Initial Environmental Examination

June 2017

SRI: Second Integrated Road Investment Program

Eastern Province

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

CURRENCY EQUIVALENTS

(as of 30 May 2017)

Currency unit	–	Sri Lanka Rupee (SLRl}
SLR1.00	=	$ 0.00655
$1.00	=	Rs 152.63

ABBREVIATIONS

ABC	-	Aggregate Base Course
AC	-	Asphalt Concrete
ADB	-	Asian Development Bank
BIQ	-	Basic Information Questionnaire
CBO	-	Community Based Organizations
CEA	-	Central Environmental Authority
CW	-	Carriage Way
DCS	-	Department of Census and Statistics
DoF	-	Department of Forest
DOI	-	Department of Irrigation
DSD	-	Divisional Secretary Divisions
DWC	-	Department of Wildlife Conservation
EC	-	Environmental Checklist
EIA	-	Environmental Impact Assessment
EMP	-	Environmental Management Plan
EMoP	-	Environment Monitoring Plan
EPL	-	Environmental Protection License
ESDD	-	Environmental and Social Development Division
ESU	-	Environment and Social Unit
GDP	-	Gross Domestic Product
GEF	-	Global Environment Facility
GND	-	Grama Niladhari Divisions
GoSL	-	Government of Sri Lanka
GRC	-	Grievance Redress Committee
GRM	-	Grievance Redress Mechanism
GSMB	-	Geological Survey and Mines Bureau
IEE	-	Initial Environmental Examination
IEDs	-	Explosive Devices
iRoad	-	Integrated Road Investment Program
iRoad 2	-	Second Integrated Road Investment Program
LA	-	Local Authority
LAA	-	Land Acquisition Act
MC	-	Municipal Council
NAAQS	-	National Ambient Air Quality Standards
NBRO	-	National Building Research Organization
NEA	-	National Environmental Act
NP	-	Northern Province
NWS&DB	-	National Water Supply and Drainage Board
PIC	-	Project Implementation Consultant
PIU	-	Project Implementation Unit
PCPIU	-	Project Coordinating PIU
PRDA	-	Provincial Road Development Authority

PS	-	Pradeshiya Sabha
RDA	-	Road Development Authority
ROW	-	Right of Way
SLLRDC	-	Sri Lanka Land Reclamation and Development Corporation
SSEMAP	-	Site Specific Environmental Management Action Plans
TOR	-	Terms of Reference
TEEMP	-	Transport Emissions Evaluation Model for Projects
UNEP	-	United Nations Environment Program
UXO	-	Unexploded Ordnance

TABLE OF CONTENTS

LIST OF APPENDIXES

LIST OF TABLES

LIST OF FIGURES

EXECUTIVE SUMMARY

A. Introduction

1. The Government of Sri Lanka (GOSL) places a great emphasis on the improvement of rural road network in the country and to improve transport connectivity between rural communities and socioeconomic centers. In this regard, the Road Development Authority (RDA) under the Ministry of Higher Education and Highways, has proposed Second Integrated Road Investment Program (iRoad 2 Program) with the aim of developing rural communities as rural hubs according to their population and development potential. After the long armed conflict in the country, the GOSL has given special emphasis on economic development in Eastern Province (EP) by allocating both national and foreign fund resources under short, mid and long term plans.

2. The broad objective of the project is to improve the connectivity within the rural road network in the provincial and national road network in the EP and to reduce cost and journey time and improve reliability of access. In this manner it is intended to enhance opportunities for rural population for economic growth and income generation to align with the nationwide economic and social development. In order to achieve these objectives, upgrading and maintaining the existing roads to all weather standards, surfacing the existing pavement with Asphalt Concrete (or concrete) if the present surface failures occurs, repair or reconstruct of damaged culverts and other cross drainages, introduce earth drains for all road sections and built up drains where necessary and remove any irregularities that are on the existing vertical profile there by improve the vehicle operating speeds while ensuring safety of road users will be implemented. The proposed improvement to the road pavement will be limited mainly along the existing Right Of Way (ROW). However, small strips of land from land lots adjoining some of these roads will be required to improve on road safety and road side drainage aspects. If such requirement arise the strips of land will be taken through “voluntary land donation process”.

3. Under this program, Around 1,200 kms of rural roads and around 100 kms of National roads located within Ampara, Trincomalee and Batticaloa Districts of Eastern Province will be upgraded and maintained to all-weather standards. Majority of these roads are currently governed by Pradeshiya Shaba of all three Districts while rest are governed by the Municipality Council (MC), Urban Council (UC), Provincial Road Development Authority (PRDA) of EP and RDA. The identified roads have not been rehabilitated properly during the civil war period and afterwards therefore the existing surface condition, drainage facilities, structures and width of the carriageway are not appropriate for long term usage and create many environmental and social issues such as soil erosion, sedimentation, stagnation of water, temporary flood and pollution of air quality in the area. RDA has discussed with ADB to finance iRoad 2 program under a time sliced Multi tranche Financing Facility (MFF) similar to iRoad program. The program will rehabilitate and update selected rural roads in Northern Province (NP), Eastern Province (EP), Uva and Western Province (UP & WP). Rehabilitation and upgrading work of rural and national roads will be carried out for 2 years. While maintenance of rural roads will be for a period of three (3) years and for national roads it will be five (5) years.

4. This report presents the findings of Initial Environment Examination (IEE) of EP. The report was prepared based on the field screening process of all identified roads in EP as a requirement of the Survey and Preliminary Engineering Work (SAPE work) .Skills International (Pvt) Ltd on behalf of RDA was assigned to carry out all the field work and prepare Environment Checklists and IEE Report of proposed roads of EP.

5. The main objective of the IEE report is to present a comprehensive account on existing environment condition of proposed project area in terms of Physical, Ecological, Economical and Social environment. Further identification of both potential positive and negative environment and social impacts during the pre-construction, construction and operation stages of the project, propose suitable measures to be implemented against anticipated negative impacts and to enhance the positive impacts have been incorporated as specified in the ToR. The common Environment Management Plan (EMP) and Environment Monitoring Plan (EMoP) with recommended institutional arrangement for implementation, cost and monitoring throughout the project cycle is also included in the report. In addition public views and suggestions regarding the proposed project are also included in the IEE report to ensure the concerns of public is included during the detailed design of these roads.

6. Key national environmental laws and regulations followed during the environmental assessment includes; National Environment Act No. 47, Coast Conservation Act No 57 of 1981, National Environmental (Protection and Quality) Regulation No. 1 of 1990, National Environmental (Ambient Air Quality) Regulations,1994, National Environmental (Noise Control) Regulations No.1 of 1996, Fauna and Flora Protection Act No. 2 of 1937, Forest Act No. 34 of 1951, Felling of Trees Control Act No. 9 of 1951, Soil Conservation Act No. 25 of 1951, Explosives Act No. 36 of 1976, Water Resources Board Act, No. 29 of 1964, Urban Councils Ordinance No. 61 of 1939, Agrarian Development Act No. 46 of 2000 (Section 32). Sri Lanka Land Reclamation and Development Corporation Act 15 of 1968 and National Thoroughfares Act No. 40 of 2008 among many others. Apart from that several International Agreements and Conventions were considered during this investment program.

B. Methodology

7. Initially, the Environmental Checklist (EC) for each road was prepared based on the instructions given in the Environment Assessment Review Framework (EARF). Based on the findings, one Rapid Environmental Assessment (REA) checklist was prepared for the province as required by the ADB SPS and accordingly the proposed project was categorized as environmental category B. This was followed by preparation of IEE.

8. Field assessment of the proposed roads was carried out during the period mid-October up to mid November 2016. Under the environmental assessment procedures outlined in the EARF, following environmental criteria were used for road selection: i) no category A project was included; ii) no project roads in part or whole inside a protected area were selected under the program; iii) project roads adjacent to protected areas or sensitive location were only considered if there is no widening of the road ROW; iv) minimal impact of rehabilitation on sensitive ecological habitat. During the field survey both environmentally and public sensitive places located beside the roads and land use pattern of the project area were recorded. In addition, road side utilities and trees with 60cm Girth at Breast Height (GBH) or more located within 2 m corridor from the edge of the carriageway on either side were also documented.

9. Secondary data for the preparation of IEE was obtained from literature survey, information collected from Divisional Secretaries Divisions of EP and relevant government agencies {RDA, CEA, Department of Wildlife Conservation (DWC), Department of Forest (DOF), Department of Irrigation (DOI), Department of Census and Statistics (DCS),Department of Coast Conservation (CCD)} and their authorized websites.

C. Description of the Existing Environment

10. This section describes the information on Physical, Biological and Social environment with respect to EP.

1. Physical Resources:

11. **Climate:** EP is located within the low country dry zone and a small part of low country intermediate zone, where the climate is characterized by high temperature and low rainfall. The climate is typically tropical with the annual temperature ranges between 24.4°C to 31.7°C. Relative Humidity varies from 70% during the day to 90% at night.

12. **Rainfall:** Annual rainfall of the EP varies between 1500 mm - 2000 mm. The area is influenced by the two rainy season Northeast monsoon from December to February and Second Inter monsoon from October to November.

13. **Terrain and Geology:** Terrain of the region is relatively flat with low elevation towards the coast. The Province has a long coastline, a number estuaries, and is rich with wetlands, mineral deposits and coastal resources. Seven major soil groups have been identified in the region.

14. **Hydrology**: Hydrological system of the EP consists of inland water resources such as streams, reservoirs, ponds, irrigation tanks, channels and marine water resources like lagoons, estuaries and brackish water habitats. There are 32 perennial rivers, 1329 manmade tanks including major, minor and medium tanks, and 376 water holes in EP. The longest river of Sri Lanka which is Mahaweli, falls in the low land area in EP, and mix with ocean in Trincomalee. Further there are 124 major irrigation schemes including 43 settlement schemes which provide water for 134,726 ha cultivation land and livestock farming.

15. **Air Quality**: Majority of the identified roads for the project is located within rural areas of the EP. No industries or major pollution sources are located within those areas. At present, considerable amount of the land area of the Province is covered with forest and scrublands. Therefore, air quality standards in the area are within the national ambient air quality standards.

2. Protected Areas and Biodiversity:

16. EP is rich with forest reserves, plantation forests and wildlife habitats such as sanctuaries, national parks and strict nature reserves etc. In addition wetlands and mangrove ecosystem can also be observed in the coastline of EP. At present total forest cover in the Trincomalee District is 20.2% from the total land area. Batticaloa District has a forest cover of 53,250 ha (18.65%) and Ampara district has a forest cover of 133,029 ha (30.13%) from the total land area of each district. Major National parks in the country including Yala East (Kumana), Maduru oya, Lahugala, Gal Oya and sanctuaries such as Ampara sanctuary, Sellaka Oya Sanctuary, Kudumbigala, Lahugala Sanctuary and important marine Protected Areas as such as Seruwila- Allai Sanctuary etc. as well as forest reserve such as Sagamam and Kumbukkan Forest Reserve, are ecologically and biologically important sites located in EP.

17. These terrestrial and coastal ecosystems provide breeding, feeding and nursery ground for different types terrestrial and aquatic vertebrates and invertebrates including animals ranging from small insects to larger mammals such as Asian Elephant

3. Socio Economic Status:

18. **Population and population density**: EP is divided into three administrative Districts namely Ampara, Trincomalee and Batticaloa, 45 Divisional Secretary's Divisions (DSD) and 1085 Grama Niladhari Divisions (GND). Total population of EP is 1,551,381, out of which majority 74.9% live in rural areas. The province is unique because it is the home to all three ethnic communities with approximately 40% of the population Sri Lankan Tamil, 36% of Sri Lankan Moor and 23% of Sinhalese.

19. **Main Economic Activities:** Majority of the people in EP belongs to different livelihood categories such as farmers, fishermen and professionals in the civil and business sectors. According to Percentage Distribution of Employment Population in 2014 around 30 % engaged in Agriculture activities and 21 % in industries. Around 49 % people engaged in the service sector.

20. **Agriculture:** Agriculture is the mainstay of the economy of the EP which accounts for around 23% of the estimated provincial GDP. Annually, the Province produces around 840,000 metric tons of paddy in both seasons. The EP accounts for 163,000 hectares (42.9%) of the agricultural lands and the farming population in the Province is about 30% of the total population of the country. Livestock industry is another important field of income generation activity in the EP for the farming society. The EP has approximately 30% of the cattle and buffalo population of the country. Further out of total population, 35% are engaged in fisheries sector out of which the EP contributes to 27% of the total fish production in Sri Lanka.

21. **Industrial sector:** The industrial sector of the province comprises a few large industries, small and medium scale enterprises which provide employment opportunities for many people in the area. Apart from that people in the province depend on several micro and household businesses that are based on self-employment activities such as handloom weaving garments, handicraft such as coir, pan mat, carpentry, cane and pottery and manufacturing of gold jeweler, brassware, furniture etc.

22. **Poverty:** According to the Household Income and Expenditure Survey 2012/13, the highest monthly mean and median household income of the Province (LKR 34,577 and LKR 24,436) was represented by Trincomalee District. The lowest monthly mean and median household income of the province (LKR. 24,483 and LKR. 20,359) was represented by Batticaloa District. The highest percentage (14.3%) of poor household was represented by Batticaloa district.

23. **Existing Infrastructure Facilities**: Roads are the main transportation mode of all three Districts of the EP. The total amount of national and provincial roads represent 2170.07km. A total of 1071.86km of A and B class roads are managed by the RDA under the Ministry and 1098.21km provincial roads belong C and D class category are managed by the PRDD of EP. Majority of the roads both tar (1480km) and gravel (13881km) are managed by the Local Authorities. Further irrigation roads; agricultural and access roads represent 2600km. In addition to the road network, rail transport (both passengers and freight) is common and very popular mode of transportation from South to East and within Trincomalee & Batticaloa Districts of EP.

24. **Energy source and household:** More than 75% household in Trincomalee, 68% in Batticaloa and 82% in Ampara Districts obtained electricity from the national grid. Kerosene is the second main source of lighting of the household in the province. Majority of the household in the province use fire wood as main energy source for cooking. The electricity facilities along the selected roads are apparently good compare to other infrastructure facilities such as telephone and pipe born water supply. The Ceylon Electricity Board has supplied electricity to most of the people around selected roads.

25. **Drinking water:** At present, Majority of the household in the province use protected wells within and outside the premises to obtain drinking water. However it has been reported that some wells become dry for about 6 to 7 months of the year causing water shortage. In addition considerable number of households use tap water (within or outside the premises). Further small number of people depend on rural water supply schemes, tube wells, bowsers, river/tank/streams/springs and bottled water.

26. **Sanitary Facilities:** Majority of the household in all three districts use water seal septic tank type out of which 71.9% of households in Trincomalee, 68.8% in Batticaloa and 78.3% in Ampara districts use exclusive water seal septic tanks toilets facilities. However from the total population around 13% of the people in Batticaloa district do not use any type of toilet facilities while in other two districts this amount is less than 3%.

27. **Occurrence of Natural Disasters in the Project Area:** The three districts of Eastern Province, Batticaloa, Ampara and Trincomalee has been severely affected by heavy rains, floods, Tsunami, and Cyclones and winds affecting people by loss of houses, fully or partially damaged structures, deaths, poor accessibility to infrastructure and sanitation. Further these disasters have impacted irrigation tanks, and income generation activities such as fisheries, cultivations and loss of livestock in the area. Further, drought has caused water scarcity problems, effected on agricultural activities, livestock farming and created inconvenience to the people in many ways in EP.

28. **Tourism:** The Eastern region is fast emerging as a high potential player in Sri Lanka's tourism market, much greater than other provinces in the country due to presence of beautiful coastline, inland waters, forests and national parks etc. Arugam Bay, Pasikuda, Nilavely beach, Marble beach, Kallady beach are the popular beaches for local and foreign tourists. Forests and national parks in EP attract tourists due to an abundance of wildlife comprising elephants, deer, leopards, birds, whale and dolphin watching, coral reefs, ornamental fishing and scuba diving, shark and turtle watching. Further the EP provides home to many historical, cultural and religious sites including forts, temples and caves, villages of ancient community like Veddah and hot water springs that attract tourists.

29. **Religious, Cultural and Archeological Significance:** EP has many religious, cultural and archeological significance sites identified by the Department of Archelogy of Sri Lanka, including Buddhist shrines, temples, ruins and remains of ancient stupas, meditation centers by the Bhikkus, drip ledged caves etc. out of which some are believed to have been built before the arrival of Prince Vijaya 2,500 years ago or pre-Christian inscriptions. The value addition prospects of these sites to the tourism is immense and attract so many local and international tourists annually. None of these important sites are located beside/at the vicinity of proposed roads in all three districts, however, some of the locally important religious, cultural and archeological significance sites were observed beside the proposed roads during the survey.

D. Anticipated Environmental Impacts and Proposed Mitigation Measures

30. The proposed work under the project will include rehabilitation and upgrading of existing roads/sections with improvement of road surface, construction of side drains, shoulders & embankments, widening or replacement of culverts, cause ways bridges etc. Both positive and negative benefits could be expected throughout the project.

31. During the pre-construction stage negative impacts such as shifting public utilities, preparing for construction in floods prone areas and during construction stage extraction

transportation and storage of construction materials, impact on water resources, safety of workers and general public, effect from Improvised Explosive Device (IED) and Unexploded Ordnance (UOX), disruption of traffic, Impact from dust, noise and vibration, ecological and biological impacts, disposal of construction and other wastes, soil erosion sedimentation and siltation, damages to archeological, cultural and religious places could be expected. During operation stage impacts such as safety of road users, impacts on air quality and noise, drainage congestion and encroachment of Right of Way could be expected. However most of these negative impacts are temporary and could be avoided, minimized or mitigated by adopting the mitigatory measures described in the EMP of this IEER.

32. Apart from the negative impacts, many socio economic positive benefits such as improved connectivity, reduced travel time and cost, proper access to public sensitive locations, poverty alleviation and boost for economic growth etc. will be expected after implementation of the project.

E. Institutional Requirements, EMP and Grievance Redress Mechanism

33. Institutional Arrangement: The Ministry of Higher Education & Highways (MOHE&H) is the Executing Agency (EA) and RDA is the Implementing Agency and within RDA head office there will be a Project Coordination Project Implementing Unit (PCPIU). Another Project Implementing Unit (PIU) will be set up by RDA at Provincial level, which will be responsible for implementing the project at provincial level. Managing detailed design and supervision of the construction works and ensuring that all environmental safeguard requirements in accordance with this EARF is a responsibility of Project Implementation Consultants (PIC). PICs will be recruited for each province. The PICs will supervise the contractor in construction works including managing the environment.

34. The PCPIU and PIU will be headed by a full time Project Directors (PDs) and supported by a team of engineers from RDA. The PCPIU and PIU will have an Environment and Social Unit (ESU) which includes a Senior Social Safeguards Officer and Senior Environment Safeguards Officer and assistants to cover the quantum and geographic distribution of works under the investment program. The PIC will support the PIU for supervision of the design and construction works by the civil works of Contractor. The PIC team will include a team of Environment Specialist, Social Gender Resettlement Specialist and Assistants for conduction of regular monitoring of safeguards implementation on site. From Contractor's side, there will be at least an Environment Officer and a Safety Officer.

35. **Environmental Management Plan:** A general Environment Management Plan (EMP) was prepared as part of this IEE report taking in to account the impacts and mitigation measures discussed in chapter on "Impacts and mitigation measures". Once the contracts are finalized the contractors will prepare Site Specific Environmental Management Action Plans (SSEMAP) for each package with road specific details. The SSEMAPs will be based on the impacts and mitigation measures discussed in the general EMP. SSEMAPs should include road specific impacts, mitigation measures supported by site plans as indicated in the EARF.

36. All costs for implementing the mitigation measures will be included in the Bill of Quantities (BOQ) by the Contractor as implementation of the SSEMAP will be the responsibility of the Contractor. Contractors who implement rural road components will have a construction period of approximately two years and routine maintenance for three years. The EMP has been modified accordingly paying more attention on the environmental impacts and mitigation measures during the operational stage together with reconstruction stage.

37. Monitoring of EMP implementation will be carried out during the preconstruction, construction, and operation and maintenance stages of the project. Based on the EMP, Environmental Monitoring Checklists (EMC) will be prepared for each road by the contractor under the supervision of PIC for each of these stages. The EMC monitors the degree of compliance of the mitigation measures proposed in the EMP in all three stages. Every road must have at least one EMC completed during pre-construction, one to three during construction depending on the length of the road and one per year during operation and maintenance. Based on these records and site visits monitoring reports will be prepared during the construction and operation stage on an annual basis per Province and submitted to ADB for disclosure on the ADB website. Furthermore, the Contractor will also be responsible for updating SSEMAP if there are any significant changes in the project site conditions or engineering design.

38. Implementation of the mitigation actions during the construction stage is a main responsibility of the Contractor. As a project proponent RDA holds the overall responsibility to carry out the mitigation measures throughout the project cycle. The ESU of PIU, ES and SGRS of PIC will conduct regular monitoring visits to all project roads, ESDD of the RDA will periodically monitor the implementation of EMP.

39. **Grievance Redress Mechanism:** The Grievance Redress Mechanism (GRM) is necessary to support general public to resolve their problems due to project activities through mutual understanding and consensus reaching process with relevant parties. The ADB safeguards policy 2009 also provide guidance to establish GRM to address the affected peoples' concerns, complaints, and grievances about the project's environmental performance. The proposed GRM for this project are of three levels. Level one is at the grassroots level where contractor, PIU and PIC involve in handling grievances. Level two will be Grievance Redress Committee (GRC) which will be headed by Grama Niladhari (GN) and level three will be at Divisional Secretariat (DS) level. EARF outlines the system of GRM & GRC.

F. Public Consultations and Information Disclosure

40. As per the requirements of ADB SPS, 2009 and EARF for iRoad 2 program, public consultation process for the project was carried out during the field environment assessment survey along the proposed roads. The aim of the public consultation was to understand the view point of the public about the environmental and social issues of the project roads and respond to their concern and suggestions during the early stage of the project. Incorporation of the environment and social concerns to the decision-making process especially for design stage through the public consultation can avoid or minimize adverse impact during the implementation of the project. During the public consultation sessions public were briefed about possible improvement work under the project. Community members in the project area including women and vulnerable groups participated for the public consultation sessions and expressed their views regarding the existing environment, social and economic situation of the proposed roads and expectations through the project.

41. **Consultation Findings:** Almost all the road users and road side communities in the project influence areas are in favor of this iRoad project because, most of the proposed roads are currently in highly dilapidated condition due to lack of maintenance, lack of improvement and prevailed past war situation. All the PRDD, PS, MC, and irrigation roads (belong to the Mahaweli Development Authority) roads/sections are very important link roads to other national roads and provincial roads located in the area. Majority of PS, MC, irrigation and Mahaweli roads provide access to the internal areas; residential, agricultural, forested and other important locations such

as reservoirs, inland water resources and coastal areas. Therefore, improvement of these roads under the project is very important.

42. Flood issue is commonly observed in roads which are closely located in the coastal line, deltas of rivers and crosses or located adjacent to large streams. Flooding occurs mainly during North East Monsoon and Second Inter Monsoon. Storm water runs over the road surface due to insufficient drain capacity resulting in inundation and soil erosion. In addition, localized water stagnations are observed in low lying areas along the roads. Most of the selected roads are gravel roads therefore dust is a main issue during the dry season.

43. Roads which provide access to Chena cultivation have been selected for improvements under this project. However, during field inspections, it was clearly observed that, most of these cultivations are slash and burnt cultivations. Human – elephant conflict is also a critical issue in the project area of all three districts of EP.

G. Conclusions and Recommendations

44. Construction activities associated with project roads will not expect significant social and environment impacts. Since construction activities of the project are restricted to the existing ROW of the proposed roads, project activities will not cause any public inconvenience due to land acquisition. The identified potential negative environmental impacts are temporary and mainly restricted to the construction stage of the project. The mitigation actions for anticipated environment and social impacts are included to the EMP of the project.

45. Although the project has both positive and negative impacts, anticipated positive environment and social impacts will clearly outline the negative impacts of the project. Even though some project roads are located close to the national parks, wetlands, sanctuaries and other important ecological and biological important habitats such as sand dunes and lagoons, the construction activities associated with proposed road will not cause any impact to the above habitats since there won't be any land acquisition or removal of trees and green cover vegetation from above habitats. Proper planning of the project with appropriate construction practices and recommended mitigation actions will ensure success of the project.

46. Most of the roads selected for improvement located in Ampara District are bund roads of main irrigation or distributary canals of reservoirs. Further there are some archeologically protected sites and monuments adjacent to some proposed roads. RDA shall obtain Prior consent and recommendations from of Department of Irrigation, Department of Agrarian Services, Mahaweli Development Authority and Department of Archaeology for road improvement work. Further construction adjacent to water springs of the road of EAM322 should be done based on the instruction of GS&MB with monitoring environment parameters without any damages to the above sources.

47. Most of the proposed provincial and other rural roads for the project are currently in highly dilapidated condition. This study has revealed that neglected maintenance is the main reason for the rapid and severe deterioration of rural road network in the province. Therefore, a proper maintenance program must be incorporated in parallel to the rehabilitation project in order to maintain the long term stability of these roads. Repairs or reconstruction work of bridges, causeways, and culverts shall be carried out with minimum inconvenience to public.

48. Further the IEE recommends updating EMP and EMC with package specific information and locations before commencement of construction activities. In addition, EMC should be effectively implemented in order to monitor application of the EMP.

49. A comprehensive training program for contractors about the project, anticipated impacts, proposed mitigation measures, preparation and implementation of SSEMAP and EMC will be conducted by PIC with the assistance of ESDD.

I. INTRODUCTION

A. Background

1. Sri Lanka has experienced strong economic growth following the end of civil conflict in May 2009. It is envisaged that an improving external environment, higher investment, and a recovery in domestic consumption will sustain a rapid economic growth during 2014–2015. As a result of the robust growth, the national poverty headcount ratio fell to just below 5.3 % in 2016 from over 8% in 2010 and over 15% in 2006 (Department of Census and Statistics). However, less-developed areas of the country have not shown consistently higher elasticity of poverty reduction. According to the latest population census data of Department of Census and Statistics (DCS,2012), the total population in the country is 20.3 million in year 2012 and about 85% lives in rural and peri-urban areas of the country. The poor transport infrastructure, has hindered the spread of economic activities and access to basic social resources of the rural communities. The main challenges facing road connectivity are that most rural access roads, including provincial and rural roads, cannot provide access during all-weather conditions and part of the trunk road network is highly dilapidated and in a poor condition.

2. The Government of Sri Lanka (GoSL) places great emphasis on the improvement of rural road network in the country to promote poverty alleviation by improving access particularly to transport agriculture product to the economic centers and engage in social activities. In order to address this problem and improve transport connectivity between rural communities and socioeconomic centers, the Road Development Authority (RDA) under the Ministry of Higher Education and Highways, proposed the Integrated Road Investment Program (iRoad). To supplement the capacity of provincial governments and local authorities, the RDA, the provincial road agencies, and the local authority jointly implement rural road improvement works. About 1,000 rural communities will be selected as rural hubs according to their population and development potential. As the first step for developing the rural hubs the government will enhance the connectivity by (i) improving rural access roads linking the rural hubs to trunk road network to all weather standards, and (ii) operating a sustainable trunk road network of at least fair condition. Hence number of social economic and cultural benefits to the rural communities can be achieved through the proposed project.

3. iRoad program which is now implemented in Southern, Sabaragamuwa, Central, North Central, North Western Provinces and the Kalutara District of the Western Province covers around 3,000 km of rural roads. Based on the success of this program the GoSL proposed to develop another 3,600 km of rural and national roads in Northern Province (NP), Eastern Province (EP), Uva Province (UP) and Western Province (WP). The GoSL has discussed with ADB to also finance this program which is officially called as Second Integrated Road Investment Program (iRoad 2). The same financing modality which was used for iRoad program i.e. a time slice Multi tranche Financing Facility (MFF) will be considered for iRoad 2. The program will rehabilitate and upgrade selected rural and national roads in NP, EP, Uva and WP. Roads selected under iRoad 2 program will rehabilitated and upgrade during a period of 2 years. A maintenance period of three (3) years will be considered for rural roads while RDA roads will be maintained for a period of five (5) years.

4. This report focuses on the Initial Environment Examination (IEE) of EP, which is one of the provinces considered under iRoad 2 Program. The proposed roads for improvement are located within all three Districts (Trincomalee, Batticaloa, Ampara) of EP and covers about 1,200 km of rural roads and around 113 km of national roads. Majority of the rural roads are currently governed by the Pradeshiya Saba (PS) of Local Authorities (LA) in above Districts. Rest of the

roads are governed by the Municipal Councils (MC), Urban Council (UC), and Provincial Road Development Authority (PRDA) of EP. The national roads are maintained by the RDA. Number of rural roads located within each District and their total length are presented in table I.1, while the summary of national roads are presented in table I.1a. The total list of the roads located within different Districts with administrative information is attached in appendix I.1.

Table I.1: Total number and length of proposed rural roads of Eastern Province

District	Number of roads	Length of roads (km)
Trincomalee	185	217.29
Batticaloa	255	236.97
Ampara	673 (369+ Additional 304)	718.96
Total	**1113**	**1173.22**

Table I.1a: Summary of national roads selected in EP

Road No.	Name of road/ section	From	To	Section length (km)
A015	Batticaloa – Trincomalee Road	48+000	108+000	60.000
AB001	Ampara – Inginyagala Road	19+000	21+710	2.710
B350	PallanOya – Inginiyagala Road	2+000	12+870	10.870
B131	Galmaduwa – Higurana Road	2+000	7+200	5.200
B483	Sammanthurai – Deegawapi Road	13+000	14+900	1.900
B573	Akkaripattu – Ambalathri Road	18+500	21+900	3.400
B018	Ampilanthuri –Weeramunai Road	14+800	26+500	11.700
B073	Chadayanthalawa – Uhana Road	0+000	6+000	6.000
B572	Addalaichenai – Alankulam Road	0+000	9+750	9.750
B186	Kalmuani Sea View Road	0+000	1+250	1.250
Total length				**112.78**

Source: RDA, Project Coordinating PIU, April 2017.

5. As per the information of Project Coordinating Project Implementation Unit (PIU), there will be two to four contract packages per district. The contractors will be responsible for construction of the road over 2 years and performance based maintenance for another 3 years in the case of rural roads and 5 years for national roads.

B. Objective of the proposed project

6. The broad objective of the project is to improve the connectivity within the rural road network with the provincial and national road network to reduce cost & journey time and improve reliability of access. In this manner it is intended to enhance opportunities for rural population for economic growth and income generation align with the nationwide economic and social development.

7. Specific objectives of this project are;

- To improve the road condition of the proposed roads thereby improve connectivity between rural communities and socioeconomic centers of the EP,

- To upgrade and maintain 1173.22 km of rural and provincial roads; and around 100 km of national roads in EP connecting rural communities to economic centers.
- To improve connectivity between production centers and market places and improve linkage with the other Districts and Provinces,
- To facilitate the increase of mobility by improving road network which link up with other Provinces,
- To open up rural areas for development
- To facilitate to generate efficiency gains by lowering the unit cost of individual producers through transport efficiency which will lead to increase their margins and profits thus making them generating another round of investments,
- To reduce rural poverty through improved access to (a) markets and economic centers (b) social infrastructure and (c) new employment opportunities.

8. In order to achieve these objectives, the proposed roads in Trincomalee, Batticaloa and Ampara Districts will be upgraded with the following guidelines:

- Upgrade and maintain the selected roads to all weather standards
- Surfacing the existing pavement with Asphalt Concrete (AC) or concrete (in special cases such as inundation) if the present surface is weak
- Repair or reconstruct damaged culverts
- Introduce earth drains for all road sections and built up drains where necessary
- Remove any irregularities that are on the existing vertical profile, thereby improving the road conditions for better vehicle movement while ensuring safety of road users.

C. Objective of the Initial Environment Examination (IEE)

9. The IEE report was prepared based on the Environment Assessment Review Framework (EARF), which was developed based on the guidelines of the ADB Safeguard Policy Statement, 2009 (SPS). Skills International (Pvt) Ltd on behalf of RDA was assigned to carry out all the field work and preparation of Environment Checklists and IEE Report of proposed roads of EP. This report has been prepared based on the field screening process of all identified roads in EP as a requirement of the Survey and Preliminary Engineering Work (SAPE work).

10. The main objective of the IEE report is preparation of comprehensive account on existing environment condition of proposed project area in terms of physical, ecological, economic and social environment. This IEE covers altogether 1173.22 km of urban, semi urban and rural roads and another 112.78 km of national roads which are to be rehabilitated and maintained in EP. Further, the IEE includes identification of both potential positive and negative environment and social impacts during the pre-construction, construction and operation stages of the project, propose suitable measures to be implemented against anticipated negative impacts and to enhance the positive impacts and finally preparation of common Environment Management Plan (EMP) with recommended institutional arrangement for implementation and monitoring throughout the project cycle. In addition, public views and suggestions regarding the proposed project are also included in the IEE report to ensure the concerns of public during the design of proposed road. This will also ensure that public are given early and effective opportunities to participate in the decision-making procedures. These information will be essential in order to incorporate necessary safeguard in the design stage, determine appropriate mitigation measures during pre-construction, construction and operation stage of the project and finally to facilitate decision making of ADB. Accordingly, a single consolidate IEE report will be submitted to the EP covering all proposed roads located within three districts.

D. Approach and Methodology

11. Initially, the Environmental Checklist (EC) for each road was prepared based on the instructions given in the Environment Assessment Review Framework (EARF). Based on the findings, one Rapid Environmental Assessment (REA) checklist was prepared for the province as required by the ADB SPS and accordingly the proposed project was categorized as environmental category B. This was followed by preparation of IEE.

12. IEE methodology for the project was developed based on the requirements of EARF, which is developed based on the requirements of ADB SPS 2009, National Environment Act (NEA), Coast Conservation Act (CCA) and also in compliance with Environment and Social Safeguard Manual of RDA (2007), Road and Rail Development in Sri Lanka of Central Environment Authority (CEA, 1997). Field assessment of the projected roads was carried out during the period from mid-October up to mid November 2016.

13. Project roads for inclusion in province under this investment program were selected based on priorities for connecting selected Grama Niladhari Divisions[1] (GNDs) to the main trunk roads. The project roads were further subjected to the following screening criteria on environment safeguards:

i. Roads that will cause significant and irreversible environmental impacts that would trigger classification as environment 'Category A' in accordance with the SPS will NOT BE INCLUDED in this investment program. A road project improvement work will be classified as environment 'Category A' if the road works are located fully or partially inside a legally protected area or critical habitat area[2] or have direct and irreversible impacts on cultural heritage sites of national and international significance.
ii. Roads falling in part or whole inside or within the buffer zone of a SNR, NP or NR will NOT BE SELECTED under the investment program.
iii. Rehabilitation of roads falling adjacent to other protected areas (such as sanctuaries or protected wet lands) or eco-sensitive areas WILL BE INCLUDED only if there is NO WIDENING OF THE ROAD "RIGHT OF WAY" OR ACQUIRING of land from the protected area or eco-sensitive area. For such project roads proper consultations will be held with the Department of Wildlife Conservation, Forest Department, local community and other relevant stakeholders and appropriate clearances or endorsements should be sought if required.
iv. Rehabilitation and improvement work of the any project road must have minimal or no long term impacts on other forms of sensitive ecological habitats such as marshes, natural streams, tanks and related wetland habitats.

14. The field assessment was followed by preparation of Environmental Checklist (EC) for each road based on the instructions given in the EARF. During the survey any aquatic and

[1] Grama Niladhari Division is a subunit of a Divisional Secretariat Division and is the smallest administrative unit of the country. A *Grama Niladhari* or "Village officer" is appointed by the central government to carry out administrative duties.

[2] Critical habitat according to the SPS is an area with high biodiversity value, including habitat required for the survival of critically endangered or endangered species; areas having special significance for restricted range species; sites that are critical for the survival of migratory species; areas supporting globally significant concentrations or numbers individuals of congregatory species; areas with unique assemblages of species or that area associated with key evolutionary processes or provide ecosystem services; and areas having biodiversity of significant social, economic or cultural importance to local communities.

terrestrial environmentally sensitive sites such as wetlands, water bodies, forest reserves, sanctuaries and coastal habitats and public sensitive locations and their properties located beside the road and land use pattern were recorded. For this purpose, field observation and public information in a wider corridor was studied. In addition, road side utilities and trees with 60cm Girth Breast Height (GBH) or more located within 2 m corridor from the edge of the carriageway on either side were also documented.

