

# Initial Environmental Examination

---

March 2018

## SRI: Integrated Road Investment Program – Tranche 1

Prepared by the Road Development Authority, Ministry of Higher Education and Highways for the Asian Development Bank.

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.

**Integrated Road Investment Program (*iRoad*)**  
**Initial Environmental Examination Report**  
**For**  
**Road Maintenance Contract Package**  
**Galle District, Southern Province**



**Final Report (Updated)**  
March 2018  
Prepared by  
**Road Development Authority**  
**Ministry of Higher Education and Highways**  
Submitted to  
**Asian Development Bank**

## CURRENCY EQUIVALENTS

(as of March 2018)

Currency unit – US Dollar to Sri Lankan rupee

\$1.00 = SLR 157.23

## Contents

List of annexes .....	4
List of tables .....	4
List of figures .....	5
List of abbreviations .....	5
Executive summary .....	7
1. Introduction .....	14
1.1. Background .....	14
1.2. Objectives of the proposed project .....	15
1.3. Objectives of IEE .....	15
1.4. Approach and methodology for this study .....	17
2. Policy, Legal, and Administrative Framework .....	18
2.1. Applicable National Laws, Regulations, Standards and Requirements .....	18
2.2. ADB Policy on Environmental & Social safeguards .....	23
2.3. International Agreements and Conventions .....	26
3. Description of the Project .....	27
3.1. Location of the project .....	27
3.2. Need of the project .....	28
3.3. Analysis of alternatives .....	30
3.3.1. No project alternative .....	30
3.3.2. Use of another link route option to connect Thawalama and Galle .....	30
3.3.3. With project alternative .....	30
3.4. Project activities .....	30
3.4.1. Material requirement for construction and potential sources .....	32
4. Description of the Environment .....	33
4.1. Land use pattern along the route .....	33
4.1.1. Karapitiya – Labuduwa section .....	33
4.1.2. Labuduwa – Thalagaha junction section of B248 road .....	33
4.1.3. Thalagaha junction – Wanduramba section of B248 road .....	34
4.1.4. Wanduramba – Yatalamatta – Nagoda section on B454 road .....	34
4.1.5. Nagoda – Gonadeniya section of B303 road .....	35

4.1.6.	Gonadeniya – Udugama (Bar junction) section of B139 road.....	35
4.1.7.	Udugama (Bar junction) – Udugama (Bus stand) of B129 road.....	36
4.1.8.	Udugama (Bus stand) – Hiniduma (Start point of newly improved section) of B429 road .....	36
4.1.9.	Hiniduma – Thawalama section of B429 road .....	37
4.2.	Physical environment .....	38
4.2.1.	Topography, Geology and soil .....	38
4.2.2.	Meteorology .....	39
4.2.3.	Hydrology .....	39
4.2.4.	Air quality and noise .....	39
4.3.	Biological environment .....	40
4.4.	Social and Economic Environment.....	42
4.4.1.	Demography .....	42
4.4.2.	Main economic activities.....	44
4.4.3.	Socioeconomic status .....	44
4.4.4.	Existing Infrastructure facilities .....	45
4.4.5.	Historical and archaeological significance .....	46
5.	Screening of Potential Environmental Impacts and Mitigation Measures .....	47
5.1.	Design and Pre-construction .....	47
5.2.	Constructional Impacts .....	48
5.3.	Operational Impacts .....	54
5.4.	Beneficial impacts .....	54
5.5.	Climate change adaptation (emission of greenhouse gases).....	55
6.	Information Disclosure, Consultation, and Participation .....	58
7.	Grievance Redress Mechanism.....	61
8.	Institutional Requirements and Environmental Management Plan .....	63
8.1.	Institutional Arrangements.....	63
8.2.	Environmental Management Plan and Monitoring .....	63

## List of annexes

Annex 1.1	Environment Assessment Checklist (REA) and Environmental Checklist (EC)
Annex 3.1	Cross sections proposed for rehabilitation and improvement works of Thalagaha – Wanduramba of B248 road and Udugama (Bus stand) – Hiniduma (Start point of newly improved section of B429 road
Annex 3.2	Map of potential material extraction sites
Annex 4.1	Orientation of Gin Ganga with respect to road sections
Annex 4.2	Forest reserves with respect to the route under RMC package in Galle district.
Annex 4.3	List of common floral species observed
Annex 5.1	Guide to open and operate disposal sites
Annex 6.1	A summary of one on one consultations
Annex 6.2	A sample of information notice (in Sinhala with English translation)
Annex 8.1	EMP developed for proposed rehabilitation, improvement and maintenance works
Annex 8.1	Sample EMC

## List of tables

Table 1.1	The list of roads selected in Galle district under RMC packaging
Table 2.1	Applicable national laws and regulations for the investment program
Table 2.2	Applicable approvals required for the investment program
Table 3.1	Names of the DSDs, GNDs and local authorities which the RMC Galle package roads passes through
Table 3.2	Galle package road list and details of proposed activity under RMC package
Table 3.3	Estimated quantities of material required for RMC package in Galle District
Table 3.4	Potential source locations for material
Table 4.1	Characteristics of the WL1a and WL2a agro-ecological zones
Table 4.1 a.	National Ambient Air Quality Standards
Table 4.1 b	WHO Ambient Air Quality Guidelines, 2005
Table 4.2	A summary of land area, population, population density and poverty head count index
Table 4.3	Population by ethnicity in Galle district
Table 4.4	Population by sex and age in Galle district
Table 4.5	Labour force distribution in Galle district
Table 4.6	Employment by major industry group (percentage) – 2016
Table 4.7	Literacy rate in Galle district (percentage) - 2016
Table 4.8	Mean monthly household income and expenditure in Galle district - 2016
Table 4.9	Principle type of lightning the occupied housing units - 2012
Table 4.10	Source of drinking water
Table 4.11	Types of roads available with length in southern province as at year 2011
Table 4.12	Educational and major health facilities along the route of RMC package – Galle district
Table 5.1	Input parameters for TEEMP model for the candidate road sections of RMC package in Galle district

Table 5.2	CO <sub>2</sub> emission at BAU, Project & induced traffic and Project without induced traffic
Table 6.1	A summary of FGDs held for iRoad program (RMC package Southern Province)
Table 6.2	Summary of key points discussed in FGDs

## List of figures

Figure 1.1	Map of the route established through the selected roads in RMC package of Galle district
Figure 3.1	The road link formed by the roads under RMC package in Galle District
Figure 4.1	(a) Near Karapitiya hospital (in 2014), (b) Road section after improvements (in 2018)
Figure 4.2	Two road sections between Labuduwa and Thalagaha junction
Figure 4.3	(a) The road passing through settlements; (b) The road passing through a less populated area
Figure 4.4	Rehabilitated and improved road section from Wanduramba to Nagoda
Figure 4.5	(a) A section of road where asphaltting of pavement is completed; (b) A section of the road still under construction
Figure 4.6	(a) A section of the Gonadeniya – Udugama road to be improved; (b) the road section of Gonadeniya – Udugama road approaching Udugama (Bar junction)
Figure 4.7	The developed road section within Udugama town area
Figure 4.8	A bridge approach section on Udugama – Hiniduma road
Figure 4.9	Access road to Kannaliya forest reserve
Figure 4.10	The road section near Thawalama DSD
Figure 4.11	Variability of annual rainfall anomaly, maximum and minimum temperature anomaly trends with respect to Galle district
Figure 4.12	Vegetation profile of Kannaliya
Figure 7.1	GRM process

## List of abbreviations

ADB	Asian Development Bank
BAU	Business As Usual
BIQ	Basic Information Questionnaire
BRT	Bus Rapid Transit
CEA	Central Environmental Authority
CO <sub>2</sub>	Carbon Dioxide
CRC	Conventional Road Contracts
DoF	Department of Forest
DS	Divisional Secretary
DSD	Divisional Secretary Divisions
DWC	Department of Wildlife Conservation
EARF	Environmental Assessment and Review Framework
EC	Environmental Checklist
EE	Executive Engineer
EIA	Environmental Impact Assessment
EKB	Evaluation Knowledge Brief

EMC	Environmental Monitoring Checklists
EMP	Environmental Management Plan
EMAP	Environmental Management Action Plan
EPL	Environmental Protection License
ESU	Environment and social Unit
ESDD	Environmental and Social Development Division
FGD	Focus Group Discussion
FR	Forest Reserve
GoSL	Government of Sri Lanka
GN	Grama Niladhari
GND	Grama Niladhari Divisions
GRC	Grievance Redress Committee
GRM	Grievance Redress Mechanism
GS & MB	Geological Survey and Mines Bureau
IEER	Initial Environmental Examination Report
iRoad	Integrated Road Investment Program
kmph	kilometres per hour
LHS	Left Hand Side
MFF	Multi tranche Financial Facility
MoHEH	Ministry of Higher Education and Highways
MMD&E	Ministry of Mahaweli Development and Environment
MRT	Metro Rail Transit
NEA	National Environment Act
PAA	Project Approving Agency
PD	Project Director
PIC	Project Implementing Consultant
PPE	Personnel Protective Equipment
PS	Pradeshiya Sabha
RDA	Road Development Authority
RF	Resettlement Framework
RHS	Right Hand Side
RMC	Road Management Contracts
ROW	Right of Way
SAPE	Survey and Preliminary Engineering
SPA	ADB, Safeguard Policy Statement, 2009
SSEMAP	Site Specific Environmental Management Action Plan
TEEMP	Transport Emissions Evaluation Models for projects
TL	Team Leader

## Executive summary

### Introduction

I. The government has taken a policy decision to rehabilitate and improve the national and rural road network of the country. Integrated Road Investment Program or simply known as the iRoad program currently operational in five provinces and one district in the country. The Asian Development Bank (ADB) is funding the program through a Multi tranche Financial Facility (MFF). The iRoad program is implemented by the Road Development Authority (RDA) and the Project Executing Agency is the Ministry of Higher Education and Highways (MoHEH). The investment program is to deliver two outputs through two types of contracts namely; Conventional Road Contracts (CRC) and Road Maintenance Contracts (RMC).

II. A set of roads in Galle district in Southern province which makes an efficient road based link between Galle (from Karapitiya) to Thawalama have been selected to be rehabilitated, improved and maintained under RMC package. This road list is now termed as “RMC Galle package road list”, which is presented in table a.

Table a The list of roads selected in Galle district under RMC packaging

Section	Road Id.	Road Section	Length (km)
1		Karapitiya - Labuduwa	1.0
2	B248	Labuduwa – Wanduramba	
		(a) Labuduwa – Thalagaha	2.0
		(b) Thalagaha – Wanduramba	9.7
3	B454	Wanduramba – Yatalamatta – Nagoda	10.7
4	B303	Nagoda – Gonadeniya	3.62
5	B139	Gonadeniya – Udugama (Bar Junction)	4.4
6	B129	Udugama bar junction – Udugama bus stand	2.8
7	B429	Udugama bus stand – Hiniduma	11.0
8	B159	Hiniduma – Thawalama	6.6

Source: Project Implementing Unit, RDA

III. Objective of this project is to establish an efficient road based link between Thawalama and Galle. This Initial Environmental Examination Report (IEER) is an updating of the previous IEER prepared during Survey and Preliminary Engineering (SAPE) works stage for iRoad program in southern province. This IEER is specific to the selected RMC package roads in Galle district.

IV. A Rapid Environmental Assessment Checklist and an Environmental Checklist were prepared based on the guidelines given in the Environmental Assessment and Review Framework.

### Policy, legal and administrative framework

V. The National Environmental Act (NEA) No. 47 of 1980 is the key legislation of the country for matters pertaining to environmental safeguards. The environmental clearance process is implemented through the designated Project Approving Agency (PAA) as prescribed by the Minister under section 23 Y of the NEA. The procedure that should be followed for obtaining environmental clearance is described under section 23CC and 32 of the NEA. While the NEA is the key environmental legislation under GOSL there are a number of

other environmental laws and regulations that are also applicable to the investment program (both CRC and RMC packages).

VI. ADB's safeguard policy framework (i.e. Safeguard Policy Statement (SPS), 2009) consists of three operational policies on the environment, Indigenous People, and involuntary resettlement. All three safeguard policies involve a structured process of impact assessment, planning, and mitigation to address the adverse effects of projects throughout the project cycle.

### **Description of the project**

VII. The route selected for RMC package in Galle district is entirely located within Galle district in Southern province. The selected road sections passes through Divisional Secretary Divisions of Galle Four Gravets, Bope-Poddala, Akmeemana, Baddegama, Nagoda and Thawalama.

VIII. The key socioeconomic centre that would be accessed through the improved CRC in Galle district would be the city of Galle. The route improved through RMC contract will improve the efficiency of this connectivity.

IX. The road sections under RMC packages of iRoad program have been carefully selected, where no major road rehabilitation works shall be envisaged. Most of the roads selected are recently rehabilitated and improved, thus this project shall mainly focus on road maintenance works. Therefore the project shall follow the available Right of Way (ROW) for road rehabilitation and improvement works. No widening of the ROW is envisaged during the rehabilitation works. Table b presents the proposed activities under RMC package in Galle district.

Table b Galle package road list and details of proposed activity under RMC package

Route No.	Road Name	Length (km)	Present condition	Type of activity
	Karapitiya - Labuduwa	1.0	Improved	Routine maintenance
B248	Labuduwa - Wanduramba			
	(a) Labuduwa - Thalagaha	2.0	Improved	Limited rehabilitation and improvement works (only a few sections) and routine maintenance
	(b) Thalagaha - Wanduramba	9.7	Not improved	Full rehabilitation and improvement works and routine maintenance there after
B454	Wanduramba – Yatalamatta – Nagoda	10.7	Improved	Limited rehabilitation and improvement works (only a few sections) and routine maintenance
B303	Nagoda – Gonadeniya	3.62	Improvements in progress	Complete the rehabilitation and improvement works and routine maintenance there after
B139	Gonadeniya – Udugama (Bar Junction)	4.4	Improvements in progress	Complete the rehabilitation and improvement works and routine maintenance there after

Route No.	Road Name	Length (km)	Present condition	Type of activity
B129	Udugama (Bar Junction) – Udugama (Bus stand)	2.9	Improved	Routine maintenance
B429	Udugama (Bas stand) – Hiniduma (Start point of newly improved section)	11.0	Not improved	Full rehabilitation and improvement works and routine maintenance there after
B159	Hiniduma (Start point of newly improved section) - Thawalama	6.6	Improved	Routine maintenance

X. Based on the preliminary estimates the quantity of material required for above rehabilitation and improvement works shall be; 4,800 Cu.m of sand, 60,000 Cu.m of earth, 101,575 Cu.m of aggregate, 2,375 MT of Bitumen and 750 Mt of Steel. The selected contractor/s shall obtain material only from approved sites and if new sites are to be opened then they shall obtained necessary approvals and licences.

### **Description of the environment**

XI. The selected road sections mainly passes through residential and agricultural lands. Coconut, tea, rubber and cinnamon are the most common crops found in the project influence area. RMC package roads in Galle district are located within the south-west regions of low country wet zone of the country. The terrain changes from flat to rolling/ undulating to hilly when reaching Thawalama area. Red Yellow Podsollic (RYP), RYP soils with semi prominent A1 horizon & Low Gumic Clay (LGH) are the most common soils in the area. The area receives rainfall throughout the year with predominant rainfall between Mid-May to September which is the south-west monsoon season. Gin Ganga (river) is the main surface water body that is located within the study area. The road sections from Udugama to Thawalama (via Hiniduma) runs almost parallel to Gin Ganga.

XII. Existing air quality appears not to be deteriorated due to emissions. Exhaust gases from vehicles are the main contributor for emissions to atmosphere. No major noise propagating industries were observed along the selected route.

XIII. Manmade habitats such as home gardens; paddy fields; plantations of tea, rubber, coconut & cinnamon; and natural or semi natural habitats could be observed along this road corridor. Kannaliya FR is located to the RHS of this route between Udugama and Hiniduma. Kannaliya FR is a tropical wet low land rain forest located in the south-western quarter of the country.

XIV. Galle district has a land area of around 1600 km<sup>2</sup> with a population over one million. Population density in Galle district (statistics of year 2012) was 655 persons/km<sup>2</sup>. Majority of the population in Galle district are Sinhalese which account to nearly 95% of the district's population. Other than agriculture, industry and services the economically active population in Galle district also get involved in livestock and poultry farming.

XV. Galle district recorded a literacy rate of 93% in 2016 which is equal to the country standard. Monthly mean income and expenditure of a household in Galle district was Rs. 63,093 and Rs. 53,350 respectively in year 2016. Ninety three percent of the households in Galle district had access to electricity in year 2012, while only 27.9% had access to pipe born

water. Road based transport is the predominant transport mode in the project influence area. There are 12 schools and several medical facilities that are located close to the selected route trace. Although Galle district has many historical and archeologically important places no any such place was observed along this route.

### **Screening of potential environmental impacts and mitigation measures**

XVI. Only two road sections under this package shall be fully rehabilitated and improved. Other sections are either under rehabilitation/improvement or have been rehabilitated recently and could go for maintenance.

XVII. **Design and pre-construction:** Thalagaha – Wanduramba and Udugama – Hiniduma road sections are listed as full rehabilitation and improvement. It is important that adequate openings are designed for all hydraulic structures that are to be reconstructed or newly constructed in these two sections. Designing cut slopes to stable angles shall avoid any undue slope failures owing to cutting of slopes. Utility lines that need to be shifted should be carried out without any hindrance to public. In order to achieve such condition it is important to coordinate with agencies who provide the facility and keep the public informed in advance.

XVIII. **Construction impacts:** Impacts due to clearing of land shall only occur in sections that would undergo full rehabilitation and improvement. Impacts due to land clearing activities could be avoided, minimized or mitigated through executing a tree replanting program, stabilization and covering of cut slopes, disposal of waste and soil only at designated places with proper approvals, spraying of water over exposed soil and other surfaces that emit dust. Impacts on natural drainage pattern and hydrology in the area could be mitigated through adopting the designs specifications developed during detail designs, carrying out construction works during dry flow periods of streams and creeks, allowing sufficient capacity in any temporary diversion canals, construction of rip raps and avoiding any spillage of material and chemicals on to water sources.

XIX. Impacts on flora and fauna could be mitigated through conducting the tree replanting program. It is expected that around 130 trees need to be removed within the two road sections that are to be fully rehabilitated and improved, but no tree shall be affected in other road sections of the RMC package route in Galle district. In order to compensate the loss of trees it is expected that 390 saplings or 130 plants are planted at suitable locations. Providing suitable fuel sources for cooking if labour camps are established, educating workers not to harm any form of life, placing physical barriers around construction sites to avoid any animals moving in to construction sites are other measures that shall be adopted to avoid/ minimize impacts to flora and fauna.

XX. Impacts of traffic, noise, vibration, dust and air quality could be minimized and mitigated through adopting measures such as; all equipment used for construction works shall be properly serviced and maintained, all plants shall be properly maintained. Especially the dust filtering systems of asphalt plants shall be frequently cleaned and filters replaced when required, all material stock piles at asphalt/ concrete batch mixing plants and at other storage sites shall be properly covered, fuel and any chemical with evaporable qualities shall only be stored in enclosed storage facilities with restricted access, the contractor shall select locations for quarry/ burrow operations; installing plants with minimum noise and vibration nuisance to public, and all material extraction sites and plants shall be operated with all required approvals

and licences from CEA, Geological Survey and Mines Bureau (GSMB) and relevant local authority.

- XXI. Accidents to worker force and public shall be avoided, minimize by adopting measures such as; proper briefing and training of workers on safety precautions, and their responsibilities for the safety of themselves and others, provision to workers of Personnel Protective Equipment (PPE) to be used at every time involved in when construction activities and high visibility jackets at night, ensuring that plant and vehicle operators are properly licensed and trained, arranging for the provision of first aid facilities, readily available trained paramedical personnel, and emergency transport to the nearest hospital, and arranging for regular safety checks of vehicles and material.
- XXII. In order to avoid any undue nuisance to public due to disruption of traffic the following measures shall be adopted; Advance notice to the public regarding the schedule of construction, providing of safe and convenient passage to vehicles and passengers away from construction sites, implementation of traffic management plan close coordination with local police, use of flagmen and/or temporary traffic signs for construction sites are important measures that have to be undertaken during construction period to minimize the impact on traffic.
- XXIII. Establishment and management of labour camps in any inappropriate manner shall cause an unhealthy environment causing health hazards to both workers and nearby residents. In order to avoid such issues any labour camps if required shall only be constructed at locations away from water bodies, highly residential and environment sensitive areas with approval from PIC. Majority of skilled and unskilled workers shall be selected from the project influence area to avoid generation of waste and sanitation problems from labour camps. All such facilities shall be provided with sanitary facilities including drinking water, urinals, toilets bathing facilities and mosquito nets will minimize spreading of communicable diseases and other health issues.
- XXIV. **Operational impacts:** Following measures shall be adopted by contractor to avoid, minimize or mitigate any adverse impact during maintenance period. Clearing of road side vegetation shall only be done through physical methods such as slashing or using mechanical grass cutters. No weedicides or other forms of chemicals shall not be used for clearing of road side vegetation. Any debris or soil collected through cleaning of road side drains and culverts shall immediately be removed to identified disposal sites. Material brought for any repair works of shoulders or pavement shall not be left at site after attending to the repair works. Material brought for any repair works of shoulders or pavement shall not be stockpiled near water bodies, marsh areas or paddy lands.
- XXV. An improved and efficient road connectivity between Thawalama and Galle town centres shall be established once the road sections under Galle RMC packages are fully rehabilitated and improved. This efficient connectivity shall reduce the travel time and vehicle operational costs which are considered as beneficial impacts of the project.
- XXVI. The TEEMP model for urban roads was used for the analysis with using default parameters for base fuel consumption, emission factor and upstream emission percentage. The total length of the route selected for RMC package in Galle district (from Karapitiya to

Thawalama) is 51.9 km. Based on the net change in CO<sub>2</sub> emissions or CO<sub>2</sub> savings in each section which is 12.7, 7.7, 2.0 and 4.9 Tons/km/year respectively, the proposed investment program for RMC in Galle district shall save a cumulative emission value of 360.13 Tons CO<sub>2</sub> per year.

### **Information disclosure, consultation and participation**

XXVII. Meaningful public consultations had been carried out during SAPE works in year 2014. Additional round of consultations were conducted during this study. Consultations shall be carried even during construction and maintenance period of the project. Avenues shall be kept open for receiving suggestions, comments or complaints during construction and maintenance periods. Project information boards shall be displayed at project site while information flayers shall also be distributed among public.

### **Grievance redress mechanism**

XXVIII. In compliance with the EARF, grievances will be addressed at three levels depending on the nature and significance of the grievances or complaints. The first will be at the grass roots level where complaints will be directly received and addressed by the contractor, PIC or PIU representative on site. Grievances which are simple but still cannot be addressed at the grass roots level will be addressed at the Grama Niladhari (GN) level. More complex grievances which cannot be addressed at the GN level will be addressed at the Divisional Secretariat (DS) level. Different avenues shall be opened to receive suggestions, requests and complaints from public.

### **Institutional requirements and environmental management plan**

XXIX. Ministry of Higher Education and Highways (MOHE&H) is the Executing Agency (EA) for the program and the secretary to the ministry will be responsible for decisions on overall approvals and operational policies of the project. RDA will be the Implementing Agency (IA). The Project Implementing Unit within RDA headed by a project director shall be assisted by a staff on engineering, administrative, environment and social safeguards. A Project Implementing Consultant (PIC) shall be appointed to assist the PIU (existing or new) who will be responsible to review and approve designs prepared by contractor, supervise civil works of contractor and review and certify bills submitted by contractor. A team of experts including engineers, quantity surveyors, environment and social experts will be working in the PIC headed by a Team Leader (TL).

XXX. EARF as well as the Environmental Safeguards Manual of RDA, outlines the requirements for an Environmental Management Plan (EMP). This IEER therefore includes an EMP which is presented as a matrix developed based on best practices for environmental management and performance indicators. The nominated contractor shall develop a Site Specific Environmental Management Action Plan (SSEMAP) based on this EMP. The contractor/s shall also prepare environmental monitoring checklists are stipulated in this IEER. Following staff shall be appointed within PIU, PIC and contractor/s;

- ESU of PIU shall include an Environmental Safeguards Officer (ESO), Social Safeguards Officer (SSO), two Environment and Social Safeguards Assistants (ESSA).
- PIC shall include one Environmental Specialist (ES) and one Social/ Gender and Resettlement Specialist (SGRS).
- Contractor/s shall include one Environmental Officer (EO), one Social Officer (SO) and one Safety Officer (SfO).

### **Conclusion and recommendation**

XXXI. Nine road sections in Galle district which makes up an efficient road link between Thawalama and Galle have been selected under Galle District RMC package. This IEER serves the purpose of updating the original IEER developed in year 2014 during SAPE works for both rural and national roads in Southern Province.

XXXII. Out of the nine road sections selected only two will have full rehabilitation and improvement works. Once these works are completed these two road sections along with other seven road sections will go through a maintenance period of five years. Any civil works or maintenance works under this package shall only be carried out within the available right of way, and no major works that would have significant adverse impacts on physical, biological or social environments are not envisaged under this project.

XXXIII. An EMP has been developed to guide the contractor/s to avoid, minimize or mitigate any adverse impact that would occur especially during construction and operational stage (maintenance period) of RMC package in Galle district.

XXXIV. This project shall bring about the completion of the scope of iRoad program in Southern province as it will help in establishing an efficient road based link between rural villages between Thawalama and Galle.

# 1. Introduction

## 1.1. Background

1. With a population over 20 million<sup>1</sup> Sri Lanka has shown a promising and stable economic growth of 4.4 percent in real terms in year 2016 despite of unfavourable weather conditions and sluggish global economic for imports from certain sectors of the economy. Existing road network in the country which includes class A and B national roads; class C and D rural roads play a vital role in land based transport system which is one of the factors contributing to the country's economic development.

2. During the past two decades the Government of Sri Lanka (GoSL) has identified the need to rehabilitate and improve the existing road network in the country in order to cater the future demands on road based transport system. The GoSL has launched many such road improvement projects through local and international development Partner funding sources.

3. Integrated Road Investment Program or iRoad program is one of such road improvement programs initiated by the government which includes both rural and national road components. The program is operational in five provinces (Southern, Sabaragamuwa, Central, North Central and North Western) and one district (Kalutara district in Western province). The program is financed through a time sliced Multi tranche Financial Facility (MFF) obtained through the Asian Development Bank (ADB). The iRoad program is implemented by the Road Development Authority (RDA) and the Project Executing Agency is the Ministry of Higher Education and Highways (MoHEH). The investment program is to deliver two outputs: (i) improved road conditions between selected rural communities and socioeconomic centres, and (ii) enhanced capacity of road agencies. The improved road conditions is to be achieved through two types of contracts that have been formulated for this program. The two types of contracts are as follows;

1. **Conventional Road Contracts (CRC):** The conventional measure and value contracts, requiring detailed contract supervision, will be used for the rehabilitation of provincial, local authority, and isolated national road sections. Initial construction is to be completed in the first 1-2 years, followed by a 3 year maintenance period.
2. **Road Management Contracts (RMC):** These contracts are based on simple bidding documents developed by the World Bank for Output and Performance-based road contracts. Within each package a significant portion will require rehabilitation in the first 1-2 years, with the remainder possibly requiring periodic surfacing throughout the contract period (7 years in total). Routine maintenance of the entire length throughout the contract period is part of the work.

4. A set of roads in Galle district in Southern province which makes an efficient road based link between Galle (from Karapitiya) to Thawalama have been selected to be rehabilitated, improved and maintained under RMC package. This road list is now termed as "RMC Galle package road list". Table 1.1 lists the selected roads and their respective lengths, while map in figure 1.1 presents the location of these roads.

---

<sup>1</sup> Department of Census and Statistics, Census data 2012

Table 1.1 The list of roads selected in Galle district under RMC packaging

Section	Road Id.	Road Section	Length (km)
1		Karapitiya - Labuduwa	1.0
2	B248	Labuduwa – Wanduramba	
		(a) Labuduwa – Thalagaha	2.0
		(b) Thalagaha – Wanduramba	9.7
3	B454	Wanduramba – Yatalamatta – Nagoda	10.7
4	B303	Nagoda – Gonadeniya	3.62
5	B139	Gonadeniya – Udugama (Bar Junction)	4.4
6	B129	Udugama bar junction – Udugama bus stand	2.8
7	B429	Udugama bus stand – Hiniduma	11.0
8	B159	Hiniduma – Thawalama	6.6

Source: Project Implementing Unit, RDA

## 1.2. Objectives of the proposed project

5. The broad objective of iRoad program is to develop an efficient road based link between selected socio economic centres, cities, townships and villages and to enhance the capacities of road agencies. Specific objectives of this project could be listed as follows;

- to improve, rehabilitate selected road sections between the link from Galle (Karapitiya) to Thawalama, and to maintain this road link,
- there by to maintain an efficient road link between Galle and Thawalama, assisting in improving the transport efficiency between Galle and Thawalama as well as from other connecting towns and villages to this road link.

## 1.3. Objectives of IEE

6. The Environmental Assessment and Review Framework (EARF) prepared for iRoad program defines the program as environment “category B”. Thus an Initial Environmental Examination Report (IEER) have been developed for each project under the program. In line with this requirement an IEER was prepared during Survey and Preliminary Engineering (SAPE) works covering both CRC and RMC package in southern province. This IEER served the purpose of providing information on the following;

- Existing condition of physical, biological and socio-economic environments in the project influential area;
- Identify potential beneficial and adverse impacts on the existing environment due to proposed project interventions;
- Propose effective measures to avoid/ minimize or mitigate the project induced adverse impacts while enhancing the beneficial impacts, and;
- Formulate an Environmental Management Plan (EMP) which shall form the basis of developing an Environmental Management Action Plan (EMAP) which shall be implemented during preconstruction, construction and operational stage of the proposed project.

7. The present study (this IEE) is conducted update the previous IEER with specific information related to the RMC package for Galle roads.

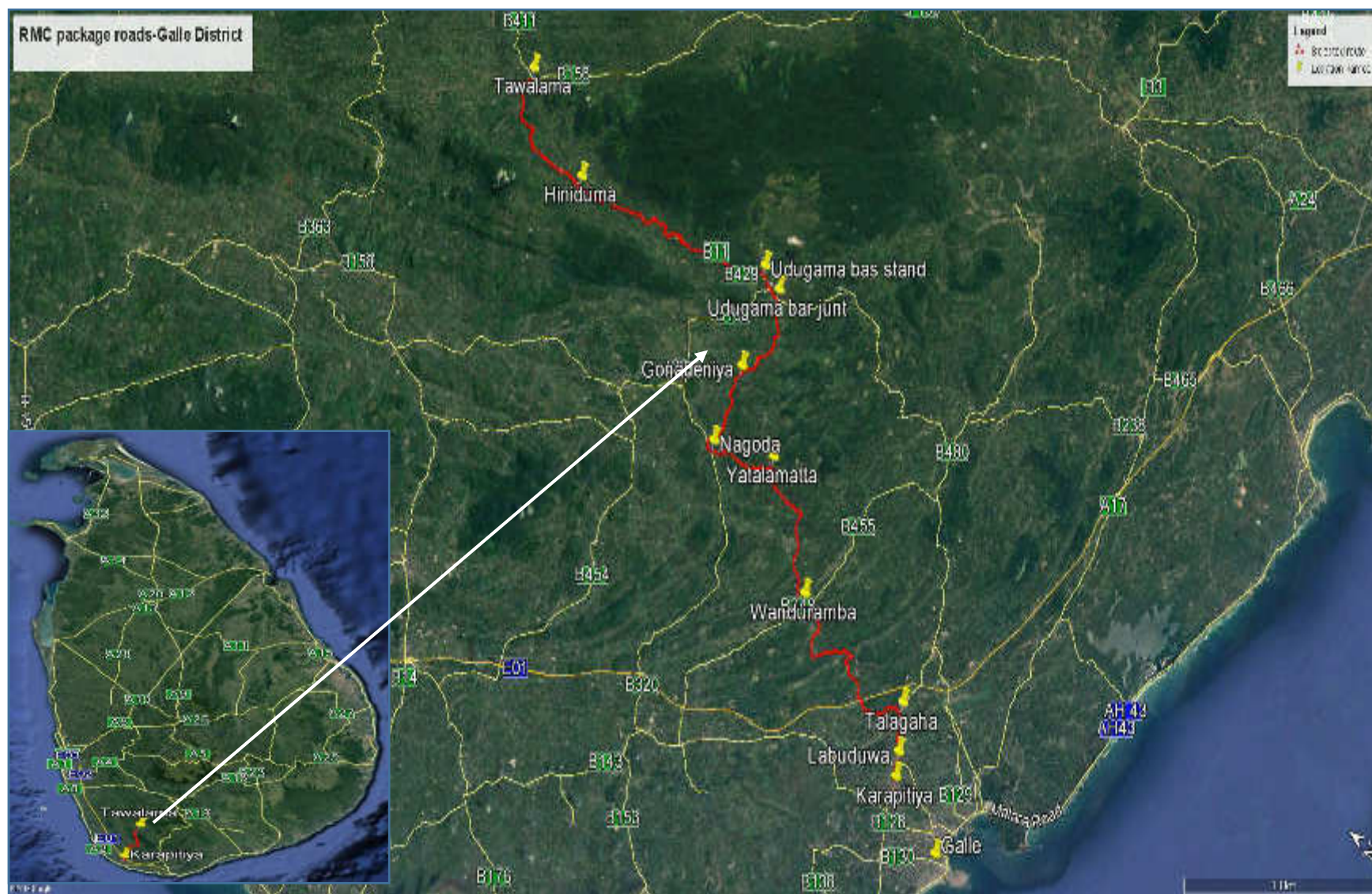


Figure 1.1 Map of the route established through the selected roads in RMC package of Galle district

#### 1.4. Approach and methodology for this study

8. Roads in the RMC packages of iRoad program have been carefully selected, where no major road rehabilitation works shall be envisaged. Most of the roads selected are recently rehabilitated and improved, thus this project shall mainly focus on road maintenance works. Therefore the project shall follow the available Right of Way (ROW) for road rehabilitation and improvement works. No widening of the ROW is envisaged in the project. Thus the existing ROW of each road section was considered as the immediate study area for the environmental study.

9. A Rapid Environment Assessment Checklist (REA) and Environmental Checklist (EC) was first developed based on field observations and secondary data. The REA checklist and EC are presented in annex 1.1 Preparation of this EC was based on the guidance given in the EARF. Based on the information of EC further assessments were completed on selected environmental parameters.

10. Possible adverse impacts of the proposed project were analysed after identifying the key project activities. Suitable mitigation measures were then developed to offset the most critical adverse impacts. Finally the activities that create adverse impacts and the proposed mitigation measures were summarized in to an EMP.

11. A field assessment related to the roads under RMC package for Galle district had been conducted previously during the SAPE works in year 2014. However some of these road sections selected have been rehabilitated and improved during the time period between year 2015 and 2018. Thus the information in the previous environmental assessment needs to be updated. The present study which was conducted in January and February 2018 basically undated the available information in the previous study.

## 2. Policy, Legal, and Administrative Framework

### 2.1. Applicable National Laws, Regulations, Standards and Requirements

#### National Environmental Act and other Applicable Regulations

12. The National Environment Act (NEA) No. 47 is the key environmental policy framework which is administered through the Central Environmental Authority (CEA) of the Ministry of Mahaweli Development and Environment (MMD&E). NEA No. 47 was enacted in 1980 and NEA amendment Act No. 56 of 1988 stipulated the regulations for assessing and managing environmental impacts and obtaining the environmental clearance in a timely and systematic manner. It also provides guidelines for environment management, management of natural resources, fisheries, wild life, forestry, soil conservation, environment quality, environment protection and approval of projects. The environmental clearance process is implemented through the designated Project Approving Agency (PAA) as prescribed by the Minister under section 23 Y of the NEA. The procedure that should be followed for obtaining environmental clearance is described under section 23CC and 32 of the NEA.

13. The environmental clearance process should be initiated by submitting the completed Basic Information Questionnaire (BIQ) to CEA with preliminary information about the project including exact locations of the project components, extent and environmental sensitivity related to project activities. Based on this CEA decides whether the project is a “Prescribed Project”<sup>2</sup> or not and who the PAA will be for administering the IEE or EIA process to obtain environmental clearance if the proposed project is a prescribed project. For Prescribed project CEA or the designated PAA will issue a TOR for the IEE or EIA required.

14. The scope of the investment program includes rehabilitation and upgrading of existing rural and national roads with no widening. According to the Gazette Extra-ordinary No. 772/22 of 24th June 1993 and subsequent amendments all rehabilitation works for existing highways and roads do not fall within the category of Prescribed Projects. Hence, it is likely that the project roads under the investment program will not be required to prepare an IEE or EIA for securing an environmental clearance. However, further amendments to the NEA on requirements for material extraction, emissions, noise and vibration levels that are relevant for the project will need to be followed. Necessary revisions will need to be made within the project to meet the new requirements if there are any.

15. If a project road falls adjacent to the boundary of a protected area or a designated area of Forest Department, necessary clearance will need to be sought from the Department of Wildlife Conservation (DWC) and Department of Forest (DoF) even if there will be no widening of the road ROW. Depending on the sensitivity of the protected area, the DWC may require conduction of an IEE or EIA study for the respective road. No works are allowed in project roads falling inside Strict Nature Reserves.

---

<sup>2</sup> Under the NEA, a prescribed project means that the project requires a full Initial Environmental Examination or Environmental Impact Assessment (EIA) study depending on the TOR issued by CEA for securing the environmental clearance

16. While the NEA is the key environmental legislation under GOSL there are a number of other environmental laws and regulations that are applicable to the investment program (both CRC and RMC packages). These national laws and regulations have been listed in table 2 of the EARF. However it should be noted that most of these national laws and regulations are applicable for CRC packages. The laws and regulations relevant for the RMC package in Galle district are listed in table 2.1 below (extracted from table 2 of EARF).

