labour camps	LAs
	Approval for removal of trees	Laying of main pipe lines along the ROW	DS, DoF, DWLC,

DoF-Department of Forests, DWLC-Department of Wild Life Conservation, DS-Divisional secretariat, LAs-Local Authority, MOD-Ministry of Defense

C. Environmental Standards

32. **Environmental Protection License (EPL).**Discharge of waste to the environment is controlled by the National Environmental (Protection & Quality) Regulations No. 01 1990 (Gazette 595/16, 1990) and the amendments published in Gazette 1159/22 of 2000, under the NEA. These regulations establish the need for any person discharging waste to do so only under a license (Environmental Protection License or EPL) issued by the CEA, and in accordance with the gazetted discharge standards and criteria. The EPL can be issued up to three years (Gazette 1159/22).

33. **Status of EPL.**NWSDB does not need to obtain the EPL for operation of Ihalagama water treatment plant (IWTP) under the Kekirawa Water supply scheme. As its current Capacity is 18,000 m³/day less and it is required to obtain EPL from CEA if the Capacity of WTP is minimum of 500,000 m³/day. As the subproject will only involve with laying of pipelines construction, the subproject will not require.

34. **Drinking Water Quality Parameters.** Appendix 3 provides the applicable National Standards of SRI Lanka Institute (SLI Guideline values to be complied with prior distribution of the water supply. The design of the subproject has taken into consideration the guideline values. It should be noted that results of water testing on treated water from IWTP conducted by NWSDB show compliance SLI standards. Results further show E-coli and Coli-form bacteria are not present in the treated water being delivered to consumers in the existing water supply areas.

IV. DESCRIPTION OF THE EXISTING ENVIRONMENT

A. Methodology Used for the Baseline Study

35. The IEE was based mainly on secondary sources of information and field reconnaissance surveys; as the subproject is involved with laying of pipe lines and replacing of two pumps, the laying of pipe lines will have some limited environmental impacts that are localized and short term as per the methodology of construction. However, baseline monitoring on noise and dust levels will be conducted by the contractors prior to start of civil works and they will be limited within permissible values, or not above the background values. If these are above the permissible limits. Stakeholder consultation was an integral part of the IEE.

36. A baseline survey was conducted to collect the data and information on physical condition, biodiversity status (habitat types, animals and plant species), land use pattern and

socio-Economic structure of the project area. The line transect method and sampling were carried out about 50-100m from either side of road sections determined for burying pipelines in the proposed project area. The land use pattern up to 50m or impact influential area on both sides of the existing centre line of the existing road was studied through field visits made during the under mentioned period. The plant species, bird species were identified and recorded, and some of the biodiversity species were identified using taxonomic booklets. Group and individual interviews were conducted to collect views of people in the area. Some government institutions like RDA, PRDA, PS and Forest department were consulted to get their views for implementation of the proposed project. Resource Development Consultants (RDC) conducted the field assessments from 19th to 21st January 2016 in the Anuradhapura district of Sri Lanka.

- 37. The literature survey broadly covered the following:
 - (i) Project details, reports, maps, and other documents available with the Design and Supervision Consultant (DSC) team of the on-going ADB-funded LGESP
 - (ii) Discussions with Feasibility Study team
 - (iii) Secondary data from previous project reports and published articles, and
 - (iv) Literature on land use, soil, geology, hydrology, climate, socioeconomic profiles, and environmental planning documents collected from Government of Sri Lanka agencies and websites.

38. A separate socioeconomic study was conducted to determine the demographic information, archaeological and religious places, densely populated pockets, and settlements.

39. The data collected was analyzed and interpretations made to assess the physical, biological, and socioeconomic features of the subproject site. The relevant information is presented in the succeeding paragraphs.

B. Physical Characteristics of the Subproject Area

40. **Location.** Uttupitiya GN Division is situated approximately 3 km away from the Maradankadawala–Habarana Road along the Ganewalpola-Dachchi Hammillewa Road. The distribution extension proposed for the Uttupitiya GN Division covers three more villages namely; Kandugoda, Behethlelivala and Bamunugama which are situated nearby the Ganewalpola-Dachchi Hammillewa Road. The Uththupitiya GN division belongs to the Thirapane DS division. NWS&DB is planning to lay around 1km long pipe line along Habarana Road and around 4.6km long pipe line along the Dachchi Hammillewa Road from the starting point of Dachchi Hammillewa Road up to Uttupitiya GN Division

41. **Geology, Geomorphology and Soil.** More than 90 percent of Sri Lankan rocks are metamorphic rocks that are metamorphic in high grades such as granulate and amphibolites facies. The North, North Western segment from Puttalam to Trincommalee consists mainly of Miocene age limestone, sedimentary formations deposited in Tertiary and Quaternary periods.

42. Most of the Sri Lankan crystalline rocks belong to Precambrian ages (older than 570 million years) while others are of more recent origin. This Precambrian age metamorphic rocks are sub divided into three major litho logical groups as High land, Wanni complex and Vijayan complex. Therefore, according to this categorization, a majority of the Anuradhapura district belong to the Wanni complex where Precambrian metamorphic rocks are prominent.

Metasediments, Charnockitic gneisses, basic rocks, migmatites and granitic gneisses, granites and pegmatite are particularly present in this region

43. Reddish brown earth is the prominent soil type in the entire dry zone of country. Sri Lanka has been sub divided in to different agro- ecological zones considering soil type, rainfall and land use etc.In the project area, Reddish Brown earth, Low Humic Gley soils and Grumusol soils are present.

44. **Topography and Climate.** The North Central region of the country has generally the flat and undulating terrain. This region belongs to the dry zone of Sri Lanka where annual rain fall is less than 1760mm with the highest rain fall recoded during the North-East monsoon period from October to March.

45. The evapo-transpiration is higher in most of Anuradhapura climatic zones including the area falling in to the proposed project area. The average temperature in the project area varies from $29C^0$ to $31 C^0$. The highest temperature is $32 C^0$ recoded from June to August of the year. The highest temperature recorded is 34 C0 from June to August of the year as shown in the Table 4.

Table 4:	Climate	Data of	the Area
----------	---------	---------	----------

Parameter	Figures
Temperature (C ⁰)	29C ⁰ -33 C ⁰
Precipitation (mm)	1250-1960mm

46. **Hydrology and Drainage.** There are many man- made and natural water tanks scattered across the Thirrapane Divisional secretariat of the Anuradhapura district. Among the natural water bodies, Malwathu Oya, Yan Oya, and Kala Oya are prominent rivers/water ways feeding the agricultural areas and sustaining natural beauty of the district. Moreover, water bodies like Hurulu wewa and Potuwewa are some of the man-made water tanks providing water for human use and agricultural areas in the proposed project area. However, most of these water bodies go dry during the dry period from June to August of the year.

47. Surface drainage system in the Anuradhapura district is well existent as well established drains, canals and natural and man-made water bodies are present in most parts of the district. In the proposed project area, both side drains are present within the ROW limits of RDA from Ganewalpola junction along the Habarana road.

48. Also, from the starting point of Ganewalpola – Dachchi Hammillewa Road to Uththupitiya area, there are areas like paddy field, small irrigation canals and natural water ways to receive surface drainage generated from rains. Hence, there will not be any drainage issues in the event of the proposed project being established in the area. On the other hand, there are no historic records drainage issues present in the Anuradhapura district.

49. **Surface Water Quality.** The surface water is highly polluted due to addition of Agrochemicals, human fecal matters and accumulation of geochemically dissolved element like Mn, Cu, fluoride and chloride. The water quality parameters like low dissolved oxygen, high electric conductivity; high Ecoli bacteria and total Coli form bacteria have been noticed in surface water samples. Other main sources of pollution of surface waters in the Anuradhapura are the opening of drainage to water tanks and discharge of industrial effects to surface water sources.

50. It can be observed that in the proposed project area, it is very difficult to see surface water bodies within 500m distance from the proposed project area. Hence it can be concluded that contamination of surface water is highly unlikely situation in the project area of Uththupitiya.

51. **Ground Water Quality.** Ground water in dug wells has high fluoride and chloride concentrations as well as increased total solids and high electrical conductivity as per the water quality analysis carried out by WHO and NWS&DB for last 20 years. In general, geochemically, Na/K with CL- is high in the ground water in the Anuradhapura district especially during the dry period. It is also believed that high fluoride content in ground water has affected to cause dental flourosis and Chronic Kidney Disease (CKD). Number of people suffering from CKD is on the increase despite medical treatments. It found that heavy elements like Cr, Mn and Cu are high in ground water too. Although the actual cause of CKD is not known, high fluoride content and total solids have affected seriously on the people of Anuradhapura

52. **Quality and Noise Level.** Since the selected road sections are mostly located within rural areas, sources of air quality pollutants are hardly found. Therefore, air quality in the entire project area appears to be good. However, there is a chance of deteriorating the air quality temporarily due to vehicular emissions and drifting of dust from gravel roads and other deteriorated roads.

53. Domestic sources of air pollution will include emissions from burning of forest patches for *Chena* cultivation (slash and burn cultivation), wood and kerosene burning stoves in settlements and villages. As the project area is rich in vegetation, all such emissions will be very well dissipated.

54. Vehicle Emission Test (VET) became mandatory with effect from 15th July 2008 to enforce environmental regulations and conform to the environmental standards on vehicle emission as per the Motor Traffic Act (Emission control) Regulation of 1994, 817/6, Part I, Section I. This move is a part of the efforts to improve the air quality in the island and this regulation is applicable for all construction sites if air quality is going to be deteriorated.

55. The subproject site mostly includes rural setting with a good vegetation cover. Therefore, the noise levels are relatively low. According to Schedules I and II of National environmental (Noise Control) regulations No.1 1996 (924/12), the study area belongs to "Low noise area". Therefore, the ambient noise level of the area can be considered as 55 dB (A) during day time (06.00 hrs-18.00 hrs) and 45 dB (A) night time (18.00 hrs - 06.00 hrs). Rich vegetation in the subproject site acts as an efficient noise absorbent.

C. Ecological Characteristics of the Project Area

56. **Forests and ecological sensitive areas.** The main vegetation types existing in the district are dry mixed evergreen (dry monsoon forests) forests, mangroves and thorny shrubs forests. Out of these, dry mixed ever green forests are dominant and have been subjected to disturbances due to natural and anthropogenic activities and resulted in loss of mosaic of patches of forest cover in the past. The plant communities representing in the forest type are categorized as dominant, co-dominant (sub canopy), and understory and ground layer. The predominant feature in the dry ever green forests is the discontinuous tree canopy across the forest landscape. The proposed project area is located in the Uththupitiya GN division of the Thirappane DS secretariat. It is crucial to note that Ritigala nature reserve, which is a range of mountains covering with different types of forests. This forest is located about 42 km from

Anuradhapura town area and can be reached passing Maradankadawala and turning off at Ganewalpola along Anuradhapura-Habarana highway. The proposed water supply project is passing along the Ganewalpola- Dachchi Hammillewa Road where this Ritigala nature reserve is located about 100m way from the proposed project area. However, at one location along the road, Ritigala forest reserve is touched for about 20m distance which is fully disturbed by the human activities as observed in the field visit. As per the letter issued by the Wild life Department as shown in the annex 09, they have no any objection for laying pipes within the limit of ROW of the road as about 20m distance is almost falling in the above mentioned ROW of the road authority. Hence, it does not impact on the existence of the Ritigala forest reserve.

57. **Distribution of faunal species.** The mammalian and avian biodiversity is profusely present in the dry mixed ever green forest in the Anuradhapura district. According to a study conducted by IUCN (1990), more than 30 species of terrestrial mammals have been recorded in the North-Central province. The Threatened animal species include the Asian elephant (*Elephas maximus*), sloth bear (*Melursus ursinus*) and leopard (*Panthera pardus*).Variety of herbivores such as the spotted deer (*Axis axis*), sambar (*Cervus unicolor*), barking deer (*Muntiacus muntjak*), mouse deer (*Tragulus meminna*) and wild boar (*Sus scrofa*) are also living in these forests. It is understood that this forest is a shelter for many migratory and native birds, and other reptiles. However, a list of existing fauna and flora is attached in the annex 08 for more information.

58. **Wetlands.** There are no wet lands in the Anuradhapura district as classified by the Convention on Wetlands. The proposed project area is not located close to a marshy land too. Therefore, it can be concluded that there will not be any environmental impact on the wetland or marshy land due to implementation of the proposed project.

59. **Coastal Marine Environment.** The subproject is not located close to a coastal marine environment.

D. Socio Economic Profile

60. Uththupitiya drinking water scheme is one of the projects identified for implementation in stage 1 under ADB assistance. It is expected to supply drinking water to villages in Uththupitiya GN division situated in Thirappane DS Division. The population in this GN division is 1006 in 276 families. The male population is 502 and female population is 504.

Age	Male	Female	Total
0-5	45	47	92
6-15	137	109	246
16-60	292	252	544
Above 60	28	96	124
Total	502	504	1006

 Table 5: Aged wise distribution of population

61. There is no diversity in population or in culture because the total population is Muslims.

62. **Economy/Employment:** Traditionally these villages are farming villages. But at present the situation has been changed due to the changes in the socio-economic situation in the country. According to the information available with the GN and in the Sampath Pathikada document about 250 families engaged in paddy cultivation. The extent of paddy lands in the village is about 280 acres. There are three small tanks that feed paddy fields in the village.

Although it is expected to cultivate in both season, during the recent past only Maha season was cultivated due to scarcity of water.

63. According to the GN there is possibility of cultivating both seasons in this year due to the prolonged rain in past months. Majority of families have few laying hens in their houses and it provide additional nutrition to family members. There is only one family which runs a small scale broiler growing business. About 19 persons are employed in the government sector. Another 38 persons are engaged in self-employment which can be described as buying and selling business. 20 to 30 youth are engaged in seasonal employment to earn day today living in small business enterprises in the area. However all the families (men) are engaged in some kind of day today business like buying and selling (small items) to earn the day today living. 55 women have gone abroad for employment. According to the GN the money they send is being used to improve the family well-being.

Table 6: Distribution of Employment Status

Employment category	DS Division	Uththupitiya GN division
Agriculture	50%	24.5%
Public sector	6.3%	1.88%
Privet sector	1.0%	2.47%
Self-employment	8%	3.77%
Foreign employment	1.51%	5.46%

64. People live in Uthupitiya are more interested in employment that give quick money rather than engaged in labor intensive activities.

65. **Housing & Sanitation:** All families have their own houses. About 75% of the houses are completed with sheet roofing, plastering and cemented floor. The balance number of houses is in the process of completing according to the economic situation of the family. According to the Muslim culture, children of majority families have built their houses around the house of parents.

Table 7: Housing Status

GN Division	Walls			Roo	of		
	Bricks	Cement/Stone	Roof tile	Asbestos	Tagrams	Other	
Uthupitiya.	206	49	21	121	87	62	6

66. Community knowledge and behavior in relation to health aspect is satisfactory. 93% of the families are having sanitary toilets and the balance is having common toilet facility. Since most of them are Muslims families, they do not like to reveal their insights to outsiders especially in regard to housing and sanitation facilities.

Table 8: Availability of Toilet Facility

	Using common toil	
Uththupitiya GN division	Individual toilet	family
Number of families	268	8

67. **Marketing:** Ganewalpola junction and Kekkirawa is the main town for dwellers in this village. Community members in this village go to these towns for major purchases. There are about 13 small boutiques in the village from where the villagers can buy their day today needs.

There is only one major vendor who purchases paddy harvest of the village farmers. However, during the harvesting season outside Lorries come to the paddy field itself to buy the harvest.

68. **Health:** Maradankadawala Divisional hospital and Kekkirawa district hospital serve the people in this village. Child and Maternity clinic is conducted by MOH staff monthly in Muriyankadawala about 4Km away from Uththupitiya village. The GN has identified two |CKD patients in the GN Division that the Muslim community is not disclosing their personal information to outside society unless it is so serious. Hence, it is difficult to get the how many CKD patients are suffering.

69. **Education:** Children of Uththupitiya village go to Bamunugama Muslim MV which has classes up to Advanced level in arts stream. At present, there are about 300 children in this school. Education level of the community is normal. Also, at the community consultation meeting, they expressed ideas in a more logical and practical way.

Grade	1-5	6-11	O-L	A-L	Graduate
Uththupitiya GN	582	273	58	78	0

70. **Gender:** Muslim community is a closed community and women have to behave according to the traditional culture. However there is no incidence or reports about violence against women. In the meantime these women participate in community activities.

71. **Drinking water:** All the families are waiting to welcome the new water scheme. Our casual discussion with the community disclosed their willingness to obtain water from the new scheme. Presently they take water from unprotected sources. However majority of them drink boiled water. As mentioned above with the revelation of the CKD issue, people of this village are interested in having safe and pure drinking water. Community members related stories about various ailments that the community members had to suffer in the past due to lack of safe drinking water. At present majority of community members used to bring safe drinking water from faraway places.AS per the table 12 given below, no household family in the project area is getting the safe drinking water from NWS&DB. Majority of families fulfill their daily drinking water needs from private wells. They have suffered a lot not having safe and clean drinking water for their children.