15. Following details were incorporated while summarizing the EC.

- General overview of the road
- Location information; administrative and Global Positioning System (GPS) coordinates
- Climatic conditions of the project area; temperature, humidity and rainfall
- Generic description of the surrounding environment; social, environment and geographic information
- Specific description of the road environment considering location of environmentally protected areas, occurrence of road related natural hazards, locations of road side trees, road side utilities and public properties etc.
- Public consultation; general view of the public and their suggestions
- List of photographs showing road condition, Carriage way (CW) and Right of Way (ROW), utilities and surrounding environment
- Location maps indicating starting and endpoints, environment and public sensitive locations of the project area. (1:50,000 topographic maps of Survey Department and Google maps were used for this purpose)

16. Sample ECs for all three district of EP are attached (Appendix I.2) to this IEE report for reference.

17. A Rapid Environment Assessment Checklist (REA) was prepared for the entire province for the need of categorization of project in EP. Based on this categorization an IEE Report was prepared for the EP based on the findings of road specific EC. Secondary data for the preparation of IEE was obtained from literature survey, information collected from Divisional Secretaries Divisions of EP and relevant government agencies (RDA, CEA, Department of Wildlife Conservation (DWC), Department of Forest (DoF), Department of Irrigation (DoI) DCS, Coast Conservation and Coastal Resources Management Department (CC&CRMD) and their authorized websites.

E. Proposed Schedule for the Implementation

18. SAPE work for iRoad 2 is in progress and scheduled to be completed in the 1st quarter of 2017. Civil work contracts are scheduled to be awarded by 4th quarter of 2017 including EP contracts.

II. DESCRIPTION OF THE PROJECT

A. Location of the project

19. Selected roads in the EP under iRoad 2 program are located within urban, semi urban and rural areas of of Trincomalee, Batticoloa and Ampara Districts. A total length of 1173km of urban, semi urban and rural roads including 217.29km in Trincomalee, 236.97km in Batticoloa, and 718.96km in Ampara Districts will be upgraded and maintained under the proposed project. Also, will be improved are 112.78 km of national roads. All these roads will be considered under same packaging systems therefore there will be no separate civil works contracts for national roads.

20. The administrative information in all 3 districts of EP; category of roads, Divisional Secretariat (DS) Divisions falling within particular sections are presented in appendix I.1. The respective GNDs crossed by each road are presented in the specific ECs prepared for the project. The location maps attached in the appendix II.1 presents the general location of the proposed roads sited within Trincomalee, Batticaloa and Ampara Districts. The topographic maps of 1:50,000 scale and satellite maps of all project roads are attached to the relevant ECs.

B. Need of the Project

21. Following 30 years of civil war that ended in 2009, Sri Lanka's economy has grown at an average 6.4 percent between 2010-2015, reflecting a peace dividend and a determined policy thrust towards reconstruction and growth. Sri Lanka is currently focused to be a strategically important economic center by means of maritime, aviation, commercial, energy and knowledge hub serving as a link between east and west using its geographical location effectively. Accordingly, an accelerated development program is undertaken by the Government of Sri Lanka (GoSL) by means of socio-economic and social infrastructure development. The economy of the country has grown the composition of its Gross Domestic Production (GDP) moving from agriculture to high value added industry and service sector.

22. After the long armed conflict in the country, the GoSL recognized the need of economic development especially in the Northern and Eastern Provinces of the country. Accordingly, the Government has given priority to rebuild required infrastructure including access roads, electricity, drinking and irrigation water, market facilities, public parks, sewerage and waste disposal systems to boost economic opportunities in the conflict affected areas. The government also has been pursuing large-scale reconstruction and development projects in its efforts to spur growth in war-torn and disadvantaged areas, develop small and medium enterprises and increase agricultural productivity. North East Coastal Community Development Project (NECCDP), Tsunami-Affected Areas Rebuilding Project (TAARP), Eastern and North Central Provincial Road Development Project (ADB), Eastern Province Water Supply Development Project (JICA), Trincomalee Intergraded Urban Development Project, Reconstruction of five bridges in Eastern Province (JICA), Trincomalee Integrated Infrastructure Project (TIIP), Pro-Poor Eastern Infrastructure Development Project (JICA), North East Community Restoration Development Project II SL (L2618 SRI), Conflict Affected Region Emergency Project (L2626 SRI) etc. are among such numerous development projects undertaken by the government under foreign financing for the redevelopment of the EP. These projects helped to meet the basic, immediate needs and the medium term requirement of the people as well as provided sustainable employment opportunities for the affected people in respective areas.

23. Distribution of population by district in year 2012 shows that majority of the Eastern people (75%) live in rural areas of the province. The district wise population distribution in rural areas in

Trincomalee District is 77.2%, in Batticaloa 71.2% and Ampara 76.6%. To increase the effectiveness of the development, it should be assured that the benefits of such programs should be penetrated to the rural regions of the province.

24. The contribution to the Eastern Provincial Gross Domestic Product (GDP) by services, agriculture and industries are 55.2%, 12.6% and 32.2% respectively. Province relies mainly on agriculture for food security, income generation and employment of the population. Agriculture accounts around 23% of the estimated provincial GDP. Annually, the Province produces around 840,000 metric tons of paddy in both seasons; equivalent to 25% of the national production (Eastern Provincial Council 2012, 4).

25. Based on the Labor force survey, DCS, 2014, agriculture is the dominant productive sector of the province and majority of the people in Trincomalee (30.5%) and Ampara (33.3%) districts engage in agriculture compare to industrial sector. This situation slightly differs in Batticoloa District and it accounts 25.8% about 3.8% less than industrial sector (28.2% industrial sector of Batticaloa District). The rural poor account for 88 percent of the total poor of Sri Lanka. About 60 percent of rural households in Sri Lanka depend on agriculture, and the poverty rate among them is significantly higher than that for rural non-agricultural households.

26. EP of the country severely affected due to prevailed war of the country and Eastern people face challenges due to inadequate and restricted transport services, poor quality roads, and access to credit remain the main impediments to growth and poverty reduction. In order to obtain a reasonable price for the agricultural products of the people, it is necessary to transport them to better markets which are mostly located in urban centers. In this regard, connectivity of these areas with the trunk road network is significant. However it is found that the rural road network is still in highly dilapidated condition with damaged road edges, lack of drainage facilities hence not accessible in all weather conditions. This situation fails to facilitate an efficient connectivity. Therefore after identifying the existing situation, the government intends to develop rural areas according to the population, development potentials, and the distance to trunk roads to extend the development benefits to rural areas and to address the connectivity issues for these communities.

27. The proposed iRoad 2 Program of RDA will improve the transport connectivity between rural communities and socio-economic centers. Under the proposed iRoad 2 program selected rural and national of EP will be upgrade and maintained to all-weather standard which will serve rural communities. Improved connectivity will ultimately benefit the targeted communities by increased flow of economic opportunities and accessibility to develop urban centers and therefore it is expected to increase income generation possibilities of rural communities. This will ultimately enhance the socio-economic development of the province which will be a positive drive to development of the country.

C. Analysis of Alternative

1. No Project Alternatives

28. As mentioned above, the GoSL made special emphasis to allocate required foreign funded financing resources for developments projects in EP. Currently government has given high priority to develop infrastructure facilities and number of ongoing and proposed projects specially to develop access roads, electricity, irrigation etc. under foreign financing projects.

29. The identified roads for the improvement have not been rehabilitated properly during the civil war period and afterwards. The existing surface condition, drainage facilities, road edges and structures are very bad condition and width of the carriageway is not properly demarcated therefore the condition of this roads are not appropriate for long term usage. If the proposed roads are being used continuously without any improvement, it will lead further deterioration making this road impassable. This situation will cause further hardships to the community in and around the project area and effect the development potential in the EP as a whole.

30. Soil erosion, sedimentation, stagnation of water, temporary inundation and floods are other environment and social issues due to continuous usage of these road without upgrading. Further poor roads will result in increase in fuel consumption, gas emission due to fuel combustion and emission of dust which will result in poor air quality in the area. Therefore without construction of rural roads, there will be physical obstacles to the people to access and ensure safety, which means that people and the environment is not protected against existing social and environment issues.

31. Sustaining and maximizing the socioeconomic benefits from the investments in different areas of the province, is not feasible without connecting rural agricultural, fishing and livestock farming areas with town centers and other developed areas of the province and the other parts of the country. Without the iRoad project these flagship projects will not grasp the expected benefits and province will continue to stagnate. Further from the total population of all three district of EP, majority (74.9%) is living in rural areas with poor access to infrastructure facilities and other socioeconomic benefits and opportunities. The Poverty Head Count Index of the Trincomalee, Batticoloa and Ampara Districts were 6.2%, 14.3% and 4.1% respectively during year 2012 and 2013 (Household Income and Expenditure survey 2012/2013, DCS). Therefore the benefits derived from iRoad 2 program will be multi-fold for the Eastern rural communities and create low cost and faster transport facilities and thereby improving their access to economic opportunities and social services.

1. With Project Alternative

32. Under the proposed iRoad program about 1,200 kms of rural and around 100 kms of national roads in EP will be upgraded. This will improve surface conditions and other required facilities of the above roads which will reduce travel time and cost, helping to regenerate transport in the Eastern area of the country. Improvement of the rural and national roads will help to increase connectivity within the province as well as other areas of the country. Further the project will improve accessibility of rural communities to socioeconomic centers and will influence new economic opportunities with income generation activities. Improvement of the road surface, slightly adjustments of bends to improve the user safety, drainage facilities and erosion control measures will have positive environment benefits with smooth traffic flow.

D. Magnitude of the Operation

1. Project activities

33. The iRoad 2 program will rehabilitate and maintain selected roads/sections in EP to all–weather standards. Selected rural roads for the improvement are currently governed by Local Authorities (MC, UC, & PS) of Trincomalee, Batticoloa and Ampara Districts, PRDA of EP; national roads are maintained by the RDA. A total 217.29 km in Trincomalee, 236.97 km in

Batticoloa, 718.96 km in Ampara Districts of rural roads and 112.78 km of national roads will be upgraded and maintained under the proposed program under same contract modalities[3].

34. The identified roads for the improvement are varying in length, Right of Way (RoW), width of the Carriage Way (CW), surface conditions and material type of the surface. The details of these roads are given in the ECs and the Information Booklets prepared for each road section. Existing road surfaces of the selected roads in Trincomalee, Batticaloa, and Ampara Districts will be improved to suit all-weather conditions. At the SAPE level, several typical cross sections (TCS) have been developed and are attached in appendix II.2. Under the road information booklet, the SAPE team will propose suitable TCS for a given road. During level 2 design (DD), based on these initial TCS and information gathered from Transect walk surveys the contractor will develop road specific TCS incorporating the findings of Transect walk surveys and ECs to the extent possible. The proposed cross sections will be modified based on the available ROW, and for rural roads the paved surface will be 3.0 – 5.0 m and for RDA roads the surface will be 6.0 m and the improved pavement will be of AC or Concrete which is comparatively a long lasting treatment.

35. The proposed improvement of selected roads are as follows.

- Clearing of overgrown vegetation
- Clearing of existing roadside drainage
- Shoulder and embankment work
- Repairing and reconstruction of culverts and bridges
- Construction of road side drainage
- Sub-base work
- Pavement work
- Road marking & installation of sign board

36. Improvements to road side and cross drainage of a particular road will be considered in locations where structures have been damaged or rectification of the drainage is significantly required. Several road sections as listed in Chapter IV of this report are prone to flood during rainy seasons. The proposed road design in these sections will be modified based on the several TCS proposed to withstand frequent inundations (please refer to appendix II.2).

37. The proposed improvement will be limited along the existing ROW, no building or temporary structure will be fully or partially affected by the Program. However temporary lands for setting labour camps, yards, plants and disposal sites will be selected with the help of LA and DS of the area based on the availability of public lands and on requests received from the residences in the area.

38. The rehabilitated and improved road sections will be maintained by the civil works contractors for 3 years and 5 years respectively for rural and national roads. The general or routine maintenance works will include the following activities;

- Maintaining the road side vegetation;
- Cleaning of road side drains and structures;
- Maintaining the shoulders and attending to any repairs on the pavement.

[3] iRoad program had a separate national road component as Road Maintenance Contracts or RMCs.

E. Requirement of Construction Material

39. Material required for construction will be explored from the project area of EP. Existing sites which are operated with relevant licenses and approvals will be used especially for extraction of gravel. Offshore sand that has been extracted and cleaned (washed) by Sri Lanka Land Reclamation and Development Corporation (SLLRDC) could also be used for construction subjected to confirmation of quality. If new material extraction sites will be opened for this project, necessary licenses and approvals will be obtained from relevant agencies. The amount of construction material required for the project is given in below table.

Table 1: Summary of Engineer's Estimate - Eastern Province

No	District	Soil (m^3)	Sand (m^3)	Aggregate (m^3)	Bitumen (MT)
1	Batticaloa	74700	2100	63700	5300
2	Trincomalee	125800	2100	63100	5300
3	Ampara	177700	3300	175700	16900
Total		**378200**	**7500**	**302500**	**27500**

40. Few potential sites for extracting construction material are presented in maps given in appendix II.3. Associated facilities for the project activities include water supply, operation of quarries, sand mines, use of borrow pits and disposal sites etc. Approval for the above activities will be obtained from relevant government agencies with the help of LAs during the pre-construction stage.

III. LEGAL AND POLICY FRAMEWORK

A. Legal Framework

1. National Environmental Act

41. The National Environment Act (NEA) No. 47 is the key environmental legal framework in GoSL which is administered through the 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.

42. The environmental clearance process is 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"[4] 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.

43. 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.

44. Proposed roads which are located within wildlife parks, sanctuaries and designated forest areas have not been selected for improvement under this program. However project road falls adjacent to the boundary of protected area or designated area of DoF, necessary clearance will need to be sought from the 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.

2. Coast Conservation Act

45. Many of the proposed roads in EP are located in or close to the Coastal Zone which come under the legal framework of the Coast Conservation Act No. 57 of 1981 (CCA). Provisions with

[4] 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.

regard to regulation and control of development activities within the coastal zone are stated in this act. The CC&CRMD is the Government Agency for the implementation of CCA, and administration, control, custody, management of the coastal zone have been vested with Director, CC&CRMD. Amendments to the Act were passed in 1988 as the Coast Conservation (Amendment) Act No. 64 of 1988 and in 2011 through Coast Conservation (Amendment) Act, No. 49 of 2011 (Coast Conservation and Coastal Resource Management Act). Through this amendment the scope of CC & CRMD extended from conservation to management of coastal resources.

46. Clearance shall be taken by ESDD of RDA for any development works that would carried out in roads falling within the coast conservation zone, prior to commencement of any civil works.

3. Other Applicable Laws and Regulations

47. Other environmental laws and regulations under GoSL that are applicable to the investment program are given in Table 2 below.

Table 2: 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

Legislation	Relevance and main content	Authorizing Institution
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 conservation of biodiversity of Sri Lanka; and to provide for matters connected there with. The Act was originated as an Ordinance in year 1937 (Ordinance No. 2 of 1937) with the objective of providing protection to fauna and flora of the country. The Ordinance was amended by Act No. 49 of 1993 and No. 22 of 2009 to enhance the scope of Fauna and Flora Ordinance in the areas of Protection, Conservation and Preservation of fauna and flora of Sri Lanka.	Department of Wildlife Conservation
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

Legislation	Relevance and main content	Authorizing Institution
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
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

Legislation	Relevance and main content	Authorizing Institution
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

48. Under the NEA (No). 47 and some of the laws and regulations listed in Table III.1 above, there are specific requirements for clearances, permits and licenses required for road projects as listed in Table 3 below.

Table 3: Applicable approvals required for the investment program

Project stage	Approvals	Project Related Activity	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.

4. Environmental Protection License (EPL)

49. 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.

50. 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.

51. 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.

52. **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.

5. International Agreements and Conventions

53. 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 waterfowl habitats/ Ramsar (entered into force in Sri Lanka in 1990).
- Convention concerning the protection of the World Cultural and Natural Heritage (Sri Lanka accepted the Convention in1980)
- Convention on International Trade in Endangered Species of Wild Fauna & Flora/ CITES (entry into force in Sri Lanka in 1979)
- Convention on the conservation of Migratory Species of Wild Animals/ CMS (1990)
- United Nations Framework Convention on Climate Change/ UNFCCC (Sri Lanka ratified it in November 1993)
- UN Convention on Biological Diversity/ CBD (Sri Lanka ratified in 1994).
- Plant Protection Agreement for Asia and the Pacific region (Sri Lanka ratified in 1994).

B. Policy Framework

1. ADB Safeguards Policy Statement, June 2009

54. ADB's safeguard policy framework 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.

55. 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.

56. 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.

57. From the environment perspective 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.

58. **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.

59. 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 Trans-boundary and global impacts, including climate change. Use strategic environmental assessment where appropriate.

60. 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.

61. 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.

62. 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.

63. 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.

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

65. 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.

66. 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.

67. 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.

68. 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.

IV. DESCRIPTION OF THE EXISTING ENVIRONMENT

69. Identified roads to be upgraded under the iRoad 2 program are located within all three Districts of EP which is one of the nine provinces of Sri Lanka. EP consists with three Districts namely, Trincomalee, Batticaloa and Ampara. Trincomalee is the provincial capital of the EP of Sri Lanka with commercial and historical importance. The following section describes the current status of Physical, Ecological, Social and Economic background of the project affected areas of the EP and respective Districts in brief. In addition ECs prepared for individual roads/sections provide environment and social background of each road/section with chainage information, photographs, public utilities, road side trees, public and environmental sensitive locations etc. Sample ECs are provided in appendix 1.2.

A. Physical Environment

1. Climate, land use, terrain and soil

70. **Trincomalee District:** Trincomalee District falls within the dry zone of Sri Lanka. The mean annual temperature of the District in 2014 is 25°C (DCS, 2015). Average temperature is slightly higher in March to June period and temperature is slightly lower in November to January. Average relative humidity (%) during the day is 70.6 and 83.5 during the night (DCS, 2015). The rainfall of the area is not equally distributed throughout the year and has bimodal pattern from October to March (Maha season) and less rains in April to September (Yala season). Total annual rainfall of the district in 2014 is 1691.5 mm (DCS, 2015). Usually Northeast monsoon brings about 50% of the total rainfall and Southwest monsoon only brings about 10% of the total rainfall. Trincomalee District has an area of 2,728 sq. km and inland waters cover 96 sq.km (3.6%) of the total area and the rest is terrestrial lands. Trincomalee District which is in the Northern part of the EP is bounded in the North by Yan Oya and Mullaitivu West, East by Bay of Bengal, Anuradhapura and Polonnaruwa Districts in the West and Verugal Ganga (Batticaloa) in the South. The topography of the District consist with an undulating terrain with the long coastal belt of 350km associated with 10 bays and lagoons. Mainly 5 major soil groups Alluvial, Reddish Brown Earth, Sandy Regosols, Erosion remnants, non-classic brown alkaline saline and soil with gravel are found in Trincomalee District.

71. **Batticaloa District:** Batticaloa District lies in a dry zone of Sri Lanka. Its climatic condition is influenced by the Northeast and Southwest monsoons. The mean annual temperature of the District in 2014 is 25.1°C (DCS, 2015). Average relative humidity during the day is 73.2 and 83 during the night (DCS, 2015). The rainfall of the area is not equally distributed throughout the year and has bimodal pattern from October to March (Maha season) and less rains in April to September (Yala season). The total annual rainfall of the district in 2014 is 2518.3mm (DCS, 2015). The Northeast monsoon brings major part of the rainfalls with little variation within the District. Batticaloa District has an area of 2,631 sq. km including inland water bodies. Water bodies cover an extent of 229 sq. km. District bounded in the North by Verugul River (Trincomalee) and on the East by Bay of Bengal. The Southern and Western boundaries are along Ampara and Polonnaruwa Districts. The topography of the district consist with an undulating terrain with the long coastal belt of 100km associated with bays and lagoons. Topographical features of the District are the two lagoons, which traverse north to South covering an area of 169 km^2 namely, the Eastern to Sea Board and the Western Shore. The greater part of the district is constituted of Precambrian, essentially gneissic and crystalline rocks. Quaternary deposits exist mainly in the eastern boundary of the District and buildup of river alluvia, sand and other littoral deposits.

72. **Ampara District:** The mean annual temperature of the District is 28°C. The highest temperature recorded in the area is during April to October which is 36 ^{o}C. The rain fall is not equally distributed throughout the year and has a bimodal pattern having heavy intensity in the months of October to March (Maha Season) with less shower rains in April to September (Yala season). The annual average rainfall varies from 900 mm to 1150 mm. The Northeast monsoon brings major part of the rainfall with little variation within the District from November to the end of December. Ampara District has an area of 4,415 sq. km and inland waters cover 193 sq. km of the total area and the rest is terrestrial land. The District accounts for 6.76% of the country's land area. The District bounded in the North by Batticaloa District, in the West by Matale. Monaragala and Badulla Districts in the South by Hambanthota District and Indian Ocean in West. Land area distributed in the Ampara District is located within the 1st peneplane of the country (0 - 125 m above the Mean Sea Level). The topography of the District is flat and slightly undulating. Geologically this area falls within the biotite gneisis, hornblende, magnetic and granitic in some parts during the Precambrian Era. The geology in the area belongs to Vijeyan Complex. According to the agricultural soil classification the soil types in area falls into the category of Rock knob plain, non-calsic brown soils and Low humic gley soils in the undulating terrain.

73. Based on the climatic environment, the project influence area can be categorized in to different agro ecological zones. Climate, soil type, terrain of the area, land use pattern, vegetation are the main background evidence considered for this classification. The agro ecological zones related to the proposed road sections with relevant characteristics are provided in table 4.

Table 4: Agro Ecological Zones and Climatic Characteristics of Proposed Roads

District	Agro ecological zone	Road (ID) falls in to agro ecological zone	75% expectancy value of rainfall (mm)	Description (Land use, terrain, soil group)
Trincomalee	(DL2 & DL4)	130, 132, 134, 53, 6, 16, 66,170		
	DL2b	154, 154.1,155, 156, 156.1, 157, 158, 157.1, 159, 159.1, 159.2, 160, 164, 165, 166, 167, 147, 27, 30, 28, 26, 29, 29.1, 29.2, 40, 36, 41, 35 , 32 , 33, 37 ,39, 34, 85, 84, 11, 127, 133, 131, 131.2, 50, 45, 8, 10, 10.1, 10.2, 10.3, 10.4, 10.5, 23, 24, 19, 22, 20, 20.1,21, 25, 47, 49,46,48,13, 12, 5, 18, 57, 63, 58,59, 67, 60, 56, 54, 70, 55, 55.1, 61, 64,51, 68, 69,69.1	> 1100	Paddy rain fed upland crops, undulating and flat, NCB,LHG,RBE,old alluvial, Regosol & Solodized -Solonetz soils
	DL1c	151, 152, 153, 161, 162, 163, 168,169, 169.1, 169.2,169.3, 135, 136, 137, 138, 138.1, 139 , 139.1, 141, 140 , 85, 83, 86, 87 , 4, 105, 103, 107, 104, 106, 92, 89, 81, 88	> 900	Rain fed upland Crops, paddy, scrub, Natural forests, Forest plantations, Sugar cane, undulating RBE & LHG soil
	DL1d	14.1, 101, 102, 99, 121, 123, 125, 9 , 7, 42, 44, 43,15, 3, 1, 2, 2.1, 119 , 109, 110,111,115,142 ,143 ,17, 14, 117, 112 , 112.1, 113, 116, 118, 79, 78, 76 , 76.1, 76.2, 75, 75.1, 74,73	> 900	Rain fed upland Crops, paddy, scrub, undulating & flat RBE, Regosol & LHG soil
	DL 1 e	146, 017	>900	Rain fed upland Crops, paddy, scrub, undulating RBE &LHG soils
Batticaloa	DL2 & DL4	89, 89.1		
	DL2b	1, 2, 2.1, 3, 4, 4.1, 5, 6, 7, 8, 9, 10, 11, 11.1, 12, 13, 14, 15, 16, 16.1, 17, 18, 18.1, 18.2, 18.3, 18.4, 20, 21, 22, 23, 24, 25, 26, 27, 29, 30, 30.1, 31, 33, 34, 35, 35.1, 36, 37, 38, 39, 40, 41, 42, 42.1, 43, 44, 45, 45.1, 46, 46.1, 47, 48, 48.1, 49, 50, 50.1, 51, 52, 53, 54, 55, 56, 58, 58.1, 58.2, 58.3, 60, 60.1, 61, 64, 65, 67, 67.1, 68, 69, 69.1, 69.2, 70, 71, 72, 72.1, 72.2, 73, 73.1, 74, 74.1, 75, 75.1, 76, 77, 78, 79,79.1, 80, 81, 82, 83, 84, 85, 85.1, 86, 86.1, 87, 87.1, 88, 88.1, 88.2, 90, 91, 92, 92.1, 93, 94, 94.1, 95, 96, 96.1, 97, 97.1, 97.2, 97.3, 97.4, 98, 99, 100, 01,102,103,103.1,103.2,104,104.1,104.2,105,105.1,105.2,105.3, 106, 106.1,106.2, 106.3, 106.4, 107, 109, 109.1, 110, 111, 112.1, 112,113, 114, 114.1, 115, 115.1, 116, 117, 17.1,117.2,118,118.1,119. 119.1, 120, 120.1, 121, 122, 123, 124,125, 126,127,128, 129,129.1, 130, 130.1, 131, 132, 133, 134.1, 134, 135, 135.1, 135.2, 138, 139, 140, 140.1, 145, 146, 153, 153.1, 153.2, 154, 154.1, 154.2, 155, 156, 156.1, 157, 158,159, 160, 160.1, 160.2, 161, 162, 163, 164, 165, 166, 167,168,169, 170, 171,171.1, 172,174,175, 177, 178,181, 182, 183, 184, 185, 186, 187, 188, 188.1, 188.2, 189, 190, 191, 191.1, 192, 193.1, 193.2, 194, 195.1, 195.2, 196,	> 1100	Paddy rain fed upland crops, undulating and flat, NCB, LHG, RBE, old alluvial, Regosol & Solodized -Solonetz soils

District	Agro ecological zone	Road (ID) falls in to agro ecological zone	75% expectancy value of rainfall (mm)	Description (Land use, terrain, soil group)
		197,198, 198		
Ampara	IL2	390, 405, 385, 393, 401, 401.1, 514, 394, 396, 397, 329, 319.1, 335, 322.1, 320, 321, 321.1, 321.2, 330, 327.1, 333.1 ,525, 525.1, 266.1, 258.1, 177.2, 180.1, 29.2, 267.11, 267.1, 263.1, 260.1	>1600	Mixed home gardens, Paddy, Rain fed upland crops, Scrub, Sugar cane, Citrus, Rolling, hilly & undulating RBE, LHG &RBL
	DL2a	40,1, 1.1, 35, 25,38,24,213, 214,214.1,110, 110.1,108, 111,112, 107, 109,109.1,, 248,248.1, 248.2,,248. 3,248. 4,247,247.1,249.1, 249.2,249.3, 249.4,253, 220,220.1, 217,217.1,215, 215.1, 215.2,221	>1300	Rain fed upland crops, paddy, Natural forests, Sugar cane, Scrub Undulating, NCB,RBE, LHG, Old alluvial soil
	DL1C	316, 309,509,317,510,312, 118,117,119,120,27,3,19	> 900	Rain fed upland Crops, paddy, scrub, Natural forests, Forest plantations, Sugar cane, undulating RBE & LHG soil
	DL1b	251,251.1, 250, 250.1, 250.2, 252,252.1, 252.2, 252.3, 411,410,410.1, 409,409.1, 409.2, 409.3, 408	> 1100	Paddy rain fed upland crops, undulating and flat, NCB, LHG, RBE, old alluvial, Regosol & Solodized -Solonetz soils
	DL2a	445, 446, 447, 448, 443, 457, 459, 458, 395, 348, 347, 361, 366, 366.1, 413, 414, 414.1, 414.2, 412, 114.4, 111.1, 108.1, 28.1, 214.2, 213.1, 109.2, 110.3, 110.2, 35.1, 245.3, 249.5, 269.1, 247.2, 559, 560.1,560.2,561,294,465,480.3,305,305.1,305.2,306,507,537,299,299.1,297, 279, 292,291,291.1,291.2, 538,538.1,308,289,290,281,283, 283.1,286,286.1,286.2,285,284,288, 300,389, 514,398, 386.1,338, 365, 368, 352, 344, 371, 367,418,293, 295,280, 434,464,464.1, 466, 466.1, 466.2, 434.1,451, 451.1, 451.2, 471.1, 470, 473, 474, 465. 1,454, 467,476, 476.1,476.2,478, 478.1,479.2, 480, 480.1, 480.2, 480.4, 456, 456.1, 456.2, 481, 481.1, 482,461, 461.1, 444, 449	>1300	Rain fed upland crops, paddy, Natural forests, Sugar cane, Scrub Undulating NCB,RBE, LHG, Old alluvial soil
	IL2	262, 263, 255, 259, 254, 260, 258, 256, 257, 261, 261.1, 261.2, 116, 175, 174, 177, 177.1, 178, 178.1, 180, 4 , 29, 29.1, 15, 264, 267, 267.1, 267.2, 267.3, 267.4, 267.5, 267.6, 267.7, 267.8, 267.9, 266, 265, 277	>1600	Mixed home gardens, Paddy, Rain fed upland crops, Scrub, Sugar cane, Citrus, Rolling, hilly & undulating RBE, LHG &RBL
	DL1b	378, 353,496,497,495,379, 379.1,379.2, 419.1,419.2, 58.1, 181.1, 187.1,113.1,246.3,159.1,86.1,86.2,167.2, 168.2, 165.2,163.1, 232.1, 142.1,194.3, 194.2, 245.3,243.2,244.1, 242.3, 12.1, 8.1, 223.2, 106.1, 555.2, 558.1,558.2,553.1,553.2,553.3,553.4, 556.1, 556.2, 557. 1,557.2, 557.3, 557.4, 555.4, 555.5,562.1,562.2,549, 46,547, 548,552,551, 550,554,555.1,522,380,419.3, 381, 530, 420, 382, 500,500.1,501,	>900	Rain fed upland Crops, paddy, Scrub, Mixed home gardens, Forest plantations undulating RBE &LHG soils

District	Agro ecological zone	Road (ID) falls in to agro ecological zone	75% expectancy value of rainfall (mm)	Description (Land use, terrain, soil group)
		501.1,501.2, 486, 521, 486.3,487, 487.1,520, 487.2, 487.3,523,494,493,493.1,491,492,489,490,430,440,426,421,432,435,435.1,439.1,421.1,421.2,433.2,513,513.1,513.2,307,304,519,303, 303.1, 303.2,289,281, 283,283.1,282,341, 375, 342,376,369,355, 355.1,355.2,352, 344, 370,370.1,371,372, 345, 356,358,528,429, 427,427.1,532,533.1,534.1,534.3,534.4,535,536,346, 374, 374.1, 374.2,374.3, 373,343, 348,360,347,362,364		

2. Mineral Resources of EP

74. According to the geological location, EP falls into highland, Wijayan and Wanni complex (Figure 1). Trincomalee has the mineral sand deposits in Pulmodai, Nayaru and Nilaveli. Out of that, the Pulmoddai deposit is about 6 km in length and 100m in average width. It is estimated that it contains 6 million tons of heavy sands with ilmenite, zircon, rutile, monazite and some other heavy minerals. Ampara district has a type of silica sand with high purity of SiO_2 extract and is used for ceramic production. Further, Iron ore deposits have been identified in Seruvila of Trincomalee as a magnetite in deep earth. This deposit extends to depths of 200 feet at some points and is estimated to be around 4 million tons.

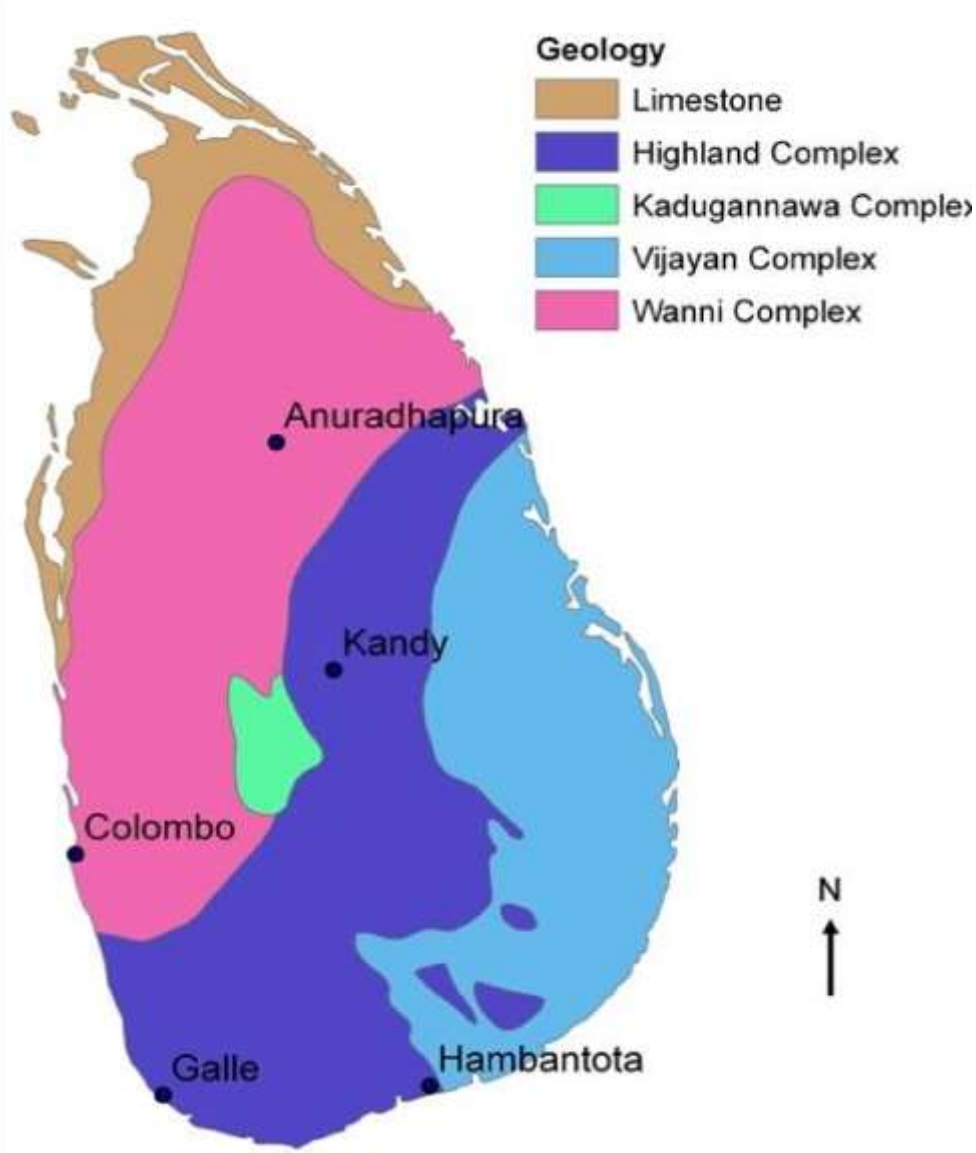


Figure 1: Geology Map of Sri Lanka

3. Hydrology

75. **Trincomalee District:** The longest river in Sri Lanka, Mahaweli Ganga, enters the sea in Koddiyaram bay of Trincomalee. In addition to this another Perennial river Yan Oya too mixes with sea in Pulmoddai, Trincomalee. Both rivers create many tributaries enriching the soils of Trincomalee. In addition to the above there are many ephemeral rivers (Kanthai aru, Panna oya, Palampottaru, Pankulam aru, Kunchikumban aru, Palakutta aru, Mee oya) run through the different areas of the district. Some of them have been tapped by construction tanks across them and some still remaining to be tapped. There are four major tanks located (Kantale, Vendarasan, Mora wewa and Mahadivul wewa) within Trincomalee district. Both Mora wewa and Mahadivul wewa are in the same basin and Mora wewa is constructed across Mora oya and Mahadivul wewa has been constructed across Nelu oya a tributary of Mora oya. In addition number of medium tanks as well as around 475 nos. of Minor tanks which are maintained by Agrarian Services Department and Scattered in the Trincomalee District. The major streams and water sources cross or located near proposed roads in Trincomalee District are given in the table 5.