Table 2.1 Applicable national laws and regulations for the investment program

Legislation	Relevance and main content	Authorizing Institution
National environmental protection and quality regulations under Extraordinary gazette notification No. 1534/18 and No. 1533/16 of 2008 under NEA section 32 & 23A, 23B	This regulates the discharge and deposit of any kind of waste or emission into the environment and stipulates requirements for an Environmental Protection License (EPL) depending on the project activity. Examples of activities requiring and EPL are: asphalt processing plant, concrete batching plants, treatment plants, sewerage networks, mechanized mining activities etc.	CEA
National Environmental (Protection and Quality) Regulation No. 1 of 1990 published in Gazette Extraordinary No. 595/16 of February, 1990	Provides standards for discharging effluents into inland surface water during proposed project activities.	CEA
National Environmental (Ambient Air Quality) Regulations, 1994, published in Gazette Extraordinary, No. 850/4 of December, 1994 and amendment gazette No. 1562/22 of 2008	Provides standards for emissions to the air during proposed project activities.	CEA
National Environmental (Noise Control) Regulations No.1 of 1996 and its amendments	Regulates maximum allowable noise levels for construction activities during proposed project activities.	CEA
National Environmental (Vehicle Horns) Regulations, No. 1 of 2011	Regulates maximum allowable noise emanating from vehicular horns on a highway or road any motor vehicle use during project construction activities.	CEA
National Environmental (Municipal Solid Waste) Regulations, No. 1 of 2009	Regulates dumping municipal solid waste along sides of any national highway or at any place other than places designated for such purpose by the relevant LA's during proposed project activities.	CEA
Fauna and Flora Protection Act (FFPO) No.2 of 1937 amended in 1993 and 2009	The act specifies that any development activity taking place within one mile from the boundary of a National Reserve declared under the Ordinance requires an EIA/IEE which provide for the protection and conservation of fauna and flora of Sri Lanka and their habitats; for the prevention of commercial and other misuse of such fauna and flora and their habitats for	Department of Wildlife Conservation

Legislation	Relevance and main content	Authorizing Institution
	conservation of biodiversity of Sri Lanka; and to provide for matters connected there with.	
Forest Act No. 34 of 1951	This act is to consolidate and amend the law relating to the conservation, protection and management of forest and forest resources for the control of felling and transport of timber and Forest and for matters connected therewith or incidental thereto.	Department of Forest Conservation
Felling of Trees Control Act No. 9 of 1951 as amended through Act No. 30 of 1953	This Act sought to prohibit and control felling of specified trees (mainly intended to stop indiscriminate felling of specified trees) in the country.	Department of Forest Conservation
Water Resources Board Act, No. 29 of 1964 and (Amendment) Act, No. 42 of 1999	The act controls and regulates developments (including conservation and utilization) of water resources; prevention of pollution of rivers, streams and other water resources; formulation of national policies relating to control and use of water resources.	Ministry of Irrigation and Water Resources Management
Soil Conservation Act, No. 25 of 1951 and Amended No. 24 of 1996	This Act makes provisions for the enhancement of productive capacity of soil; to restore degraded land for the prevention and mitigation of soil erosion; for the conservation of soil resources and protection of land against damage by floods, salinity, alkalinity, water logging; and to provide for matters connected therewith or incidental thereto.	Department of Agriculture
Explosives Act No. 36 of 1976	To provide control of explosions and regulations of matters connected with explosive activities related with the project.	Ministry Of Defense
Municipal Councils Ordinance No. 29 of 1947, the Urban Councils Ordinance No. 61 of 1939 and the Pradeshiya Sabha Act No. 15 of 1987 as amended in 2010	Regulates and control actions pertaining to socioeconomic development such as roads, culverts, bridges, ferries, waterways and other means of local transport and related site clearance for constructing worker camps, site offices etc. and methods taking place within the command area relevant to government laws and regulations.	Ministry Of Local Government And Provincial Council
Flood Protection Ordinance No. 04 of 1924, No 22 of 1955	An ordinance for 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.	Irrigation Department
Crown Land Ordinance Act No. 1947	An ordinance to make provision for the grant and disposition of crown lands in Sri Lanka; for the management and control of such lands and the foreshore; for the regulation of the use of the water of lakes and public streams; and for other matters incidental to or connected with the matters related to proposed project.	Land Commissioners Department
Agrarian Development Act No. 46 of 2000 (Section 32)	This act regulates using paddy land for a purpose other than agricultural cultivation without the written permission of the Commissioner General.	Agrarian Services Department

Legislation	Relevance and main content	Authorizing Institution
Sri Lanka Land Reclamation and Development Corporation Act 15 of 1968 as amended by Act No 52 of 1982	This act established Sri Lanka Land Reclamation and Development Corporation which grants permission for the public to fill marshy land subject to provision of storm water drainage.	Sri Lanka Land Reclamation and Development Corporation
National Thoroughfares Act, No. 40 of 2008	This act is known as RDA act which provide for planning, design construction, development, maintenance and administration an integrated public road network in Sri Lanka.	Road Development Authority
Urban Development Authority (UDA) Law No 41 of 1978 and Urban Development Projects (Special Provisions) Act No 2 of 1980	This law provides for the establishment of an UDA to promote integrated planning and implementation of economic, social and physical development of certain areas as may be declared by the minister to be urban development areas and for matters connected with the relevant project activities. Urban Development Projects (Special Provisions) Act No 2 of 1980 is an act to provide for the declaration of lands urgently required for carrying out urban development projects and to provide for matters connected there with relevant project activities.	Urban Development Authority (UDA) under the ministry of Mega Polis & Western Development
Town and country planning ordinance No. 13 of 1946 and The Town & Country Planning (Amendment) Act, No. 49 of 2000	This regulates the National Physical Plan with transport as the main component.	National Physical Planning Department (NPPD) under the Ministry of Mega polis & Western Development
Buddhist Temporalities Ordinance No. 19 of 1931	This act provides necessary assistance to administer and protect the property of Viharas, interventions to settle disputes regarding property of Viharas and makes recommendations to release money to be paid as compensation in respect of property of Viharas acquired by government for any development project.	Department of Buddhist Affairs
Cemeteries and burial grounds ordinance No. 9 of 1899 and amendments	The act regulates any disturbance, removal of burial, monuments and use of such areas for development project	Local Government Authority
Antiquities Ordinance No. 9 of 1940 and amendments	The act regulate activities of projects located in close proximity of any archeological reserves.	Department of Archaeology

17. Under the NEA No. 47 and some of the laws and regulations listed in table 2.1 above, there are specific requirements for clearances, permits and licenses required for road development projects. The required clearances, permits and licenses for the proposed RMC packages are discussed under table 2.2.

Table 2.2 Applicable approvals required for the investment program

Project stage	Approvals	Project Activity	Related	Relevant Agency
Pre- Construction Stage Note: Although clearances and approval should be obtained during preconstruction stage it is valid throughout the project cycle. However this should be renewed before expiry date	Environment clearance	Implementation of the project activities		Central Environment Authority
	Clearance from Coast Conservation and coastal resources management department	Development activities in coastal areas		Coast Conservation and coastal resources management department
	Industrial Mining License (IML)	Operation of quarries, borrow areas and other material extraction sites		Geological Survey and Mines Bureau
	Environmental Protection License (EPL)	Operation of material extraction site including operation of asphalt plants, treatment plants etc.		CEA
	Local Government Authority Trade license and machinery permits	Deciding waste disposal sites, material storage and sites for worker camps and other project stations Trade license should be obtained for asphalt plants, batching plants, quarries etc.		Respective Provincial Council, LA's and respective Pradeshiya Sabha
	Explosive Permits	Blasting activities		Ministry of Defense
	Approval for removal of trees	Road clearance for construction		Forest Department, CEA and Local Authorities
	Disturbance to Paddy Lands	Ground preparation for ROW and side drains		Commissioner of Agrarian Services
Construction stage	Consent from relevant government agencies	Construction of bridges, culverts and other drainage systems, land filling, dredging activities		Department of Irrigation, Department of Agrarian Services, Local Government Authority, Land Reclamation and Development Cooperation
	Approval from relevant state /local agencies for the removal/ temporary disturbances for existing utilities	Surfacing, construction of bridges and side drains, embankment filling works		NWSDB for water lines, Ceylon Electricity Board for Electric cable/poles, Sri Lanka Telecom for land line telephone cables, poles, Pradeshiya Sabha, other LA's for drainage, sewer systems etc.

## **Environmental Protection License (EPL)**

18. The Environmental Protection License (EPL) is a regulatory/legal tool under the provisions of the National Environmental Act No: 47 of 1980 amended by Acts No 56 of 1988 and No 53 of 2000. Industries and activities which required an EPL are listed in Gazette Notification No 1533/16 dated 25.01.2008. Industries are classified under 3 lists i.e., List "A", "B" and "C" depending on their pollution potential.

19. Part "A" comprises of 80 significantly high polluting industrial activities and Part "B" comprises of 33 numbers of medium level polluting activities. EPL for industries in lists "A" and "B" have to be obtained from the relevant Provincial Offices or District Offices of the CEA.

20. Part "C" comprises of 25 low polluting industrial activities which have been delegated to Local Government Authorities, namely Municipal Councils (MC), Urban Councils (UC) and Pradeshiya Sabhas (PS). EPL for the industries in List "C" has to be obtained from the respective LA's. The LA's carry out issuing of EPLs and related functions such as follow up, monitoring and law enforcement.

21. Quarry sites; borrow sites; asphalt processing plants; concrete batch mixing plants and crusher plants are required to obtain EPL before commencement of operations.

22. Objectives of the EPL

- To prevent or minimize the release of discharges and emissions into the environment from prescribed (industrial) activities in compliance with national discharge and emission standards.

To develop an approach to pollution control that considers discharges from prescribed (industrial) processes to all media (air, water, land) in the context of the effect on the environment.

- To contain the burden on industry, in particular by providing guidance on pollution control for polluting processes.
- To ensure that the system responds flexibly both to changing pollution abatement technology and to new knowledge such as cleaner production, waste minimization etc.

## **2.2.ADB Policy on Environmental & Social safeguards**

### **ADB Safeguards Policy Statement, June 2009**

23. ADB's safeguard policy framework known as Safeguard Policy Statement, 2009 (SPS) consists of three operational policies on the environment, Indigenous People, and involuntary resettlement. All three safeguard policies involve a structured process of impact assessment, planning, and mitigation to address the adverse effects of projects throughout the project cycle. The safeguard policies require that (i) impacts are identified and assessed early in the project cycle; (ii) plans to avoid, minimize, mitigate, or compensate for the potential adverse impacts are developed and implemented; and (iii) affected people are informed and consulted during project preparation and implementation. The policies apply to all ADB-financed projects, including private sector operations, and to all project components.

24. The objective of environment safeguards policy is to ensure the environmental soundness and sustainability of projects and to support the integration of environmental considerations into the project decision-making process.

25. Proposed projects are screened according to type, location, scale, and sensitivity and the magnitude of their potential environmental impacts, including direct, indirect, induced, and cumulative impacts.

26. Projects are classified into the following four categories:

- **Category A.** A proposed project is likely to have significant adverse environmental impacts that are irreversible, diverse, or unprecedented. These impacts may affect an area larger than the sites or facilities subject to physical works. An Environmental Impact Assessment (EIA), including an EMP, is required.

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

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

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

27. **Policy Principles.** Use a screening process for each proposed project, as early as possible, to determine the appropriate extent and type of environmental assessment so that appropriate studies are undertaken commensurate with the significance of potential impacts and risks.

28. Conduct an environmental assessment for each proposed project to identify potential direct, indirect, cumulative, and induced impacts and risks to physical, biological, socioeconomic (including impacts on livelihood through environmental media, health and safety, vulnerable groups, and gender issues), and physical cultural resources in the context of the project's area of influence. Assess potential Transboundary and global impacts, including climate change. Use strategic environmental assessment where appropriate.

29. Examine alternatives to the project's location, design, technology, and components and their potential environmental and social impacts and document the rationale for selecting the particular alternative proposed. Also consider the no project alternative.

30. Avoid, and where avoidance is not possible, minimize, mitigate, and/or offset adverse impacts and enhance positive impacts by means of environmental planning and management. Prepare an EMP that includes the proposed mitigation measures, environmental monitoring and reporting requirements, related institutional or organizational arrangements, capacity

development and training measures, implementation schedule, cost estimates, and performance indicators. Key considerations for EMP preparation include mitigation of potential adverse impacts to the level of no significant harm to third parties, and the polluter pays principle.

31. Carry out meaningful consultation with affected people and facilitate their informed participation. Ensure women's participation in consultation. Involve stakeholders, including affected people and concerned nongovernment organizations, early in the project preparation process and ensure that their views and concerns are made known to and understood by decision makers and taken into account. Continue consultations with stakeholders throughout project implementation as necessary to address issues related to environmental assessment. Establish a grievance redress mechanism to receive and facilitate resolution of the affected people's concerns and grievances regarding the project's environmental performance.

32. Disclose a draft environmental assessment (including the EMP) in a timely manner, before project appraisal, in an accessible place and in a form and language(s) understandable to affected people and other stakeholders. Disclose the final environmental assessment, and its updates if any, to affected people and other stakeholders.

33. Implement the EMP and monitor its effectiveness. Document monitoring results, including the development and implementation of corrective actions, and disclose monitoring reports.

34. Do not implement project activities in areas of critical habitats, unless (i) there are no measurable adverse impacts on the critical habitat that could impair its ability to function, (ii) there is no reduction in the population of any recognized endangered or critically endangered species, and (iii) any lesser impacts are mitigated. If a project is located within a legally protected area, implement additional programs to promote and enhance the conservation aims of the protected area. In an area of natural habitats, there must be no significant conversion or degradation, unless (i) alternatives are not available, (ii) the overall benefits from the project substantially outweigh the environmental costs, and (iii) any conversion or degradation is appropriately mitigated. Use a precautionary approach to the use, development, and management of renewable natural resources.

35. Apply pollution prevention and control technologies and practices consistent with international good practices as reflected in internationally recognized standards such as the World Bank Group's Environmental, Health and Safety Guidelines. Adopt cleaner production processes and good energy efficiency practices. Avoid pollution, or, when avoidance is not possible, minimize or control the intensity or load of pollutant emissions and discharges, including direct and indirect greenhouse gases emissions, waste generation, and release of hazardous materials from their production, transportation, handling, and storage. Avoid the use of hazardous materials subject to international bans or phase outs. Purchase, use, and manage pesticides based on integrated pest management approaches and reduce reliance on synthetic chemical pesticides.

36. Provide workers with safe and healthy working conditions and prevent accidents, injuries, and disease. Establish preventive and emergency preparedness and response

measures to avoid, and where avoidance is not possible, to minimize, adverse impacts and risks to the health and safety of local communities.

37. Conserve physical cultural resources and avoid destroying or damaging them by using field-based surveys that employ qualified and experienced experts during environmental assessment. Provide for the use of “chance find” procedures that include a pre-approved management and conservation approach for materials that may be discovered during project implementation.

### **2.3. International Agreements and Conventions**

38. Sri Lanka is also a signatory to a number international agreements and conventions related to environmental conservation. Those that are relevant for this investment program are provided below:

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

### 3. Description of the Project

#### 3.1. Location of the project

39. Road sections selected to be rehabilitated, improved and maintained under RMC package as listed in table 1.1 are entirely located within Galle District of Southern Province. These roads pass through several Divisional Secretary Divisions (DSDs) and Grama Niladhari Divisions (GNDs). Table 3.1 presents the DSDs, GNDs and the local authorities through which these road sections are located.

Table 3.1 Names of the DSDs, GNDs and local authorities which the RMC Galle package roads pass through

Road section		DSD	GND	Local Authority
1.0	Karapitiya - Labuduwa			
		Galle Four Gravets	Welipetha	Galle MC
		Bope-Poddala	Ambagahawatta	Bope-Poddala PS
2.0	Labuduwa – Thalagaha - Wanduramba			
2.1	Labuduwa - Thalagaha			
		Bope-Poddala	Ambagahawatta	Bope-Poddala PS
		Akmeemana	Akmeemana	Akmeemana PS
2.2	Thalagaha - Wanduramba			
		Akmeemana	Ihalagoda west	Akmeemana PS
			Ambagahavila	
			Niyagama	
			Thalagasyaya	
		Baddegama	Meda Keembiya east	Baddegama PS
			Meda Keembiya	
			Pitiharawa	
			Deiyandara	
			Panvila	
			Wanduramba south	
			Wanduramba	
	3.0	Wanduramba – Yatalamatta - Nagoda		
		Baddegama	Wanduramba	Baddegama PS
			Gulugahakanda	
		Nagoda	Urala central	Nagoda PS
			Urala south	
			Yatalamatta west	
			Urala east	
			Yatalamatta east	
			Keppetiyagoda	
			Nagoda	
4.0	Nagoda - Gonadeniya			
		Nagoda	Nagoda	Nagoda PS
			Kurupanuwa	
			Gonadeniya	
5.0	Gonadeniya – Udugama (Bar junction)			
		Nagoda	Gonadeniya	Nagoda PS
			Gonadeniya south	
			Ukovita north	
			Ukovita	
			Udugama	
6.0	Udugama (Bar junction) – Udugama (Bus stand)			

Road section	DSD	GND	Local Authority
	Nagoda	Udugama	Nagoda PS
		Homadola	
7.0	Udugama (Bus stand) - Hiniduma		
	Nagoda	Homadola	Nagoda PS
		Udugama west	
		Udugama north	
	Thawalama	Gallandala	Thawalama PS
		Koralegama	
		Panangala east	
		Panangala north	
		Malhathawa	
		Hiniduma south	
8.0	Hiniduma - Thawalama		
	Thawalama	Hiniduma south	Thawalama PS
		Hiniduma north	
		Batahena	
		Thawalama north	

Note: MC – Municipal Council, PS – Pradeshiya Sabha

40. Map in figure 1.1 presents the location of the road sections considered under RMC package in Galle district.

### 3.2. Need of the project

41. The CRC or rural road component in Galle District consist of three (3) contract packages as G1, G2 and G3. G1 package covers a total of 15 rural roads with a cumulative length of about 65 km which are located within the DSDs of Neluwa, Thawalama, Niyagama and Nagoda. G2 package roads are located within the DSDs of Habaraduwa, Imaduwa, Bope-Poddala, Akmeemana, Yakkalamaulla and Baddegama. The number of roads in G2 package is 22 with a cumulative length of 66 km. The key socioeconomic centre for the villages served by these roads will be the city of Galle. Even though these roads are rehabilitated and improved under their respective CRC packages, an efficient connectivity between these villages and the city of Galle shall not be established if the trunk roads that connect these roads to the city is not fully developed.

42. The road sections selected under RMC package for Galle District provide this connectivity (Between the villages and Galle city). The dark colour line (green colour) in figure 3.1 presents this road link (the route), and how the rural roads of G1 and G2 packages (shown in purple colour) are linked with this route. Some of the road sections of this trunk route have already been rehabilitated and improved, but few sections still remain to be rehabilitated. Once the entire route is rehabilitated and improved it needs to be maintained to improve the longevity or the lifespan of the route. Under the RMC package the route will be maintained for a period of five years and there onwards respective Executive Engineer (EE) division shall maintain the route. Other than this key connectivity, this route will also provide access to other rural roads linked to this route.

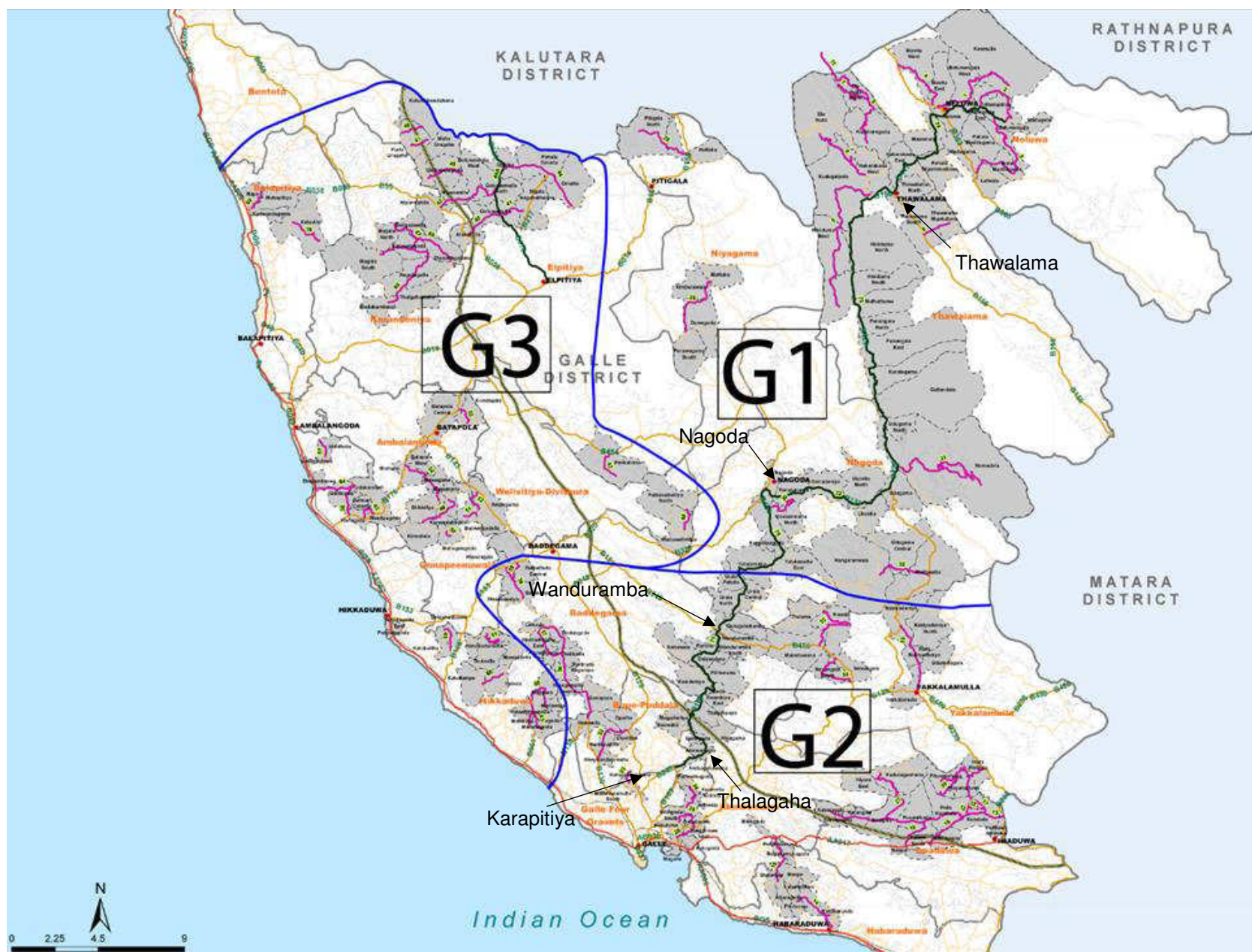


Figure 3.1 The road link formed by the roads under RMC package in Galle District

### 3.3. Analysis of alternatives

#### 3.3.1. No project alternative

43. Main purpose of iRoad program is to improve the connectivity between rural communities and socioeconomic centres. This connectivity is to be established through improving the rural road networks as well as the trunk roads which would connect the rural roads with socioeconomic centres in a given geographic region.

44. The rural road component of iRoad program is now operational in Galle district of Southern Province. Benefits of rehabilitating and improving the dilapidated rural roads could be observed immediately. People are now moving efficiently within these rural roads. However if the trunk route which connects these roads with the key socioeconomic centre is not improved there will still be some time and resource waste when people try to reach Galle.

45. At present only some sections of this link route has been rehabilitated and improved. If the remaining road sections are not rehabilitated, improved and maintained together with the remaining roads section (already improved) the desired efficient connectivity would not be achieved with respect to Galle district iRoad program.

#### 3.3.2. Use of another link route option to connect Thawalama and Galle

46. Another route option (up to Udugama) is through Galle – Udugama (B129) road. Even if this route is considered the section from Udugama to Thawalama would be the same and passes through Hiniduma. Compared to the route selected this route (up to Udugama) serves a less populated area and runs through Kottawa Forest Reserve.

#### 3.3.3. With project alternative

47. Rehabilitating, improving and maintaining the route selected under this RMC package will establish an efficient road based link between Thawalama and Galle as well as other villages linked with this route which satisfy the objective of iRoad program.

### 3.4. Project activities

48. As indicated under the “Approach and methodology” section of this report the RMC packages of iRoad program have been carefully selected, where no major road rehabilitation works shall be envisaged. Most of the roads selected are recently rehabilitated and improved, thus this project shall mainly focus on road maintenance works. Therefore the project shall follow the available ROW for road rehabilitation and improvement works. No widening of the ROW is envisaged during the rehabilitation works. Table 2.2 summarizes the proposed activities which would be carried out in each road section of RMC package in Galle District.

Table 3.2 Galle package road list and details of proposed activity under RMC package

Route No.	Road Name	Length (km)	Present condition	Type of activity
	Karapitiya - Labuduwa	1.0	Improved	Routine maintenance
B248	Labuduwa - Wanduramba			

Route No.	Road Name	Length (km)	Present condition	Type of activity
	(a) Labuduwa - Thalagaha	2.0	Improved	Limited rehabilitation and improvement works (only a few sections) and routine maintenance
	(b) Thalagaha - Wanduramba	9.7	Not improved	Full rehabilitation and improvement works and routine maintenance there after
B454	Wanduramba – Yatalamatta – Nagoda	10.7	Improved	Limited rehabilitation and improvement works (only a few sections) and routine maintenance
B303	Nagoda – Gonadeniya	3.62	Improvements in progress	Complete the rehabilitation and improvement works and routine maintenance there after
B139	Gonadeniya – Udugama (Bar Junction)	4.4	Improvements in progress	Complete the rehabilitation and improvement works and routine maintenance there after
B129	Udugama (Bar Junction) – Udugama (Bus stand)	2.9	Improved	Routine maintenance
B429	Udugama (Bus stand) – Hiniduma (Start point of newly improved section)	11.0	Not improved	Full rehabilitation and improvement works and routine maintenance there after
B159	Hiniduma (Start point of newly improved section) - Thawalama	6.6	Improved	Routine maintenance
<b>Total length (km)</b>		<b>51.92</b>		

Note: B248 road is from Labuduwa junction. However, Karapitiya junction to Labuduwa road has also been included under maintenance.

Source: Project Implementing Unit of RDA

49. Total length of the route selected through the above road sections is of 51.92 km. Of this length only 20.7 km in two road sections shall be fully rehabilitated and improved. Cross sections proposed for rehabilitation and improvement works of these two road sections, i.e. Thalagaha – Wanduramba of B248 road and Udugama (Bus stand) – Hiniduma (Start point of newly improved section) of B429 road are presented in annex 3.1 of this report.

50. Road rehabilitation and improvement works shall generally include the following activities;

- ✓ Clearing and grabbing works especially on embankment sections
- ✓ Clearing of existing roadside drainage
- ✓ Shoulder and embankment work
- ✓ Repairing or reconstruction of culverts and bridges
- ✓ Construction of road side drainage (build up with or without covers or as earth drains)
- ✓ Sub-base work
- ✓ Pavement work
- ✓ Road marking & installation of road furniture

51. Routine and periodic maintenance work shall include the following activities;

- ✓ Clearing and maintaining road side vegetation
- ✓ Cleaning of road side drains and structures
- ✓ Maintaining the shoulders and attending to any repairs on the pavement

52. All above activities shall be carried out within the available ROW keeping in line with the requirements stipulated in the EARF of iRoad program.

### 3.4.1. Material requirement for construction and potential sources

53. Although the main component under the RMC package is routine and periodic maintenance there will be a requirement of construction material for the full road rehabilitation works of B248 and B429 road sections. Repairs to the asphalt surface shall also need bitumen, aggregate and sand. Table 3.3 presents the estimated quantities of sand, aggregate, earth, bitumen and steel required for the rehabilitation and improvement works under this RMC package. Potential source locations for sand, aggregate and earth around this project area are listed in table 3.4 while annex 3.2 presents a map of these potential locations.

Table 3.3 Estimated quantities of material required for RMC package in Galle District

Type of material	Unit	Estimated quantity
Sand	Cu.m	4,800
Earth	Cu.m	60,000
Aggregate	Cu.m	101,575
Bitumen	MT	2,375
Steel	MT	750

Source: Project Implementing Unit, RDA

Table 3.4 Potential source locations for material

Type of material	Approximate location coordinates		Remarks
	Lat.	Lon.	
Sand (river sand)	6.223869	80.325883	New sites
	6.232343	80.334061	
	6.233940	80.330860	
	6.280942	80.320355	
	6.324581	80.315713	
	6.339999	80.328175	
	6.322489	80.311947	
Earth	6.284775	80.322335	New sites
	6.132752	80.325713	
	6.138780	80.221645	
Aggregate	6.115185	80.433515	Operational
	6.101413	80.364465	
	6.143329	80.209209	
Earth and Aggregate	6.134700	80.337207	Operational

Source: Field survey during present study

54. All material shall only be obtained from sites having licenses from Geological Survey and Mines Bureau (GS & MB), Central Environment Authority and relevant local authorities. If new material extraction sites are to be opened the contractor shall obtain all necessary licences and approvals before such operations. Even with these licences and approvals the contractor/s shall obtain the source approval from the Materials Engineer of Project Implementing Consultant (PIC) before using such material for construction.

## 4. Description of the Environment

55. This chapter describes the existing environment (physical, biological and socioeconomic) with respect to the selected road sections of RMC package in Galle district. As stated in chapter three of this report some of the road sections have already been rehabilitated and improved.

### 4.1. Land use pattern along the route

#### 4.1.1. Karapitiya – Labuduwa section

56. This road section starts at Karapitiya hospital junction where the medical faculty of Ruhuna University is also located. The road passes through Karapitiya township and gradually enters an area with paddy fields with mixed development. This road section has been rehabilitated and improved in year 2016 with proper two lane marking and other road furniture. Figure 4.1 presents two photographs taken during year 2014 and after improvements (under the present study).



(a)



(b)

Figure 4.1 (a) Near Karapitiya hospital (in 2014), (b) Road section after improvements (in 2018)

#### 4.1.2. Labuduwa – Thalagaha junction section of B248 road

57. This road section also passes through an area with mixed development. Several government institutes are located within this section. This section has also been rehabilitated and improved in year 2016. All permanent and temporary structures are well set back within this section and road side drains could be observed.



Figure 4.2 Two road sections between Labuduwa and Thalagaha junction

#### 4.1.3. Thalagaha junction – Wanduramba section of B248 road

58. This section initially passes through a build-up area and after crossing the southern expressway enters an area with mixed development. Throughout this section the existing carriageway is 6.0 m with certain sections marked with centreline for two lanes. On average the ROW is around 9.0 and 9.5 m with much wider sections at some locations. Between Thalagaha junction and Wanduramba the road passes close to four schools; Akmeemana Vidyalaya, Keebiya Gamini Maha Vidyalaya, Welideniya Thakshila Vidyalaya and Wanduramba Central College. In the mixed development area the road passes through paddy fields and tea estates.



(a)



(b)

Figure 4.3 (a) The road passing through settlements; (b) The road passing through a less populated area

#### 4.1.4. Wanduramba – Yatalamatta – Nagoda section on B454 road

59. This road section passes through mixed development areas mainly with paddy cultivations and tea estates. Two tea processing factories are located within this road section along with three schools; Samarasekara Maha Vidyalaya, Royal College Nagoda and Nagoda Primary school. This road section had been rehabilitated and improved by RR construction

Ltd. during 2015 and 2016. Two lane marking and other road furniture are observed within this section.



Figure 4.4 Rehabilitated and improved road section from Wanduramba to Nagoda

#### 4.1.5. Nagoda – Gonadeniya section of B303 road

60. This road section is under rehabilitation and improvement. Certain sections of the road has been improved. The road passes through lands with paddy cultivation and home gardens.



(a) (b)  
Figure 4.5 (a) A section of road where asphalting of pavement is completed; (b) A section of the road still under construction

#### 4.1.6. Gonadeniya – Udugama (Bar junction) section of B139 road

61. This section mainly passes through home gardens and few paddy land sections. Gonadeniya Junior School is located to the Right Hand Side (RHS). This road section end at Udugama town area which has a much wider ROW.



(a) (b)  
Figure 4.6 (a) A section of the Gonadeniya – Udugama road to be improved; (b) the road section of Gonadeniya – Udugama road approaching Udugama (Bar junction)

#### 4.1.7. Udugama (Bar junction) – Udugama (Bus stand) of B129 road

62. This road section passes through Udugama town area which is a build-up area with lot of commercial buildings. The road section along with the entire B129 road has been rehabilitated and improved in year 2015 under Priority Road Project (PRP) phase 3. Improvement works within this section include two lane pavement, parking area, foot walks and drains.



Figure 4.7 The developed road section within Udugama town area

#### 4.1.8. Udugama (Bus stand) – Hiniduma (Start point of newly improved section) of B429 road

63. This road section is located on a valley where Kannaliya Forest Reserve (FR) is located to the RHS and Malambure and Polgahakanda Forest Reserves located to the Left Hand Side (LHS). Gin Ganga (river) flows parallel to this road section on the LHS also in the valley. These forest reserves are not located close to the road section, settlements and other developments such as tea estates could be observed between the road section and Kannaliya FR while Gin Ganga flows between the road section and Malambure and Polgahakanda FRs.



Figure 4.8 A bridge approach section on Udugama – Hiniduma road



Figure 4.9 Access road to Kannaliya forest reserve

#### **4.1.9. Hiniduma – Thawalama section of B429 road**

64. This road section has also been fully rehabilitated and improved again under PRP phase 3. This road section also runs parallel to Gin Ganga and the road is prone to floods especially near Thawalama Divisional Secretary Division. This stretch of the route passes mainly through mixed residential areas mainly with tea cultivation.



Figure 4.10 The road section near Thawalama DSD

## 4.2. Physical environment

### 4.2.1. Topography, Geology and soil

65. The entire route selected under RMC package in Galle district is located within the south-west regions of low country (i.e. elevation below 400 m above mean sea level) wet zone of the country. According to agro-ecological classification<sup>3</sup> the route falls within WL1a and WL2a agro-ecological zones. Topographic features, 75% expectancy of annual rainfall, soil and predominant land use of these two agro-ecological zones are presented below.

Table 4.1 Characteristics of the WL1a and WL2a agro-ecological zones

Agro-ecological zone	75% expectancy value of annual rainfall (mm)	Description (Land use, Terrain, Soil groups)
WL1a	> 3200	Tea, Rubber, Mixed Home Garden, Paddy , Export Agricultural Crops (Cinnamon)  Rolling , undulating and hilly  Red Yellow Podsollic (RYP), RYP soils with semi prominent A1 horizon & Low Gemic Clay (LGH) soils
WL2a	> 2800	Rubber , Tea , Coconut ,Mixed Home Garden , Paddy, Export Agricultural Crops(Cinnamon)  Rolling , undulating and flat  RYP , LHG & bog and half – bog soils

Source: The National Atlas of Sri Lanka (2<sup>nd</sup> edition), Survey Department Sri Lanka

<sup>3</sup> The entire country has been divided in the 46 agro-ecological zones based on terrain (elevation), soil types, land use and 75% expectancy of annual rainfall.

66. The geological formation of the area belongs to the highland complex of Precambrian era. Main types of rocks found are Charnokite, Charnokite gneiss, Quartzite, Undifferentiated tectonically intercalated metasediment and metagneiss.

#### 4.2.2. Meteorology

67. As stated above the road sections selected under this RMC package is located within the low country wet zone which in general receives rain throughout the year. The main rainfall season is the south-west monsoon which occurs during mid-May to September. As indicated in table 4.1 the 75% expectancy value of annual rainfall is greater than 2,800 mm and reaching values over 3,200 mm in some areas. The variability of annual rainfall anomaly, maximum and minimum temperature anomaly trends with respect to Galle district is presented in figure 4.11.

#### 4.2.3. Hydrology

68. Gin Ganga (river) is the main surface water body that is located within the study area. The road sections from Udugama to Thawalama (via Hiniduma) runs almost parallel to Gin Ganga. Annex 4.1 presents the orientation of Gin Ganga and this road section. During the field visits it was observed that some parts of this road section are prone to floods caused due to overflowing of this river. One such prominent location is near the Divisional Secretary Office at Thawalama. Creeks and minor streams that originate from Kannaliya forest and other minor catchments mainly drain into Gin Ganga. Many dug wells were observed along the route which is an indication of groundwater availability in the area.

#### 4.2.4. Air quality and noise

69. Beyond Labuduwa the route selected passes mainly through lands with mixed home gardens, paddy lands and tea estates. Other than a few tea processing factories no major industries or major pollution sources are located within the project area. Exhaust gases from vehicles could be identified as the main source of emission to atmosphere. National ambient air quality standards and 2005 "World Health Organization Air Quality Guidelines" which offers a global guideline on thresholds and limits for key air pollutants that pose health risks<sup>4</sup>. Major noise polluting sources were also not observed along the route selected under RMC package of Galle.