Table 10: Source of drinki	ng Water - Uththupitiy	a GN Division
----------------------------	------------------------	---------------

Source water	No of HHs in Thirappane PS division	No of HHs in the Uththupitiya
Wells managed by CBOs	4,250	0
Private wells	5,599	180
Tube wells	340	03
Pipe born water from NWS&DB	245	0

72. **Communication:** This village does not have land line telephone facilities. But all the families have and use one or more mobile phones

Table 11: Communication

Uththupitiya GN Division	Land phone	Mobile phones	
Number of Families.	0	276	

73. **Electricity:** Majority of the families has electricity connection to their houses and others are waiting to get the connection under the program "Electricity to all"

Uththupitiya GN division	With Electricity	Without electricity
Number of Families.	260	16.

Table 12: Electricity of the Uththupitiya GND

E. Social and Cultural Characteristics

74. **Transport Service.** There are bus services to the Uththupitita GN division. However the community members are not happy about the bus service. With the expansion of the economy community members in these villages also have been able to own private mode of transport such as motor cycle or three wheelers.

75. **Temples**. 100% of the people in the subproject site are Muslims and are going to mosques on ever Friday for praying. There are 2 mosques in the project area.

76. **Schools.** Two schools namely Uththupitiya Muslim College and Ganewalpola Maha Vidylaya situated in the subproject site.

F. Site Specific Description of Environmental Conditions

77. Both man-made habitats such as home gardens, paddy fields, and natural and semi natural habitats like, streams, scrubland and forest patches could be observed adjacent to the project area. Many of natural habitats within the project area have been subjected to disturbances due to natural and anthropogenic activities, and resulted in loss of mosaic of patches of forest cover in the past.

78. However, they retain some degree of naturalness despite numerous impacts. The Road running from Ganewalpola Junction to the starting point of the Uththupitiya Dachchi – Hamillewa road has residential areas mixed with shops and abandoned areas. There are no natural forest patches or natural streams running across this road section. The road section selected for pipe laying along the Uththupitiya-Dachchi-Hamillewa road has different land uses mixed with natural environment at different locations. Along this particular road section, about 2.5 Km consists of paddy fields and intermittently abandoned plots of lands with residential areas (Figures 10, 13, 14). In addition, on the left side of the road section, one small irrigation canal with supporting structures is present and it is not disturbed due to laying of pipes as the right section of the road is only selected for pipe laying in this project. At 2+750 Km point, Ritigala forest reserve is observed about 100m away from the proposed project area and it is not impacted due to implementation and operation of the project too.

V. ANTICIPATED IMPACTS AND MITIGATION MEASURES

79. **Screening and assessment of potential impacts.** The subproject is considered small-scale and potential environmental impacts have been assessed using ADB Rapid Environmental Assessment Checklist for Water Supply (Appendix 5) then potential negative impacts were identified in relation to pre-construction, construction and operation of the improved infrastructure.

A. Pre-Construction

80. Discussions were carried out with design engineers about technical solutions to mitigate environmental impacts arising during implementation period of the subproject. Subsequently the subproject was looked at in the light of environmental concerns and construction methodologies complying with CEA and ADB SPS 2009.

81. Although there are some potential adverse environmental impacts, they are mostly temporary and localized. The net environmental impacts are positive and large. However, Potential negative impacts for subproject categories are summarized in Table 13. These can largely be avoided through proper subproject design or mitigated through adopting proper mitigation measures and management of the project which will be incorporated into contractors' contract documents.

B. Construction

82. Based on the REA Checklist, the subproject is unlikely to cause significant adverse impacts because: (i) only pipe laying along roads will be carried as major construction activities (ii) predicted impacts during construction are localized and likely to be associated with the construction process and are produced because the process is invasive, involving excavation and earth movements; and (iii) areas where civil construction activities are to go have no specific biodiversity impacts as only few smaller trees will be uprooted.(iv) no water ways or sensitive flood areas are intercepted during the construction.(v) no resettlement activities or relocation of utilities are needed as existing ROW is used for laying pipes.(vi) no voluntary or involuntary land acquisition is required (vii) minor traffic condition may be created in the Uththupitiya town areas and near commercial establishments due to piling of materials and equipment's. The potential impacts identified include impact on air quality due to increased dust generation, increased noise levels, generation and disposal soil, traffic flows and increased soil erosion due to excavation works.

83. When working during dry periods, dust generation will be possible in town areas and it will affect residences and commercial establishments close to roads and to road users. Systematic watering in excavated sections will be the solution.

84. Noise level should be below 75dB(A). Machines used for drilling and mixing of concretes should not produce the sound level above 75db(A) and it should be measured using relevant equipment. Additionally, sound controlled devices on machineries and equipment need to be adopted as per CEA environmental regulations.

85. The foundation will be dug by the workforce as per engineering designs and as a result, the excavated soil is loaded to a lorry by a backhoe once the back filling is completed. Excavated soil will be covered with a tarpaulin cover while transporting. It will minimize the impacts on the environment and health of the people due to emissions of dust in the wind.

86. Excavation along existing road sections using medium level backhoe to lay PVC pipes will create minor scale impacts for road users. Proper traffic management system with appropriate sign boards should be established by the contractor.

87. It is advised to carry out the construction activities during the dry season especially from June to September of the year and avoid the construction during the rainy season as it will induce soil erosion and create run off condition on the site. Therefore to avoid soil erosion and

increased silt run-off, excavated soil should not be stockpiled at the site and taken away as soon as the back filing is finished.

88. There will be no damage and interruption on the public utilities: Burying PVC pipes in trenches along roads may sometimes disturb the existing utility lines like Telecom lines, access to residences or other existing structures such as culverts and drains. NWS&DB has already identified such locations and will inform the contractor for necessary relocation or precautions if needed. Systematic and careful cutting of the earth and refilling after burying pipes will avoid potential damages on existing utilities and other permanent structures. Technical designs will also explain construction procedures. However, as per field observations, few small trees will have to be uprooted for laying of pipes.

89. Space is available in surrounding areas of the project for construction materials storage and staging area. Thus stock piling of construction materials, natural drainage paths at the site and surrounding will not be disturbed.

90. Storage of PVC pipes, other related materials and construction equipment's should not be done along road sides. The overall construction program period needs to be shortened using sufficient labour force and equipment's as it will minimize the inconvenience on residents, commercial establishments and other transport services at construction sites.

91. Construction workers will be deployed from neighborhood to worksites.

92. The construction activities will be conducted during daylight hours to minimize the disturbances to local residents. Due to construction activities, access to the business premises located around the Ganewalpola junction area may be disturbed during the day time. This could be reduced through adopting temporary access provisions and traffic sign boards as business accesses should not be disturbed unnecessarily. It is needed to mention that Ganewalpola junction area has no a widely spread business network rather few small shops scattered around the junction. It is needed to inform the businessmen in advance about the proposed construction program for better preparedness for proposed construction activities.

93. All organic and other forms of solid wastes generated will be disposed to CEA approved disposal yards. The excavated soil will be disposed to disposal yards directly.

94. Construction impacts from construction of the water supply system will cause inconvenience to the people in the area. The contractor should attempt to minimize inconveniences on people finishing off scheduled works in a specific area before opening another area for construction. It is important to maintain cleanliness of the construction area during the progress of work.

95. Natural drainage patterns in the project area will not be impacted by the construction activities as no diversion of canal or waterways will be made during the implementation of project activities.

96. Land use pattern and Livelihood activities including paddy field works will not affected by the project activities as the construction will be carried out only along the right of way of the road(ROW) without invading private lands, residential areas and forest areas situated in the vicinity of the construction area.

97. **Mitigation measures.** As discussed above, the potential impacts identified during construction include impact on air quality due to increased dust generation, increased noise

levels, increased traffic flows due to road excavations for laying pipes and dumping of soils along roads, drainage issues due to piling of materials and disposal of soil, solid waste generation due to camping and increased soil erosion due to excavation works. Measures to mitigate the potential impacts are presented in Table 14. Both the contractor and NWSDB will be responsible for mitigation activities and monitoring of effectiveness of these measures. Supervision of the activities has to be done mainly through the respective SPCU and CLG.

C. Operation and Maintenance

98. The proposed water supply scheme will be operated and maintained by NWSDB. A sound operational and maintenance plan and schedules will be formulated by NWSDB prior to commissioning of the sub project.

99. Potential environmental impacts during operations and maintenance of the sub project include (i) possible water leakages through pipe joints (ii) generation of additional sludge and frequent back wash operations for filters and; (iii) increased sewage due to improved water supply system; and (iv) illegal water connections and wastage of water

100. This will be involved with regular checking and recording of performance for signs of deterioration, servicing and replacement of parts, etc. A small number of people will be employed to operate and maintain the water supply system.

101. The main requirement for maintenance of the transmission and distribution system will be for the detection and repair of leakages. Generally the existing flat topography and usage of good quality PVC pipes for construction ensures that pipeline breaks and water leakages are very rare and are mainly limited to joints between pipes. The repair of household connections and the provision of new connections to increase the number of people will reduce the incidence of illegal connections that are often a major source of leakages. There may be occasions to carry out pipe repairs based on the routine maintenance or on public complaints.

102. Monitoring of water quality and quantity should be done on regular basis by NWS&DB during the operational period. The water quality tests should be done by NWS&DB and relevant MOH office.

103. Proper maintenance of rapid sand filter and chlorination will be very important for successful operation of the project. During the periods of heavy rains or floods, it is advisable to clean the rapid sand filter with frequent back wash operations.

104. There may be increased back wash operations due to accumulation of more particles in filters at the IWTP. As well, the sludge generated could be more in amount as the water demand has been increased due to the operation of the subproject. The Sludge generated is released to an abandoned forest area (non-protected forest area) located in the back of IWTP. The waste water is released to an open water body located in the vicinity of the IWTP. Under the Capacity improvement of the IWTP, there will be sludge lagoons to be built at the IWTP in the future.

105. Increased in sewage is anticipated due to improved water supply system. However, this impact is assessed to be not significant and can be mitigated as results of the socio-economic survey shows availability of sanitation facilities in households.

106. Waste materials are expected to be generated during operation and maintenance activities. However, these will be minimal and not significant as IWTP is considered as small-scale. Any waste that will be generated will be segregated. Reusable and recyclable materials will not be disposed.

107. **Mitigation measures.** As discussed above, the potential impacts identified during operation and maintenance include (i) possible water leakages through pipe joints (ii) generation of additional sludge and frequent back wash operations for filters and; (iii) increased sewage due to improved water supply system; and (iv) illegal water connections and wastage of water. Measures to mitigate the potential impacts are presented in Table 14. NWSDB will be responsible for mitigation activities and monitoring of effectiveness of these measures.

108. Table13 summarizes the potential impacts at different phases of subproject implementation, severity and duration. It can be seen that the potential impacts are during construction and operation and maintenance are not significant and temporary in duration. Table 14 provides the mitigation measures to ensure that impacts are within acceptable limits and remain insignificant throughout subproject implementation.

Activity	Potential Negative Impacts	Severity	Duration
Pre-Construction	Obtaining permits for use of ROW for	N	т
Phase	burying pipe lines	IN	I
	Approvals obtained for burrowing of earth	М	T+P
Construction Phase	Traffic congestion during road excavation	М	Т
	Damages to existing roads	М	Т
	Increased Noise and dust	Ν	Т
	Impacts on existing habitats	Ν	Т
	Damages to natural drainage pattern	Ν	Т
	Waste generation and camping around	М	Т
Operational Phase	Lowering water quality due to addition of	Ν	Т
	affluent	Ν	Т
	Sludge generation	Ν	Т
	Increased in sewage generation	Ν	T+P
	Possible negative impacts due to poor operation and maintenance (O&M) systems on the project by NWS&DB	Ν	т
	Possible negative impacts to quality and quantity of water supplied by the project and other water intakes	Ν	Т
	Possible negative impacts to PVC pipes laid along roads due to allowing of all heavy vehicles to be parked	М	Т
	Proper maintenance of Rapid Sand Filter (RSF)	Ν	Т
	Generation of waste materials	Ν	Т

Table 13: Environmental Impacts during Construction and Operational Phases

N - Negligible, M - Moderate, S - Severe, T - Temporary, P - Permanent

Activity	Potential Negative Impacts	Mitigation Measures			
Pre- Construction Phase	Permits to be obtained for cutting trees	Cut down branches of trees rather than removing.			
	Approvals obtained for burrowing of earth	Source the materials from qualified suppliers.			
Construction Phase	Traffic congestion during road excavation	To implement a proper traffic control plan using sign boards, barricade tapes, and flag men.			
		Alternative spaces to store materials/ park machineries need to be arranged.			
	Damages to existing roads	Excavations to be carried out after study of design drawings. It will minimize unnecessary damages on roads			
		Small to medium size machineries will be used for narrow roads.			
	Dust generation	Regularly spray water on excavated soil surface to minimize generation of dust.			
		When transporting all materials such as earth, sand and cement, cover them with tarpaulin to avoid spillage of materials and production of dust due to wind.			
		Appropriate measures shall be in place to minimize the emissions of dust while handling, loading/unloading of materials			
		Avoid transporting of excavated soils and mud during rainy days			
	Increased noise level	Construction activities be carried out only during day time from 7am to 5.pm every day and limited night work be done for the concrete slabs. All machineries used in this regard will have noise control devices to reduce the sound level below 75 db as specified by CEA environmental regulations and as shown in the Appendix 8.			
	Impacts on existing habitats	No endemic or endangered tree species are damaged and to control soil erosion, plant more trees in the project area and the neighborhood			
	Damages to natural drainage pattern	No impact for drainage flow as drainage flows down along roads and surrounding areas.			
	Waste generation and camping around	The solid wastes generated need to be removed to appropriate disposal yards			
	Occupational health and safety	 Employ workers with adequate experience, training, and know-how. These workers shall be led by an experienced supervisor or engineer, who will provide the leadership in daily activities. A general regard for the social and ecological well-being of the site and 			

Table 14: Mitigation Measures for Potential Environmental Impacts

Activity	Potential Negative Impacts	Mitigation Measures
Activity	Potential Negative Impacts	Mitigation Measures adjacent areas is expected of the site staff. Workers need to be made aware of the following general rules: (i) no alcohol/drugs on site; (ii) prevent excessive noise; (iii) construction staff are to make use of the facilities provided for them, as opposed to ad hoc alternatives (e.g. fires for cooking, the use of surrounding bushes as a toilet facility); (iv) no fires permitted on site except if needed for the construction works; (v) trespassing on private/commercial properties adjoining the site is forbidden; (vi) other than pre- approved security staff, no workers shall be permitted to live on the construction site; and (vii) no worker may be forced to do work that is potentially dangerous or that he/she is not trained to do. - The contractor must monitor the performance of construction workers to ensure that the points relayed during their induction have been properly understood and are being followed. If
		necessary, the EE and/or a translator shall be called to the site to further explain aspects of environmental or social behavior that are unclear. - The rules that are explained in the worker conduct section must be followed
	Community health and safety	 Contractor's activities and movement of staff will be restricted to designated construction areas. Should the construction staff be approached by members of the public or other stakeholders, staff shall assist them in locating the SPCU or contractor, or provide a number through which they may contact the SPCU or contractor. The conduct of the construction staff when dealing with the public or other stakeholders shall be in a manner that is polite and courteous at all times. Failure to adhere to this requirement may result in the removal of staff from the site by the SPCU. Disruption of access for local residents, commercial establishments, institutions, etc. must be minimized and must have the SPCU's permissions. Provide walkways and metal sheets where required to maintain access for people and vehicles. Consult businesses and institutions

Activity	Potential Negative Impacts	Mitigation Measures		
		regarding operating hours, and factor this		
		in work schedules.		
		- The contractor is to inform neighbors in		
		writing of disruptive activities at least 24		
		hours beforehand. This can take place by		
		way of leatlets placed in the postboxes		
		giving the SPCU's and contractor's details or other method approved by the		
		SPCU Provide sign boards for		
		pedestrians to inform them of nature and		
		duration of construction works and		
		contact numbers for		
		concerns/complaints.		
		- The contractor will ensure that there is		
		provision of alternate access to business		
		establishments during the construction,		
		so that there is no closure of these shops		
		The contractor will oncure that any		
		damage to properties and utilities will be		
		restored or compensated to pre-work		
		conditions.		
		- Lighting on the construction site shall be		
		pointed downwards and away from		
		oncoming traffic and nearby houses.		
		- The site must be kept clean to minimize		
		the visual impact of the site.		
		- If screening is being used, this must be		
		moved and re-erected as the work front		
		- Machinery and vehicles are to be kent		
		in good working order for the duration of		
		the project to minimize noise nuisance to		
		neighbors.		
		- Notice of particularly noisy activities		
		must be given to residents/businesses		
		adjacent to the construction site.		
		Examples of these include: noise		
		generated by jackhammers, diesel		
		- Noisy activities must be restricted to the		
		times given in the project specification or		
		general conditions of contract.		
		- The SPCU and contractor are		
		responsible for ongoing communication		
		with those people who are interested in		
		or affected by the project.		
		- A complaints register (reter to the		
		grievance regressal mechanism) shall be		
		noused at the site office. This shall be in		
		pages Any missing pages must be		
		accounted for by the contractor This		
		register is to be tabled during monthly		
		site meetings.		