Table 5: Road Sections that Cross or Located near Water Sources of Trincomalee District

Road ID	Sections that cross or located near water sources
ETR 076 - sec.i	Road ends at the Irakkandi lagoon
ETR 076 - sec.ii	Road starts adjacent to the Irakkandi lagoon
ETR 075 - sec.i	Road ends at Irakkandi lagoon
ETR 075 - sec.ii	Road ends at Irakkandi lagoon
ETR 074	Road ends at the coastal zone of Nilaveli
ETR 007	Road follows a marshy land at 1.1km to 1.373 km on RHS and it ends at Irakkandi lagoon
ETR 147 - sec.i	Road ends at the Tincomalee bay
ETR 024 - sec.ii	Road starts at the coastal zone and ends at the Trnkomalee bay
ETR 046	Road ends at the Tincomalee bay
ETR 037	Road located within the delta of the Mahaweli River
ETR 039	Road located within the delta of the Mahaweli River
ETR 034	Road located within the delta of the Mahaweli River
ETR160	Road located within the delta of the Mahaweli River
ETR013	Road located within the delta of the Mahaweli River
ETR012	Road located within the delta of the Mahaweli River
ETR157 - sec.i	Road located within the delta of the Mahaweli River
ETR157 - sec.ii	Road located within the delta of the Mahaweli River
ETR035	Road located within the delta of the Mahaweli River
ETR040	Road located within the delta of the Mahaweli River
ETR070	Road located within the delta of the Mahaweli River
ETR056	Road located within the delta of the Mahaweli River
ETR054	Road located within the delta of the Mahaweli River
ETR071-sec.i	Road located within the delta of the Mahaweli River
ETR071-sec.ii	Road located within the delta of the Mahaweli River
ETR072-sec.i	Road located within the delta of the Mahaweli River
ETR072-sec.ii	Road located within the delta of the Mahaweli River
ETR065-sec.i	Road located within the delta of the Mahaweli River
ETR065-sec.iii	Road located within the delta of the Mahaweli River
ETR055-sec.ii	Road located within the delta of the Mahaweli River
ETR065	Road located within the delta of the Mahaweli River
ETR156-ses.ii	Final 300m of the road located in the delta of the Mahaweli River
ETR051	Road ends at delta of the Mahaweli River
ETR006	Road crosses and follows Tnikomale bay at around 6.5km
ETR164	Road follows a bund of a distribution canal which is from LHS

Road ID	Sections that cross or located near water sources
ETR018	Road follows a bund of a distribution canal which is from starting point to1.6km
ETR166	Road follows the bund of an irrigation canal from 3.180 km to end point(RHS)
ETR162	Road follows an irrigation canal from starting point to 2km on RHS
ETR004	Road follows an irrigation canal from 2.2km to end pint on RHS
ETR139	Road crosses a stream at 2.16km
ETR045	Road ends at Trincomalee bay
ERT009	Road starts at Irukkandu lagoon
ETR070	Road follows within a lagoon from 0.970km to 1km
ETR086	Road follows near to the Kanthalereservoir at 0.86km to 0.250km
ETR157	Last 130m section of the road follows near to the Uppana lagoon

76. **Batticaloa District:** Water resources of the District are the rivers, lagoons, and ground water. Ground water is at an average depth of 2.5 m along the coastal belt from Neelavanai to Valaichchenai and Vakarai to Verugal. The major rivers originate from Badulla range and travel through the District, discharging into the lagoons. There are no natural springs in the District. Water in the lagoon, “Thonas” and local depressions along the coastal belt hold saline and brackish water, which is not suitable either for irrigation or domestic use. There are 15 rivers and streams in the District of which Maduru Oya is perennial reservoir in the upper reach. Other rivers and streams dry up by the end of May until they are replenished by the Northeast monsoon. The major streams and water sources cross or located near proposed roads in Batticaloa District are given in the table 6.

Table 6: Road Sections that Cross or Located near Water Sources of Batticaloa District

Road ID	Sections that cross or located near water sources
EBT086 - sec.i	Road runs adjacent to the Panichchankerni lagoon at 0.1km to 0.8 on LHS
EBT128	Road crosses Madura Oya (a stream) at 3km
EBT127	Road starts adjacent to the Madura Oya
EBT134 - sec.i	Road follows the Oddamawadi lagoon from 0.160km to 0.240km on LHS
EBT024	Road runs adjacent to the Madura oya delta at 1.00kmto 1.800km on RHS
EBT074	Road ends near to a lagoon
BET071	Road ends near to a lagoon
EBT166	Road starts near to the Batticalo lagoon
EBT165	First 260 m section of the road is within the Batticaloa lagoon
EBT003	Road crosses Jaffna lagoon from the starting point to 0.3km and runs parallel to the lagoon(on LHS) until the end point
EBT163	Road starts and ends near to the Jaffna lagoon
EBT193	Road runs adjacent to the Batticaloa lagoon at 0.1km to 1.5km on LHS
EBT008	Road crosses a stream which flows to Batticaloa lagoon at 0.6km and 2.7km
EBT012	Road crosses a stream which flows to Batticaloa lagoon at 1km and 2.3km
EBT094 - sec.ii	Road crosses the Mandippuaru (stream) at 1.3km
EBT 199	Road runs adjacent to a lagoon from starting point to the end point on LHS
EBT018 - sec.i	Road ends near to the tributary of Andellaoya (stream)
EBT018 - sec.ii	Road starts near to the tributary of Andellaoya (stream)
EBT005	Road ends near to a stream
EBT044	Road located adjacent to a stream at 0.25km(RHS)
EBT004 - sec.ii	Road ends at Batticaloa lagoon
EBT007	Road crosses the Batticaloa lagoon from1.5km to 2.7km and it ends at the lagoon
EBT192	Batticoloa lagoon is found on LHS of the road from 0 to 1.9km and it follows the bund of a tank from 3 – 3.8km.

77. **Ampara District:** Gal Oya is the largest river in Ampara District and it was the first multi-purpose irrigation scheme started in post independent Sri Lanka. It flows from the South Central hills of the country and passes through the dry Eastern sector of the Island to enter the Indian Ocean close to Kali Odai in Oluvil. The Gal-Oya River has a watershed size of approximately 500 km2. Gal Oya a multi-purpose project provides hydro power, water for sugar cane cultivation, tile production, rice milling, and various other industries. A dam across the river at Inginiyagala has created a reservoir called “Senanayake Samudraya.” The reservoir has a capacity of 950 million m3 of water and feeds a large number of perennial and seasonal tanks in the Northern part of the District. It has resulted in new settlements being established. In addition other water reservoirs which store water are Pannelagama, Ambanoya, Sangaman Kulam, Rufus Kulam, Vammiyadi Kulam, Semmani Kulam, Naulla Tank, Arakkaman kulam and Thonical Anicut. .

78. The road of EAM322 Sec II runs adjacent to the hot water springs of Maha Oya located about 2km from Maha Oya town within Ampara District. This wells identified as hottest springs of all the hot springs of Sri Lanka with 7 wells in different temperatures. Currently these wells are maintained by the Local Government Authority of Maha Oya. Since this is important tourist destination of the area number of local and forging people visits this place frequently. The major streams and water sources cross or located near proposed roads in Ampara District area are given in the table 7.

Table 7: Road Sections that Cross or Located near Water Sources of Ampara District

Road ID	Sections that cross or located near water sources
EAM001 - sec.i	Road runs along the right bank canal of the Inginiyagala reservoir through the entire distance
EAM117	A distributor canal of Hulanpathanagala tank runs along the RHS of the road from start to end
EAM117 - sec.i	Road crosses stream at 0.15km,2.65 km ,2.8km and an irrigation canal is located on RHS from 3.7km to 3.74 km
EAM279	Road strats at the immediate downstream of Inginiyagala and follows the bund of one of the main canal of the Inginiyagala reservoir from start to end of the road. Road crosses Pallamoya at 6.8km
EAM478	Road runs adjacent to the Inginiyagala left bank main canal from 0.910km to end point on LHS
EAM476 -sec.ii	Road starts at left bank canal of the Inginiyagala reservoir
EAM458	Road ends at Namaloya (Stream)
EAM355 -sec.ii	Road starts from left bank canal of the Inginiyagala reservoir
EAM355 -sec.i	Road starts from left bank canal of the Inginiyagala reservoir
EAM372	Road follows a canal from starting point to 240m on LHS and it is ends opposite to the left bank canal of the Inginiyagala reservoir
EAM034	Road Starts from a left bank canal of a reservoir
EAM242 - sec.i	Road starts from opposite side to the left bank canal of a reservoir
EAM244 - sec.i	Road follows an irrigation canal from start to end (LHS)
EAM244	Road follows an irrigation canal from start to end (LHS)
EAM345	Road follow a canal from the starting point to 680 m
EAM114	Road runs along a bund of an irrigation canal from 1.800km to 2.900 km
EAM028	Road runs along a bund of an irrigation canal from 1.5km to1.75 km(LHS)
EAM116	Road ends near to the hot water springs
EAM293	Road runs along a bund of an irrigation canal (RHS) from start to end
EAM299 - sec.ii	Road crosses main canal of the Inginiyagala reservoir at the starting point
EAM299 - sec.i	Inginiyagala main canal is located from 0.7 to 1km on LHS of the road
EAM297	Road crosses the main canal of Inginiyagala reservoir at the starting point
EMA035	Road crosses the stream at 0.5km

Road ID	Sections that cross or located near water sources
EAM214	Road is located adjacent to a bund of a tank (RHS)from 1.3km to 1.5km and road crosses a stream at 0.6km
EAM412	Road crosses a stream at 0.6km
EAM284	Road runs along a bund of an irrigation canal from 0.5km to 0.35km and crosses the same canal at the same point and again at 3km
EAM281	Road follows the bund of the main canal of Ambalanoya reservoir from start to end
EAM283	Road crosses an irrigation canal at the starting point
EAM285	An irrigation canal runs parallel to the road from 0.4km to 0.6km on LHS and 0.6km to the end on RHS
EAM282	Road crosses a stream at 0.3km
EAM004	Road crosses a stream at 1.88km
EAM320	Road crosses a stream at 4.3km and 5.8km
EAM322- sec.ii	Road starts near to a hot water spring
EAM 015	The road crosses streams at 0.500Km, 2.300Km and 2.700Km
EAM 084	Road ends near to the Irakkamam tank
EAM 85	A main irrigation canal runs parallel to the road from start to end
EAM 113	An irrigation canal runs parallel to the road from the starting point to 0.800Km on LHS and a field canal is located parallel to the road at 0.800 Km to end point on RHS of the road
EAM 187	An Irrigation canal crosses at the starting point and at 0.500Km of the road
EAM 187	An Irrigation canal crosses at 0.600Km of the road
EAM 267	A canal crosses the road at 0.550Km
EAM 289	A canal runs parallel to the road from the starting point to 1.600Km and 4.0Km to end point of the road
EAM 303	A main irrigation canal runs parallel to the road from starting point to 0.150Km on RHS
EAM 305	A field canal runs parallel from starting point to 0.05Km on RHS of the road
EAM 385	A canal crosses a road at 0.450Km
EAM 401	An irrigation canal runs parallel to the road from starting point to the end point on LHS of the road.
EAM 401	Road ends near to the Budapotha Irrigation canal
EAM 489	An irrigation canal runs parallel to the road from 0.6Km to end point at LHS of the road
EAM 490	An irrigation canal runs parallel from the starting point to the end point on LHS of the road
EAM 491	An irrigation canal (Weerady canal) runs parallel to the road from the starting point to end point on RHS of the road
EAM 93	Road follows adjacent to a seasonal irrigation tank from 0.600Km to 758 km RHS
EAM 267	Road cross a stream at 1.600Km
EAM 277	Road cross a stream at 0.500Km,0.600Km,1.400Km and end pint of the road
EAM 308	Road follows a canal from the starting point to 2.37km and 4.35km to the end point
EAM001	Road traverses along the Right Bank Canal (RBC) of the Inginiyagala Reservoir and the RBC flows along Left Hand Side (LHS) of the road
EAM117	An irrigation canal could be observed on Right Hand Side (RHS) along the entire road
EAM279	Road runs parallel to the Bund of the Inginiyagala Reservoir
EAM291	Road runs along the Right Bank Canal (RBC) of Inginiyagala Reservoir. Immediately after starting, the candidate road crosses the RBC of Inginiyagala Reservoir at 0.63km, road joins the bund road of one of the Distributary Canal (D

Road ID	Sections that cross or located near water sources
	– Canal) of the RBC of Inginiyagala Reservoir and follows the same road till the end point and the canal runs along Right Hand Side (RHS) of the road.
EAM291	Road runs along a Distributary Canal (D – Canal) of the Right Bank Canal (RBC) of Inginiyagala Reservoir and the D canal is on the Left Hand Side (LHS) of the road
EAM312	Road starts at right bank end of the Bihirisorowwa Tank
EAM024	Road crosses a tributary of HedaOya at 1.5km
EAM418	Road crosses a tributary of HedaOya at 1.3 – 1.4km
EAM280	Road runs along the bund of an irrigation canal (RHS)from start to the end
EAM213	Road crosses the spill of Pannalgama tank at 0.1km and road crosses a road at a stream at 5.4km

4. Air quality

79. Considerable land area of Trincomalee and Batticaloa Districts located adjoining the Indian Ocean, with topography considering of lagoons, inland water bodies, paddy field and forests. Generally both Districts consist with clean atmosphere except several urban centers. Most of the area in Ampara District are not affected by pollution of air due to lack of vehicular transport and industrial activities. However several mass scale industries in Trincomalee such as Prima flour Factory, Tokyo Cement, unloading and loading of coal for the Norrochcholai Coal plant etc., generate emission of air pollutants in different level. In addition, emission of Sulphur dioxide on chlorine, from the paper factory at Valaichenai of Batticaloa, has an effect on the air quality of the surrounding environment. In addition vehicular emission due to existing traffic flow in several towns of the districts such as Trincomalee, Kalmunai, Batticaloa, Kaththankudi, Ampara etc, are comparatively high dusty areas of the Province. Further air pollution caused by all three districts include emissions from wood and kerosene burning stoves and paddy hulling. In addition during the dry season, dust emission is relatively high due to unpaved road sections all over the province. Due to the low traffic movement the present emissions from vehicular traffic is not a major contributor to air pollution in the project area. Table 8 presented the National Environmental (Ambient Air Quality) Standards, declared in 1994 by the CEA. table 9 presents the 2005 “World Health Organization Air Quality Guidelines” which offers a global guideline on thresholds and limits for key air pollutants that pose health risks[5].

Table 8: National Ambient Air Quality Standards

Parameter	Average time (hrs.)	NAAQS (mg m^3)	NAAQS (ppm)
Carbon Monoxide	8	1	9
Nitrogen Dioxide	24	0.10	0.05
	8	0.15	0.08
Sulpher 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).

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

[5] These guidelines are adopted by the Word Bank under their General EHS Guidelines.

Table 9: WHO Ambient Air Quality Guidelines, 2005

Parameter	Averaging Period	Guideline value in mg/m^3
Sulphur Dioxide (SO_2)	24 hour	125 (Interim target 1) 50 (Interim target 2) 20 (Guideline)
	10 minute	500 (Guideline)
Nitrogen Dioxide (NO_2)	1 year	40 (Guideline)
	1hour	200 (Guideline)
Particulate Matter (PM_{10})	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 ($PM_{2.5}$)	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)

5. Occurrence of Natural Disasters in the Project Area

80. **Floods:** Most of the proposed roads prone to flooding during rainy season especially in North-East Monsoon periods. The three districts of Eastern Province, Batticaloa, Ampara and Trincomalee were fully affected due to heavy rains recently in 2011 (Figure 2). In Batticaloa about 306,998 people from 14 villages lost their houses, 154 houses were completely damaged, 607 houses were partially damaged, 13 people died and effected with poor accessibility to infrastructure and sanitation. In the same time low lying areas in Ampara district were affected by flood which resulted in effecting the transport services in the area. Further these floods have effected irrigation tanks and around 800,000 acres of paddy and subsidiary crops have been completely destroyed. Further it resulted loss of livestock in the area including cows and goats.

81. **Tsunami**: The tsunami that struck the coastline of Sri Lanka in December 2004, resulted in loss and displacement of thousands people in Sri Lanka. Approximately 800 km of the coastline was affected by the tsunami with northeast region of the country being the hardest. Out of that, Ampara district recorded the highest deaths in the country which was 10,436 deaths. Batticaloa district recorded 2,836 number of deaths and Trincomalee recorded 1,078 deaths. Further 227,670 people displaced, 2,495 injured and 2,192 were missing. Apart from that around 51,000 houses fully damaged while 16,059 houses partially damaged due to Tsunami (Figure 3).

82. Although Tsunami is widely acknowledged as the most devastating natural catastrophe happened in the history of the country so far, based on the past records of the Disaster Management Center (DMC), occurrence of Tsunami in the country is very rare.

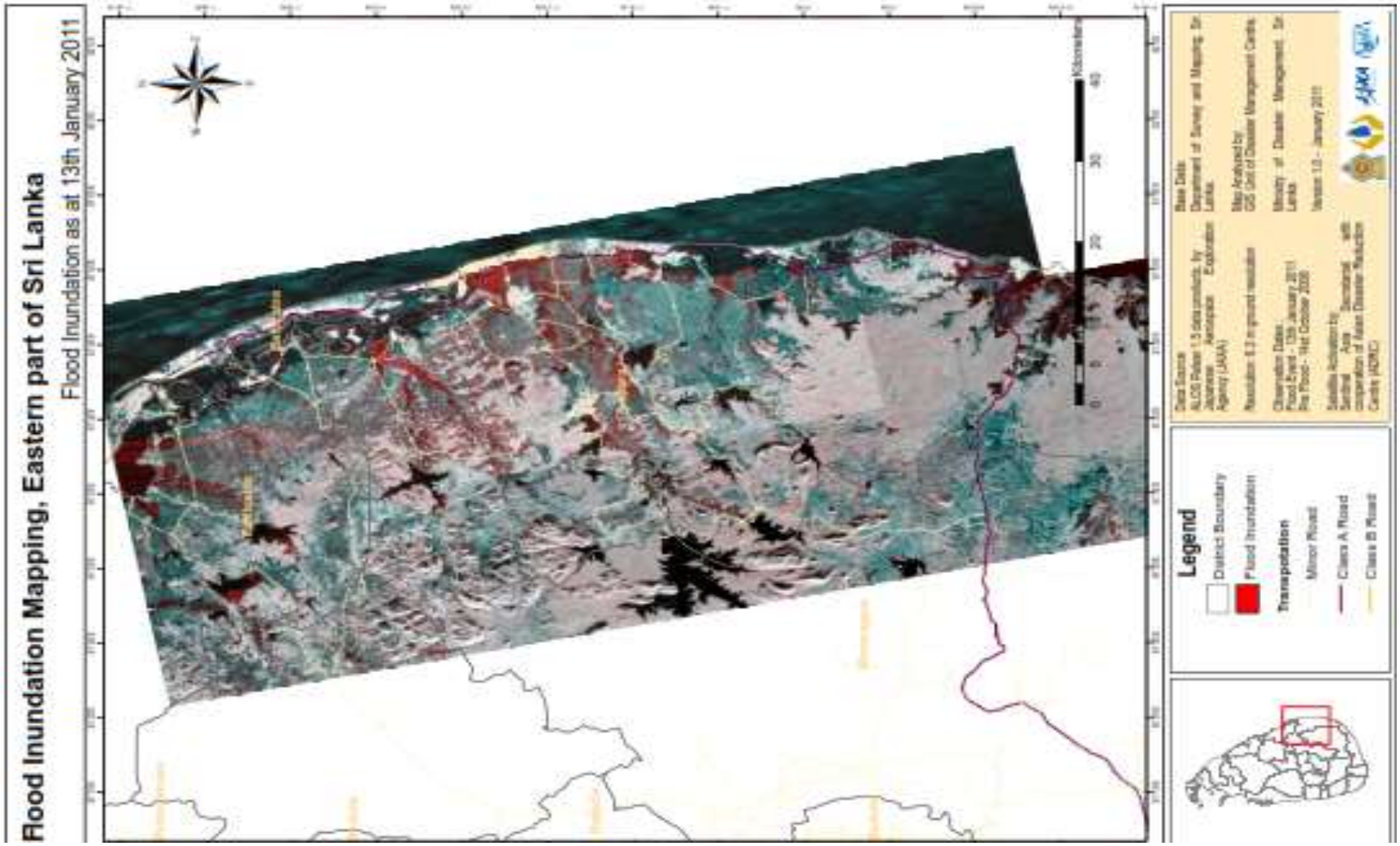
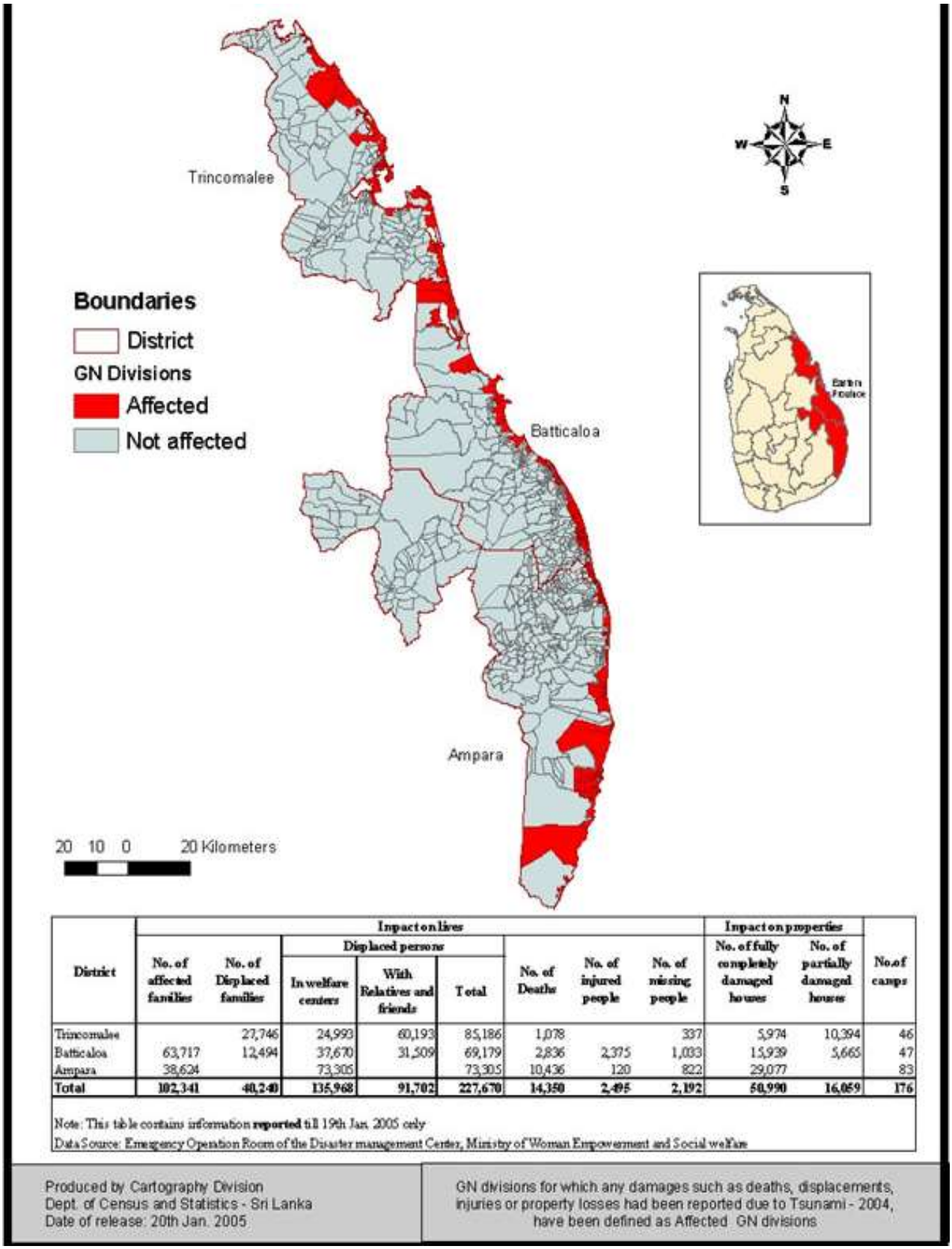


Figure 2: Flood inundation Map of Eastern Province, 2011



District	Impact on lives								Impact on properties		No.of camps
	No. of affected families	No. of Displaced families	Displaced persons: In welfare centers	Displaced persons: With Relatives and friends	Displaced persons: Total	No. of Deaths	No. of injured people	No. of missing people	No. of fully completely damaged houses	No. of partially damaged houses	
Trincomalee		27,746	24,993	60,193	85,186	1,078		337	5,974	10,394	46
Batticaloa	63,717	12,494	37,670	31,509	69,179	2,836	2,375	1,033	15,939	5,665	47
Ampara	38,624		73,305		73,305	10,436	120	822	29,077		83
Total	**102,341**	**40,240**	**135,968**	**91,702**	**227,670**	**14,350**	**2,495**	**2,192**	**50,990**	**16,059**	**176**

Note: This table contains information **reported** till 19th Jan. 2005 only
Data Source: Emergency Operation Room of the Disaster management Center, Ministry of Woman Empowerment and Social welfare

Produced by Cartography Division
Dept. of Census and Statistics - Sri Lanka
Date of release: 20th Jan. 2005

GN divisions for which any damages such as deaths, displacements, injuries or property losses had been reported due to Tsunami - 2004, have been defined as Affected GN divisions

Figure 3: Tsunami Hazards Map of Eastern province

83. **Drought:** Drought is another major disaster happening in the country and according to DMC, more than 1 million people of the country have been affected by the drought so far, with the EP being the worst affected (Figure 4). According to the Eastern Provincial Council Development Plan for 2012-2016, majority of the emergency supplies have been spent on droughts compare to all the other hazards in EP.

84. Drought has caused water scarcity problems, effected on agricultural activities, livestock farming and created inconvenience to the people in many ways in EP. Out of the other disasters occurred in the province from 1974-2007, drought accounts for the largest proportion of crop losses amounting to 530,685 ha and paddy losses of 303,957 ha. Further it has caused reduction of water levels in tanks, rivers and water wells in Trincomalee district. According to DMC, 69,678 people in EP faced a water shortage due to drought in September 2016. In 2009, drought in Ampara district had badly affected the fisheries industry especially in Arugam bay where more than 1,500 kilograms of Thilapia, Silver Carp and Cat fish types died effecting the fishing community in the area.

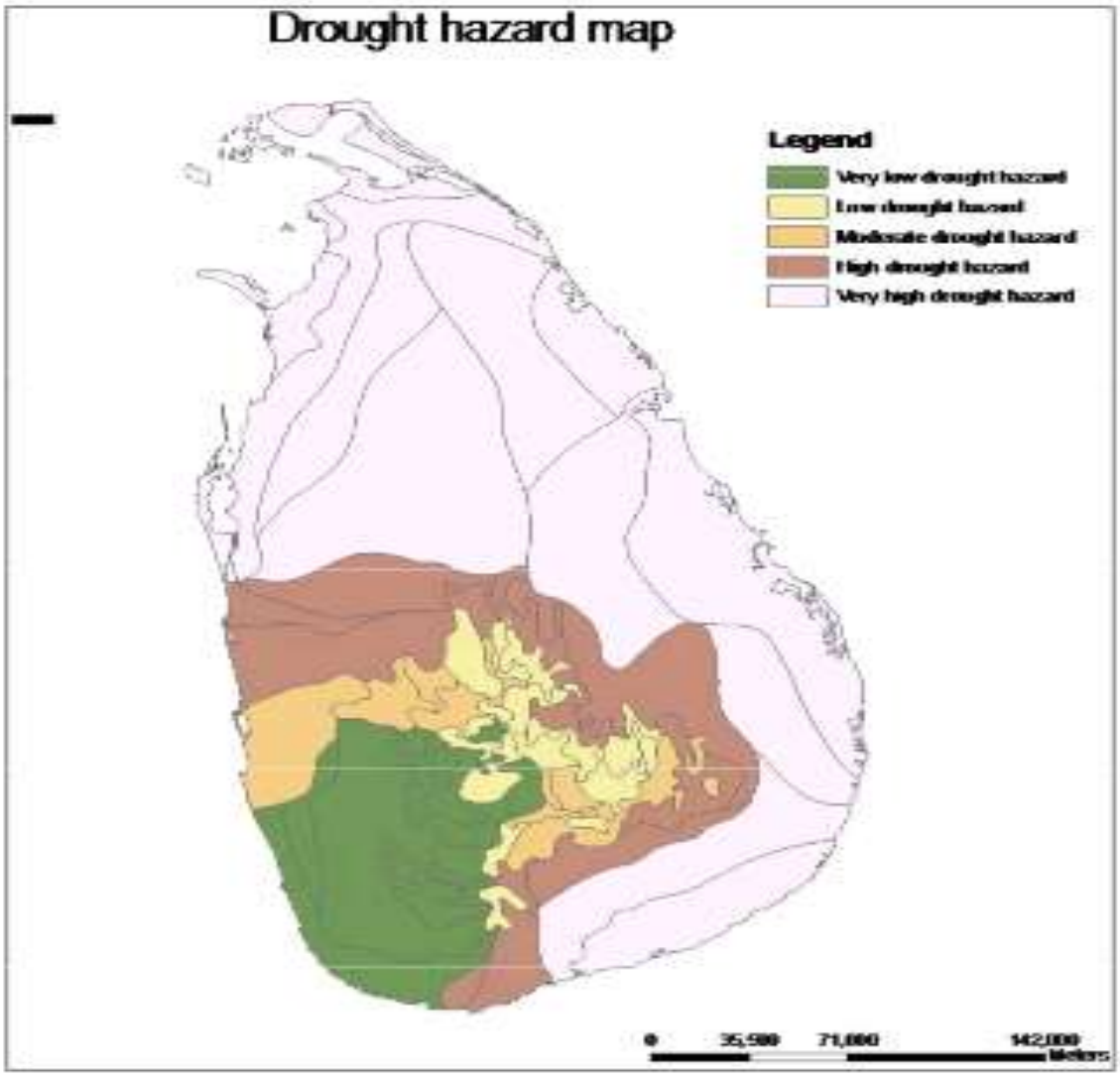


Figure 4: Drought Hazard Map

85. **Cyclones and winds:** According to historical evidences, the EP has also been prone to cyclone storms and severe cyclones with the average wind speeds of 62 to 88 km/ hour or 89 to 118 km/hour respectively. (Table 10). According to DMC, the North-Eastern sea boarder experience high cyclone hazard which originates from Bay of Bengal and 80 percent of all cyclones and storms occur in November and December.

Table 10: Past records of cyclones occurred in the EP

Year/Month	Classification	Landfall
1907 Mar	Severe Cyclonic Storm	East
1922 Nov	Severe Cyclonic Storm	East
1964 Dec	Severe Cyclonic Storm	East
1966 Nov	Cyclonic Storm	East
1978 Nov	Severe Cyclonic Storm	East
1980 Dec	Cyclonic Storm	East
2000 Dec	Severe Cyclonic Storm	East

86. Out of the above, the cyclone stroke in 1978 at EP was believed to be the strongest tropical cyclone that damaged many areas of EP including Trincomalee to Arugam bay, Akkaraipattu, Ninthavur, Kalmunai, Pattiruppu, Chettipalayam, Thalankudah, Kattankudy, Batticaloa, Eravur and Kalkudah. This cyclonic storm has effected million people and resulted in death of thousand people, houses and property damaged, damages to fishing fleet & crops including paddy, coconut plantation and damages to infrastructure of the area including electricity, water supply and transport facilities**.** From 1974- 2007 Rs. 31,180,200 worth emergency supplies have been spent on cyclones in the province.

6. Improvised Explosive Device (IED) and Unexploded Ordnance (UOX)

87. Due to the long armed conflict in EP which ended in year 2009, several Improvised Explosive Devices (IEDs) and Unexploded Ordnance (UXO) had been used extensively by cadres of the LTTE against Sri Lankan forces. UXO such as bombs, shells, grenades, land mines etc. from the war effected area of the EP have been cleared by the military experts from 2009 up to date, but suspected areas for UXO could not be found during the field survey. Those UXO which have not been demined yet could still pose a risk of explosion, sometimes many years after they were used or discarded. During the proposed construction and other construction related activities IED & UXO can be particularly dangerous and will pose a risk to normal safety measures in the area. Information land areas cleared from IEDs and UXOs could be obtained from relevant Divisional Secretary Offices and Military Establishments.

B. Ecological Environment

1. Existing habitats, flora, fauna and protected areas Ecological Resources

88. Trincomalee District is home to a large number of faunal and floral species composition representing the dry zone species of Sri Lanka. This includes animals ranging from small insects to larger mammals such as the Asian Elephant. Protected areas of the District provides suitable habitats for these animals and plants. The coastal habitats, shallow seas and the islands in the area are also highly ecologically important due to the presence of coral reefs and other shallow sea fauna. The oceans adjoining the district are very popular destinations for whales, dolphins and sea bird watching. Seruwila-Allai Sanctuary is also an important marine Protected Area. At present total forest cover in the Trincomalee District is only 20.2% from the total land area. Major

reason for decreasing of forest cover is shifting for “Chena” cultivation, extraction of firewood and illicit felling of trees for timber etc.

89. Batticaloa District has a forest cover of 53,250 ha consisting of dense forests, open forests, mangroves and forest plantations. Dense forests accounts for less than 50 percent of the total forest cover. Kumbuk, Mahogony, Satin, Margosa, Halmilla, Milla, Lunumidella, Timbiri and Palu are some of the common species, which grow naturally in the forests of the District. Teak, Eucaplyptus, Acacia and Etdemata are species planted in forest plantations. There are no Wildlife Parks in the District. But sanctuaries are found in irrigation reservoirs, particularly, Vakaneri, Kaddumurivu, Rukam and Puluganavi tanks. Several marine coastal areas such as coral reef, estuaries of the 15 rivers and streams, mangroves along the banks of the lagoons and the “Thonas”, beaches and Sea grass are found in the district. Most of these coastal resources are declining due to human activities such as over exploitation, excessive agro chemical usage and etc.

90. The area of Ampara District consists of very lesser extent of Tropical Thorn Forests and Degraded forests with moist monsoon forests. National parks such as Yala East (Kumana), Maduru oya, Lahugala, Gal Oya and number of sanctuaries such as Ampara sanctuary, Sellaka Oya Sanctuary, Kudumbigala, Lahugala Sanctuary and etc. as well as forest reserve such as Sagamam and Kumbukkan Forest Reserve are ecologically and biologically important sites located in Ampara District. Yala East National Park lies on the Southeast coast in EP. The main feature is in the world famous Kumana mangrove swamp, which is surrounded by plains and jungle. Kumana is frames bird destination for large number of migratory species of bird. Total area of the Yala East National Park is 18,149 ha, with 265.3 ha in block II and 17,863.4 ha in block I. The vegetation of this National Park comprises of semi-arid thorn scrub with fairly large areas of dense forest. Maduru Oya National Park is located within Ampara District of the Eastern Province. The park is important for its rich wildlife, which includes a variety of endemic species of fauna. Lahugala Kithulana National Park is in the basin of the Heda Oya. The area of the park is 1,554 ha. Common species are weera, palu, halmilla, milla satin and ehala. Lahugala traditionally used as a feeding ground by elephants.

91. The Kudumbigala Sanctuary 10 km South of Arugam bay is a large rock complex of ridges and huge granite boulders. Buddhangala Sanctuary was declared on 1st November 1974 and covers an extent of 1841.4 ha. Comprising wetlands and grasslands, the sanctuary supports a large number of species including birds and elephants. This area provides a habitat for over 100 species of birds and other animals. The sanctuary consists of typical dry-zone vegetation, virgin forest, high forest, grassland patches, shrub lands, rocky vegetation, aquatic vegetation, tank vegetation, abandoned tanks and rocky pools.

92. Generally, fauna of the EP is similar to species recorded in dry zone forests of other areas of the country. National parks and sanctuaries of the Province are very famous for avifauna due to the presence of large number of migratory and residential bird species. Different species of mammals (Elephants, Water buffaloes, Toque macaque, Common languor, Sloth bear, Jackal, Loris, Rusty spotted cat, fishing cat, leopard, Samba and wild boar etc.), reptiles, amphibians, butterflies, fresh water fishes and brackish water crustaceans as well as different types of aquatic and terrestrial habitats are available within the Province.