Table 4.1 a. National Ambient Air Quality Standards

Parameter	Average time (hrs)	NAAQS (mg/m <sup>3</sup> )	NAAQS (ppm)
Carbon Monoxide	8	1	9
Nitrogen Dioxide	24	0.10	0.05
	8	0.15	0.08
Sulphur Dioxide	24	0.08	0.03
Lead	24	0.002	-
TSP	24	0.03	-
PM10	8	0.35	-

Source: Gazette of the Democratic Socialist Republic of Sri Lanka, 850/4 (20 December 1994)

<sup>4</sup> These guidelines are adopted by the World Bank under their General EHS Guidelines

Note: PM 10- Particulate matter<10 µm  
NAAQS- National Ambient Air Quality Standards

Table 4.1 b WHO Ambient Air Quality Guidelines, 2005

Parameter	Averaging Period	Guideline value in mg/m <sup>3</sup>
Sulphur Dioxide (SO <sub>2</sub> )	24 hour	125 (Interim target 1) 50 (Interim target 2) 20 (Guideline)
	10 minute	500 (Guideline)
Nitrogen Dioxide (NO <sub>2</sub> )	1 year	40 (Guideline)
	1 hour	200 (Guideline)
Particulate Matter (PM <sub>10</sub> )	1 year	70 (Interim target 1) 50 (Interim target 2) 30 (interim target 3) 20 (Guideline)
	24 hour	150 (Interim target 1) 100 (Interim target 2) 75 (Interim target 3) 50 (Guideline)
Particulate Matter (PM <sub>2.5</sub> )	1 year	35 (Interim target 1) 25 (Interim target 2) 15 (Interim target 3) 10 (Guideline)
	24 hour	75 (Interim target 1) 50 (Interim target 2) 37.5 (Interim target 3) 25 (Guideline)
Ozone	8 hour, daily maximum	160 (Interim target 1) 100 (Guideline)

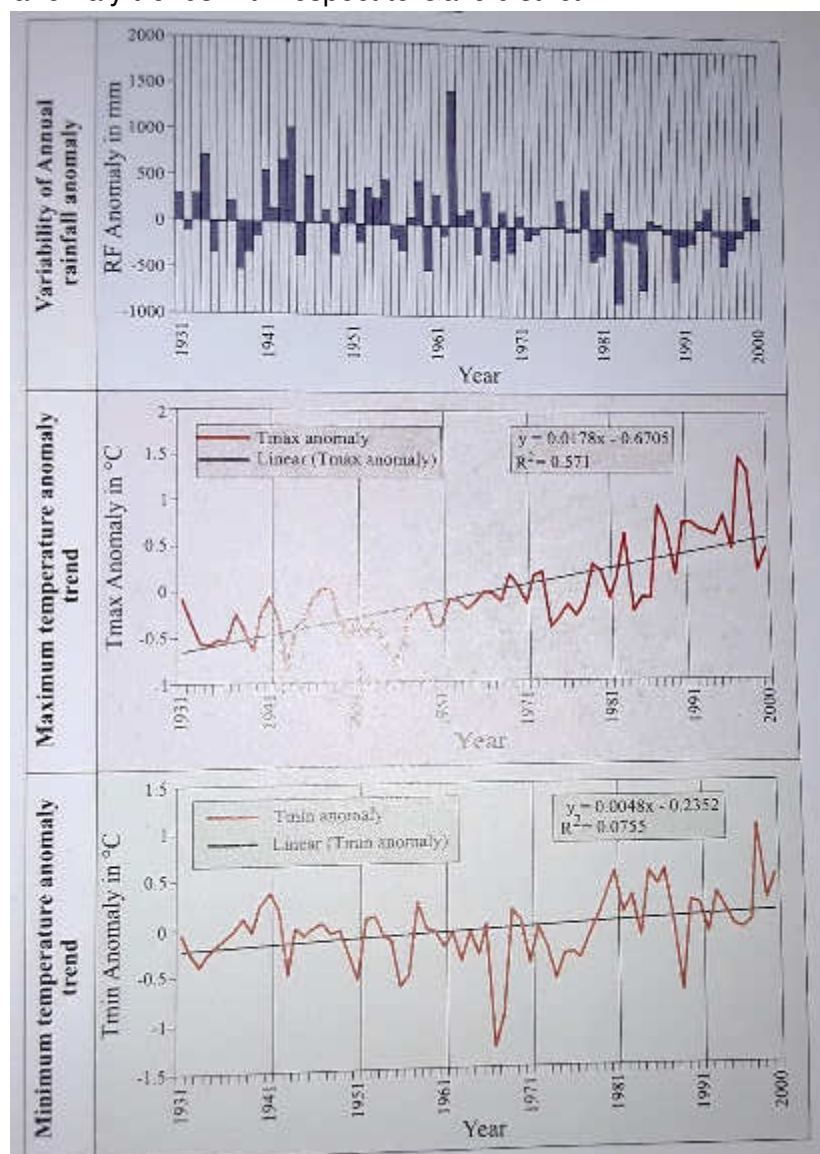
### 4.3. Biological environment

70. Manmade habitats such as home gardens; paddy fields; plantations of tea, rubber, coconut & cinnamon; and natural or semi natural habitats i.e., marshland, streams, scrubland and forest could be observed adjacent to the project area. Many natural habitats within the project area have been subjected to the impact of human activities of varying extents; nevertheless they retain some degree of naturalness.

71. Kannaliya Forest Reserve (FR) is located to the RHS and Malambure and Polgahakanda Forest Reserves located to the Left Hand Side (LHS) within the road section from Udugama to Hiniduma. All three forest reserves belong to tropical wet low land rain forest type. At it's nearest point the road is located beyond 500 – 600 m away from the forest boundary of Kannaliya FR. Both Malambure and Polgahakanda FRs are located more than 1000 m away from the nearest point from the road. Annex 4.2 presents the forest reserves with respect to the route under RMC package in Galle district.

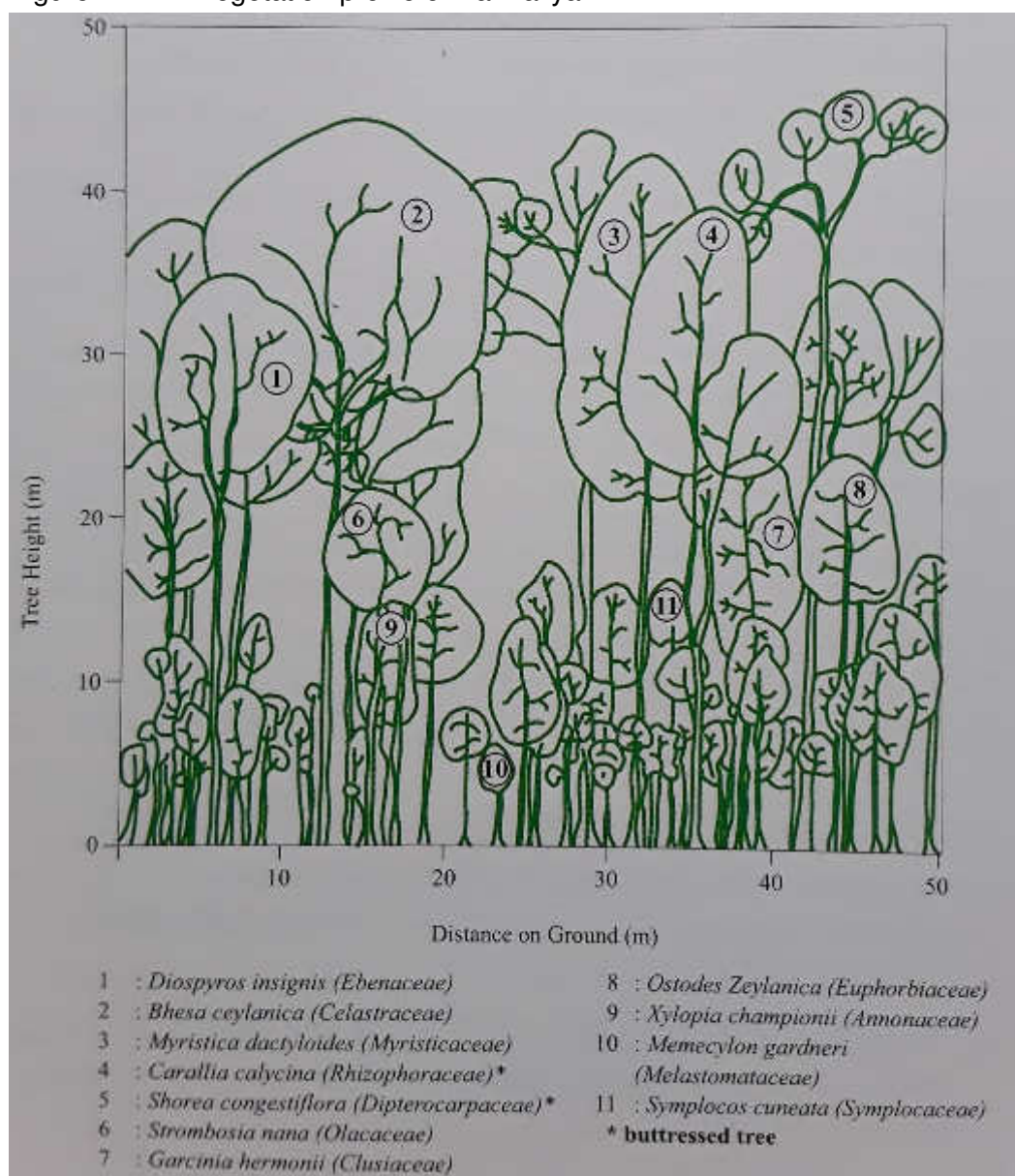
72. Out of these three forest reserved the Kannaliya forest is considered as more important as it is connected with Dediyaagala FR and is located towards the southern border of Sinharaja forest reserve which is a world heritage site. Kannaliya FR represent the undisturbed climax vegetation (as in the Sinharaja rain forest). The forest area has an average annual temperature of about 28°C and a mean annual rainfall between 2000 – 5000 mm in different locations and without a distinct dry period. Humidity in the forest vary from 75% to 85%. The forest is characterized by tall canopies ranging from 30m to 40m in height, sub-canopies of 15m to 30m and sparse shrub layers consisting mostly of sapling of tree vegetation. An emergent layer is seen above the canopy up to about 45m. Woody lianas and giant cane palms reaching up to the canopy is a common site in these type of forests. Figure 4.12 presents the vegetation profile of Kannaliya.

Figure 4.11 Variability of annual rainfall anomaly, maximum and minimum temperature anomaly trends with respect to Galle district



Source: The National Atlas of Sri Lanka (2<sup>nd</sup> edition), Survey Department Sri Lanka

Figure 4.12 Vegetation profile of Kannaliya



Source: The National Atlas of Sri Lanka (2<sup>nd</sup> edition), Survey Department Sri Lanka

73. No endangered/ threatened floral or faunal species have been observed during the previous study or during this study. A list of common floral species observed along the route during the present study is presented in annex 4.3.

## 4.4. Social and Economic Environment

### 4.4.1. Demography

74. Southern province where Galle district is located has an area encompassing 5,544 km<sup>2</sup>, consisting 5,383 km<sup>2</sup> (97.10%) high land and 161 km<sup>2</sup> (2.902%) of low land. The total extent of cultivated land of the province is 76,991 hectares whilst non- cultivated land is 68,401 hectares. The province also has a beautiful coastal belt which has a high tourist attraction. Table 4.2 below compares the land area, population, population density and poverty head

count index for year 2016 with respect to Sri Lanka, Colombo (the economic capital) and Galle district.

Table 4.2 A summary of land area, population, population density and poverty head count index

Province	District	Population (Census 2012)	Land area (km <sup>2</sup> )	Population Density (person/km <sup>2</sup> )	Poverty head count index (%)	Total poor population	Cont. to total poverty (%)
Sri Lanka		20,359,439	65,610	325	4.1	843,913	100
Western	Colombo	2,324,349	699	3,325	0.9	19,796	2.3
Southern	Galle	1,058,771	1,617	655	2.9	30,775	3.6

Source: Department of Census and Statistics

75. Population distribution by ethnicity, sex and age and labour force in the Galle district is presented below.

Table 4.3 Population by ethnicity in Galle district

Ethnic Group	Galle District	%
Sinhala	998,540	94.3
Sri Lankan Tamil	15,228	1.4
Indian Tamil	5,641	0.5
Muslim	38,591	3.6
Burger	242	0.0
Sri Lankan Chetti	79	0.0
Malay	8	0.0
Baratha	10	0.0
Other	432	0.0
<b>Total Number Of Persons</b>	<b>1,058,771</b>	<b>100.0</b>

Source: Department of Census and Statistics, 2012

Table 4.4 Population by sex and age in Galle district

District	Total number of persons	Sex		Age		
		Male	Female	Less than 15 years	15 - 59 Years	60 years and over
Galle	1,058,771	508,497	550,274	268,217	636,680	153,874
	100.0%	48.0%	52.0%	25.3%	60.1%	14.5%

Source: Department of Census and Statistics, 2012

Table 4.5 Labour force distribution in Galle district

	Galle district	Southern Province	Sri Lanka
Percentage of Labor Force	44.2	46.7	48.1
Percentage of Employment	93.6	92.2	95.1
Percentage of Unemployment	6.4	7.8	4.9

Source: Department of Census and Statistics, 2012

#### 4.4.2. Main economic activities

76. Agriculture and services are the main economic activities that are prevalent in Galle district. Labour force involvement in main three sectors of agriculture, industry and services based on the labour force survey of 2016 are presented below.

Table 4.6 Employment by major industry group (percentage) – 2016

District	Agriculture %	Industry %	Services %
Galle	34.6	24.0	41.4
Colombo	1.8	28.4	69.7
Sri Lanka	27.1	26.4	46.5

Source: Department of Census and Statistics, Labour Force Survey - Annual Report 2016

77. Livestock farming such as rearing of cattle and buffaloes, and poultry farming are also popular agricultural activities in Galle district. Sea fishing is also a prominent economic activity for many people in the coastal region of Galle district.

#### 4.4.3. Socioeconomic status

78. **Literacy rate:** As per the department of Census and Statistics – 2016, Galle district shows the highest literacy rate about 96.6 percent compared to Matara and Hambantota districts (the other two districts in Southern province). With respect to the gender, male and female literacy rates are almost equal in Galle district.

Table 4.7 Literacy rate in Galle district (percentage) - 2016

District	Literacy Rate		Total
	Male	Female	
Galle	94.3	92.0	93.0
Colombo	96.7	95.1	95.8
Sri Lanka	94.1	92.2	93.1

Source: Department of Census and Statistics, Labour Force Survey - Annual Report 2016

79. **Household income and expenditure:** Monthly mean household income and expenditure of Galle district as per the “Household Income and Expenditure Survey – 2016” of the Department of Census and Statistics is presented in table 3.8. According to this information the mean monthly household income and expenditure are almost equal with the country standards.

Table 4.8 Mean monthly household income and expenditure in Galle district - 2016

District	Income (Rs.)	Expenditure (Rs.)
Galle	63,093	53,350
Colombo	104,581	90,670
Sri Lanka	62,237	54,999

Source: Department of Census and Statistics, Household Income and Expenditure Survey - 2016

#### 4.4.4. Existing Infrastructure facilities

80. **Energy source of households:** There are 93.2% households in Galle district who use electricity for lighting. Kerosene is the second major source. Around 5.7% households in Galle district use kerosene to light the houses. Below summarizes energy source of households.

Table 4.9 Principle type of lightning the occupied housing units - 2012

District	Electricity from national grid	Rural Hydro power project	Kerosene	Solar power	Bio Gas
Galle	93.2	0.9	5.7	0.1	0.0

Source: Department of Census and statistics, 2012

81. **Drinking water:** As shown in the table 4.10, majority of households in Galle district use water from protected wells i.e. 57.7%. Another 7.5% of households in Galle district obtain water through unprotected wells. The percentage of households who secure water from water supply systems (from National Water Supply and Drainage Board and Community Supply Schemes) are 27.9 percent.

Table 4.10 Source of drinking water

District	Protected well	Unprotected well	Pipe born water	Other
Galle	57.7	7.5	27.9	7.0
Matara	44.4	6.7	30.1	11.5
Hambantota	19.5	2.4	56.5	21.6

Source: Department of Census and statistics, 2012

82. **Transport facilities:** Road transport is the dominant mode of transportation in the project area. Table 4.11 presents the road types available in each district of southern province.

Table 4.11 Types of roads available with length in southern province as at year 2011

District/ Province	Class A (km)	Class B (km)	Class C (km)	Class D (km)	Class E (km)	Class E1 (km)	Total (km)
Galle	97	393	389	272	—	42	1,192
Matara	135	252	300	248	—	—	934
Hambantota	115	374	337	283	—	—	1,109
<b>Southern</b>	<b>347</b>	<b>1,019</b>	<b>1,026</b>	<b>803</b>	<b>—</b>	<b>42</b>	<b>3,236</b>

Sources: Provincial Road Development Authority

83. **Education and health facilities:** There are 12 schools located along the route selected under RMC package in Galle district. Karapitiya teaching hospital is located at the starting point of this route, while district hospital at Hiniduma is also located close to the road section from Hiniduma to Thawalama and there a number private dispensaries along this route. Location of these facilities with respect to road sections of RMC package in Galle district is presented in table 4.12.

Table 4.12 Educational and major health facilities along the route of RMC package – Galle district

Road section	Facility
Karapitiya - Labuduwa	Karapitiya teaching hospital
Labuduwa – Wanduramba	Akmeemana Vidyalaya (school)
	Keebiya Gamini Maha Vidyalaya (school)
	Early Childhood Development Institute
	Welideniya Thakshila Vidyalaya (school)
	Wanduramba Central College
Wanduramba – Nagoda	samarasekara Maha Vidyalaya (school)
	Royal College - Nagoda
	Nagoda Primary School
Nagoda – Gonadeniya	Kurupanawa Junior School
	Gonadeniya Junior School
Udugama – Hiniduma	Maha Bodhi Vidyalaya (school)
Hiniduma – Thawalama	Malika Navodya School
	District Hospital - Hiniduma
	Ayurvedic Medical Centre
	Primary School - Thawalama

#### 4.4.5. Historical and archaeological significance

84. Although there are many places with historical and archaeological significance in Galle district no such places is located close to the route selected under RMC package of Galle district.

## 5. Screening of Potential Environmental Impacts and Mitigation Measures

85. Road sections selected in Galle district for RMC package are at different road surface conditions, i.e. some sections have been fully rehabilitated and improved, some under rehabilitations and improvements while some sections need full rehabilitation and improvements. Therefore proposed activity for each section under this RMC package could be broadly segregated as full rehabilitation/ improvement and maintenance thereafter, complete the ongoing rehabilitation/improvement works and maintenance thereafter, limited rehabilitation/ improvement works and maintenance thereafter and maintenance works only. Table 3.2 presents the activities proposed for each road section under this RMC package. Impacts caused during these activities shall differ in magnitude and significance. This chapter discuss the impacts that would occur during different stages in implementing the RMC package in different road sections. Suitable mitigation measures are discussed against most significant adverse impacts where avoidance is not possible.

### 5.1. Design and Pre-construction

#### **1. *Impacts to road sections due to natural hazards and natural hazards aggravated by proposed construction activities.***

86. The entire project area is located within the south western wet zone of the country which receives substantial rainfall within a year. Further the selected road sections beyond Thalagaha passes through terrains with rolling and hilly topography. Road section between Udugama and Thawalama (through Hiniduma) runs parallel to Gin Ganga (river) and road section near Thawalama Divisional Secretary Office (this section is located between Hiniduma and Thawalama section which has already been rehabilitated and improved) has been prone to floods during the past years. Further Udugama to Hiniduma section is close to Kannaliya FR, many minor streams that originate from this forest area flows in to Gin Ganga crossing this road section.

#### **a. *Impacts of flood***

87. Thalagaha – Wanduramba and Udugama – Hiniduma road sections are listed as full rehabilitation and improvement. Many minor stream and drainage canals of paddy lands crosses these two road sections. Some of the existing structures (especially the culverts) appear to be inadequate in size and mostly not fully functional. Water stagnation or in extreme events floods that prevail for hours is a common phenomenon at such locations. This situation is some time aggravated due to inadequate lead away conditions.

88. In order to avoid water stagnation/ flood conditions it is required to design structures with appropriate opening sizes that would enable a smooth water flow across such structures. Further for road sections which face frequent inundation with high sheet flow velocities (if any found in detail design) it is suggest to pave the road surface with concrete which is more stable compared to asphalt road surfaces under high sheet flow velocity.

89. For sections that have been already improved it is suggested to develop a schedule for clearing and cleaning of all drainage structures (including culverts, bridges and road side

drains). An emergency response system should also be designed to attend in to any blockages that would occur during maintenance period.

***b. Slope stability***

90. Few embankment/ slope sections could be observed within the two road sections that are listed for full rehabilitation and improvement. Even though the existing ROW generally facilitates the proposed improvements it may be required to clear the vegetation on these embankments or cut in to these embankments in order to construct road side drains (at few locations). Failure or instability of cut slopes is a common impact that occurs mainly due to not maintaining stable cut slope angles.

91. In order to avoid such failures in cut slopes it is important to first identify exact locations where embankment cutting shall be required. This is one of the key activity of the design engineers during the design period. Then designing such slopes to angles of 1: 1.5 or 1: 2 with berms if the cut section is more than 2 m in height. If additional land is required for such design it shall be carried out through voluntary land donation process as guided by the Resettlement Framework (RF) for iRoad program. Increasing the height of the outer limb of the build-up drain or construction of retaining walls are other options to stabilize cut slopes. Such physical methods are suitable at locations where voluntary land donation is not possible. Establishing vegetation cover over the exposed cut slopes and planting deep rooting species such as “Arunadavi” or “Sevendara” on the rides of cut slope are biological methods that assist slope stability.

***2. Shifting of utility supply lines***

92. Around 40 electricity and telecommunication posts were observed located close to the existing road edge of Thalagaha – Wanduramba and Udugama – Hiniduma road sections are listed as full rehabilitation and improvement. Some of these posts if left shall obstruct the proposed development and eventually pose a safety threat to all road users. Therefore some of these posts shall need to be shifted which shall also cause hindrance to public who utilizes these services. Essentially shifting of such lines shall be done before commencement of construction.

93. In order to avoid any hindrance or inconvenience to public during such shifting, RDA shall keep a close coordination with relevant utility supplying agency. Prior notices shall also be displayed or given to public on the possible dates and times of interruptions of supply.

## **5.2. Constructional Impacts**

***1. Anticipated impacts due to land preparation activities***

94. Any land clearing activity shall not be envisaged in road sections that will go directly in to maintenance works (i.e. road sections of Karapitiya – Labuduwa, Udugama bar junction to bus stand and Hiniduma – Thawalama).

95. Land clearing may only occur in sections which include full rehabilitation/ improvement, limited rehabilitation/ improvement and in sections where rehabilitation/ improvement works are in progress.

96. One of the main operations of land preparation shall be removal of vegetation including trees that are within the existing ROW and especially close to the existing road pavement edge. Cutting of embankment may also arise in places where additional strips of land would be required to construct road side drains. The soil and waste material generated through site clearing operations shall need to be disposed away from the cleared site. During the field work it was observed that around 130 trees shall need to be removed within the two road sections that will be fully rehabilitated and improved. There are no trees to be removed along the other sections of this route.

97. Dredging activities may be required in areas where the road passes over clay or peat soil strata (soft ground areas). Such dredged sections shall be filled with rock and soil. Material stock piles shall be required to maintain at site to be used for filling, embankment and subbase construction activities.

98. Key impacts and risks that would occur due to above activities could be listed as follows;

- Loss of vegetation including trees,
- Accumulation of soil and waste material that needs to be disposed,
- Generation of dust and noise which causes a nuisance to public.

99. Following measures shall be taken to minimize and mitigate above impacts;

- Trees which are located close to the existing road pavement edge or trees that will be close to the new pavement edge (after improvement) and trees that would cause any safety issue or damage to the pavement surface shall only be removed. Tree replanting shall be carried out to compensate the number of trees removed. Replanting shall be done at three (3) saplings for each tree removed or one tree (having a height not less than 1 m) for each tree removed. If saplings are planted the requirement shall be 390 saplings and if plants are to be planted the requirement shall be 130 plants.
- Exposed cut slopes shall be stabilized using any suitable measure/s indicated under section (b) on slope stability.
- Accumulated soil, waste (including debris of vegetation and dredge material) shall be removed from site immediately after clearing works. No excavated soil or waste shall be left at site even on a temporary basis. The soil and waste material shall only be disposed at sites approved by PIC and local authority. The contractor shall follow the procedure given in annex 5.1 for establishing and operation of disposal sites.
- Spraying of water over exposed soil and other surfaces emitting dust at regular intervals, covering of excavated soil surfaces with mulch are measures that could be adopted to reduce dust generation from exposed soil surfaces during land preparation activities.
- Noise nuisance could be reduced by limiting operations to times that would have least problematic to public.

- The contractor shall properly maintain all construction vehicles and equipment (especially air compressors and generators).

## **2. *Impacts on natural drainage pattern and hydrology of the study area***

100. This impact is only anticipated for road sections that would be fully rehabilitated and improved. During construction it is possible that some of the excavated material or material brought for road works fall in to existing drainage networks causing blockages to flow paths. However this impact will be temporary in nature and could be avoided with proper identification of material storage sites and disposal sites.

101. Proposed road rehabilitation and improvements works shall bring in a beneficial impact as the existing culverts and other road side drainage facilities shall also be rehabilitated/ reconstructed and new culverts and drains introduced. However during construction works the flow paths may get temporary disruptions due to activities such as coffer dams and temporary diversions.

102. Accidental spills of fuel and chemicals used for road construction activities would flow in to nearby water bodies or percolate in to groundwater causing deterioration of water quality of such water bodies.

103. Adopting the following measures shall avoid, minimize and mitigate any impact on the existing drainage network.

- Construction of culverts and other road side drainage structures as per the design specifications developed during detail designs.
- Timing of construction activities when there is minimum/ dry flow in the streams.
- If temporary diversions are constructed, such diversions should have sufficient capacity to maintain the existing flow rates avoiding any upstream ponding.
- Clearing of lead away path to a reasonable distance so as to allow free flow of water.
- Clearing of all debris and any temporary structure that was constructed on the stream path soon after completion of construction works.
- Construction of rip raps and force barkers especially in downstream of culverts shall avoid any downstream erosion immediately after the structure.
- Fuel and other chemicals used for road construction works shall be stored in an enclosed structure where storm water or any other flow of water would not flow in to such structure. A spill containment shall be constructed around the storage facility having adequate capacity to contain any spillage of fuel or chemical stored.

## **3. *Impacts on fauna, flora (including migratory habitats) and ecosystems Impact on aquatic ecosystems of associated water bodies***

104. As discussed under section “Anticipated impacts due to land preparation activities”, removal of trees will only occur at road sections which will be fully rehabilitated and improved. There will be no impact on Kannaliya FR as the forest is located over one kilometre (on average) away from the Udugama – Hiniduma road section. And there are settlements between the road and FR.

105. As indicated under section 4.3 of this report no migratory habitats were observed along the entire route. However occasional movements of wild animals such as mongoose, water monitors and other lizards across the road sections even during the construction period could occur. Such animals could get crushed by moving construction vehicles and may get killed by workers.

106. Soil and other debris washed on to streams and cement used for construction of culverts and other drainage structures if fall on to water paths could easily contaminate the stream water and cause turbidity. Such sediments could block the respiratory system of fish who live in these water bodies. Further high turbidity levels for prolong time period would reduce the sun rays falling on to the bottom of these water bodies affecting the photosynthesis process of aquatic plants as well as reducing the temperature in water again affecting both aquatic floral and faunal lives.

107. Following measures shall be adopted to avoid, minimize and mitigate any impact on fauna, flora including aquatic species;

- Tree removal shall be limited to trees that are at the edge of existing road pavement edge or the trees which will fall on the improved shoulder or at the edge of the improved road pavement.
- Conducting the tree planting program.
- Providing suitable fuel sources for cooking purposes for labour gangs or at labour camps (if established for the civil works).
- Educating the worker force (including operators of machinery) not to harm any animal which crosses the construction sites.
- Placing of physical barriers around construction sites to avoid any animals entering such areas.
- Avoid construction activities that generate high noise levels during night time to avoid any disturbance to roosting habits of avian fauna.
- Avoid any spills of soil, debris or cement on to streams and other water bodies near construction sites.
- Remove any material that is spilled in to streams or nearby water bodies within the shortest possible time period.

#### **4. *Potential traffic, noise, vibration, dust and air quality due to construction activities***

108. Movement of construction vehicles, laying of subbase and aggregate material shall emit dust and exhaust gases including Carbon Dioxide (CO<sub>2</sub>) to atmosphere which will deteriorate the air quality especially in the area near the construction sites. Air quality will also deteriorate around the locations where construction contractors will operate their quarry sites, borrow sites, material stock yards, asphalt and concrete batch mixing plants. Fumes of fuel and other vaporizable chemicals could also lead to pollution of air.

109. Pneumatic equipment used during construction works is a major source for high noise generation. Construction vehicles such as compacting rollers, asphalt pavers and trucks used to transport material shall emit noise and vibration levels that would be a nuisance to public.

110. These impacts will be limited during the construction activities. Therefore following measures shall be applied during construction stage to avoid, minimize or mitigate impacts due to emission of dust, gases and fumes that deteriorate the quality of air; noise and vibration.

- All equipment used for construction works shall be properly serviced and maintained.
- All plants shall be properly maintained. Especially the dust filtering systems of asphalt plants shall be frequently cleaned and filters replaced when required.
- All material stock piles at asphalt/ concrete batch mixing plants and at other storage sites shall be properly covered.
- Fuel and any chemical with evaporable qualities shall only be stored in enclosed storage facilities with restricted access.
- The contractor shall select locations for quarry/ borrow operations; installing plants with minimum noise and vibration nuisance to public.
- All material extraction sites and plants shall be operated with all required approvals and licences from CEA, GS & MB and relevant local authority.
- All material transported to site shall be properly covered and no overloading of material shall be allowed in to trucks transporting material.
- Speed limits not more than 20 kmph shall be enforced for all vehicles passing through construction areas.
- Drivers of material transportation trucks and other construction vehicles will be strictly instructed to reduce speed (up to 20 kmph) when they move through locations of settlements and other important institutions such as schools and hospitals.
- Water shall be sprayed over construction sites which are located within or close to settlement areas.
- Limit all construction works to times that is least nuisance to public and if night time works is carried out, not to do any construction work that would generate noise levels higher than CEA stipulated values.
- A pre-crack survey on all structures adjacent to the existing road edge shall be completed before commencement of civil works.
- Controlling the level of compacting vibration of compacting rollers near structures that are observed to be weak.
- Contractor shall obtain a third party insurance to compensate damages caused to any structures due to construction works.

## **5. *Impacts on the development activities in the vicinity***

111. No specific development activities could be observed along the entire route selected under this RMC package. However once this route is rehabilitated and improved it will serve many public and private institutes located along this trace which include; Ministry Complex of Southern Provincial Council, Open University, Labuduwa office of Agrarian Development Department, District Hospital – Hiniduma, Divisional Secretariat office – Thawalama, Schools and few tea factories.

## **6. *Accidents to worker force and public***

112. Construction activities pose potential hazards to both workers and public. Safety to workers and the public shall be enhanced by adopting the following measures during civil works;

- Proper briefing and training of workers on safety precautions, and their responsibilities for the safety of themselves and others,
- Provision to workers of Personnel Protective Equipment (PPE) to be used at every time involved in when construction activities and high visibility jackets at night,
- Ensuring that plant and vehicle operators are properly licensed and trained,
- Arranging for the provision of first aid facilities, readily available trained paramedical personnel, and emergency transport to the nearest hospital,
- Arranging for regular safety checks of vehicles and material,
- Ensuring that quarry operations, particularly blasting is carried out and supervised by trained personnel, that explosives are stored in a secure location, and that all due precautions are taken to ensure that blasting does not induce rock falls or fly rocks,
- Provision of hazard warning signals around construction sites, and directing vehicle and pedestrian traffic away from work sites,
- Provision of traffic management plans during construction including barricading of openings and lighting at night where required.

## **7. *Disruption of traffic***

113. Proposed construction activities such as improvement of the road surface and pavements, reconstruction of culverts and bridges shall cause temporary disturbance to the existing traffic flow along this route and this situation shall be more prominent within the two road sections that would be fully rehabilitated and improved.

114. Transportation of construction materials from outside, phase construction, temporally diversion, loading and unloading of construction materials etc., will increase traffic congestion especially around urban centers, public sensitive locations and construction sites of culverts and bridges. This will negatively impact to the road users and cause delays in travel time, increase noise and exhaust emissions too.

115. Advance notice to the public regarding the schedule of construction, providing of safe and convenient passage to vehicles and passengers away from construction sites, implementation of traffic management plan close coordination with local police, use of flagmen and/or temporary traffic signs for construction sites are important measures that have to be undertaken during construction period to minimize the impact on traffic.

## **8. *Establishment of labour camps and sanitation facilities***

27. Labour camps that are established and managed improperly shall create an unhealthy environment causing health hazards to both workers and nearby residents. Located in a wet zone area with frequent rainfall shall cause stagnation of water around labor camps. Such situation will create mosquito breeding sites and vector for communicable diseases. Migration of laborers from outside areas for the construction activities may create conflict situations among the workers and settlers near worker camps.

28. Labour camps if required shall only be constructed at locations away from water bodies, highly residential and environment sensitive areas with approval from PIC. Majority of skilled and unskilled workers shall be selected from the project influence area to avoid generation of

waste and sanitation problems from labour camps. Providing proper sanitary facilities including drinking water, urinals, toilets bathing facilities and mosquito nets will minimize spreading of communicable diseases and other health issues. Establishment of proper and adequate drainage facilities within labour camps shall minimize stagnation of water and prevent breeding of mosquitoes and flies.

29. Frequent toolbox meetings on safety and worker awareness programs on community and cultural aspects shall carried out as means of reducing any conflicts among migrant labour and communities.

### **5.3. Operational Impacts**

116. At operational stage of the RMC packages the selected road sections shall be subjected to routine and periodic maintenance. As per the contract agreements the contractor/s who carried out the rehabilitation and improvement works shall be responsible for an initial maintenance period of five years. Following key activities shall be carried out during the maintenance period as stated under section on “Project activities”;

- ✓ Clearing and maintaining road side vegetation
- ✓ Cleaning of road side drains and structures
- ✓ Maintaining the shoulders and attending to any repairs on the pavement

117. These activities shall not cause any significant adverse impacts to the environment, rather some of them will be beneficial to the environment. However, following measures shall be taken by the contractor/s to avoid any possible impacts;

- Clearing of road side vegetation shall only be done through physical methods such as slashing or using mechanical grass cutters. No weedicides or other forms of chemicals shall not be used for clearing of road side vegetation.
- Any debris or soil collected through cleaning of road side drains and culverts shall immediately be removed to identified disposal sites.
- Material brought for any repair works of shoulders or pavement shall not be left at site after attending to the repair works.
- Material brought for any repair works of shoulders or pavement shall not be stockpiled near water bodies, marsh areas or paddy lands.

118. With better road surfaces the drivers using these roads may tend to go at higher speed levels which may lead to accidents. Warning signboards erected along the route shall be maintained as means of warning the drivers on the speed limits and locations where precautionary measures may need to be taken.

### **5.4. Beneficial impacts**

119. An improved and efficient road connectivity between Thawalama and Galle town centres shall be established once the road sections under Galle RMC packages are fully rehabilitated and improved. This efficient connectivity shall reduce the travel time and vehicle operational costs which are considered as beneficial impacts of the project.

## 5.5. Climate change adaptation (emission of greenhouse gases)

120. Rehabilitation and improvement to the selected roads in Galle RMC package shall bring about a change in vehicle operation factors such as speed, time of travelling and vehicle operational cost of the vehicles that would be moving on this route.

121. Such changes with respect to present conditions of vehicle movement shall have an impact on emission levels of the gases emitted by vehicles travelling along the route from Karapitiya to Thawalama and vice versa. Vehicles that would move on the particular section include bicycles, motor cycles, three wheelers, cars, vans, buses, light and heavy commercial vehicles. Thus emission of Carbon Dioxide from motorized vehicles which is a GHG needs to be analysed to evaluate the overall contribution of this investment program in terms of the change in CO<sub>2</sub> emissions. Such analysis shall be in line with need of a shift in ADB's investments on transport sector in to low Carbon growth across Asia and the Pacific regions<sup>5</sup>.

122. EKB<sup>4</sup> has developed a set of spreadsheet-based models to evaluate the CO<sub>2</sub> impacts of rural roads, urban roads, bikeway projects, expressways, light rail and Metro Rail Transit (MRT) projects, Bus Rapid Transit (BRT) projects, and railways. These Transport Emissions Evaluation Models for projects or TEEMPs consider passenger and freight travel activity, the shares of trips by different modes and vehicle types (structure), fuel CO<sub>2</sub> efficiency (intensity), and fuel type in assessment of CO<sub>2</sub> emissions and are validated through more detailed emission factor models. The models directly estimate CO<sub>2</sub> emissions for a "Business As Usual" or BAU case (a no-action alternative) vs. one or more alternative modal investment interventions (including improvement to road pavement) and calculate scenario differences. The models consider induced traffic demand generated by changes in the generalized time and money cost of travel by different modes, building on best practice analysis techniques.

123. The TEEMP model for urban roads was used for the analysis with using default parameters for base fuel consumption, emission factor and upstream emission percentage. Occupancy-loading, average trip lengths of each type of vehicle, vehicle type growth and roughness factors (before and after improvements) were fed to the model based on the details of traffic and economic analysis for the selected sections under RMC package for Galle district. The model was run separately for the road sections. A summary of these input parameters are presented in table 5.1.

Table 5.1 Input parameters for TEEMP model for the candidate road sections of RMC package in Galle district

Parameter	Input values			
Section	Karapitiya - Wanduramba	Wanduramba - Nagoda	Nagoda - Udugama	Udugama - Thawalama
Length (km)	12.7	10.7	8.0	20.5
<b>Occupancy/loading</b>				
Two wheeler	1.6	1.6	1.6	1.6
Three wheeler	2.2	2.2	2.2	2.2

<sup>5</sup> The evaluation study by ADB's Independent Evaluation Department (IED) in year 2010 (Evaluation Knowledge Brief, July 2010 – EKB) on reducing Carbon emission for transport projects has indicated the need of a shift in ADB's investments on transport sector in to low Carbon growth across Asia and the Pacific regions

Parameter	Input values			
Section	Karapitiya - Wanduramba	Wanduramba - Nagoda	Nagoda - Udugama	Udugama - Thawalama
Length (km)	12.7	10.7	8.0	20.5
Passenger car	3.5	3.5	3.5	3.5
Light Commercial Vehicle	3.0 Ton	3.0 Ton	3.0 Ton	3.0 Ton
Bus	30.0	30.0	30.0	30.0
Heavy Commercial Vehicle	8.0 Ton	8.0 Ton	8.0 Ton	8.0 Ton
Bicycle	1.0	1.0	1.0	1.0
<b>Roughness</b>				
Before improvement	5.0 m/km	5.0 m/km	5.0 m/km	5.0 m/km
After improvement	3.0 m/km	3.0 m/km	3.0 m/km	3.0 m/km
<b>Lane configuration</b>				
Before	Two lane @ 2.5 -3.0 m pavement	Two lane @ 3.1 m pavement	Two lane @ 3.1 m pavement	Two lane @ 2.5 -3.1 m pavement
After	Two lane @ 3.1 m pavement	Two lane @ 3.1 m pavement	Two lane @ 3.1 m pavement	Two lane @ 3.1 m pavement

### **Model predicted CO<sub>2</sub> emission levels**

124. Model output includes CO<sub>2</sub> emissions at Business as Usual or without project; with project (i.e. with improvements) and with induced traffic; and with project and without induced traffic.

Table 5.2 CO<sub>2</sub> emission at BAU, Project & induced traffic and Project without induced traffic

Section	Emission of CO <sub>2</sub> in Ton/km/year (net change in emission)			
	Karapitiya - Wanduramba	Wanduramba - Nagoda	Nagoda - Udugama	Udugama - Thawalama
BAU	777.3	478.6	151.0	301.9
Project with induced traffic	764.6 (12.7)	470.9 (7.7)	149.0 (2.0)	297.0 (4.9)
Project without induced traffic	764.6 (12.7)	470.9 (7.7)	149.0 (2.0)	297.0 (4.9)

125. As indicated in the model output and summarized in above table the proposed improvement to existing pavements (especially from Thalagaha to Wanduramba and from Udugama to Hiniduma) will bring a reduction in CO<sub>2</sub> emission even with a growth of traffic. However, this analysis is based on the assumption that the roughness of improved highway pavement surface will be maintained during the project life. Therefore it is important that the road maintenance program is maintained throughout the project span (i.e. during operational stage for five years and beyond). The total length of the route selected for RMC package in Galle district (from Karapitiya to Thawalama) is 51.9 km. Based on the net change in CO<sub>2</sub> emissions or CO<sub>2</sub> savings in each section which is 12.7, 7.7, 2.0 and 4.9 Tons/km/year

respectively, the proposed investment program for RMC in Galle district shall save a cumulative emission value of 360.13 Tons CO<sub>2</sub> per year.