Activity	Potential Negative Impacts Mitigation Measure			
		 Interested and affected parties need to be made aware of the existence of the complaints book and the methods of communication available to them. The contractor must address queries and complaints by: (i) documenting details of such communications; (ii) submitting these for inclusion in complaints register; (iii) bringing issues to the SPCU's attention immediately; and (iv) taking remedial action as per SPCU's instruction. The contractor shall immediately take the necessary remedial action on any complaint/grievance received by him and forward the details of the grievance along with the action taken to the SPCU within 48 hours of receipt of such complaint/grievance. 		
Operation and Maintenance Phase	Increased in sewage generation	The local community has well-built sanitation facilities and will manage the sewage generated		
	Possible negative impacts due to poor operation and maintenance (O&M) systems on the project by NWS&DB	Measures will be taken to avoid poor operation and maintenance systems for the entire water project.		
	Possible negative impacts to quality and quantity of water supplied by the project and other water intakes	Water quality and quantity tests to be carried out on regular basis (dry and wet periods) and No diversion of water from the primary water intakes to irrigation or other means.		
	Possible negative impacts to PVC pipes laid along roads due to allowing of all heavy vehicles to be parked	Pipelines laid in the passage of road ROW Is located far from parking areas		
	Generation of waste materials	Collect solid wastes and dispose to CEA approved disposal vards		

VI. PUBLIC CONSULTATION AND INFORMATION DISCLOSURE

A. Consultations Conducted

109. Consultations with stakeholders, NWSDB engineers, and CEA have been conducted to discuss engineering and potential environmental issues. The main comments discussed at the meetings include request of clean drinking water from NWS&DB, stop CKD patients rising up in the area, support to be extended from the local community, willingness to donate land plots if needed, formation of local society to resolve environmental and social issues and monitor the project works, request of awareness programs to be conducted, equal distribution of water supply throughout the day, request of water connections to all the households, efficient communication for water pipe repairs and renovation of pipes and joints in the future.

110. In order to gather the public views on shaping the technical design and community friendly implementation process, public consultation meeting was held with the participation of all relevant stakeholders and in the presence of NWSDB staff at the Uththupitiya Community

26

hall attached to the Jumma Mosque on 8th February 2016. NWSDB has explained technical, social and environmental aspects and health benefits to be delivered due to execution of the subproject in the area. Appendix 6 provides the report on public consultation.

111. Recommendations of the public consultation

- It is required to provide water connections to all households in the area
- It is required to conduct water quality tests at periodic intervals
- It is required to assess water quantity at periodic intervals.
- The environmental and social issues will be resolved with the participation of local community.

Date of consultatio n meeting	Place held	Consultation tool	Aim of the meeting	Participants	Issues raised
08/02/2016	Community hall of Jumma Mosque, Uththupitiya	Group discussion and individual interviews	To educate the People of Uththupitiya about the potential environmental and social issues and delivery of pure drinking water with the support of NWS&DB and PMU	Local residents of Uththupitiya and officers from Thirappane PS, DS,NWS&DB and SPCU, RDC, Forest Department and Grama Niladari	Water connections to all households, Reduce time for fetching water, change of the technical design, resolving social and environmental issues and reducing CKD patients in the future through provision of clean drinking water

Table 15: Summary of the Public Consultation Conducted

B. Future Consultation and Disclosure

112. The public consultation and disclosure program with stakeholders will remain as a continuous process throughout the project implementation. During the construction and operation of the project, public consultation and institutional consultation will take place if there would be any necessity for discussing issues in respect of change of designs in association with Contractor and NWSDB. In order to avoid undue delays in implementation and completion of the project, it is required to identify the issues and points to be discussed at this stage and hold discussions with relevant organizations, institutions, CBOs and NGOs in the subproject site.

113. As well, minutes of the meeting recorded need to be attached to IEE report and the progress reports produced during the project period. The points discussed for adoption in the construction and operation activities has to be performed for enhancing the trust and mutual understanding of all stakeholders of the project.

C. Disclosure of information

114. Disclosure of information at an early stage of the project has many benefits such as to avoid any objections by the public towards successful project implementation, passing of misinformation in to the hands of public through ignited groups and local NGOs.

115. While disclosure of information can be done through the Divisional Secretariat and the Grama Niladari (village administrative officer) of the area, Farmer Based Organizations (FBOs), Community Based Organizations (CBO) and village societies are also possible sources of disseminating project related information.

116. Village leaders such as the head priest of the temple can also be resource persons for such an activity. The use of mass media to advertise the availability of the report could help information disclosure to other interested groups outside the subproject site.

117. According to the requirements of the ADB SPS, the draft IEE will be disclosed in ADB website before the Management Review Meeting (MRM) is held. The IEE report in Tamil/Sinhala versions also will be kept open for the public and other interested parties for comments at offices of NWSDB, DS secretary and PMU.

VII. GRIEVANCE REDRESS MECHANISM

118. Project-specific grievance redress mechanism (GRM) has been established to receive, evaluate, and facilitate the resolution of affected person's concerns, complaints and grievances about the social and environmental performance of LGESP. The GRM of the project has been prepared and accepted by ADB and disclosed in the project website The GRM chart providing information on receipt of complaints and levels of redressal is displayed in all subproject sites, local authorities' offices, SPCU offices and other important places. The SPCU records all grievances received and address them on priority. To date all grievances are addressed at the stage of first tier.

119. The GRM aims to provide a time-bound and transparent mechanism to voice and resolve social and environmental concerns linked to the project. The GRM is project-specific and not intended to bypass the government's own redress process; rather it is intended to address affected people's concerns and complaints promptly, making it readily accessible to all segments of the affected people and is scaled to the risks and impacts of the project.

120. The PMU and SPCUs will make the public aware of the GRM through public awareness campaigns. Grievances can be filed in writing using the Complaint Register and Complaint Forms (Appendix 7) or by phone with any member of the PMU or SPCU. The contact details of the respective SPCUs will serve as a main avenue for complaints and will be publicized through display on notice boards outside their offices and at construction sites. The safeguard documents made available to the public in an accessible version will include information on the GRM and will be widely disseminated throughout the corridor by the safeguards officers in the PMU and SPCUs.

121. **First tier of GRM.** The SPCU is the first tier of GRM which offers the fastest and most accessible mechanism for resolution of grievances. The Safeguards Manager–Social and Gender in the SPCU will be designated as the key officer for grievance redress. Resolution of complaints will be done at the earliest. Investigation of grievances will involve site visits and consultations with relevant parties (e.g., affected persons, contractors, traffic police, etc.). The
Community Development Officer of the local authority or in the absence of Community Development Officer, any officer who is given the responsibility of this, would coordinate with the safeguards and gender manager of SPCU in redressing the grievances. Grievances will be documented and personal details (name, address, date of complaint, etc.) will be included unless anonymity is requested. A tracking number will be assigned for each grievance, including the following elements:

- Complaint Register and Complaint Forms (including the description of the grievance) with an acknowledgement of receipt given to the complainant when the complaint is registered;
- Grievance monitoring sheet with actions taken (investigation, corrective measures); and
- Closure sheet (Result of Grievance Redressal), one copy of which will be handed to the complainant after he/she has agreed to the resolution and signed-off.

122. The updated register of grievances and complaints will be available to the public at the SPCU office, construction sites, and other key public offices. Shall the grievance remain unresolved it will be escalated to the second tier.

123. **Second Tier of GRM.** The Social Safeguards and Gender Manager of SPCU will activate the second tier of GRM¹ by referring the unresolved issue (with written documentation), The Grievance Redress Committee (GRC) will be established before commencement of site works. A hearing will be called with the GRC, if necessary, where the affected person can present his and/or her concern or issues. The process will facilitate resolution through mediation. This local GRC will meet as necessary when there are grievances to be addressed. The local GRC will suggest corrective measures at the field level and assign clear responsibilities for implementing its decision at the earliest. The contractor will have observer status on GRC. If unsatisfied with the decision, the existence of the GRC will not impede the complainant's access to the Government's judicial or administrative remedies.

124. The safeguards and gender manager of SPCUs will be responsible for processing and placing all papers before the GRC, maintaining database of complaints, recording decisions, issuing minutes of the meetings and monitoring to see that formal orders are issued and the decisions carried out.

125. **Third tier of GRM.** In the event that a grievance cannot be resolved directly by the SPCUs (first tier) or GRC (second tier), the affected person can seek redress through third tier at the central level. The third tier - Central Grievance Redressal Committee consists of (i) Project Director as Chairman; and (ii) Legal Officer of MPCLG as member and Social Safeguard and Gender Officer of PMU as Member Secretary.

The GRC will consist of the following persons (i) Commissioner of Local Government of the Province as Chairman, (ii) Divisional Secretary of the area; (iii) Chairman of the respective pradeshiya sabha; (iv) representative of nongovernment organizations and/or community based organizations working in the area as nominated by CLG; (v) Member of clergy of pradeshesiya area; (vi) Chairman of Samathamandal; (vii) Grama Niladhari of the area; (vii) Social Safeguard and gender Manager - as Member Secretary of the GRC. The functions of the local GRC are as follows: (i) resolve problems quickly and provide support to affected persons arising from various issues including environmental and social issues.

126. In case the grievance is not solved at this level, then the complainant can refer the same to the court of law.

127. The detailed GRM is hosted in the project website.

128. The safeguard monitoring reports will include the following aspects pertaining to progress on grievances: (i) number of cases registered with the GRC, level of jurisdiction (first, second and third tiers), number of hearings held, decisions made, and the status of pending cases; and (ii) lists of cases in process and already decided upon may be prepared with details such as name, ID with unique serial number, date of notice, date of application, date of hearing, decisions, remarks, actions taken to resolve issues, and status of grievance (i.e. open, closed, pending).

129. All costs involved in resolving the complaints (meetings, consultations, communication and reporting and/or information dissemination) will be borne by the executing agency.



Figure 1: Tiers of GRM

VIII. ENVIRONMENTAL MANAGEMENT PLAN

130. An environmental management plan (EMP) has been developed to provide mitigation measures to reduce all negative impacts to acceptable levels.

131. The EMP will guide the environmentally-sound construction of the subproject and ensure efficient lines of communication between PMU, SPMU, consultants and contractors. The EMP will (i) ensure that the activities are undertaken in a responsible non-detrimental manner; (i) provide a pro-active, feasible and practical working tool to enable the measurement and monitoring of environmental performance on site; (ii) guide and control the implementation of findings and recommendations of the environmental assessment conducted for the subproject; (iii) detail specific actions deemed necessary to assist in mitigating the environmental impact of the subproject; and (iv) ensure that safety recommendations are complied with. The EMP includes a monitoring program to measure the environmental condition and effectiveness of implementation of the mitigation measures.

132. The contractor will be required to submit to SPMU, for review and approval, a site environmental plan (SEP) including (i) proposed sites/locations for construction work camps, storage areas, hauling roads, lay down areas, disposal areas for solid and hazardous wastes; (ii) specific mitigation measures following the approved EMP; (iii) monitoring program as per SEP; and (iv) budget for SEP implementation. No works are allowed to commence prior to approval of SEP.

133. A copy of the EMP/approved SEP will be kept on site during the construction period at all times. The EMP included in the bid and contract documents. Non-compliance with, or any deviation from, the conditions set out in this document constitutes a failure in compliance.

A. Safeguards Implementation Arrangements

134. The MPCLG is the executing agency. A National Steering Committee, headed by the Secretary of MPCLG, will provide policy guidance to the project. A ministerial committee, also headed by the Secretary of MPCLG, will be responsible for decisions on overall approvals and operational policies of the project.

135. A PMU in the MLGPC, headed by a Project Director, will be responsible for overall coordination, management, administration, project implementation, monitoring, and supervision. The PMU will function as the project office of the executing agency, will be incharge of subproject appraisal and approval, and will ensure compliance with ADB loan covenants. An Environment Safeguards Officer (PMU ESO) will have the following responsibilities: (i) support project director in addressing all environment-related safeguards issues of the project; (ii) implement the EARF; (iii) monitor physical and on-physical activities under the Project; (iv) monitor implementation of safeguards plans; (v) guide the SPCUs as and when necessary; and (vi) endorse and/or submit periodic monitoring reports² received from SPCU to the PMU, project director, who will then submit these to ADB. It will also coordinate with national and state agencies to resolve inter-departmental issues, if any.

136. The PMU will be assisted by PMC Safeguard Specialist (PMC SS). The PMC SS will (i) review and finalize all reports in consultation with the PMU ESO; (ii) provide project management support, (iii) assure the technical quality of design and construction; (iv) review EIA/IEE/resettlement plan/indigenous peoples plan reports submitted by SPCUs; and (v) provide advice on policy reforms. In addition, the PMC SS will assist the PMU on the procurement needs and other project implementation aspects and shall play a central role in ensuring capacity building on environmental management of the PMU, contractors, and line departments through capacity development support and training.

137. SPCU in each of the seven provinces will take responsibility for supporting subproject preparation, screening and endorsement, procurement, implementation monitoring including quality control and assurance and ensuring safeguards compliance. It is essential that Provincial Councils provide clear guidance to the target Pradeshiya Sabhas in their development planning and subproject identification process, to ensure coherence with the provincial physical development plans and facilitate collaboration among neighboring local

² The monitoring report will focus on the progress of implementation of the IEE/EIA and EARF, issues encountered and measures adopted, follow-up actions required, if any, as well as the status of compliance with subproject selection criteria, and relevant loan covenants.

authorities possibly for joint infrastructure development. Each SPCU will be headed by the Commissioner of Local Government who will be assigned as the Provincial Project Director and will be the administrative head. For each SPCU, a senior engineer will be appointed as the executive head and will be in-charge of the day-to-day activities of the unit. The Safeguard Manager of SPCU will be responsible for: (i) review of the EIAs/IEEs prepared by DSCs as well as the implementation of the EMP provided in each EIA/IEE; (ii) undertake surveys and record their observations throughout the construction period to ensure that safeguards and mitigation measures are provided as intended; (iii) implement and monitor safeguards compliance activities, public relations activities, gender mainstreaming activities and community participation activities; (iv) obtain statutory clearances from government agencies/other entities; and (v) coordinate for obtaining ROW clearances with related provincial and national agencies.

138. Environment Specialists will also be appointed as part of the DSC teams to (i) prepare IEEs in the detailed design stage; (ii) assist in the monitoring of EMP during construction stage; and (iii) prepare EIAs/IEEs for new subprojects, where required to comply with national law and/or ADB procedure.



Figure 2: Safeguards Implementation Arrangement

B. Institutional Capacity Development Program

139. The PMC SS will be responsible for training of PMU and SPCUs staff on environmental awareness and management in accordance with both ADB and government requirements. Specific modules customized for the available skill set shall be devised after assessing the capabilities of the target participants and the requirements of the project. The entire training will cover basic principles of environmental assessment and management; mitigation plans and programs, implementation techniques, monitoring methods and tools. Typical modules that will be present for the training session would be as follows: (i) sensitization; (ii) introduction to environment and environmental considerations in urban development projects; (iii) review of IEEs and integration into the subproject detailed design; (iv) improved coordination within nodal departments; and (v) monitoring and reporting system. The proposed training program along with the frequency of sessions is presented in Table 16.

_	– • • •	_	Form of	Duration/	Conducting
Program	Description	Participants	Training	Location	Agency
A. Pre-Const	ruction Stage	Operior officers of	Marked and	1/	
Workshop	Awareness of requirements of environmental safeguard s in design, execution and managing the assets created under the project including procedures to be followed and approvals to be obtained.	Senior officers of MPCLG, NSC members and elected representatives of <i>Pradeshiya</i> <i>Sabhas</i>	worksnop	⁹ 2 day	PMU with support of PMC and ADB (SLRM)
Sensitization Workshop	Introduction to Environment: Basic Concept of environment Environmental Regulations and Statutory requirements as per Government and ADB	Pradeshiya Sabhas, SPCU Staff	Workshop	¹ ⁄2 Working Day	SPCU, DSC, PMU
Session I		Duratestal	1	1/	
	Introduction to Environment: Basic Concept of environment Environmental Regulations and Statutory requirements as per Government and ADB	Sabhas, SPCU Staff	Lecture	^{9/2} Working Day	PMU
Module II	Environmental Considerations in Urban Development Projects: Environmental components affected by urban development in construction and operation stages Activities causing pollution during construction and operation stages Environmental Management Good Practices in Urban Infrastructure Projects	Pradeshiya Sabhas, SPCU Staff	Workshop		SPCU, DSC, PMU
Module III	Review of IEE and its Integration into Designs: IEE Methodology	Pradeshiya Sabhas, SPCU Staff	Lecture and Field Visit	¹ ⁄⁄₂ Working Day	SPCU, DSC, PMU

 Table 16: Training Program for Environmental Management

			Form of	Duration/	Conducting
Program	Description	Participants	Training	Location	Agency
	Environmental Provisions in the EMPs Implementation Arrangements Methodology of Assessment of Pollution Monitoring Methodology for site selection of burrow areas, waste disposal areas etc.				
Module IV	Improved Coordination with other Institutions: Overview of the Project Environmental and Social Impacts Statutory Permissions Procedural Requirements Cooperation and Coordination with other Institutions. Requirement of target setting, team work and team building	Pradeshiya Sabhas, SPCU Staff	Lecture and/or Interactive Sessions		SPCU, DSC, PMU
Module V	Special Issues in the Project Bio-Diversity Assessment and Conservation Geomorphologic Assessment and Soil and Erosion Protection Statutory Permissions – Procedural Requirements Consultation and Counseling Working out responsibility chart and	Pradeshiya Sabhas, SPCU Staff	Lecture	^{1/2} Working Day ^{1/2} Working	SPCU, DSC, PMU
B. Construct	plan ot action ion Stage			Day	
Session II					
Module VI	Role during Construction Roles and Responsibilities of officials/ contractors/ consultants towards protection of environment Implementation Arrangements	Pradeshiya Sabhas, SPCU Staff	Lecture and/or Interactive Sessions	¹ ⁄ ₂ Working Day	SPCU, DSC, PMU

Program	Description	Participants	Form of Training	Duration/ Location	Conducting Agency
	Monitoring mechanisms Introducing necessities of auditing, checks and balances				
Module VII	Monitoring and Reporting System	<i>Pradeshiya Sabhas</i> , SPCU Staff	Lecture and/or Interactive Sessions	¹ ⁄2 Working Day	SPCU, DSC, PMU

ADB = Asian Development Bank, DSC = Design and Supervision Consultants, MPCLG = Ministry of Provincial Councils and Local Government, PMU = project management unit, SLRM = Sri Lanka Resident Mission, SPCU = subproject coordination unit.