93. Figure 5. Presents the map of the Ecological resources located within the EP.

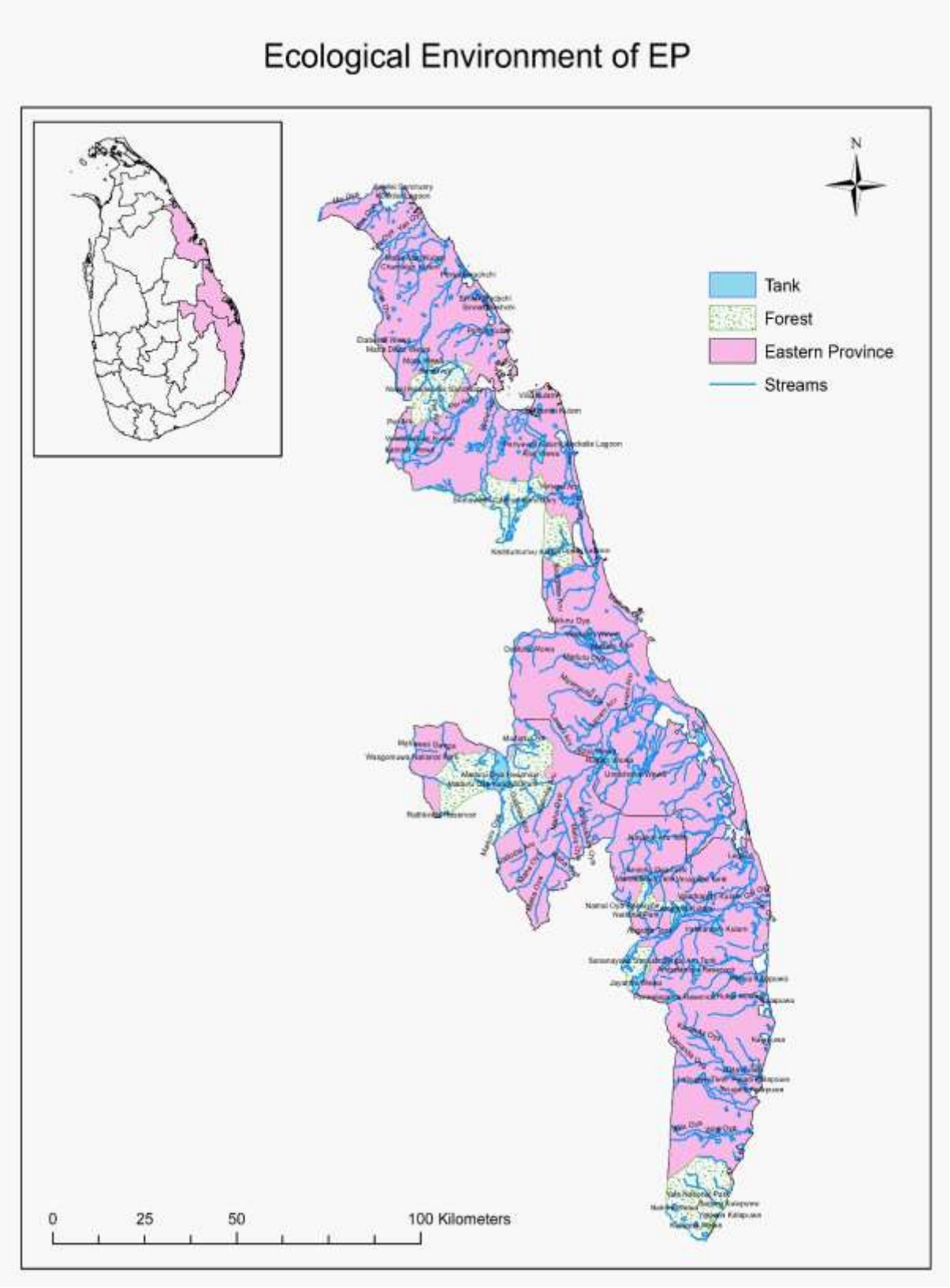


Figure 5: Map of the Ecological resources located within the EP

2. Forest areas located within/adjacent to the roads of Eastern Province

94. Since large extent of forested areas are located within the EP, some of the long distance proposed roads runs through and close to the forested areas. Table 11 present the details of roads which runs through or adjacent to the forest with necessary information. Figure 6 presents the roads which runs through or adjacent to the gazetted forest with necessary information.

95. Roads falling in part or whole inside or within the buffer zone of a SNR, NP or NR will not be selected under the investment program. Roads falling adjacent to other protected areas (such as sanctuaries or protected wet lands) or eco-sensitive areas will be included only if there is no widening of the road "right of way" or acquiring of land from the protected area or eco-sensitive area. For such project roads proper consultations will be held with the Department of Wildlife Conservation, Forest Department, local community and other relevant stakeholders and appropriate clearances or endorsements should be sought if required.

96. Department of Forest granted a general approval for improvement of all roads under this project which are falling within or adjacent to sensitive forest areas through letter No. EMD/EIA/RD/rural roads/2014 dated 27 Aug 2014 (attached in appendix IV.1). However, for any roads or section of roads falling within Forest Reserves, road specific approval should be obtained before construction.

Table 11: Proposed Roads located within/adjacent to the gazetted Forest/Wildlife of the EP

Road ID	Forest Reserve
Trincomalee District	
ETR017	Crosses a forest reserve from 1.1 to the end point
ETR102	Entire road is located within a forest area
ERT101	Entire road is located within a forest area
ETR 138	Road runs near to Somawathee Chaithiya Sanctuary north section at 3.6km - 5.2km
ETR 006	Forest reserved located near to road at 3.3km - 5.0km
ETR 040	Road runs through the Upparu mangrove ecosystem
ETR 040	Road runs through Upparu Mangrove Ecosystem
Ampara District	
AB001	The road section from ch. 21+200 to end point (ch. 21+710) located adjacent to GalOya *Niritha Diga* National Park
B350	Entrance to GalOya National Park is located within this section.
EAM213	Panama Forest Reserve is located on LHS of the road from 0.5 – 5.4km
EAM291 Sec II	Nellikelaya forest reserve which is a medicinal herbal forest is located from 0.1 – 4.17km on the LHS of the road.
EAM291 Sec I	Nellikelaya forest reserve which is a medicinal herbal forest is located from 0.8 – 3.16km on the RHS of the road.
EAM 347	Road runs through a reserve forest
EAM 361	Road runs through a reserve forest
EAM 366	Road runs at edge of reserve forest
EAM371	Road runs through Ampara sanctuary (South East Galoya valley Sanctuary)
EAM280	Road runs adjacent to the to the forest reserved from starting point 1.5 km on LHS
EAM213	Road runs adjacent to the to the forest reserved at 3km to 1.5 km on LHS
EAM322- sec.i	Road runs within a forest cover from 3km to the end point
EAM322- sec.ii	Road located entirely within the forest reserve
EAM322- sec.iii	Road located entirely within the forest reserve

Road ID	Forest Reserve
Batticaloa District	
EBT 090	Road runs through Koralai pattu forest reserved
EBT 128	Road runs through Punanai forest at 0.00 km to 2.200km.
EBT 127	Road runs through the forest reserved at 0.00km 1.500km

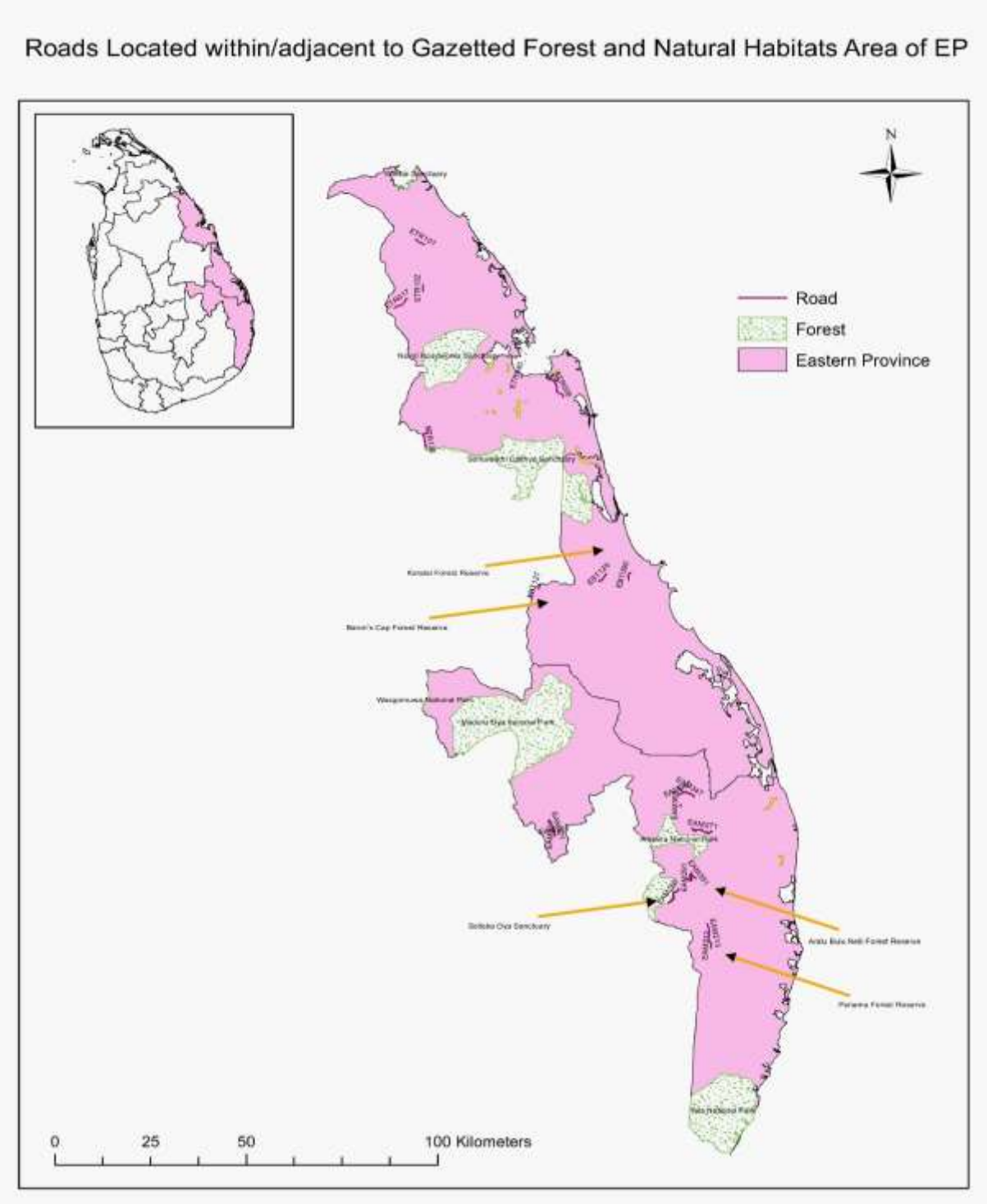


Figure 6: Roads which runs through or adjacent to Gazetted forest areas

C. Socio Economic Environment

1. Population and population density

97. EP is divided into three administrative Districts namely Trincomalee, Batticaloa and Ampara, 45 Divisional Secretary's Divisions (DSD) and 1085 Gram Niladhari Divisions (GND) (Refer table 12). EP has a combined population of 1,551,381 of all three districts of EP, out of which majority 74.9% are living in rural areas. The province is unique because it is the home to all three ethnic communities with approximately 40% of the population Sri Lankan Tamil, 36% of Sri Lankan Moor and 23% of Sinhalese. Batticaloa and Trincomalee Districts show the highest & lowest population density of the province respectively (201 persons per Km^2 and 150 persons per Km^2). Table 13 shows the distribution of population by sector and population density.

Table 12: Administrative structure of Eastern Province

District	Capital city	DS Divisions	GN Divisions	Total area km^2	Land area km^2
Trincomalee	Trincomalee	11	230	2,727	2,529
Batticaloa	Batticaloa	14	348	2,854	2,610
Ampara	Ampara	20	507	4,415	4,222
Total		**45**	**1,085**	**9,906**	**9,361**

Table 13: Distribution of Population by District (2012)

District	Total population	Population by district		Population density (Persons/Km^2)
		Urban %	Rural %	
Trincomalee	378,182	22.8	77.2	150
Batticaloa	525,142	28.8	71.2	201
Ampara	648,057	23.8	76.3	154

Source: Census of Population and Housing of Sir Lanka – 2012 (Provincial data base on the 5% sample).

2. Population by ethnicity:

98. With respect to the ethnicity of the population in EP, more than 39% belongs to the Sri Lankan Tamil. Tamil is the principal language spoken by the population. Two other ethnic groups, Sri Lankan Moor and Sinhalese represent second and third place in the EP, 36.68% & 23.14% respectively. Table 14 indicates the population of NP with respect to the ethnic group.

Table 14: Distribution of population by ethnicity (2012)

District	Sri Lankan Tamil	Sri Lankan Moors	Sinhalese	Indian Tamil	Other	Total
Ampara	112,750	282,484	251,018	165	1,640	648,057
Batticaloa	381,285	133,844	6,127	1,015	2,871	525,142
Trincomalee	115,549	152,854	101,991	6,531	1,257	378,182
Total	609,584	569,182	359,136	7,711	5,768	1,551,381
%	39.29%	36.69)	23.15%)	0.50%)	(0.37%)	

Source: Department of Census and Statistics, 2012, Census.

3. Main Economic Activities

99. Majority of the Eastern people engaged in different livelihood categories such as farmers, fishers and professionals in the civil and business sectors (Table 15). Agriculture is the mainstay of the economy of the EP which accounts to around 23% of the estimated provincial GDP. The Eastern Province has a population of 1.5 Million and is recognized as an important agricultural area with scope for expanded development. The province represent 30% of farming population from the total.

Table 15: Percentage Distribution of Employment Population by Major Industry Group- 2014

District	Total	Major Industry Group		
		Agriculture (%)	Industry (%)	Service (%)
Trincomalee	100	30.5	16.2	53.3
Batticaloa	100	25.8	28.2	46.1
Ampara	100	33.3	18.8	47.8
Total	100	**29.86**	**21.06**	**49.06**

Source: Annual Report – 2014, Sri Lanka Labour Force Survey, Department of Census and Statistics.

a. Agriculture, livestock and finishing

100. The EP accounts for 163,000 hectares (42.9%) of the agricultural lands. Annually, the Province produces around 840,000 metric tons of paddy in both seasons; equivalent to 25% of the national production (Eastern Provincial Council 2012, 4). However, the Province does not have sufficient rice mills and as a result approximately 75% of the paddy is husked and milled outside the EP. The farming population in the Province is about 30% of the total population and is equivalent to 450,000.

101. Livestock industry is an important field for entrepreneurs in the EP for the farming society. This industry generates additional income, employment opportunities and high nutritious food (milk, dairy products and meat) for the poor people of this area. Several stakeholders including government sector, private sector and NGOs are involved to strengthen the sector through various projects and programs. Sri Lankan milk production meets only 17% of the country's requirement. The EP has approximately 30% of the cattle and buffalo population of the country (Eastern Provincial Council 2012, 77). As such there is great scope for expanding and adding value to this sector. Multinational and national companies continue to collect the milk from the east and take it outside the province for processing depriving the EP of employment opportunities and higher revenue through value addition.

102. The EP comprises 15% of the land area of the country and 25% of the coastal belt therefore out of total population 35% are engaged in fisheries sector. The fishery sector is contributing around 1.8% of the total GDP of the country, out of which the EP contributes to 27% of the total fish production in Sri Lanka. The people in the province engage in marine, inland including rivers, seasonal tanks and streams and aquaculture. The Batticaloa estuarine lagoon which is a long and narrow water body from north part of the Batticaloa to Ampara with an area approximately 11,500 ha, is an important brackish water body for all the offshore and small scale fishing communities in the area (Table 16 and 17).

Table 16: Fishing Households and Active Fisheries (Marine Fisheries) - 2015

District	Number of Fisheries Inspector Divisions	Fishing Households	Active Fishers (Fishermen & Women)	Fishing Household Population	Average Fishers per Household
Trincomalee	11	32,000	33,950	104,320	1.0
Batticaloa	15	25,280	29,620	111,360	1.2
Kalmunai (Ampara)	12	22,l940	20,400	103,460	0.9

Source: Fisheries Statistics – 2016, Ministry of Fisheries and Aquatic Resources Development.

Table 17: Active Fisheries (Inland Fisheries & Aquaculture) - 2015

Districts	Inland fisheries			Aquaculture		
	Male	Female	Total	Male	Female	Total
Trincomalee	1,320	88	1,408	406	71	477
Batticaloa	1,082	95	1,177	177	13	190
Ampara	3,739	16	3,755	334	2	336

Source: Fisheries Statistics – 2016, Ministry of Fisheries and Aquatic Resources Development.

103. During the field survey, many agricultural lands including paddy, coconut, sugarcane, Chena cultivations and home gardens with different crops were observed beside the proposed roads. Apart from that raring cattle, goat & poultry in their home gardens were also a common observation in three districts. Fishing related industries such as ice cube manufacturing, fishing nets and boat manufacturers industries were also observed in coastal areas of the EP.

104. Trincomalee District: The main economic activities in Trincomalee District are agriculture, fisheries, animal husbandry, and business. The agriculture crops are mainly rice, onions and vegetables, which were previously exported to other Districts. Fisheries used to bring significant income to Trincomalee and provided large number of employment opportunities.

105. Batticaloa district: Agriculture plays a dominant role in the economy of the Batticaloa district with 30.5% of the population being engaged in it. The large extents of low-lying lands on the Western shore of lagoon are ideal for paddy cultivation. Cash crops are also cultivated extensively on banks of rivers and streams. Cashew and coconut mainly grow in the Eastern shore of the lagoon regions. Cattle farming and poultry is extending due to grazing lands and paddy fields in the area. Further supplying of milk for collecting centers is a popular form of employment in the rural areas. Batticaloa District is the primary producer of fish production, with nearly 32% of its popular engaged in the industry. The three lagoons and the irrigation reservoirs throughout the Western shore of the District attract many for inland fishing. Though the District has a long sea belt, very few people go out fishing in the sea. People living along the sea belt, are engaged in “Madal” fishing or fishing along the coast.

106. Ampara District: Ampara is doing well in economic terms, compared to other two districts in the East. Agriculture, animal husbandry, and fishing are the main activities. Rice cultivation, sugar cane cultivation, vegetable cultivation, inland and ocean fishing are helping to lift the economy. Many rice mills have been constructed for rice processing. Further animal husbandry is another source of income generation and milk products also play a big role in strengthening the economy. Senanayake Samudraya is one of the biggest tanks in Ampara district having a capacity of 950 million m3 of water. It provides irrigation facilities to more than 38,000 ha of paddy lands. Its main channel network system is about 35 km long and conveys about 100 m3 of water per second to the system.

b. Industrial sector

107. Table IV.12 represent the percentage distribution of employed population by major industry group for three districts in year 2014. Batticaloa District shows highest share of employment in industry sector of the province (28.2%), while Trincomalee shows the lowest share. On contrary Trincomalee District shows the highest employment contribution to the service sector (53.3%) and other two districts represent around 45%.

108. The industrial sector of the province comprises a few large industries, small and medium scale enterprises which provide employment opportunities for many people in the area. Apart from that people in the province depend on several micro and household businesses that are based on self-employment activities. Lanka Mineral Sand processing plant which is located at Pulmodai, Mitsubishi/Tokyo Cement factory and Prima wheat flour mill plants located near Trincomalee harbor, Valaichchenai Paper Mill Corporation Situated in Batticaloa District, Fuji cement factory, Bio Mass Power Plant and the Indian Oil Company are the large industries with multinational entities located in EP. The Valaichchenai Paper Mill Corporation is one and only mill of the National Paper Company Limited own by Sri Lankan Government.

109. Small scale industries in the province include handloom weaving garments, handicraft such as coir, pan mat, carpentry, cane and pottery and manufacturing of gold jeweler, brassware, furniture etc. Department of Industries, EP is the main arm of the provincial council of EP for the provision of services to the industrial sector in the province. Other than that The BOI, Chamber of Industries and commerce, Eastern Universities and several cooperate societies in the province help in uplifting the industrial sector in the province.

c. Tourism

110. Tourist arrivals in Sri Lanka has increased from approximately 450,000 in 2009 to one million arrivals in 2012 and exceeding 1.5 million in 2015. The Eastern region is fast emerging as a high potential player in Sri Lanka's tourism market and has vast potential for tourism development, much greater than other provinces in the country. The potential to develop the eastern coastline as a prime tourist destination in the world is high, because of its natural beauty, resources and how it is situated. The Province has access to 420 km of coast line with a coastal density of 8.47 hectares per km; 635 sq. km of inland waters; 3,030 sq. km of forests; and 47,000 hectares of national parks with elephants, deer, leopard and abundant bird life.

111. Trincomalee, Batticaloa and Ampara have some of the best beaches in the Asia Pacific region. Arugam Bay, Pasikkuda, Nilavely beach, Marble beach, Kallady beach are the popular beaches among those for local and foreign tourists .Arugam Bay is an internationally recommended destination for surfing ground located on the Indian Ocean in South-East coast of Sri Lanka. Arugam Bay Bridge is very famous land mark in the area linking Arugam Bay with Potuvil town. The sandy beach area of Arugam Bay and sand dunes and barriers from Pottuvil to Panama provide nesting habitat for turtles. Several unique scuba diving opportunities including more than ten shipwrecked diving sites and a large natural harbor of Trincomalee, which is suitable for docking cruise ships are also found.

112. Forestry reserves of Ampara (118,770 ha), Batticaloa (63,858ha) and Trincomalee (120,310ha), an abundance of wildlife and national wildlife parks, whale and dolphin watching around sea area of Trincomalee are significant wildlife and nature resources located within the province. Pigeon Island National Park is one of the major marine national parks in the country which contains some of the best remaining coral reefs of Sri Lanka. The national park is situated 1 km off the coast of Nilaveli, Trincomalee and is a tourist hotspot for ornamental fishing and

scuba diving. Juvenile and adult blacktip reef shark, hawksbill turtle, green turtle and olive ridley turtles are seen in this national park.

113. Further the EP provides home to many historical, cultural and religious sites that attract tourists including forts, temples and caves. Hot springs in the areas of Maha Oya and Padiyatalawae, (eg. Kanniya Hot Water Spring), Pollepetta and Henanigala in the Ampara District for ancient community like Veddah (indigenous people) are some pleasant places for tourists.

4. Education

114. The educational level of the people in the Eastern Districts of Trincomalee, Batticaloa and Ampara Districts is presented in table IV. Most of the government and private schools and high educational centers & institutes are located main cities of EP. Eastern University, main campus at Vantharumoolai, Trincomalee Campus at Trincomalee, the Swami Vipulananda Institute of Aesthetic Studies (SVIAS) at Kalladi, South Eastern University of Oluvil, Ampara Hardy Collage of Technology are the higher educational institutes located within the province. The literacy rate of the province is 87.83%. The education level of the people within the province is shown in Table 18.

Table 18: Percentage distribution of population (5 years and over) according to educational attainment by district

District	Educational Attainments (%)						
	No of schooling	Primary	Secondary	G.C.E (O.L)	G.C.E (A.L)	Degree and above	Literacy %
Trincomalee	5.0	28.4	47.5	13.8	8.4	1.8	90.9
Batticaloa	7.1	35.6	34.0	12.9	8.0	2.3	81.8
Ampara	4.9	29.8	39.7	13.7	10.0	1.9	90.8

(Censes of population and housing of Sri Lanka 2012 (Provincial data based on the 5% sample).
*General Certificate of Education (G.C.E), Ordinary Level (O/L) & Advanced level (A/L) examinations.

5. Household income

115. Based on the Household Income and Expenditure Survey 2012/13 table 19, it is clearly indicated that highest monthly mean and median household income of the province Rs. 34577 and Rs. 24436 represent by Trincomalee District. The lowest monthly mean and median household income of the province Rs. 24483 and Rs. 20359 represent by Batticaloa District

Table 19: Mean and Median Monthly Household Income by Sector, Province and District – 2012 - 2013

District	Household Income	
	Mean (Rs)	Median (Rs)
Eastern Province	30676	22710
Trincomalee	34577	24436
Batticaloa	25483	20359
Ampara	32537	23429

Source: Household Income and Expenditure Survey 2012/13, Final Report, Department of Census and Statistics.

6. Poverty situation

116. Poverty head count index is the percentage of population below the poverty line in Sri Lanka. Based on the results of year 2013/2014, 5.3% of household are poor in the country. Highest percentage (14.3%) of poor household represent from Batticaloa in 2012/2013 table 20.

Table 20: Percentage of Poverty Headcount Index (HIC) and Poor Household of Province and Districts

Province/District	Year 2012/2013	
	Poverty Headcount Index (%)	Percentage poor household (%)
Eastern province	11.0	8
Trincomalee	9.0	6.2
Batticaloa	19.4	14.3
Ampara	5.4	4.1

Source: Household Income and Expenditure Survey 2012/13, Final Report, Department of Census and Statistics.

7. Existing Infrastructure Facilities

a. Condition of road infrastructure

117. Roads are the main transportation mode of all three Districts of the EP. The total amount of national and provincial roads (A, B, C & D) represent 2170.07km. A total of 1071.86km of A and B class roads are managed by the RDA under the Ministry of Higher Education and Highways and 1098.21km provincial roads belong C and D class category are managed by the PRDD of EP. Majority of the roads both tar (1480km) and gravel (13881km) are managed by the Local Authorities. Further irrigation roads; agricultural and access roads represent 2600km. In addition to the road network, rail transport (both passengers and freight) is common and very popular mode of transportation from South to East and within Trincomalee & Batticaloa Districts of EP. Table 21 gives details including length of roads in the Districts of EP owned by different agencies.

Table 21: details of roads in the Eastern Province owned by different agencies and length

Type/ Sector/Agency	Province	Trincomalee	Batticaloa	Ampara
Road Development Authority A, B class roads	1071.86km	310.00km	230.86km	531.00km
Road development department (C, D class roads)	1098.21km	301.50km	385.53km	411.18km
Local Government roads	15361.00km	2308.00km	9741.00km	3312.00km
Irrigation roads	2600.00km	700.00km	900.00km	1000.00km
Total	**20131.07km**	**3619.50km**	**11257.39km**	**5254.18km**

Sources: Road Development Department, Provincial Councils.

b. Energy source and household

118. Table 22 indicate that electricity is the main source of lightning of the household in the EP and more than 75% household in Trincomalee, 68% in Batticaloa and 82% in Ampara Districts obtained electricity from the national grid. Kerosene is the second main source of lightning of the household in the province and accounts 24.5% household in Trincomalee, 30.9% in Batticaloa and 16% in Ampara Districts. Majority of the household in the province use fire wood as main energy source for cooking, representing 81.8% in Trincomalee, 73.2% in Batticaloa and 78% in Ampara Districts. The electricity facilities along the selected roads are apparently good compare to other infrastructure facilities such as telephone and pipe born water supply. The Ceylon Electricity Board has supplied electricity to most of the people around selected roads.

Table 22: Principle type of Household Lightning Source – 2012

District	Total household	Total	Type of Lighting					
			Electricity from national grid	Electricity hydropower project	Kerosene	Solar power	Bio gas	Other
Trincomalee	95529	100	75.4	0.0	24.5	0.1	0.0	0.1
Batticaloa	135645	100	68.5	0.0	30.9	0.6	0.0	0.0
Ampara	165322	100	82.7	0.5	16.0	0.7	0.0	0.1

Source: Census of Population and Housing of Sir Lanka – 2012 (Provincial data base on the 5% sample).

c. Drinking water:

119. The EP of Sri Lanka has been severely affected by an armed internal conflict for over three decades and it had a devastating impact on the water resources. Most of the households had access to protected wells as the main water source, but it has reported that some wells went dry for about 6 to 7 months of the year causing water shortage. At present, Majority of the household in Trincomalee, Batticaloa and Ampara Districts use protected wells within and outside the premises as drinking water source. More than 56% of the people in Batticaloa District use protected well within premises as their drinking water source. In addition, household in Trincomalee, Batticaloa and Ampara Districts use tap water (within or outside the premises) as shown in the table 23.

Table 23: Number of Household in Occupied Housing Units by Main Source of drinking Water and district

Households and type	Main source of drinking water		
	Trincomalee	Batticaloa	Ampara
Total households	95529	135645	165532
Total	100.0	100.0	100.0
Protected well within premises	28.4	56.8	25.4
Protected well outside premises	21.8	21.5	19.2
Un protected well	3.9	1.4	5.5
*Tap within unit	16.1	2.4	24.3
*Tap within premises but outside it	16.6	4.4	15.7
*Tap outside premises	4.2	0.8	3.9
Rural water supply	3.0	0.9	3.4
Tub wells	1.4	9.6	1.3
Bowsers	3.3	0.0	0.1
River/tank/streams/spring	0.3	1.5	0.7
Rain water	0.0	0.0	0.0
Bottled water	0.0	0.1	0.0
Other	1.0	0.5	0.5

Source: Census of Population and Housing of Sir Lanka - 2012(Provincial data base on the 5% sample).

d. Sanitary Facilities:

120. According to the Table: 24, majority of the household in all three Districts use water seal septic tank type. From the total household 71.9% of Trincomalee, 68.8% of Batticaloa and 78.3% of Ampara Districts use exclusive water seal septic tanks toilets facilities. From the total population 13% of the people in Batticaloa district do not use any type of toilet facilities while this amount is less than 3% in other two District; Trincomalee and Ampara.

Table 24: Household in occupied housing units by type of toilet facility and district

Households and type		Districts		
		Trincomalee	Batticaloa	Ampara
Total household		95529	135645	165332
Total		100.0	100.0	100.0
Water seal (septic tank)	Exclusive	71.9	68.8	78.3
	Shared	15.9	12.5	10.0
	Common	0.2	0.1	0.1
Water seal (sewer tank)	Exclusive	2.4	1.0	2.9
	Shared	0.3	0.3	0.2
	Common	0.2	0.0	0.0
Pour flush (Not water seal)	Exclusive	3.2	2.5	2.7
	Shared	0.3	0.5	0.4
	Common	0.1	0.5	0.0
Direct pit	Exclusive	1.8	0.6	2.3
	Shared	0.5	0.2	0.2
	Common	0.3	0.0	0.0
Other	Exclusive	0.0	0.0	0.0
	Shared	0.1	0.0	0.0
	Common	0.0	0.0	0.0
Not using a toilet		2.8	13.0	2.7

Source: Census of Population and Housing of Sir Lanka – 2012 (Provincial data base on the 5% sample).

Religious, Cultural and Archeological Significance

121. The Archaeological Department has identified several ancient Buddhist shrines and archaeological sites in Ampara District. Muhudu Maha Viharaya is located on the seashore, near Pottuvil of Ampara district and much of the remains at this site appear to be covered by sand dunes. This temple has been built over 2000 years ago by King Kavan Tissa of Ruhuna. Currently the ruins and remains of ancient stupas, Seema Malaka, Avasa Geya and statues can be seen at the site. Buddhangala Monastery is another important site lies deep in the jungles about 7 kilometers off Ampara. The Monastery covers 1280 acres covering 5 rocks where the remains of the ancient monastery can be seen. Ayurvedic indigenous meditation is famous in the monastery which is 2300 years old and is famous for a large number of rock-caves which had been used as meditation centers by the bhikkus

122. Pulukunava is another important site located at the boundary of the Galoya scheme on the Ampara-Mahiyangana road on a large forested hill. On the Southern scrap of the hill are a large number of drip ledged caves out of which many are pre-Christian inscriptions. On the Eastern escarpment of Samangala hill, a large number of drip ledged caves bearing pre-Christian Brahmi inscriptions are found.

123. Thirukoneswaram temple is one of the ancient temples in Sri Lanka and is believed to have been a major religious shrine since before the arrival of Prince Vijaya 2,500 years ago. In the 16th century, it had one thousand pillars and esteemed to be one of the richest temples in the South East Asia. It had in its possession large amounts of gold, pearls, precious stones, and silk, which have been endowed over one thousand years. Dighavapi is another important archaeological, historical and religious site located in Ampara district. A total of 35 archaeological sites are distributed within Dighavapi complex. The archaeological area is a mere 42 km^2 in extent. The Magul Maha Viharaya has been known as the Ruhunu Maha Vihara in ancient times which was built by King Dhatusena (453-474 A.D.). The structures had been reconstructed in the

14th century. Kudumbigala is another important site situated on the road from Panama to the Ruhunu National Park, with large number of drip ledged caves which bear inscriptions.

124. The Okanda Devale is an ancient Hindu shrine dedicated to the god Skanda-Murukan - the war god most famously worshipped in Sri Lanka at Kattaragama during the annual 'padi yatra' from Jaffna all the way along the East coast to Kataragama. At Ratraveli Viharaya, the remains of a very ancient dagoba of large dimensions, drip-ledged caves, remains of ancient structures and Buddha statues of stone can be seen. The old port of Trincomalee is another ancient archeologically important place in the province which is an idle natural harbor fought over by foreign powers for generations. With its imperative geographic location Trincomalee influence the focus of European powers in the beginning of the 17th century.

125. Locations of these important sites are depicted in Figure 7.

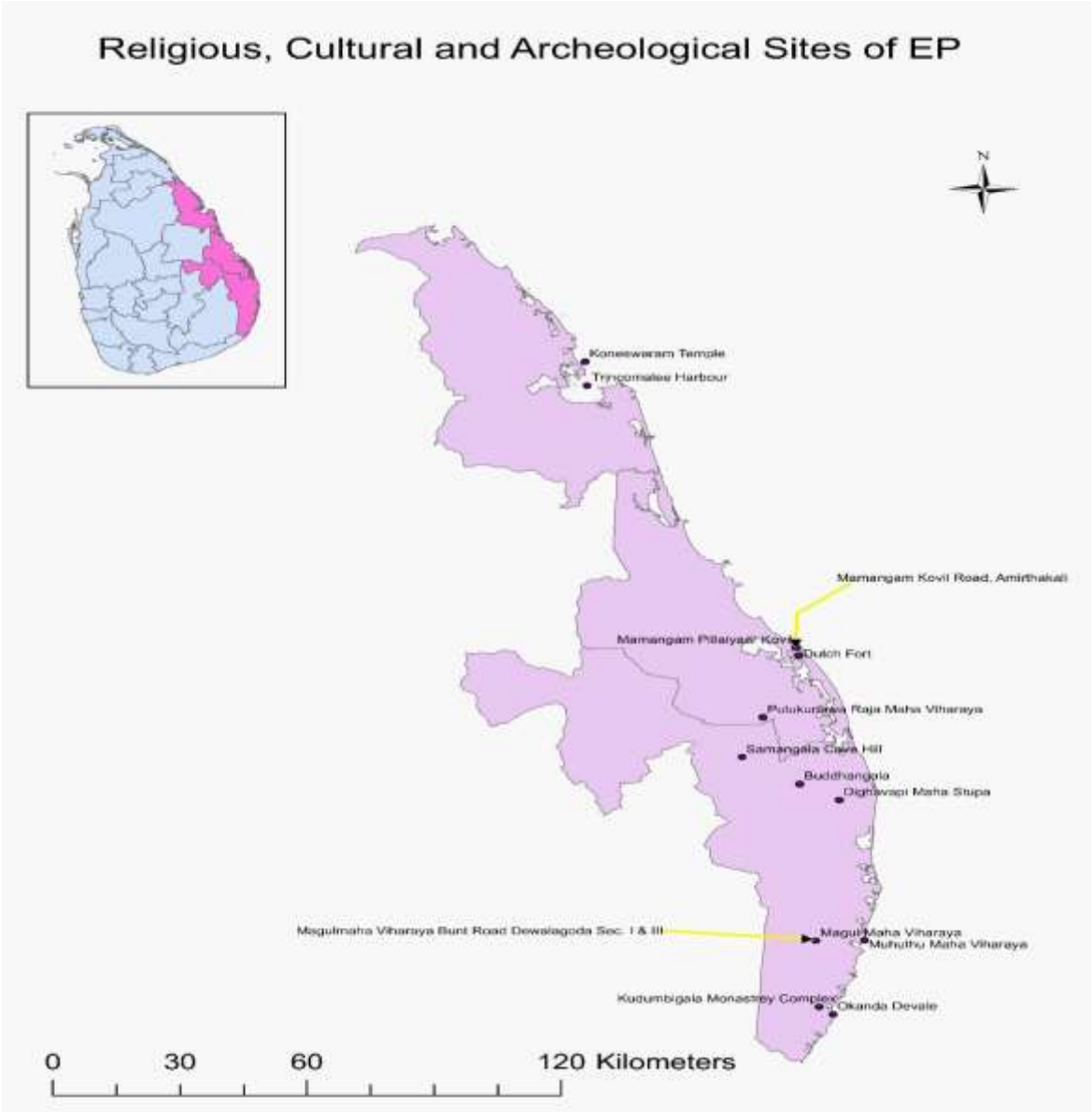


Figure 7: Religious, Cultural and Archeological Significance sites in EP

V. ANTICIPATED ENVIRONMENTAL IMPACTS AND PROPOSED MITIGATION MEASURES

126. The proposed work under the project will include rehabilitation and upgrading of existing roads/sections with improvement of pavements, road surface, construction of side drains & embankments, widening or replacement of culverts, cause ways bridges etc. In addition during the construction period, construction related activities will involve removal and re-establishment of public utilities, removal of road side trees, extraction of construction materials and transportation, disposal of waste and other unsuitable materials, establishment of construction material processing plants, labour camps etc. These activities may cause negative impacts to the surrounding environment of the project area during the construction stage.

127. The anticipated environment impacts during the preconstruction, construction and operation periods of the project and feasible mitigation measures to the identified impacts during the Environment Assessment process are described in this chapter. Since the propose project involve in rehabilitation of all types of roads including urban, semi urban and rural roads, the given impacts and proposed mitigation measures are common for construction activities of all types of above roads.

A. Pre-construction stage

1. Shifting of public utilities

128. Public utilities closer to the ROW of proposed roads/sections include electric posts, power supply lines, telephone post and transmission lines are located. Electricity is available in many proposed roads while telecommunication is also available in some road sections. The utility facilities located within proposed road sections are given in each EC. Depending on the requirement some of these utility lines will need to be shifted. Such shifting operations will affect the communities to which the supplies are given as there will be disruptions to the supply (especially electricity and water). Even if this is a temporary impact it could be significant as disruptions will affect day to day activities of people.