## 6. Information Disclosure, Consultation, and Participation

126. As specified in chapter V on “Consultation, information disclosure and grievance redress mechanism” of the EARF for iRoad program, public consultation and information disclosure is an important part of the environmental safeguard requirements under ADB SPS (2009). In addition the NEA of GoSL also considers stakeholder engagement as a key element for successful management of environmental impacts.




127. Meaningful public consultations had been carried out during SAPE works in year 2014. The stakeholders considered were project beneficiaries, local affected people, government bodies, and non-governmental organizations. Women and participation of vulnerable groups (handicapped people, senior citizens, and school children) had been considered during these consultations. Additional round of consultations were conducted during this study. The summary of one on one consultations is presented as annex 6.1 of this report. Table 6.1 presents a summary of Focus Group Discussions (FGDs) held and the key views expressed by stakeholders are given in table 6.2. Annex 6.1 also includes attendance sheets taken during the FGD at Neluwa and Wanduramba Divisional Secretary Office.

Table 6.1 A summary of FGDs held for iRoad program (RMC package Southern Province)

Date	Location	Number of participants
2 May 2014	Wanduramba PS auditorium	28
2 May 2014	Neluwa DS auditorium	15
5 May 2014	Gonapeenuwala DS auditorium	45
5 May 2014	Imaduwa DS auditorium	20
5 May 2014	Akuressa DS auditorium	67
5 May 2014	Hambantota DS auditorium	41
5 May 2014	Lunugamwehera DS auditorium	33
7 May 2014	Walasmulla DS auditorium	37

Table 6.2 Summary of key points discussed in FGDs

Location of FGD	Comments made by participants	File photo
Wanduramba PS auditorium	<ul style="list-style-type: none"> <li>Filling of nearby paddy fields and lands with material removed from road constriction works should be avoided as it creates flood problems.</li> <li>Road side drains and all other existing drainage structures need to be properly investigated and reconstructed where necessary.</li> <li>It is important to improve/ widen road sections with sharp bends and locations with poor visibility. This will improve road safety.</li> <li>A proper drainage study should be carried out to identify locations where drainage improvements are needed. Suggest that the engineers obtain assistance from Grama Niladri Officers.</li> <li>Propose a pedestrian flyover at Karapitiya hospital area and Wanduramba School.</li> <li>Increase the number of pedestrian crossings and locate them at strategic points.</li> <li>Pave about 15- 20 m inwards of all by roads that are connected to the candidate road. This will</li> </ul>	

Location of FGD	Comments made by participants	File photo
	reduce the amount of debris and soil flowing on to the candidate road. Improves road safety as motor cyclists slip on this debris.	
Neluwa DS auditorium	<ul style="list-style-type: none"> <li>Blockage of drainage causes flooding over some road sections.</li> <li>Few landslide areas are located within the DS division. Need to consider stability of cut slopes.</li> <li>Poor road conditions affect the agricultural and other economic activities in the area.</li> <li>Construction works need to be properly monitored.</li> </ul>	
Gonapeenuwala DS auditorium	<ul style="list-style-type: none"> <li>The roads must be widened to have safe passage.</li> <li>Blockage of drainage causes flooding over some road sections.</li> <li>Pave about 15- 20 m inwards of all by roads that are connected to the candidate road. This will reduce the amount of debris and soil flowing on to the candidate road. Improves road safety as motor cyclists slip on this debris.</li> </ul>	
Imaduwa DS auditorium	<ul style="list-style-type: none"> <li>Slope failures could be initiated if cut slope angles are too high.</li> <li>Proper drainage study should be carried out to identify all locations where drainage needs to be improved.</li> <li>It is important to improve/ widen road sections with sharp bends and locations with poor visibility. This will improve road safety.</li> <li>Improvement of roads in the area will help in the economic development.</li> <li>This project will ensure the safety of women, children and elderly who uses these roads.</li> </ul>	

128. Consultations shall be carried even during construction and maintenance period of the project. Avenues shall be kept open for receiving suggestions, comments or complaints during construction and maintenance periods. Details of these avenues are discussed under the chapter on grievance redress mechanism.

129. As means of information dissemination on the proposed activities, signboards with project information including details on nature of construction works, road length, construction period, name of contractor, contract sum and contact information for reporting complaints or grievances will be posted in three languages (Sinhala, Tamil and English). In addition an information flyer could be distributed among residents who live along the route providing

information on how they could assist the project. A sample of such notice (in Sinhala with English translation) is presented in annex 6.2.

## 7. Grievance Redress Mechanism

130. Grievances from the affected people on social and environmental issues during project implementation will be addressed mainly through the Grievance Redress Mechanism (GRM) as recommended in the EARF (Chapter V – C) which is to be formed using existing local administrative system.

131. Suggestions, requests and complaint may be received through different avenues. Public or stakeholders could verbally make their suggestions, requests or complaints directly to PIU, PIC or contractor/s. Boxes where public or stakeholder could put their suggestions, requests and complaint in written form (as letters) shall be placed at key locations (public gathering places) along the route. Letters including suggestions, requests or complaints could be directly handed over to PIU, PIC or contractor/s. In addition the newly established online system of receiving suggestions, requests or complaints (developed by RDA) could also be used in forwarding any suggestions, requests or complaints by public or any stakeholder. These suggestions, requests or complaints shall be recorded in a “Master register” maintained at Project Manager’s office of the contractor/s. The environmental officer of contractor/s shall be responsible to maintain and update this “Master register”.

132. In compliance with the EARF, grievances will be addressed at three levels depending on the nature and significance of the grievances or complaints. The first will be at the grass roots level where complaints will be directly received and addressed by the contractor, PIC or PIU representative on site. Grievances which are simple but still cannot be addressed at the grass roots level will be addressed at the Grama Niladhari (GN) level. More complex grievances which cannot be addressed at the GN level will be addressed at the Divisional Secretariat (DS) level. There will be a Grievance Redress Committee (GRC) at the GN and DS levels.

133. At the GN level the GRC members will be:

i)	Grama Niladhari of the area	Chairman
ii)	Representative of PIU	Secretary
iii)	Representative of Supervision Consultant	Member
iv)	Representative of Contractor	Member
v)	A community member/religious leader	Member
vi)	Woman representative from the local community	Member

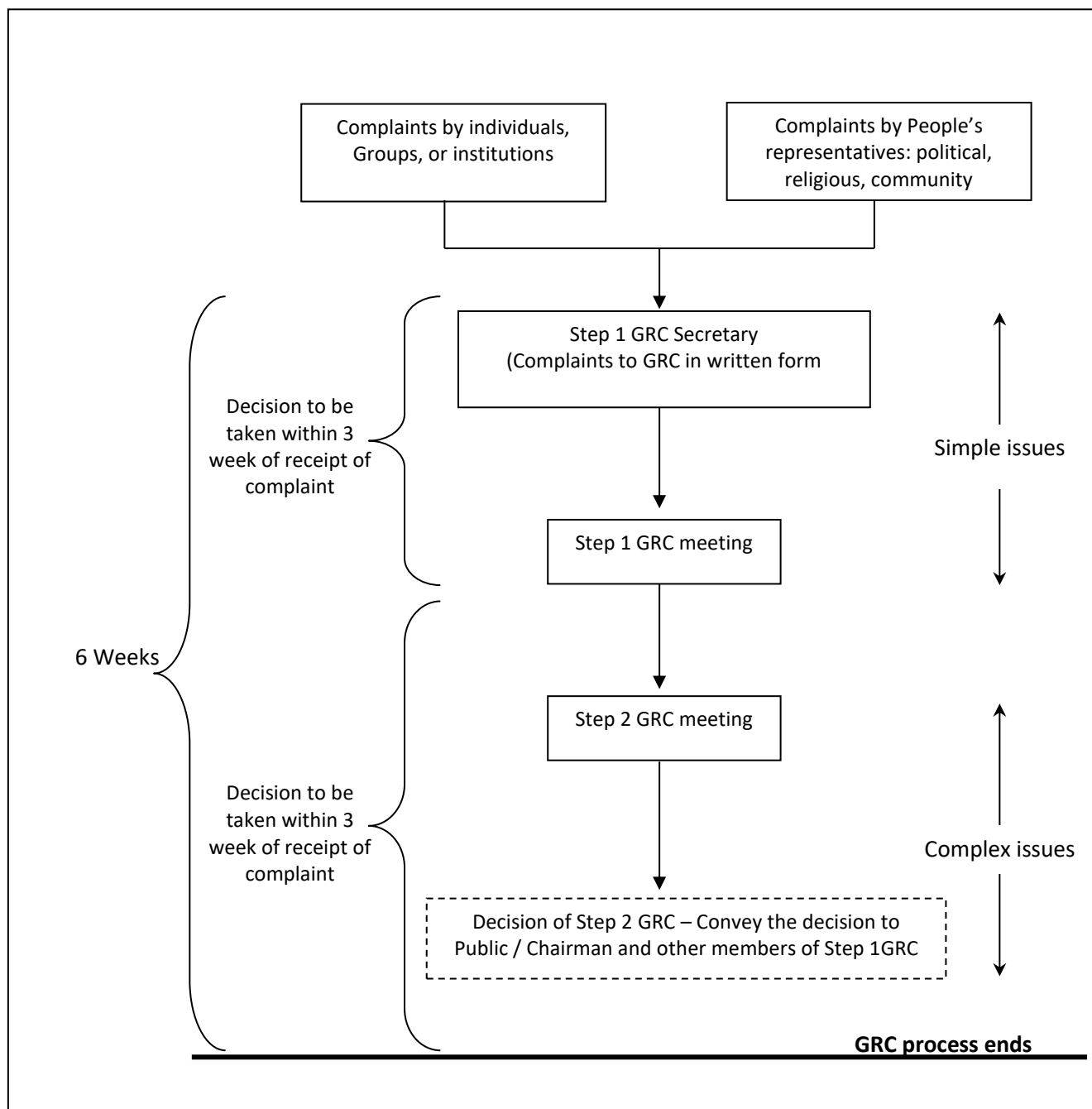
134. At the DS Level GRC members will be:

i)	Divisional Secretary of the area	Chairman
ii)	Representative of PIU	Secretary
iii)	Grama Niladhari	Member
iv)	Representative of Supervision Consultant	Member
v)	Representative of Contractor	Member
vi)	Representative of a social organization (NGO/CBO) of the area	Member
vii)	A community member/religious leader	Member
viii)	Woman representative from the local community	Member

135. To make the GRM process gender responsive the GRC will include one woman member to represent the local community women. Further when grievances or complaints are submitted to the GRC, both women and men complainants will be treated equally and necessary measures will be taken to address the grievance in the best way possible.

136. Recommended steps with timeline on the operation of the GRM is provided in figure 7.1. Contact details of persons of PIU, PIC and contractor shall be displayed in project information display board that will be placed at the project site.

Figure 7.1 GRM process



## **8. Institutional Requirements and Environmental Management Plan**

### **8.1. Institutional Arrangements**

137. Ministry of Higher Education and Highways is the Executing Agency for the program and the secretary to the ministry will be responsible for decisions on overall approvals and operational policies of the project. RDA will be the Implementing Agency. Within RDA two options shall be considered in implementing the RMC package. The first option shall be to manage the RMC packages through the existing Project Coordinating-Project Implementing Unit (PIU) at RDA head office. This PIU is headed by a Project Director (PD) with a staff on engineering, administrative, environment and social safeguards. The environment and social safeguard staff is operational within the Environment and social Unit (ESU) within the PIU. This ESU is guided and assisted by the Environmental and Social Development Division (ESDD) of RDA which is responsible for overall environment and social safeguards compliance of all road projects under RDA. The second option shall be to establish a separate PIU who will be responsible for carrying out Road Maintenance Contracts. If such new unit is established within RDA it shall include a PD who will be assisted by a staff of engineers, environment and social safeguards officers and other administrative staff.

138. A Project Implementing Consultant shall be appointed to assist the PIU (existing or new) who will be responsible to review and approve designs prepared by contractor, supervise civil works of contractor and review and certify bills submitted by contractor. A team of experts including engineers, quantity surveyors, environment and social experts will be working in the PIC headed by a Team Leader (TL).

139. Safeguard team of PIU, PIC and the contractor/s are primarily responsible for safeguards compliance of all activities carried out for rehabilitation, improvement and maintenance of the selected roads under RMC package in Galle district. Specific roles and responsibilities of PIU, PIC and contractors are discussed in chapter VI of the EARF.

### **8.2. Environmental Management Plan and Monitoring**

140. EARF as well as the Environmental Safeguards Manual of RDA, outlines the requirements for an Environmental Management Plan (EMP) which is presented as a matrix developed based on best practices for environmental management and performance indicators. Annex 8.1 of this IEER presents the EMP developed for proposed rehabilitation, improvement and maintenance works for the road sections selected under RMC package for Galle district.

141. It is expected that all bidders for the project shall read this EMP and price for proposed mitigation actions in preparing their respective bids. Further the nominated contractor shall develop a Site Specific Environmental Management Action Plan (SSEMAP) based on this EMP. The SSEMAP shall clearly include site specific impacts with respective location information and mitigation measures proposed. The SSEMAP shall be supported by site plans in which proposed mitigation measures are presented. Separate SSEMAPs shall be prepared if the road sections of RMC package in Galle district are contractually subdivided.

142. The SSEMAP shall be reviewed and approved by PIC before implementation of major civil works under rehabilitation and improvement. Contractor/s shall hold the responsibility of implementing the SSEMAP while PIC and ESU of PIU shall monitor the overall efficiency of implementing the SSEMAP. ESDD is also responsible for monitoring of implementation of the SSEMAP bi-annually. ESDD shall assist PIU in meeting safeguards compliance and will conduct training sessions to the safeguards staff of PIU, PIC and contractor/s on safeguards considerations of iRoad.

143. In order to achieve the required targets a staff of environment and social aspects shall be appointed as follows and shall be operational on a full-time basis throughout the seven year time period (i.e. two years construction and five years maintenance);

- ESU of PIU shall include an Environmental Safeguards Officer (ESO), Social Safeguards Officer (SSO), two Environment and Social Safeguards Assistants (ESSA).
- PIC shall include one Environmental Specialist (ES) and one Social/ Gender and Resettlement Specialist (SGRS).
- Contractor/s shall include one Environmental Officer (EO), one Social Officer (SO) and one Safety Officer (SfO).

144. The contractor shall updated or modify the SSEMAP based on new site conditions. Further to the SSEMAP the contractor/s shall complete Environmental Monitoring Checklists (EMCs) as specified in the EARF (chapter VII). Sample EMC is annexed in annex 8.1. These EMC shall be prepared before commencement of civil works, at 25%, 50%, 75% and 100% completion of civil works. An EMC shall also be completed once per year during maintenance period of the RMC package. The completed EMCs shall be submitted to PIC for review and approval. The PIC shall have the responsibility of maintaining the approved copies of SSEMAPs, EMCs and relevant approvals and licences submitted by contractor/s.

145. The contractor shall submit a summary report on monthly activities carried out in terms of environment and social safeguards which include (but not limited to); summary of the weather condition; key construction activities carried out; environmental impacts observed during the reporting period and mitigation measures taken with their effectiveness; summary of approvals/ licences related to asphalt plant, concrete batch mixing plants, quarry and burrow sites, crusher plants, disposal sites, etc.; No. of public suggestions, requests and complaints received and summary of actions taken to address these grievances. Based on these monthly reports, site visit observations and instructions given at site by PIU and PIC, the PIC shall prepare an annual environmental monitoring report and submit to ADB through PIU (RDA). This annual report shall be reviewed by ESDD before submission to ADB. This monitoring report shall be disclosed in ADB web as well as the iRoad web maintained at RDA.

## 9. Conclusion and Recommendations

146. The rural road component of the Integrated Road Investment Program is now operational in five provinces and one district in Sri Lanka. The positive effect of improved connectivity between rural villages and socioeconomic centres is already observed in the rural road component. The second component under iRoad program is to rehabilitate, improve and maintain a selected set of national roads under RMC packages. Nine road sections in Galle district which makes up an efficient road link between Thawalama and Galle have been selected under Galle District RMC package.

147. The guidelines given in the EARF for iRoad program requires an IEER with an EMP. This IEER serves this purpose and is an updated version of the original IEER developed in year 2014 during SAPE works for both rural and national roads in Southern Province.

148. Out of the nine road sections selected only two will have full rehabilitation and improvement works. Once these works are completed these two road sections along with other seven road sections will go through a maintenance period of five years. Any civil works or maintenance works under this package shall only be carried out within the available right of way, and no major works that would have significant adverse impacts on physical, biological or social environments are not envisaged under this project.

149. However an environmental management plan has been developed based on the possible activities and impacts that would arise during implementation of the project. The contractor/s based on this EMP shall develop a site specific environmental management action plan and implement during all stages of the project. The PIU and PIC shall closely monitor this implementation program and assist the contractor/s to rectify any unsatisfactory or non-compliance situation with respect to environmental safeguards.

150. Even though there will be no major construction activities involved, it is still important to establish the Grievance Redress Committees before commencement of civil works.

151. Finally this project shall bring about the completion of the scope of iRoad program in Southern province as it will help in establishing an efficient road based link between rural villages between Thawalama and Galle. As revealed in the socioeconomic analysis the public welcome this project as a positive factor in economic development.

# Annex 1-1

## REA Checklist and Environment Checklist

**ENVIRONMENT AND SOCIAL DIVISION (ESD), ROADS DEVELOPMENT AUTHORITY**  
Rapid Environmental Assessment (REA) Checklist and Project Classification <sup>1/</sup>

**Instructions:**

- ☐ This checklist is to be prepared to support the environmental classification of a project
- ☐ This checklist is to be completed by the Environment Officer of the ESD of RDA.
- ☐ This checklist focuses on environmental issues and concerns. To ensure that social dimensions are adequately considered, refer also to checklists and guidelines on (i) involuntary resettlement, (ii) indigenous peoples planning, (iii) poverty reduction, (iv) participation, and (v) gender and development.
- ☐ Answer the questions assuming the “without mitigation” case. The purpose is to identify potential impacts. Use the “remarks” section to discuss any anticipated mitigation measures.

**Project Name:**

Integrated Road Investment Program (iRoad)

**Subproject Name:**

Road Maintenance Contract (RMC) Package – Galle roads  
(Karapitiya – Labuduwa, Labuduwa – Thalagaha, Thalagaha – Wanduramba (B248 road), Wanduramba – Yatalamatta – Nagoda (B454 road), Nagoda – Gonadeniya (B303 road), Gonadeniya – Udugama (bar junction) (B139 road), Udugama bar junction to bus stand (B129 road), Udugama bus stand – Hiniduma B429 road), Hiniduma - Thawalama (B159 road)

**Subproject Location:**

Southern Province, Galle District

SCREENING QUESTIONS	Yes	No	REMARKS
<b>A. Project Siting</b>			
Is the Project area adjacent to or within any of the following environmentally sensitive areas?			
▪ Cultural heritage site		X	
▪ Protected Area	X		Kannaliya Forest Reserve (FR). Road improvement works limited to existing ROW.
▪ Wetland		X	
▪ Mangrove		X	
▪ Estuarine		X	
▪ Buffer zone of protected area		X	No buffer zone is designated to Kannaliya FR
▪ Special area for protecting biodiversity		X	
<b>B. Potential Environmental Impacts</b>			
Will the Project cause...			

**ENVIRONMENT AND SOCIAL DIVISION (ESD), ROADS DEVELOPMENT AUTHORITY**  
Rapid Environmental Assessment (REA) Checklist and Project Classification <sup>1/</sup>

SCREENING QUESTIONS	Yes	No	REMARKS
▪ encroachment on historical/cultural areas; disfiguration of landscape by road embankments, cuts, fills, and quarries?		X	
▪ encroachment on precious ecology (e.g. sensitive or protected areas)?		X	Road improvement works limited to existing ROW.
▪ alteration of surface water hydrology of waterways crossed by roads, resulting in increased sediment in streams affected by increased soil erosion at construction site?		X	
▪ deterioration of surface water quality due to silt runoff and sanitary wastes from worker-based camps and chemicals used in construction?		X	
▪ increased local air pollution due to rock crushing, cutting and filling works, and chemicals from asphalt processing?		X	
▪ noise and vibration due to blasting and other civil works?  ▪ dislocation or involuntary resettlement of people		X	
▪ other social concerns relating to inconveniences in living conditions in the project areas that may trigger cases of upper respiratory problems and stress?		X	
▪ hazardous driving conditions where construction interferes with pre-existing roads?		X	
▪ poor sanitation and solid waste disposal in construction camps and work sites, and possible transmission of communicable diseases from workers to local populations?		X	
▪ creation of temporary breeding habitats for mosquito vectors of disease?			
▪ dislocation and compulsory resettlement of people living in right-of-way?		X	
▪ accident risks associated with increased vehicular traffic, leading to accidental spills of toxic materials and loss of life?	X		
▪ increased noise and air pollution resulting from traffic volume?		X	
▪ increased risk of water pollution from oil, grease and fuel spills, and other materials from vehicles using the road?		X	

Proposed Environmental Classification:

A

B

X

## Environmental Checklist

Road Name: RMC Package roads in Galle district (None road sections)

GNDs: Welipetha, Ambagahawatta, Akmeemana, Ihalagoda west, Ambagahavila, Niyagama, Thalagasyaya, Meda Keembiya east, Meda Keembiya, Pitiharawa, Deiyandara, Panvila, Wanduramba south, Wanduramba, Gulugahakanda, Urala central, Urala south, Yatalamatta west, Urala east, Yatalamatta east, Keppetiyagoda, Nagoda, Kurupanuwa, Gonadeniya, Gonadeniya south, Ukovita north, Ukovita, Udugama, Homadola, Udugama west, Udugama north, Gallandala, Koralegama, Panangala east, Panangala north, Malhathawa, Hiniduma south, Hiniduma north, Batahena, Thawalama north

DSD Name/s: Galle Four Gravets, Bope-Poddala, Akmeemana, Baddegama, Nagoda, Thawalama

District Name: Galle

Total Length of the Road: 51.92 km (total length of nine road sections)

### A. Climatic Conditions

Temperature	High:30°C      Low:24°C
Humidity	High:80%      Low:65%
Rainfall Rainy Season	> 2,800 mm/year Throughout the year with no clear dry spell Prominent rainfall season is South-west monsoon, from: Mid May to September

### B. Location of the Road and Generic description of Environment

No.	Type of Ecosystem	Yes	No	Explanation
1.	Type of Terrain (Plain/ Undulating/ Hilly/ Mountainous etc.) (Explain the topography of the area and how many km of the road are located in the hilly area)			Altitude: < 400 m above MSL, with plain to undulating and rolling to hilly terrain
2.	Forest Area / Mangrove / Other natural habitats (Explain whether the road passes through forest areas or located along the forest areas and distance from shoulder to the forest area)?			Type of Vegetation: Low country wet zone forest  Legal Status of the Forest Area: (Reserved, National Park, Sanctuaries, Unclassified, etc.) Kannaliya Forest Reserve is close to the project area.
3.	Inhabited Area	X		
4.	Agricultural Land	X		
5.	Barren Land	X		

### C. Specific description of the Road Environment

(Note: Questions number 1, 4, 5, 7 and 8 must be answered after discussions with the local community people)

No	Parameter/ Component	Yes	No	Explanation
1	Are there any areas with landslide or erosion problems along the road? (If yes, indicate the location whether Right or Left side and the chainage)		X	( X ) No Secondary Information is available and Local Community is not aware of this matter.
2	Are there any Tanks/streams /rivers etc. along/crossing the road or any lakes/swamps beside the road? (If yes, list them indicating the location Right/ Left or crossing and the chainage)	X		Gin Ganaga (river) is the main surface water body located close to this route. The river runs parallel to the road between Udugama through Hiniduma up to Thawalama
3	Is the area along the project road prone to flooding or any problems of water stagnation and other drainage issues? (If yes, mention chainage, flood level and frequency)	X		The road section close to Thawalama Divisional Secretary Office is prone to floods.  ( ) No Secondary Information is available and Local Community is not aware of this matter.
4	Are there any trees with a dbh of 30 cm or more within 10 m on either side from the centre line of the road alignment? (If yes attach list of trees indicating the location (Right or Left side)and the chainage)	X		Tree list attached as an annexure of the main report.
5	Along the road and within 100 m of the road shoulder, are there any Faunal habitat areas, Faunal breeding ground, bird migration area, or other similar areas? (If yes, specify details of habitat with chainage)		X	( ) No Secondary Information is available and Local Community is not aware of this matter.
6	Along the road and within 100m of the road shoulder is there any evidence of Flora and Fauna species that		X	

No	Parameter/ Component	Yes	No	Explanation
.	are classified as endangered species?			( X ) No Secondary Information Available and Local Community is not aware of this matter.
7	Are there any utility structures <sup>1</sup> within 10 m on either side from the centre line of the road alignment? (If yes, attach list with chainage)	X		
8	Are there any religious, cultural or community structures/buildings <sup>9</sup> within 50 m on either side from the centre line of the road alignment? (If yes attach list with chainage)	X		

#### D. Public Consultation

No.	Consultation Activities	Yes	No	Remarks
1.	Consultation with local community was conducted before finalizing the alignment. (Attach list of people met and dates)	X		
2.	Any suggestion received in finalizing the alignment			This project does not envisage any major shift in alignment
3.	If suggestions received, were they incorporated into the design?			This project does not envisage any major shift in alignment

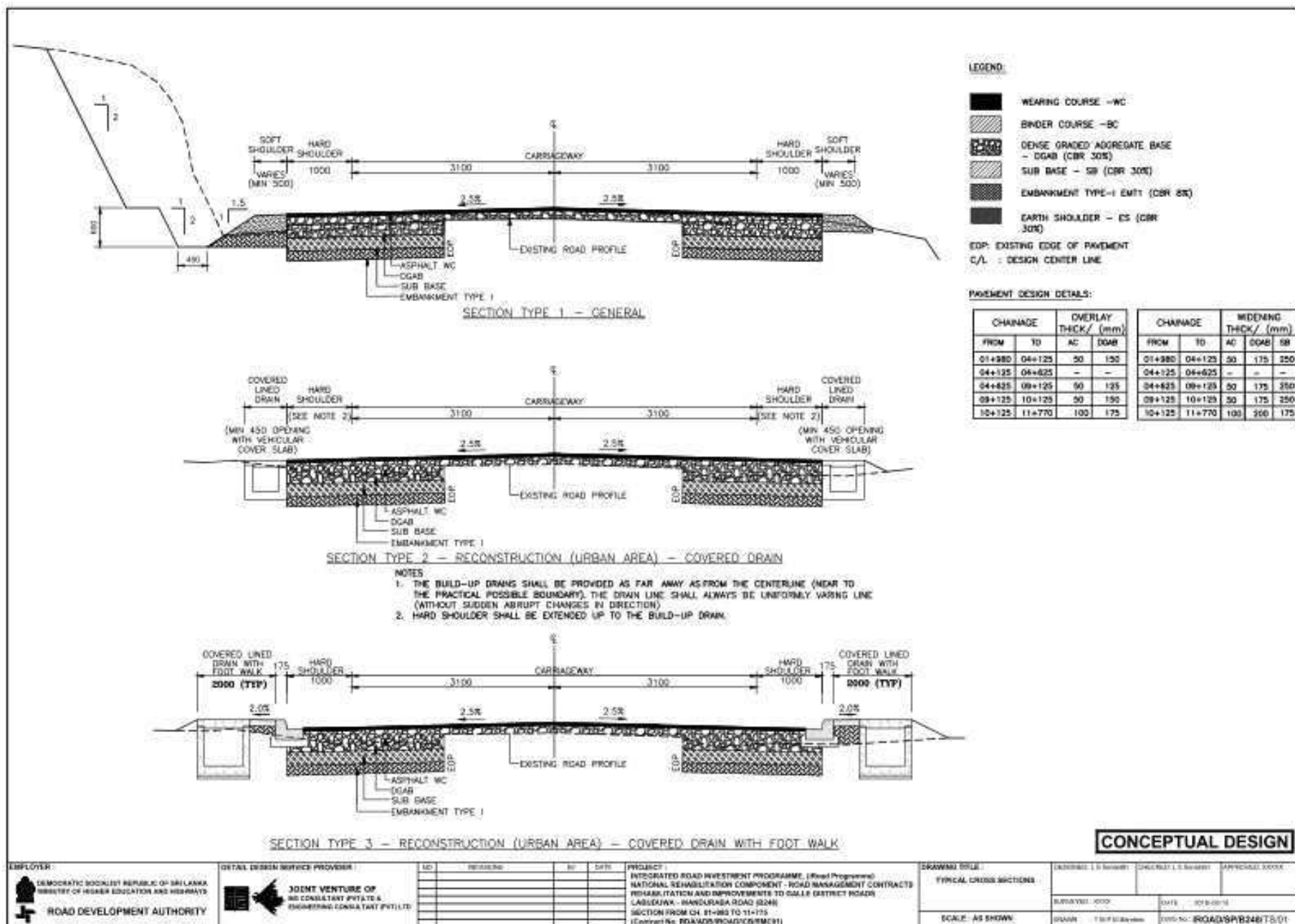
Note: Some of the information are included in the main report and annexes to the main report.

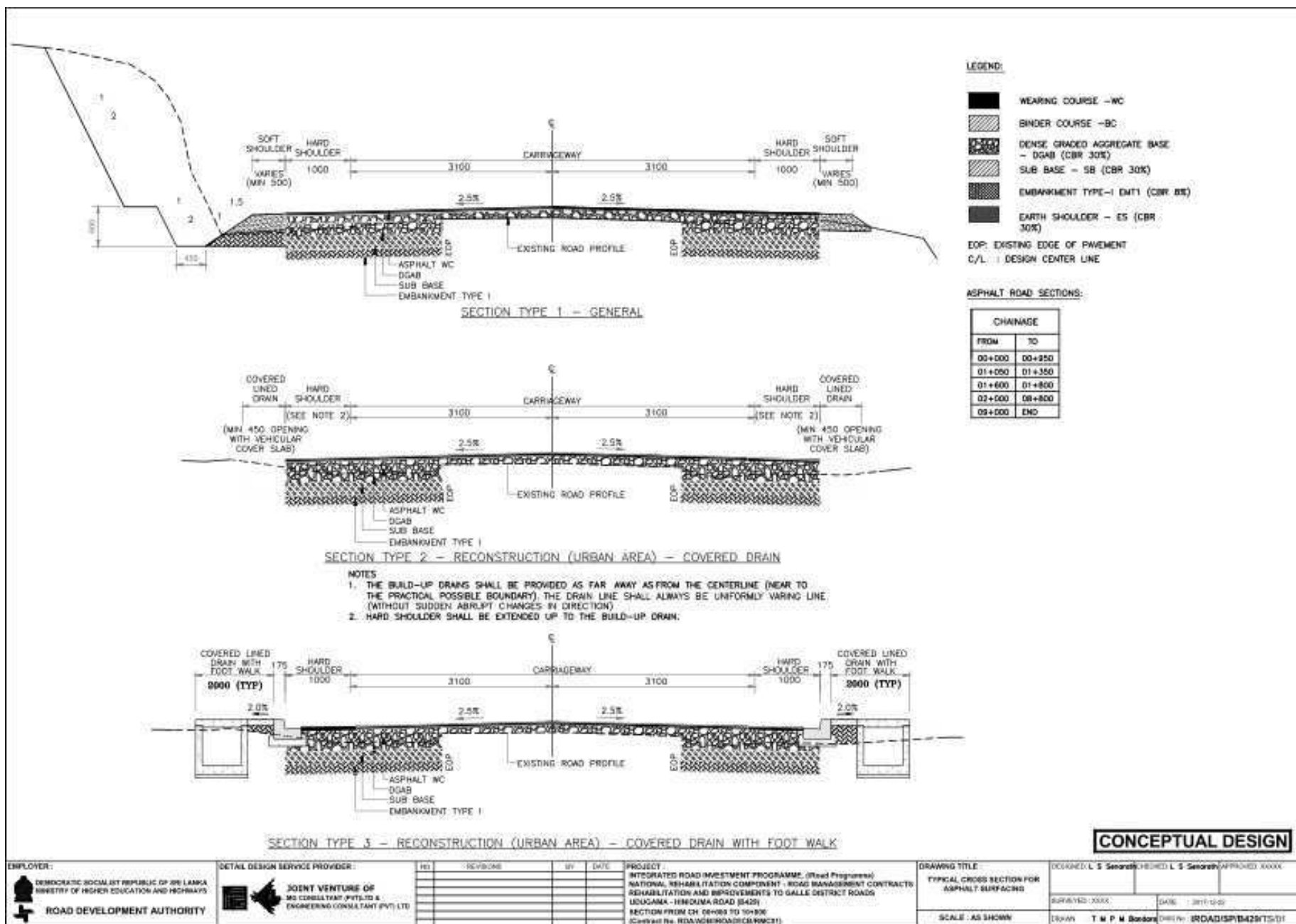
---

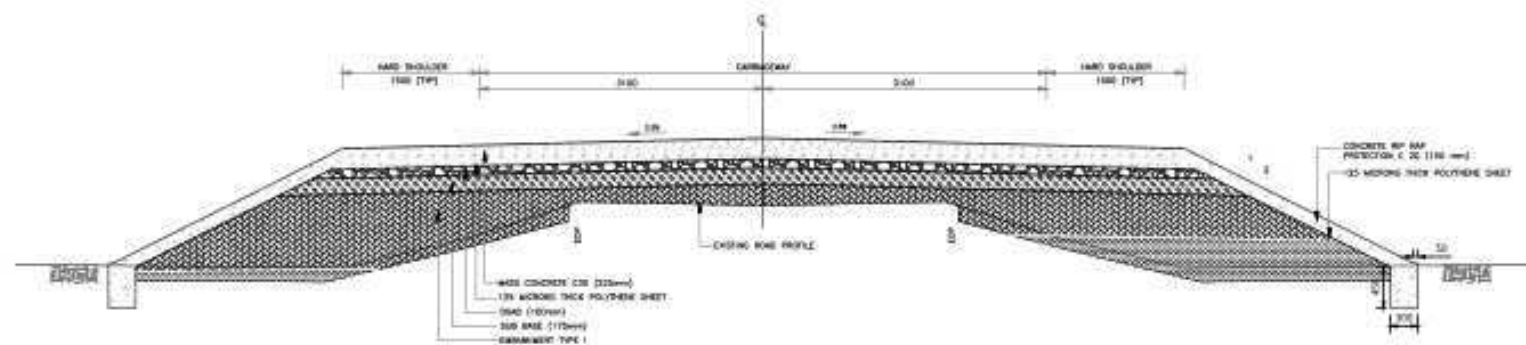
<sup>1</sup> Water tap, hand pump, electric pole, telephone pole, pipe lines and other similar structures

# Annex 3-1

## Typical cross sections









SECTION TYPE 4 - PROTECTION WITH CONCRETE RIP RAP

CHAINAGE	
FROM	TO
00+050	01+050
01+350	01+800
01+800	02+000
08+800	09+000

NOTES :-

1. ALL DIMENSION ARE IN MILLIMETERS UNLESS NOTED OTHERWISE.
2. CONTRACTION JOINT FOR RIP RAP TO BE PROVIDED IN EVERY 3 m INTERVAL USING 10 mm REFORM.
3. UP STREAM PROTECTION MAY BE NEEDED WITH CONSIDERING FLOW VELOCITY AT FLOODING AND DRAIN DOWN CONDITION.