C. Staffing Requirement and Budget

140. The costs for environmental safeguard activities which are responsibilities of the PMC and DSC are included in respective consultant packages. The cost of mitigation measures during construction stage will be incorporated into the contractor's costs. Thus, remaining costs related to environmental safeguards cover the following activities:

- (i) Conduct of IEE or EIA studies, preparing and submitting reports and public consultation and disclosure;
- (ii) EPL applications, if required;
- (iii) Conduct of environmental monitoring for baseline data generation and long-term surveys along with GIS based mapping and infrastructure system;
- (iv) Replacement and maintenance of trees, if required; and
- (v) Conduct of environmental capacity-building lectures and workshops for creating awareness.
- 141. The indicative costs of these various inputs are shown in Table 17.

		Unit Cost	Sub-total Cost	
Item	Quantity	(US\$)	(US\$)	Source of Funds
Administrative Cost				
(i) Public Consultations	Lump sum per province (7 provinces)	\$1,000	\$7,000	Project Cost - PMU Costs (to be paid under incremental administration cost)
(ii) Environmental Monitoring				
(a) Design Stage to establish baseline environmental data	Lump sum per province (7 provinces)	\$3,000	\$21,000	Project Cost - PMU Costs (to be done under the guidance of PMC / SPCU by SPCU staff and accounted under incremental administration cost.
(b) Construction Phase		-	-	Civil Works Contractor Costs
(c) O&M		-	-	Pradeshiya Sabhas' cost
(iii) Landscaping and tree-planting	Lump sum per province	\$2, 000	\$14,000	Civil Works Contractor Costs

 Table 17: Indicative Cost of EMP Implementation

Item	Quantity	Unit Cost (US\$)	Sub-total Cost (US\$)	Source of Funds
	(7 provinces)			
(iv) Capacity Building Expenses	Lump sum per province (7 provinces)	\$1,000	\$7,000	On job training is done by PMC / DSC - Any other workshops and/or sessions on these will be under Project Cost - PMU Costs and accounted under Capacity Building expenditure.

* This costs are overall project. Subproject specific cost will be spent under the respective contracts.

D. Environmental Management Plan

142. The contractor will be required to submit to SPMU, for review and approval, a site environmental plan (SEP) including (i) proposed sites/locations for construction work camps, storage areas, hauling roads, lay down areas, disposal areas for solid and hazardous wastes; (ii) specific mitigation measures following the approved EMP; (iii) monitoring program as per SEP; and (iv) budget for SEP implementation. No works are allowed to commence prior to approval of SEP.

E. Environmental Monitoring Program

143. Table 19 shows the proposed environmental monitoring program for the project. It includes all relevant parameters, location, responsibility of mitigation and monitoring, method and frequency of monitoring.

	Potential Negative		Besponsible	Besponsible for	Parameter/s to	
Activity	Impacts	Mitigation Measures	for Mitigation	Monitoring	be Monitored	Source of Funds
Pre- Construction Phase	Permits to be obtained for cutting trees	Cut down branches of trees rather than removing.	Contractor	NWSDB, SPCU and CLG	Left trees in the project area	Contractor's, cost
	Approvals obtained for burrowing of earth	Source the materials from qualified suppliers.	Contractor	NWSDB SPCU and CLG	Field reports and observations	Contractor's, cost
Construction Phase	Traffic congestion during road excavation	To implement a proper traffic control plan using sign boards, barricade tapes, and flag men.	Contractor	NWSDB SPCU and CLG	Field reports and observations	Contractor's, cost
		Alternative spaces to store materials/ park machineries need to be arranged.	Contractor	NWSDB SPCU and CLG	Field reports and observations	Contractor's, cost
	Damages to existing roads	Excavations to be carried out after study of design drawings. It will minimize unnecessary damages on roads	Contractor	NWSDB SPCU and CLG	Field reports and observations	Contractor's, cost
		Small to medium size machineries will be used for narrow roads.	Contractor	NWSDB SPCU and CLG	Field reports and observations	Contractor's, cost
	Dust generation	Regularly spray water on excavated soil surface to minimize generation of dust.	Contractor	NWSDB SPCU and CLG	Field report and complaints if any	Contractor's, cost
		When transporting all materials such as earth, sand and cement, cover them with tarpaulin to avoid spillage of materials and production of dust due to wind.	Suppliers	NWSDB SPCU and CLG	Field report and complaints if any	Contractor's, cost
		Appropriate measures shall	Contractor	NWSDB	Field report and	Contractor's, cost

Table 18: Environmental Management Plan

	Potential					
A	Negative		Responsible	Responsible for	Parameter/s to	
ACTIVITY	Impacts	be in place to minimize the	for mitigation	Monitoring	complaints if	Source of Funds
		emissions of dust while			anv	
		handling, loading/unloading				
		of materials				
		Avoid transporting of	Contractor/	NWSDB	Field report and	No cost
		excavated soils and mud	Engineer/	SPCU and CLG	complaints if	
		during rainy days	Consultant		any	
	Increased	Construction activities be	Contractor		Noise reports	Contractor's
	noise ievei	time from Zam to 5 pm every		SPCU and CLG		COSI
		day and limited night work				
		be done for the concrete				
		slabs. All machineries used				
		in this regard will have noise				
		control devices to reduce the				
		sound level below 75 db as				
		specified by CEA				
		environmental regulations				
		and as snown in the				
	Impacts on	No endemic or endangered	Contractor		Field report and	Contractor's
	existing	tree species are damaged	Contractor	SPCI and CLG	complaints if	cost
	habitats	and to control soil erosion.			anv	0001
		plant more trees in the				
		project area and the				
		neighborhood				
	Damages to	No impact for drainage flow	Contractor	NWSDB	Field report and	Contractor's
	natural	as drainage flows down		SPCU and CLG	complaints if	cost
	drainage	along roads and surrounding			any	
	Weste	The solid wester constant	Contractor		Field reports	Contractor's
	apperation	need to be removed to	Contractor	and CLG		cost
	and camping	appropriate disposal vards				0031
	around					
	Occupational	- Employ workers with	Contractor	NWSDB	OH&S Records	Contractor's
	health and	adequate experience,		SPCU and CLG		cost
	safety	training, and know-how.				

	Potential					
	Negative		Responsible	Responsible for	Parameter/s to	
Activity	Impacts	Mitigation Measures	for Mitigation	Monitoring	be Monitored	Source of Funds
		- These workers shall be led	j	y		
		by an experienced				
		supervisor or engineer, who				
		will provide the leadership in				
		daily activities.				
		- A general regard for the				
		social and ecological well-				
		being of the site and				
		adjacent areas is expected				
		of the site staff. Workers				
		need to be made aware of				
		the following general rules:				
		(i) no alcohol/drugs on site;				
		(ii) prevent excessive noise;				
		(iii) construction staff are to				
		make use of the facilities				
		provided for them, as				
		opposed to ad hoc				
		alternatives (e.g. fires for				
		cooking, the use of				
		surrounding bushes as a				
		toilet facility); (iv) no fires				
		permitted on site except if				
		needed for the construction				
		works; (v) trespassing on				
		private/commercial				
		properties adjoining the site				
		is forbidden; (vi) other than				
		pre-approved security staff,				
		no workers shall be				
		permitted to live on the				
		construction site; and (vii) no				
		worker may be forced to do				
		work that is potentially				
		dangerous or that he/she is				
		not trained to do.				
		- The contractor must				

	Potential					
	Negative		Responsible	Responsible for	Parameter/s to	
Activity	Impacts	Mitigation Measures	for Mitigation	Monitoring	be Monitored	Source of Funds
		monitor the performance of				
		construction workers to				
		ensure that the points				
		relayed during their induction				
		have been properly				
		understood and are being				
		followed. If necessary, the				
		EE and/or a translator shall				
		be called to the site to				
		further explain aspects of				
		environmental or social				
		behavior that are unclear.				
		- The rules that are				
		explained in the worker				
		conduct section must be				
	-	followed at all times.				
	Community	- Contractor's activities and				
	health and	movement of staff will be				
	safety	restricted to designated				
		construction areas.				
		- Should the construction				
		staff be approached by				
		members of the public or				
		other stakeholders, staff				
		shall assist them in locating				
		the SPCU or contractor, or				
		provide a number through				
		which they may contact the				
		SPCU or contractor.				
		- The conduct of the				
		construction statt when				
		dealing with the public or				
		other stakenoiders shall be				
		in a manner that is polite and				
		courteous at all times.				
		Failure to adhere to this				
		requirement may result in				

	Potential					
	Negative		Responsible	Responsible for	Parameter/s to	
Activity	Impacts	Mitigation Measures	for Mitigation	Monitoring	be Monitored	Source of Funds
		the removal of staff from the				
		site by the SPCU.				
		- Disruption of access for				
		local residents, commercial				
		establishments, institutions,				
		etc. must be minimized and				
		must have the SPCU's				
		permissions.				
		- Provide walkways and				
		metal sheets where required				
		to maintain access for				
		people and vehicles.				
		- Consult businesses and				
		institutions regarding				
		operating hours, and factor				
		this in work schedules.				
		- The contractor is to inform				
		neighbors in writing of				
		disruptive activities at least				
		24 hours beforehand. This				
		can take place by way of				
		leaflets placed in the				
		postboxes giving the				
		SPCU's and contractor's				
		details or other method				
		approved by the SPCU.				
		Provide sign boards for				
		pedestrians to inform them				
		of nature and duration of				
		construction works and				
		contact numbers for				
		concerns/complaints.				
		- The contractor will ensure				
		that there is provision of				
		alternate access to business				
		establishments during the				
		construction, so that there is				

	Potential					
	Negative		Responsible	Responsible for	Parameter/s to	
Activity	Impacts	Mitigation Measures	for Mitigation	Monitoring	be Monitored	Source of Funds
		no closure of these shops or				
		any loss of clientage.				
		- The contractor will ensure				
		that any damage to				
		properties and utilities will be				
		restored or compensated to				
		pre-work conditions.				
		- Lighting on the construction				
		site shall be pointed				
		downwards and away from				
		oncoming traffic and nearby				
		houses.				
		- The site must be kept clean				
		to minimize the visual impact				
		of the site.				
		- If screening is being used,				
		this must be moved and re-				
		erected as the work front				
		progresses.				
		- Machinery and vehicles are				
		to be kept in good working				
		order for the duration of the				
		project to minimize noise				
		nuisance to neighbors.				
		- Notice of particularly noisy				
		activities must be given to				
		residents/businesses				
		adjacent to the construction				
		site. Examples of these				
		include: noise generated by				
		jackhammers, diesel				
		generator sets, excavators,				
		etc.				
		- Noisy activities must be				
		restricted to the times given				
		in the project specification or				
		general conditions of				

	Potential					
	Negative		Responsible	Responsible for	Parameter/s to	
Activity	Impacts	Mitigation Measures	for Mitigation	Monitoring	be Monitored	Source of Funds
		contract.				
		- The SPCU and contractor				
		are responsible for ongoing				
		communication with those				
		people who are interested in				
		or affected by the project.				
		- A complaints register (refer				
		to the grievance redressal				
		mechanism) shall be housed				
		at the site office. This shall				
		be in carbon copy format,				
		with numbered pages. Any				
		missing pages must be				
		accounted for by the				
		contractor. This register is to				
		be tabled during monthly site				
		meetings.				
		- Interested and affected				
		parties need to be made				
		aware of the existence of the				
		complaints book and the				
		methods of communication				
		available to them.				
		- The contractor must				
		address queries and				
		complaints by: (i)				
		documenting details of such				
		communications; (ii)				
		submitting these for				
		inclusion in complaints				
		register; (iii) bringing issues				
		to the SPCU's attention				
		immediately; and (iv) taking				
		remedial action as per				
		SPCU's instruction.				
		- The contractor shall				
		immediately take the				

	Potential		Deeneneihle	Deen on sible for	Deverator/e to	
Activity	Impacts	Mitigation Measures	for Mitigation	Monitoring	be Monitored	Source of Funds
		necessary remedial action on any complaint/grievance received by him and forward the details of the grievance along with the action taken to the SPCU within 48 hours of receipt of such complaint/grievance.				
Operation and Maintenance Phase	Increased in sewage generation	The local community has well-built sanitation facilities and will manage the sewage generated	Local community	Public health inspectors	Field reports and public health inspector's report	Not required
	Possible negative impacts due to poor operation and maintenance (O&M) systems on the project by NWS&DB	Measures will be taken to avoid poor operation and maintenance systems for the entire water project.	NWSDB	NWSDB	Field reports	Operational cost borne by NWSDB
	Possible negative impacts to quality and quantity of water supplied by the project and other water intakes	Water quality and quantity tests to be carried out on regular basis (dry and wet periods) and no diversion of water from the primary water intakes to irrigation or other means.	NWSDB	NWSDB	Field reports	Operational cost borne by NWSDB
	Possible negative impacts to PVC pipes laid	Pipelines laid in the passage of road ROW is located far from parking areas	NWSDB	NWSDB	Field reports	Operational cost borne by NWSDB

Activity	Potential Negative Impacts	Mitigation Measures	Responsible for Mitigation	Responsible for Monitoring	Parameter/s to be Monitored	Source of Funds
	along roads					
	due to					
	allowing of all					
	heavy vehicles					
	to be parked					
	Proper	Trained NWS&DB staff will	NWSDB	NWSDB	Field reports	Operational cost
	maintenance	be appointed to backwash				borne by NWSDB
	of Rapid Sand	RSF				
	Filter (RSF)					
	Generation of	Collect solid wastes and	NWSDB	NWSDB	Field reports	Operational cost
	waste	dispose to CEA approved				borne by NWSDB
	materials	disposal yards				

	Potential		Deeneneikle	Responsible	Parameter/s		
Activity	Impacts	Mitigation Measures	for Mitigation	Monitoring	Nonitored	Location	Frequency
Pre-	Permits to be	Cut down branches of	Contractor	NWSDB.	Left trees in	Project	Before
Construction	obtained for	trees rather than		SPCU and	the project	area	commencing
Phase	cutting trees	removing.		CLG	area		Ŭ
	Approvals	Source the materials	Contractor	NWSDB	Field reports	Location	Before
	obtained for	from qualified suppliers		SPCU and	and	around	commencing
	burrowing of	rather attempting to		CLG	observations		
	earth	burrowing from sites				-	
Construction	Traffic congestion	To implement a proper	Contractor	NWSDB	Field reports	Project	weekly
Phase	during road	traffic control plan using		SPCU and	and	area	
	excavation	sign boards, barricade		CLG	observations		
		tapes, and hag men.					
		Alternative spaces to	Contractor	NWSDB	Field reports	Proiect	Once three
		store materials/ park		SPCU and	and	area	months
		machineries need to be		CLG	observations		
		arranged.					
	Damages to	Excavations to be	Contractor	NWSDB	Field reports	Project	Once two
	existing roads	carried out after study of		SPCU and	and	area	months
		design drawings. It will		CLG	observations		
		minimize unnecessary					
		Small to modium size	Contractor		Field reports	Project	
		machineries will be used	Contractor	SPCIL and	and	area	month
		for narrow roads		CIG	observations	area	
	Dust generation	Regularly spray water on	Contractor	NWSDB	Field report	Proiect	weeklv
		excavated soil surface to		SPCU and	and	area	
		minimize generation of		CLG	complaints if		
		dust.			any		
		When transporting all	Suppliers	NWSDB	Field report	Off the	weekly
		materials such as earth,		SPCU and	and	project	
		sand and cement, cover		CLG	complaints if	site	
		them with tarpaulin to			any		
		avoid spillage of					
		materials and production					
	1	of aust due to wind.					