129. Prior to proposed improvement work proper coordination and consent will be taken from service providers if utility lines will be shifted. Advance notice to the public about the time and the duration of utility disruption will reduce public inconvenient and provide time to adjust the situation and obtain alternative facility. Use of experience and well-trained machinery operates will reduce accidental damage and ensure reestablishment of utilities with minimum time period.

2. Requirement of lands for the project

130. The existing ROW of the majority of proposed roads/sections is adequate for the proposed construction activities. Therefore acquisition of lands will not be carried out for this project. However if lands are required for activities such as realignment of bends or construction of cross drainages in some road sections, that has to be undertaken by negotiation with property owners and involvement of a third party. Although people in the project area are willing to give their lands for such special cases, specified process for land donation in Resettlement Framework of iRoad program should be followed for taking lands. Further the necessary actions to secure lead-away canals beside the road will be done by LA with the assistant of contractor and RDA /PRDA. Special clearances shall also be obtained by RDA for any works of roads within CC & CRMD, FD and DWLC limits. However, material stock piling or any labour camps, yards shall not be established within any reserve.

131. Further some construction related activities such as stockpiling, disposal sites, material processing plants, labour camps, vehicle parking yards etc., will require temporary lands within the project affected areas of the Province. Selection of lands for such purposes has to be done in a way that reduce the social and environmental impacts and away from any reserve as stated in above paragraph. Further an agreement will be signed with the LA and land owners. conflict between workforce and villagers, removal of green cover vegetation from private lands, impact to the natural ecology, inconvenience due to dust, noise and vibration, disposal of solid waste, contamination of water and soil etc. are the expected social and environmental issues due to use of temporary lands. Best construction management practices would be in place to ensure the protection of environment and public around temporary use lands for the construction related activities. Removal of soil, vegetative cover should be kept at minimum and should only be carried out with absolute necessity. To avoid contamination of soil, oil contaminant into water bodies, a system for the proper collection and disposal of lubricants at sites should be maintained. In the absence of a sewage system, septic tanks or pit latrines should be located away from ground water sources.

3. Construction in floods prone areas

132. Most of the proposed roads/sections in Eastern Province are located within flood prone areas. During the Northeast monsoon (December-February) period those areas get inundated and the situation is vital to the development activities in the area. During the field visit it was observe that most of the roads do not have proper earth or line drains and According to the public consultation most of these road gets inundated during rainy season.

133. During the design stage recommendations of the Hydrological Study report of the project with reported flood levels of rural roads and flood return periods, with need to be considered design of culverts, causeways and bridges based on the existing hydrological values in the exact locations of the roads, design of new cross drainages to the flood prone locations and inundation areas consultation with Department of Irrigation and Mahaweli Development Authority is essential.

134. RDA requires a 50 year flood return period in culvert designs and a 100 year flood return period for designs of bridges. Hydrological structures and the design for the road will be carried out during detail design phase based on the findings of the SAPE work reports including Environmental Checklists, Transect walk reports etc. since comprehensive assessments such as hydrological studies are not available for this project. Therefore the design engineer is supposed to go through the above documents and he should incorporate relevant findings if found feasible. For this purpose, design engineer will conduct field verification together with a relevant team of experts from PIU, PIC and the contractor which is essentially supported by information extracted from the public. Therefore the output will be highly location specific which should match to solve the issue observed in the particular location. The “Context Sensitive Design6” or CSD approach will be extensively used to determine and design these structures.

B. Construction stage

1. Extraction transportation and storage of construction materials

[6] Context Sensitive Design refers to roadway standards and development practices that are flexible and **Sensitive to Community Values**. CSD allows roadway design decisions to better balance economic, social and environmental objectives - Minnesota Department of Transport

135. Construction materials for the project are available within all three districts of EP. Extraction of material for the construction works will be have permanent- irreversible impact to the natural resources. Modification of natural drainages, increase soil erosion, siltation, destabilization of slops, habitat loss, loss of potential productivity of lands etc., are the negative impacts related to extraction.

136. In general extraction, transportation, loading, unloading and storage of construction materials on a large scale, will cause negative impacts to the environment due to dust, noise and vibration, water and soil pollution, reduction of scenic beauty, impact to the human health and impact on the natural ecosystem. Stagnation of water in material extraction sites (borrow pits and quarries) create breeding sites for mosquitoes and cause accidental damage to the people and wild animals. Soil erosion, lowering of river beds, damage to the river banks, reduction of sand replenishment of coastal beaches, coastal erosion and salt water intrusion during dry season are the main consequences due to sand mining.

137. The impact could be mitigated by extraction of construction materials from approved quarries and mines by GS&MB, use of existing sites avoiding wastage of constructing materials identification of alternative sources, selection of new material extraction sites away from public and environment sensitive locations with the approval of GS&MB, following of rules, regulations and requirements issued by CEA, GS&MB and LAs, transportation of construction materials with proper covering, loading of the construction materials according to carrying capacity of the trucks, rehabilitation of the material extraction sites at the end of the use, stock piling of materials away from environment and public sensitive locations, covering of sand, rubble, mettle bitumen and cement to ensure protection from dust and other emissions.

2. Effect on water resources

138. Coastal habitats, seasonal tanks, streams, irrigation canals, and community water supply facilities are located adjacent/across the proposed roads. Therefore, excessive use of water for construction activities may impact on aquatic ecology and water resources especially during the dry season. Construction of cross drainages may temporarily block or divert streams, disturbance to the natural drainage pattern and create flooding and will affect the water sources use by the local community. Surface water runoff and ground water close to construction sites can be polluted with various construction related materials such as cement, bitumen and chemicals etc.

139. In such cases Contractor should submit the method statement with mitigation action for anticipated impacts and approval should be obtained for the method statement prior to construction activities. Since water related issues are significant during the construction activities of roads, priority should be given for the community requirements. Construction work affecting surrounding water bodies by erosion, silting and sedimentation should be prevented using shield traps, sedimentation basins and work should be scheduled during the dry season. Necessary steps should be taken to avoid wastewater entering directly in to water bodies. Contractor should organize awareness program for employees regarding water conservation, pollution and minimization of water usage.

140. Excavation of beds of any streams, irrigation systems and other water resources should be avoided by the Contractor. If temporary flooding or stagnation of water is caused due to negligence of Contractor, the Contractor should take total responsibility and rectify all the damages with his own cost.

141. Contractor shall not divert, close or block existing canals and streams in a manner that adversely affect downstream intakes without approval from the Engineer and relevant government agencies or Farmer Organizations (FO). Contractor shall restore the water sources to its original status once such diversion or closer or blockage occur during the site.

142. Temporary storage of material will be done in approved sites by the Engineer where natural drainage is not disturbed. All toxic and hazardous materials required for construction should be sited away as much as possible from water bodies and should prevent their entering into such places. Water that is contaminated with fuel, oil and grease should not be directly released to storm water or natural water drainage system. Cement, bitumen, grease, lubricant and chemicals should be stored on an impervious surface above the ground level and should be handled without contamination of soil and water.

143. Vehicles and equipment used for the construction activities should be maintained in good condition, ensuring no undue leakage of fuel and lubricants is released to water sources. Servicing and repairing of vehicles, machineries and equipment should be carried out only in designated locations and service stations with the approval of Engineer. Equipment and vehicles should not be allowed to be washed from drinking water wells or streams. Waste oil, petroleum products and untreated wastewater shall not be discharge to the ground without proper treatment.

3. Safety of workers and general public

144. Construction activities may lead to accidental damage to the general public and work force. Construction of earth drains, culverts, causeways, bridges, and removal of road side structures, trees etc., as well as use of heavy equipment, machineries, extraction and transportation of construction materials will increase the accidental risk.

145. Contractor shall comply with requirements for safety of the workers as per the International Labour Organization (ILO) convention No. 62, Safety and Health regulations of the Factory Ordinance of Sri Lanka to the extent that are applicable to his contract. Contractor should organize awareness programs about personal safety of workers with proper briefing and training on safety precautions.

146. Use of well experienced, licensed and trained operators for plants, machineries and heavy vehicles, use of flagmen for construction sites and other necessary locations, provision of Personal Protective Equipment (PPE) protective footwear, helmets, goggles, eye-shields and jackets specially high visibility jackets for night time work with necessary lighting arrangements, if construction activities are taking place at night. Contractor should also provide necessary equipment; safe scaffoldings, ladders, working platforms etc., for the construction sites to make convenient to the workforce.

147. Excavated areas for construction should be barricaded using barricading tapes. Installation of sign boards and placement of red light will be required to avoid accident. Quarry operations, roadway excavations and blasting should be carried out and supervised by trained personnel. Explosives for the project activities should be stored in a secure location in a protected way.

148. Arranging regular safety inspection of construction sites and other related locations, prohibition of alcoholic drinks and other substances which may impair judgment of workers ,checks for vehicles and equipment, allocation of responsibility to relevant personnel, arrangement of proper first aid facilities with trained paramedical personnel and transport facilities

for injured people to the nearest hospital, provision of fire extinguishing and appropriate equipment for required location, installation of warning signals in all three languages to the construction sites and other particular locations are the important actions that need to practice during the construction stage.

149. Along the rural roads, differently able persons and children may reside, therefore special attention should be required for their safety during the construction period.

4. Effect from Improvised Explosive Device (IED) and Unexploded Ordnance (UOX)

150. Surrounding environment of the all candidate roads/sections located within EP has been significantly affected during the period of civil war in the country. Still there is no proper protection for surrounding environment of several project roads due to incomplete or inadequate removal of UXO from the suspected areas. The main issue with UXO is that over the years the detonator and main charge of the UXOs will deteriorate, making them more sensitive to disturbances, and more dangerous to handle. It has been reported from the NP that people interfering with UXO have often faced with fatal accidents. For this reason it is universally recommended that UXO should not be touched or handled by unqualified persons. Therefore, if the workforce found a doubtful item, that may be UXO, following actions should be taken to avoid any kind of accidents.

151. At the initial stage of the project, the PIU, PIC and contractors shall contact the DS and security forces in the area and obtain a certificate that the area is cleared from mines/ UXOs etc. Then contractors should organize awareness programs about IED & UXO with the help of local police or bomb disposal or Explosive Ordnance Disposal (EOD) professionals with proper briefing and training on safety precautions.

152. If any suspected IED or UXO item is found within the site or outside the project area (construction area, road side environment, mettle quarry, temporary use labour camps, burrow pits, disposal site etc.) it shouldn't be touched, disturbed or tampered with any other items. The contractor should inform it to the Police immediately through the Engineer or directly. Once informed, the police will arrange suitable measures to dispose those items through military experts. In the meantime, removal of workforce from the location immediately, marking the location with barricading tapes to identified location easily with a way to the suspicions item (if possible) and preventing entry of any person to the suspected area will reduce the risks. Further project activities should be carried out according to the instruction given by military experts at the particular locations.

5. Disruption of traffic

153. The proposed construction activities such as improvement of the road surface and pavements, reconstruction of culverts, bridges and causeways etc. may cause accidental risk and disturbance to the current traffic flow in the project affected areas of the province.

154. 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 bridges and causeways. This will negatively impact on the road users and cause delays in travel time, increase noise and exhaust emissions too.

155. 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 in 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.

6. Impact from dust, noise and vibration

156. Generation of dust, noise and vibration from construction activities, material extraction and processing plants etc., will negatively impact to the surrounding communities and their properties. In general emission of dust, Volatile Organic Compound (VOC) and gases, particulates matter smokes/fumes are most immediate pollution effect experienced from the construction machineries, vehicles and equipment, blasting sites material extraction and processing plants. The impact of construction noise, vibration and emissions will cause nuisance, structural damages, respiratory problems, visual impacts and impaired photosynthesis of plants. These problems will be mitigated.

157. Construction activities closer to public sensitive locations (Schools, hospitals, religious places, urban centers and residential areas) shall be scheduled in close coordination with relevant authorities to avoid continuous disturbances. Contractor should limit working time that creates noise from 6.00 am to 6.00 pm, especially in above sensitive locations.

158. Machinery, equipment, vehicles and material processing plants should be maintained in a good condition with regular maintenance. Crushers, hot mix and batching plants should be established away from residential and environment sensitive areas with the approval of Engineer, CEA and LAs. Dust extraction units, exhaust silencers and noise reduction devices can be fitted to the material processing plants, construction vehicles and other machineries and equipment to reduce noise, vibration and dust emissions. Such devices shall be properly serviced and maintained.

159. Emission of dust due to transportation of construction materials and other construction operations can be controlled by enforcing speed limits to the vehicles, providing of dust barriers to the public sensitive locations, sprinkling of water along the transportation roads, construction sites and material processing yards at regular intervals. Tarpaulin covering is mandatory on trucks/lorries which are used for the transporting of construction materials.

7. Ecological and biological impacts

160. Selected roads for the improvement runs through urban, semi urban, rural residential and agricultural, coastal and forested areas of the province. Out of these majority of the roads runs mainly through rural residential and agricultural areas. Therefore common home garden species, wild species including terrestrial and aquatic flora and fauna are distributed in project affected area. Most of the forests located beside the roads include secondary or scrub vegetation. Roads (sections) that run close or through the several protected areas are indicated in table IV.7 in Chapter IV. Construction activities within such areas will only commence after obtaining necessary clearances from Forest Department. However, the construction works shall be limited to the existing ROW and no material stock piles, yards or labour camps will be located within such reserves.

161. Endangered mammals like elephants which have large area of home range cross several project roads. Human – elephant conflict is a critical issue in the project affected area of all three

districts. During the field inspection it was commonly observed that elephant roaming around the proposed roads E.g. EAM312, EAM213, EAM321 Sec I, ETR017, ETR014, and sections of AB001 and B350 etc. To protect agricultural lands and the human habitats, electric fences has been constructed at the boundary of forested areas which located close to several proposed roads. Both temporary (during construction) and permanent signage will be placed at these locations to inform (warn) drivers and even public on possibility of elephant movement.

162. Activities during construction stage will cause potential impact to breeding, foraging, and migrating behavior of different species of fauna and flora. However most of the impact related to the project activities are temporally and can be mitigated using following actions.

163. Awareness programs should be organized for the workforce about Importance of flora, fauna and their habitats. Contractor should take necessary action to prevent his workforce from disturbing flora, fauna including hunting of animals, poaching, gathering fire wood from the surrounding habitats and fishing in water bodies. Removal of trees should be avoided as much as possible during the construction. Strict supervision should be carried out by the Contractor especially during the construction around environment sensitive locations.

164. Construction activities around forested areas, elephant habitats or around their migration paths should be carried out under the instruction of DoF and DWLC. Prior to all these construction activities the PIU will obtain necessary approvals from DoF and DWLC with the help of ESDD of RDA. Construction activities should be limited to daytime around above locations and should be completed within short period of time. Material extraction sites, processing plants and waste disposal sites should not be located around these locations too.

165. Construction of new culverts or rehabilitation of existing culverts should not disturb the water level of streams which impact movements of fish along these water bodies.

8. Establishment of labour camps and sanitation facilities

166. Improper management of the labour camps may create an unhealthy environment causing health hazards to both workers and nearby residents. Stagnation of water around labor camps can create breeding sites of mosquito and vector which create/spread communicable diseases. Migration of laborers from outside areas for the construction activities will also create conflict situations among the workers and settlers near worker camps.

167. It is essential to establish labour camps away from water bodies, highly residential and environment sensitive areas. Majority of skilled and unskilled workers will be selected from the project influence area to avoid generation of waste and sanitation problems from labour camps. Provision of proper sanitary facilities including drinking water, urinals, toilets, bathing facilities and mosquito nets will minimize spreading of communicable diseases and other health issues. Provision of proper drainage facilities to the labour camps will minimize stagnation of water and prevent breeding of mosquitoes and flies.

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

9. Disposal of construction and other wastes

169. Solid waste associated with construction and other related works may impose several negative environmental and social impacts. Significant amount of construction wastes and garbage will also impact on ecology, public health and scenic beauty in the area. Labour camps, garbage disposal sites and material storage yards provide favorable habitats for vectors and decaying wastes could attract pests. Contamination of water bodies with wastewater, construction debris and spoil will create negative impacts on aquatic lives.

170. Selection of unproductive lands with adequate capacity for disposal sites is needed away from public and environment sensitive locations. Disposal site should be selected with the approval of the PIC which should be followed by the approval of LA. Mitigation measures required for the relevant location of disposal site should be implemented by the contractor as directed by PIC, PIU and LA. Excavated materials from the construction shall be used to backfilling with the approval of PIC. Debris and residual spoil should not be sited to the agricultural lands, irrigation canals, water bodies, wetlands or to the marshy areas. Management of the waste generated from construction sites, offices and labour camps by the contractor without contamination of surrounding environment is essential. Provision of garbage bins to labour camps, construction sites and dumping of waste regularly in a hygienic manner should be practiced.

10. Floods and inundation

171. During the field Environment Assessment of the project identified that flood issue is commonly observed in almost all the roads in Eastern province (especially roads located in low lying areas, coastal zone and water bodies such as rivers and streams mainly during North East Monsoon and Second Inter Monsoon.

172. Lack or insufficient & dilapidated drainage facilities, position of roads in low elevation, over flow of streams and spill of tanks, obstruction to the drainage and natural water ways are the main reasons for flooding and inundation of roads. Impact associate with flood and inundation could be avoid or minimize during the construction stage by following measures.

173. All the construction activities will be planned to avoid flood and inundation. Filed observation which are verified with public consultation and other field survey carried out under the project, finding of the hydrological studies which will be carried out the detail designing stage will be used to design the required structures.

174. Construction activities should be minimized during the rainy season and drains should be kept clean at all the time without any obstruction. Reconstruction of damaged culverts, causeways and bridges based on the existing hydrological values in the exact locations of the roads, construction of new cross drainages, storage of construction materials away from experienced flood levels and inundation areas are the proposed mitigation actions for the foreseen impacts.

11. Soil erosion sedimentation and siltation

175. Roads located within Province receives significant amount of water during North East Monsoon period. Therefore, soil erosion, sedimentation and siltation due to seasonal rains, construction and other related activities can cause negative impacts to the environment.

176. Soil erosion, sedimentation and water pollution should be minimized by the contractor as soon as possible. Top soil generated from construction sites should be stored properly for the reuse without runoff to the water bodies, treatment of clearing and filling areas against flow acceleration, avoid works that lead to heavy erosion during rainy seasons, use of silt traps and

erosion control measures close to water bodies, provision of drainage facilities to the required location properly to drain water will be required to prevent from soil erosion, sedimentation and siltation impacts.

12. Damages to archeological, cultural and religious places

177. Some of the proposed rods/sections run at the vicinity or adjacent to the archeological and culturally important sites E.g. EAM280, EAM024, EAM247, EAM303, EAM290, EAM408 etc. In addition large number of rods/sections runs close to the locally important religious and cultural locations. However project activities will not cause any significant impact to the above sites and most of the impacts are temporally and restricted only to the construction period.

178. If there are any valuable items (fossils, coins, articles of value antique, structures etc.) or archeological, cultural and religious structures discovered during the construction, Contractor should inform to the Department of Archeology through the Engineer and work should be carried out according to the instruction of Department of Archeology (DOA) at the particular location. Construction activities around religious, archeological, and culturally significant locations should be carried out with the consultation of religious leaders or relevant officials to minimize disturbance especially during the festival season.

C. Operation stage

1. Safety of the road users

179. Improvement of road surface, widening and slightly adjustments of bends will increase the speed of vehicles and incidents of the accidents. Enforcement of speed limits, traffic rules and regulations, installation of warning signs, pedestrian crossings, sign boards for animal crossings, guard railings for essential locations are need to avoid road accidents. On the other hand convenient passages of the proposed roads with safety measures will reduce number of accidents and risk to the pedestrians and drivers.

2. Air quality and noise

180. Improvement of the roads reduces traffic congestions, allow smooth traffic flows and reduce travel time with minimum accelerations and decelerations. The project is therefore expected to have a positive effect on overall air quality compare to current situation. Noise generation during operation period can be managed by enforcing proper traffic rules and installation of sign boards to the particular locations. Maintenance activities will also potentially result in the release of air and dust, both directly and through obstructing traffic. Therefore maintenance work will be schedule during off peak hours or during night time to avoid negative impacts.

3. Drainage congestion

181. During the construction stage road side drainages and cross drainages (Culverts & bridge) will be improved for the smooth water flow during the rainy season. Throughout the operation stage stagnation or blocking of water flow may occur due to sediments, disposal of rubbish due to maintenance activities or ignorance of public by disposing spoil and garbage. These activities will obstruct road side drainage, culverts, bridges and manholes. Blockage structures provide suitable breeding habitats for mosquitoes, rats and mice and also situation will critically impact to

the public around the roads. Therefore, routing maintenance will be needed to avoid drainage congestions and impact to the human health.

4. Encroachment of Right Of Way

182. Encroachment can take place any time after completion of construction works and this practice is common around public and environment sensitive locations. This will cause impact to the pavements, road side drains, pedestrians and rooting maintenance of roads. Regular checking and removal of unauthorized structures from ROW by the Client as well as enforcement of rules and regulations is essential to avoid encroachment of road reservations.

D. Positive Impacts of the Project

1. Socio – Economic Benefits

183. Road transport provide conclusive socio-economic benefits to the whole society by providing access and allowing poverty alleviation and better living standards through employment and other type of economic activities. Socio-economic benefits will be expected to the public of EP through the iRoad Program is as follows.

- Improvement of roads within EP is significant part of overall economic and human development. Active transport facilities reduces poverty by improving economic efficiency, as it decreases costs of production, prices of goods and enhances trade and employment opportunities.
- Poverty is very often far worse in rural areas than in urban centers of the province, as a result of lack of integration with urban centers due to lack of adequate accessibility and mobility. Proper access will be affectively linked poor regions to rapidly growing domestic markets. This will create opportunities for the poor people to contribution of poverty alleviation.
- Income level of the population living in rural areas of the province will be improved as a result of the project. Improved access for farmers and fishermen to higher price urban markets and support production of higher value crops, improvement of farming practices and new employment opportunities will be expected to increase income level of the people through the project.
- Effective transport systems to the rural agricultural areas reduce regional disparity, enable people access to the socioeconomic centers, such as new market, healthcare, education and other social services. This will be ultimately contribute to achieving equity in a country.
- In the long term, new access to the education will improve level of education in rural society. Improvement of associated life values of the people with education level will become more competitive in the labor markets in finding their talents outside the community and province.
- Road network improvement in urban and rural areas of NP will provide transport of rural people and goods with improved travel time and route selections. No need to spend a large amount of time and effort on transport activities to fulfill their basic needs. Low cost transport facilities, reduction of transport cost and travel time is the main benefits received by the rural communities through the project.
- Development of road transport provide significant effect on movement of food surplus, reduction of food prices, improvement of farming practices, helping the transition from subsistence farming to cash crops and market economy. In addition road network improvement will increase economic growth with the improvement of

number of industries tourism, fishing, agriculture, distillery, boat & fishing equipment, mineral extraction etc.

E. Climate Change Impacts and Risks

184. Growth in vehicular traffic and energy use are considered as main contributors of increased Green House Gas (GHG) emissions which directly affect global warming. According to "International Energy Outlook 2016" (IEO2016) prepared by U.S. Energy Information Administration, the energy use in the transportation sector includes energy consumed in moving people and goods by road, rail, air, water, and pipeline. Transportation sector has accounted for 25% of total world delivered energy consumption in 2012. And it is forecasted that transportation energy use to increase by 1.4% per year from 2012 to 2040 in the IEO2016 Reference case.

185. 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.

186. Improving the surfaces (pavements) of existing rural roads in Eastern Province may increase the traffic volume in these roads. However changes in vehicle operation speeds with respect to present conditions will have an impact on emission levels of the gases emitted by such vehicles. Most common types of vehicles that would move on these roads are bicycles, bullock carts, motor cycles, three wheelers, cars, vans, buses and light commercial vehicles. Thus emission of Carbon Dioxide (CO2) 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 CO2 emissions.

187. The EKB has developed a set of spreadsheet-based models to evaluate the CO2 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 (TEEMP) consider passenger and freight travel activity, the shares of trips by different modes and vehicle types (structure), fuel CO2 efficiency (intensity), and fuel type, validated by more detailed emission factor models. The models directly estimate CO2 emissions for a business-as-usual 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.

188. The TEEMP model for rural 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 roads in Eastern Province. A summary of these input parameters are presented below.

Table 25: Input parameters for TEEMP model for roads in Eastern Province

Parameter	Input value
Occupancy/loading	
Two wheeler	1.7
Three wheeler	2.0

Parameter	Input value
Passenger car	3.0
Light Commercial Vehicle	2.5 Ton
Bus	30.0
Heavy Commercial Vehicle	7.5 Ton
Bullock cart	0
Bicycle	1.0
Roughness	
Before improvement	8.0 m/km
After improvement	3.0 m/km
Lane configuration	
Before	Single lane @ 2.5 m pavement
After	Single lane @ 3.0 m pavement

189. **Model predicted CO_2 emission levels.** Three case scenarios were analyzed using the model based on the traffic analysis in NP which categorized the traffic levels as rural, urban and provincial. Model output includes CO_2 emissions at Business as Usual (BAU) or without project; with project (i.e. with improvements) and with induced traffic; and with project and without induced traffic.

Table 26: CO2 emission at PAU, Project & induced traffic and Project without induced traffic

	Emission of CO_2 in Ton/km/year (net change in emission)		
	Rural	**Urban**	**Provincial**
BAU	4.3	22.5	21.0
Project with induced traffic	3.9 (0.4)	17.0 (5.5)	17.6 (3.4)
Project without induced traffic	3.9 (0.4)	17.0 (5.5)	17.6 (3.4)

190. As indicated in the model output and summarized in above table the proposed improvement to existing road pavements will bring a reduction in CO2 emission even with a growth of traffic. However, this analysis is based on the assumption that the roughness of improved road 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). The total length of roads to be improved in EP is around 1,200 km and based on the minimum (0.4 T/km/year) and maximum (5.5 T/km/year) net change in CO2 emissions or CO2 savings of the proposed investment program in EP will be between 480 and 6,600 Tons/year.

191. **Mitigation measures for floods**. Climate change in a global perspective has brought about a change in rainfall pattern and especially the intensities of rainfall. Therefore, special attention shall be paid to road side drainage and cross drainage in designing of the improvements for these roads. Structures such as culverts, causeways and bridges with small spans will be constructed along with road side drains (either earth or concrete based on the requirement) to facilitate the existing flow regime as well as future discharge volumes as predicted by drainage analysis during level one designs. All hydraulic structures constructed on these roads will be of reinforced concrete. Based on the Preliminary Survey and Engineering work, about 4 % from the total construction cost has been allocated for construction of new structures and rehabilitate existing structures in selected roads. Considering the percentage of allocation (which is generally 5% - 10% of construction cost) for Environment Management plan which includes mitigation of flood impacts this allocation will be sufficient to mitigate impacts due to floods in selected roads in EP.

VI. INSTITUTIONAL REQUIREMENTS, ENVIRONMENTAL MANAGEMENT PLAN AND GRIEVANCE REDRESS MECHANISM

A. Institutional Arrangements

192. The Ministry of Higher Education & Highways (MOHE&H) is the Executing Agency (EA) and RDA is the Implementing Agency and within RDA there will be a PIU. The PIU will be responsible for implementing the project and managing detailed design and supervision of the construction works and ensuring that all environmental safeguard requirements in accordance with this EARF is a responsibility of Project Implementation Consultants (PIC). Each province under iRoad 2 will have a PIU under the RDA. PICs set up for each province will supervise the contractor in construction works including managing the environment.

193. The PIU will be headed by a full time Project Director (PD) and supported by a team of engineers from RDA. The PIU will have an Environment and Social Unit with a Safeguards Team including a Senior Social Safeguards Officer and Senior Environment Safeguards Officer and Social/ Environment Officers assistants (one officer for each district) to cover the quantum and geographic distribution of works under the investment program. The PIC will support the PIU for supervision of the design and construction works by the civil works of Contractor. The PIC team will include one Environment Safeguards Consultant, one Social Gender Resettlement Specialist (operating from Team Leader's office) and Assistants (stationed at each district) for conduction of regular monitoring of safeguards implementation on site. From Contractor's side, there will be an Environment Officer and a Safety Officer. As per the preliminary arrangements there will be two to four contract packages for each district. Other than these key environment and social staff the Project Engineers, Site Engineers and Technical Officers will also be trained on environment and social safeguards compliance requirements. Possible themes for training and awareness are listed below;

- The application of Context Sensitive Design (CSD) in rural road development;
- Effective consultation and handling of public grievances;
- Land donation process;
- Developing of environment management plans based on a site or cluster specific requirement;
- Preparation of environment monitoring checklists;
- Monitoring and reporting of environment safeguards compliance.

B. Environmental Management Plan

194. A general Environment Management Plan (EMP) for rural and national roads was prepared as part of this IEE report (appendix VI.1) taking in to account the impacts and mitigation measures discussed in chapter on "Impacts and mitigation measures". Once the contracts are finalized the contractors will prepare Site Specific Environmental Management Action Plans (SSEMAP) for each package with road specific details. The SSEMAPs will be based on the impacts and mitigation measures discussed in the general EMP. SSEMAPs should include road specific impacts, mitigation measures supported by site plans as indicated in the EARF.

195. All costs for implementing the mitigation measures will be included in the Bill of Quantities (BOQ) by the Contractor as implementation of the SSEMAP will be the responsibility of the Contractor. Contractors who implement rural road components will have a construction period of approximately two years and routine maintenance for three years. The EMP has been modified

accordingly paying more attention on the environmental impacts and mitigation measures during the operational stage together with reconstruction stage.

196. Monitoring of EMP implementation will be carried out during the preconstruction, construction, and operation and maintenance stages of the project. Based on the EMP, Environmental Monitoring Checklists (EMC) will be prepared for each road by the contractor under the supervision of PIC for each of these stages (Please refer to appendix VI.2 for standard EMC). The EMC monitors the degree of compliance of the mitigation measures proposed in the EMP in all three stages. Every road must have at least one EMC completed during pre-construction, one to three during construction depending on the length of the road and one per year during operation and maintenance. Based on these records and site visits monitoring reports will be prepared during the construction and operation stage on an annual basis per Province and submitted to ADB for disclosure on the ADB website. Furthermore, the Contractor will also be responsible for updating SSEMAP if there are any significant changes in the project site conditions or engineering design.

197. Implementation of the mitigation action during the construction stage is a main and total responsibility of the Contractor. As a project proponent RDA holds the responsibility to carry out the mitigation measures during construction and operation stage. ESDD of the RDA will periodically monitor the implementation of EMP. The TA team of ADB and safeguard mission will be operated in the field during the project.

198. Apart from the EMP common Environment Monitoring Plan (EMoP) has been prepared and attached as appendix VI.3. It is expected that the bidders will keep a provision of 5-10% of total construction cost as cost to carry out mitigation measures as listed in the EMP. The cost of implementing mitigation measures during construction and maintenance period (3 or 5 years) will be a responsibility of the contractor while RDA will bear the cost of implementing mitigation measures during pre-construction period. Once the roads are handed over to the relevant local authorities it will be their responsibility to implement any mitigation measure.

C. Grievance Redress Mechanism

199. The Grievance Redress Mechanism (GRM) is necessary to support general public to resolve their problems due to project activities through mutual understanding and consensus reaching process with relevant parties. The EARF outlines the system of GRM and Grievance Redress Committee (GRC). This provides guidance to establish GRM to address the affected peoples' concerns, complaints, and grievances about the project's environmental performance. However, before complaint are being made through the GRM, the very first level set up is where representatives from contractor, PIC and PIU will try to resolve any issue at site itself.

200. The proposed GRM for this project can be of three levels. The very first level is set up at grass root level where representatives from contractor, PIC and PIU will directly receive the complaint and try to resolve any issue at first. Grievances which cannot be resolved at this level, will be forwarded to level two or three and solve through a Grievance Redress Committee (GRC) as follows.

201. Grievances which are simple but cannot be addressed at the grass roots level will be addressed at the Grama Niladhari (GN) level which is level 2. More complex grievances which cannot be addressed at the GN level will be addressed at the Divisional Secretariat (DS) level which is level 3. At the GN level the GRC members will be

Grama Niladhari of the area	Chairman
Representative of PIU	Secretary
Representative of Supervision Consultant	Member
Representative of Contractor	Member
A community member/religious leader	Member

202. The next level will be at Divisional Secretariat level involving following members.

Divisional Secretary of the area	Chairman
Representative of PIU	Secretary
Grama Niladhari	Member
Representative of Supervision Consultant	Member
Representative of Contractor	Member
Representative of a social organization (NGO/CBO) of the area	Member
A community member/religious leader	Member

203. Level two GRC meetings will be held at the GN office and level three at DS office to which people who have lodged complaints will be invited. The people will be informed about the GRC, seven (7) days prior to its meeting.

204. Secretary of GRC is requested to coordinate with all relevant parties to get necessary information. In addition to that the secretary should keep records of all complaints and reports. All complaints should be in written form.

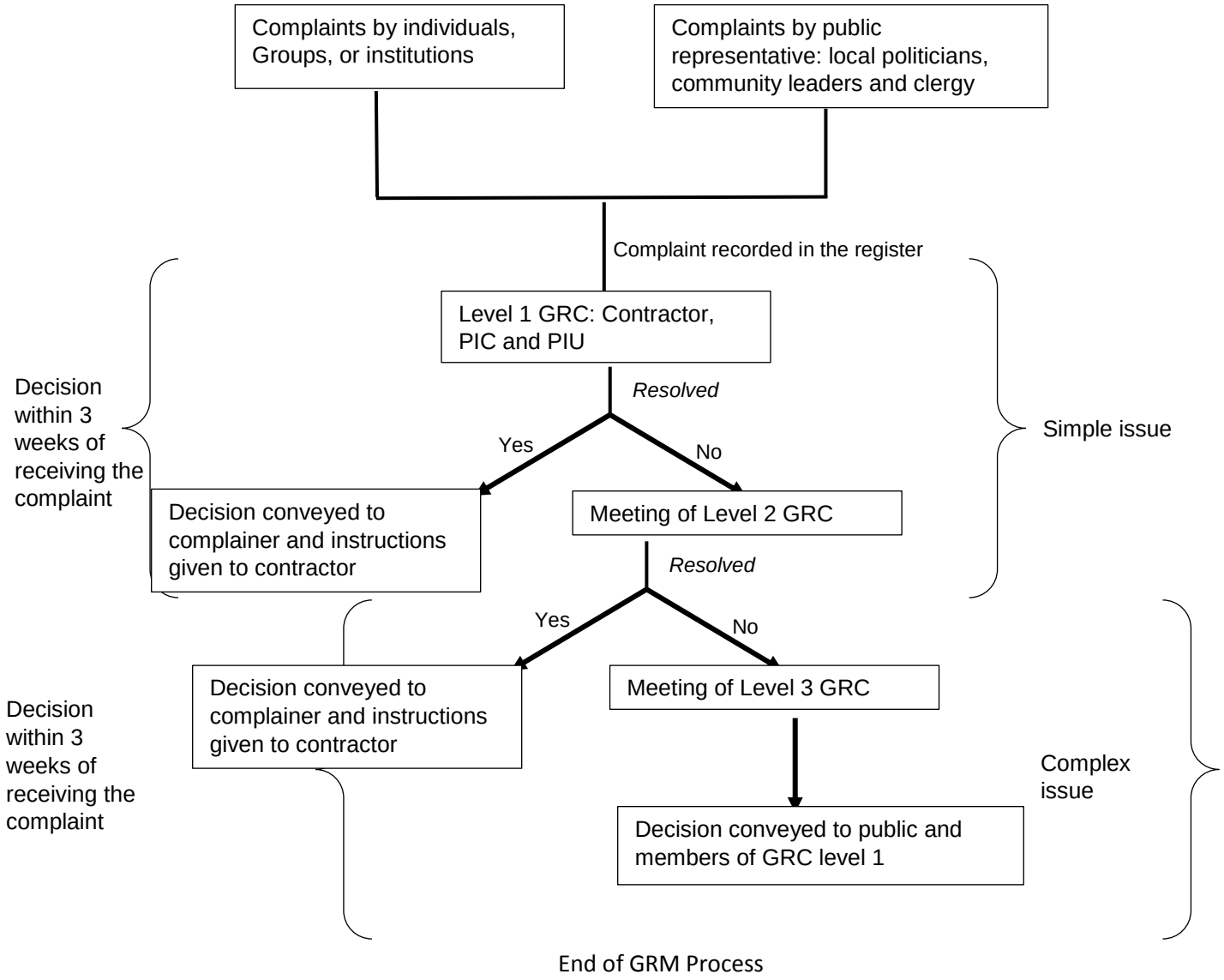
205. If the issue is resolved at GN level GRC, the decision should be informed by the secretary to the Site Manager without any delay (in written form). If the issue cannot be resolved at this level then it should be brought in to the notice of DS Level GRC without any delay.

206. Committee meetings will be conveyed by the Secretary, the PIU representative. The chairman of GRC is expected to take appropriate actions with the consultation of other committee members within three weeks' time and to be informed immediately to affected people.

207. The issues that could not be resolved by level two GRC will be forwarded to DS level GRC within seven days (working days) of the final decision of GN level GRC.