CONCEPTUAL DESIGN

<div><div> DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA MINISTRY OF RESEARCH EDUCATION AND HIGHWAYS ROAD DEVELOPMENT AUTHORITY</div></div>	<div><div> JOINT VENTURE OF ENGINEERING CONSULTANT (PVT) LTD</div></div>	<table><tr><th>NO</th><th>REVISION</th><th>BY</th><th>DATE</th></tr><tr><td> </td><td> </td><td> </td><td> </td></tr><tr><td> </td><td> </td><td> </td><td> </td></tr><tr><td> </td><td> </td><td> </td><td> </td></tr><tr><td> </td><td> </td><td> </td><td> </td></tr><tr><td> </td><td> </td><td> </td><td> </td></tr></table>	NO	REVISION	BY	DATE																					<div>PROJECT : INTEGRATED ROAD INVESTMENT PROGRAMME (Road Programme) NATIONAL REHABILITATION COMPONENT - ROAD MANAGEMENT CONTRACTS REHABILITATION AND IMPROVEMENTS TO GALLE DISTRICT ROADS UDUGAMA - HENDUMA ROAD (B429) SECTION FROM CH: 08+000 TO 18+000 (Contract No. RD/AGDR/ROAD/08/08/001)</div>	<div>DRAWING TITLE : TYPICAL CROSS SECTION FOR PROTECTION WITH CONCRETE RIP RAP</div>	<table><tr><td>DESIGNED: L. S. Senarath</td><td>CHECKED: L. S. Senarath</td><td>APPROVED: XXXXX</td></tr><tr><td>SUPERSEDED: XXXX</td><td>DATE: 2019-12-21</td><td> </td></tr><tr><td>DRAWN: T. M. P. M. Seneviratne</td><td>DWG NO: ROAD/SP/B429/TS/02</td><td> </td></tr></table>	DESIGNED: L. S. Senarath	CHECKED: L. S. Senarath	APPROVED: XXXXX	SUPERSEDED: XXXX	DATE: 2019-12-21		DRAWN: T. M. P. M. Seneviratne	DWG NO: ROAD/SP/B429/TS/02	
NO	REVISION	BY	DATE																																			
DESIGNED: L. S. Senarath	CHECKED: L. S. Senarath	APPROVED: XXXXX																																				
SUPERSEDED: XXXX	DATE: 2019-12-21																																					
DRAWN: T. M. P. M. Seneviratne	DWG NO: ROAD/SP/B429/TS/02																																					



## Annex 3-2

### Map of potential sites for material extraction

## Potential material sites

RMC package Galle district

### Legend

- Feature 4  
Hospital  
Porwai Muhiyadeen Masjid  
Sites

Google Earth

Image © 2018 CNES / Airbus  
Image © 2018 DigitalGlobe  
© 2018 Google

N

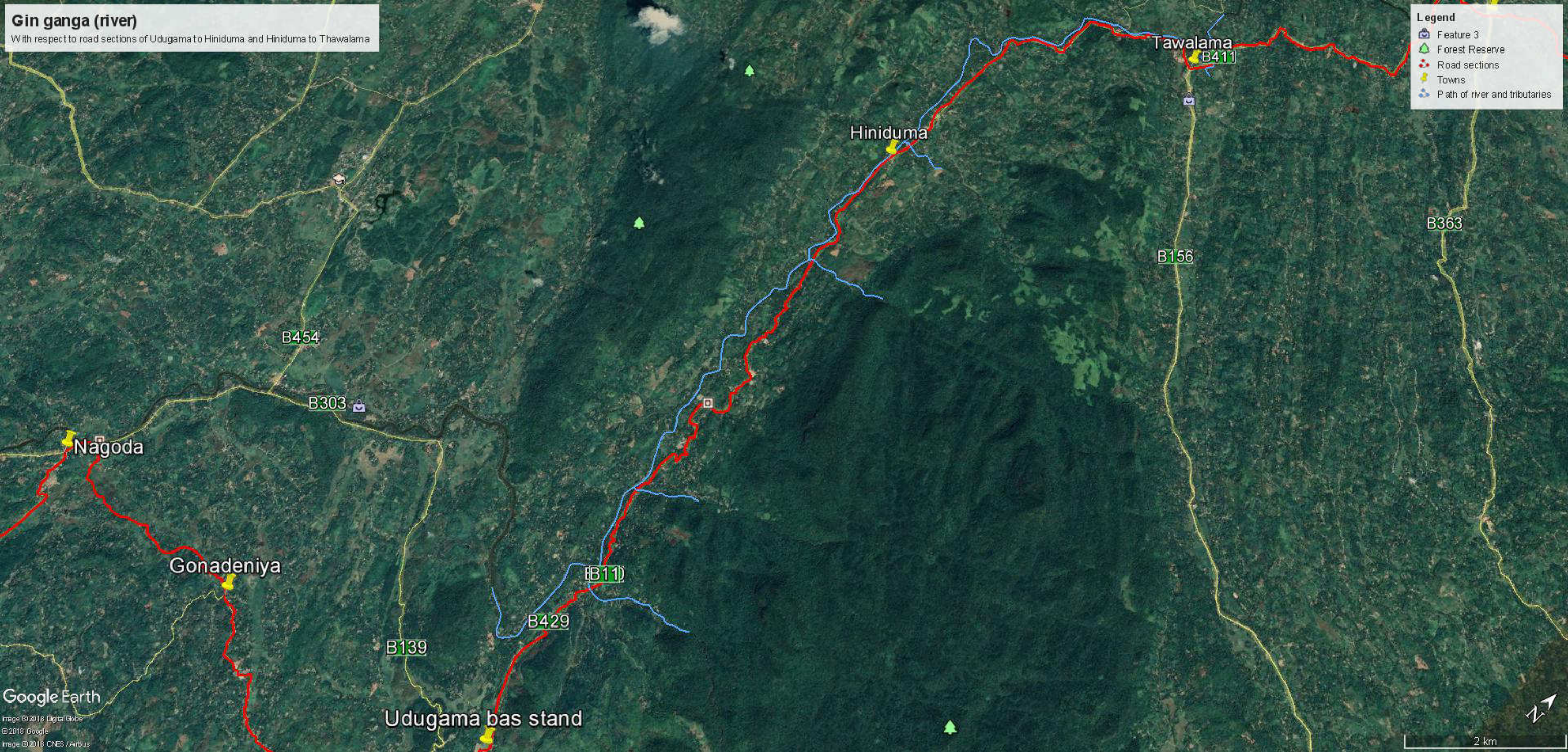
## Annex 4-1

Location of Gin Ganga (river)  
with respect to road section  
from Udugama to  
Thawalama

**Gin ganga (river)**  
With respect to road sections of Udugama to Hiniduma and Hiniduma to Thawalama

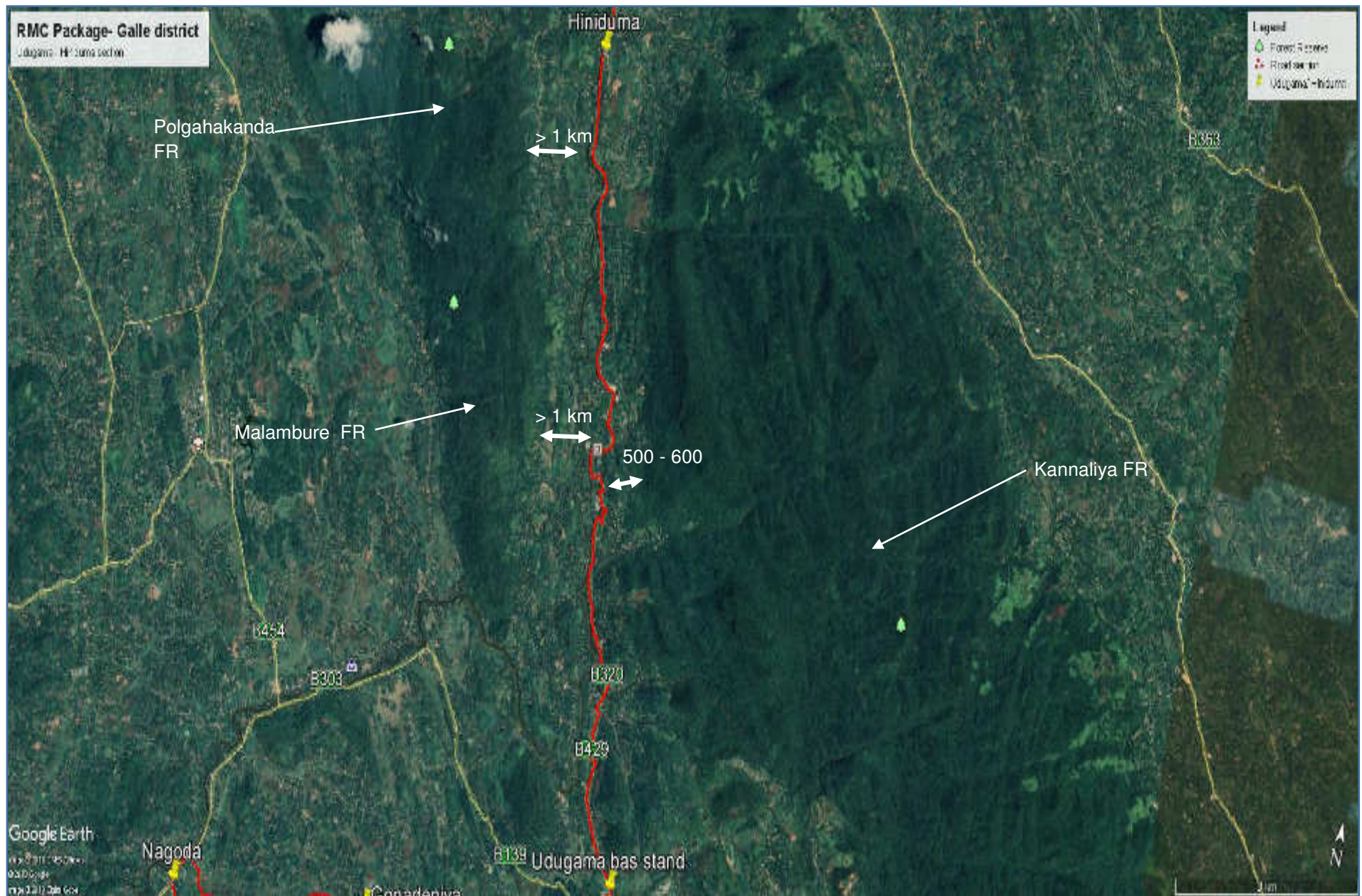
**Legend**

- Feature 3
- Forest Reserve
- Road sections
- Towns
- Path of river and tributaries



## Annex 4-2

Location of forest reserves  
with respect to road sections  
from Udugama to Hiniduma



## Annex 4-3

### List of common tree species observed

## List of common tree species observed along the route

Scientific name	Common name	
	English	Sinhala
<i>Samanea saman</i>	Rain tree	Pare Mara
<i>Alstonia macrophylla</i>	Alstoniya	Attoniya
<i>Albizia</i>		Mara (Sp)
<i>Mangifera indica</i>	Mango	Amba
<i>Terminalia catappa</i>	Tropical-almond	Kottamba
<i>Delonix regia</i>	Royal poinciana	May Mara
<i>Caryota urens</i>	Fish Tail Palm	Kithul
<i>Azadirachta indica</i>	Neem	Kohomba
<i>Terminalia catappa</i>	tropical-almond	Kottamba
<i>Syzygium aqueum</i>	Rose apple	Jumbo
<i>Ficus religiosa</i>	Bodhi Tree	Bo tree
<i>Cassia Fistula</i>	Golden Shower Tree	Ahala (introduced)
<i>Alstonia macrophylla</i>	Alstoniya	Attoniya
<i>Dillenia retusa</i>		Godapara
<i>Spondias Dulcis</i>	June plum	Ambaralla
<i>Artocarpus</i> Sp	Jack Fruit	Kos
<i>Calophyllum inophyllum</i>	Alexandrian Laurel	Dhomba
<i>Wissadula periplocifolia</i>		Kaju
<i>Cocos nucifera</i>	Coconut	Pol
<i>Areca catechu</i>	Areca nut	Puwak
<i>Caryota urens</i>	Fish Tail Palm	Kithul
<i>Artocarpus altilis</i>		Kos-Del
<i>Alstonia scholaris</i>		Rukattana
<i>Sandoricum koetjape</i>		Donga
<i>Terminalia catappa</i>	tropical-almond	Kottamba
<i>Alstonia scholaris</i>		Rukattana
<i>Artocarpus altilis</i>		Kos-Del
<i>polyalthia longifolia</i>		Willo
<i>Alstonia scholaris</i>		Rukattana
<i>Ceiba pentandra</i> var <i>pentandra</i>	Kapok Tree	Pulun-imbul
<i>Schleichera oleosa</i>	Ceylon Oak	Kon
<i>Hevea brasiliensis</i>		Rubber
<i>Filicium decipiens</i>	Japanese fern tree	Pihimbiya
<i>Areca catechu</i>	Areca nut	Puwak
<i>Lannea coromandelica</i>	Indian Ash Tree	Hik
<i>Ceiba pentandra</i> var <i>pentandra</i>	Kapok Tree	Pulun-imbul
<i>Camellia sinensis</i>		Tea

<i>Musa spp.</i>	<i>Kesel</i>	Banana
------------------	--------------	--------

# Annex 5-1

## Common guide to open and operate disposal sites

## Guide note

### Opening and operation of sites for disposal of excavated (spoil) material in iRoad program.

#### 1.0 Introduction

Debris of plant material and soil that are generated through clearing and grubbing works, unsuitable material from excavations and scarified material of existing road surfaces (including macadam and concrete) are some of the rejected material that would be generated during road works. These material needs to be disposed in proper order avoiding or minimizing the adverse impacts to the environment including social environment.

Paragraph 24 of EARF states “**proper disposal of construction debris**” as means of mitigation measure to avoid/ minimize impact on local environment. Item No. 1 on the guidelines given with CEA concurrence for each province is also on land filling and disposal of spoil. Therefore disposal of construction debris should be done in a planned manner and this note is to guide relevant PIU, PIC and contractor staff in opening and operating of disposal sites.

***It is required that this procedure is duly followed and recorded by relevant PIU, PIC and contractor staff (i.e. ESO of PIU, ES of PIC, PM and EO of contractors).***

#### 2.0 Sections in EARF and CEA concurrence relevant to disposal of construction debris.

##### 2.1. Environmental Assessment Review Framework

2.1.1. Table 3. Applicable approvals required for the investment program

Construction stage	Consent from relevant government agencies	Construction of bridges, culverts and other drainage systems, <u>land filling, dredging activities</u>	Department of Irrigation, <u>Department of Agrarian services, Local government authority, Land Reclamation and Development Cooperation</u>
--------------------	---	--	--

*Note: Extracted from page 7 of EARF.*

2.1.2. Under section III on “Anticipated Environmental Impacts” (paragraph 24)

“ During the construction phase activities such as removal and re-establishment of public utilities; removal of road side trees; mining of gravel and sand; quarrying of metal; transportation of construction materials; disposal of construction waste; establishment of construction material processing plants, storage yards, labour camps, vehicles and equipment service yards and other facilities will have to be implemented. These activities can cause several negative impacts on the local environment in the form of air pollution, water pollution, generation of noise, soil erosion, generation of solid waste, loss of vegetation and aesthetic beauty and safety issues as people and vehicles will still be using the roads during construction. Mitigation measures that will be implemented to address these issues will include but not be limited to: wet spraying to control dust; limiting working hours to minimize disturbance; regular maintenance of construction vehicles and equipment;

proper disposal of construction debris; maintenance of proper hygiene and safety standards and facilities in the camps and working areas; development and implementation of erosion control and silt management measures, compensatory afforestation and enforcement of road safety measures for local people and traffic.”

## 2. CEA concurrence letter with attachment on proposed guidelines

### GUIDELINES



#### 1. LAND FILLING/ SPOIL DISPOSAL

- 1..1 If the project activities involve in reclamation of paddy lands prior approval should be obtained from the Agrarian Development Department.
- 1..2 Excavated material, excess top soil or material generated due to demolishing of structures should not be disposed at road sides or into water ways or at a site where it is likely to enter a water body. These materials shall be stockpiled at suitable locations and removed from the site to suitable disposal grounds/landfill sites in nuisance free manner.
- 1..3 Suitable disposal grounds/land fill sites should be identified and approval should be obtained from the relevant Local Authority and other relevant authorities before commencing any kind of clearing activity.
- 1..4 Loading and unloading of materials such as soil, boulders etc. should be restricted to the time between 6.00hrs to 22.00 hrs. only.

### 3.0 Opening and operating a disposal site

Opening and operating disposal site/s will be a responsibility of the contractor. Considering the magnitude of operations there can be two types of disposal sites;

1. Small scale sites where a front end of a housing lot, garden or a small house foundation be filled with few truckloads (**Not more than a total of 5 - 10 truckloads**) of disposed spoil (including soil).
2. Large scale sites are considered as sites other than front end of a housing lot, garden or a small house foundation where much greater quantities of spoil material could be disposed.

#### 3.1 Steps to follow in obtaining concurrence and approval

Regardless of type of site the responsibility of identification of potential sites is with the **Contractor**. As soon a site has been identified following steps should be strictly followed;

### ***Step No. 1: Obtaining concurrence from ES of PIC***

PM with assistance from EO of contractor should submit details on location (including information on any environmental and social sensitivity), present land occupant's details with a letter/ note stating his willingness to accept the disposed material.

In order to avoid delays of obtaining the concurrence of ES, the contractor may submit these details through email with location photographs and maps.

ES of PIC should acknowledge the receipt of such information immediately and review the information submitted. ES could call for a site inspection (through support staff of ES) if he/ she is NOT satisfied with the details submitted by contractor.

If ES is satisfied with the information and location he/ she shall give a written concurrence to the contractor to;

- a) *for small scale sites*: obtain certification from GN on the ownership of the proposed site for disposal (with counter certification from DS)
- b) *for large scale sites*: obtain approval from the relevant local authority.

If NOT the ES should inform the contractor in reason why the site is being rejected.

### ***Step No. 2: Obtaining certification from GN and DS or approval from local authority***

With concurrence from ES of PIC the contractor should obtain written certification of the ownership or the occupants claim to the land from relevant GN or approval from local authority, and submit the same to ES/ PIC.

In case of large scale sites the contractor should submit a method statement including following (but not limited to) details;

- Capacity of the site
- Amount of spoil material (including soil) which is intended to dispose at site
- Man and machinery used at site
- Site restoration measures (including any requests made by land owner)

### ***Step No. 3: ES of PIC clearing the site for operations***

Once the certificate from GN (for small sites) or approval from local authority (for large sites) is received by ES of PIC he/ she should give a clearance for operations with any additional measures that he/she thinks required for the site.

**After completion of above steps the contractor could start operations of the disposal site.**

## **4.0 Special considerations in identifying sites for disposal**

The EMP prepared for each province indicates a set of practices in identifying and operating disposal sites. However, as a rule of thumb following locations should be avoided as disposal sites by contractor;

- Lands adjacent to a water body. However if such land is to be selected the contractor should maintain a suitable buffer zone (as instructed by ES) with toe wall and silt traps at identified locations.
- Lands with steep slopes.
- Lands with possibility of landslides (note: this should be site specific and should not be taken as a regional phenomenon).
- Slope lands where structures are located at down side of the slope. If such land is selected the contractor should maintain a buffer zone (as instructed by ES) with toe wall and silt traps at identified locations.
- Paddy fields (as indicated in the guidelines of CEA, prior approval from Agrarian Development Department is required if paddy lands are filled with disposed material).

## 5.0 Soil generated from cutting of embankment/ slopes

Sometimes during cutting of embankments there will be very small quantities of soil generated (less than a truckload). In most of the instances such quantities of soil will be requested by the occupant of the land on which the cutting was carried out. Such request should be granted ONLY if the material is NOT used to fill any sensitive sites such as part of a stream or paddy field. EO of contractor shall see to that no such adverse usage will take place.

## 6.0 Recording and reporting requirements

### 6.1 The contractor

- Submission of details of proposed land to ES/ PIC
- Obtaining GN certification on the land or local authority approval
- Preparation of a method statement
- Maintain all documents related to disposal sites

### 6.2 Project Implementing Consultant (PIC)

- ES to assess the suitability of a given land and give concurrence
- ES to give formal clearance for operation
- ES to share information of **approved sites** with respective REs
- ES to share information of **approved sites** with ESO of PIU
- REs to share information of **approved sites** to field staff
- Field staff (e.g. construction engineers, technical officers, field assistants of ES) to monitor operations at sites

### 6.3 Project Implementing Unit (PIU)

- ESO of PIU to coordinate with ES of PIC in monitoring the disposal sites
- Include a section on disposal sites in the report submitted to ESDD.

## 7.0 Improper disposal of spoil material

Following issues should not appear in any disposal site.

- Disposal of soil without proper demarcation of disposal area.



- Operation of disposal sites without a toe wall or barrier against wash off



- Disposing of spoil near a water body (canal) without proper protection



**8.0 An example of a disposal site operating with land demarcation and toe wall**



End

# Annex 6-1

## Summary of one on one interviews

**Summary of public consultation (One on One interview) for Southern Province Galle district  
(RMC roads) and attendance sheets of FGDs**

District - Galle						
	DSD or GND	Name of Respondent	Age	Sex	Address	Views
1	Thawalama	M.G. Premawathie	50	Female	Batahena, Thawalama	<ul style="list-style-type: none"> <li>• Easy access to Hiniduma hospital</li> <li>• Easy access to fair</li> <li>• Easy access to Thawalama Vidyaraja school and other schools</li> <li>• Easy access to DS office and other public institutions</li> <li>• Convenient to transport tea tender leaves</li> </ul>
2	Thawalama	R.A. Mangalika Jayasekara	37	Female	Kudugalpala, Batahena, Thawalama	<ul style="list-style-type: none"> <li>• Easy transportation for school children, and tea tender leaves</li> <li>• Convenient and quick access to the fair, public institution, Hiniduma hospital etc.</li> <li>• Main deficiency of the village is the road under development</li> </ul>
3	Thawalama	Damith Asanka	24	Male	Kudugalpala, Batahena, Thawalama	<ul style="list-style-type: none"> <li>• Convenient for tea tender leaves transportation</li> <li>• More convenient to reach hospital, public institutions, and the fair where situated at Neluwa an Udugama</li> <li>• Convenient for school vehicles</li> <li>• Could start new business</li> <li>• Increase land values</li> </ul>
4	Thawalama	B.L. Ariyasena	52	Male	Mandala pura iv Piyawara, Thawalama	<ul style="list-style-type: none"> <li>• Convenient for tea transportation vehicles</li> <li>• Convenient to take sick persons to hospitals</li> <li>• Convenient to reach school vehicles to the village</li> <li>• Convenient to reach fair and public institutions</li> </ul>
5	Thawalama	E.G. Padmalatha	52	Female	Mandala pura iv Piyawara, Thawalama	<ul style="list-style-type: none"> <li>• Convenient for tea tender leaves transportation</li> <li>• Easy for school children as well as school service vehicles</li> <li>• More convenient take patients to Hiniduma hospital</li> <li>• Fulfill qualification to request a public transportation from CTB</li> </ul>
6	Thawalama	Danawathie Hewage	58	Female	Habarakada, Elaiura, Thawalama	<ul style="list-style-type: none"> <li>• Easy transportation for school children</li> <li>• Convenient to reach hospitals</li> <li>• Easy for tea tender leaves transportation</li> <li>• Convenient to reach public institutions</li> <li>• Could control migration from village to the town</li> <li>• Increase land prices</li> </ul>
7	Thawalama	M.Sumana	32	Female	Mandala pura iv Piyawara, Thawalama	<ul style="list-style-type: none"> <li>• Easy transportation for school children</li> <li>• Convenient to transport tea tender leaves</li> <li>• Easy to reach Neluwa fair</li> <li>• Easy to take patients to hospitals</li> </ul>
8	Thawalama	H.A. Ishara	28	Female	Ibbawila, Elaihala, Habarakada	<ul style="list-style-type: none"> <li>• Easily to reach Neluwa town</li> <li>• More convenient to reach hospital</li> <li>• Easy transportation for school children and school service vehicles</li> <li>• Easy to transport tea tender leaves</li> <li>• Could easily to reach Neluwa and Batahena weekly fairs</li> </ul>

**Summary of public consultation (One on One interview) for Southern Province Galle district  
(RMC roads) and attendance sheets of FGDs**

District - Galle						
	DSD or GND	Name of Respondent	Age	Sex	Address	Views
9	Thawalama	P.G.Premadasa	57	Male	Mandalapura iv Piyawara, Elaihala	<ul style="list-style-type: none"> <li>• Convenient for tea tender leaves transportation</li> <li>• Easy for school service vehicles and school children</li> <li>• Convenient to hospitals</li> <li>• Convenient to reach public institutions</li> </ul>
10	Thawalama	K.G.Yasawathie	52	Female	Mandalapura, iii Piyawara, Ibbawila	<ul style="list-style-type: none"> <li>• Convenient for school children transportation</li> <li>• Easy to take patients to hospitals</li> <li>• Convenient for tea tender leaves transportation</li> <li>• Easily to reach weekly fairs at Batahena and Neluwa</li> </ul>
11	Thawalama	H.H. Hemawathie	64	Female	Ibbawila, Mandala pura, iii Piyawara	<ul style="list-style-type: none"> <li>• Could request to relevant authorities to have a public transportation on the road</li> <li>• Ability to take school children and patients to schools and hospitals safely</li> <li>• Convenient to transport tea tender leaves</li> </ul>
12	Thawalama	Bandula Padmawathie	42	Female	Mandalapura, iv Piyawara, Ibbawila	<ul style="list-style-type: none"> <li>• Could use this road as a short cut to Thawalama</li> <li>• Convenient for tea tender leaves transportation</li> <li>• School children and school vehicles could reach up to their houses</li> <li>• More convenient to reach weekly fairs at Neluwa and Batahena</li> </ul>
13	Thawalama	S.A. Yasawathie	50	Female	Mandalapura, ii Piyawara, Kalugala	<ul style="list-style-type: none"> <li>• Convenient transportation for school children and school service vehicles</li> <li>• Convenient to transport tea tender leaves</li> <li>• Easy to take sick people to hospitals</li> <li>• More convenient for vehicles transportation</li> <li>• More convenient to reach weekly fairs</li> </ul>
14	Thawalama	Wasantha Wijayakumara	35	Male	Galgodahena, Kalugala, Habarakada, Thawalama	<ul style="list-style-type: none"> <li>• More benefit for tea plantation sector</li> <li>• More convenient for school children</li> <li>• Convenient to take sick people to hospitals</li> <li>• Easy for daily routings</li> </ul>
15	Thawalama	K. Udani Pushakumari	30	Female	Tennewila, Kumburegoda, Thawalama	<ul style="list-style-type: none"> <li>• Convenient for tea tender leaves transportation vehicles</li> <li>• Easy for school children</li> <li>• Convenient to take school children to schools</li> <li>• Easy to reach weekly fairs at Neluwa and Batahena</li> <li>• At present only push bicycles are running on the road</li> <li>• Expect other vehicles more for the road</li> </ul>
16	Thawalama	Y.K. Ariyadasa	70	Male	Habarakada Wathu Yaya, Midiminna, Habarakada	<ul style="list-style-type: none"> <li>• Convenient for tea tender leaves transportation</li> <li>• Convenient for school children</li> <li>• Easy to take sick people to hospitals</li> <li>• Convenient reach weekly fairs</li> <li>• More convenient for bus transportation</li> </ul>

**Summary of public consultation (One on One interview) for Southern Province Galle district  
(RMC roads) and attendance sheets of FGDs**

District - Galle						
	DSD or GND	Name of Respondent	Age	Sex	Address	Views
17	Thawalama	P.H. Rani	67	Female	Kudugalpala, near Hallakanda community Hall,	<ul style="list-style-type: none"> <li>• More convenient to go to Batahena fair</li> <li>• Convenient to transport tea tender leaves</li> <li>• Convenient to take sick people to hospitals</li> <li>• Convenient for school children as well as school service vehicles</li> </ul>
18	Thawalama	M.P.G. Nilanthie	36	Female	Habarakada watta, Midiminna, Thawalama	<ul style="list-style-type: none"> <li>• Convenient for bus service</li> <li>• More convenient for school children and school service vehicles</li> <li>• Convenient for tea tender leaves transportation vehicles</li> <li>• Convenient to reach weekly fair at Batahena</li> <li>• Easy to reach Hiniduma hospital</li> </ul>
19	Thawalama	M.D. Wasanthie Kumari	25	Female	Bulathhena, Thawalama	<ul style="list-style-type: none"> <li>• Easy to fly busses on the road</li> <li>• Could provide more transport facilities for school children</li> <li>• Easy to go to hospitals</li> <li>• Convenient to go to close by towns</li> <li>• Easy to go to hospitals</li> <li>• Convenient for tea tender leaves transportation</li> <li>• Easy to reach Batahena weekly fair</li> </ul>
20	Thawalama	W.G Adwin	62	Male	Halwitigala, i Piyawata	<ul style="list-style-type: none"> <li>• Convenient for tea tender leaves transportation</li> <li>• Convenient for more vehicles</li> <li>• Easy to provide transportation for school children</li> <li>• More convenient to reach Hiniduma hospital</li> <li>• Easy access to Batahena and Neluwa fair</li> </ul>
21	Thawalama	K.P.H. Devika	37	Female	Kirikandeniya, Thawalama	<ul style="list-style-type: none"> <li>• Convenient for tea tender leaves transportation</li> <li>• Patients could reach hospitals easily</li> <li>• More convenient for school children</li> <li>• More convenient for bus service</li> <li>• Easy to reach fairs</li> </ul>
22	Bope - Poddala	C. Kumarasinghe	55	Female	"Indunil", Kithulampitiya	<ul style="list-style-type: none"> <li>• Road widening could reduce accidents</li> </ul>
23	Bope - Poddala	Roshan Gunathilake	40	Male	Arachchiwatta, Kithulampitiya	<ul style="list-style-type: none"> <li>• Road widening is prerequisite</li> <li>• Can reach quickly to the destination</li> <li>• Convenient for school children</li> </ul>
24	Bope - Poddala	N.J. Somalatha	48	female	Arachchiwatta, Navinna road, Kithulampitiya	<ul style="list-style-type: none"> <li>• Convenient transportation</li> <li>• Quick transportation</li> <li>• Minimize traffic jam at school hours. Therefore, school children could reach schools in time</li> </ul>
25	Bope - Poddala	Padmini Silva	48	Female	Beraliya dola, Hapugala	<ul style="list-style-type: none"> <li>• Development of the main road is excellent. However by road development also prerequisite</li> <li>• Due to such development helps to reach town center quick</li> </ul>

**Summary of public consultation (One on One interview) for Southern Province Galle district  
(RMC roads) and attendance sheets of FGDs**

District - Galle						
	DSD or GND	Name of Respondent	Age	Sex	Address	Views
26	Bope - Poddala	N.H. Kamala	52	Female	Mount Pleasant watta, Hapugala, Wakwella	<ul style="list-style-type: none"> <li>• Could increase public bus service and it will helps to convenient transportation</li> </ul>
27	Bope - Poddala	K.J. Saman Kumara	30	Male	Watuwantudawa, Wakwella	<ul style="list-style-type: none"> <li>• From Hapugala junction up to Eriyagaha junction road</li> </ul>
28	Habaraduwa	W. Mahinda Rathna	62	Male	No.20, Jayasumanaram aya, Goviyapana, Ahangama	<ul style="list-style-type: none"> <li>• Land values will be increased</li> <li>• Land development</li> <li>• Town development</li> </ul>
29	Habaraduwa	Sandya Damayanthi	53	Female	Galketiya, Goviyapana, Ahangama	<ul style="list-style-type: none"> <li>• Quick transportation when emergency situation comes such as serious sickness</li> <li>• Quick transportation of agro production to the town center</li> <li>• Increase land price</li> <li>• At present vehicles gets damaged easily</li> </ul>
30	Habaraduwa	Himali Sanjeevitha	32	Female	Gaketiya road, Doowa road, Ahangama	<ul style="list-style-type: none"> <li>• Facilitate vehicle facilities</li> <li>• Convenient for travelling</li> <li>• Increased property values</li> <li>• Reduction of travel time</li> </ul>
31	Habaraduwa	K.G. Kusumawathie	77	Female	Wellagewatta, Pedinnoruwa, Wanchawala	<ul style="list-style-type: none"> <li>• Facilitate transport facilities</li> <li>• Village development</li> <li>• Can extent public transportation from Pttaniya Junction</li> </ul>
32	Habaraduwa	G.G. Monika	41	Female	1A, Diulana, Wanchawala	<ul style="list-style-type: none"> <li>• Facilitate transport facilities</li> <li>• Could save vehicle maintenance cost</li> <li>• Inconvenient travelling for old aged people at existing road</li> <li>• Could reach town center soon</li> <li>• Convenient for school children</li> </ul>
33	Habaraduwa	W.K. Lalnandasiri	52	Male	Egodahawatta, Heenatigala, Thalpe	<ul style="list-style-type: none"> <li>• Increase land price</li> <li>• Village development</li> <li>• Convenient transportation</li> </ul>
34	Habaraduwa	D.G.C. Wijethilake	48	Male	Ambabokka watta, Pitidoowa, Habaradoowa	<ul style="list-style-type: none"> <li>• School development</li> <li>• Increase common infrastructure</li> <li>• Easy to reach Habaradoowa fair</li> <li>• Increase land price</li> <li>• Come up new houses in the area</li> </ul>
35	Habaraduwa	L.H. Nandanee	53	Female	Kurugoda watta, Lanumodara, Habaradoowa	<ul style="list-style-type: none"> <li>• Could reach work places and schools in time</li> <li>• Fulfill daily needs quickly</li> <li>• Area development</li> <li>• Could lead healthy life</li> <li>• Increase land prices</li> </ul>

**Summary of public consultation (One on One interview) for Southern Province Galle district (RMC roads) and attendance sheets of FGDs**

District - Galle						
	DSD or GND	Name of Respondent	Age	Sex	Address	Views
						•
36	Habaraduwa	H.M. Shayama	52	Female	Paluwatta Liyanagoda, Habaradoowa	<ul style="list-style-type: none"> <li>• Easy transportation</li> <li>• Village development</li> <li>• Possibilities to have boarding places for workers at Koggala free trade zone</li> <li>• Increase land prices</li> </ul>
37	Balapitiya (Pattiyapola West)	W.H.G. Chandasena	68	Male	Kandegedara, Pattiyapola West	<ul style="list-style-type: none"> <li>• It is a good suggestion</li> <li>• There were proposals to develop this road. But it was not happened. If this road developed, people could transport their productions to the market in correct time</li> </ul>
38	Balapitiya (Mahapitiya)	E.D. Wickramarathna	-	Male	Godagama, Kosgoda	<ul style="list-style-type: none"> <li>• It will be convenient for transportation</li> </ul>
39	Balapitiya (Mahapitiya)	Somawathie Thabru	-	Female	Godagama, Kosgoda, Mahapitiya	<ul style="list-style-type: none"> <li>• Easy transportation</li> </ul>
40	Balapitiya (Mahapitiya)	Niluka Lakmalee	-	Female	No. 269/A, Godagama, Kosgoda	<ul style="list-style-type: none"> <li>• Difficult to utilize the road during the rainy season</li> <li>• Reduction of travel time after the development</li> </ul>
41	Balapitiya (Katuwila)	Wasanthi Mendis	-	Female	No.33, Hotal Niwasa, Thanahengoda	<ul style="list-style-type: none"> <li>• Convenient transportation for children and women</li> </ul>
42	Balapitiya (Katuwila)	Wasantha Silva	-	Male	Hotal Niwasa, Thanahengoda	<ul style="list-style-type: none"> <li>• Convenient transportation after the road development</li> </ul>
43	Balapitiya (Katuwila)	B. Nirosha	-	Female	Waulugala kele, Waulugala watta, Ahungalla	<ul style="list-style-type: none"> <li>• Easy to transport self employed production up to the market</li> <li>• Decrease mosquito breeding centers after the road development</li> </ul>
44	Balapitiya (Madoowa)	A.P. Gunarathna	-	Male	Madoowa, Balapitiya	<ul style="list-style-type: none"> <li>• Inconvenient transportation at the movement</li> <li>• Decreased difficulties after the road development</li> </ul>
45	Balapitiya (Madoowa)	M. Jayawathie	-	Female	Madoowa, Balapitiya	<ul style="list-style-type: none"> <li>• Convenient transportation for everybody especially to school children and women</li> </ul>
46	Balapitiya (Madoowa)	B. Princy Mani	-	Female	Madoowa, Balapitiya	<ul style="list-style-type: none"> <li>• Convenient for transportation</li> </ul>
47	Elpitiya	Nandanee Pathirage	48	Female	Pinikahana, Kanadoowa	<ul style="list-style-type: none"> <li>• This is the short cut to Baddegama road and to Karapitiya hospital</li> <li>• It is very much use full for school children during the rainy season</li> <li>• It will help to increase business</li> </ul>
48	Elpitiya	R. Chaminda Sampath Kumara	31	Female	Elapahala watta, Pinikahana Kahadoowa	<ul style="list-style-type: none"> <li>• Helps for emergency cases</li> <li>• Short cut to Galle</li> <li>• Possibility to start public transportation</li> </ul>

**Summary of public consultation (One on One interview) for Southern Province Galle district  
(RMC roads) and attendance sheets of FGDs**

District - Galle						
	DSD or GND	Name of Respondent	Age	Sex	Address	Views
49	Elpitiya	Nayana Gurusinghe	40	Female	Puwakdola, Pinikahana, Kaha doowa	<ul style="list-style-type: none"> <li>Facilitate transport facilities nearly 200 school children</li> <li>Easy for tea tender leaves transportation</li> <li>Easy for ladies work in garment sector</li> <li>Short cut to Baddegama, Karapitiya and Galle</li> </ul>
50	Elpitiya	O.K.D. Kamalawathie	62	Female	Dammarama road, Goluwamulla, Ganegoda	<ul style="list-style-type: none"> <li>Patch work is not success and not recommended</li> <li>Short cut to Aluthgama main road</li> <li>Road dilapidation due to heavy vehicle transportation for timber deport could be amended</li> </ul>
51	Elpitiya	J.B.G. Jothipala	61	Male	Mahentenna watta, Goluwamulla, Ganegoda	<ul style="list-style-type: none"> <li>Decrease distance up to 5 kilometers to reach Aluthgama – Elvitiya road</li> <li>Road dilapidation due to metal and timber transportation</li> <li>Very use for tea, rubber and coconut cultivators</li> <li>Easy to take sick people to hospital even in the night time</li> </ul>
52	Elpitiya	L.K.L. Manuri Kushanthi	42	Female	“Jaya Sri”, Goluwamulla, Ganegoda	<ul style="list-style-type: none"> <li>Very difficult to travel during the night time along existing road</li> <li>Nearly 1,000 vehicles are flying on the existing road</li> <li>Easy to facilitate transportation for ladies work at garment factories</li> <li>Convenient transportation for the people who goes to Colombo</li> </ul>
53	Elpitiya	Nanda Kahawevithana	67	Female	Goluwamulla, Ganegoda	<ul style="list-style-type: none"> <li>No public transportation at the existing road</li> <li>Convenient for school children</li> <li>Convenient for works at Ketandola tea factory</li> </ul>
54	Elpitiya	K.P.Y. Malani	47	Male	No.10, Maithrigama, Ganegoda	<ul style="list-style-type: none"> <li>Affected pre schools in the area due to road inundation during the rainy season</li> <li>Short cut to Aluthgama road</li> </ul>
55	Elpitiya	U. Chamara Nuwan	27	Male	No.08, Maithrigama, Ganegama	<ul style="list-style-type: none"> <li>Three vehicles to garment factories runs on the road daily</li> <li>Nearly 175 families live by the side of the road</li> <li>Seven vehicles runs to transport tea tender leaves daily</li> <li>Therefore road development is very important</li> </ul>
56	Elpitiya	G.L. Wimalawathie	70	Female	No.11, Maithrigama Ganegama	<ul style="list-style-type: none"> <li>Re start public transportation which was stopped due to road dilapidation</li> <li>Short cut to Uragama town</li> <li>This is proposed to the entry point for Bentara express way</li> <li>Convenient for ladies work at garment factories</li> </ul>
57	Elpitiya	L.G. Samanthi Dammika	34	Female	Opatha, Ganegoda	<ul style="list-style-type: none"> <li>Reduce the distance to Witigala to Awittawa road from 10 kilometers</li> <li>At present difficult to reach schools during the rainy season</li> <li>Narrow road inconvenient for drivers</li> </ul>
58	Elpitiya	G.W. Anusha	45	Female	Karaheena junction, Ganegama	<ul style="list-style-type: none"> <li>Convenient for the people live in the estate especially for the ladies work in the estate</li> <li>Convenient during the rainy season</li> </ul>
59	Karandeniya	K.D. Gunawathie	66	Female	Kaluwalagoda, Udamagalawatta,	<ul style="list-style-type: none"> <li>Easy for transportation</li> <li>Easy to transport agro and industries production</li> </ul>

**Summary of public consultation (One on One interview) for Southern Province Galle district (RMC roads) and attendance sheets of FGDs**