Table 19: Environmental Monitoring Program

	Potential			Responsible	Parameter/s		
Activity	Negative	Mitigation Magazuraa	Responsible	for Monitoring	to be Monitored	Loootion	Fraguanay
	impacts	Appropriate measures shall be in place to minimize the emissions of dust while handling, loading/unloading of materials	Contractor	NWSDB	Field report and complaints if any	Project site	weekly
		Avoid transporting of excavated soils and mud during rainy days	Contractor/ Engineer/ Consultant	NWSDB SPCU and CLG	Field report and complaints if any	Project site and off the site	monthly
	Increased noise level	Construction activities be carried out only during day time from 7am to 5.pm every day and limited night work be done for the concrete slabs. All machineries used in this regard will have noise control devices to reduce the sound level below 75 db as specified by CEA environmental regulations and as shown in the Appendix 8.	Contractor	NWSDB SPCU and CLG	Noise reports	Project site	Daily
	Impacts on existing habitats	No endemic or endangered tree species are damaged and to control soil erosion, plant more trees in the project area and the neighborhood	Contractor	NWSDB SPCU and CLG	Field report and complaints if any	Project site	Once Six months
	Damages to natural drainage pattern	No impact for drainage flow as drainage flows down along roads and surrounding areas.	Contractor	NWSDB SPCU and CLG	Field report and complaints if any	Project site	Once three months

	Potential			Responsible	Parameter/s		
	Negative		Responsible	for	to be		_
Activity	Impacts	Mitigation Measures	for Mitigation	Monitoring	Monitored	Location	Frequency
	Waste generation	The solid wastes	Contractor	NWSDB	Field reports	Project	Once three
	and camping	generated need to be		,SPCU and		site	months
	around	removed to appropriate		CLG			
		disposal yards	-				
	Occupational	- Employ workers with	Contractor	NWSDB	OH&S	Project	Monthly
	health and safety	adequate experience,		SPCU and	Records	site	
		training, and know-how.		CLG			
		- These workers shall be					
		led by an experienced					
		supervisor or engineer,					
		who will provide the					
		leadership in daily					
		activities.					
		- A general regard for					
		the social and ecological					
		well-being of the site and					
		adjacent areas is					
		expected of the site					
		staff. Workers need to					
		be made aware of the					
		following general rules:					
		(i) no alcohol/drugs on					
		site; (ii) prevent					
		excessive noise; (iii)					
		construction staff are to					
		make use of the facilities					
		provided for them, as					
		opposed to ad hoc					
		alternatives (e.g. fires for					
		cooking, the use of					
		surrounding bushes as a					
		toilet facility); (iv) no fires					
		permitted on site except					
		IT needed for the					
		construction works; (v)					
		trespassing on					
		private/commercial					

	Potential			Responsible	Parameter/s		
	Negative		Responsible	for	to be		
Activity	Impacts	Mitigation Measures	for Mitigation	Monitoring	Monitored	Location	Frequency
		properties adjoining the					
		site is forbidden; (vi)					
		other than pre-approved					
		security staff, no workers					
		shall be permitted to live					
		on the construction site;					
		and (vii) no worker may					
		be forced to do work that					
		is potentially dangerous					
		or that he/she is not					
		trained to do.					
		- The contractor must					
		monitor the performance					
		of construction workers					
		to ensure that the points					
		relayed during their					
		induction have been					
		properly understood and					
		are being followed. If					
		necessary, the EE					
		and/or a translator shall					
		be called to the site to					
		further explain aspects					
		of environmental or					
		social behavior that are					
		unclear.					
		- The rules that are					
		explained in the worker					
		conduct section must be					
		followed at all times.				-	
	Community	- Contractor's activities	Contractor	NWSDB	Complaints	Project	Monthly
	health and safety	and movement of staff		SPCU and		site	
		will be restricted to		CLG			
		designated construction					
		areas.					
		- Should the construction					
		statt be approached by					

	Potential			Responsible	Parameter/s		
	Negative		Responsible	for	to be		
Activity	Impacts	Mitigation Measures	for Mitigation	Monitoring	Monitored	Location	Frequency
		members of the public or					
		other stakeholders, staff					
		shall assist them in					
		locating the SPCU or					
		contractor, or provide a					
		number through which					
		they may contact the					
		SPCU or contractor.					
		- The conduct of the					
		construction staff when					
		dealing with the public or					
		other stakeholders shall					
		be in a manner that is					
		polite and courteous at					
		all times. Failure to					
		adhere to this					
		requirement may result					
		in the removal of staff					
		from the site by the					
		SPCU.					
		- Disruption of access for					
		local residents,					
		commercial					
		establishments,					
		institutions, etc. must be					
		minimized and must					
		have the SPCU's					
		permissions.					
		- Provide walkways and					
		metal sheets where					
		required to maintain					
		access for people and					
		vehicles.					
		- Consult businesses					
		and institutions					
		regarding operating					
		hours, and factor this in					

	Potential			Responsible	Parameter/s		
	Negative		Responsible	for	to be		
Activity	Impacts	Mitigation Measures	for Mitigation	Monitoring	Monitored	Location	Frequency
		work schedules.	Ŭ				
		- The contractor is to					
		inform neighbors in					
		writing of disruptive					
		activities at least 24					
		hours beforehand. This					
		can take place by way of					
		leaflets placed in the					
		postboxes giving the					
		SPCU's and contractor's					
		details or other method					
		approved by the SPCU.					
		Provide sign boards for					
		pedestrians to inform					
		them of nature and					
		duration of construction					
		works and contact					
		numbers for					
		concerns/complaints.					
		- The contractor will					
		ensure that there is					
		provision of alternate					
		access to business					
		establishments during					
		the construction, so that					
		there is no closure of					
		these shops or any loss					
		of clientage.					
		- The contractor will					
		ensure that any damage					
		to properties and utilities					
		will be restored or					
		compensated to pre-					
		WORK CONDITIONS.					
		- Lighting on the					
		construction site shall be					
		pointed downwards and					

	Potential			Responsible	Parameter/s		
	Negative		Responsible	for	to be		
Activity	Impacts	Mitigation Measures	for Mitigation	Monitoring	Monitored	Location	Frequency
		away from oncoming					• •
		traffic and nearby					
		houses.					
		- The site must be kept					
		clean to minimize the					
		visual impact of the site.					
		- If screening is being					
		used, this must be					
		moved and re-erected					
		as the work front					
		progresses.					
		- Machinery and vehicles					
		are to be kept in good					
		working order for the					
		duration of the project to					
		minimize noise nuisance					
		to neighbors.					
		- Notice of particularly					
		noisy activities must be					
		given to					
		residents/businesses					
		adjacent to the					
		construction site.					
		Examples of these					
		include: noise generated					
		by jackhammers, diesel					
		generator sets,					
		excavators, etc.					
		- Noisy activities must be					
		restricted to the times					
		given in the project					
		specification or general					
		conditions of contract.					
		- The SPCU and					
		contractor are					
		responsible for ongoing					
		communication with					

	Potential			Responsible	Parameter/s		
	Negative		Responsible	for	to be		
Activity	Impacts	Mitigation Measures	for Mitigation	Monitoring	Monitored	Location	Frequency
		those people who are					
		interested in or affected					
		by the project.					
		- A complaints register					
		(refer to the grievance					
		redressal mechanism)					
		shall be housed at the					
		site office. This shall be					
		in carbon copy format.					
		with numbered pages.					
		Any missing pages must					
		be accounted for by the					
		contractor. This register					
		is to be tabled during					
		monthly site meetings.					
		- Interested and affected					
		parties need to be made					
		aware of the existence					
		of the complaints book					
		and the methods of					
		communication available					
		to them.					
		- The contractor must					
		address queries and					
		complaints by: (i)					
		documenting details of					
		such communications;					
		(ii) submitting these for					
		inclusion in complaints					
		register; (iii) bringing					
		issues to the SPCU's					
		attention immediately;					
		and (iv) taking remedial					
		action as per SPCU's					
		instruction.					
		- The contractor shall					
		immediately take the					

	Potential Negative		Besponsible	Responsible	Parameter/s		
Activity	Impacts	Mitigation Measures	for Mitigation	Monitoring	Monitored	Location	Frequency
		necessary remedial action on any complaint/grievance received by him and forward the details of the grievance along with the action taken to the SPCU within 48 hours of receipt of such complaint/grievance.					
Operation and Maintenance Phase	Increased in sewage generation	The local community has well-built sanitation facilities and will manage the sewage generated	Local community	Public health inspectors	Field reports and public health inspector's report	Local area	Once three months
	Possible negative impacts due to poor operation and maintenance (O&M) systems on the project by NWS&DB	Measures will be taken to avoid poor operation and maintenance systems for the entire water project.	NWSDB	NWSDB	Field reports	IWTP and project area	Once every month
	Possible negative impacts to quality and quantity of water supplied by the project and other water intakes	Water quality and quantity tests to be carried out on regular basis (dry and wet periods) and No diversion of water from the primary water intakes to irrigation or other means.	NWSDB	NWSDB	Field reports	IWTP and project site	Once month
	Possible negative impacts to PVC pipes laid along roads due to allowing of all	Pipelines laid in the passage of road ROW is located far from parking areas	NWSDB	NWSDB	Field reports	Project site	Once three months

	Potential Negative		Responsible	Responsible for	Parameter/s to be		
Activity	Impacts	Mitigation Measures	for Mitigation	Monitoring	Monitored	Location	Frequency
	heavy vehicles to be parked						
	Proper maintenance of Rapid Sand Filter (RSF)	Trained NWS&DB staff will be appointed to backwash RSF	NWSDB	NWSDB	Field reports	IWTP	Daily
	Generation of waste materials	Collect solid wastes and dispose to CEA approved disposal yards	NWSDB	NWSDB	Field reports	IWTP	Weekly

IX. MONITORING AND REPORTING

144. The PMU will continue to monitor and measure the progress of EMP implementation. The monitoring activities will be corresponding with the subproject's risks and impacts and will be identified in the EIAs/IEEs for the subprojects. The PMU and SPCUs will continue to undertake site inspections, document review to verify compliance with the EMP and progress toward the final outcome and recording information of the work, deviation of work components from original scope.

145. DSC will submit monthly monitoring and implementation reports to SPCU, who will take follow-up actions, if necessary. SPCU will submit the quarterly monitoring and implementation reports to PMU who will then submit to the project director. The PMU will submit semi-annual monitoring reports to ADB. The suggested monitoring report format is in Appendix 9. Project budgets will reflect the costs of monitoring and reporting requirements. For subprojects likely to have significant adverse environmental impacts during operation, reporting will continue at the minimum on an annual basis. Monitoring reports will be posted in a location accessible to the public.

146. For projects likely to have significant adverse environmental impacts, the executing agency will retain qualified and experienced external experts to verify its monitoring information. The executing agency will document monitoring results, identify the necessary corrective actions, and reflect them in a corrective action plan. The executing agency, in each quarter, will study the compliance with the action plan developed in the previous quarter. Compliance with loan covenants will be screened by the executing agency.

147. ADB will review project performance against the executing agency's commitments as agreed in the legal documents. The extent of ADB's monitoring and supervision activities will be commensurate with the project's risks and impacts. Monitoring and supervising of social and environmental safeguards will be integrated into the project performance management system. ADB will monitor projects on an ongoing basis until a project completion report is issued. ADB will carry out the following monitoring actions to supervise project implementation:

- (i) conduct periodic site visits for projects with adverse environmental or social impacts;
- (ii) conduct supervision missions with detailed review by ADB's safeguard specialists/officers or consultants for projects with significant adverse social or environmental impacts;
- (iii) review the periodic monitoring reports submitted by executing agency to ensure that adverse impacts and risks are mitigated as planned and as agreed with ADB;
- (iv) work with executing agency to rectify to the extent possible any failures to comply with their safeguard commitments, as covenanted in the legal agreements, and exercise remedies to re-establish compliance as appropriate; and
- (v) Prepare a project completion report that assesses whether the objective and desired outcomes of the safeguard plans have been achieved, taking into account the baseline conditions and the results of monitoring.

X. CONCLUSIONS AND RECOMMENDATIONS

148. The negative environmental impacts arising due to execution of the proposed water supply scheme are minor and negligible as compared to the long-term Socio-economic and health benefits to be delivered to people of the project area. During the dry period from June to August, water quantity and quality should be carefully assessed by NWS&DB as the water level of the Kalawewa water tank may go down due to climatic changes in the area. Negative impacts can be mitigated to standard levels without difficulty through proper engineering design and the incorporation or application of recommended mitigation measures and procedures as per EMP.

149. It is recommended that (i) IEE be made part of the bid and contract documents to ensure mitigation measures are appropriately budgeted and legally binding to the contractors; (ii) monitor diligently contractor/s EMP implementation by PMU, SPMU and consultants on EMP implementation by contractors; (iii) involve stakeholders in all phases of implementation and disclose relevant project related documents; and (iv) continue existing GRM process.

150. **Conclusion.** The subproject is unlikely to cause significant adverse impacts. As per ADB SPS, the subproject is classified as environmental Category B and does not require further EIA.



Appendix 1: Detailed Water Treatment Process Figure 3: Detailed Water Treatment Process

Aeration:

The Kekkirawa water treatment plant is a conventional surface water treatment plant that has a fairly standard sequence of processes. At the same time, the process of aeration takes place by pumping the Pre-Chlorinated water through a special structure to mix with sufficient amount of Air/Oxygen. This aeration will dispel the bad odour, gases dissolved in water and reduce the water hardness to some extent. Depending on the PH value of water, lime liquid is added to increase the pH value. In addition, pre Chlorination is done to disinfect the raw water at the inception of the treatment process. By Pre-Chlorination, algae, biological matter like Bacteria and viruses are killed or neutralized in their Capacity to activate.

Flocculation:

After screening out large objects like fish and sticks, coagulant chemicals/ Alum (Alminium Sulfate) are added to the water to cause the tiny particles suspended in the water. The coagulants make the water cloudy to be attracted to each other and form "flocs." Flocculation—the formation of larger flocs from smaller flocs—is typically achieved using gentle, constant mixing of the water to encourage particles and small floc to "bump" into each other, stick, and form larger floc. Once the flocs are large and heavy enough to be settled, the water moves into quiet sedimentation or settling basins.

Sedimentation:

Waters exiting in the flocculation basin enter the sedimentation basin or called it as a clarifier or settling basin. It is a large tank with low water velocities, allowing floc to settle to the

bottom. The sedimentation basin is best located close to the flocculation basin. Hence, the transition between two processes does not permit the settlement or floc s to break up. The sedimentation basins are generally rectangular flowing from one end to another end for the effective sedimentation process. The particles settled down in the bottom are washed to the waste water tank called "Thinker" where the water is allowed to settle for 24 hours. After 24 hours, the super-nated water is passed through another pipe to a separate chamber where super-nated water is released to a nearby natural water body after testing the water quality. This water analysis has proved that the water released after treatments meets the surface water quality standards of CEA. The sludge produced due to sedimentation is discharged to the forest areas where it can be absorbed to the surface of the soil. This forest area has sufficient ground cover to disperse the sludge in the area. However, the sludge lagoons or the dry beds need to be built up in order to remove the water and make the sludge dry in dry beds. It has been planned to establish dry beds in the second phase of the Capacity improvement of the Minneriya water treatment plant.

Filtration:

- When most of the solids have settled out, the water is passed through rapid sand filters (RSF) that consist of top sand layer and granular or pebble type layer down the sand layer. This is a conventional shallow sand bed structure allowing to filter the water. The larger particles in the water retain on the top of the sand layer while the small particles of organic sediment left in the rapid sand filter are eaten by microscopic organisms including bacteria and protozoans which 'stick' in the layers of slime that form around the sand particles. The clean water which passes through the filter is safe to drink.
- This RSF has much greater water treatment filtration rate and the ability to clean automatically using back wash system. The RSF does not use biological filtration and depends primarily on mechanical straining, sedimentation, impaction, interception, adhesion and physical adsorption. In the rapid sand water filter, the complete filtration cycle (filtration and back washing) occurs sequentially.
- This rapid sand filters can be cleaned by passing water upward through the filter after blowing compressed air up through the bottom. This air blowing process breaks up the clog and allows to back wash with the water. The back wash water is passed through pipes and ends in a waste water tank where it can retain for about 2 hours. After settling the impurities, the water is released to the natural open water body. This water is much cleaner and meets the surface water quality standards of CEA as per required criteria.



Figure 4: Rapid Sand Filter

Chlorination:

Chlorination is used for disinfection of water and in the Kekkirawa treatment Plant, gas chlorination is used. Neutralization plant has been installed to overcome any hazardous accidents. 1000kg gas Chlorine tonners are being used in the treatment plant. Chlorine is added to the sump to disinfect the biological properties of water prior to distribution. Additional residual chlorine (RCL) is added to meet the standards of the Sri Lanka Standards Institute (SLSI) (0.2mg/l) at the last dead end of the distribution system. 20 minutes of retention period is provided for RCL at the storage tank.