208. The flow chart of the GRM is presented in figure 8.

Figure 8: Summary of GRM process



VII. PUBLIC CONSULTATIONS AND INFORMATION DISCLOSURE

A. Public consultation

209. Public consultation process for the project was carried out during the field Environment Assessment survey from October to November 2016 along the proposed roads for the preparation of ECs.

210. The aim of the public consultation is to understand the view point of the public about the environmental and social issues of the project roads and respond to their concern and suggestions during the early stage of the project. Incorporation of the environment and social concerns to the decision making process especially for design stage through the public consultation can avoid or minimize adverse impact during the implementation of the project. During the public consultation process public were briefed about the proposed improvement work under the project. Community members of each project roads, including women and vulnerable groups participated for the public consultation sessions and expressed their views regarding the existing environment, social and economic situation of the proposed roads and expectations through the project. Information of public consulted (name, age and address) for each project road is given in Annex 1 of ECs.

211. Socio economic situation of the EP has been directly affected due to prevailed civil war situation. It has been reported that the highest unemployment rate among youth for the province under working age of 14 – 25 years and the lowest monthly total expenditure per capita. Most of the proposed roads for the upgrading within the EP are very important road sections which directly and indirectly connect roads belong to rural, local government and municipal councils to the provincial road network or national road network. Poor connectivity to business centers and other required locations as well as lack of transport facilities to increasing income and reduction of poverty critically impact to the rural communities. Due to poor road network within rural remote areas of the EP , number of public transportation services such as bus services from villages to socio-economic centers, towns and schools have significantly declined, or halted completely. Therefore key benefit perceived by the general public due to upgrading of the proposed roads is improving their living standards. Further reduction of road accidents, easy access to urban centers, schools and other public sensitive locations, ability to use roads in all weather conditions, increase land values etc. are the other benefits of the proposed project.

B. Information Disclosure

212. Information disclosure at the initial stage of the project provide opportunity to discuss with the public and other organizations regarding the environment and public issues that could be aroused due to the proposed project . Disclosure of information is also important to avoid or minimize misunderstanding regarding the project. Disclosure of information to the village level was undertaken through Divisional Secretaries (DS), Grama Niladhari (GN) and other community based organizations.

213. In accordance with the ADB's Information disclosure policy, draft IEE will be disclosed before the Management Review Meeting (MRM) or equivalent meeting. If there is no MRM. 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) for rural roads. For the national roads, there will be sign boards on period of works and contact information for reporting complaints or grievances in three languages. During project implementation annual

environmental monitoring reports will be prepared per province and submitted to ADB for disclosure on the ADB website

C. Consultation Findings

214. In general road users and road side communities in the project influence areas are in favor of this iRoad 2 program because, most of the proposed roads are currently in highly dilapidated condition due to lack of maintenance, lack of improvement and prevailed past war situation. All the PRDD, PS, MC, and irrigation roads belongs to the Mahaweli Development Authority roads/sections are very important link roads to other national roads and provincial roads located in the area. Majority of PS, MC, irrigation and Mahaweli roads provide access to the internal areas; residential, agricultural, forested and other important locations such as reservoirs, inland water resources and coastal areas. Therefore, improvement of these roads under the project is very important.

215. Flood issue is commonly observed in roads which are closely located in the coastal line especially roads located near to deltas of rivers. Further roads which cross large streams are also prone to floods mainly during North East Monsoon and Second Inter Monsoon. Storm water runs over the road surface due to insufficient drain capacity during the rainy season. Some locations of the roads also inundate during heavy rains. In addition, localized water stagnations are observed in low lying areas along the roads.

216. Most of the selected rural and rural agricultural roads located within all three districts of EP are gravel roads. The carry capacity of the surface is not up to standard level. Speeding for the movement of agricultural related vehicles such as tractors and heavy material transportation trucks which travel along these roads during rainy season, these surface or the roads generally became muddy. In addition to that, Majority of the rural agricultural and irrigation roads are vulnerable to soil erosion during the heavy rains due to poor drainage facilities. On the other hand dust is a main issue during the dry season, therefore it is impossible to walk or travel using motor bikes, three-wheelers and foot bicycles.

217. Roads which provide access to slash and burn cultivation lands have been selected for improvements under this project. Further residencies along some road sections mainly depend on agricultural activities in same encroached lands with extreme poverty level E.g. EAM321, EAM320, ETR017, ETR101, EBT092 etc.

218. Human – elephant conflict is a critical issue in the project affected area of all three districts of EP. Since people have encroached forest areas for houses and agriculture, this situation has significantly impact to the elephant habitats and lives of both people and the elephants. During the field inspection, it was clearly observed that elephant roaming occasionally around the proposed roads E.g. EAM312, EAM213, EAM321 Sec I, ETR017, ETR014, AB001 and B350 etc. Since home range of the elephants is considerably high (40-60km per day), this is common issue around most of the proposed roads located around forested and agricultural areas of the province. To protect agricultural lands and the human habitats, electric fences have been erected at the boundary of forested areas located close to several proposed roads.

VIII. CONCLUSION AND RECOMENDATIONS

A. Conclusion

219. This is the IEE report prepared for the proposed rural road rehabilitation and improvement works in EP under proposed stage iRoad 2 program. Since construction activities of the project are restricted to the existing ROW of the proposed roads, project activities will not cause any public inconvenient due to land acquisition. In addition construction activities associated with project roads will not expect significant social and environment impacts. The identified potential negative environmental impacts are temporarily and mainly restricted to the construction stage of the project. The mitigation actions for anticipated environment and social impacts are included to the EMP of the project.

220. Pollution during the construction period (air quality, noise, dust, vibration) due to extraction, transportation, storage and processing of the construction materials, deterioration of water quality due to solid waste disposal, soil erosion, siltation and construction of drains, impact to the aesthetic value of the environment due to construction activities and use of natural resources are the anticipated negative impacts to the environment.

221. Although the project has both positive and negative impacts, anticipated positive environmental and social impacts will clearly outline the negative impacts of the project. The proposed road improvement of the EP will ensure easy access to the social, religious and other public locations, smooth traffic flow along the proposed roads, enhance the road safety, increase income generation activities, reduce vehicle operation cost, travel time, low pollution and minimize public inconvenient due to muddy condition and dust emission during the rainy and dry season respectively from earth and gravel roads. Apart from that during the construction stage construction opportunities for local contractors, material suppliers, vehicle and machinery owners, number of temporary jobs and service opportunities for skilled and unskilled workers through the project will be expected to enhance social and economic development in the area.

222. Even though some project roads are located close to the national parks, wetlands, sanctuaries and other important ecological and biological important habitats such as sand dunes and lagoons, the construction activities associated with proposed road will not cause any impact to the above habitats since there won't be any land acquisition or removal of trees and green cover vegetation from above habitats. Proper planning of the project with appropriate construction practices and recommended mitigation actions achieve the success of the project.

223. Most of the roads selected for improvement especially located within the Ampara District are the bund roads of main irrigation or distributary canals of reservoirs E.g. EAM312, EAM279, ETR002 and EAM291. Construction of these roads should be done with the consent of Department of Irrigation, Department of Agrarian Services Mahaweli Development Authority and construction methodology should be in line with their recommendations.

224. Archeologically protected sites and monuments are observed adjacent to some proposed roads. Prior consent should be obtained from Department of Archaeology for road improvement and their recommendations should strictly follow during the construction stage of some proposed roads E.g. EAM280, EAM024, EAM247, EAM303, EAM290, EAM408 etc.

225. The road of EAM322 Sec II runs adjacent to the hot water springs of Maha Oya located about 2km from Maha Oya town within Ampara District. This wells identified as hottest springs of all the hot springs of Sri Lanka with 7 wells in different temperatures. Currently these wells are

maintained by the Local Government Authority of Maha Oya. Since this is important tourist destination of the area number of local and forging people visits this place frequently. So construction around water springs of this road should be done based on the instruction of GS&MB with monitoring environment parameters without any damages to the above sources.

B. Recommendations

226. Most of the proposed provincial and other rural roads for the project are currently in highly dilapidated condition. This study has revealed that neglected maintenance is the main reason for the rapid and severe deterioration of rural road network in the province. Therefore, a proper maintenance program must be incorporated parallel to the rehabilitation project in order to maintain the long term stability of the road. In addition, improvement of proposed roads through the project is very important to upgrade the living standards of the people in the province.

227. During construction stage, lack of alternative access will result in inaccessibility to agricultural, irrigation areas and construction of cross drainages will hinder the access to critical locations such as irrigation canals and streams. Therefore, immediate attention could be drawn to short term constructions such as foot- bridges, causeways, and culverts.

228. Further the IEE recommends updating EMP and EMC with package specific information and locations before commencement of construction activities. In addition, EMC should be effectively implemented in order to monitor application of the EMP.

229. A comprehensive training program for contractors about the project, anticipated impacts, proposed mitigatory measures, implementation of EMP and EMC is also recommended.

APPENDIX I.1 ROAD LIST IN EACH DISTRICT

Road list - Batticalo District

Road_ID	GID	Road_name	KM	DSD
EBT001	1	Porativu Palugamam Thumpankerny Road	3.733	Porativu Pattu,
EBT002	2	Manmunai ferry Road sec. i	0.25	Porativu Pattu,
EBT002	2.1	Manmunai ferry Road sec. ii	0.498	Porativu Pattu,
EBT003	3	Ammankovil Road	1.815	Manmunai North,
EBT004	4	Kurukalmadam Amplanthurai Athuchenai Road sec. i	0.675	Manmunai S. and Eruvilpattu
EBT004	4.1	Kurukalmadam Amplanthurai Athuchenai Road sec. ii	11.502	Manmunai South - West,Porativu Pattu,
EBT005	5	Athuchenai Pulugunawai Road	2.028	Manmunai South - West
EBT006	6	N.G. Thamotharam Road (Up to Thanthamalai Kovil)	3.023	Manmunai South - West
EBT007	7	Kaluwanchikudy Kurumanvelly Ferry Road	3.686	Manmunai S. and Eruvilpattu
EBT008	8	Robertsan Road	5.197	Manmunai West
EBT009	9	Vantharumoolai Kaluwankeny Road	2.577	Eravur Pattu
EBT010	10	Valaichenai Oddamavady Road	1.613	Koralai Pattu Central,Koralai Pattu
EBT011	11	Kuruchamunai Pavatkodichenai Unnichai Road sec. i	1.141	Manmunai West
EBT011	11.1	Kuruchamunai Pavatkodichenai Unnichai Road sec. ii	5.505	Manmunai West
EBT012	12	Karaveddy Mahilavedduvaan Road	2.8	Manmunai West
EBT013	13	Marine Drive, Katankudy	1.496	Kattankudy
EBT014	14	Eravur Punnakudah Road	2.499	Eravur Pattu,Eravur Town
EBT015	15	Meeravoral Karuwakeny Road	0.544	Koralai Pattu,Koralai Pattu Central
EBT016	16	Punnakuday Savukady Road sec. i	0.343	Eravur Pattu
EBT016	16.1	Punnakuday Savukady Road sec. ii	2.237	Eravur Pattu
EBT017	17	Kayankerny Road	1.694	Koralai Pattu North
EBT018	18	Ranamadu Bakeilla Road sec. i	1.195	Porativu Pattu
EBT018	18.1	Ranamadu Bakeilla Road sec. ii	0.034	Porativu Pattu
EBT018	18.2	Ranamadu Bakeilla Road sec. iii	0.154	Porativu Pattu
EBT018	18.3	Ranamadu Bakeilla Road sec. iv	0.037	Porativu Pattu
EBT018	18.4	Ranamadu Bakeilla Road sec. v	0.643	Porativu Pattu
EBT020	20	Kokkadicholai Ampilanthurai Road	1.988	Manmunai South - West
EBT021	21	Thuraineelavani village Road	2.251	Manmunai S. and Eruvilpattu

EBT022	22	Kankeyaodai Ollikulam Mavilangathurai Road	2.68	Manmunai P. (Araipattai)
EBT023	23	Merankerny Access Road	2.067	Eravur Pattu
EBT024	24	Meeravorai Kinniyadi Road	2.282	Koralai Pattu
EBT025	25	Palamunai Road	1.192	
EBT026	26	Datch Bar Muhathuwaram Road	3.003	Manmunai North
EBT027	27	Thuraiamma Road, Kurumanvely West	0.51	Manmunai S. and Eruvilpattu
EBT029	29	Koddaimedu Road, Eruvil South	0.769	Manmunai S. and Eruvilpattu
EBT030	30	Kumarankalamandra Road, Kaluwanchikudy-01 sec. i	0.399	Manmunai S. and Eruvilpattu
EBT030	30.1	Kumarankalamandra Road, Kaluwanchikudy-01 sec. ii	0.95	Manmunai S. and Eruvilpattu
EBT031	31	Arasady Road, Kaluthavalai - 01	1.482	Manmunai S. and Eruvilpattu
EBT033	33	Vishnu Kovil Road, Mangkadu	0.745	Manmunai S. and Eruvilpattu
EBT034	34	Boundary Road, Cheddypalayam, Kurukkalmadam	0.798	Manmunai S. and Eruvilpattu
EBT035	35	Annaivelankanni Road, Periya Kallar South sec. i	0.42	Manmunai S. and Eruvilpattu
EBT035	35.1	Annaivelankanni Road, Periya Kallar South sec. ii	0.283	Manmunai S. and Eruvilpattu
EBT036	36	Main Road, Mahiloor, Mahiloor	1.397	Manmunai S. and Eruvilpattu
EBT037	37	80, Housing Scheme Road, Onthachimadam	0.34	Manmunai S. and Eruvilpattu
EBT038	38	Palaiya Thannithanki Veethy, Thuraineelavanai	0.542	Manmunai S. and Eruvilpattu
EBT039	39	Vembu Road, Mangkadu	0.434	Manmunai S. and Eruvilpattu
EBT040	40	Sivankovil Road, Cheddypalayam	0.504	Manmunai S. and Eruvilpattu
EBT041	41	Thikkkodai Thanthamalai Road, Thikkodai	3.665	Porativu Pattu
EBT042	42	Kalumunthanvely Road, Kalumunthanvely sec.i	3.486	Porativu Pattu,Manmunai South - West
EBT042	42.1	Kalumunthanvely Road, Kalumunthanvely sec.ii	0.354	Porativu Pattu
EBT043	43	Ayurveda Hospital Road, Munaitheevu	1.294	Porativu Pattu
EBT044	44	Thitkodai Thanthamalai Road	2.24	Porativu Pattu,Manmunai South - West
EBT045	45	Mahiladitheevu to Kalikovil, Mahiladitheevu sec. i	1.006	Manmunai South - West
EBT045	45.1	Mahiladitheevu to Kalikovil, Mahiladitheevu sec. ii	0.414	Manmunai South - West
EBT046	46	Narasingka Vairavar Kovil Road, Ampalanthurai sec. i	0.609	
EBT046	46.1	Narasingka Vairavar Kovil Road, Ampalanthurai sec. ii	0.311	Manmunai South - West
EBT047	47	School Road, Kachchakodi Swamimalai	2.239	Manmunai South - West,Porativu Pattu
EBT048	48	Boundary Road, Kokkaddicholai sec. i	0.921	Manmunai South - West
EBT048	48.1	Boundary Road, Kokkaddicholai sec. ii	0.146	Manmunai South - West
EBT049	49	Sukan Road, Arasadithivu	1.02	Manmunai South - West
EBT050	50	Vaikal Kulathu Road sec. i	0.903	Manmunai South - West

EBT050	50.1	Vaikal Kulathu Road sec. ii	0.135	Manmunai South - West
EBT051	51	Central Road, Arasadithivu	0.617	Manmunai P. (Araipattai)
EBT052	52	Kanapathipillai J.P. Road, Puthukudiyiruppu	0.884	Manmunai P. (Araipattai)
EBT053	53	Theerthakkarai Road-Kanapathipillai link Road, Selvanagar	1.119	Manmunai P. (Araipattai)
EBT054	54	Beach Road, Kirankulam	1.101	Manmunai P. (Araipattai)
EBT055	55	Paiyanna Moona Road, Kankeyanodai	0.637	Manmunai P. (Araipattai)
EBT056	56	Meera Jummah Road, Palamunai	0.471	Manmunai P. (Araipattai)
EBT058	58	Baduriya Mosque Internal Road, Branthuraichenai North sec. i	0.053	Koralai Pattu Central
EBT058	58.1	Baduriya Mosque Internal Road, Branthuraichenai North sec. ii	0.167	Koralai Pattu Central
EBT058	58.2	Baduriya Mosque Internal Road, Branthuraichenai North sec. iii	0.12	Koralai Pattu Central
EBT058	58.3	Baduriya Mosque Internal Road, Branthuraichenai North sec. iv	0.267	Koralai Pattu Central
EBT060	60	Ahamed G.S. Road, Valaichchenai sec. i	0.232	Koralai Pattu Central
EBT060	60.1	Ahamed G.S. Road, Valaichchenai sec. ii	0.154	Koralai Pattu
EBT061	61	Ahamod Hirashi Road, Semmanodai	0.508	Koralai Pattu Central
EBT064	64	Al-Hamra School Road with Drainage, Semmannodai 208D	0.683	Koralai Pattu Central
EBT065	65	Habeeb Kankaniyaar, Mavadichenai	0.451	Koralai Pattu,Koralai Pattu Central
EBT067	67	Pansala Road-03 Culverts, Branthuraichennai sec. i	0.157	Koralai Pattu,Koralai Pattu Central
EBT067	67.1	Pansala Road-03 Culverts, Branthuraichennai sec. ii	0.366	Koralai Pattu,Koralai Pattu Central
EBT068	68	Usan Vaiththiyar Road with Drainage, Branthuraichennai (N)	0.334	Koralai Pattu,Koralai Pattu Central
EBT069	69	Kadar text Road, Branthuraichenai sec. i	0.245	Koralai Pattu Central
EBT069	69.1	Kadar text Road, Branthuraichenai sec. ii	0.064	Koralai Pattu Central
EBT069	69.2	Kadar text Road, Branthuraichenai sec.iii	0.061	Koralai Pattu Central
EBT070	70	Vinayagapuram Central Road, Kalmadu 204 A	2.225	Koralai Pattu
EBT071	71	Thikilivaddai Main Street, Thikilivaddai 200 A	1.677	Koralai Pattu South
EBT072	72	Visankerny Road, Kiran East 203 sec. i	0.476	Koralai Pattu South
EBT072	72.1	Visankerny Road, Kiran East 203 sec. ii	0.501	Koralai Pattu South
EBT072	72.2	Visankerny Road, Kiran East 203 sec. iii	0.742	Koralai Pattu South
EBT073	73	Muruthantivu Main Street, Poolakkadu sec. i	1.276	Koralai Pattu South
EBT073	73.1	Muruthantivu Main Street, Poolakkadu sec. ii	0.326	Koralai Pattu South
EBT074	74	Cheddiyaarkudiyiruppu Main Street, Kiran West 203 A sec. i	0.793	Koralai Pattu South
EBT074	74.1	Cheddiyaarkudiyiruppu Main Street, Kiran West 203 A sec. ii	0.709	Koralai Pattu South
EBT075	75	Chairmen Road, Murakkaddanchenai 199 sec. i	0.672	Koralai Pattu South
EBT075	75.1	Chairmen Road, Murakkaddanchenai 199 sec. ii	0.158	Koralai Pattu South

EBT076	76	Nakathampiran Kovil Road, Kannaki, Puram 205 D	0.803	Koralai Pattu
EBT077	77	Kulakkoddan Street, Kinnayadi Road	0.71	Koralai Pattu
EBT078	78	Kaalikovil-Jinna Joint Road, Devapuram	0.901	Koralai Pattu South
EBT079	79	Boundary Road, Sungkan keny, Sungkan kerny 202 C sec. i	1.184	Koralai Pattu
EBT079	79.1	Boundary Road, Sungkan keny, Sungkan kerny 202 C sec. ii	0.39	Koralai Pattu
EBT080	80	Anna veethy Road, Karuvakerny 202 A	0.511	Koralai Pattu,Koralai Pattu Central
EBT081	81	Vipulanantha Cross Road, Valaichchenai Tamil 205	1.224	Koralai Pattu
EBT082	82	Kurinchinagar Road, Karuvakerny 202 A	0.594	Koralai Pattu
EBT083	83	Paddiyadichenai Vishnu Kovil Road, Kalkuda 204	0.533	Koralai Pattu
EBT084	84	Kondayankerny Resettlement Village Road, Semmannodai	0.419	Koralai Pattu
EBT085	85	Eerikkarai Road sec. i	0.136	Koralai Pattu South
EBT085	85.1	Eerikkarai Road sec. ii	0.261	Koralai Pattu South
EBT086	86	Thaddumunai Main Road, uriyankaddu 213 B sec. i	2.983	Koralai Pattu North
EBT086	86.1	Thaddumunai Main Road, uriyankaddu 213 B sec. ii	1.227	Koralai Pattu North
EBT087	87	Puliyankandalady Main Road, Vaharai North sec. i	1.224	Koralai Pattu North
EBT087	87.1	Puliyankandalady Main Road, Vaharai North sec. ii	0.826	Koralai Pattu North
EBT088	88	Sithravel link Road, Amenthanavely sec. i	0.657	Koralai Pattu North
EBT088	88.1	Sithravel link Road, Amenthanavely sec. ii	1.426	Koralai Pattu North
EBT088	88.2	Sithravel link Road, Amenthanavely sec. iii	0.455	Koralai Pattu North
EBT089	89	Thombuthar Road, Kathiravely sec. i	1.229	Koralai Pattu North
EBT089	89.1	Thombuthar Road, Kathiravely sec. ii	0.249	Koralai Pattu North
EBT090	90	Meeyankulam Karamunai Road, Punanai East	2.57	Koralai Pattu North
EBT091	91	Katkuli link Road, Vaddavan	0.91	Koralai Pattu North
EBT092	92	Uthumadu Katpakakeny Road, Pavakudichenai sec. i	1.494	Manmunai West
EBT092	92.1	Uthumadu Katpakakeny Road, Pavakudichenai sec. ii	0.979	Manmunai West
EBT093	93	Noksandakal Road, Pavakudichenai	2.474	Manmunai West
EBT094	94	Kanchirankuda Panchenai Main Road, Panchenai sec. i	0.468	Manmunai West
EBT094	94.1	Kanchirankuda Panchenai Main Road, Panchenai sec. ii	4.551	Manmunai West
EBT095	95	Puthumandapathady Main Road	0.747	Manmunai West
EBT096	96	Old Soruvamunai Road sec. i	1.262	Manmunai West
EBT096	96.1	Old Soruvamunai Road sec. ii	0.694	Manmunai West
EBT097	97	Kali Kovil 1st Cross Road, Mavadivembu sec. i	0.777	Eravur Pattu
EBT097	97.1	Kali Kovil 1st Cross Road, Mavadivembu sec. ii	0.66	Eravur Pattu

EBT097	97.2	Kali Kovil 1st Cross Road, Mavadivembu sec. iii	0.382	Eravur Pattu
EBT097	97.3	Kali Kovil 1st Cross Road, Mavadivembu sec. iv	0.477	Eravur Pattu
EBT097	97.4	Kali Kovil 1st Cross Road, Mavadivembu sec. v	0.457	Eravur Pattu
EBT098	98	Uppodai Road, Vantharumoolai	0.352	Eravur Pattu
EBT099	99	Thalavai Road, Pangkudaveli	1.985	Eravur Pattu
EBT100	100	Pannaithidal Road, Karadiyanaaru	1.369	Eravur Pattu
EBT101	101	Kali Kovil 1st, Koduvamadu	0.892	Eravur Pattu
EBT102	102	Colony Kali Kovil Road, Velikakandy	2.185	Eravur Pattu
EBT103	103	APC Road, Vantharumoolai sec. i	0.84	Eravur Pattu
EBT103	103.1	APC Road, Vantharumoolai sec. ii	0.238	Eravur Pattu
EBT103	103.2	APC Road, Vantharumoolai sec. iii	0.3	Eravur Pattu
EBT104	104	10th Mile post Road, Kommathurai sec. i	0.054	Eravur Pattu
EBT104	104.1	10th Mile post Road, Kommathurai sec. ii	0.508	Eravur Pattu
EBT104	104.2	10th Mile post Road, Kommathurai sec. iii	0.405	Eravur Pattu
EBT105	105	Market Road, Chenkalady sec. i	0.295	Eravur Pattu
EBT105	105.1	Market Road, Chenkalady sec. ii	0.361	Eravur Pattu
EBT105	105.2	Market Road, Chenkalady sec. iii	0.087	Eravur Pattu
EBT105	105.3	Market Road, Chenkalady sec. iv	0.09	Eravur Pattu
EBT106	106	Nakathampiran Kovil Road, Arumukathan Kudiyiruppu sec. i	0.305	Eravur Town
EBT106	106.1	Nakathampiran Kovil Road, Arumukathan Kudiyiruppu sec. ii	0.137	Eravur Town
EBT106	106.2	Nakathampiran Kovil Road, Arumukathan Kudiyiruppu sec. iii	0.161	Eravur Town
EBT106	106.3	Nakathampiran Kovil Road, Arumukathan Kudiyiruppu sec. iv	0.09	Eravur Town
EBT106	106.4	Nakathampiran Kovil Road, Arumukathan Kudiyiruppu sec. v	0.184	Eravur Town
EBT107	107	Vipulananda Pura Road, Mylampaveli	0.699	Eravur Pattu
EBT109	109	RDS Road Michnagar, Iyangkeni sec. i	0.554	Eravur Pattu
EBT109	109.1	RDS Road Michnagar, Iyangkeni sec. ii	0.242	Eravur Pattu
EBT110	110	School Road, Meerakeni	0.434	Eravur Pattu
EBT111	111	Kudha Pali Road, Michanagar	0.399	Eravur Pattu
EBT112	112.1	Board Vaady Road, Kaluvangkerny sec. ii	0.243	Koralai Pattu South
EBT112	112	Board Vaady Road, Kaluvangkerny sec. i	0.55	Koralai Pattu South
EBT113	113	Murugan Kovil Road, Savukkady	0.985	Eravur Pattu
EBT114	114	Vipulananda Road, Siththandi-01 sec. i	0.206	Eravur Pattu
EBT114	114.1	Vipulananda Road, Siththandi-01 sec. ii	0.653	Eravur Pattu

EBT115	115	Thirthakemi Road, Uthayan Moolai sec. i	0.189	Eravur Pattu
EBT115	115.1	Thirthakemi Road, Uthayan Moolai sec. ii	0.129	Eravur Pattu
EBT116	116	Barathy Lane 1st Cross Lane, Iyangkerny	1.062	Eravur Pattu
EBT117	117	Kanesha Viththiyalaya Road, Vantharumoolai sec. i	0.265	Eravur Pattu
EBT117	117.1	Kanesha Viththiyalaya Road, Vantharumoolai sec. ii	0.124	Eravur Pattu
EBT117	117.2	Kanesha Viththiyalaya Road, Vantharumoolai sec. iii	0.376	Eravur Pattu
EBT118	118	DS Office Road to Iyangkerny, Chenkalady sec. i	0.339	Eravur Pattu
EBT118	118.1	DS Office Road to Iyangkerny, Chenkalady sec. ii	0.681	Eravur Pattu
EBT119	119	School Road, Iyankeny sec. i	0.735	Eravur Pattu,Eravur Town
EBT119	119.1	School Road, Iyankeny sec. ii	0.09	Eravur Pattu,Eravur Town
EBT120	120	Bake House Road sec. i	0.836	Eravur Pattu
EBT120	120.1	Bake House Road sec. ii	0.412	Eravur Pattu
EBT121	121	Talecom Road	1.386	Kattankudy
EBT122	122	Muhideen Mosque Road	1.049	Kattankudy
EBT123	123	Hostal Road	0.484	Kattankudy
EBT124	124	Deen Road	1.572	Kattankudy,Manmunai P. (Araipattai)
EBT125	125	Central Road	0.471	Kattankudy
EBT126	126	Abrar Road	0.653	Kattankudy
EBT127	127	Vadamunai Uthuchchenai Road, 210A/1, Vadamunai	1.5	Koralai Pattu South
EBT128	128	Potthanai Road, 2010E, Punanai	3.199	Koralai Pattu North,Koralai Pattu South
EBT129	129	Rahmath Masjith Road, 210B, Kawatthamunai sec. i	0.765	Koralai Pattu West
EBT129	129.1	Rahmath Masjith Road, 210B, Kawatthamunai sec. ii	0.225	Koralai Pattu West
EBT130	130	Resettlement Area Road, 207, Mancholai sec. i	0.707	Koralai Pattu,Koralai Pattu West
EBT130	130.1	Resettlement Area Road, 207, Mancholai sec. ii	0.745	Koralai Pattu,Koralai Pattu West
EBT131	131	Palainagar Road, 210C, Thiyawattawan	0.813	Koralai Pattu West
EBT132	132	Youth Club Road, 207, Mancholai	1.289	Koralai Pattu,Koralai Pattu West
EBT133	133	School Road, 210B, Kawatthamunai	0.603	Koralai Pattu West
EBT134	134.1	Thurayadi Road, 210B, Kawatthamunai sec. ii	0.383	Koralai Pattu West
EBT134	134	Thurayadi Road, 210B, Kawatthamunai sec. i	0.198	Koralai Pattu West
EBT135	135	M.K. Road, 208C, Oddamavadi-02 sec. i	0.248	Koralai Pattu West
EBT135	135.1	M.K. Road, 208C, Oddamavadi-02 sec. ii	0.044	Koralai Pattu West
EBT135	135.2	M.K. Road, 208C, Oddamavadi-02 sec. iii	0.079	Koralai Pattu Central
EBT138	138	Alim Road, Valachchenai, 207B, Meeravodai East	0.607	Koralai Pattu West

EBT139	139	Meeran Hajiyar Road	3.46	Koralai Pattu West
EBT140	140	Illaiyawan Poddi Road sec. i	0.237	Eravur Pattu
EBT140	140.1	Illaiyawan Poddi Road sec. ii	0.105	Eravur Pattu
EBT145	145	Allikar Playground Road	0.415	Eravur Town
EBT146	146	Alaiyadi Road	0.299	Eravur Pattu
EBT153	153	Grama Court Road sec. i	0.23	Eravur Pattu
EBT153	153.1	Grama Court Road sec. ii	0.404	Eravur Pattu
EBT153	153.2	Grama Court Road sec. iii	0.171	Eravur Pattu
EBT154	154	Railway Station Road sec. i	0.822	Eravur Town
EBT154	154.1	Railway Station Road sec. ii	0.106	Eravur Town
EBT154	154.2	Railway Station Road sec. iii	0.141	Eravur Town
EBT155	155	Hassan Husain Palli Road, Eravur-2C	0.505	Eravur Town,Eravur Pattu
EBT156	156	Thamaraikeni Road, Eravur-05 sec. i	0.259	Eravur Pattu
EBT156	156.1	Thamaraikeni Road, Eravur-05 sec. ii	0.148	Eravur Pattu
EBT157	157	Seliyan Road in Sinna Urani	0.306	Manmunai North
EBT158	158	Poonochimunai Road, Navathudah	0.854	Manmunai North
EBT159	159	Saratha 1st Cross Road, Manchanthoduwai	0.35	Manmunai North
EBT160	160	Kolavady 3rd,4th,5th Cross Road sec. i	0.218	Manmunai North
EBT160	160.1	Kolavady 3rd,4th,5th Cross Road sec. ii	0.222	Manmunai North
EBT160	160.2	Kolavady 3rd,4th,5th Cross Road sec. iii	0.051	Manmunai North
EBT161	161	Music College Road, Nochimunai	0.605	Manmunai North
EBT162	162	Brain Drive Road, Piliyantheevu	0.391	Manmunai North
EBT163	163	Vipulanantha Road Sethukuda	0.504	Manmunai North
EBT164	164	Tharisanam Road Navatkuaha	0.472	Manmunai North
EBT165	165	Kannahi Amman Kovil Road Thiruperunthurai	0.869	Manmunai North
EBT166	166	Puliyadi Madu to Sathurukondan Bund Road	0.446	Manmunai North
EBT167	167	Thiraimadu School Road, Thiraimadu	0.593	Manmunai North,Kattankudy
EBT168	168	New Palamunai Road, Poonochimunai	1.255	Manmunai North
EBT169	169	Mamangam Kovil Road, Amirthakali	0.613	Manmunai North
EBT170	170	Poomugar 12th Cross Road, Vedukau	0.358	Manmunai North
EBT171	171	Poomugar 5th & 6th Cro Road sec. i	0.375	Manmunai North
EBT171	171.1	Poomugar 5th & 6th Cro Road sec. ii	0.345	Manmunai North
EBT172	172	School Road Navalay	0.789	Manmunai North

EBT174	174	Thiraimadu 1st Cross Road	0.405	Manmunai North
EBT175	175	Raal Odai Road, Kayankerni	0.487	Koralai Pattu North
EBT177	177	Extension of Lagoon road from Kathiyar road junction to A5 Badulla-Peradeniya road	2.334	Eravur Town,Eravur Pattu
EBT178	178	5th cross Hisbulla Nagar road	0.271	Eravur Pattu
EBT179	179	Redbana road	0.226	Eravur Pattu
EBT181	181	Savukkady Beach Access Road	0.663	Eravur Pattu
EBT182	182	Reconstruction of Kathiyar road with drainage	0.597	Eravur Town
EBT183	183	Poonochimunai Jumma Masjid Road	0.863	Kattankudy
EBT184	184	Mavetkuda Pillayar Kovil Veethi	1.351	Porativu Pattu
EBT185	185	Vinothan Veethi	0.499	Porativu Pattu
EBT186	186	Hospital Kinniyadi thurai Veethi	0.744	Porativu Pattu
EBT187	187	Vanninagar Ellai Veethi	0.328	Porativu Pattu
EBT188	188	Ellai Veethi_Sec_i	0.16	Porativu Pattu
EBT188	188.1	Ellai Veethi Sec_ii (Seenithambi Veethi)	0.176	Porativu Pattu
EBT188	188.2	Ellai Veethi Sec_iii (Methodist Church road)	0.181	Porativu Pattu
EBT189	189	Vaaikaladi Veethi	0.859	Porativu Pattu
EBT190	190	Mayana Veethi	0.805	Porativu Pattu
EBT191	191	Vanniyar Veethi Sec_i	0.266	Porativu Pattu
EBT191	191.1	Vanniyar Veethi Sec_ii	0.23	Porativu Pattu
EBT192	192	Onthachimadam mahiloor kurumanvelly Road	4.055	Manmunai S. and Eruvilpattu
EBT193	193.1	Lagoon Drive Road, Kaththankudy Sec i	1.706	Kattankudy
EBT193	193.2	Lagoon Drive Road, Kaththankudy Sec ii	0.123	Kattankudy
EBT194	194	Karbala Palamunai Road, New Kaththankudy	3.009	Kattankudy,Manmunai P. (Araipattai)
EBT195	195.1	Hisbullah Road, Manchanthuduwei, Manmunai North Sec i	0.518	Kattankudy,Manmunai North
EBT195	195.2	Hisbullah Road, Manchanthuduwei, Manmunai North Sec ii	0.429	Manmunai North
EBT196	196	Rideethanna Main Road, Kolaraleipattu Central	1.435	Koralai Pattu North
EBT197	197	Palamunai Main Road, Araympathi	0.295	Manmunai P. (Araipattai),
EBT198	198	Kaankeyannodei, Main Road, Arayampathi	0.815	Manmunai P. (Araipattai)
EBT199	198	Upodai Lake Road (East Lagoon road)	2.376	
Total			236.97	

Road list - Trincomalee District

□□o□d□□□	□□	□o□d□□□□ □	□□□□□□□□	□□□
ETR001	1	Tract 11 Road	5.636	Padavi Sri Pura
ETR002	2	Branch Channel Road Section 01	0.054	Padavi Sri Pura
ETR002	2.1	Branch Channel Road Section 02	0.859	Padavi Sri Pura
ETR003	3	B.p 7th Milepost to Jayanthiwewa Road	6.307	Padavi Sri Pura,Padaviya
ETR004	4	Sugar Factory Road	8.073	Kantalai
ETR005	5	Meenkamam Kanguweli Road	1.484	Muttur,
ETR006	6	Thopur Kaddaparichan Iddimanthurai Road	7.167	Muttur
ETR007	7	Salli Sambalthieve Road	1.909	Town & Gravets
ETR008	8	Selvanayagapuram Road	2.666	Town & Gravets
ETR009	9	Pillaikulam Sambalthieve Road	2.018	Town & Gravets
ETR010	10	Ganeshapuram Housing Scheme Section 01	0.604	Town & Gravets
ETR010	10.1	Ganeshapuram Housing Scheme Section 02	0.41	Town & Gravets
ETR010	10.2	Ganeshapuram Housing Scheme Section 03	0.497	Town & Gravets
ETR010	10.3	Ganeshapuram Housing Scheme Section 04	0.468	Town & Gravets
ETR010	10.4	Ganeshapuram Housing Scheme Section 05	0.344	Town & Gravets
ETR010	10.5	Ganeshapuram Housing Scheme Section 06	0.388	Town & Gravets
ETR011	11	Pudukudiirrippuu Paththinipuram Road	4.057	Thampalakamam
ETR012	12	Kuddikarachi Alankerney Road	1.783	Kinniya
ETR013	13	Kaivaikal Kakamunai Road	2.467	Kinniya
ETR014	14	NochchikulamaKarakawewa Gomarankadawala Road Section 01	3.312	Gomarankadawala
ETR014	14.1	NochchikulamaKarakawewa Gomarankadawala Road Section 02	0.525	Gomarankadawala
ETR015	15	Kallarawa Road	2.962	Kuchaveli
ETR016	16	Mawadichenai Road	4.575	Seruvila,Muttur
ETR017	17	Morawewa Nochchikulama Road	4.858	Morawewa,Gomarankadawela
ETR018	18	D6 Road	1.877	Muttur
ETR019	19	4th Lane, Orr's Hill – ETTRI 177	0.76	Town & Gravets
ETR020	20	Gandinagar Road Section 01	0.417	Town & Gravets
ETR020	20.1	Gandinagar Road section 02	0.146	Town & Gravets