District - Galle						
	DSD or GND	Name of Respondent	Age	Sex	Address	Views
					Uragasman Handiya	
60	Karandeniya	K.D. Gunawathie	66	Female	Kaluwalagoda, Udamagalawatta, Uragasman Handiya	<ul style="list-style-type: none"> <li>• Easy transportation</li> <li>• Easy to transport agro production and industrial production</li> </ul>
61	Karandeniya	S.H. Ariyawathie	57	Female	Kaluwalagoda, Udamagalawatta, Uragasman Handiya	<ul style="list-style-type: none"> <li>• Easy to transport sick people to hospitals</li> <li>• Convenient for school children</li> <li>• Easy to transport industrial productions</li> </ul>
62	Karandeniya	T.G. Petison	60	Male	Udamagala watta, Uragasman handiya	<ul style="list-style-type: none"> <li>• Facilitate easy transportation</li> <li>• Increase business at the boutique</li> <li>• Yield could transport easily</li> <li>• Convenient for school children</li> <li>• Easy to transport industrial production</li> </ul>
63	Karandeniya	P. Nenasena Kulathilake	76	Male	Magala South, Uragasman handiya	<ul style="list-style-type: none"> <li>• Facilitate easy transportation</li> <li>• Join with the main road at Kurundugaha hetekma and business will be improved</li> <li>• Facilitate better transportation for school children</li> </ul>
64	Karandeniya	Sunethra Kumari Subasinghe	32	Female	Diyapitagallena, Nawadagala	<ul style="list-style-type: none"> <li>• Easy to reach Elpitiya hospital</li> <li>• Facilitate better transportation for school children</li> <li>• Increase benefits for business activities</li> </ul>
65	Karandeniya	B.H. Swarnalatha	42	Female	Ganima, Nawadagala	<ul style="list-style-type: none"> <li>• Easy to reach Elpitiya and Kurudugaha hetekma</li> <li>• Convenient for Public transportation</li> <li>• Yield could transport easily</li> <li>• Convenient for school children</li> </ul>
66	Karandeniya	I.G. Inoka Priyadarshane	30	Female	Weliyala manana, Nawadagala	<ul style="list-style-type: none"> <li>• Easy transportation</li> <li>• Connect with the main road from Magala to Ganima</li> <li>• Easy to transport cinnamon production</li> <li>• Easy to transport paddy yield</li> <li>• Convenient for school children</li> </ul>
67	Karandeniya	O.K. Gunapala	55	Male	Diyapitagallena, Nawadagala	<ul style="list-style-type: none"> <li>• Easy transportation</li> <li>• Easy to reach hospital</li> <li>• Convenient for business</li> </ul>
68	Karandeniya	S.H. Thushari Mangalika	32	Female	Diyapitagallena, Nawadagala	<ul style="list-style-type: none"> <li>• Easy transportation</li> <li>• Convenient transportation for school children</li> <li>• Convenient transport agro production</li> <li>• Easy to take sick people to Elpitiya hospital</li> </ul>

**Summary of public consultation (One on One interview) for Southern Province Galle district  
(RMC roads) and attendance sheets of FGDs**

District - Galle						
	DSD or GND	Name of Respondent	Age	Sex	Address	Views
69	Ambalangoda	L.K. Anura Rohana	43	Male	Kondagala, Batapola	<ul style="list-style-type: none"> <li>I am a vehicle owner. I can reduce vehicles' repairing cost</li> <li>Accidents could be reduced</li> </ul>
70	Ambalangoda	S.M. Seelawathie	79	Female	"Piya Nivasa" Kondagala, Batapola	<ul style="list-style-type: none"> <li>Reduction of transport cost</li> <li>As an old aged one could reach hospitals easily by three wheelers conveniently</li> <li>Road development helps for the majority</li> </ul>
71	Ambalangoda	W.M. Sarojanee Padmakumari	29	Female	Kondagala Batapola	<ul style="list-style-type: none"> <li>As a women very easy to take children to schools and can save time for other domestic needs.</li> <li>Possibilities to go to Batapola and Elwitigala through this road</li> </ul>
72	Ambalangoda (Nawagama, Nindana and Polhunnawa)	G.K. Geethika Shayamalee	33	Female	Mannagoda, Batapola	<ul style="list-style-type: none"> <li>Difficult to go to school through existing dilapidated road</li> <li>Difficult reach main road during the rainy season</li> <li>Road development will help to mitigate the existing situation</li> </ul>
73	Ambalangoda (Nawagama, Nindana and Polhunnawa)	Piyumi Sandarenu	18	Female	Wathurawila, Nindana	<ul style="list-style-type: none"> <li>Dust reduction</li> <li>Conducive environment towards better health condition</li> <li>More employment opportunities expected</li> </ul>
74	Ambalangoda (Nawagama, Nindana and Polhunnawa)	H. Navarathna	50	Male	Wathuruwila, Nindana	<ul style="list-style-type: none"> <li>Could transport building material easily for the house being constructed</li> <li>Decrease maintenance and fuel cost of three wheelers</li> <li>Economic development</li> </ul>
75	Niyagama	Lokuhewage Ranjane	49	Female	Kimbulawala, Mattaka	<ul style="list-style-type: none"> <li>Easy to transport tea tender leaves</li> <li>Easy to reach schools</li> <li>Shorten the transport distance</li> <li>Save the travel time</li> <li>Increase business facilities</li> <li>Could re start closed tea factories</li> </ul>
76	Niyagama	H.K. Malika Damayanthi	50	Female	Danangala, Mattaka	<ul style="list-style-type: none"> <li>Increasing of tea tender leaves price by decreasing transport cost</li> <li>Easy for agriculture Especially for fertilizer and row material transportation</li> <li>Easy for school children</li> <li>Easy to reach Thalgaswala fair</li> <li>Easy to reach hospitals when emergency cases occur</li> <li>Could re-open closed tea factories</li> <li>Run more vehicles on the road and reduction of area isolation</li> </ul>
77	Niyagama	M.G.Siripala	65	Male	"Sahan" Egodawatta, Porawagama	<ul style="list-style-type: none"> <li>Easy access for land</li> <li>Easy to reach Poddawela Temple</li> <li>Easy to transport tea tender leaves</li> <li>Could start Carpentry work shops</li> <li>Could re-open closed schools</li> </ul>

**Summary of public consultation (One on One interview) for Southern Province Galle district  
(RMC roads) and attendance sheets of FGDs**

District - Galle						
	DSD or GND	Name of Respondent	Age	Sex	Address	Views
						<ul style="list-style-type: none"> <li>• Easy for health facilities</li> </ul>
78	Niyagama	Asoka Damayanthie	42	Male	Sunil caters, Hattana, Pitigala	<ul style="list-style-type: none"> <li>• Convenient for school children</li> <li>• Convenient for business activities</li> <li>• Can start public transportation</li> <li>• Convenient travelling</li> <li>• Opportunities for business activities</li> </ul>
79	Niyagama	Isara Dilhani	23	Female	Sasanathilaka Mawatha, Hattaka, Pitigala	<ul style="list-style-type: none"> <li>• Facilitate easy transportation</li> <li>• Facilitate to reach health facilities</li> <li>• Facilitate to transport tea tender leaves</li> <li>• Easy access to Pitigala fair situated at the town center</li> <li>• Open avenues for tourist industry</li> </ul>
80	Niyagama	Piyadasa Mahaarachchi	76	Male	Welekade, Uthuru Pitigalaroad, Pitigala	<ul style="list-style-type: none"> <li>• Easy access to town center and the fair</li> <li>• Could increase vehicles on the road</li> <li>• Could transport necessary goods to business premises</li> <li>• Easy transportation of tea tender leaves</li> <li>• Easy transportation of fertilizer and row-materials</li> <li>• Area development through the joining of Hattaka and Pitigala</li> <li>• East to reach Kalutara Wlalawita</li> </ul>
81	Gonapinuwala	K.L.G. Thilake Sena	62	Male	"Thilake" Manampitiya, Meetiyagoda	<ul style="list-style-type: none"> <li>• Earlier this was a earth road</li> <li>• Latter it was tarred but not maintained well and difficult to utilize during the rainy season.</li> <li>• Travel time could be reduce if this road developed</li> </ul>
82	Gonapinuwala	N.H. Dammika	43	Female	68A, Kirindi ela, Meetiyagoda	<ul style="list-style-type: none"> <li>• Adjoining by roads also will develop due to carpeted this road</li> <li>• Reduce travel time</li> <li>• Saved time could utilize for another useful activities</li> <li>• Reduce vehicles' spare parts depreciation</li> <li>• Land values will be increased</li> </ul>
83	Gonapinuwala	B.P.L.G. Eranga Sandamalee	24	Female	282/A, Ilukmulla, Meetiyagoda	<ul style="list-style-type: none"> <li>• Road widening up to 12 feet is prerequisite</li> <li>• Opportunity to have more vehicles to the village</li> <li>• It is very good for private vehicles</li> <li>• Easy travelling for villagers</li> </ul>
84	Gonapinuwala	R.L. Ariyawathie	67	Female	Angankanda, Aluthwala	<ul style="list-style-type: none"> <li>• Reduction of travel time</li> <li>• Road widening is prerequisite</li> <li>• This is a good effort and more vehicles could facilitate</li> </ul>
85	Gonapinuwala	U.L. Madushi Lakshani	18	Female	Angankanda, Aluthwala	<ul style="list-style-type: none"> <li>• Easy travelling for people as well as vehicles</li> <li>• Time saving</li> <li>• Easy to transport agro production in the area</li> </ul>

**Summary of public consultation (One on One interview) for Southern Province Galle district (RMC roads) and attendance sheets of FGDs**

District - Galle						
	DSD or GND	Name of Respondent	Age	Sex	Address	Views
						<ul style="list-style-type: none"> <li>It is very good for carpeting</li> </ul>
86	Gonapinuwala	K.K. Priyantha	40	Male	Polhena, Angankanda, Aluthwala	<ul style="list-style-type: none"> <li>Easy for day to day life</li> <li>Necessary for road widening</li> <li>Agro production could transport easily</li> <li>Area development</li> </ul>
87	Gonapinuwala	K.K. Amarawansa	49	Male	Banwelgodella, Aluthwala	<ul style="list-style-type: none"> <li>This is an end result of our untiring requests</li> <li>This is very good</li> <li>Reduction of vehicle repairs</li> <li>Reduction of travel time from 20 minutes up to 10 minutes</li> <li>Agro production easy to transport</li> <li>Expect more development</li> </ul>
88	Gonapinuwala	P.G. Kumuduni Priyanthi	37	Female	452/2, Welibokkuwa, Aluthwala	<ul style="list-style-type: none"> <li>Easy during the rainy season for pedestrians</li> <li>Reduction of road inundation</li> <li>Easy travelling even in the nighttime</li> <li>Road widening is very important</li> <li>Easy for day to day activities</li> </ul>
89	Gonapinuwala	B.B.Wimali	56	Female	Jayasena Nivasa, Banwelgodella, Aluthwala	<ul style="list-style-type: none"> <li>Easy for people when emergency cases occur</li> <li>Heavy vehicles could come only up to Welibokkuwa</li> <li>Once the road development heavy vehicles could reach to the village</li> <li>More facilities could gain</li> </ul>
90	Gonapinuwala	W. Renuka Kanthie	46	Female	Lankadeepa Mawatha, Banwelgodella, Aluthwala	<ul style="list-style-type: none"> <li>Good for road development</li> <li>Increase transport facilities</li> <li>Reduction of travel time</li> <li>Saved time could utilize for extra useful activities</li> <li>Socio-economic condition will be improved</li> <li>Officers and other interested people could come to the village without any difficulties</li> </ul>
91	Gonapinuwala	Chamila Priyangani Weerasooriya	30	Female	Banwelgodella, Aluthwala	<ul style="list-style-type: none"> <li>By roads also will improved simultaneous to this road</li> <li>It is very difficult to use existing road even for cyclists</li> <li>Necessary for road widening up to 12 or 15 feet</li> <li>Expect village development further</li> </ul>
92	Gonapinuwala	Warnajith Priyantha	41	Male	Uramalahena, Ampegama	<ul style="list-style-type: none"> <li>More than 80% of school children could go to school even during the rainy season</li> <li>Support for agriculture and self employments</li> <li>Time saving</li> <li>By roads improvements</li> <li>Increasing of socio-economic condition</li> </ul>

**Summary of public consultation (One on One interview) for Southern Province Galle district  
(RMC roads) and attendance sheets of FGDs**

District - Galle						
	DSD or GND	Name of Respondent	Age	Sex	Address	Views
93	Baddegama	M.A. Jayanthie Kariyawasam	51	Female	Bataketiyagodawatta, Majuwana, Keradewala	<ul style="list-style-type: none"> <li>Agro production could transport to the market in time</li> </ul>
94	Baddegama	H.L. Dalsy	53	Female	Weweldeniya, Waulugala, Baddegama	<ul style="list-style-type: none"> <li>Could facilitate better transportation</li> <li>Could utilize this as an alternative road when flood occurs</li> </ul>
95	Baddegama	L. Kusumawathie	58	Female	Kurundu koratuwa, Waulugala, Baddegama	<ul style="list-style-type: none"> <li>Road safety for school children</li> <li>Could reach good schools at Galle</li> <li>Could reach better economic facilities at Galle</li> </ul>
96	Baddegama	H.L.G. Ariyawathie	52	Female	Hirimulla watta, Ginimellagahawatta	<ul style="list-style-type: none"> <li>This is the short cut to Gall town</li> <li>More convenient for every body</li> </ul>
97	Baddegama	M. Champika	40	Female	"Rathna vasa, Thelikada, Ginimellagaha	<ul style="list-style-type: none"> <li>Could obtain better transportation especially to reach hospitals for emergency cases</li> <li>Convenient to reach Galle Town center</li> </ul>
98	Baddegama	Sumana Gamage	65	Female	Hathtegewatta, Thelikada, Ginimellagaha	<ul style="list-style-type: none"> <li>Convenient for entire activities in the area</li> </ul>
99	Baddegama	Kanthi Peris	52	Female	Berilla watta, Namal pedesa, Halpatota, Baddegama	<ul style="list-style-type: none"> <li>Conversion of dilapidated condition in to better condition gives convenient transportation for every one</li> <li>Development as main road will be an added advantage for the area</li> </ul>
100	Baddegama	Malka Wijerathna	40	Female	Berilla watta, Namal pedesa, Halpatota, Baddegama	<ul style="list-style-type: none"> <li>Agro production could transport up to the destinations easily</li> <li>Easy access for the main road</li> </ul>
101	Baddegama	A.R. Kusumawathie	60	Female	Ariddadoowa, Halpatota, Baddegama	<ul style="list-style-type: none"> <li>Agro production could transport easily to Dodamgoda fair</li> <li>Easy access to the main road</li> </ul>
102	Baddegama	Asilin Pathirana	68	Female	64, Ginimellagaha East, Ginimellagaha	<ul style="list-style-type: none"> <li>It is appreciated if this dilapidated road develop</li> </ul>
103	Baddegama	Megilin Hettiwatta	64	Female	"Sriya", Ginimellagaha, East	<ul style="list-style-type: none"> <li>This is the main access to Pinthaliya road</li> <li>Quick access to main road gives more economic and social benefits to the people in the area</li> </ul>
104	Baddegama	U.L. Sunil	49	Male	Bibila watta, Ginimellagaha	<ul style="list-style-type: none"> <li>Easy to sell agro production</li> <li>Easy to transport tea tender leaves</li> </ul>

**Summary of public consultation (One on One interview) for Southern Province Galle district  
(RMC roads) and attendance sheets of FGDs**

District - Galle						
	DSD or GND	Name of Respondent	Age	Sex	Address	Views
105	Nagoda	K.K.G. Anusha Tharanganee	21	Female	Fanillu Garden, Nagoda	<ul style="list-style-type: none"> <li>• Easy to transport tea tender lives</li> <li>• Increase transport facilities including public transportation</li> <li>• Industrial development</li> <li>• Road protection for ladies, children and old aged population</li> </ul>
106	Nagoda	K.H.M. Ariyawathie	70	Female	Thalhena Kanda, Kurupanawa, Nagoda	<ul style="list-style-type: none"> <li>• Tea is the main livelihood in the area and tea tender leaves could transport easily.</li> <li>• Support to transport school children and working population in the area</li> <li>• Convenient for vehicles running on the road</li> <li>• Road blockage could be minimized during the flood</li> <li>• Health facilities could obtain easily</li> </ul>
107	Nagoda	W. Sirisena	59	Male	Fieldview, Keppetiyagoda, Nagoda	<ul style="list-style-type: none"> <li>• Could use this road as main road when flood occurs</li> <li>• Could facilitate transport facilities for business activities</li> <li>• This is a main road to the population at Meliban Handiya, Horagahakanda, Wila Mawatha</li> <li>• Could provide better transport facilities to school children</li> <li>• Increase land values</li> </ul>
108	Nagoda	Priyanka Jayawardena	40	Male	Udugama South, Udugama	<ul style="list-style-type: none"> <li>• Could facilitate road facilities for Tamil estate workers</li> <li>• Could facilitate access to individual lands</li> <li>• Easy for tea tender leaves transportation</li> <li>• Systematic transport facilities help to increase peoples' living condition</li> <li>• Increase facilities to reach hospitals</li> </ul>
109	Nagoda	H.M. Deepika	42	Female	Piyathilaka Mawatha, Udugama	<ul style="list-style-type: none"> <li>• Convenient for tea tender leaves transportation</li> <li>• Could minimize travel time</li> <li>• Could curtail fuel cost</li> <li>• Safe transportation</li> <li>• Convenient for school children</li> </ul>
110	Nagoda	K.L.G. Damm	25	Female	Piyathilaka Mawatha, Udugama South, Udugama	<ul style="list-style-type: none"> <li>• Estate workers could reach their livelihoods easily</li> <li>• More development at Business places</li> <li>• Could obtain business and other vehicles without any difficulties</li> <li>• Could facilitate facilities for tea cultivated land and tea tender leaves transportation</li> <li>• Better transportation for school children</li> </ul>
111	Nagoda	Srinath Manjula Samarasinghe	35	Male	Homadolawatta, No.05, Kothalawala	<ul style="list-style-type: none"> <li>• Safer transportation for old aged, children and especially for pregnant woman</li> <li>• Convenient to reach tea cultivated land and success for tea tender leaves transportation</li> <li>• Could maintain fuel cost at lower level</li> <li>• Could reach hospitals within lesser time for emergency cases</li> </ul>

**Summary of public consultation (One on One interview) for Southern Province Galle district  
(RMC roads) and attendance sheets of FGDs**

District - Galle						
	DSD or GND	Name of Respondent	Age	Sex	Address	Views
112	Nagoda	Geetha Dias	50	Female	Homadola, Uduagama	<ul style="list-style-type: none"> <li>• Safe travelling within shorter time</li> <li>• Convenient to reach the town center and the hospital</li> <li>• Easy for school children</li> <li>• Convenient for vehicles</li> <li>• Convenient for tea cultivation</li> </ul>
113	Nagoda	S.H. Suneetha Sooriyawansa	44	Female	"Subasewana", Homadola, Kothalawala	<ul style="list-style-type: none"> <li>• Increase land prices</li> <li>• Development of business places by the side of the road</li> <li>• Convenient to reach hospitals</li> <li>• Easy to transport tea tender leaves up to the factory</li> <li>• Convenient for school children and workers</li> <li>• New livelihood could be started</li> </ul>
114	Devithura	K.K.G. Bramphi	64	Male	Mukthawila junction, Wadu weliwitiya North, Kahadoowa	<ul style="list-style-type: none"> <li>• Nearly 200 vehicles are flying on this route and the development is prerequisite</li> </ul>
115	Devithura	Priyanka Esala Kumari	38	Female	Kanda addara, Wadu North, Kahadoowa	<ul style="list-style-type: none"> <li>• Road development is a positive development</li> </ul>
116	Devithura	P.L. Leelawathie	72	Female	Kanda addara, Wadu North, Kahadoowa	<ul style="list-style-type: none"> <li>• Road development is a best option for the village development</li> </ul>
117	Devithura	N.H.K. Padmasena	53	Male	Wadu North, Kahadoowa	<ul style="list-style-type: none"> <li>• Road development is necessary for the village</li> </ul>
118	Devithura	Weerathunga Premawathie	60	Female	Sri Soratha Janaudana Gammanaya, Wadu Weliwitiya South	<ul style="list-style-type: none"> <li>• Road development is a basic requirement</li> <li>• It helps for tea factories to transport tea leaves</li> </ul>
119	Devithura	D.G. Priyangika	42	Female	236/B, Wadu South, Unanwitiya	<ul style="list-style-type: none"> <li>• Happy for village development through road development</li> </ul>
120	Devithura	Rasika Damayanthi	-	Female	Soratha Gammanaya, Wadu South, Unanwitiya	<ul style="list-style-type: none"> <li>• Road development is prerequisite</li> </ul>
121	Hikkaduwa	Ruwini Wattage	33	Female	Dadly Senanayake road, Wijayapura, Weragord	<ul style="list-style-type: none"> <li>• Could reach main road</li> <li>• Easy to reach town centers</li> <li>• Could controlled soil erosion through road development</li> </ul>

**Summary of public consultation (One on One interview) for Southern Province Galle district  
(RMC roads) and attendance sheets of FGDs**

District - Galle						
	DSD or GND	Name of Respondent	Age	Sex	Address	Views
122	Hikkaduwa	W.K. Sriyalatha	45	Female	Dadly Senanayaka Mawatha, Weragoda, Mitiyagoda	<ul style="list-style-type: none"> <li>• Soil erosion could be minimized</li> <li>• This is a main access to Colombo – Galle road. Therefore, road repair will be more convenient for every one especially school children</li> <li>• It is easy for large number of vehicles flying on the road</li> </ul>
123	Hikkaduwa	Premachandra Jayasinghe	60	Male	Weragoda, Meetiyagoda	<ul style="list-style-type: none"> <li>• Dilapidated road condition is not convenient for school children</li> <li>• Road development will be more advantage for school children and business activities especially for cinnamon traders</li> </ul>
124	Hikkaduwa	K. Sunethra de. silva	44	Female	Medadoowa, Kuleegoda	<ul style="list-style-type: none"> <li>• Convenient for pilgrims come from various direction of the country to warship Galdoowa temple</li> <li>• Convenient for school children</li> <li>• Plantation sector could gain lot</li> </ul>
125	Hikkaduwa	D.H. Kasun	23	Male	Medadoowa, Kuleegoda	<ul style="list-style-type: none"> <li>• Convenient for pilgrims come from various direction of the country to warship Galdoowa temple</li> <li>• Convenient for school children</li> <li>• Plantation sector could gain lot</li> </ul>
126	Hikkaduwa	Deepani Thabru	42	Female	“Pathima”, Dewagod, Madampe, Ambalangoda	<ul style="list-style-type: none"> <li>• This is the main access to Colombo-Galle road and to Kuleegoda. Therefore, transportation will be easier.</li> <li>• Road development including side drains will be minimized land inundation</li> </ul>
127	Hikkaduwa	T. Sudantha Mendis	44	Male	318 A, Devagoda, Madampe, Ambalantota	<ul style="list-style-type: none"> <li>• Two vehicles could pass different directions easily</li> <li>• Convenient for transportation</li> <li>• Land inundation will be minimized</li> </ul>
128	Hikkaduwa	K.Y. Siriylatha	45	Female	Devagoda, Madampe, Ambalangoda	<ul style="list-style-type: none"> <li>• Convenient for transportation</li> <li>• Convenient for school children</li> </ul>
129	Hikkaduwa	Samanthie Chandrika Priyadarshani	37	Female	Epitamulla, Galdoowa road, Nahawa	<ul style="list-style-type: none"> <li>• Road is at dilapidated condition</li> <li>• This leads access to Galabada junction, Ambalantota, Baddegama road, and to Galle fair. Therefore, road development is very important and it helps to facilitate transportation</li> <li>• Provide access to Kahawa Rathnasara school, Weragoda Wijayaba school and main schools in Ambalantota. Theirfore school children could facilitate better transportation</li> </ul>
130	Hikkaduwa	W.K. Wiliyam	86	Male	-	<ul style="list-style-type: none"> <li>• This is an alternative road to access Galle road. Therefore road development helps to facilitate better transportation</li> <li>• Easy access to industries and factories</li> </ul>
131	Hikkaduwa	Priyanthi Alahakoon	37	Female	Kaithantuduwa, Weragoda, Kahawa	<ul style="list-style-type: none"> <li>• Easy to access Galle road</li> <li>• Easy for school children</li> </ul>

**Summary of public consultation (One on One interview) for Southern Province Galle district  
(RMC roads) and attendance sheets of FGDs**

District - Galle						
	DSD or GND	Name of Respondent	Age	Sex	Address	Views
132	Hikkaduwa	H.P. Shashini Madumali	23	Female	Delgasdoowa Road, Dodandoowa	<ul style="list-style-type: none"> <li>• Proper drainage system could be expected</li> <li>• Convenient for school children</li> <li>• Road carpeting helps for heavy vehicles transportation</li> </ul>
133	Hikkaduwa	Sunil Sarunnal	52	Male	No.24, Delgasdoowa road, Dodandoowa	<ul style="list-style-type: none"> <li>• Smooth water flow could be expected</li> <li>• Easy transportation</li> </ul>
134	Hikkaduwa	S.M. Ariyawathi	54	Female	Delgasdoowa, Dodandoowa	<ul style="list-style-type: none"> <li>• Easy transportation</li> </ul>
135	Hikkaduwa	T.H. Nilanthi	31	Female	Godawatta, Imbulagoda	<ul style="list-style-type: none"> <li>• Road widening prerequisite</li> <li>• Easy for school children</li> <li>• Better water flow</li> </ul>
136	Hikkaduwa	K. Cyril	52	Male	Garudeniya Watta, Imbulagoda, Rathgama	<ul style="list-style-type: none"> <li>• Easy for school children</li> <li>• Public transportation could be started and the people in the area will be benefited</li> </ul>
137	Hikkaduwa	Nayani Palitha	38	Female	Imbulagoda, Rathgama	<ul style="list-style-type: none"> <li>• Could start public transportation to reach main town center for marketing</li> <li>• Convenient for school children</li> </ul>
138	Hikkaduwa	P.H. Maliga Shayamali	43	Female	Medawala, Boossa	<ul style="list-style-type: none"> <li>• Convenient for transportation</li> <li>• Convenient for school children</li> </ul>
139	Hikkaduwa	K. Nilanga Dulshani	24	Female	656 D, Medawala, Boossa	<ul style="list-style-type: none"> <li>• Convenient for transportation</li> <li>• Convenient for school children, working population, people who need to go main town</li> </ul>
140	Hikkaduwa	Thilan Premachandra	43	Male	155, Gehilla Mandiya, Boossa	<ul style="list-style-type: none"> <li>• Easy transportation</li> <li>• Easy for school children</li> <li>• Convenient for vehicles</li> </ul>
141	Hikkaduwa	W.G. Anoma	34	Female	Maha Hegoda, Mahagoda, Boossa	<ul style="list-style-type: none"> <li>• Easy travelling</li> <li>• Convenient for school children</li> </ul>
142	Hikkaduwa	S. Kalansooriya	4	Male	Malidoowa, Boossa	<ul style="list-style-type: none"> <li>• This is an alternative road to Delbada road</li> <li>• Convenient for travelling</li> </ul>
143	Hikkaduwa	M.C. Piyawathie	38	Female	Delbada, Boossa	<ul style="list-style-type: none"> <li>• Convenient for vehicle transportation</li> <li>• Convenient to reach town centers</li> </ul>
144	Hikkaduwa	H.N. Kamal	51	Male	Kanda uda road, Waulangoda, Hittatuwa	<ul style="list-style-type: none"> <li>• Reduce soil erosion</li> </ul>
145	Bentota	H.G. Thanuja Dilrukshi	29	Female	Galpare road, Kuda Uragaha, Uragaha	<ul style="list-style-type: none"> <li>• Easy for transportation</li> <li>• Increase access to agricultural lands</li> <li>• Should protect the road from sand transporters after development of the road</li> </ul>

**Summary of public consultation (One on One interview) for Southern Province Galle district  
(RMC roads) and attendance sheets of FGDs**

District - Galle						
	DSD or GND	Name of Respondent	Age	Sex	Address	Views
146	Bentota	U.O. Karunawathie	61	Female	Galpare road, Kuda Uragaha, Uragaha	<ul style="list-style-type: none"> <li>• Convenient transportation</li> <li>• Easy access to agricultural land</li> <li>• Easy to take agro production to the town</li> <li>• Necessary road widening</li> <li>• Increase new comers to the village</li> </ul>
147	Bentota	T.A. Mahinda	40	Male	Galpare road, Kuda Uragaha, Uragaha	<ul style="list-style-type: none"> <li>• Convenient transportation</li> <li>• Increase accessibility to agricultural land</li> <li>• Easy to take agro production to the market</li> </ul>
148	Bentota	M. Saman Kumara	34	Male	Parussagoda, Maha uragaha, Uragaha	<ul style="list-style-type: none"> <li>• Quick access to Elpitiya</li> <li>• Easy to transport agro production</li> </ul>
149	Bentota	P.D. Amarawathie	62	Female	Parussagoda, Maha uragaha, Uragaha	<ul style="list-style-type: none"> <li>• Quick access to Elpitiya</li> <li>• Easy to transport agro production</li> </ul>
150	Bentota	P.A. Kusumawathie	62	Female	Yatagala Mawatha, Maha Uragaha, Uragaha	<ul style="list-style-type: none"> <li>• Quick access to Elpitiya</li> <li>• Easy to transport agro production</li> </ul>
151	Bentota	M.K. Pushpa Rani	52	Female	Diddugoda road, Kuda Uragaha, Uragaha	<ul style="list-style-type: none"> <li>• More benefits could obtain to the people if the road connected with adjoining GN division through a bridge construction across the canal</li> <li>• Easy access to main road</li> </ul>
152	Bentota	Sunil Hettigoda	49	Male	Diddugoda road, Kuda Uragaha, Uragaha	<ul style="list-style-type: none"> <li>• More benefits could obtain to the people if the road connected with adjoining GN division through a bridge construction across the canal</li> <li>• Easy access to main road</li> </ul>
153	Bentota	M. Susanthi Mendis	49	Female		<ul style="list-style-type: none"> <li>• More benefits could obtain to the people if the road connected with adjoining GN division through a bridge construction across the canal</li> <li>• Easy access to main road</li> </ul>
154	Yakkalamulla	Susila Karanayaka	54	Female	Natungala South, Kottawagama	<ul style="list-style-type: none"> <li>• Easy for tea tender leaves transportation</li> <li>• Easy for school children</li> <li>• Easy to sell baby tea plants</li> </ul>
155	Yakkalamulla	H.L.G. Karunaratna	38	Male	Natungala South, Kottawagama	<ul style="list-style-type: none"> <li>• Decrease vehicle repairs</li> <li>• Pregnant woman could go to monthly clinics under better road condition</li> <li>• School children could reach to schools under road safety condition</li> <li>• Easy to transport tea tender leaves and tender plants to the destinations under safe condition</li> <li>• Could avoid transport difficulties at tea tender beads</li> </ul>

**Summary of public consultation (One on One interview) for Southern Province Galle district  
(RMC roads) and attendance sheets of FGDs**

District - Galle						
	DSD or GND	Name of Respondent	Age	Sex	Address	Views
156	Yakkalamulla	Ramani Nanayakkara	44	Female	Bedimeda, Natungala, Kottawa	<ul style="list-style-type: none"> <li>• Easy to transport tea tender leaves and tea tender plants to the destination</li> <li>• Decrease vehicle repairs</li> </ul>
157	Yakkalamulla	Janitha Padigama	49	Female	Aluthwatta, Udumalagala, Nakiyadeniya	<ul style="list-style-type: none"> <li>• Easy to go to weekly fair</li> <li>• Connection with two main roads will be an added advantage for the transportation</li> <li>• Easy to transport tea tender leaves</li> </ul>
158	Yakkalamulla	U.G. Hemapala	57	Male	Owita watta, Ihala Nakiyadeniya, Nakiyadeniya	<ul style="list-style-type: none"> <li>• Tea fertilizer could transport without any difficulties</li> <li>• Home needs could transport easily</li> <li>• Could utilize this as alternative road</li> <li>• Could provide better transportation for school children</li> </ul>
159	Yakkalamulla	Kesha Liyanage	41	Female	Saranapala Mawatha, Nakiyadeniya	<ul style="list-style-type: none"> <li>• Tea tender leaves as well as tea fertilizer could transport easier</li> <li>• This is an alternative road for Galle – Udugama road</li> <li>• Increase accessibility to adjoining villages</li> <li>• Convenient for school children</li> </ul>
160	Yakkalamulla	Priyantha Liyanage	33	Male	Kosgahahena, Nawala, Nakiyadeniya	<ul style="list-style-type: none"> <li>• At present carry tea tender leaves to the destination by shoulders and after the road development vehicles could be utilized for the purpose</li> <li>• Could transport school children easier</li> <li>• Agro production such as tea, rubber, cinnamon collecting centers could start at the village level and then could transport to the market when prices goes up</li> </ul>
161	Yakkalamulla	H.G. Janaki Priyanthie	43	Female	Ellagawa, Nawala, Nakiyadeniya	<ul style="list-style-type: none"> <li>• Easy to go to market</li> <li>• Easy to transport tea, rubber and cinnamon</li> <li>• Easy for school children</li> </ul>
162	Yakkalamulla	Priyanthi Vithanage	45	Female	Nawala road, Mabotuwana	<ul style="list-style-type: none"> <li>• Easy to go to work place</li> <li>• Convenient transportation</li> <li>• Easy for school children</li> <li>• Easy to transport tea tender leaves</li> </ul>
163	Imadoowa (Kombala)	T.H. Mahindadasa	46	Male	No. 22C, Kombala, Imadoowa	<ul style="list-style-type: none"> <li>• Easy transportation</li> <li>• Easy to transport agro production</li> <li>• Time saving</li> <li>• Expect fare amount of three wheel charges</li> <li>• Reduce soil erosion</li> <li>• Positive impact for entire socio-economic life in the area</li> </ul>
164	Imadoowa	P.G. Chandrawathie	50	Female	Nagahamulla, Kombala, Imadoowa	<ul style="list-style-type: none"> <li>• Easy transportation</li> <li>• Facilitate transport facilities</li> <li>• Livelihood improvement</li> <li>• Accidents reduction</li> </ul>

**Summary of public consultation (One on One interview) for Southern Province Galle district  
(RMC roads) and attendance sheets of FGDs**

District - Galle						
	DSD or GND	Name of Respondent	Age	Sex	Address	Views
165	Imadoowa	Priyankari Ajantha	42	Female	Weligodakanda, Kombala, Imadoowa	<ul style="list-style-type: none"> <li>• Convenient transportation</li> <li>• Reduction soil erosion</li> <li>• Cost reduction for transportation</li> </ul>
166	Imadoowa (Kabaragala)	K.V. Thushari Pradeepa Kumari	33	Female	Lindamulla watta, Kombala, Imadoowa	<ul style="list-style-type: none"> <li>• Opportunity to improve the business place</li> <li>• Facilitate facility to transport agro production</li> <li>• Increase land prices</li> <li>• Improve education facilities</li> </ul>
167	Imadoowa	U.H. Soma Gunawardena	52	Female	Bedipitiya, Angulugaha	<ul style="list-style-type: none"> <li>• Safety health by dust reduction</li> <li>• Time saving</li> <li>• Increase land values</li> </ul>
168	Imadoowa	M.L. Darmadasa	51	Male	Batapiyassa, Danduwana, Angulugaha	<ul style="list-style-type: none"> <li>• Could improve the business place which is presently at very small scale</li> <li>• Cost reduction for transportation</li> <li>• Dust reduction and health condition improvement (Reduction of respiratory system diseases)</li> <li>• Vehicle safety on the road</li> </ul>
169	Imadoowa (Elallagoda)	H. Karunadasa	61	Male	Pengirigasmulla, Kodagoda, Imadoowa	<ul style="list-style-type: none"> <li>• Convenient transportation</li> <li>• Accidents reduction</li> <li>• Facilitate facilities to transport agro productions to the market in the area</li> </ul>
170	Imadoowa	K.L. Kusumawathie	56	Female	Pelawatta, Kodagoda, Imadoowa	<ul style="list-style-type: none"> <li>• Necessary materials for cultivation could transport easily</li> <li>• Avoid transport difficulties</li> <li>• Reduction of soil erosion and road safety</li> <li>• Increase land values</li> <li>• Possibility to have water connections in the future</li> <li>• This is a by road and it will help to reduce traffic jam on the main road</li> </ul>
171	Imadoowa	J.G. Kusumawathie	48	Female	Athuraliya Gedara, Ellalagoda, Imadoowa	<ul style="list-style-type: none"> <li>• Increase land values</li> <li>• It is very important due to transportation related issues solved</li> <li>• Avoid soil erosion at the paddy field</li> <li>• Reduce accidents</li> </ul>
172	Imadoowa	Chandrani Vithanawasam	40	Female	Near school, Pengirihena, Imadoowa	<ul style="list-style-type: none"> <li>• Increase land values</li> <li>• Hope to develop existing flower plantation</li> <li>• Avoid soil erosion</li> <li>• Safety health</li> <li>• Cost reduction for extra transportation</li> <li>• Convenient if public transportation started</li> </ul>
173	Imadoowa	H.G. Indrajith	48	Male	Kithlgasmulla, Kombala, Imadoowa	<ul style="list-style-type: none"> <li>• Convenient transportation</li> <li>• Save travel time</li> <li>• Agrarian sector improvement</li> <li>• Increase land values</li> </ul>

**Summary of public consultation (One on One interview) for Southern Province Galle district (RMC roads) and attendance sheets of FGDs**

District - Galle						
	DSD or GND	Name of Respondent	Age	Sex	Address	Views
174	Imadoowa	N.I. Liyana Jayawardena	67	Male	"Aruna" Mayakaduwa, Imadoowa	<ul style="list-style-type: none"> <li>• Safety health</li> <li>• Increase land values</li> <li>• Travel time saving</li> <li>• Road development compulsory road</li> </ul>
175	Imadoowa (Komala)	Seelawathie Vithanawasam	70	Male	Julgaha watta, Kombala, Imadoowa	<ul style="list-style-type: none"> <li>• Convenient for vehicle transportation</li> <li>• Minimize road accidents</li> <li>• Reduction soil erosion</li> <li>• Easy to transport agricultural goods</li> </ul>
176	Imadoowa	K.L. Sriyani	42	Female	Galgoda doowa, Kombala, Imadoowa	<ul style="list-style-type: none"> <li>• At present transportation is not convenient</li> <li>• After the development expect better transportation</li> <li>• Save travel time</li> <li>• Reduce accidents</li> <li>• Road inundation and soil erosion could be minimize after the road carpeting</li> <li>• Could use as a short cut</li> <li>• Vehicles could utilize when emergency situation happened</li> <li>• Ability to improve agriculture</li> </ul>
177	Imadoowa	K.L. Athula	46	Male	Pittaniya gedara, Kombala Imadoowa	<ul style="list-style-type: none"> <li>• Road development is very important as it is a by road</li> <li>• Convenient for travelling and transportation</li> <li>• Time saving</li> <li>• Erosion reduction</li> <li>• Accidents reduction</li> <li>• Increase land values</li> </ul>
178	Imadoowa (Mayakaduwa)	U.H. Nandasena	62	Male	Mayakaduwa, Imadoowa	<ul style="list-style-type: none"> <li>• Livelihood improvement</li> <li>• Convenient for vehicular transportation</li> <li>• Facilitate facilities to education and health</li> </ul>
179	Imadoowa	K.G.Thela Asanganee	35	Female	Pituwalahena, Mayakatuwa, Imadoowa	<ul style="list-style-type: none"> <li>• Agro production improvement</li> <li>• Time saving</li> <li>• Travelling and transportation improvement</li> <li>• Education, health and economic sector development</li> <li>• Money saving</li> <li>• Time saving</li> </ul>
180	Imadoowa	Swarna de. Alwis	52	Female	"Sakura", Pituwalahena, Mayakatuwa, Imadoowa	<ul style="list-style-type: none"> <li>• Reduce soil erosion</li> <li>• Self garments production could improve</li> <li>• Convenient for transportation</li> <li>• Reduction of vehicles' repairing costs</li> <li>• Reduction of the cost for three wheelers</li> <li>• Increase land values</li> <li>• Time saving</li> </ul>