Appendix 2: Results of Treated Water Quality Testing



NATIONAL WATER SUPPLY & DRAINAGE BOARD **REGIONAL LABORATORY, ANURADHAPURA** Tel : 025 2222296, Fax : 025 2225609, E mail : anu.reg.lab@gmail.com



1. WATER SUPPLY SCHEME : Ibalagama

2. SAMPLE COLLECTED DATE

3. LABORATORY REG. NO. & SAMPLING POINT	:	No.	Time of sampling	Sampling Point		
		2241	12.45	Kala Wewa		
		2242	12.50	intake (Yodha ela)		
		2243	13.07	Settled water		
		2244	13.06	Filtered water		
		2245	13.05	Sump		
4. SAMPLE COLLECTED BY	:	Mr. Su	idath Days	arathne -Lab Attendant		
5. REPORT REQUIRED BY	1	1 Manager (O&M)				

- 2 District Engineer (Anuradhapura)
- 3 OIC Ihalagama

: 2015.11.02

Results:

Parameters	Units	Maximum Requirement	2241	2242	2243	2244	2245
PHYSICAL AND CHEMICAL O	UAILTY (SI	LS 614 - 2013)		- 			
Colour	Hazen unit	15	19	16	16	12	08
Turbidity	NTU	2	11.89	10.87	4.21	2.22	0.79
Electrical Conductivity at 25°C	µs/cm		198	192	205	195	202
pH		6.5 - 8.5	7.70	7.61	7.96	7.67	7.34
Chloride(as Cl)	mg / 1	250	20	20	2	22	20
Total Alkalinity (as CaCO3)	mg/l	200	80	80	-		80
Total Hardness (as CaCO ₃)	mg/l	250	96	92	-	- 1	96
Nitrates as NO ₃	mg/l	50	1.76	4.40		-	3.08
Nitrites as NO2	mg / 1	3	0.076	0.086	-		0.003
Sulphate(as SO ₄ ²⁻)	mg/1	250	4	4	-	-	4
Fluorides (as F)	mg/1	1.0	0.22	0.28	-	-	0.26
Total phosphate (as PO ₄ ³⁻)	mg/l	2.0	0.29	0.21	-	-	0.24
Total Iron	mg / 1	0.3	0.22	0.16	=1	15	0.03
Free Ammonia	mg / 1	0.06	-	8	70	-	-
Residual Aluminium	mg / 1	0.2	1	2	-	-	0.026
Total Dissolved Solids	mg / 1	500	127	123	131	125	129
Residual Chlorine	mg/l	1.0	2 ²²	a a sa si	<u>1</u> 23		1.64
BACTERIOLOGICAL QUALIT	Y (SLS 614 -	2013)		<u></u>	8.00.0		
Coliform bacteria	Per 100 ml	0	TNTC	TNTC		-	0
E-Coli Bacteria	Per 100 ml	0	TNTC	TNTC	2	12	0

Recommendation:

TNTC - Too Numerous to count.

Bacteriological, tested basic physical and chemical quality of the samples are satisfactory.

This report is issued for the information of the client. It shall not be published in total or part without the written authority of the General Manager, National Water Supply & Drainage Board. This Report is limited specifically to this specimen.

06.11.2015

Date

Regional Chemist



NATIONAL WATER SUPPLY & DRAINAGE BOARD REGIONAL LABORATORY, ANURADHAPURA Tel : 025 2222296, Fax : 025 2225609, E mail : anu.reg.lab@gmail.com



1. WATER SUPPLY SCHEME:2. SAMPLE COLLECTED DATE:

: Ihalagama : 2016.01.19

:

3.	LABORATORY	REG.	NO.	&				
	SAMPLING POINT							

No.	Time of sampling	Sampling Point
136	13.04	Kala wewa
137	13.06	Intake (Yodha ela)
138	13.22	Settled water
139	13.20	Filtered water
140	13.19	Sump

4. SAMPLE COLLECTED BY

5. REPORT REQUIRED BY

: Mr. Sudath Dayarathne -Lab Attendant

1 Manager (O&M)

- 2 District Engineer (Anuradhapura)
- 3 OIC Ihalagama

Results:

Parameters	Units	Maximum Requirement	136	137	138	139	140
PHYSICAL AND CHEMICAL O	UAILTY (S	LS 614 - 2013)			8 54 6		
Colour	Hazen unit	15 ~	20	18	16	08	06
Turbidity	NTU	2	4.52	3.89	3.17	0.80	0.60
Electrical Conductivity at 25°C	µs/cm		259	264	262	259	261
pH		6.5 - 8.5	7.83	7.93	7.45	7.56	7.43
Chloride (as Cl')	mg/l	250	30	30	-	-	30
Total Alkalinity (as CaCO ₃)	mg / l	200	110	110	2	-	100
Total Hardness (as CaCO ₃)	tng/1	250	80	80			80
Nitrates as NO ₃	mg / l	50	0.88	1.32	-	-	2.64
Nitrites as NO ₂	mg/l	3	0.023	0.020		2	0.010
Sulphate(as SO ₄ ²)	mg / l	250	01	02	-		12
Fluorides (as F)	mg/l	1.0	0.45	0.44	20	-	0.40
Total phosphate (as PO ₄ ³⁻)	mg / 1	2.0	0.50	0.74	-	-	0.30
Iron (as Fe)	mg/l	0.3	0.09	0.07			0.02
Free Ammonia (as NH ₃)	mg/l	0.06				-	-
Residual Aluminium	mg/l	0.2	-	-	-	-	0.074
Total Dissolved Solids	mg/l	500	166	169	168	166	167
Residual Chlorine	mg / 1	1.0	-	-	-	-	1.67
BACTERIOLOGICAL QUALIT	Y (SLS 614 -	2013)					
Coliform bacteria	Per 100 ml	0	TNTC	TNTC	24	(2) - 10	0
E-Coli Bacteria	Per 100 ml	0	TNTC	TNTC	7	-	0

TNTC - Too Numerous to count.

Recommendation:

Bacteriological, tested basic physical and chemical quality of the samples are satisfactory.

This report is issued for the information of the client. It shall not be published in total or part without the written authority of the General Manager. National Water Supply & Drainage Board. This Report is limited specifically to this specimen.

28.01.2016 Date

Regional Chemist
No.	Sri Lanka Standards SLS 614 : 2013	Units	Maximum Requirement	
1	Appearance			
2	Colour	' Hazen	15	
3	Turbidity	NTU	2	
4	pH Value		6,5-8.5	
5	Electrical Conductivity	μs/cm		
6	Chloride (as Cl ⁻)	mg / 1	250	
7	Total Alkalinity (as CaCO ₃)	mg/1	200	
8	Total Hardness (as CaCO ₃)	mg/1	250	
9	Nitrate (as NO ₃)	mg/1	50	
10	Nitrite (as NO ₂)	mg/1	3	
11	Sulphate (as SO ₄ ²)	mg/1	250	
12	Fluoride (as F)	mg / 1	1.0	
13	Total Phosphate (as PO ₄ ³)	mg / 1	2.0	
14	Total Iron as Fe	mg / 1	0.3	
15	Total Dissolved Solids	mg / 1	500	
16	Residual Chlorine (as OCl/HOCl)	mg / 1	1.0	
17	Manganese (as Mn)	mg / 1	0.1	
18	Magnesium (as Mg)	mg / 1	30	
19	Calcium (as Ca)	· mg / 1	100	
		÷	÷	

Appendix 3: Drinking Water Quality Standards

DRINKING WATER QUALITY PARAMETERS

BACTERIOLOGICAL QUAILTY (SLS 614: 2013)

Vo	Tyme of Postavia	SLS 614:2013		
KU , (Type of Batteria	Pipe born water	Well water <10	
1	Total number of all types of Coli form bacteria present in 100 ml sample at 37 °C	< 3		
2	Number of <i>E. coli</i> in 100 ml of sample at 44 °C	0	0	

01	Arsenic (as As)	mg / 1	0.01
02	Cadmium (as Cd)	mg / 1	0.003
03	Total Chromium (as Cr)	mg / 1	0.05
04	Cyanide (as CN)	mg / 1	0.05
05	Lead (as Pb)	mg/1	0.01
06	Mercury (as Hg)	mg/1	0.001
07	Selenium (as Se)	mg/1	0.01

Appendix 4: List of Flora and Fauna Found in the Vicinity of the Subproject Site

Group	Species Name	Common Name	Local Name	Status
Mammals	Elephas maximus	Elephant	Aliya	Threatened
	Panthera pardus	Leopard	Diviya	Threatened
	Melursus ursinus	Sloth Bear	Walasa	Threatened
	Hystrix indica	Procupine	Ittawa	Indigenous
	Funambulus palmarum	Palm squirrel	Leena	Indigenous
Birds	Gallus lafayetii	Sri Lanka Jungle fowl	Walikukula	Endemic
	Magalaima zeylanica	Brown headed Barbet	Polos Kottaruwa	BrR
	Oriolus xanthomus	Black-hooded Oriole	Kahakurulla	BrR
	Streptopelia chinensis	Spotted Dove	Alu Kobeiyya	BrR
	Loriculus beryllinus	Sri Lanka Hanging parrot	Gira Malitta	Endemic
Reptiles	Calotes calotes	Green garden Lizard	Pala katussa	Indigenous
	Varanus bengalensis	Land monitor	Thalagoya	Indigenous
	Varanus salvator	Water monitor	Kabaragoya	Indigenous
	Daboia russelli	Russell,s viper	Tith polonga	Indigenous
Butterflies	Graphium agamemnon	Green iay	Kola Papilla	Indigenous
	Catopsilia pomona	Lemon emigrant	Kaha piyasariya	Indigenous
	Melanitis phedima	Dark Evening Brown		Indigenous

(a) The common faunal species identified in the surrounding project areas

BrR-Breeding Resident

(b) List of Flora in the surrounding project area

			Conservation
Species Name	Common name	Life form	Status
Manilkara hexandra	Palu	Tree	Native
Chloroxylon swietenia	Burutha	Tree	Native
Drypetes sepiaria	Weera	Tree	Native
Phyllanthus emblica	Nelli	Tree	
Prosopis juliflora	Kalapu-andara	Herb	Invasive
Euphorbia tirucalli	Nawa-handi	Herb	Native
Acacia abumean	Kukul-katu	Small tree	Native
Phoenix pusilla	Indi	Small tree	introduced
Salvadora persica	Malithtan	Small tree	Native
Dichrostachys cinerea	Katu-Andara	Small tree	Native
Borassus flabellifer	Tal	Tree	Native
Cassia auriculata	Rana-wara	Small tree	Native
Vemonia zeylanica	Pupula	Small tree	Native
Capparis zeylanica	Sudu-welangiriya	Small tree	Native
Carissa spinarum	Heen-karamba	Small tree	Native
Alseodaphne semecarpifolia	Wewarana	Tree	
Canthium coromandelicum	Kara	Herb	Native
Croton laccifer	Kepptiya	Shrub	Native
Berrya cordifolia	Halmilla	Tree	Native

Species Name	Common name	Life form	Conservation Status
Eupatorium odoratum	Poddisinno Maran	Shrub	Native
Lantana camara	Gadapana	Shrub	Invasive
Wattakaka volubilis	Anguna	Herb	Native
Coccinia grandis	Kowakka	Herb	Native
Sapium insigne	Tel-kaduru	Small tree	Native
Diospyros ebenum	Kaluwara	Tree	Native
Flueggea leucopyrs	Katu pila	Shrub	Native
Tamarindus indica	Siyabala	Tree	Introduced
Ziziphus oenoplia	Eraminiya	Liana	Native
Limonia acidissima	Divul	Tree	Native
Chloroxylon swietenia	Burutha	Tree	Native
Tragia plukenetii	Walkahabiliya	shrub	Nativu
Cissus quarangularis	Hirressa	Shrub	Native
Sarcostemma brunonianum	Muwa kirriya	Shrub	Nativu

Screening Questions	Yes	No	Remarks
A. Project sitting			
Is the project area			
Densely populated?		✓ 	The population distribution shows that the
Heavy with development activities?		v	populated and mainly residential area.
Adjacent to or within any			No protected areas/ecologically sensitive
environmentally sensitive areas?			areas along the pipe alignments.
Cultural heritage site		\checkmark	
Protected area		\checkmark	
Wetland		\checkmark	
Mangrove		\checkmark	
Estuarine		\checkmark	
Buffer zone of protected		\checkmark	
area			
Special area for protecting		\checkmark	
biodiversity			
• Bay		\checkmark	
B. Potential environmental impacts			
Will the project cause			
Pollution of raw water supply from		\checkmark	Not applicable. Subprojects will involve
upstream wastewater discharge from			network improvement only.
communities, industries, agriculture,			
and soil erosion runoff?			Net englischle These ess as
Impairment of historical/cultural monuments/groups and loss/damage to		ř	Not applicable. There are no
these sites?			or adjacent to subproject alignments
Hazard of land subsidence caused by		\checkmark	Not applicable Subprojects will involve
excessive ground water pumping?			network improvement only.
Social conflicts arising from		\checkmark	No displacements required.
displacement of communities?			
Conflicts in abstraction of raw water		\checkmark	Not applicable. Subprojects will involve
for water supply with other beneficial			network improvement only.
water uses for surface and ground			
waters?			
• Unsatisfactory raw water supply (e.g.		\checkmark	Periodic monitoring and analysis
Excessive pathogens or mineral			conducted by NWSDB on raw water from
constituents)?			the sources indicate water quality
Delivery of uppofe water to distribution		1	parameters are within prescribed limits.
Delivery of unsafe water to distribution system?		•	distribution network Any distributed water
System:			will be treated and ensured to comply with
			the National Drinking Water Quality
			Standards.
Inadeguate protection of intake works		\checkmark	Not applicable. Subprojects will involve
or wells, leading to pollution of water			network improvement only.
supply?			
Over pumping of ground water,		\checkmark	Not applicable.
leading to salinization and ground			
subsidence?			

Appendix 5: Completed ADB REA Checklist for Water Supply

Screening Questions	Yes	No	Remarks
Excessive algal growth in storage reservoir?		~	Storage reservoirs are only for treated water. The water is chlorinated and the reservoirs covered to prevent algal growth.
 Increase in production of sewage beyond capabilities of community facilities? 		V	Not anticipated.
 Inadequate disposal of sludge from water treatment plants? 		\checkmark	Not applicable. Subprojects will involve network improvement only.
 inadequate buffer zone around pumping and treatment plants to alleviate noise and other possible nuisances and protect facilities? 		~	Not applicable. Subprojects will involve network improvement only.
 impairments associated with transmission lines and access roads? 	~		Not anticipated. Road closures are not required during pipelaying works. A section-wise approach will limit impairments to traffic and businesses during construction. The EMP ensures measures are included to mitigate the impacts.
 health hazards arising from inadequate design of facilities for receiving, storing, and handling of chlorine and other hazardous chemicals. 		~	Not applicable. Subprojects will involve network improvement only.
 health and safety hazards to workers from handling and management of chlorine used for disinfection, other contaminants, and biological and physical hazards during project construction and operation? 		V	Not applicable. Subprojects will involve network improvement only.
dislocation or involuntary resettlement of people?		\checkmark	Not applicable.
 disproportionate impacts on the poor, women and children, Indigenous Peoples or other vulnerable groups? 		\checkmark	Not anticipated. The contractor will be encouraged to hire local workers from the local labor force.
noise and dust from construction activities?	✓		Anticipated during construction activities. Temporary increase in noise level and dusts may be caused by excavation equipment, and the transportation of equipment, materials, and people. The impacts are negative but short-term and site-specific within a relatively small area, and reversible through mitigation measures. Good construction practices will mitigate noise and dust, and will be specified in the EMP.
 increased road traffic due to interference of construction activities? 	~		Anticipated during construction activities. The impacts are negative but short-term and site-specific within a relative small area and reversible through mitigation measures. Traffic management will be specified in the EMP.
continuing soil erosion/silt runoff from	\checkmark		Due to excavation and run-off from

Screening Questions	Yes	No	Remarks
construction operations?			stockpiled materials. The impacts are
			negative but short-term and site-specific
			within a relatively small area and
			reversible through mitigation measures.
			Good construction practices will mitigate
			soil erosion and silt runoff and will be
			specified in the EMP.
delivery of unsafe water due to poor		v	Not applicable. Subprojects will involve
O&M treatment processes (especially			network improvement only.
inedequate eblevinetion due to look of			
adequate monitoring of obloring			
residuals in distribution systems?			
delivery of water to distribution		\checkmark	The project will included development of
system which is corrosive due to			O&M manuals to ensure facilities are kept
inadequate attention to feeding of			in working condition including checking
corrective chemicals?			and maintenance of distribution network.
			Any distributed water must comply with
			the National Drinking Water Quality
			Standards.
accidental leakage of chlorine gas?		\checkmark	Not applicable. Subprojects will involve
			network improvement only.
 excessive abstraction of water 		\checkmark	Not applicable. Subprojects will involve
affecting downstream water users?			network improvement only.
competing uses of water?		√	
increased sewage flow due to		\checkmark	Not applicable. Households have
increased water supply		/	adequate sanitation facilities
Increased Volume of suilage (wastawatar from applying and		v	
(wastewater from cooking and			
treatment plant			
large population influx during project		\checkmark	The additional financing will improve
construction and operation that			existing systems, through capacity
causes increased burden on social			building and institutional development to
infrastructure and services (such as			ensure reduced burden on services and
water supply and sanitation systems)?			infrastructure due to population influx.
social conflicts if workers from other		\checkmark	Priority in employment will be given to
regions or countries are hired?			local residents.
risks to community health and safety		\checkmark	Not applicable. Construction will not
due to the transport, storage, and use			involve use of explosives and chemicals.
and/or disposal of materials such as			
explosives, fuel and other chemicals			
auring operation and construction?	./		Mork propo will be pleasing demonstrate
community safety risks due to both conidental and natural becards	v		work areas will be clearly demarcated
accidental and natural nazaros,			with signage and salety partiers, and
elements or components of the project			and project concerned members will be
are accessible to members of the			allowed to visit the operational sites
affected community or where their			
failure could result in iniury to the			
community throughout project			
construction, operation and			
decommissioning?			