ETR021	21	Mihindapuram Main Road – ETTRI 250	0.651	Town & Gravets
ETR022	22	Jamaliya to Thulasipuram, Main Road – ETTRI 274	0.845	Town & Gravets
ETR023	23	Central Road – ETTRI 230,Peruntheru, Arasady	0.899	Town & Gravets
ETR024	24	Seaview Road & Kasthurinagar off Seaview Road– ETTRI 025,Thillainagar Section 01	0.895	Town & Gravets
ETR024	24.1	Seaview Road & Kasthurinagar off Seaview Road– ETTRI 025,Thillainagar Section 02	0.175	Town & Gravets
ETR025	25	Green Road – ETTRI 002-Green Road – ETTRI 002-Green Road – ETTRI 002	0.8	Town & Gravets
ETR026	26	Jalaliya Mosque Road to Batticalo Road, Annal Nagar	0.424	Kinniya
ETR027	27	Faizal Nagar Main Road, Alankerny	1.546	Kinniya
ETR028	28	Navavipalli Road to Palapalli Road, Faizal Nagar (section 1)	0.536	Kinniya
ETR028	28.1	Navavipalli Road to Palapalli Road, Faizal Nagar (section 2)	0.208	Kinniya
ETR029	29	Alim Road to Jalaliya Main Road, Annal Nagar, Mancholaichenai Section 01	1.057	Kinniya
ETR029	29.1	Alim Road to Jalaliya Main Road, Annal Nagar, Mancholaichenai Section 02	0.389	Kinniya
ETR029	29.2	Alim Road to Jalaliya Main Road, Annal Nagar, Mancholaichenai Section 03	0.33	Kinniya
ETR030	30	Dipo Road to Lathif Hajiyar Road, Faizal Nagar	1.46	Kinniya
ETR032	32	Kolimuttaikarachai Road, Kachchakoditheevu	0.651	Kinniya
ETR033	33	Nadutheevu main Road, Nadutheevu	0.884	Kinniya
ETR034	34	V.C Ground Road, Munaichenai	0.59	Kinniya
ETR035	35	Mahamaaru main Road, Maharu	0.99	Kinniya
ETR036	36	Soorangal tower Road, Soorangal	0.811	Kinniya
ETR037	37	Kakkamunai Central Road, Kakkamunai	0.985	Kinniya
ETR038	38	Kurinchakerny main Road, Kurinchkerny	0.388	Kinniya
ETR039	39	Sunkankuli Road to School Road, Majeednagar	0.979	Kinniya
ETR040	40	Sollaivedduwan Road	0.497	Kinniya
ETR041	41	Naduoothu to Vattamadu Road, Upparu	0.982	Kinniya
ETR042	42	Campus Road, Koneshapuri, Sambaltivu	2.256	Town & Gravets
ETR043	43	Aaththimoddai Veethy, Sambaltivu / illupai kulam	1.946	Town & Gravets
ETR044	44	Vadali Pillayar Kovil Road, Sally	1.062	Town & Gravets
ETR045	45	Linganagar Main Road, Linganagar	1.226	Town & Gravets
ETR046	46	Karumalaiyoothu Veethy, Vellaimanal	1.503	Town & Gravets
ETR047	47	Madco Approch Road, Vellaimanal	0.351	Town & Gravets
ETR048	48	Sangama Road, Chinabay	0.458	Town & Gravets

ETR049	49	Champa Lane, Andankulam	0.416	Town & Gravets
ETR050	50	Housing Scheme Road to Muslim Cemetry, Chinabay Section 01	0.569	Town & Gravets
ETR050	50.1	Housing Scheme Road to Muslim Cemetry, Chinabay Section 02	0.137	Town & Gravets
ETR051	51	Jamiah Road, Pala Nagar	0.492	Muttur
ETR052	52	Madaniya Arabic College Road, Thoppur Section 01	0.191	Muttur
ETR052	52.1	Madaniya Arabic College Road, Thoppur Section 02	0.202	Muttur
ETR053	53	Al Hambra School Road, Allai Nagar West, Allai Nagar East, Iqbal Nagar	0.917	Muttur
ETR054	54	Al Hairiay School Road, Periyapalam	0.467	Muttur
ETR055	55	PDS Road, Thakwa Nagar Section 01	0.398	Muttur
ETR055	55.1	PDS Road, Thakwa Nagar Section 02	0.2	Muttur
ETR056	56	Vethatheevu Main Road, Shafi Nagar	0.493	Muttur
ETR057	57	Kiliveddy West Road, Kiliveddy	0.502	Seruvila
ETR058	58	Cooperative Road, Iruthayapuram	0.505	Muttur
ETR059	59	Manatchenai Peruvely Central Road, Periyavely	0.485	Muttur
ETR060	60	Malikaitheevu to Mengamam Road, Mengamam	0.494	Muttur
ETR061	61	Bahriya Road,Thakwa Nagar	0.5	Muttur
ETR062	62	Cemetery Road, Palathoppur	0.479	Muttur
ETR063	63	Cemetery Road, Aalim Nagar	0.505	Muttur
ETR064	64	Manarul Hutha Road, Neithal Nagar	0.497	Muttur
ETR065	65	Abdul Casim Road, Mutur East Section 01	0.2	Muttur
ETR065	65.1	Abdul Casim Road, Mutur East Section 02	0.202	Muttur
ETR065	65.2	Abdul Casim Road, Mutur East Section 03	0.128	Muttur
ETR066	66	Munnampodiveddai Road, Palathadichenai	0.498	Muttur
ETR067	67	Kovil Road, Kanguvely	0.483	Muttur
ETR068	68	Jaya Nagar Centaral Road, Jaya Nagar	0.514	Muttur
ETR069	69	Central Road (Kovil Road), Muthur Central Section 01	0.294	Muttur
ETR069	69.1	Central Road (Kovil Road), Muthur Central Section 02	0.248	Muttur
ETR070	70	Ralkuly Main Road, Ralkuly	1.481	Muttur
ETR071	71	Ashraff Road Section 01	0.305	Muttur
ETR071	71.1	Ashraff Road Section 02	0.08	Muttur
ETR071	71.2	Ashraff Road Section 03	0.194	Muttur
ETR072	72	Police Road Section 01	0.276	Muttur
ETR072	72.1	Police Road Section 02	0.142	Muttur

ETR072	72.2	Police Road Section 03	0.154	Muttur
ETR073	73	Periyakulam Internal Road, Periyakulam	1.312	Kuchaveli,Town & Gravets
ETR074	74	Nilavely Beach Road, Gopalapuram	1.108	Kuchaveli
ETR075	75	Al-Hamra School Road, Iraakkakandy Section 01	0.506	Kuchaveli
ETR075	75.1	Al-Hamra School Road, Iraakkakandy Section 02	0.177	Kuchaveli
ETR076	76	Kumburupiddy East Internal Road, Kumburupiddy East Section 01	0.438	Kuchaveli
ETR076	76.1	Kumburupiddy East Internal Road, Kumburupiddy East Section 02	0.244	Kuchaveli
ETR076	76.2	Kumburupiddy East Internal Road, Kumburupiddy East Section 03	0.206	Kuchaveli
ETR077	77	Senthoor Internal Road, Senthoor	1.502	Kuchaveli
ETR078	78	Sinhala M.V.Road, Pulmoddai (Aarisimalai to Post Office),Pulmoddai	0.932	Kuchaveli
ETR079	79	Thennamaravady Koddady Road	0.934	Kuchaveli
ETR080	80	Dispensary Road 96 kalmettiyawa south, Galmitiyawa (N) 228 C	0.489	Thampalakamam
ETR081	81	98 Main Road, kalmettiyawa south,Galmitiyawa (N) 228 C	0.511	Thampalakamam
ETR083	83	Ulpothwewa Main Road, Galmitiyawa (N) 228 C	0.53	Thampalakamam
ETR084	84	Sippithidal Road, Thampalakamam 228 I	0.658	Thampalakamam
ETR085	85	Potkerny Main Road, Potkerny 228 B	0.913	Thampalakamam
ETR086	86	As-Sums School Road, Mullipottanai North, Mullipottanai 228 G	0.517	Thampalakamam
ETR087	87	Al- Aksha Road, Mullipoththanai East	0.873	Thampalakamam
ETR088	88	Meera Nagar, Thakiya Road, Meera Nagar 228 H	0.503	Thampalakamam
ETR089	89	Arabic College Road, Sirajiya 228 E	0.411	Thampalakamam
ETR090	90	Al - Madeena School Road, Kalmettiyawa south, Galmitiyawa (N) 228 C	0.485	Thampalakamam
ETR091	91	Saliya Road, Sirajnagar	0.338	Thampalakamam
ETR092	92	Buhari School Road,Mullipottanai	1.439	Thampalakamam
ETR093	93	Elankathurai Main Road, Elankathurai T/214C Section 01	2.442	Eachchilampattai
ETR093	93.1	Elankathurai Main Road, Elankathurai T/214C Section 02	0.511	Eachchilampattai
ETR094	94	T/214 B	2.15	Eachchilampattai
ETR095	95	Valaithottam Central Road,Anaitheevu T/214 D	0.981	Eachchilampattai
ETR096	96	Soorainagar School Road,Verugal Muhatuvaram T/214 E Section 01	0.443	Eachchilampattai
ETR096	96.1	Soorainagar School Road,Verugal Muhatuvaram T/214 E Section 02	0.162	Eachchilampattai
ETR097	97.1	Udapukerni Pillaiyar kovil Road 1 & Udapukerni Pillaiyar kovil Road 2, Eachchilampattu T/214 Section 01	0.221	Eachchilampattai
ETR097	97	Udapukerni Pillaiyar kovil Road 1 & Udapukerni Pillaiyar kovil Road 2, Eachchilampattu T/213 Section 02	0.251	Eachchilampattai

ETR098	98	Nagammal Road, Verugal Muhatuvaram T/214 E	0.489	Eachchilampattai
ETR099	99	PKT to Kalyanapura Road	2.458	Gomarankadawela
ETR100	100	PKT to Pulikandikulama Road	0.982	Gomarankadawela
ETR101	101	Moragama Road, Mailawewa	3.013	Gomarankadawela
ETR102	102	PKT to Pankeriya Ulpata Hotwell Road	1.964	Gomarankadawela
ETR103	103	Raja-Ela Road, Peraru	1.768	Kantalai
ETR104	104	Jayanthipura-Wan-Ela Road, Jeyanthipura	1.992	Kantalai
ETR105	105	Senanayake Mawatha, Unit 05 Raja Ela	2.059	Kantalai
ETR106	106	Sooriyapura Samanala Palama Temple Road, Sooriyapura	0.914	Kantalai
ETR107	107	Sivan Kovil Road, Sooriyapura	0.87	Kantalai
ETR109	109	Sripura School Road, 31 D Sripura	0.48	Padavi Sri Pura
ETR110	110	Gamunupura Main road,31 N Gemunupura	0.56	Padavi Sri Pura
ETR111	111	Kawanthissapura Main Road, 31 H Kawanthissapura	0.962	Padavi Sri Pura
ETR112	112	Clinic Centre Road at Paranamedawachchiya, 31 F Paranamedawachchiya Section 01	0.503	Padavi Sri Pura
ETR112	112.1	Clinic Centre Road at Paranamedawachchiya, 31 F Paranamedawachchiya Section 02	0.187	Padavi Sri Pura
ETR113	113	28 , Main Road tracking yaya 10	0.5	Padavi Sri Pura
ETR114	114	Mahasen Mawatha to Track 12 Junction Road at Thissapura, 31 L Sri Thissapura Section 01	0.751	Padavi Sri Pura
ETR114	114.1	Mahasen Mawatha to Track 12 Junction Road at Thissapura, 31 L Sri Thissapura Section 02	0.2	Padavi Sri Pura
ETR115	115	Water Tank Road at Lassanagama, 31 P Lassanagama	0.665	Padavi Sri Pura
ETR116	116	Pallegama Stors to Mr. Rangana Sashipraba House Road at Samanpura, 31 M Samanpura	0.651	Padavi Sri Pura
ETR117	117	Gunawardhana Mawatha at Singhapura, 31 J Singhapura	0.675	Padavi Sri Pura
ETR118	118	8th Track Sripura Road	0.616	Padavi Sri Pura
ETR119	119	Sripura Bus Stand Road	1.604	Padavi Sri Pura
ETR121	121	Viharagama Road,Mahadiwulwewa stage - 1	0.649	Morawewa
ETR122	122	Lake Road inGunawardanapura, Morawewa South	0.795	Morawewa
ETR123	123	Nochchikulam Shanthipuram Main Road, Nochchikulam	0.927	Morawewa
ETR124	124	Jinnangar Road, Nochchikulam	0.698	Morawewa
ETR125	125	Namalwatha Road, Namalwatha	0.749	Morawewa
ETR126	126	Wilgam Vihara Road at Selvenager - Seruwila P.S	1.268	Seruvila

ETR127	127	Methagama Central Road - Somapura, Seruwila P.S, Dehiwaththa	0.963	Seruvila
ETR128	128	Kawanthissapura Central Road, Seruwila	0.82	Seruvila
ETR129	129	Thanga Nager school Road - Thanganager Seruvila P.S, Thanga Nagar Section 01	0.396	Seruvila
ETR129	129.1	Thanga Nager school Road - Thanganager Seruvila P.S, Thanga Nagar Section 02	0.286	Seruvila
ETR129	129.2	Thanga Nager school Road - Thanganager Seruvila P.S, Thanga Nagar Section 03	0.303	Seruvila
ETR130	130	Mankala Boakku (culvert) Road - Seruvila, Seruwila P.S, Arriyama Kerny	1.411	Eachchilampattai,Seruvila
ETR131	131	School Mawaththa Road at Dehiwatta - Seruwila P.S, Srimangalapura Section 01	0.64	Muttur
ETR131	131.1	School Mawaththa Road at Dehiwatta - Seruwila P.S, Srimangalapura Section 02	0.222	Muttur
ETR131	131.2	School Mawaththa Road at Dehiwatta - Seruwila P.S, Srimangalapura Section 03	0.258	Muttur
ETR132	132	Mohideen Jummah Mosque Road at Selvenger S.P.S, Selve Nagar	0.51	Seruvila
ETR133	133	Lingapuram School Road	1.053	Seruvila
ETR134	134	Karechchei Road at Selvenager -	1.047	Seruvila,Muttur
ETR135	135	From 91 bogas junction to Wewsirigama temple road through water treatment plant	0.701	Kantalai
ETR136	136	Infront of 91 bogas junction through Jayantha light mawatha upto Parakrama mawatha	1.48	Kantalai
ETR137	137	From Kantaale town to through Ariyawansha mawatha, Leelarathna play groung a road to Parakrama mawatha	1.166	Kantalai
ETR138	138	Trincomalee road turning to Sugar Factory from 85 junction through Batukachchiya upto agbogama Section -01	6.246	Kantalai
ETR138	138.1	Trincomalee road turning to Sugar Factory from 85 junction through Batukachchiya upto agbogama Section -02	1.62	Kantalai
ETR139	139	From Batukachchiya to Thaigaswewa road Section-01	5.342	Kantalai
ETR139	139.1	From Batukachchiya to Thaigaswewa road Section -02	0.22	Kantalai
ETR140	140	From Parakrama mawatha light road upto Senanayaka mawatha	1.852	Kantalai
ETR141	141	pooddankadu mosque Road	1.53	Kantalai
ETR142	142	Arisimalai Road	0.672	Kuchaveli
ETR143	143	Selvanagar Main Road	0.858	Kuchaveli
ETR144	144	Ratnayaka shop to D10 Road at Jeyanthiwewa	0.48	Padaviya,Padavi Sri Pura
ETR145	145	PKT to Pulikandikulama Road (Balance)	0.947	Gomarankadawela
ETR146	146	Rodduwewa cemetery Road	0.559	Morawewa
ETR147	147	Thean tamil veethy left side 01&02 nd land form Aansaneyar Kovil At orrishil hill Section -01	0.317	Town & Gravets
ETR147	147.1	Thean tamil veethy left side 01&02 nd land form Aansaneyar Kovil At orrishil hill Section -02	0.279	Town & Gravets

ETR151	151	Shiraj Nager Main Road	1.009	Thampalakamam
ETR152	152	Vattamadu Road	2.544	Kinniya
ETR153	153	Panichai adi road	1.259	Kinniya
ETR154	154	Alimchenai School Road Section -01	0.958	Muttur
ETR154	154.1	Alimchenai School Road Section -02	0.938	Muttur
ETR155	155	Palanagar Mosqu to Army came road Section -01	0.328	Muttur
ETR155	155.1	Palanagar Mosqu to Army came road Section -02	0.103	Muttur
ETR156	156	Neithal Nagar Main Road (Old Haber Road) Section -01	0.185	Muttur
ETR156	156.1	Neithal Nagar Main Road (Old Haber Road) Section -02	0.638	Kinniya
ETR157	157	Eachchantivu to Fizel Nagar Joint Road, Eachchantivu Section -01	1.872	Kinniya
ETR157	157.1	Eachchantivu to Fizel Nagar Joint Road, Eachchantivu Section -02	0.682	Kinniya
ETR158	158	Aalankerny Juntion to Eachchantivu Raod	0.599	Kinniya
ETR159	159	Rahumaniya Mosque Road Section -01	0.751	Kinniya
ETR159	159.1	Rahumaniya Mosque Road Section -02	0.081	Kinniya
ETR159	159.2	Rahumaniya Mosque Road Section -03	0.345	Kinniya
ETR160	160	Kinniya UC Road Section -01	0.509	Kinniya
ETR160	160.1	Kinniya UC Road Section -02	0.058	Kinniya
ETR161	161	From 91 Palugaswewa through unit 14 a road from Vendrasan pura upto main road	1.717	Kantalai
ETR162	162	Nominy Junction to Jenthikama to Seruvila Main Road	4.343	Kantalai
ETR163	163	Jenthipura wanela main road to Wanela Police station road	7.875	Kantalai,Kinniya
ETR164	164	Neelapaja Junction to muthur road	1.169	Seruvila
ETR165	165	Dehiwatta to 5th speel Road	1.345	Muttur,Seruvila
ETR166	166	Mavilaru Junction to Seruvila Main road	4.224	Seruvila,Eachchilampattai
ETR167	167	25th housing scheem Road	1.01	Seruvila
ETR168	168	Dipo Junction to Parakkirama mawathe	1.166	Kantalai
ETR169	169	Konamalai Road via thaif Nagar to Sivasakthipuram Section -01	1.903	Thampalakamam
ETR169	169.1	Konamalai Road via thaif Nagar to Sivasakthipuram Section -02	1.279	Thampalakamam
ETR169	169.2	Konamalai Road via thaif Nagar to Sivasakthipuram Section -03	0.227	Thampalakamam
ETR169	169.3	Konamalai Road via thaif Nagar to Sivasakthipuram Section -04	0.143	Thampalakamam
ETR170	170	Sampoor Soodakkudah road	4.475	Muttur
□o□□□			□□□□□□□	

Ampara Additional Road list

□o□d□□□	□.□□	□o□d□□ □□ □	□□	□□□
EAM008	8.1	A.G.A'S OFFICE TO VINAYAGAPURAM ROAD Sec .I	2.594	Thirukkovil
EAM012	12.1	SAMMANTHURAI VEERAMUNAI ROAD Sec .I	0.483	Sammanthurai
EAM028	28.1	TEMPITTIYA KOLANISIYAYA ROAD Sec .I	2.09	Mahaoya,Eravur Pattu
EAM029	29.2	PADIYATALAWA DEMODARA ROAD (SARANANGARA ROAD) Sec. III	0.577	Padiyathalawa
EAM035	35.1	DEVALAHANDA GALKANDANA ROAD Sec .I	0.485	Damana
EAM058	58.1	Old Beach Road from Mahmood Balika to Kalmunai Rest House Sec .I	4.182	Kalmunai
EAM086	86.1	Cemetery Road Sec .I	0.263	Eragama
EAM086	86.2	Cemetery Road Sec .II	0.225	Eragama
EAM106	106.1	Veeraiyady Road Sec I	0.109	Thirukkovil
EAM108	108.1	From Bodagolla MV Sangadasa's House to Ambagahawella Sec .I	1.145	Ampara
EAM109	109.2	Bibile Main road to Compost pohora center Sec. III	0.495	Ampara
EAM110	110.3	Samadagagama Road Sec. IV	0.413	Ampara
EAM110	110.2	Samadagagama Road Sec. III	0.203	Ampara
EAM111	111.1	Wavinna 1/154 House to Ambagahawella Main Road Sec .I	0.937	Ampara
EAM113	113.1	Grama 06 Muwangala left Mr.Dharmadasa's House to round to Mr Sirisena's Sec .I	0.98	Damana
EAM114	114.4	Borapola Samagipura internal Road Sec. V	4.515	Mahaoya
EAM117	117.1	Thuwaragala to Kugdagala Sec .I	3.743	Dehiattakandiya
EAM119	119.1	Lihiniyagama to Wehadagama Sec .I	1.543	Dehiattakandiya
EAM142	142.1	Kirupai Teacher Road Sec .I	0.275	Alayadiwembu
EAM159	159.1	Near Ariyawan guest to Saddathissa primary Sec .I	1.049	Ampara
EAM163	163.1	Near no.220 house to Mahamevuna Asapuwa Sec .I	0.24	Ampara
EAM165	165.2	New housing Scheme Road Sec. III	0.942	Ampara
EAM167	167.2	Behind the Bus Stand Road Sec. III	0.201	
EAM168	168.2	Around the vijithapura play ground Road Sec. III	0.159	Ampara
EAM177	177.2	Thalapitaoya Kokumawara Sec. III	1.848	Padiyathalawa
EAM180	180.1	Wahawa Road Sec .I	1.775	Padiyathalawa
EAM181	181.1	Sareef Hajiyar Road Sec .I	5.325	Addalachchenai
EAM187	187.1	234 Round a bout Road- Deegawapiya0.8 Sec .I	1.063	Addalachchenai

EAM194	194.3	Hajji Road. Palamunai 03,04 Sec. IV	0.099	Addalachchenai
EAM194	194.2	Hajji Road. Palamunai 03,04 Sec. III	0.061	Addalachchenai
EAM213	213.1	Pannalgama to Bakmitiyaawa Sec.I	1.04	Damana
EAM214	214.2	Wadinagala to Karabana Sec. III	0.392	Damana
EAM223	223.2	Cemetery Road, Paddiyadipiddy Sec. III	0.149	Akkaraipattu
EAM232	232.1	Al Road, Pallikkudiyiruppu-01 Sec I	0.097	Akkaraipattu
EAM242	242.3	Road from Ruhunugama School Junction to Buddhangala Post Office Sec. IV	0.299	Uhana
EAM243	243.2	Road from 60 Junction to Gonagala Village Sec. III	0.391	Uhana
EAM244	244.1	Road near to Suhadagama Saman Boutique to Rajagama Junction Sec .I	0.637	Uhana
EAM245	245.3	Lathugala Road from Dora paha juction to Lathugala Sec. IV	5.653	Uhana
EAM246	246.3	Piyangala Nugelanda Road Sec. IV	1.211	Uhana
EAM247	247.2	Magulmaha Viharaya Bunt Road,Sec III	0.173	Lahugala
EAM249	249.5	Thamitiyawela Round Abound Road, Dewalagoda Sec. VI	0.308	Lahugala
EAM258	258.1	Concreting road from Padiyathalawa Siyabalagaha junction to Welikumbura junction Sec .I	1.238	Padiyathalawa
EAM260	260.1	Concreting Diyarawela Road Sec I	0.118	Padiyathalawa
EAM263	263.1	Concreting Bulugastalawa Road Sec .I	0.463	Mahaoya
EAM266	266.1	Development of Kekirihena-Kalupenibedda road Sec .I	3.433	Mahaoya
EAM267	267.11	Concreting all the roads of Dambadeniya Grama Niladari Wasama Sec.xii	0.629	Mahaoya
EAM267	267.1	Concreting all the roads of Dambadeniya Grama Niladari Wasama Sec.xi	0.232	Mahaoya
EAM269	269.1	Concreting troad close to multi purpose building Sec .I	0.369	Mahaoya
EAM279	279	Near the Ihiniyagala Power station To Across Wee Pahalalanda Dewalahinda Road	8.294	Madulla,Damana
EAM280	280	From Kethsirigama To Pallanoya Road	6.291	Damana
EAM281	281	Carpet - 18A ,2 Channel Road	2.319	Damana
EAM282	282	From Maanthottama,Ambalaanthaaru Church To Stage 01 Muslim School Road - Carpet	1.876	Damana
EAM283	283	Channel 06, Pola Road Pokurugammanaya To Channel 8 Bridge Sec.i	0.882	Damana
EAM283	283.1	Channel 06, Pola Road Pokurugammanaya To Channel 8 Bridge Sec.ii	0.441	Damana
EAM284	284	Main Road to Y.S.S. Junction Tibirigolla road	3.358	Damana
EAM285	285	Main Road to E.G.20Road Main Channel	1.029	Damana
EAM286	286	Thottama Colony Channel 02 Sec.i	0.361	Damana
EAM286	286.1	Thottama Colony Channel 02 Sec.ii	0.167	Damana
EAM286	286.2	Thottama Colony Channel 02 Sec.iii	0.283	Damana
EAM288	288	Madaana, Near the Boo tree Road	0.41	Damana

EAM289	289	Near Damana Provincial Community to Kalladi River	8.721	Eragama,Akkaraipattu,Daman a
EAM290	290	Near Higulana Temple to Madiyana River	1.948	Damana
EAM291	291	Near Moragahapallama 4th Bridge to Channel Road Near the Community Hall to Koknahara Sec.i	3.162	Damana
EAM291	291.1	Koknahara Sec.ii	4.169	Damana
EAM291	291.2	Near Moragahapallama 4th Bridge to Channel Road Near the Community Hall to Koknahara Sec.iii	0.964	Damana
EAM292	292	Near Wawasirigama, 6th Bridge to Near Mr. Ganasiri's Home	0.649	Damana
EAM293	293	Koknahara Hena Road	2.023	Damana
EAM294	294	Kethsirigama, Galapamula Road	0.965	Damana
EAM295	295	Galkanda Main Road	2.096	Damana
EAM297	297	From Dewalahinda Main Road to Main Road - Kalugolla	7.108	Damana
EAM299	299	Near Kalugolla Bus Stand to Hindakalugama Main Road -Boo Tree Junction Sec.i	1.771	Damana
EAM299	299.1	Near Kalugolla Bus Stand to Hindakalugama Main Road -Boo Tree Junction Sec.ii	0.403	Damana
EAM300	300	Pokunugala Diwara Gammanaya Road	0.849	Damana
EAM303	303	Near the Galmaduwa Temple to Muwangal School Road Sec.i	0.359	Damana
EAM303	303.1	Near the Galmaduwa Temple to Muwangal School Road Sec.ii	0.9	Damana
EAM303	303.2	Near the Galmaduwa Temple to Muwangal School Road Sec.iii	0.099	Damana
EAM304	304	Near the Galmaduwa C24 Mr. Gamini's Home to Village 6-Mr. B.L.L.D Silva's Home	2.044	Damana
EAM305	305	Village no 02- Near the Mr. Gunapala's Home to Near the galabada area,Padagoda Road Sec.i	1.042	Damana
EAM305	305.1	Village no 02- Near the Mr. Gunapala's Home to Near the galabada area,Padagoda Road Sec.ii	0.213	Damana
EAM305	305.2	Village no 02- Near the Mr. Gunapala's Home to Near the galabada area,Padagoda Road Sec.iii	0.098	Damana
EAM306	306	Village No 03- Near 8B, Community Hall to Wawa rawuma Monumental	1.08	Damana
EAM307	307	Galmaduwa Sugar Company Office to Old Sugar-cane Farm	1.588	Damana
EAM308	308	Ampara, Old Higurana Road -Village 07 To Padagoda road 40 Junction	5.631	Damana
EAM309	309.1	Lihiniyagama to wawabadagama Sec.ii	2.722	Dehiattakandiya
EAM312	312	Bihirisorowwa to Muwapatikewala	5.224	Dehiattakandiya
EAM316	316	Uththalapura,Near the Temple, Across the Pahalagama to Kudaoya	4.326	Dehiattakandiya
EAM317	317	Across Sandunpura Babarawana to Mawanagama	4.178	Dehiattakandiya

EAM319	319.1	Padiyathalawa city To Saranagama School Sec.ii	0.203	Padiyathalawa
EAM320	320	Koomana to Helakoomana	5.73	Padiyathalawa,Bibila
EAM321	321	Koolamanthalawa welaganayotha Ela Road Sec.i	5.08	Padiyathalawa
EAM321	321.1	Koolamanthalawa welaganayotha Ela Road Sec.ii	0.228	Padiyathalawa
EAM321	321.2	Koolamanthalawa welaganayotha Ela Road Sec.iii	0.244	Padiyathalawa
EAM322	322.1	Marangala To Mahawa Sec.ii	0.772	Padiyathalawa
EAM327	327.1	Pallegama Kandabadayaya Road Sec.ii	1.096	Padiyathalawa
EAM329	329	Wirana Collage to Wirana village	2.241	Padiyathalawa
EAM330	330	Near Jayasiri maha bodi to Helico	2.332	Padiyathalawa
EAM333	333.1	Pitawala to Helakotikewala Sec.ii	0.162	Padiyathalawa
EAM335	335	Thalapitaoya South Lobby To Kokumaawara	1.673	Padiyathalawa
EAM338	338	Ampara uhana Road- Wawulgas junction to kahatagasyaya	12.152	Uhana
EAM341	341	Central Camp main road uhana to dadayamthalawa junction	7.244	Uhana
EAM342	342	No 10l Weeragala Junction To 10/88 Home	0.917	Uhana
EAM343	343	Weeragoda Cataract Junction to Rajagama	3.846	Uhana
EAM344	344	Bridge Camp To Dematamal palassa College	3.267	Uhana
EAM345	345	weeragoda cemetery junction Suhadagama village	3.671	Uhana
EAM346	346	Uhana Kanishtha Vidyalaya to Central Camp Hospital	17.456	Uhana
EAM347	347	Near the Warankatagoda College to Across warankatagoda cemetery to bandaradoowa Y junction	5.773	Uhana
EAM348	348	Near Gonagolla dorapaha to bandaradoowa village end	6.982	Uhana
EAM352	352	Near Udagirigama 67 home to udagirigama Junction	1.752	Uhana
EAM353	353	Near the Mayadunna 36 home to Senagama Temple	2.981	Uhana
EAM355	355	21 Thissapura West temple, Near the bridge to thissapura kanishtha viduhala to galkoriya Sec.i	0.917	Uhana
EAM355	355.1	21 Thissapura West temple, Near the bridge to thissapura kanishtha viduhala to galkoriya Sec.ii	1.04	Uhana
EAM355	355.2	21 Thissapura West temple, Near the bridge to thissapura kanishtha viduhala to galkoriya Sec.iii	0.804	Uhana
EAM356	356	Near the 97 factory to 141 home	1.903	Uhana,Porativu Pattu
EAM358	358	Piyangala Wirana Road	0.974	Uhana
EAM360	360	33/132 home to 33/116 home	1.184	Uhana
EAM361	361	warankatagoda rathupasthalawa to samangala aramaya	1.662	Uhana

EAM362	362	60 Junction to Akkara 50 Road	1.362	Uhana
EAM364	364	Gonagala Temple road	0.599	Uhana
EAM365	365	Mahakandiya Shatale Junction To Himidurawa, Abayapura, paragahakale Road	8.962	Uhana
EAM366	366	Uthurabadda arama senasana Road - bokkabadda 35 home to 45 home Sec.i	0.624	Uhana
EAM366	366.1	Uthurabadda arama senasana Road - bokkabadda 35 home to 45 home Sec.ii	0.237	Uhana
EAM367	367	Bogas Junction to 141 home	1.428	Uhana
EAM368	368	7 ela margaya to 11 ela palama	1.306	Uhana
EAM369	369	Near the Coconut Cultivation Board to Children's Home	1.513	Uhana
EAM370	370	Dematamalpalassa to Samanabadda Sec.i	0.726	Uhana
EAM370	370.1	Dematamalpalassa to Samanabadda Sec.ii	0.377	Uhana
EAM371	371	Near the karangawa School to Across karangawa river himidurawa 12 ela	7.69	Uhana
EAM372	372	Near 21/118/02 Home to Komariya Bridge	1.288	Uhana
EAM373	373	Koongas Junction to Kumarigama	1.007	Uhana
EAM374	374	Near 20/26 Shop to Galkadalle 20/17/01 Sec.i	0.507	Uhana
EAM374	374.1	Near 20/26 Shop to Galkadalle 20/17/01 Sec.ii	0.054	Uhana
EAM374	374.2	Near 20/26 Shop to Galkadalle 20/17/01 Sec.iii	0.198	Uhana
EAM374	374.3	Near 20/26 Shop to Galkadalle 20/17/01 Sec.iv	0.242	Uhana
EAM375	375	Near Gamunupura 9/11 Home Road	1.646	Uhana
EAM376	376	Bridge of Returning central camp to central camp 4 kallaniya	0.403	Navithanveli
EAM378	378	Ampara Kandy Main Road-Near the Rajagalathanna Bridge to Across Nawagiriya River to Wellawali Junction	1.557	Uhana
EAM379	379	Old Walathapitiya Lali Kovil Road to Across Old Walathapitiya Junction , Across palawali Siwam Kovil Road, Across Smailpuram Tsunami Proposal to Palaweli Kalmuneyar Road Sec.i	0.557	Samanthurai
EAM379	379.1	Old Walathapitiya Lali Kovil Road to Across Old Walathapitiya Junction , Across palawali Siwam Kovil Road, Across Smailpuram Tsunami Proposal to Palaweli Kalmuneyar Road Sec.ii	2.855	Samanthurai
EAM379	379.2	Old Walathapitiya Lali Kovil Road to Across Old Walathapitiya Junction , Across palawali Siwam Kovil Road, Across Smailpuram Tsunami Proposal to Palaweli Kalmuneyar Road Sec.iii	0.723	Samanthurai
EAM380	380	From Malwaththa To Central Camp Road	8.229	Navithanveli,Uhana,Samanthurai
EAM381	381	Central camp wayal Road	4.631	Navithanveli
EAM382	382	Saaybaba Samithi Center to nagathambiran Kovil Road	1.225	Samanthurai

EAM385	385	Kuda Harasgala to Harasgala	1.716	Mahaoya
EAM386	386.1	Borapola Road pokura akuloba road Sec.ii	0.69	Mahaoya
EAM389	389	Near rathupas uhana unuwathura bubula Temple	0.84	Mahaoya
EAM390	390	warapitiya to Ambawaththa	4.171	Padiyathalawa,Mahaoya
EAM393	393	iddapoala to Iddapala waththa	2.172	Mahaoya
EAM394	394	Bogamuyaya to Wathuyaya	0.837	Mahaoya
EAM395	395	Pulawala Cemetery Road	0.496	Mahaoya
EAM396	396	Galwalayaya,Near Mr. Karunasena's Shop	1.572	Mahaoya
EAM397	397	Niloba kongasuwathuayaya Oya Road	1.538	Mahaoya
EAM398	398	Aranthalawa nuwaragalathanna Rubber crop	1.464	Mahaoya
EAM401	401	Dambadeniya to Galwalayaya Sec.i	0.54	Mahaoya
EAM401	401.1	Dambadeniya to Galwalayaya Sec.ii	0.281	Mahaoya
EAM405	405	Tampaan, Muwasirigama	2.427	Mahaoya
EAM408	408	Panama, Shastrawela Housing Project Method Internal Road Radalla Road To Shathrawela Temple road	1.164	Mahaoya
EAM409	409	Kirimatiyana Road To Angakkala Road Sec.i	0.191	Lahugala
EAM409	409.1	Kirimatiyana Road To Angakkala Road Sec.ii	0.314	Lahugala
EAM409	409.2	Kirimatiyana Road To Angakkala Road Sec.iii	0.22	Lahugala
EAM409	409.3	Kirimatiyana Road To Angakkala Road Sec.iv	0.326	Lahugala
EAM410	410	From Angakkala to Panama Debouchure New Coast Sec.i	0.413	Lahugala
EAM410	410.1	From Angakkala to Panama Debouchure New Coast Sec.ii	1.909	Lahugala
EAM411	411	Cemetery to Panama Debouchure	2.083	Lahugala
EAM412	412	Hulanuge Tharulengala Silvan to Karada Oya to Bakmitiyawa	2.811	Lahugala
EAM413	413	Galamuna Road Near 14 Post to Horigala	1.486	Lahugala
EAM414	414	Hulanuge Smurdi Road (River Road) Round-about To Monaragala Yanawila Main Road Sec.i	0.382	Lahugala
EAM414	414.1	Hulanuge Smurdi Road (River Road) Round-about To Monaragala Yanawila Main Road Sec.ii	0.392	Lahugala
EAM414	414.2	Hulanuge Smurdi Road (River Road) Round-about To Monaragala Yanawila Main Road Sec.iii	1.258	Lahugala
EAM418	418	From Lahugala Ground to Tamitiyawela Boo tree	1.547	Lahugala