**Summary of public consultation (One on One interview) for Southern Province Galle district (RMC roads) and attendance sheets of FGDs**

District - Galle						
	DSD or GND	Name of Respondent	Age	Sex	Address	Views
181	Akmeemana	O.M.R. Damayanthi	30	Female	No. 47, Pansala Kanda, Kapuhempala, Akmeemana	<ul style="list-style-type: none"> <li>• Easy to take pre-school children to pre-schools</li> <li>• Easy to go to work places</li> </ul>
182	Akmeemana	P.V. Mahesh	-	Male	No. 52, Lansiyahena, Haliwala	<ul style="list-style-type: none"> <li>• Convenient to take children to schools</li> <li>• Motor cycle repair shop could be improve</li> <li>• Increase land values</li> </ul>
183	Akmeemana	Mohamad Anver	34	Male	533 A, Heli road, Haliwala, Galle	<ul style="list-style-type: none"> <li>• Easy transportation</li> <li>• Especially easy for school children transportation</li> </ul>
184	Akmeemana	K.G. Sanath	42	Male	Poorwarama road, Batadoowa, Galle	<ul style="list-style-type: none"> <li>• The existing garage could improve more</li> <li>• Easy to connect with Udugama-Galle main road</li> <li>• Dust reduction</li> </ul>
185	Akmeemana	W. S.H. Karunawathie	77	Female	Pothukumburago dawatta, Poorwarama road, Maduwa, Galle	<ul style="list-style-type: none"> <li>• Existing muddy road is not convenient for vehicle transportation</li> <li>• Not easy for school children at present</li> </ul>
186	Akmeemana	U.L. Sunethra Rathnayake	-	Female	No.18, Thelkalagoda, Punchahangoda road, Galle	<ul style="list-style-type: none"> <li>• Could reach Subaddarama road and Udugamaroad easily</li> <li>• Time and cost reduction</li> </ul>
187	Akmeemana	K.G. Pradeepa Nilmini	39	Female	No. 23, Sudarmarama road, Magalla, Galle	<ul style="list-style-type: none"> <li>• Existing dry fish selling business could improve</li> <li>• Convenient for entire life especially for school children transportation and other transportation</li> </ul>
188	Akmeemana	Nilanthi Wasana Jayasooriya	39	Female	Punchchi Kanaththa watta, Batadoowa West, Galle	<ul style="list-style-type: none"> <li>• Easy access to Galle Udugama road</li> <li>• Easily could transport necessary goods for existing retail shop</li> <li>• Convenient to transport school children</li> <li>•</li> </ul>
189	Akmeemana	Chinthaka Wickramasinghe	41	Male	No.75, Sudarmarama road, Batadoowa	<ul style="list-style-type: none"> <li>• Convenient for school children and the residence in the area</li> <li>• Increase land values</li> <li>• Could improve existing livelihood</li> </ul>
190	Akmeemana	U.D. Siriawathie	75	Female	Batahena, Hiyare East	<ul style="list-style-type: none"> <li>• Tea as a main livelihood could improve</li> <li>• Could start public transportation</li> <li>• Easy for school children going to Hiyare East school</li> </ul>
191	Akmeemana	A.G. Wimalasena	68	Male	Galagawadeniya, Hiyare East, Hiyare	<ul style="list-style-type: none"> <li>• Agro production such as tea, cinnamon, yam, beetle etc. could transport up to the market easily</li> <li>• Daily routings could be easier if public transportation started after the development</li> </ul>

**Summary of public consultation (One on One interview) for Southern Province Galle district  
(RMC roads) and attendance sheets of FGDs**

District - Galle						
	DSD or GND	Name of Respondent	Age	Sex	Address	Views
192	Akmeemana	P.H. Ishani Lakshika	20	Female	School lane, Hiyare East, Hiyare	<ul style="list-style-type: none"> <li>• Quick access to the main road</li> <li>• Existing road is not convenient for transportation</li> <li>• Could keep better relationship with kith and kings after the road development</li> <li>• Tea and cinnamon productions could transport easily</li> <li>• Could connected with all the other developed main roads in the area</li> </ul>
193	Neluwa	M.K. Wimalawathie	69	Female	Batuwangala, Neluwa	<ul style="list-style-type: none"> <li>• Easy transportation</li> <li>• Increase life condition</li> <li>• Facilitate road facilities</li> <li>• Create social links</li> <li>• Quick access to hospitals when emergency cases happened</li> </ul>
194	Neluwa	G.G. Nilanthi Rupika	39	Female	School lane, Batuwangala, Neluwa	<ul style="list-style-type: none"> <li>• Easy access to town center</li> <li>• Convenient for school children and pregnant ladies</li> <li>• Area development</li> <li>• Easy to take household goods to homes</li> </ul>
195	Neluwa	D.S Sunil Rathnayaka	39	Male	School lane, Batuwangala, Neluwa	<ul style="list-style-type: none"> <li>• Easy transportation</li> <li>• Infrastructure development after the road development</li> <li>• Quick access to hospital</li> </ul>
196	Neluwa	L.S. Nandani	43	Female	"Senevirathna", Batuwangala West	<ul style="list-style-type: none"> <li>• Road safety for children and women after straiten the road bends</li> </ul>
197	Neluwa	Gnana Mallawarachchi	58	Female	"Sandamali, Batuwangala West	<ul style="list-style-type: none"> <li>• Quickly can complete day to day activities after road development</li> <li>• Village as well as school will be developed</li> </ul>
198	Neluwa	Sajith Manjula	36	Male	Batuwangala West	<ul style="list-style-type: none"> <li>• Economic development</li> <li>• Area development</li> </ul>
199	Neluwa	B.G. Soba Nishani	44	Female	Moragahakanda, Neluwa	<ul style="list-style-type: none"> <li>• Easy transportation</li> <li>• Convenient for pregnant ladies</li> </ul>
200	Neluwa	G.H. Nirosha Menike	27	Female	Ihala Maddegama, Puswalakada, Lelwala	<ul style="list-style-type: none"> <li>• Road safety for ladies even in the night time</li> </ul>
201	Neluwa	E.G. Anuradha	30	Male	Kotapolawatta, Medagama, Neluwa	<ul style="list-style-type: none"> <li>• Convenient for tea plantation and other socio-economic activities</li> </ul>
202	Neluwa	M.G. Mallika	36	Female	Matara, Deniya, Mawita West	<ul style="list-style-type: none"> <li>• Increase women welfare</li> <li>• Develop entire sectors</li> </ul>
203	Neluwa	G.G. Deepthi Priyanthi	36	Female	Mawita west, Neluwa	<ul style="list-style-type: none"> <li>• Economic development</li> <li>• Increase life condition</li> </ul>

**Summary of public consultation (One on One interview) for Southern Province Galle district  
(RMC roads) and attendance sheets of FGDs**

District - Galle						
	DSD or GND	Name of Respondent	Age	Sex	Address	Views
204	Neluwa	B.G. Kumuduni	26	Female	Kendaketiya, Mawita West	<ul style="list-style-type: none"> <li>• Easy to sell self employment production of women in the area and their economic condition will be improved</li> </ul>
205	Neluwa	Nishanthi Liyanage	37	Female	2 <sup>nd</sup> mile post, Mawanana, Neluwa	<ul style="list-style-type: none"> <li>• Convenient for day to day life especially for women</li> <li>• Help to develop economic, social, health as well as other sectors of the area</li> </ul>
206	Neluwa	Chathuri Priyadarshanee	33	Female	11/3, Mawanana, Neluwa	<ul style="list-style-type: none"> <li>• Could increase income level</li> <li>• Expect entire development</li> </ul>
207	Neluwa	K.G. Nandima	33	Female	Near Dangoda bridge, Mawanana, Neluwa	<ul style="list-style-type: none"> <li>• As a women easy for day to day life</li> </ul>
208	Neluwa	Somarathna Senanayaka	50	Male	"Senani", Mawanana, Neluwa	<ul style="list-style-type: none"> <li>• Entire sectors' development such as socio-economic, health, political etc.</li> </ul>
209	Neluwa	S.D. Nishantha	36	Male	Dasili gedara, Mawanana, Neluwa	<ul style="list-style-type: none"> <li>• Directly increase our main livelihood of tea plantation and indirectly helps to increase county's economy</li> </ul>
210	Neluwa	S. Ranawaka	65	Male	Suduwellawa, Mawanana, Neluwa	<ul style="list-style-type: none"> <li>• Convenient for day to day work</li> </ul>
211	Neluwa	W.G. Roshini Priyanthika	29	Female	Suduwellawa, Mawanana, Neluwa	<ul style="list-style-type: none"> <li>• Could improve self employments</li> <li>• Helps for children's education</li> </ul>
212	Neluwa	R.M. Dayaseeli	41	Female	Baduwila, Ihala Giggummaduwa, Neluwa	<ul style="list-style-type: none"> <li>• Easy to sell our productions</li> <li>• Could increase life condition</li> </ul>
213	Neluwa	A.G. Lakmal	26	Male	Banawa road, Keusha Kumbura, Neluwa	<ul style="list-style-type: none"> <li>• Convenient for day to day life due to easy access to main roads within shorter period of time</li> </ul>
214	Neluwa	P.G. Susantha Sampath	31	Male	Suduwellawa, Mawanana, Neluwa	<ul style="list-style-type: none"> <li>• Solved unemployment issue of the youth through new industries which will be come up at the village</li> </ul>
215	Neluwa	Liyana Wickramasinghe Sumana	46	Female	Near school, Neluwa	<ul style="list-style-type: none"> <li>• Easy transportation</li> <li>• Conducive living environment</li> </ul>
216	Neluwa	N.F. Rani	35	Female	Samagi Mawatha, Neluwa	<ul style="list-style-type: none"> <li>• Convenient for children's education</li> <li>• Increase life condition</li> </ul>
217	Neluwa	K.N. Kumari	23	Female	Dellawa road, Neluwa	<ul style="list-style-type: none"> <li>• Could improve self employments</li> </ul>

**Summary of public consultation (One on One interview) for Southern Province Galle district  
(RMC roads) and attendance sheets of FGDs**

District - Galle						
	DSD or GND	Name of Respondent	Age	Sex	Address	Views
						<ul style="list-style-type: none"> <li>• Easy to sell self employed productions</li> </ul>
218	Neluwa	N.L. Lekamwasam	80	Male	Magahena, Neluwa	<ul style="list-style-type: none"> <li>• Could start new business and increase employments</li> <li>• Reduce unemployment</li> </ul>
219	Neluwa	Udayakumara Abesinghe arachchi	35	Male	Magahena, Neluwa	<ul style="list-style-type: none"> <li>• Convenient for day to day work</li> </ul>
220	Neluwa	K.W.C. Airanganee	41	Female	Gramodaya health centre, Neluwa	<ul style="list-style-type: none"> <li>• Security for school children and women</li> <li>• Convenient for day to day work</li> </ul>
221	Neluwa	P.A. Chithra Kanthie	41	Female	Pahala maddegama, Udawela Neluwa	<ul style="list-style-type: none"> <li>• As a women convenient for day to day work</li> </ul>
222	Neluwa	K.W. Piyawathie	55	Female	Charith Stores Batuwangala, Neluwa	<ul style="list-style-type: none"> <li>• Increase business development</li> <li>• Increase life condition</li> </ul>
223	Neluwa	H.D.N. Darmadasa	74	Male	Magi Maddegama, Maddegama, Neluwa	<ul style="list-style-type: none"> <li>• Increase income through agriculture development</li> </ul>
224	Neluwa	J.W. Chaminda Gamini	24	Male	Pahala Maddegama, Neluwa	<ul style="list-style-type: none"> <li>• Could keep connection with public servants and outsiders</li> </ul>
225	Neluwa	Subaddra Pushpakumari	28	Female	Bopegoda, Batuwangala, Neluwa	<ul style="list-style-type: none"> <li>• Increase employment</li> <li>• Convenient for day to day work</li> </ul>
226	Neluwa	S.A. Ramani	48	Female	Janapadaya, Batuwapola, Neluwa	<ul style="list-style-type: none"> <li>• Development of self employment</li> </ul>
227	Neluwa	E.G. Somawathie	48	Female	Janapadaya, Batuwapola, Neluwa	<ul style="list-style-type: none"> <li>• Increase income</li> <li>• Convenient for day to day work</li> </ul>
228	Neluwa	G.G. Janaka	35	Male	Senasi, Janapadaya, Batuwangala, Neluwa	<ul style="list-style-type: none"> <li>• Transport development helps to increase income</li> </ul>
229	Neluwa	Sarath Jayantha Ranagala	40	Male	Ranagala stores, Batuwangala, Neluwa	<ul style="list-style-type: none"> <li>• Increase youth's employment</li> <li>• Increase income</li> </ul>

**Summary of public consultation (One on One interview) for Southern Province Galle district (RMC roads) and attendance sheets of FGDs**

District - Galle						
	DSD or GND	Name of Respondent	Age	Sex	Address	Views
230	Udugama-Nagoda	K.M Karunadasa	64	Male	Ukdevita, Udugama	<ul style="list-style-type: none"> <li>• Conveient transportation</li> <li>• Increase business development</li> <li>• Opportunity to get jobs for the young generation.</li> </ul>
231	Udugama-Nagoda	H.G.S Amarathunga	22	Male	"Kusum Sevana" Ukdevita, Udugama	<ul style="list-style-type: none"> <li>• Can save the time.</li> <li>• Conveient transportation for agricultural activities, school children and to the business activities</li> </ul>
232	Udugama-Nagoda	U.G Alis Nona	78	Female	Ukdevita, Udugama	<ul style="list-style-type: none"> <li>• Conveient transportation</li> <li>• Quick access to the medical facilities</li> <li>•Development of the Business sector</li> </ul>
233	Udugama-Nagoda	Village Susila	54	Female	Gonadenia, Udugama	<ul style="list-style-type: none"> <li>• Convenient for school children</li> <li>• Easy to transport tea, paddy and cinnamon</li> </ul>
234	Udugama-Nagoda	Nanda Umagiliya	62	Female	Gonadenia, Udugama	<ul style="list-style-type: none"> <li>•Development of the Business sector</li> <li>• Agro production such could easily transport to the market</li> <li>• Development of social relations due to village development</li> </ul>
235	Akmeemana	Chandana Sampath		Male	52/c Haleganbedda, Ganegoda, Akmeemana	<ul style="list-style-type: none"> <li>•The road improvement has held us to conduct our business</li> <li>•It is important to improve and maintain the road drainage system</li> <li>•It would have been really good if the road was widend a bit</li> </ul>
236	Akmeemana	Achala Liyanage		Female	Achini stores Ganegoda, Akmeemana	<ul style="list-style-type: none"> <li>•Our business has improved due to more coustomers with the improved road</li> <li>•However the drains need to be improved</li> </ul>
237	Akmeemana	A.A. Ariyawathi		Female	Isuru stores Akmeemana	<ul style="list-style-type: none"> <li>•Not much to say about the road</li> <li>•Any way we make more business in April each year</li> <li>•The road drainage should be improved as the present condition causes storm water to enter in to our lands</li> </ul>
238	Akmeemana	T. Weekulasinghe		Male	Manager, Nisansala Timber Mill	<ul style="list-style-type: none"> <li>•The road side drainage system needs to be improved</li> </ul>
239	Akmeemana	U.G. Malani		Female	Nanayakkara Hardware, Karagalketiya	<ul style="list-style-type: none"> <li>•Now we have more customers</li> <li>•It would be good if the road can be widened</li> <li>•Also need to improve the drainage system</li> </ul>
240	Nagoda	N.G. Upananda		Male	Aluthnuwara, Udamatta	<ul style="list-style-type: none"> <li>•Before the road was improved we all faced real hardships when travelling on this road</li> <li>•Lot of vehicles got damaged when plying on this road</li> <li>•Now it is really easy to go on this road and we save a lot of time and money</li> </ul>

**Summary of public consultation (One on One interview) for Southern Province Galle district  
(RMC roads) and attendance sheets of FGDs**

District - Galle						
	DSD or GND	Name of Respondent	Age	Sex	Address	Views
241	Nagoda	Shriyalatha Indrani Kariyawasam		Female	Pansalduwa watta, Kurupanawa	<ul style="list-style-type: none"> <li>•We would be very happy if the remaining sections of this road is also rehabilitated and improved</li> <li>•It feels really good to now move on this road</li> </ul>

Summary of public consultation (One on One interview) for Southern Province Galle district (RMC roads) and attendance sheets of FGDs

Attendance sheet – Wanduramba DS

CPRC 1

කරුණාකර මහත්මයාණනි සහ මහත්මයාණනි සමඟ පැවැත්වූ සාකච්ඡා සටහන  
කොටසක් ලෙස පැවැත්වූ සාකච්ඡා සටහන - 2014.06.02

අංකය	නම	ප්‍රාදේශීය	දුරකථන අංකය	අත්සන
01	සමන්.ඒ. දිසානායක	සමන්තකර නලායි	0725150753	ඒ
02	පී.එම්.ඒ. සමන්ත	සමන්ත නිලධාරී	0173-855210	හේ
03	දිසානායක ආනන්ද	නා.පී.සී.පී.පී.	0771-946226	සමන්ත
04	සුමනා විජේසේන	නා.පී.සී.පී.පී.	077 618527	සුමනා
05	සී.එම්. සමන්ත	නා.පී.සී.පී.පී.	077 185289	සමන්ත
06	සී.එම්. සුමනා	නා.පී.සී.පී.පී.	0779111769	සුමනා
07	සී.එම්. සමන්ත	නා.පී.සී.පී.පී.	0779694495	සමන්ත
08	සී.එම්. සුමනා	නා.පී.සී.පී.පී.	077324324	සුමනා
09	සී.එම්. සමන්ත	නා.පී.සී.පී.පී.	091-390535	සමන්ත
10	සී.එම්. සුමනා	නා.පී.සී.පී.පී.	071.3833383	සුමනා
11	සී.එම්. සමන්ත	නා.පී.සී.පී.පී.	072 611046	සමන්ත
12	සී.එම්. සුමනා	නා.පී.සී.පී.පී.	0770215171	සුමනා
13	සී.එම්. සමන්ත	නා.පී.සී.පී.පී.	0773346203	සමන්ත
14	සී.එම්. සුමනා	නා.පී.සී.පී.පී.	0718005270	සුමනා
15	සී.එම්. සමන්ත	නා.පී.සී.පී.පී.	075121172	සමන්ත
16	සී.එම්. සුමනා	නා.පී.සී.පී.පී.	077 557 111	සුමනා
17	සී.එම්. සමන්ත	නා.පී.සී.පී.පී.	075 1216043	සමන්ත
18	සී.එම්. සුමනා	නා.පී.සී.පී.පී.	0778332552	සුමනා
19	සී.එම්. සමන්ත	නා.පී.සී.පී.පී.	0719 565127	සමන්ත
20	සී.එම්. සුමනා	නා.පී.සී.පී.පී.	077 185289	සුමනා
21	සී.එම්. සමන්ත	නා.පී.සී.පී.පී.	077 185289	සමන්ත

Summary of public consultation (One on One interview) for Southern Province Galle district (RMC roads) and attendance sheets of FGDs

අංකය	නම	සංඛ්‍යාව	දුරකථන අංකය	අත්සන
22	එම්. ඩබ්ලිව්. ජයරත්න	සුමනසිරි මහා	071777818	ආර්. ඩබ්ලිව්.
23	එම්. ඩබ්ලිව්. ජයරත්න	සුමනසිරි මහා	071777818	ආර්. ඩබ්ලිව්.
24	එම්. ඩබ්ලිව්. ජයරත්න	සුමනසිරි මහා	071777818	ආර්. ඩබ්ලිව්.
25	එම්. ඩබ්ලිව්. ජයරත්න	සුමනසිරි මහා	0710503643	ආර්. ඩබ්ලිව්.
26	එම්. ඩබ්ලිව්. ජයරත්න	සුමනසිරි මහා	0718243880	ආර්. ඩබ්ලිව්.
27	එම්. ඩබ්ලිව්. ජයරත්න	සුමනසිරි මහා	0714423495	ආර්. ඩබ්ලිව්.
28	එම්. ඩබ්ලිව්. ජයරත්න	සුමනසිරි මහා	0713542000	ආර්. ඩබ්ලිව්.
29	එම්. ඩබ්ලිව්. ජයරත්න	සුමනසිරි මහා	0712349699	ආර්. ඩබ්ලිව්.

Summary of public consultation (One on One interview) for Southern Province Galle district (RMC roads) and attendance sheets of FGDs

Attendance sheet – Neluwa DS

අභ්‍යන්තර මාර්ග නගා සිටුවීමේ ව්‍යාපෘතිය (I road ව්‍යාපෘතිය)

2014.05.02 රැස්වීමේ පැමිණීමේ ලේඛණය

අනු අංකය	නම	වසම	තනතුර	දුරකතන අංකය	අත්සන
01	P.V. පරමසිංහ	232-0232	ප්‍රධානියා	071-6963447	
02	සා.ස. ප. ප. ප. ප. ප.	232-0232	ප්‍රධානියා	071-6963447	
03	K.V. & Y. තිලක	232-0232	ප්‍රධානියා	071-7289752	
04	එස්.එස්. ප්‍රසාද්	232-0232	ප්‍රධානියා	071-6099133	
05	ආ.එස්. ප්‍රසාද්	232-0232	ප්‍රධානියා	071-6963447	
06	A.L.L. ප්‍රසාද්	232-0232	ප්‍රධානියා	071-3249367	
07	T. ප. ප. ප. ප. ප.	232-0232	ප්‍රධානියා	071-3738113	
08	ආ.එස්. ප්‍රසාද්	232-0232	ප්‍රධානියා	071-2898295	
09	ආ.එස්. ප්‍රසාද්	232-0232	ප්‍රධානියා	071-3263222	
10	ආ.එස්. ප්‍රසාද්	232-0232	ප්‍රධානියා	077-1022488	
11	ආ.එස්. ප්‍රසාද්	232-0232	ප්‍රධානියා	0777841792	
12	ආ.එස්. ප්‍රසාද්	232-0232	ප්‍රධානියා	0724719083	
13	ආ.එස්. ප්‍රසාද්	232-0232	ප්‍රධානියා	071713045	
14	A.D.D. ප්‍රසාද්	232-0232	ප්‍රධානියා	071-6963395	
15	ආ.එස්. ප්‍රසාද්	232-0232	ප්‍රධානියා	0710768268	
16					
17					
18					
19					

**Summary of public consultation (One on One interview) for Southern Province Galle district  
(RMC roads) and attendance sheets of FGDs**

## Annex 6-2

### Sample of information flyer

**ජීනාඩ්ඩු මාර්ග ආයෝජන වැඩසටහන - කෙරුමුරි පළාත**

කොන්ත්‍රාත් සංකේතය - KE 03

කොන්ත්‍රාත් සරා - ගවිලේන පන්තරුවෙන් කම්පාඩි පුද්ගලික සමාගම

**ඉදිකිරීම් කටයුතු සිරිමි ඉමංචිදාය දැනුවත් කිරීම**

උසස් අධ්‍යාපන හා විනෝදාශ්‍රීත අමාත්‍යාංශය යටතේ මාර්ග සංවර්ධන අධිකාරිය මගින් ක්‍රියාත්මක කරනු ලබන ජීනාඩ්ඩු මාර්ග ආයෝජන වැඩසටහන රත්නපුර හා කෑගල්ල දිස්ත්‍රික්ක වල මේ වන විට ප්‍රාදේශීය කර ඇත.

මාර්ගයේ ඉදිකිරීම් කටයුතු සිදුකිරීමට පූර්ව පහත ක්‍රියාකාරකම් සිදු කර දැනගත කැපවිණි ඇත.

- පරික්ෂණ කටයුතු සඳහා මාර්ගයේ පස් පැමිණල්ල ලබා ගැනීම
- මාර්ගය දෙපස පෝ සිසිට් අතරේ ඉඩමේ භාවිතා කළ හැකි පිහිටුම් ලිපි (මෙය ඉදිකිරීම් කළමනාකරුට පමණක් පැවතා වන හැරිත් මාර්ගයේ සිමා ලකුණු සිරිමත් කොටස වට සලකන්න.)
- මාර්ගය දෙපස සිමාගේ හැඹි/ හැරිම/ යන් අදියරෙහි සැලකිම් කටයුතු සඳහා අවශ්‍ය කළ හැකි පටකන් කරනු ලබන හැරිත් ඒවා මාර්ගයේ සිමා ලකුණු සිරිමත් භාගයට ගිර සලකන්න.
- කෙටිමග මාර්ගයේ දැනට පවතින ඉඩ ප්‍රමාණය අනුව මධ්‍ය මට්ටමට කළ හැකි සිරිම
- මාර්ගය දෙපස ඵලදායී සිරිම/ පැහැමි, කෙටිමග අදියර සිරිමද සිරිම

මෙම ප්‍රඥප්තියේ සිදුවන මෙම සංවර්ධන කටයුතු සඳහා සිමාගේ සහකාරියක ලබා දෙනමෙන් කාරුණිකව ඉල්ලා සිටිමි. තවද ඉදිකිරීම් කටයුතු කරගෙන කෑමිදි සිමාගේ සහකාරියක ලබාදීම යුතු අවස්ථාවලදී සිසිට් දැනුවත් කරන මර්ද කාරුණිකව දැන්විමි.

විකාසනික කමිසන්ට සිසිමමි ගැටළුවන් ඇත්නම් පෝ වැඩිදුර කොටසට සඳහා පහත සිදුකිරිත් කම්කරුට කරගත කැපිම.

විමි මේ විමි කසන් විකාසන	දේශිකර්ම ජීනාඩ්ඩු විකාසන
0718280257	0770730349
විකාසනි ඉංජිනේරු, (මාර්ග සංවර්ධන අධිකාරිය)	පහත අංකයක සිසිට්ටි, (මාර්ග සංවර්ධන අධිකාරිය)

විකාසනි අධ්‍යක්ෂ

ජීනාඩ්ඩු මාර්ග ආයෝජන වැඩසටහන

මාර්ග සංවර්ධන අධිකාරිය

විකාසනි අධ්‍යක්ෂ කාර්යාලය (කෙරුමුරි)

අප්‍රේල් 2018  
දෙසැම්බර්

## ***English translation***

### **Integrated road investment program – Sabaragamuwa province**

Contract package:

Contractor:

#### **Awareness creation on the construction process**

Integrated road investment program under the Road Development Authority of Ministry of Higher Education and Highways has now commence construction works in Ratnapura and Kegalle districts.

Following activities can be observed at site before commencement of construction works.

- Taking of soil samples for investigations
- Placing of temporary markers on land both sides of the road and in lands belonging to public (Please note that these markings are only for construction purposes and should not be considered as new road edge markings).
- Readings taken during measurements are marked on walls, fences and trees and they are not markings of road edge.
- New centre line of the road shall be marked using the available space along the road.
- Clearing of road edge/ side vegetation, cleaning of culverts and bridges.

Please be kind enough to give your fullest support of this development work within your area. Any special requirement that would be requested from you shall be informed well in advance during construction works.

Please contact the following officers if you have any problem or if you need to know more about the project.

#### ***(Name, designation and contact No. of officers)***

Project Director,  
iRoad Project,  
Road Development Authority,  
Project Director's office – Sabaragamuwa Province

# Annex 8-1

## Environmental Management Plan and Sample Environmental Monitoring Checklist

## Environmental Management Plan

### Rehabilitation/ improvement and maintenance of RMC package roads in Galle district

This Environmental Management Plan (EMP) is the summarized matrix of all possible impacts that may occur during rehabilitation/ improvement and maintenance of selected roads sections under RMC package in Galle district. Nine road sections starting from Karapitiya and ending at Thawalama (as indicated in below table) have been selected for this RMC package.

Route No.	Road Name	Length (km)	Present condition	Type of activity
	Karapitiya - Labuduwa	1.0	Improved	Routine maintenance
B248	Labuduwa - Wanduramba			
	(a) Labuduwa - Thalagaha	2.0	Improved	Limited rehabilitation and improvement works (only a few sections) and routine maintenance
	(b) Thalagaha - Wanduramba	9.7	Not improved	Full rehabilitation and improvement works and routine maintenance there after
B454	Wanduramba – Yatalamatta – Nagoda	10.7	Improved	Limited rehabilitation and improvement works (only a few sections) and routine maintenance
B303	Nagoda – Gonadeniya	3.62	Improvements in progress	Complete the rehabilitation and improvement works and routine maintenance there after
B139	Gonadeniya – Udugama (Bar Junction)	4.4	Improvements in progress	Complete the rehabilitation and improvement works and routine maintenance there after
B129	Udugama (Bar Junction) – Udugama (Bus stand)	2.9	Improved	Routine maintenance
B429	Udugama (Bus stand) – Hiniduma (Start point of newly improved section)	11.0	Not improved	Full rehabilitation and improvement works and routine maintenance there after
B159	Hiniduma (Start point of newly improved section) - Thawalama	6.6	Improved	Routine maintenance
<b>Total length (km)</b>		<b>51.92</b>		

This EMP should form part of the Bid Documents and shall be considered alongside with the specifications. Thereby the prescriptions detailed in the EMP are mandatory in nature and also contractually binding. The EMP will also equally applicable to sub-contractors including nominated

sub-contractors if any. The Contractor shall be responsible for the compliance with the requirements of the EMP. With the assistance of the PIU, the PIC, on behalf of the Employer the Road Development Authority (RDA) will monitor the compliance of EMP by the Contractor.

The bidders are advised to carefully consider the EMP requirements when preparing the bid and pricing the items of work. As a thumb of rule it is suggested that the contractor allows 10~15% of construction cost as cost to execute environmental compliance requirements. The prescriptions and clauses detailed in the EMP are integral component of the specifications for relevant item of work unless separate items are included in the Bill of Quantities. Thus separate payments will not be made in respect of compliance with the EMP. In case the Contractor or his sub-contractor/s fails to implement the EMP recommendations after informing in writing, the PIC will take whatever actions it is deemed necessary to ensure that the EMP is properly implemented. If the contractor or his sub-contractor/s still fails to comply with EMP requirement, the PIC may levy a penalty based on the level of non-compliance, cost incurred to rectify the damages caused by such negligence and/ or recover the cost from contractor's payments.

The contractor/s shall be updated this EMP and Site Specific Environmental Management Action Plan (SSEMAP) should be developed with site/ location specific measures which is specific for each contract package (if the road will be contractually sub divided) before commencement of the project. SSEMAP should contain all key implementing activities and in relation to such activities, anticipated significant environment issues, proposed measures to mitigate the impact of such issues, parameters to monitor the compliance status of mitigation measures during implementing stage, and monitoring frequencies for respective locations.

The updated SSEMAP for each contract package should be approved by the Project Implementation Consultant (PIC) well in advance to the construction phase. Compliance status of mitigation measures should be furnished by means of timely records of monitoring parameters.

The Contractor through an Environmental Officer for environmental safeguards appointed on a full-time basis shall assist the PIC to discharge his duties as required in the EMP implementation by (a) maintaining up to date records on actions taken by the Contractor with regard to implementation of EMP recommendations (b) timely submission of reports, information and data to the PIU through PIC, (c) participating in the meetings conveyed by the PIC and (d) any other assistance requested by the Engineer.

SL. NO.	Project Action/ Environmental Attributes	Mitigation Measures	Location/ numbers	Costs	Responsible for Implementing	Responsible for Monitoring
I	<b>Design and Preconstruction Stage</b>					
1.	Climate Change Consideration and Vulnerability screening	<ul style="list-style-type: none"> <li>○ Compliance to climate change vulnerability check point given under IEE and adoption of necessary mitigation measures as may be required</li> <li>○ Cross drainage structures to be designed and located based on recommendations of hydrological studies to be conducted during detailed design phase. Alteration of rainfall intensities due to climate change therefore change of peak flows of waterways and land use changes should be clearly studied under hydrological assessments and appropriate mitigation measures should be incorporated to final designs.</li> <li>○ Efforts shall be made to plant additional trees for increasing the carbon sink. The trees may be selected with help of DoF (Department of Forest) and space for additional planting (if the remaining space within ROW is not</li> </ul>	Throughout the route with special attention to road section parallel to river Gin	Design costs.	PIU, Design consultant of the contractor	Project Implementation Unit (PIU) and Project Implementation Consultant (PIC) & RDA

SL. NO.	Project Action/ Environmental Attributes	Mitigation Measures	Location/ numbers	Costs	Responsible for Implementing	Responsible for Monitoring
		adequate) will be secured with the help of DoF, Divisional Secretary (DS) and Community Based Organizations (CBO).				
2.	Clearing of vegetation and removing trees	<ul style="list-style-type: none"> <li>○ All efforts shall be taken to avoid tree cutting wherever possible.</li> <li>○ Requisite permission from DS shall be obtained for cutting of roadside trees</li> <li>○ Cut trees shall be handed over to the Timber Corporation.</li> <li>○ Provision of Compensatory Afforestation shall be made on 1:3.ratio basis using grown up saplings (having at least 3ft height).</li> <li>○ Only native species with the advice of DoF will be selected for replanting and locations for tree replanting will be as closer as possible to the tree removed.</li> <li>○ And if road side space for replanting is not available, other possible locations such as schools, public areas will be explored with the help of DoF, DS and CBOs of the area.</li> <li>○ Provision shall be made for additional compensatory tree plantation. Any leftover of trees shall be removed and disposed in approved manner.</li> </ul>	Throughout the route with specific reference to Thalagaha – Wanduramba and Udugama (Bus stand) – Hiniduma (Start point of newly improved section) section which are to be fully rehabilitated and improved	Costs for tree removal. Costs for compensatory tree replanting.	Contractor	PIU, PIC, DS & RDA

<b>SL. NO.</b>	<b>Project Action/ Environmental Attributes</b>	<b>Mitigation Measures</b>	<b>Location/ numbers</b>	<b>Costs</b>	<b>Responsible for Implementing</b>	<b>Responsible for Monitoring</b>
3.	Shifting of utilities	<ul style="list-style-type: none"> <li>○ The proposed Right of Way (ROW) shall be clearly demarcated on the ground.</li> <li>○ All efforts will be made to minimize shifting of utilities</li> <li>○ Utility shifting shall be planned in consultations and concurrence of the relevant service provider.</li> <li>○ Required permissions and necessary actions will be taken from relevant service provider on a timely basis for removing and shifting utility structures before road construction activities begin.</li> <li>○ The public/users of the particular service should be aware well in advance about the timing of the shifting/removal of the relevant utility lines when the service will be disrupted</li> </ul>	Utility facilities located along either the side of the road which may be shifted due to the road improvement	Costs to cover shifting and reconstruction of utilities and common property resources must be included under project costs.	Contractor	PIU, PIC, RDA, CEB, Sri Lanka Telecom, NWS&DB, CBO for Community based water supply schemes if any

SL. NO.	Project Action/ Environmental Attributes	Mitigation Measures	Location/ numbers	Costs	Responsible for Implementing	Responsible for Monitoring
4.	Hydrology and Drainage	<ul style="list-style-type: none"> <li>Provision of adequate cross drainage structure shall be made to ensure smooth passage of water and maintaining natural drainage pattern of the area. Here, special attention should be paid for flood prone areas.</li> <li>The discharge capacity of the cross drainage structure shall be designed accordingly.</li> <li>Provision of adequate drainage structures shall be made in water stagnant/logging areas if recommended by hydrological studies.</li> <li>Provision of additional cross drainage structure shall be made in the areas where nearby land is sloping towards road alignment on both the sides.</li> </ul>	Near all drainage crossings, rivers, streams and flood prone areas.	Included in project costs.	PIU, Design consultants of the contractor	PIU, PIC and RDA
<b>II.</b>	<b>Construction Stage</b>					
1.	Flood impacts	<ul style="list-style-type: none"> <li>The contractor shall take all measures necessary or as directed by the PIC to keep all drainage paths and drains clear of blockage at all times. Here special attention should be paid to flood prone areas along the entire route.</li> <li>Temporary storage of material should only be within approved sites by the engineer where natural drainage is not disturbed.</li> <li>All wastes should be disposed only at locations approved by the Local Authority of the area.</li> </ul>	Specific attention shall be paid to road section from Udugama to Thawalama which run parallel to river Gin and near Thawalama DS office	To be included under contractors costs	Contractor	PIU, PIC & RDA

SL. NO.	Project Action/ Environmental Attributes	Mitigation Measures	Location/ numbers	Costs	Responsible for Implementing	Responsible for Monitoring
		<ul style="list-style-type: none"> <li>○ If flooding or stagnation of water is caused by contractor's activities, contractors shall provide suitable means to prevent loss of access to any land or property and prevent damage to land and property.</li> <li>○ The construction work near water body shall be planned preferably in dry season so that water quality of the water channel is not affected due to siltation and rain water runoff or else location specific drainage management plans should be arranged in advance to the rainy season with the approval of PIC.</li> <li>○ No material including excavated soil should be allowed to be disposed near water bodies or in paddy lands (even on temporary basis) to curtail any undue wash off of soil and debris in to such nearby water bodies and agricultural lands.</li> <li>○ The contractor should be advised not to damage or block any manmade drainage canal even for temporary basis. If blocked the contractor should remove such debris without any delay preventing any long interruptions of water flow which could damage or hinder cultivation activities</li> </ul>				

<b>SL. NO.</b>	<b>Project Action/ Environmental Attributes</b>	<b>Mitigation Measures</b>	<b>Location/ numbers</b>	<b>Costs</b>	<b>Responsible for Implementing</b>	<b>Responsible for Monitoring</b>
		resulting in loss of crop and produce especially in the upstream side of the drainage path.				