Screening Checklist Prepared By:

W.M.LalithPerera

Position: Date Prepared: Environmental Specialist 21.01 2016

Appendix 6: Records of Public Consultation

Date Conducted:	8 th February 2016
Time:	2:00 PM
Venue:	Community hall attached to Jumma mosque- Uthupitiya

Participants:

- 1. Grama Niladhar i- Uthupitiya.
- 2. Development officer. Thirappane DS office.
- 3. Development officer- Thirappane DS office.
- 4. Field officer- Forest conservation Department.
- 5. Engineer Assistant- NWS&DB
- 6. Community Development officer- Thirappane PS.
- 7. Samurdhi Officer- Thirappane DS office.
- 8. Ex Member of Thirappane PS.
- 9. Safeguard Manager- SPCU-NC.
- 10. Safeguard Consultant- RDC.
- 11. Reform Manager- SPCU-NC.
- 12. Community members.- Attendance sheets attached

The community consultation meeting was summoned with the assistance of Grama Niladhari and the officers from the PS and DS offices in Thirappane. Main objective of the meeting was to explain the design related to water supply scheme and get the consent of the community and other stake holders.

Main topics discussed

- Objectives of the water supply project and contribution of LGESP and ADB
- Laying of pipe line for water supply scheme and related design
- Services provided by the sub project especially in relation to CKD
- GRM mechanism

Participants were educated on matters related to above topics. The community members were interested in the final benefits they will receive after completion of the project. Especially they wanted to know whether all the families in the area are going to get pure and safe drinking water. Officer who represented the NWS&DB explained about the technical aspect of the water supply scheme. Officers from the LGESP and RDC explained the social and environmental matters related to the project activities. However all the participants expresse their gratitude towards the government and the ADB funded project for making arrangements to supply pure and safe drinking water to their village. In this discussion one lady- Pathima Shihana (45 years) mentioned that during the last twenty years she took lot of troubled to bring suitable drinking water from faraway places. Another lady - Pathima Bibi (40 years) mentioned that how one of her child got some disorder in his urinal system and it was cured by an operation. At this point, all the participants unanimously mentioned that the water available in village wells (about 120) is not suitable for drinking due to hardness / alkalinity of the water. Another community member mentioned that they have faced unsatisfactory and dangerous incidences like robbing their jewelries when they go to fetch water from faraway places. After revelation of CKD issue, the community is expressing more fear in using well water. One lady expressed her happiness over getting the pure safe drinking water by mentioning that the project was a boon from the god to the future generation in the village. However the community members finally requested to make only one change to the original design.

The request was to extent another two hundred meters to the planned nine hundred meters along Amunuchchiya road. (Total would be 1100 meters.) Officers from the project office agreed to extend requested by additional two hundred meters.

Further they wanted to know whether dwellers in by roads going to get water from the proposed project. The officer from the NWS&DB mentioned that all the houses in the area will get water connections and this will be implemented by the officer in charge of the area office at the time of connecting the water supply to households.

After a lengthy and constructive discussion, all the participants thanks the PURANAGUMA project for solving a lifelong problem they have faced. A monitoring committee with representatives from the community was formed with the aim of facilitating smooth implementation of the project activities.

Members of the monitoring committee.

- 1. Grama Niladhari.
- 2. Pathima shihana.
- 3. A.M. Sulthan- 0777182080.
- 4. A.M.M. THasim 0777798846.
- 5. P.M.Aub 0776992503.
- 6. I.S. Udayappar 0722578227.
- 7. Y.M. Thowpic 0777477577.

Abeyratne Attanayake.

Safeguard Expert (Environmental and Social).

Summary report on community consultation meeting in relation to water supply project- Uthupitiya.

Date Conducted. : 8th February 2016

Time: 2.00 PM.Venue: Community hall attached to Jumma mosque- Uthupitiya.

Participants.

- 1. Grama Niladhar i- Uthupitiya.
- 2. Development officer. Thirappane DS office.
- 3. Development officer- Thirappane DS office.
- 4. Field officer- Forest conservation Department.
- 5. Engineer Assistant- Water Board
- 6. Community Development officer- Thirappane PS.
- 7. Samurdhi Officer- Thirappane DS office.
- 8. Ex Member of Thirappane PS.
- 9. Safeguard Manager- SPCU-NC.
- 10.Safeguard Consultant- RDC.
- 11. Reform Manager- SPCU-NC.
- 12.Community members.- Attendance sheets attached.

The community consultation meeting was summoned with the assistance of Grma Niladhari and the officers from the PS and DS offices in Thirappane. Main objective of the meeting was to explain the design related to water supply scheme and get the consent of the community and other stake holders.

Main topics discussed

- Objectives of the water supply project and contribution of LGESP and ADB
- Laying of pipe line for water supply scheme and related design
- Services provided by the sub project especially in relation to CKD

GRM mechanism

Participants were made aware / educated on matters related to above topics. The community members were interested in the final benefits they will receive after completion of the project Specially they wanted to know whether all the families in the area going to get pure/ safe drinking water. Officer represented the water board explained about the technical aspect of the water supply scheme. Officers from the LGESP and RDC explained the social and environmental matters related to the project activities. However all the participants expressed their gratitude towards the government and the ADB funded project for making arrangements to supply pure / safe drinking water to their village. In this discussion one lady-Pathima Shihana (45 years) mentioned that during the last twenty years she took lot of troubled to bring suitable drinking water from faraway places. Another lady - Pathima Bibi (40 years) mentioned that how one of her child got some disorder in his urinal system and it was quivered by an operation. At this point all the participants unanimously mentioned that the water available in village wells (about 120) is not suitable for drinking due to hardness / alkalinity of the water. Another community member mentioned that they have faced unsatisfactory and dangerous incidences like robbing their jewelries when they go to fetch water from faraway places.. After revelation of CKD issue the community is expressing more fear in using well water. One lady expressed her happiness over getting the pure safe drinking water by mentioning that the project was a boon from the god to the future generation in the village. However the community members finally requested to make only one change to the original design.

The request was to extent another two hundred meters to the planned nine hundred meters along Amunuchchiya road. (Total would be 1100 meters.) Officers from the project office agreed to extend requested two meters.

Further they wanted to know whether dwellers in by roads going to get water from the proposed project. The officer from the water board mentioned that all the houses in the area will get water connections and this will be implemented by the officer in charge of the area office at the time of connecting the water supply to households. After a lengthy and constructive discussion all the participants thanks the PURANAGUMA project for solving a lifelong problem they have faced. A monitoring committee with representatives from the community was formed with the aim of facilitating smooth implementation of the project activities.

Members of the monitoring committee.

1. Grama Niladhari.

2.	Pathima shihana.	
3.	A.M. Sulthan-	0777182080.
4.	A.M.M. THasim.	0777798846.
5.	P.M.Aub.	0776992503.
6.	I.S. Udayappar.	0722578227.
7.	Y.M. Thowpic.	0777477577

Abeyratne Attanayake.

Safeguard Expert (Environmental and Social).

From the community meeting at Uththupitiya







Gender balance in the meeting



Voice of the women



به 60% و . الأولى						
00- 20, 80 : 20	ం లి జుజి (G/W/D/FH/P/C/L /L/O/Y)					
ନ - ଅର୍ ଅ୍ୟାର ୧ ଜନ୍ମ	နာစ်ဆေ	and.	and the second s	And Base	The way	
යික වාහංපෘතිය කර්, නතු ග	ස්තු/පුරුෂ භාවය ස්තු පුරුෂ		1 1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	 1 2 3 4 4	>>>	2 di
තිරීමේ ආංශ	දුරකානය	5077692500	8 04) 12 m	17542888888	07781302	-7577-6470 (27)-65 88-
1000000 2 (10)20 2	කාර්යාලය	80.420 mm	Cone Ro			تی می اور
5 49 45 9 20	කනතුර	లదం: రివారకలు బా ంగ్రంజా విశాధ నా	250 30 0 K	N N	9.25, 26	ဖြိဳးရသာရာ (- ဧ၈, II-
ఆ ఉంబా లుండా <u>జ</u> ాలు గ్రా కా షా క్రా	ත්නාගේ නම / ාභියාගේ නම	म्बर्ट्स्स् स् इन्द्र्य्य	A-A-A	NISE Z.	25020 Bal	AMERIAN andan, H- etg anaugean, J Devy L
වැඩසටහනා ප්ථානය	්ංකය සහභාගි පුතිරි	2. A.W. M	N N S	6 B.m.m.	8 M.L.	(2 1.5. 2

	•								1	/	· · · ·	* * ** * *			2		Ψ
00 00 00	20 mm	Esu: 82/2014	වෙනක් (G/W/D/FH/P/C/L /L/O/Y)						2	- 		·	алан (така) алан		×		1.
ේ - සුර නැශ			៥ឆាំយ	F	Ð	Rlend.	Za	* / Aducan	R	i - 		17 Alle	J.		а 8 8	н. * •	
ා වායාපයකිය	•		ස්ති/පුරුෂ භාවය ජීති පුරුෂ	7				7]	\ 8	2	7	7	×	2 5 8		,
් රීමේ ආංශික		· · · · · · · · · · · · · · · · · · ·	දීරකාන දීරකාන දී	07,13165092.	0711403990	6170811400 *	0771666257	071-0549473	0713739255	077 4995	0715824140		. 9498524Lz	- ଅ ୦୧୫୪)	*		4
)වර්ධනය කි	\$	Lex.	කාර්යාලය	. yetegozace	ع، مرد حدف مم	(\$61 TES) v3:60! menec	Lend Ju	් ත්. ක්රි. මුද්දක්ලීන	560 Pudarca	SEG Zurgen	BD: BEDE	Spennes.	· J. C7	ඉඩම අහිම , O - අනාථ, Y		* × bs	
ා ආයතන දූ		An act	කනාකුර	calmarka.	పెంటా చాడికి	avion else	2 m. r. De	al al and	me all.	بالمصابحة	ලිප්ත කරමරීමක හැංකාව	the boy and	Sele grund	²-සමෘඨිලාභී , C - ළමා, LL-		з) (s. 5
ළාත් පාල <u></u>		BRSDer.	හුගේ නම / බෙහ් නම	· «	9-91-1000	9250	E Balta	alam Co	Boren .	10454	1. ජකශිළි	A Capibil	soluts.	ා, fH - ස්තී ගෘහමුලික ,I			<u>1997-1997-1997</u>
ສ	ວິ່ນອາ:	6	සහභාගිවන්2 පුනිලාභිය	යහා ක්ලිනුරූං	2.0.2. 20276	H-P.H.P. &	F. m. m	A.M.E.C. Z	g.n.r. &	y. m.	N.J.A.N	M N DE	te w. H	(W-වැන්දඹු D-ආබාධ්ය		U K	.4 ?
	້ ຍາຍຂຣ	ස්ථාන	ස්ංකය	13	14	-51	. 91.	11	18	13	80	5	é é		* *		. 3

Appendix 6

	91	ет • • • • •			н с		2 2 3	\mathbf{X}	а ж. 2 ⁸ ж. 8 ж. 8	2 2 2 3	× * *	2 A	8000 8 8 8 9 8 00	20 20 20 20 20	
00	800 : 08/09 /20	ෙවනක් (G/W/D/FH/P/C/L // / _///	11/0/11			8	8	60					· · ·		
- ଅର୍ ଅ୍ୱାର୍		අන්සන)ee	(Tread)	Charthas	hort & cl	V.FAREE		そうからうちょう	FOS LOLA		her	*	· · ·
ක වාහංපතේය		ස්ති/පුටැෂ භාවය						 	2	Ż	2	>	<u> </u>	7	
් රීමේ ආංශි		දුරකානහය						•	582				- m 0, es)	2	<u> </u>
වර්ධනය කි	Con Con	කාර්යාලය		18 25			200		č. se	1		×	ඉඩම අසිම , 0 - අනාථ, Y	a la a Ta	7.*2
දොයකත පු	× 22 .	කහතුර		2 2 2		-	- *	2	а а	× ,			සමෘඨිලාභී , C - ළමා, LL-		*
පෙසාක් සංලන	2000	සහභාගිවන්නාගේ නම / පුනිලාසියාගේ නම	C	Aevity .	MW2094	רייאצי ידי S ואיזמון	PET DUG	W-FRAREGA	U. MANA	M. FAW SULLINGYA	5.A Fasea	5 altur	(W-Drateg Ó-中高品あ, EH - 出営 ლい皇名あ, P- 人 、 H、 �� / つかう		A month is it is
	င်္ဂလို လူလို	<u>ل</u> و، ک	83	25	3 50	26	5	30	ð	30	3	32	er. Cr		5

	43 10 10 10			$\overline{\ }$		
10 (1000)	ේවනක් (G/W/D/FH/P/C/L /L/O/Y)			28 		
ଜ - ମ୍ଭର ଅନ୍ୟ	ឝុឌាំយង	Come Sully	Sme	Purt White	The F	
ක වායාපතේ ,	ස්කි/පුරුෂ භාවය ස්ති පුරුෂ			7 >	> > >	
රීමේ ආංශි	දුරකතනය	at/188170			[-74	a 0, ख
10 000 00 00 00 00 00 00 00 00 00 00 00	කාර්යාලය	nesden			Congen	ාඩම අතිම, O - අනාථ, V
) ආයතන පු 	කහාත්ර	worth with	937 FL	pt	De 4A MED	sea≅œa, LL-e, e, LL-
ළාත් පාලන 24 ද්ටිඩ	හාගේ නම / හංගේ නම	Ben with	Jugn'	ALLA ALLA	MOHANDE NOOK	24, खू 90 93 93 94 94 94 94 94 94 94 94 94 94 94 94 94
8 00001	සහභාගිවත්2 පුකිලිංහිය	P. J. B. Hm S Of	UN E	mj.n.	A B H	(W-වැන්දලි D-ආබංසික ***
වැඩස ස්ථාන	අංකය	35	2 2	3 3	\$ 77	

8		a * 140 4	el Ne Sil N	8		* .	3 3	***						8 10 10	
30 (1997)	లిబాజీ (G/W/D/FH/P/C/L /L/O/Y)								×				**		
- ମ୍ପର୍ ଅର୍	ಧಿ ಶುಜಿಲು	Aborreade	Jun	And S	Aque	NITA	- Aller	C/Sie	S-th	C. B. a.P.	Det Z	~	*	8)81 34	
) චාහංපකේය ර	ස්ති/පුරුෂ භාවය ජීතී පුරුෂ	Stores .	1	×	r ato	26	,	, >	`ر	>	2		3 7		1
රීමෙ ආංශික	දුරකානහය දේරකානහය ස	67708846	OZICERADO	* 5490973992(07/726189	07/3620215	this to their	1	64493304		SSIEBBAIta	ಕಾಂಗ್ರಹ)	3		2
ෂුවර්ධනය කි ~ිලිණි	෩෮ඁඁඁඁඁඁ෨ඁ෮ඁඁ෬	a star	LUAPIHUS	Uten Pitiya	Cubardon (" repend	yekupkuy	Uttu Pi Ebg	uttapilitad	23.60 m	cut.	ඉඩම අභිම , O - අනාර, Y-		*	
න ආයතන ද 	කහතුර	L.S.y.J.S	7	- <u>L</u>	Creph	, , ,	Ň		۰۱ .			-සමෘධිලාභී , C - ළමා, LL-			8
ළාන් පාල2 71 දි වැඩ	හාලේ නම / යුලේ නම	AG A	Mean	NHAN	Sold	and A.	PRAS	BAR 2	leen	1 - S	res	, EH - ස්තී ගෘහමුලික ,P		AN	
8 8 8 8 8 8 8	සහභංගිවන්2 පුකිලංහිය	A·ZQ	Run. De	A.R.M.RT	A-H-N0. 8	5.1.0	188 W S.	2. S U	M.S.Sa	S. 02.00.2	T. Nafe	(W-වැන්දඹු D-ආබංයින	(1 0) 5		.4 . 1
වැඩස< ස්ථාන	අංකය	\$	49	Ð	48	49	50	5	25	53	EG .				

	Я	2004 2 2 2	n n n N			9	*		2 2 1 1 1 1	· · · · · · · · · · · · · · · · · · ·			e a	*			й
00	2000 :	ේවනක් (G/W/D/FH/P/C/L	(λ/o/λ)	-	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	et and a	/	- /		-	•		4 2 40 5 - 1				
- පුර නැශ	**) 55 55	ແລ ເ	1 2	Applients	· saf	Shmppo-	Sund.	* Soft	Asterilla		Acha.	BA. K. WELL	GND.			. 8.	
ක වාහංපෘතිය		ස්ති/පුරුෂ භාවය	ස්තී පුරුෂ	Jr.	10 - 10 - 10 - 10 - 10 - 10 - 10 - 10 -	×		>	7	. \	5	2	>		н ж		
ාිටීමේ අාං ශි	a a a a	දරකතහය	a	0175930559	157888-1LO	1	077-3495296	oनन्द्रश्वकर्ष	676612345F				•	Y- ଅ ୍ୟ ସ୍ଥ)	6. 9		
ාවර්ධනය ස්	Der .	කාර්යාලය)		۰. ۱	- I		1	1.	4 9 9			- 10 3.	-ඉඩම අහිම් , 0 - අනාථ,		÷	×
ා ආයතන යු	233 al) تەكەر تەر	,	* 				- 4	*1	ف	AMMA	NA D	141	-සමෘඩිලාභී , C - ළමා, LL			
ල්ංන් පාලන	Le SDu	තුගේ නම /	ු ඉහ ඉ	<u>т</u> н	Kram	° coor	ආළුකි	2em	la	CAIZ .	ALTHA	LEA WITA	N LDIKA	ა, ළිH - ස්තී ගෘහමුලික , P		1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 -	
ີສຸ	3	ະສູດ ເຊິ່ງ ເຊິ່ງ ເຊິ່	පුත්ලංභිය	N.M. SAJA	C. M. B.Y	T.S.Shr	gai apel.	S.M.Sale	W. HISPU	MN.H.G	A. JUN	S.A.ILAX	5.11.5	(W-වැන්දඹු D-ආබාධිත	÷		. 4 1
ົວ _ເ ຄີຜູ	ස්ථාන(සංක සංක	-	55	56	57	58	59	lse	<i>1q</i>	62.	bg	49	N.			