2.	Sourcing and transportation of construction material	<p><b>II Borrow Earth:</b></p> <ul style="list-style-type: none"> <li>○ The borrow earth shall be obtained from borrow pits which are operated with GSMB and CEA approvals.</li> <li>○ And if new borrow pits are opened for the project, necessary approvals and licenses should be obtained from GSMB and CEA. And all conditions laid down in such licenses should be strictly adhered.</li> <li>○ All completed borrow pits should be rehabilitated to satisfy conditions given in the industrial mining license of GSMB</li> <li>○ Borrowing earth from agricultural land shall be minimized to the extent possible. Further, no earth shall be borrowed from already low-lying areas.</li> </ul> <p><b>II Aggregate :</b></p> <ul style="list-style-type: none"> <li>○ The stone aggregate shall be sourced from existing licensed quarries</li> <li>○ Copies of consent/ approval / rehabilitation plan for use of existing source will be submitted to PIU through PIC.</li> <li>○ Topsoil to be stockpiled and protected for use at the rehabilitation stage.</li> <li>○ Fine aggregate material stock piles shall be protected from erosion during rainy season.</li> </ul> <p><b>II Transportation of Construction Material</b></p> <ul style="list-style-type: none"> <li>○ Existing tracks / roads are to be used for hauling of materials to the extent possible.</li> </ul>	Throughout the project area with special attention to borrow pits and quarries to be used in each package	To be included under contractors costs	Contractor	PIU, PIC
----	--	--	---	--	------------	----------

		<ul style="list-style-type: none"><li>○ The vehicles deployed for material transportation shall be spillage proof to avoid or minimize the spillage of the material during transportation.</li></ul>					
--	--	--	--	--	--	--	--

SL. NO.	Project Action/ Environmental Attributes	Mitigation Measures	Location/ numbers	Costs	Responsible for Implementing	Responsible for Monitoring
3.	Loss of productive soil, erosion and land use change	<ul style="list-style-type: none"> <li>○ The top soil from the productive land (borrow areas etc...) shall be preserved and reused for plantation purposes.</li> <li>○ It shall also be used as top cover of embankment slope for growing vegetation to protect soil erosion.</li> <li>○ Shrubs shall be planted in loose soil area.</li> <li>○ It shall be ensured that the land taken on lease for access road, construction camp and temporary office of the storage facilities is restored back to its original land use/as agreed with the land owner before handing it over to land owner.</li> </ul>	Throughout the project area and burrow sites, camps sites, storage areas, vehicle parks, yards and temporary offices	To be included under contractors costs	Contractor	PIU, PIC & RDA
4.	Slope protection and stabilization	<ul style="list-style-type: none"> <li>○ Slope protection measures must be carried out for embankments using appropriate turfing material in combination with drainage improvement measures were appropriate</li> <li>○ Follow up watering and maintenance of the turf must be carried out to ensure the survival of the plants and success of the slope stabilization.</li> </ul>	Along embankments	To be included under contractors costs	Contractor	PIU, PIC & RDA

SL. NO.	Project Action/ Environmental Attributes	Mitigation Measures	Location/ numbers	Costs	Responsible for Implementing	Responsible for Monitoring
5.	Compaction and Contamination of Soil	<ul style="list-style-type: none"> <li>○ Compaction shall be performed without causing damages for adjoining public/private properties.</li> <li>○ To prevent soil compaction in the adjoining productive lands beyond the ROW, the movement of construction vehicles, machinery and equipment shall be restricted to the designated haulage route.</li> <li>○ The productive land shall be reclaimed after construction activity.</li> <li>○ Fuel, lubricants and other construction chemicals shall be stored at the predefined storage location under a roof and on an impervious layer in order to avoid exposure to rain or runoff.</li> <li>○ The storage area shall be paved with gentle slope to a corner and connected with a chamber to collect any spills of the oils.</li> <li>○ All efforts shall be made to minimise the waste generation. Unavoidable waste shall be stored at the designated place prior to disposal.</li> <li>○ To avoid soil contamination at the wash-down and re-fuelling areas, “oil interceptors” shall be provided. Oil and grease spill and oil soaked materials are to be collected and stored in labelled containers (Labelled: WASTE OIL; and hazardous sign be displayed) and sold off to relevant parties. ○</li> </ul>	Throughout the project area with special attention to yards, vehicle parking and servicing areas and construction activities near to paddy and other agricultural lands	To be included under contractors costs	Contractor	PIU, PIC & RDA

SL. NO.	Project Action/ Environmental Attributes	Mitigation Measures	Location/ numbers	Costs	Responsible for Implementing	Responsible for Monitoring
		<ul style="list-style-type: none"> <li>Any land degraded due to construction activities should be restored to the satisfactory level of the owner.</li> </ul>				

SL. NO.	Project Action/ Environmental Attributes	Mitigation Measures	Location/ numbers	Costs	Responsible for Implementing	Responsible for Monitoring
6.	Establishment of Construction Camp, temporary office and storage area	<ul style="list-style-type: none"> <li>Construction camp sites and storage areas shall be located away from any local human settlements, water bodies and forested areas (minimum 0.2 km away) and preferably located on land which is not productive (barren/waste lands presently). If these are not possible, private lands maybe taken on lease as standard practice.</li> <li>The construction camps, office and storage areas shall have provision of adequate water supply, sanitation and all requisite infrastructure facilities.</li> <li>All power cables use for office/camp/site/ wiring and power tools shall be insulated and appropriate accessories shall be used as per regulations.</li> <li>The construction camps, office and storage areas shall have provision of septic tank/soak pit of adequate capacity so that it can function properly for the entire duration of its use. No wastewater is allowed to be sent to the environment without meeting the desired standards.</li> <li>All construction camps shall have provision of rationing facilities particularly for kerosene/LPG so that dependence on firewood for cooking is avoided to the extent possible.</li> <li>The construction camps, office and storage areas shall have provision of</li> </ul>	Throughout the project area with special attention to labour camps, storage areas and office premises	To be included in contractor's cost	Contractor	PIU, PIC, RDA, LA

SL. NO.	Project Action/ Environmental Attributes	Mitigation Measures	Location/ numbers	Costs	Responsible for Implementing	Responsible for Monitoring
		<p>health care facilities for adults, pregnant women and children.</p> <ul style="list-style-type: none"> <li>○ Personal Protective Equipment (PPEs) such as helmet, boots, ear plugs for workers, first aid and firefighting equipment shall be available at construction sites before start of construction. An emergency plan shall be prepared to fight with any emergency like fire.</li> <li>○ Provision shall be made for domestic solid waste disposal in acceptable manner. The solid waste shall be handed over to the waste collecting system of the Local Authority (LA) of the area (if any) and wastewater should be disposed in an environmentally acceptable manner (meeting the desired water quality standards) with the approval of the PIC.</li> <li>○ Provision of paved area for unloading and storage of fuel oil, lubricant oil, away from storm water drainage and a provision of roof where appropriate to avoid interception with the rain.</li> </ul>				

SL. NO.	Project Action/ Environmental Attributes	Mitigation Measures	Location/ numbers	Costs	Responsible for Implementing	Responsible for Monitoring
7.	Construction Debris and waste	<ul style="list-style-type: none"> <li>Timely action shall be taken to make subordinate staff fully aware on non-disposing waste over unauthorized locations.</li> <li>Excavated materials from roadway, shoulders, verges, drains, cross drainage will be used for backfilling embankments, filling pits, and landscaping if recommended by PIC.</li> <li>Unusable debris material and removed pavements of roads should be suitably disposed off at pre-designated disposal locations, with approval of the relevant local authority. Potential sites should be approved by the PIC in advance before applying for the approval.</li> <li>The bituminous wastes if any shall be disposed in secure manner and environmentally accepted manner e.g. Disposed in a pit that is covered properly and adequate revegetation is carried out or others.</li> <li>In establishing disposal sites, unproductive/wastelands shall be selected with the help the PIC and villagers. The dumping site should be of adequate capacity. It should be located without causing nuisance to residential areas. Dumping sites.</li> <li>Further flood prone areas, forest reserves, adjacent to streams and irrigation tanks should be avoided in</li> </ul>	Throughout the project area and all disposal sites	To be included under contractors costs	Contractor	PIU, PIC, RDA and LA

SL. NO.	Project Action/ Environmental Attributes	Mitigation Measures	Location/ numbers	Costs	Responsible for Implementing	Responsible for Monitoring
		<p>selecting disposal sites and existing drainage paths should not be disturbed.</p> <ul style="list-style-type: none"> <li>○ Appropriate soil conservation measures as agreed with the PIC should be practiced in the disposal sites in order to avoid washing off the disposed soil.</li> </ul>				
8.	Air and Noise Quality and vibration	<ul style="list-style-type: none"> <li>○ Vehicles delivering loose and fine materials like sand and aggregates shall be covered.</li> <li>○ Dust suppression measures such as water sprinkling, shall be applied in all dust prone locations such as unpaved haulage roads, earthworks, stockpiles, crusher plants and asphalt mixing areas.</li> <li>○ Batching plants and asphalt (hot mix) should be operated with necessary licenses (Environmental Protection</li> </ul>	Throughout the project road with special attention to schools, hospitals and religious places located along the selected route from	To be included under contractors costs	Contractor	PIU, PIC & RDA

SL. NO.	Project Action/ Environmental Attributes	Mitigation Measures	Location/ numbers	Costs	Responsible for Implementing	Responsible for Monitoring
		<p>License (EPL) and trade license) and plants shall be located at least 0.2 km away and in downwind direction of the human settlements and should not disturb normal life of residents.</p> <ul style="list-style-type: none"> <li>○ Material storage areas shall also be located downwind of the habitation area.</li> <li>○ Hot mix plant shall be fitted with stack of adequate height (30m) or as may be prescribed in the EPL to ensure enough dispersion of exit gases.</li> <li>○ Diesel Generators (DG) shall also be sound proof or fitted with stack of adequate height.</li> <li>○ Construction vehicles and machineries shall be periodically maintained.</li> <li>○ All heavy equipment and machinery shall be fitted in full compliance with the national regulation, Noise Control Regulations - Extra Ordinary Gazette No. 924/12 May 1996 amended by Extra Ordinary Gazette 937/7 April 1997.</li> <li>○ No construction along community areas will be permitted during night time</li> <li>○ Contractor shall take appropriate action to ensure that construction works do not result in damage to adjacent properties due to vibration. If any damages occur, contractor will be responsible for rectifying the damage.</li> </ul>	Karapitiya to Thawalama			

<b>SL. NO.</b>	<b>Project Action/ Environmental Attributes</b>	<b>Mitigation Measures</b>	<b>Location/ numbers</b>	<b>Costs</b>	<b>Responsible for Implementing</b>	<b>Responsible for Monitoring</b>
9.	Tree replantation plantation	<ul style="list-style-type: none"> <li>Timely action shall be taken to make subordinate staff fully aware not to damage any tree beyond construction limits or ROW.</li> <li>Compensatory afforestation shall be made on 1:3.ratio basis.</li> <li>Only native species should be selected with the consent of DoF for replanting</li> <li>Additional trees shall be planted wherever feasible.</li> <li>Follow up maintenance of planted saplings will be carried out</li> </ul>	Throughout the area through which the selected route is located.	To be included under contractors costs	Contractor	PIU, PIC & RDA
10.	Ground Water and Surface Water Quality and Availability	<ul style="list-style-type: none"> <li>The contractor shall arrange for water required during construction in such a way that the water availability and supply to nearby communities remains unaffected.</li> <li>Water intensive activities shall not be undertaken during dry period to the extent feasible.</li> <li>Provision shall be made to link side drains with the nearby ponds for facilitating water harvesting if feasible.</li> <li>Preventive measures such as proper storage of unsuitable soil, construction chemicals, servicing construction vehicles in approved sites, slope stabilisation, etc shall be taken for prevention of siltation and pollution of water bodies.</li> </ul>	Throughout the project area with special attention to streams, irrigation canals and public wells	To be included under contractors costs	Contractor	PIU, PIC & RDA

SL. NO.	Project Action/ Environmental Attributes	Mitigation Measures	Location/ numbers	Costs	Responsible for Implementing	Responsible for Monitoring
11.	Occupational Health and Safety	<ul style="list-style-type: none"> <li>○ The requisite PPE (helmet, mask, boot, hand gloves, earplugs) shall be provided to the construction workers and it should be ensured that labourers use PPE during working hours.</li> <li>○ Workers' exposure to noise will be restricted to less than 8 hours a day. Workers duty shall be regulated accordingly.</li> <li>○ First aid facility should be readily available at every construction site throughout the construction period</li> <li>○ Septic tank or mobile toilets fitted with anaerobic treatment facility shall be provided at construction camp/temporary office/storage areas.</li> <li>○ Domestic solid waste at construction camp shall be properly collected and handed over to the solid waste collecting system of LA or should be disposed in environmentally friendly manner with the approval of PIC.</li> <li>○ Records on health and safety related accidents measures taken to address must be maintained.</li> </ul>	Throughout the project road sections, yards and at material storage facilities.	Costs to be borne by Contractor	Contractor	PIU, PIC & RDA

SL. NO.	Project Action/ Environmental Attributes	Mitigation Measures	Location/ numbers	Costs	Responsible for Implementing	Responsible for Monitoring
12	Traffic Management and Road Safety	<ul style="list-style-type: none"> <li>○ Adequate signboards shall be placed much ahead of diversion site to caution the road users. The road signs should comply with the Road Safety Manual of RDA.</li> <li>○ It is proposed to discuss with the Department of Railways for providing adequate safety measures at unmanned railway crossing where applicable. Adequate clearly visible sign shall be provided on both sides of the railway crossing.</li> <li>○ Road furniture including footpaths, railings, storm water drains, crash barrier, traffic signs, speed zone signs, pavement markers and any other such items will be provided to enhance the road safety where necessary at the completion of the project</li> <li>○ Night time illumination should be in place at every location where the road is narrow, diverted and structures are repaired and any other places where the PIC recommends to do so.</li> <li>○ Monitor and record road crashes during construction and maintenance stages and take appropriate remedial actions</li> </ul>	Throughout the road sections of RMC package in Galle district	To be included in contractor's cost	Contractor	PIU, PIC & RDA

<b>SL. NO.</b>	<b>Project Action/ Environmental Attributes</b>	<b>Mitigation Measures</b>	<b>Location/ numbers</b>	<b>Costs</b>	<b>Responsible for Implementing</b>	<b>Responsible for Monitoring</b>
13.	Impacts on Biodiversity	<ul style="list-style-type: none"> <li>○ No solid waste or spoil dumping sites, hot mix plants and worker camps should be located within or close to the forest reserve. Strict worker force supervision should be carried out by the contractor when conducting construction work within the area and the construction works should be completed within a minimum specified time period.</li> <li>○ Restrictions on the daily working hours between daylight and sunset must be enforced in sites near the forest area.</li> <li>○ Conditions which may be required by the DOFC for roads located adjacent or close to forest areas must be met</li> <li>○ Ensure that the timing of tree removal does not coincide with breeding season of birds or other fauna if the trees are being used by birds and other fauna <ul style="list-style-type: none"> <li>○ Labourers should be made aware on possible movement of elephants and construction activities should be modified if such movements will occur.</li> </ul> </li> </ul>	Throughout the road sections with special attention within the road section close to Kannaliya forest reserve.	To be included in contractor's cost	Contractor	PIU, PIC & RDA

SL. NO.	Project Action/ Environmental Attributes	Mitigation Measures	Location/ numbers	Costs	Responsible for Implementing	Responsible for Monitoring
<b>III</b>	<b>Operational &amp; maintenance Stage</b>					
1.	Hydrology and Drainage	<ul style="list-style-type: none"> <li>○ Regular removal/cleaning of deposited silt shall be done from drainage channels and outlet points especially before the monsoon season.</li> <li>○ Renovation of the drainage system by repairing removing encroachments/ congestions shall be regularly conducted</li> </ul>	All drainage structures	To be included in contractor's maintenance cost	Contractor (during maintenance period and RDA afterwards)	PIC, PIU and RDA

<b>SL. NO.</b>	<b>Project Action/ Environmental Attributes</b>	<b>Mitigation Measures</b>	<b>Location/ numbers</b>	<b>Costs</b>	<b>Responsible for Implementing</b>	<b>Responsible for Monitoring</b>
2.	Air and Noise Quality	<ul style="list-style-type: none"> <li>o Placing sign boards for speed limitation and honking restrictions to be enforced near sensitive locations.</li> <li>o Removal of dust &amp; mud collected on road surface to avoid dust emanation</li> <li>o Strategically locating compensatory plantation along sensitive noise receptors to provide additional attenuation</li> <li>o Installation of noise and dust barriers if levels are found to exceed required standards.</li> </ul>	Throughout the project roads	construction cost and maintenance cost	Contractor (during maintenance period and RDA afterwards)	PIC, PIU and RDA
3.	Site restoration	<ul style="list-style-type: none"> <li>o All construction camp/temporary office/material storage areas are to be restored to its original conditions or as agreed with the land owner.</li> <li>o The borrow areas rehabilitation will be as per the conditions laid down in GSMB approval.</li> </ul>	All locations of construction camps/temporary office/ material storage, and borrow areas	To be borne by the contractor	Contractor (during maintenance period and RDA afterwards)	PIC, PIU and RDA
4.	Tree replanting	<ul style="list-style-type: none"> <li>o Contractor to undertake survivability assessment and report to PIC the status of compensatory tree plantation.</li> <li>o Additional plants should be planted for dead plants if any</li> </ul>	All tree replanted areas	To be borne by the contractor	Contractor (during maintenance period and RDA afterwards)	PIC, PIU and RDA

<b>SL. NO.</b>	<b>Project Action/ Environmental Attributes</b>	<b>Mitigation Measures</b>	<b>Location/ numbers</b>	<b>Costs</b>	<b>Responsible for Implementing</b>	<b>Responsible for Monitoring</b>
5.	Occupational Health and Safety	<ul style="list-style-type: none"> <li>○ The requisite PPE (helmet, mask, boot, hand gloves, earplugs) shall be provided to the maintenance workers and it should be ensured that labourers use PPE during working hours.</li> <li>○ First aid facility should be readily available at the construction site</li> <li>○ Septic tank or mobile toilets fitted with anaerobic treatment facility shall be provided at construction camp/temporary office/storage areas.</li> <li>○ Domestic solid waste at construction camp shall be properly collected and handed over to the solid waste collecting system of LA.</li> <li>○ Records on health and safety related accidents measures taken to address must be maintained</li> </ul>	Throughout the project roads	To be borne by the contractor	Contractor (during maintenance period and RDA afterwards)	PIC, PIU and RDA

<b>SL. NO.</b>	<b>Project Action/ Environmental Attributes</b>	<b>Mitigation Measures</b>	<b>Location/ numbers</b>	<b>Costs</b>	<b>Responsible for Implementing</b>	<b>Responsible for Monitoring</b>
6.	Repairing of road surface and drainage structures	<ul style="list-style-type: none"> <li>○ If drainage structures and road surface are to be repaired during maintenance period, possible impacts to the environment and social setup should be minimized by implementing applicable mitigation measures as given for the construction phase above.</li> <li>○ In addition PIC/PIU/RDA can impose any mitigation measure for any unpredicted impact can be occurred during maintenance period which is not identified in the EMP.</li> </ul>	Throughout the route from Karapitiya to Thawalama	To be borne by the contractor	Contractor (during maintenance period and RDA afterwards)	PIC, PIU and RDA

## Environmental Monitoring Checklist during Design/ Pre-Construction and Construction Stage

### Rehabilitation/ improvement and maintenance of RMC package roads in Galle district

**District:**

**Road Name:**

**Road ID:**

**Total length:**

**Report No. and date:**

**Completed by:**

SL. NO	Project Action/ Environmental Attributes	Mitigation Measures	Location/ numbers	Compliance status (Complied, partly complied, not complied)	Corrective action proposed if any
<b>I. Pre-construction &amp; Design phase</b>					
1.	Climate Change Consideration and Vulnerability screening	<ul style="list-style-type: none"> <li>○ Compliance to climate change vulnerability check point given under IEE and adoption of necessary mitigation measures as may be required</li> <li>○ Cross drainage structures to be designed and located based on recommendations of hydrological studies to be conducted during detailed design phase. Alteration of rainfall intensities due to climate change therefore change of peak flows of waterways and land use changes should be clearly studied under hydrological assessments and appropriate mitigation measures should be incorporated to final designs.</li> <li>○ Efforts shall be made to plant additional trees for increasing the carbon sink. The trees may</li> </ul>	Throughout the project and flood prone areas (e.g. near Thawalama DS office) and other possible areas of tree planting		



		be selected with help of DoF (Department of Forest) and space for additional planting (if the remaining space within ROW is not adequate) will be secured with the help of DoF, Divisional Secretary (DS) and Community Based Organizations (CBO).			
2.	Clearing of vegetation and removing trees	<ul style="list-style-type: none"> <li>○ All efforts shall be taken to avoid tree cutting wherever possible.</li> <li>○ Requisite permission from DS shall be obtained for cutting of roadside trees</li> <li>○ Cut trees shall be handed over to the Timber Corporation.</li> <li>○ Provision of Compensatory Afforestation shall be made on 1:3.ratio basis using grown up saplings (having at least 3ft height).</li> <li>○ Only native species with the advice of DoF will be selected for replanting and locations for tree replanting will be as closer as possible to the tree removed.</li> <li>○ And if road side space for replanting is not available, other possible locations such as schools, public areas will be explored with the help of DoF, DS and CBOs of the area.</li> <li>○ Provision shall be made for additional compensatory tree plantation. Any leftover of trees shall be removed and disposed in approved manner.</li> </ul>	Throughout the project area		
3.	Shifting of utilities	<ul style="list-style-type: none"> <li>○ The proposed Right of Way (ROW) shall be clearly demarcated on the ground.</li> <li>○ All efforts will be made to minimize shifting of utilities</li> <li>○ Utility shifting shall be planned in consultations and concurrence of the relevant service provider.</li> <li>○ Required permissions and necessary actions will be taken from relevant service provider on a timely basis for removing and shifting utility</li> </ul>	Utility facilities located along either the side of the road which may be shifted due to the road improvement		



		<p>structures before road construction activities begin.</p> <ul style="list-style-type: none"> <li>○ The public/users of the particular service should be aware well in advance about the timing of the shifting/removal of the relevant utility lines when the service will be disrupted</li> </ul>			
4.	Hydrology and Drainage	<ul style="list-style-type: none"> <li>○ Provision of adequate cross drainage structure shall be made to ensure smooth passage of water and maintaining natural drainage pattern of the area. Here, special attention should be paid for flood prone areas.</li> <li>○ The discharge capacity of the cross drainage structure shall be designed accordingly.</li> <li>○ Provision of adequate drainage structures shall be made in water stagnant/logging areas if recommended by hydrological studies.</li> <li>○ Provision of additional cross drainage structure shall be made in the areas where nearby land is sloping towards road alignment on both the sides.</li> </ul>	Near all drainage crossings, rivers, streams and flood prone areas.		
<b>II. Construction phase</b>					
1.	Flood impacts	<ul style="list-style-type: none"> <li>○ The contractor shall take all measures necessary or as directed by the PIC to keep all drainage paths and drains clear of blockage at all times. Here special attention should be paid to flood prone areas along the candidate road sections of RMC package.</li> <li>○ Temporary storage of material should only be within approved sites by the engineer where natural drainage is not disturbed.</li> <li>○ All wastes should be disposed only at locations approved by the Local Authority of the area.</li> <li>○ If flooding or stagnation of water is caused by contractor's activities, contractors shall provide suitable means to prevent loss of</li> </ul>	Throughout the project area with special attention to road sections which are prone to flooding		



		<p>access to any land or property and prevent damage to land and property.</p> <ul style="list-style-type: none"> <li>○ The construction work near water body shall be planned preferably in dry season so that water quality of the water channel is not affected due to siltation and rain water runoff or else location specific drainage management plans should be arranged in advance to the rainy season with the approval of PIC.</li> <li>○ No material including excavated soil should be allowed to be disposed near water bodies or in paddy lands (even on temporary basis) to curtail any undue wash off of soil and debris in to such nearby water bodies and agricultural lands.</li> <li>○ The contractor should be advised not to damage or block any manmade drainage canal even for temporary basis. If blocked the contractor should remove such debris without any delay preventing any long interruptions of water flow which could damage or hinder cultivation activities resulting in loss of crop and produce especially in the upstream side of the drainage path.</li> </ul>			
2.	Sourcing and transportation of construction material	<p><b>   Borrow Earth:</b></p> <ul style="list-style-type: none"> <li>○ The borrow earth shall be obtained from borrow pits which are operated with GSMB and CEA approvals.</li> <li>○ And if new borrow pits are opened for the project, necessary approvals and licenses should be obtained from GSMB and CEA. And all conditions laid down in such licenses should be strictly adhered.</li> </ul>	Throughout the project area with special attention to borrow pits and quarries to be used in each package		



		<ul style="list-style-type: none"> <li>○ All completed borrow pits should be rehabilitated to satisfy conditions given in the industrial mining license of GSMB</li> <li>○ Borrowing earth from agricultural land shall be minimized to the extent possible. Further, no earth shall be borrowed from already low-lying areas.</li> </ul> <p><b>   Aggregate :</b></p> <ul style="list-style-type: none"> <li>○ The stone aggregate shall be sourced from existing licensed quarries</li> <li>○ Copies of consent/ approval / rehabilitation plan for use of existing source will be submitted to PIU through PIC.</li> <li>○ Topsoil to be stockpiled and protected for use at the rehabilitation stage.</li> </ul> <p><b>   Transportation of Construction Material</b></p> <ul style="list-style-type: none"> <li>○ Existing tracks / roads are to be used for hauling of materials to the extent possible.</li> <li>○ The vehicles deployed for material transportation shall be spillage proof to avoid or minimize the spillage of the material during transportation.</li> </ul>			
3.	Loss of productive soil, erosion and land use change	<ul style="list-style-type: none"> <li>○ The top soil from the productive land (borrow areas etc...) shall be preserved and reused for plantation purposes.</li> <li>○ It shall also be used as top cover of embankment slope for growing vegetation to protect soil erosion.</li> <li>○ Shrubs shall be planted in loose soil area.</li> <li>○ It shall be ensured that the land taken on lease for access road, construction camp and temporary office of the storage facilities is restored back to its original land use/as agreed with the land owner before handing it over to land owner.</li> </ul>	Throughout the project area and borrow sites, camps sites, storage areas, vehicle parks, yards and temporary offices		



4.	Slope protection and stabilization	<ul style="list-style-type: none"> <li>○ Slope protection measures must be carried out for embankments using appropriate turfing material in combination with drainage improvement measures were appropriate</li> <li>○ Follow up watering and maintenance of the turf must be carried out to ensure the survival of the plants and success of the slope stabilization.</li> </ul>	Along embankments		
5.	Compaction and Contamination of Soil	<ul style="list-style-type: none"> <li>○ To prevent soil compaction in the adjoining productive lands beyond the ROW, the movement of construction vehicles, machinery and equipment shall be restricted to the designated haulage route.</li> <li>○ The productive land shall be reclaimed after construction activity.</li> <li>○ Fuel, lubricants and other construction chemicals shall be stored at the predefined storage location under a roof and on an impervious layer in order to avoid exposure to rain or runoff.</li> <li>○ The storage area shall be paved with gentle slope to a corner and connected with a chamber to collect any spills of the oils.</li> <li>○ All efforts shall be made to minimise the waste generation. Unavoidable waste shall be stored at the designated place prior to disposal.</li> <li>○ To avoid soil contamination at the wash-down and re-fuelling areas, "oil interceptors" shall be provided. Oil and grease spill and oil soaked materials are to be collected and stored in labelled containers (Labelled: WASTE OIL; and hazardous sign be displayed) and sold off to relevant parties. o</li> <li>○ Any land degraded due to construction activities should be restored to the satisfactory level of the owner.</li> </ul>	Throughout the project area with special attention to yards, vehicle parking and servicing areas and construction activities near to paddy and other agricultural lands		
6.	Establishment of Construction Camp,	<ul style="list-style-type: none"> <li>○ Construction camp sites and storage areas shall be located away from any local human</li> </ul>	Throughout the project area with special		



	temporary office and storage area	<p>settlements, water bodies and forested areas (minimum 0.2 km away) and preferably located on land which is not productive (barren/waste lands presently). If these are not possible, private lands maybe taken on lease as standard practice.</p> <ul style="list-style-type: none"> <li>○ The construction camps, office and storage areas shall have provision of adequate water supply, sanitation and all requisite infrastructure facilities.</li> <li>○ The construction camps, office and storage areas shall have provision of septic tank/soak pit of adequate capacity so that it can function properly for the entire duration of its use. No wastewater is allowed to be sent to the environment without meeting the desired standards.</li> <li>○ All construction camps shall have provision of rationing facilities particularly for kerosene/LPG so that dependence on firewood for cooking is avoided to the extent possible.</li> <li>○ The construction camps, office and storage areas shall have provision of health care facilities for adults, pregnant women and children.</li> <li>○ Personal Protective Equipment (PPEs) such as helmet, boots, ear plugs for workers, first aid and firefighting equipment shall be available at construction sites before start of construction. An emergency plan shall be prepared to fight with any emergency like fire.</li> <li>○ Provision shall be made for domestic solid waste disposal in acceptable manner. The solid waste shall be handed over to the waste collecting system of the Local Authority (LA) of the area (if any) and wastewater should be disposed in an environmentally acceptable manner (meeting</li> </ul>	attention to labour camps, storage areas and office premises		
--	-----------------------------------	--	--	--	--



		<p>the desired water quality standards) with the approval of the PIC.</p> <ul style="list-style-type: none"> <li>○ Provision of paved area for unloading and storage of fuel oil, lubricant oil, away from storm water drainage and a provision of roof where appropriate to avoid interception with the rain.</li> </ul>			
7.	Construction Debris and waste	<ul style="list-style-type: none"> <li>○ Excavated materials from roadway, shoulders, verges, drains, cross drainage will be used for backfilling embankments, filling pits, and landscaping if recommended by PIC.</li> <li>○ Unusable debris material and removed pavements of roads should be suitably disposed off at pre-designated disposal locations, with approval of the relevant local authority. Potential sites should be approved by the PIC in advance before applying for the approval.</li> <li>○ The bituminous wastes if any shall be disposed in secure manner and environmentally accepted manner eg. Disposed in a pit that is covered properly and adequate revegetation is carried out or others.</li> <li>○ In establishing disposal sites, unproductive/wastelands shall be selected with the help the PIC and villagers. The dumping site should be of adequate capacity. It should be located without causing nuisance to residential areas. Dumping sites.</li> <li>○ Further flood prone areas, forest reserves, adjacent to streams and irrigation tanks should be avoided in selecting disposal sites and existing drainage paths should not be disturbed.</li> <li>○ Appropriate soil conservation measures as agreed with the PIC should be practiced in the disposal sites in order to avoid washing off the disposed soil.</li> </ul>	Throughout the project area and all disposal sites		



8.	Air and Noise Quality and vibration	<ul style="list-style-type: none"> <li>○ Vehicles delivering loose and fine materials like sand and aggregates shall be covered.</li> <li>○ Dust suppression measures such as water sprinkling, shall be applied in all dust prone locations such as unpaved haulage roads, earthworks, stockpiles, crusher plants and asphalt mixing areas.</li> <li>○ Batching plants and asphalt (hot mix) should be operated with necessary licenses (Environmental Protection License (EPL) and trade license) and plants shall be located at least 0.2 km away and in downwind direction of the human settlements and should not disturb normal life of residents.</li> <li>○ Material storage areas shall also be located downwind of the habitation area.</li> <li>○ Hot mix plant shall be fitted with stack of adequate height (30m) or as may be prescribed in the EPL to ensure enough dispersion of exit gases.</li> <li>○ Diesel Generators (DG) shall also be sound proof or fitted with stack of adequate height.</li> <li>○ Construction vehicles and machineries shall be periodically maintained.</li> <li>○ All heavy equipment and machinery shall be fitted in full compliance with the national regulation, Noise Control Regulations - Extra Ordinary Gazette No. 924/12 May 1996 amended by Extra Ordinary Gazette 937/7 April 1997.</li> <li>○ No construction along community areas will be permitted during night time</li> <li>○ Contractor shall take appropriate action to ensure that construction works do not result in damage to adjacent properties due to vibration. If any damages occur, contractor will be responsible for rectifying the damage.</li> </ul>	Throughout the project road with special attention to schools, hospitals and religious places located along the candidate road sections		
9.	Tree plantation	<ul style="list-style-type: none"> <li>○ Compensatory afforestation shall be made on 1:3.ratio basis.</li> </ul>	Throughout the all project roads.		



		<ul style="list-style-type: none"> <li>○ Only native species should be selected with the consent of DoF for replanting</li> <li>○ Additional trees shall be planted wherever feasible.</li> <li>○ Follow up maintenance of planted saplings will be carried out</li> </ul>			
10.	Ground Water and Surface Water Quality and Availability	<ul style="list-style-type: none"> <li>○ The contractor shall arrange for water required during construction in such a way that the water availability and supply to nearby communities remains unaffected.</li> <li>○ Water intensive activities shall not be undertaken during dry period to the extent feasible.</li> <li>○ Provision shall be made to link side drains with the nearby ponds for facilitating water harvesting if feasible.</li> <li>○ Preventive measures such as proper storage of unsuitable soil, construction chemicals, servicing construction vehicles in approved sites, slope stabilisation, etc shall be taken for prevention of siltation and pollution of water bodies.</li> </ul>	Throughout the project area with special attention to streams, irrigation tanks and public wells		
11.	Occupational Health and Safety	<ul style="list-style-type: none"> <li>○ The requisite PPE (helmet, mask, boot, hand gloves, earplugs) shall be provided to the construction workers and it should be ensured that labourers use PPE during working hours.</li> <li>○ Workers' exposure to noise will be restricted to less than 8 hours a day. Workers duty shall be regulated accordingly.</li> <li>○ First aid facility should be readily available at every construction site throughout the construction period</li> <li>○ Septic tank or mobile toilets fitted with anaerobic treatment facility shall be provided at construction camp/temporary office/storage areas.</li> <li>○ Domestic solid waste at construction camp shall be properly collected and handed over to the solid waste collecting system of LA or should be</li> </ul>	Throughout the project road sections		



		<p>disposed in environmentally friendly manner with the approval of PIC.</p> <ul style="list-style-type: none"> <li>Records on health and safety related accidents measures taken to address must be maintained.</li> </ul>			
12	Traffic Management and Road Safety	<ul style="list-style-type: none"> <li>Adequate signboards shall be placed much ahead of diversion site to caution the road users. The road signs should comply with the Road Safety Manual of RDA.</li> <li>It is proposed to discuss with the Department of Railways for providing adequate safety measures at unmanned railway crossing where applicable. Adequate clearly visible sign shall be provided on both sides of the railway crossing.</li> <li>Road furniture including footpaths, railings, storm water drains, crash barrier, traffic signs, speed zone signs, pavement markers and any other such items will be provided to enhance the road safety where necessary at the completion of the project</li> <li>Night time illumination should be in place at every location where the road is narrow, diverted and structures are repaired and any other places where the PIC recommends to do so.</li> <li>Monitor and record road crashes during construction and maintenance stages and take appropriate remedial actions</li> </ul>	Throughout the candidate sections of the road		
13.	Impacts on Biodiversity	<ul style="list-style-type: none"> <li>No solid waste or spoil dumping sites, hot mix plants and worker camps should be located within or close to the forest reserve. Strict worker force supervision should be carried out by the contractor when conducting construction work within the area and the construction works should be completed within a minimum specified time period.</li> <li>Restrictions on the daily working hours between daylight and sunset must be enforced in sites near the forest area.</li> </ul>	Throughout the road sections with special attention near the forest reserve		



		<ul style="list-style-type: none"> <li>○ Conditions which may be required by the DOFC for roads located adjacent or close to forest areas must be met</li> <li>○ Ensure that the timing of tree removal does not coincide with breeding season of birds or other fauna if the trees are being used by birds and other fauna</li> <li>○ Labourers should be made aware on possible movement of elephants and construction activities should be modified if such movements will occur.</li> </ul>			
<b>III. Operational &amp; maintenance Stage</b>					
1.	Hydrology and Drainage	<ul style="list-style-type: none"> <li>○ Regular removal/cleaning of deposited silt shall be done from drainage channels and outlet points especially before the monsoon season.</li> <li>○ Renovation of the drainage system by repairing removing encroachments/ congestions shall be regularly conducted</li> </ul>	At project road locations with drainage structures		
2.	Air and Noise Quality	<ul style="list-style-type: none"> <li>○ Placing sign boards for speed limitation and honking restrictions to be enforced near sensitive locations.</li> <li>○ Removal of dust &amp; mud collected on road surface to avoid dust emanation</li> <li>○ Strategically locating compensatory plantation along sensitive noise receptors to provide additional attenuation</li> <li>○ Installation of noise and dust barriers if levels are found to exceed required standards.</li> </ul>	Throughout the project roads		
3.	Site restoration	<ul style="list-style-type: none"> <li>○ All construction camp/temporary office/material storage areas are to be restored to its original conditions or as agreed with the land owner.</li> <li>○ The borrow areas rehabilitation will be as per the conditions laid down in GSMB approval.</li> </ul>	All locations of construction camps/temporary office/ material storage, and borrow areas		



4.	Tree replanting	<ul style="list-style-type: none"> <li>○ Contractor to undertake survivability assessment and report to PIC the status of compensatory tree plantation.</li> <li>○ Additional plants should be planted for dead plants if any</li> </ul>	All tree replanted areas		
5.	Occupational Health and Safety	<ul style="list-style-type: none"> <li>○ The requisite PPE (helmet, mask, boot, hand gloves, earplugs) shall be provided to the maintenance workers and it should be ensured that labourers use PPE during working hours.</li> <li>○ First aid facility should be readily available at the construction site</li> <li>○ Septic tank or mobile toilets fitted with anaerobic treatment facility shall be provided at construction camp/temporary office/storage areas.</li> <li>○ Domestic solid waste at construction camp shall be properly collected and handed over to the solid waste collecting system of LA.</li> <li>○ Records on health and safety related accidents measures taken to address must be maintained</li> </ul>	Throughout the project roads and camp sites if any		
6.	Repairing of road surface and drainage structures	<ul style="list-style-type: none"> <li>○ If drainage structures and road surface are to be repaired during maintenance period, possible impacts to the environment and social setup should be minimized by implementing applicable mitigation measures as given for the construction phase above.</li> <li>○ In addition PIC/PIU/RDA can impose any mitigation measure for any unpredicted impact can be occurred during maintenance period which is not identified in the EMP.</li> </ul>	Throughout the road sections of the road		