. .

20 Esous:	
is - Ed Brid	A
Bab Duscaab weber web	52017
5000 4000 4000 4000 4000 4000 4000 4000	20102
69082000 100 100 100 100 100 100 100 100 100	
5 なっは知め 、 、 、 、 、 、 、 、 、 、 、 、 、	
Brênestinnin - Est 2002 Brênestinnin - Est 2022 Brênestinnin - Est 2021 Brend mer 2021 Brand Brinder mer 2021 Brand Brand - En RARCE Brand RACE Brand RACE Brand RACE Brand Sash Brand - Est Rolling Con RARCE Brand Sash Brand - Est Rolling Con RARCE Brand Race Brand - Est Rolling Con Rand - Est Roll	77 M FHROOK

		ة مي مر مر م			1.1	· · · · · · · · · · · · · · · · · · ·
2. 000 1000 1000 2000 2000 2000 2000 200	ంలిబుజీ (G/W/D/FH/P/C/L /L/O/Y)	X.S.C.	" and "	nome 30	5.6A0 6.10 0P	
ہ - <u>د</u> ر ب _ا ر	ឌុឌាំយខា		,		5	2 2
න වාහංපකේය	ස්ති/පුරුෂ භාවය ස්ති පුරුෂ	* *	> > %	× * * > ? \	>	
රීමේ ස්ාං හි2 ද	දීරකානහය					(B)
වර්ධනය කි	කාර්යාලය					6
ආයතන පු 	කනාතුර		· · ·		معالی است محمد المحمد ا	
සංක ද්ශ හැ ක් නාවා	ක්සේ නම / මහේ නම				ල ස් පස්ති කොමලිකා P-සම	
a at	සහභාගිවන්න පුකි්ලානියා	X, SAHEED S, M. SAFIN	T.M. THT	Mo. Jonies Biffernies	<u>فا ڈیا کہ میا 'ڈ</u> W-Diatag D-thandan E	4
වැඩසර ස්ථාන(දූංකාය	78	10	83 85, 83	28	

4 Z 1) 5 12) (1. L . [M A.P Ner Ň g-1.. S. Bry Brz End K.L. Mufeedy K.L. Badumunisa AMA - ASMA - MM rt. L.S Salting Deer Flores S. 1 f M. H. S. BEENI zurl Maleema F HIROOK o p.c. Sumary 25' RISHAND - M

85

Appendix 7: Complaint Register and Complaint Forms

(To be available in Local Language)

The _____Project welcomes complaints, suggestions, queries and comments regarding project implementation. We encourage persons with grievance to provide their name and contact information to enable us to get in touch with you for clarification and feedback.

Shall you choose to include your personal details but want that information to remain confidential, please inform us by writing/typing *(CONFIDENTIAL)* above your name. Thank you.

Date	Place of registration
Contact Information/Personal Details	
Name:	Gender:Male Age:
	Female
Home Address	
Village / Town	
District	
Phone no.	
E-mail	
Complaint/Suggestion/Comment/Que	stion Please provide the details (who, what, where and how) of
your grievance below:	
If included as attachment/note/letter, p	blease tick here:
How do you want us to reach you for	feedback or update on your comment/grievance?

FOR OFFICIAL USE ONLY

Registered by: (Name of	Official registering grievance)									
Verified thru:	Note/Letter	E-I	mail	Verbal/Telephonic						
Reviewed by: (Names/Po	ositions of Official(s) reviewing	g grievan	ice)							
Action Taken:										
Whether Action Taken D	isclosed:		Yes	No						
Means of Disclosure:										

Appendix 8: Applicable Noise Level Standards

PERMISSIBLE NOISE LEVELS IN ACCORDANCE WITH NOISE CONTROL REGULATIONS

Maximum Permissible Noise Levels (as $L_{Acq}T$) at Boundaries of the land in which the noise source is located shall not exceed the limits set out below.

Area	L _{Acq} T,	dB(A)
	Day Time	Night Time
Low Noise (Pradeshiya Sabha area)	50	45
Medium Noise (Municipal Council/Urban Council area)	63*	50
High Noise (EPZZ of BOI & Industrial Estates approved under part IVC of the NEA)	70	60
Silent Zone (100 m from the boundary of a courthouse, hospital, public library, school, zoo, sacred areas and areas set apart for recreation or environmental purposes)	50	45

 * Provided that the noise level should not exceed 60 dB (A) inside existing houses, during day time.

Maximum permissible Noise levels at Boundaries of the land in which the source of noise is located in L_{Acq} T for construction activities.

Construction Activities

L_{Acq} T, dB (A)

Day Time

75

Night time 50

The following noise levels will be allowed where the background noise level exceed or is marginal to the given levels in the above table.

(a) For low noise areas in which the background	Measured Background
noise level exceeds or is marginal to the given level	Noise level + 3dB (A)
(b) For medium noise areas in which the background	Measured Background
noise level exceeds or is marginal to the given level	Noise level + 3dB (A)
(c) For silent zone in which the background noise level exceeds or is marginal to the given level	Measured Background Noise Level + 3dB (A)

BOARD OF INVESTMENT OF SRI LANKA

Appendix 9: Suggested Monitoring Report Format

SAMPLE Semi-Annual Environmental Monitoring Report Template

This template must be included as an appendix in the EIA/IEE that will be prepared for the project. It can be adapted to the specific project as necessary.

Introduction

- Overall project description and objectives
- Description of sub-projects
- Environmental category of the sub-projects
- Details of site personnel and/or consultants responsible for environmental monitoring
- Overall project and sub-project progress and status

No.	Sub-		Status o		List of Works	Progress of Works	
	Project		Pre-		Operational		
	Name	Design	Construction	Construction	Phase		

Compliance status with National/ State/ Local statutory environmental requirements

No.	Sub-Project Name	Statutory Environmental Requirements	Status of Compliance	Action Required

Compliance status with environmental loan covenants

No. (List schedule and paragraph number of Loan Agreement)	Covenant	Status of Compliance	Action Required

Compliance status with the environmental management and monitoring plan

- Provide the monitoring results as per the parameters outlined in the EMP. Append supporting documents where applicable, including Environmental Site Inspection Reports.
- There should be reporting on the following items which can be incorporated in the checklist of routine Environmental Site Inspection Report followed with a summary in the semi-annual report send to ADB. Visual assessment and review of relevant site documentation during routine site inspection needs to note and record the following:
 - What are the dust suppression techniques followed for site and if any dust was noted to escape the site boundaries;

- If muddy water was escaping site boundaries or muddy tracks were seen on adjacent roads;
- adequacy of type of erosion and sediment control measures installed on site, condition of erosion and sediment control measures including if these were intact following heavy rain;
- Are their designated areas for concrete works, and refuelling;
- Are their spill kits on site and if there are site procedure for handling emergencies;
- Is there any chemical stored on site and what is the storage condition?
- Is there any dewatering activities if yes, where is the water being discharged;
- How are the stockpiles being managed;
- How is solid and liquid waste being handled on site;
- Review of the complaint management system;
- Checking if there are any activities being under taken out of working hours and how that is being managed.

Appendix 10: Summary Monitoring Table

Impacts (List from IEE) Design Pha	Mitigation Measures (List from IEE) ase	Parameters Monitored (As a minimum those identified in the IEE should be monitored)	Method of Monitoring	Location of Monitoring	Date of Monitoring Conducted	Name of Person Who Conducted the Monitoring
-						
Pre-Constr	ruction Phase					
Constructi	on Phase		1			
On eventions						
Operational Phase						

Overall Compliance with CEMP/ EMP

No.	Sub- Project Name	EMP/ CEMP Part of Contract Documents (Y/N)	CEMP/ EMP Being Implemented (Y/N)	Status of Implementation (Excellent/ Satisfactory/ Partially Satisfactory/ Below Satisfactory)	Action Proposed and Additional Measures Required

Approach and methodology for environmental monitoring of the project

 Brief description on the approach and methodology used for environmental monitoring of each sub-project

Monitoring of environmental Impacts on Project Surroundings (ambient air, water quality and noise levels)

- Brief discussion on the basis for monitoring
- Indicate type and location of environmental parameters to be monitored
- Indicate the method of monitoring and equipment to be used
- Provide monitoring results and an analysis of results in relation to baseline data and statutory requirements

As a minimum the results should be presented as per the tables below.

Air Quality Results

			Parameters (Government Standards)			
Site No.	Date of Testing	Site Location	PM10 μg/m3	SO2 µg/m3	NO2 µg/m3	

			Parameters (Monitoring Results)			
Site No.	Date of Testing	Site Location	PM10 μg/m3	SO2 µg/m3	NO2 µg/m3	

Water Quality Results

			Parameters (Government Standards)				s)	
				Conductivi	BOD	TSS	TN	TP
Site No.	Date of Sampling	Site Location	рН	ty µS/cm	mg/L	mg/L	mg/L	mg/L

			Parameters (Monitoring Results)					
				Conductivi	BOD	TSS	TN	TP
Site No.	Date of Sampling	Site Location	рΗ	ty µS/cm	mg/L	mg/L	mg/L	mg/L

Noise Quality Results

Noise Quality Results							
	LA _{eq} (dBA)						
Site No.	Date of Testing	Site Location	Day Time	Night Time			

			LA _{eq} (dBA) (Monitoring Results)	
Site No.	Date of Testing	Site Location	Day Time	Night Time

Appendix 11: Sample Environmental Site Inspection Report

Project Name Contract Number			
NAME: TITLE: LOCATION:		DATE: DMA: GROUP:	
WEATHER CONDITION:			
INITIAL SITE CONDITION:			
CONCLUDING SITE CONDITION:			
Satisfactory Unsatisfactory	Incident	Resolved	Unresolved
INCIDENT: Nature of incident:			
Incident Issues			
		Survey	
	Project	Design	
Resolution	Activity Stage	Implementation	
		Pre-Commissioni	ng
		Guarantee Period	
In	spection		
Emissions	Waste Min	imization	
Air Quality	Reuse and	Recycling	
Noise pollution	Dust and L	itter Control	
Hazardous Substances	Trees and	Vegetation	
Site Restored to Original Condition	Yes	1	lo l
Signature			

Sign off

Name Position Name Position

Appendix 12 : References

- 1. ADB Safeguards Policy Statement, 2009.
- 2. Forest Department, 2010. Integrated Strategic Environmental Assessment project, Northern Province, Forest Cover Assessment and Identification of Forests and Other Ecological Sensitive Areas for Conservation funded by UNDP.
- 3. Gunatillake, N., Pethiyagoda, R. and Gunatillake S.-2008-Biodiversity of Sri Lanka
- 4. National Environmental Act No 47 of 1980 and its amendments/Rules and regulations published in the Extraordinary Gazette Notifications in 1992 and 2006.
- 5. Sampath Pethikade of Thirappne Divisional secretariat, 2014



Appendix 13: Maps related to the water supply sub project

Figure 5: 3 Schematic diagram of the Uththupitiya Water supply sub project Uththupitiya Extension (Kekirawa Water Supply Scheme)



Figure 6: Final Designs of the Uththupitiya water supply sub project



Figure 7: Map showing the Land use pattern in the proposed area



Figure 8: Map showing pipe line laying in the proposed area

Appendix 14: Photographs of the project area

Project starting location-Ganewalpola



Turning point to Uththupitiya town

Roadside of Habaran- Ganewalpola



Paddy field side of Uththupitiya





Road side with wide space-Uththupitiya





Uththupitiya town area



End point of the project-Uththupitiya

Distribution Network-Bamunugama



Road side at Uththupitiya





Public consultation




.

Appendix 15: Applications and Letters for Consent

RESOURCES DEVELOPMENT CONSULTANTS (Pvt) Ltd.

Local Government Enhancement Sector Project / Puranaguma Project Office

3/394, Harischndra Mawatha , Anuradhapura.

Our Ref.RDC/LGESP/PR/N

2016.01.26

පුධාන නිලධාරී තුමා, වන සංරක්ෂණ දෙපාර්තමේන්තුව, අනුරාධපුරය.

මහත්මයානණි.

ජනාධිපති තුමාගේ විශේෂ සංකල්පය අනුව වකුගඩු රෝගීන් සිටින පුාදේශ වලට පානීය ජලය සැපයීම.

උක්ත ජල යෝජනා කුමය කියාත්මක කිරීමේ පුධාන ජලනල එලීමේ මාර්ගය ගනේවල්පොල - ගලෙන්බ්දුනුවැව මාර්ග රක්ශිතයේ එලීම සදහා සැලසුම්කර ඇත.ඒ සදහා මාර්ග සංවර්ධන අධ්කාරියේ, ති්රප්පනේ පුාදේශීය සභාවේ හා පුාදේශීය ලේකම් කාර්යාලයේ එකග තාවය ලබාදී ඇත.මෙම මාර්ගය අසල ඊටිගල වන රක්ෂිතය පිහිටා ඇති බැවින් ජල නල එලීම පුධාන මාර්ග රක්ෂිතයේ සිදුවන අතර ඒ සදහා ඔබගේද ව්රෝධතාවයක් නොමැති බවට ලිපියක් ලබාදෙන ලෙස කාරුණිකව ඉල්ලම්.

MBC		m the	and we want
කන්ඩායම් නායක	S.M.B. Dissensyaka Form Learner Cestment Commentation	dion are a	(where are ung
එස් එම් බී දිසානායක.	Resources Proceedings Consultants (Pvi) Ca GEOP Paradograms Project NCP Antiredries and	400 mon	Car or V
2445 manual and 22 2445 manual and 22 2445 manual and 22	- persona estadar and marana estadar and	mineralate ada	2007 01/26
age gogges det	man and an and a sugar and a sugar and	19400 adra	
Seres from the second	ista motions andor note.	Art Da), එමි, සී. කේ, වාසල අඩුවි වන නිලධාරී



the agreement between R.D.A. & N.W.S. & D.B. made 08 28.04.2012 reinstatement should be done by you after trenching. Accordingly please make following payments on the estimate prepared by us for this project.

Reinstatement of Trench Excavated for Pipe Laying at Maradankadawal a- Habarana Road (8+500 km. - 12 + 500 km.) & Ganewalpola - Dachchihalmillewa Road (0 + 00 - 4 + 500 km.) (Thirappane Water Supply Scheme)

Rs.	1,661,364.87
Rs.	33,905.41
Rs.	186,479.73
Rs.	1,881,750.00
Rs.	3,322,729.73
	Rs. Rs. Rs. Rs. Rs.

Please send me a cheque amounting to Rs. 1,881,750.00 as supervision charges in favour of "Director Gener Road Development Authority" along with a cheque/Bank Guarantee amounting to Rs. 3,322,729.73 (Bank Guarantee Format attached) valid for 02 years as a deposit for granting approval. (Rental charges has been removed).

Please send the attached agreement form after obtaining your Chairman's signature to forward to R.D.A Chairman's signature early.

Provincial Director,

North Central Province. PROVINCIAL DIRECTOR Road Develope

Neceptaria Chief Engineer, R.D.A., Anuradhapura. - f. i. & n. a. *AnusachagenSenior Accountant, R.D.A., (N.C.P.) - f. i.

H speak

11-1-16



තිර/පාස/සං/03

2016.01.25.

කන්ඩායම නායක, වකුගඩු රෝගින් සඳහා වන ජල වනපෘතිය, අනුරාධපුර,

<u>ජල හළ එළිම සඳහා මාර්ගය පළුදු කිරිම සඳහා අවසර ලබා දීම.</u>

තිරප්පනේ පාදේශීය සභා බල පුදේශයේ අංක 560 ඌත්තුපිට්ය හා බමුණුගම තුළාන් සඳහා පානිය ජල සැපයුම් ලබා ගැනීම සම්බන්ධව 2016.01.25 වන දින මා වෙත ඉදිරිපත් කරන ලද ඉල්ලිම් ලිපිය හා බැඳේ.

02 මෙම මාර්ග වලින් කිහිපයක්ම අන්තර් සම්බන්ධිත කොන්කිට් ගල් අතුරා ඇති බැවින් එම මාර්ග තරතා ජල නල එලිම සදහා මාර්ගය පළාදු නොකර මිටර් 0.9 ක් යටින් සිදුරු කර ජල නල එලිම කළ යුතු වන අතර අනෙකුත් මාර්ග තරතා ජල නල එලිම සඳහා නඩත්තු ගාස්තු වශයෙන් පාර තරතා එක් කැපුමකට රු.2000 ක් ගෙවිය යුතු වේ. නැතතොත් මාර්ගය නිසි අයුරින් සකස් කිරීම පුදේශීය සභාවේ අධීක්ෂණය සටතේ සිදුකරණ බවට පුකාශයක් ලබා දීය යුතු වේ. එමෙන්ම ජල නල එලිමේ දී අවම වශයෙන් මීටර් 0.90 ක් ගැමුරින් එලිය යුතු බවද කාරුණිකව දන්වා සිටීම.

දේශිය සභාව, තිරප්පනේ, තිරප්පනේ, ක්රියට වේරුකා ලියාපතේ ක්රියට ක්රියට