EAM419	419.3	Thirukkowil Junction To Across Winayagapuram 01,02,03,04, From Pallakuda to Thirukkowil winayagampuram Central Road Sec.iv	1.126	Thirukkovil
EAM419	419.1	Thirukkowil Junction To Across Winayagapuram 01,02,03,04, From Pallakuda to Thirukkowil winayagampuram Central Road Sec.ii	0.866	Thirukkovil
EAM419	419.2	Thirukkowil Junction To Across Winayagapuram 01,02,03,04, From Pallakuda to Thirukkowil winayagampuram Central Road Sec.iii	0.462	Thirukkovil
EAM420	420	Alayadiwembu Junction, Across Nawakkadu Kolawil 01,02,03,04 - Alayadiwembu Central Road	3.004	Alayadiwembu
EAM421	421	Behind Akkarepaththu Nathional School To Againts Ayesha Church Main Road,Akkareypaththy Sinnawullathiwu Central Road Sec.i	4.233	Akkaraipattu,Addalachchenai
EAM421	421.1	Behind Akkarepaththu Nathional School To Againts Ayesha Church Main Road,Akkareypaththy Sinnawullathiwu Central Road Sec.ii	0.835	Akkaraipattu
EAM421	421.2	Behind Akkarepaththu Nathional School To Againts Ayesha Church Main Road,Akkareypaththy Sinnawullathiwu Central Road Sec.iii	0.907	Addalachchenai
EAM426	426	Ampara Bandaranayaka Girls College Junction To Near Gamunupura Buddhist Center	1.439	Ampara
EAM427	427	From Ampara -Kalmune Road- Near Sahan Saw Mill to Ampara Eragama Road Sec.i	0.782	Ampara
EAM427	427.1	From Ampara -Kalmune Road- Near Sahan Saw Mill to Ampara Eragama Road Sec.ii	0.241	Ampara
EAM429	429	From Ampara, kalmune Road- To Enter to Tsunami House Road, through lion club house in front of tsunami houses with Connect to the 1st Lane	0.883	Ampara
EAM430	430	Started from Near Saddathissapura No 57/01 Home, Against Widyananada Piriwena Road Sec.i	0.249	Ampara
EAM432	432	Ampara Muslim Church Junction To Saddathissa Road	0.5	Ampara
EAM433	433.2	Ampara, Bus Stand to am/Gamini Collage Sec.iii	0.108	Ampara
EAM434	434	Ampara, Iginiyagala- Left Side Of Army Camp to Old Kotawehera Bogas Junction Sec.i	1.651	Ampara
EAM434	434.1	Ampara, Iginiyagala- Left Side Of Army Camp to Old Kotawehera Bogas Junction Sec.ii	0.031	Ampara
EAM435	435	Internal ROAD OF Ampara Y.M.C.A. Sec.i	0.29	Ampara
EAM435	435.1	Internal ROAD OF Ampara Y.M.C.A. Sec.ii	0.257	Ampara
EAM439	439.1	Senanayakapura, Near Road of Rahula Bodiya, left Side Road of C/288 Home Sec.ii	0.129	Ampara
EAM440	440	Ampara-Kandy Road to Entering of Rajawawa Village 1st Lane From Ground	0.422	Ampara
EAM443	443	Near 1b/64 Mr. Chandrasekara's Home to dabaella irrigation Road	0.686	Ampara
EAM444	444	11b,Near the 94 land to daba ela irrigation	0.549	Ampara
EAM445	445	11b, Near the 73 to L.L.S irrigathion	0.399	Ampara

EAM446	446	Namaloya,Bibila Road Yowun mawatha 02 Sub-road	0.748	Ampara
EAM447	447	Namaloya,Main Junction, Near the boo Tree to Main Sub Channel road	2.925	Ampara,Uhana
EAM448	448	Near Namaloya,diyabeduma to Across the Main irrigation, From Welusumana Collage	3.934	Ampara
EAM449	449	Near 1b,93 Paddy Mill to Near 1/b 91 Home	0.69	Ampara
EAM451	451	Near the Kotawehera A.C.Camp Lobby to paragahakale village Sec.i	0.161	Ampara
EAM451	451.1	Near the Kotawehera A.C.Camp Lobby to paragahakale village Sec.ii	0.392	Ampara
EAM451	451.2	Near the Kotawehera A.C.Camp Lobby to paragahakale village Sec.iii	0.368	Ampara
EAM454	454	Near the Wawinna 1/15 Home to Maha ela Bunt	1.236	Ampara
EAM456	456	Near the Polwaththa Register Office to No 90 Home Sec.i	0.222	Ampara
EAM456	456.1	Near the Polwaththa Register Office to No 90 Home Sec.ii	0.724	Ampara
EAM456	456.2	Near the Polwaththa Register Office to No 90 Home Sec.iii	0.082	Ampara
EAM457	457	Galwanguwa Main Road to Hospital Road	3.432	Ampara
EAM458	458	2b,Against 4 post - Channel	0.618	Ampara
EAM459	459	Near 5b/64 Home to Channel	0.389	Ampara
EAM461	461	6b/7 Near the Community Hall Sec.i	0.223	Ampara
EAM461	461.1	6b/7 Near the Community Hall Sec.ii	0.29	Ampara
EAM464	464	Near 3b,75 Home to 3/40 home Sec.i	0.713	Ampara
EAM464	464.1	Near 3b,75 Home to 3/40 home Sec.ii	0.245	Ampara
EAM465	465	20 post to 2/134 home Sec.i	0.865	Ampara
EAM465	465.1	20 post to 2/134 home Sec.ii	0.346	
EAM466	466	Near 3/b 135 home to 7 Channel Road Sec.i	0.899	Ampara
EAM466	466.1	Near 3/b 135 home to 7 Channel Road Sec.ii	0.2	Ampara
EAM466	466.2	Near 3/b 135 home to 7 Channel Road Sec.iii	0.193	Ampara
EAM467	467	Near 1/97 Home to 1/74 Mr. Ranjth Home	0.682	Ampara
EAM470	470	Near 2/114 home to left Channel	1.553	Ampara
EAM471	471.1	Near 148 home to 132 home Sec.ii	0.112	Ampara
EAM473	473	2/144 to Abepura Road	1.157	Ampara
EAM474	474	Near Left Cannel 2/232 Home to Abepura	0.881	Ampara
EAM476	476	Against 119A,Mr.Gamage's Home To Polwaththa Highland, Till Pre school Sec.i	0.659	Ampara
EAM476	476.1	Against 119A,Mr.Gamage's Home To Polwaththa Highland, Till Pre school Sec.ii	0.335	Ampara
EAM476	476.2	Against 119A,Mr.Gamage's Home To Polwaththa Highland, Till Pre school Sec.iii	0.484	Ampara
EAM478	478	Near the Polwatha Temple To Near 198 Mr. Dayawansha's Home Sec.i	1.254	Ampara
EAM478	478.1	Near the Polwatha Temple To Near 198 Mr. Dayawansha's Home Sec.ii	0.287	Ampara

EAM479	479.2	Near the Polwaththa Widyanandasada Shop To Near Mr. Rathnapala's Home Sec.iii	0.931	Ampara
EAM480	480.3	End Of Polwaththa School Road to Cemetery Road Sec.iv	0.193	Ampara
EAM480	480	End Of Polwaththa School Road to Cemetery Road Sec.i	0.437	Ampara
EAM480	480.1	End Of Polwaththa School Road to Cemetery Road Sec.ii	0.647	Ampara
EAM480	480.2	End Of Polwaththa School Road to Cemetery Road Sec.iii	0.357	Ampara
EAM480	480.4	End Of Polwaththa School Road to Cemetery Road Sec.v	0.534	Ampara
EAM481	481	Near Ali Oluwa Mr., Karunarathna's Home to Ambagahawalla Nishan shop Sec.i	0.529	Ampara
EAM481	481.1	Near Ali Oluwa Mr., Karunarathna's Home to Ambagahawalla Nishan shop Sec.ii	0.868	Ampara
EAM482	482	Near Mr. Wikrama's Home to Sriya Stores	2.577	Ampara
EAM486	486	Palamuna Main Road to Winhaj Collage Road Sec.i	0.915	Addalachchenai
EAM486	486.3	Palamuna Main Road to Winhaj Collage Road Sec.iv	0.351	Addalachchenai
EAM487	487	Palamuna Division 1 To Division 2,3,4 Sec.i	0.261	Addalachchenai
EAM487	487.1	Palamuna Division 1 To Division 2,3,4 Sec.ii	0.433	Addalachchenai
EAM487	487.2	Palamuna Division 1 To Division 2,3,4 Sec.iii	0.048	Addalachchenai
EAM487	487.3	Palamuna Division 1 To Division 2,3,4 Sec.iv	0.22	Addalachchenai
EAM489	489	Digawapiya 234 to Deegawapiya Ampara Main Road	3.1	Eragama,Addalachchenai
EAM490	490	Digawapiya 234 to 336 Road End	2.937	Addalachchenai
EAM491	491	Digawapiya Cooperative Junction to Kaliodaya Road	3.958	Akkaraipattu,Eragama
EAM492	492	Saraswathi Vithiyalaya Road,Priya Neelavanai	0.304	Manmunai S. and Eruvilpattu
EAM493	493	Kali Kovil Road , Chenaikudiruppu Sec. i	0.129	Kalmunai
EAM493	493.1	Kali Kovil Road , Chenaikudiruppu Sec. ii	0.254	
EAM494	494	Villiam Road, Manalchenai	0.43	Kalmunai
EAM495	495	Central Road	0.328	Akkaraipattu
EAM496	496	Technical Collage Road	0.941	Akkaraipattu
EAM497	497	Cader Odavi Road	0.429	Akkaraipattu
EAM500	500	MPCS West Road Sec.i	0.62	Addalachchenai
EAM500	500.1	MPCS West Road Sec.ii	0.248	Addalachchenai
EAM501	501	Minha Road Sec.i	0.64	Addalachchenai
EAM501	501.1	Minha Road Sec.ii	0.175	Addalachchenai
EAM501	501.2	Minha Road Sec.iii	0.148	Addalachchenai
EAM507	507	Pahalalanda to karana Road	3.754	Damana
EAM509	509	Margasthupitiya New temple Road to Samanalathenna	2.415	Dehiattakandiya
EAM510	510	Araleganwila Main Road to Dhulakande Internet Road	2.716	Dehiattakandiya

EAM513	513	Ismail Road Sec.i	0.701	Karativu
EAM513	513.1	Ismail Road Sec.ii	0.377	Karativu
EAM513	513.2	Ismail Road Sec.iii	0.273	Karativu
EAM514	514	Hotwell Internal Road	0.859	Mahaoya
EAM519	519	Al- Rahu,am Road	2.253	Navithanveli
EAM520	520	South Road	0.534	Ninthavur
EAM521	521	Theater Road And Cross Road	0.485	Ninthavur
EAM522	522	Kovil Road	0.67	Ninthavur
EAM523	523	Sakkath Village Road	0.398	Ninthavur
EAM525	525	Dalikaduoya Road Sec.i	0.585	Padiyathalawa
EAM525	525.1	Dalikaduoya Road Sec.ii	0.343	Padiyathalawa
EAM528	528	Zahira Namro School Road	1.028	Samanthurai
EAM530	530	Thiruppathy School Road	1.103	Pothuvil,Thandiyadi
EAM532	532	Navagampura 3rd Avaneue Road	1.194	Ampara
EAM533	533.1	Central Road Sec.ii	0.776	Eragama
EAM534	534.1	Cemetry Road Sec.ii	0.282	Eragama
EAM534	534.3	Cemetry Road Sec.iv	0.212	Eragama
EAM534	534.4	Cemetry Road Sec.v	0.176	Eragama
EAM535	535	Irakkamam 3 Sec.i	0.132	Eragama
EAM536	536	Sri Murugan Road	0.861	Samanthurai
EAM537	537	From Pahalalanda Main road to13/14 Pady Land Road	1.008	Damana
EAM538	538	MoragahaPallama Mahwella Sec.i	0.834	Damana
EAM538	538.1	MoragahaPallama Mahwella Sec.ii	0.318	Damana
EAM546	546	Theatre Road	1.076	Ninthavur
EAM547	547	Beach Road	3.507	Ninthavur
EAM548	548	2nd Cross Road	3.716	Ninthavur
EAM549	549	1st Cross Road	2.043	Karativu,Ninthavur
EAM550	550	Mavady Road	0.931	Ninthavur
EAM551	551	Kiddanky Road	1.429	Ninthavur
EAM552	552	South Road	0.926	Ninthavur
EAM553	553.1	Thathavady Road Sec i	0.203	Addalachchenai
EAM553	553.2	Thathavady Road Sec ii	0.927	Addalachchenai
EAM553	553.3	Thathavady Road Sec iii	0.196	Addalachchenai

EAM553	553.4	Thathavady Road Sec iv	0.442	Addalachchenai
EAM554	554	Beach Road - Palamunai	2.945	Addalachchenai
EAM555	555.2	Akkarai Road Sec ii	0.226	Addalachchenai
EAM555	555.4	Akkarai Road Sec iv	0.36	Addalachchenai
EAM555	555.5	Akkarai Road Sec v	0.379	Addalachchenai
EAM555	555.1	Akkarai Road Sec i	0.423	Addalachchenai
EAM556	556.1	Palamunai Al Hidaya Vid Road Sec i	0.467	Addalachchenai
EAM556	556.2	Palamunai Al Hidaya Vid Road Sec ii	0.111	Addalachchenai
EAM557	557.1	Hussainiy Nagr Joining Road Sec i	0.236	Addalachchenai
EAM557	557.2	Hussainiy Nagr Joining Road Sec ii	0.464	Addalachchenai
EAM557	557.3	Hussainiy Nagr Joining Road Sec iii	0.229	Addalachchenai
EAM557	557.4	Hussainiy Nagr Joining Road Sec iv	0.233	Addalachchenai
EAM558	558.1	Cemetry Road Sec i	0.27	Addalachchenai
EAM558	558.2	Cemetry Road Sec ii	0.636	Addalachchenai
EAM559	559	Old AGA Office Road	1.315	Pothuvil
EAM560	560.1	Al Kalam Road Sec i	0.28	Pothuvil
EAM560	560.2	Al Kalam Road Sec ii	0.293	Pothuvil
EAM561	561	Post Office Road	0.96	Pothuvil
EAM562	562.1	Irakkamam Central Road Sec i	2.836	Eragama
EAM562	562.2	Irakkamam Central Road Sec ii	3.428	Eragama
EAM573	573	Old Post Office Road	1.14	Kalmuni
□o□□□			□□□□□□	

Ampara - Road list

□o□d□□□	□ □□	□o□d□□ □□ □	□□	□□□
EAM001	1	DAMANA PADAGODA PALLANOYA ROAD Sec. I	4.412	Damana
EAM001	1.1	DAMANA PADAGODA PALLANOYA ROAD Sec. II	1.271	Damana
EAM003	3	DIYAVIDDAGAMA - RATHKINDA	2.919	Dehiattakandiya
EAM004	4	Padiyatalawa Kolamantalawa Road	3.967	Padiyathalawa
EAM005	5	SENAGAMA ROAD , UHANA	3.009	Uhana
EAM006	6	PUDUNAGALA TEMPLR ROAD Sec. I	0.390	Uhana
EAM006	6.1	PUDUNAGALA TEMPLR ROAD Sec. II	1.294	Uhana,Samanthurai
EAM007	7	AKKARAIPATTU NEETHAI AMBALANOYA ROAD	2.980	Alayadiwembu,Akkaraipattu
EAM008	8	A.G.A'S OFFICE TO VINAYAGAPURAM ROAD	1.859	Thirukkovil
EAM010	10	SIVANKOVIL ROAD ALAYADIVEMBU Sec. I	0.582	Alayadiwembu
EAM010	10.1	SIVANKOVIL ROAD ALAYADIVEMBU Sec. II	0.140	Alayadiwembu
EAM011	11	VILLAGE ROAD ALAYADIVEMBU	1.496	Alayadiwembu
EAM012	12	SAMMANTHURAI VEERAMUNAI ROAD	1.710	Samanthurai
EAM013	13	MALAYAR, VISSAVAITHIYAR, VISSAVAITHIYAR NORTH ROAD SAMMANTHURAI Sec. I	0.747	Samanthurai
EAM013	13.1	MALAYAR, VISSAVAITHIYAR, VISSAVAITHIYAR NORTH ROAD SAMMANTHURAI Sec. II	0.284	Samanthurai
EAM013	13.2	MALAYAR, VISSAVAITHIYAR, VISSAVAITHIYAR NORTH ROAD SAMMANTHURAI Sec. III	0.489	Samanthurai
EAM014	14	CHETTIYAWATTA ROAD, SAMMANTHURAI	0.641	Samanthurai
EAM015	15	MAHAOYA KURUNTHUVINNA ROAD	2.992	Mahaoya
EAM016	16	M.M.V. ROAD KARAITIVU	0.531	Karativu
EAM017	17	ANNAMALAI NAVITHANVELI ROAD	0.990	Navithanveli
EAM018	18	NAVITHANVELI VC ROAD Sec. I	0.540	Navithanveli
EAM018	18.1	NAVITHANVELI VC ROAD Sec. II	0.784	Navithanveli
EAM019	19	MEDAGAMA HANNANIGALA ROAD	3.388	Dehiattakandiya
EAM020	20	KARIYAPPAR ROAD MARUTHAMUNAI	0.993	Kalmunai
EAM021	21	KALIODAI DEEGAWAPI ROAD ADDALAICHENAI Sec. I	0.276	Addalachchenai
EAM021	21.1	KALIODAI DEEGAWAPI ROAD ADDALAICHENAI Sec. II	1.767	Addalachchenai
EAM022	22	MANIKKAMADU ROAD IRAKKAMAM	2.106	Eragama
EAM023	23	SAINTHAMARUTHU THAIKKA ROAD	0.522	Sainthamarathu,Karativu
EAM024	24	LAHUGALA VILLAGE ROAD	2.092	Lahugala

EAM025	25	CENTRAL ROAD POTTUVIL	1.567	Pothuvil
EAM026	26	BEDERAKKA ROAD	0.848	Mahaoya
EAM027	27	LIHINIYAGAMA-WIJAPURA	2.800	Dehiattakandiya
EAM028	28	TEMPITTIYA KOLANISIYAYA ROAD	1.788	Mahaoya
EAM029	29	PADIYATALAWA DEMODARA ROAD (SARANANGARA ROAD) Sec. I	0.949	Padiyathalawa
EAM029	29.1	PADIYATALAWA DEMODARA ROAD (SARANANGARA ROAD) Sec. II	1.723	Padiyathalawa
EAM030	30	CENTRAL ROAD MARUTHAMUNAI	1.066	Kalmunai
EAM031	31	CENTRAL ROAD SAMMANTHURAI	0.976	Samanthurai
EAM032	32	AANDI ROAD SAMMANTHURAI (Fifth Cross Road)	0.897	Samanthurai
EAM033	33	AMMAN KOVIL ROAD Sec. I	0.312	Kalmunai
EAM033	33.1	AMMAN KOVIL ROAD Sec. II	0.514	Kalmunai
EAM034	34	KONAWATTE ROAD ADDALAICHENAI	0.470	Addalachchenai
EAM035	35	DEVALAHANDA GALKANDANA ROAD	0.970	Damana
EAM036	36	VAKKIRASA ROAD Sec. I	1.122	Thirukkovil
EAM036	36.1	VAKKIRASA ROAD Sec. II	4.261	Thirukkovil
EAM037	37	IRAKKAMAM AKKARAIPATTU LINK ROAD	1.295	Eragama
EAM038	38	VILLAGE ROAD POTTUVIL	0.757	Pothuvil
EAM039	39	UDAYAR ROAD, KALMUNAI	1.068	Kalmunai
EAM040	40	RDS-HALL LINK ROAD	1.171	Damana
EAM041	41	Udayar Road	0.918	
EAM042	42	Al-Fathimiya Road Sec. I	0.601	Akkaraipattu
EAM042	42.1	Al-Fathimiya Road Sec. II	0.320	Akkaraipattu
EAM043	43	MCC Road	0.529	Akkaraipattu
EAM044	44	20/21 Common Road	0.500	Akkaraipattu
EAM045	45	Oversear Road Sec. I	0.194	Akkaraipattu
EAM045	45.1	Oversear Road Sec. II	0.592	Akkaraipattu
EAM046	46	Ayurvedic Hospital Road Sec. I	0.487	
EAM046	46.1	Ayurvedic Hospital Road Sec. II	0.332	Akkaraipattu
EAM047	47	Transformer Road	0.602	Akkaraipattu
EAM048	48	Badur School Road	0.809	Akkaraipattu
EAM049	49	Al-Hidaya Road Sec. I	0.247	Akkaraipattu
EAM049	49.1	Al-Hidaya Road Sec. II	0.165	Akkaraipattu
EAM050	50	South Road	0.347	

EAM051	51	Segu Mohideen Parihari Road	0.313	Akkaraipattu
EAM058	58	Old Beach Road from Mahmood Balika to Kalmunai Rest House	2.961	
EAM059	59	Voliborian Housing Scheme Internal Road Sec. I	0.618	Sainthamarathu
EAM059	59.1	Voliborian Housing Scheme Internal Road Sec. II	0.061	Sainthamarathu
EAM059	59.2	Voliborian Housing Scheme Internal Road Sec. III	0.060	Sainthamarathu
EAM059	59.3	Voliborian Housing Scheme Internal Road Sec. IV	0.060	Sainthamarathu
EAM059	59.4	Voliborian Housing Scheme Internal Road Sec. V	0.061	Sainthamarathu
EAM059	59.5	Voliborian Housing Scheme Internal Road Sec. VI	0.205	Sainthamarathu
EAM059	59.6	Voliborian Housing Scheme Internal Road Sec. VII	0.061	Sainthamarathu
EAM059	59.7	Voliborian Housing Scheme Internal Road Sec. VIII	0.183	Sainthamarathu
EAM060	60	Zam Zam Road, Maruthamunai Sec. I	0.237	Kalmunai
EAM060	60.1	Zam Zam Road, Maruthamunai Sec. II	0.186	Kalmunai
EAM060	60.2	Zam Zam Road, Maruthamunai Sec. III	0.194	Kalmunai
EAM060	60.3	Zam Zam Road, Maruthamunai Sec. IV	0.103	Kalmunai
EAM061	61	Mackbooliya Road Sec. I	0.198	Kalmunai
EAM061	61.1	Mackbooliya Road Sec. II	0.144	Kalmunai
EAM061	61.2	Mackbooliya Road Sec. III	0.253	Kalmunai
EAM064	64	Alayadi North Road	0.646	Kalmunai
EAM065	65	Vaddavithana Road	0.654	Kalmunai
EAM066	66	Chairman Road Sec. I	0.299	Kalmunai
EAM066	66.1	Chairman Road Sec. II	0.128	Kalmunai
EAM066	66.2	Chairman Road Sec. III	0.106	Kalmunai
EAM067	67	Kurukkal 2nd Cross Road Sec. I	0.231	Kalmunai
EAM067	67.1	Kurukkal 2nd Cross Road Sec. II	0.192	Kalmunai
EAM068	68	Cemetery to Visnukovil Road	0.318	Kalmunai
EAM069	69	Thesigar Road Kar- 7,8,10,11,12	1.764	Karativu
EAM070	70	Veerapathiramyga Road Karaitheevu-03 Sec. I	0.216	Karativu
EAM070	70.1	Veerapathiramyga Road Karaitheevu-03 Sec. II	0.133	Karativu
EAM070	70.2	Veerapathiramyga Road Karaitheevu-03 Sec. III	0.088	Karativu
EAM070	70.3	Veerapathiramyga Road Karaitheevu-03 Sec. IV	0.130	Karativu
EAM070	70.4	Veerapathiramyga Road Karaitheevu-03 Sec. V	0.069	Karativu
EAM071	71	Lagoon East Road Sec. I	0.810	Karativu

EAM071	71.1	Lagoon East Road Sec. II	0.193	Karativu
EAM073	73	Karadi thottam Community Center front Road Karaitheevu-12 Sec. I	0.472	Karativu
EAM073	73.1	Karadi thottam Community Center front Road Karaitheevu-12 Sec. II	0.098	Karativu
EAM074	74	Cemetery Road, Kareem Rosd, Meera Road, Central Road, Ismail Road at Mavadipalli Sec. I	0.742	Karativu
EAM074	74.1	Cemetery Road, Kareem Rosd, Meera Road, Central Road, Ismail Road at Mavadipalli Sec. II	0.246	Karativu
EAM074	74.2	Cemetery Road, Kareem Rosd, Meera Road, Central Road, Ismail Road at Mavadipalli Sec. III	0.251	Karativu
EAM074	74.3	Cemetery Road, Kareem Rosd, Meera Road, Central Road, Ismail Road at Mavadipalli Sec. IV	0.116	Karativu
EAM074	74.4	Cemetery Road, Kareem Rosd, Meera Road, Central Road, Ismail Road at Mavadipalli Sec. V	0.144	Sainthamarathu,Karativu
EAM076	76	New kalappu Road, Karaithivu-10	0.461	Karativu
EAM077	77	Lenin Road, Karaithive 03 Sec. I	0.159	Karativu
EAM077	77.1	Lenin Road, Karaithive 03 Sec. II	0.320	Karativu
EAM079	79	BOC hidaya Road	0.755	Eragama
EAM080	80	New Town Road Sec. I	0.937	Eragama
EAM080	80.1	New Town Road Sec. II	0.315	Eragama
EAM081	81	Water Tower Road Varip	0.629	Eragama
EAM082	82	Millath Road.	0.541	Eragama
EAM083	83	Central Road, Kudivil Sec. I	0.617	Eragama
EAM084	84	Ameer Alipuram Main Road	0.591	Eragama
EAM085	85	Mam Aliyar Road Sec. I	0.521	Eragama
EAM085	85.1	Mam Aliyar Road Sec. II	0.261	Eragama
EAM086	86	Cemetery Road	0.565	
EAM087	87	Katheebalance Irakkamam Sec. I	0.194	Eragama
EAM087	87.1	Katheebalance Irakkamam Sec. II	0.237	Eragama
EAM088	88	Central Road, Manikkamadu	0.527	Eragama
EAM089	89	Newguna Temple Road Sec. I	0.141	Eragama
EAM089	89.1	Newguna Temple Road Sec. II	0.304	Eragama
EAM090	90	Cemetery Road, Majeethpuram	0.491	Eragama
EAM091	91	Kullakkarai Road Sec. I	0.564	Eragama
EAM091	91.1	Kullakkarai Road Sec. II	0.494	Eragama
EAM092	92	Madeena puram Road	1.056	Eragama
EAM093	93	Sehu Nagar Road Sec. I	0.211	Eragama
EAM093	93.1	Sehu Nagar Road Sec. II	0.758	Eragama
EAM094	94	Visnu Road, Vinayagapuram-03	0.643	Thirukkovil

EAM097	97	Gayathrikiramam 1 st Road Sec. I	0.685	Thirukkovil
EAM097	97.1	Gayathrikiramam 1 st Road Sec. II	0.389	Thirukkovil
EAM098	98	Gayathirykiramam 4th Road Sec. I	0.697	Thirukkovil
EAM098	98.1	Gayathirykiramam 4th Road Sec. II	0.475	Thirukkovil
EAM099	99	Gayathirykiramam 9th Road Sec. I	0.745	Thirukkovil
EAM099	99.1	Gayathirykiramam 9th Road Sec. II	0.476	Thirukkovil
EAM100	100	Gayathirykiramam 13th Road Sec. I	0.853	Thirukkovil
EAM100	100.1	Gayathirykiramam 13th Road Sec. II	0.061	Thirukkovil
EAM101	101	Palakkadu School Road.	0.437	Thirukkovil
EAM102	102	Mandani School back Road.	0.308	Thirukkovil
EAM103	103	Vaddaivithanai Road (Bus stand front)	2.158	Thirukkovil
EAM105	105	VILLAGE ROAD THAMBILUVIL Sec. I	0.865	Thirukkovil
EAM105	105.1	VILLAGE ROAD THAMBILUVIL Sec. II	0.332	Thirukkovil
EAM105	105.2	VILLAGE ROAD THAMBILUVIL Sec. III	0.194	Thirukkovil
EAM105	105.3	VILLAGE ROAD THAMBILUVIL Sec. IV	0.405	Thirukkovil
EAM106	106	Veeraiyady Road	1.393	Thirukkovil
EAM107	107	Ketagul Ara Bogaha to Main Channel Ketagalara	0.859	Ampara
EAM108	108	From Bodagolla MV Sangadasa's House to Ambagahawella	1.126	
EAM109	109	Bibile Main road to Compost pohora center Sec. I	1.378	Ampara
EAM109	109.1	Bibile Main road to Compost pohora center Sec. II	0.616	Ampara
EAM110	110	Samadagagama Road Sec. I	0.823	Ampara
EAM110	110.1	Samadagagama Road Sec. II	0.689	Ampara
EAM111	111	Wavinna 1/154 House to Ambagahawella Main Road	0.886	
EAM112	112	Nishantha welandasela to Ambagahawella Main Road	1.191	Ampara
EAM113	113	Grama 06 Muwangala left Mr.Dharmadasa's House to round to Mr Sirisena's	0.476	Damana
EAM114	114.2	Borapola Samagipura internal Road Sec. III	0.937	Mahaoya
EAM114	114.3	Borapola Samagipura internal Road Sec. IV	0.160	Mahaoya
EAM116	116	Unwaturabubulla Internal Road	0.418	Mahaoya
EAM117	117	Thuwaragala to Kugdagala	3.147	Dehiattakandiya
EAM118	118	Mahawanawela to Bihirisorowwa	1.934	Dehiattakandiya
EAM119	119	Lihiniyagama to Wehadagama	3.082	Dehiattakandiya

EAM120	120	Nagaswewa to Bakmeedeniya	3.032	Dehiattakandiya
EAM121	121	Manal Kumpathady	1.049	Navithanveli
EAM122	122	31/3 Old MOH Office Road	1.311	Navithanveli
EAM123	123	Anthany Road Sec. I	0.368	Navithanveli
EAM123	123.1	Anthany Road Sec. II	1.281	Navithanveli
EAM124	124	Namahal Road Sec. I	0.371	Navithanveli
EAM124	124.1	Namahal Road Sec. II	0.795	Navithanveli
EAM125	125	Al - Siraj - Murugan kovil Road	1.503	Navithanveli
EAM126	126	Hospital Road	0.852	Navithanveli
EAM128	128	Kudiyurrupumunai Road	2.960	Navithanveli
EAM130	130	Panaiyadi Road Sec. I	0.172	Alayadiwembu
EAM130	130.1	Panaiyadi Road Sec. II	0.192	Alayadiwembu
EAM131	131	Sivalingam Kadai Road Sec. I	0.400	Alayadiwembu
EAM131	131.1	Sivalingam Kadai Road Sec. II	0.155	Alayadiwembu
EAM131	131.2	Sivalingam Kadai Road Sec. III	0.141	Alayadiwembu
EAM132	132	DS Office front Road Sec. I	0.320	Alayadiwembu
EAM132	132.1	DS Office front Road Sec. II	0.299	Alayadiwembu
EAM133	133	Vivakananda School Road Sec. I	0.265	Alayadiwembu
EAM133	133.1	Vivakananda School Road Sec. II	0.087	Alayadiwembu
EAM133	133.2	Vivakananda School RoadSec. III	0.087	Alayadiwembu
EAM133	133.3	Vivakananda School Road Sec. IV	0.126	Alayadiwembu,Akkaraipattu
EAM134	134	Archunan, Surandran Road Sec. I	0.073	Alayadiwembu
EAM134	134.1	Archunan, Surandran Road Sec. II	0.272	Alayadiwembu
EAM134	134.2	Archunan, Surandran Road Sec. III	0.224	Alayadiwembu
EAM135	135	Sellapilleyar Kovil Road Sec. I	0.056	Alayadiwembu
EAM135	135.1	Sellapilleyar Kovil Road Sec. II	0.249	Alayadiwembu
EAM135	135.2	Sellapilleyar Kovil Road Sec. III	0.298	Alayadiwembu
EAM136	136	Kamalagam Road Sec. I	0.360	Alayadiwembu
EAM136	136.1	Kamalagam Road Sec. II	0.168	Alayadiwembu
EAM137	137	Hospital 1st, 2nd cross Road	0.841	Alayadiwembu,Thirukkovil
EAM138	138	Anchenayar Kovil Road Sec. I	0.043	Alayadiwembu
EAM138	138.1	Anchenayar Kovil Road Sec. II	0.305	Alayadiwembu
EAM139	139	Aligambey Commen Road.	0.431	Alayadiwembu

EAM140	140	Periyathampiran Kovil Road Sec. I	0.241	Alayadiwembu
EAM140	140.2	Periyathampiran Kovil Road Sec. III	0.181	Alayadiwembu
EAM140	140.1	Periyathampiran Kovil Road Sec. II	0.110	Alayadiwembu
EAM141	141.1	Viswakula, GS Road, Vachchikkuda Sec. II	0.200	Alayadiwembu
EAM141	141.2	Viswakula, GS Road, Vachchikkuda Sec. III	0.364	Alayadiwembu
EAM141	141	Viswakula, GS Road, Vachchikkuda Sec. I	0.195	Alayadiwembu
EAM142	142	Kirupai Teacher Road	0.934	Alayadiwembu
EAM143	143	Anton Vidio and Krishna Vidio Road Sec. I	0.119	Akkaraipattu
EAM143	143.1	Anton Vidio and Krishna Vidio Road Sec. II	0.214	Akkaraipattu
EAM143	143.2	Anton Vidio and Krishna Vidio Road Sec. III	0.159	Akkaraipattu
EAM143	143.3	Anton Vidio and Krishna Vidio Road Sec. IV	0.103	Akkaraipattu
EAM143	143.4	Anton Vidio and Krishna Vidio Road Sec. V	0.196	Akkaraipattu,Alayadiwembu
EAM144	144	3rd Cross Road	2.705	Ninthavur
EAM145	145	Hajjiyar Road Sec. I	0.728	Ninthavur
EAM145	145.1	Hajjiyar Road Sec. II	0.257	Ninthavur
EAM146	146	Beach Internal Road Sec. I	0.692	Ninthavur
EAM146	146.1	Beach Internal Road Sec. II	0.353	Ninthavur
EAM146	146.2	Beach Internal Road Sec. III	0.189	Ninthavur
EAM146	146.3	Beach Internal Road Sec. IV	0.235	Ninthavur
EAM146	146.4	Beach Internal Road Sec. V	0.073	Ninthavur
EAM147	147	APC Road and its branches Sec. I	0.482	Ninthavur
EAM147	147.1	APC Road and its branches Sec. II	0.179	Ninthavur
EAM148	148	Al Maslam School Road Sec. I	0.303	Ninthavur
EAM148	148.1	Al Maslam School Road Sec. II	0.300	Ninthavur
EAM148	148.2	Al Maslam School Road Sec. III	0.083	Ninthavur
EAM149	149	Merza Road	0.428	Ninthavur
EAM150	150	Coparative Road.	0.528	Ninthavur
EAM151	151	BOC Road Sec. I	0.170	Ninthavur
EAM151	151.1	BOC Road Sec. II	0.343	Ninthavur
EAM151	151.2	BOC Road Sec. III	0.250	Ninthavur
EAM152	152	Kiddanky and its branch road Sec. I	0.225	Ninthavur
EAM152	152.1	Kiddanky and its branch road Sec. II	0.235	Ninthavur
EAM152	152.2	Kiddanky and its branch road Sec. III	0.245	Ninthavur

EAM152	152.3	Kiddanky and its branch road Sec. IV	0.187	Ninthavur
EAM152	152.4	Kiddanky and its branch road Sec. V	0.104	Ninthavur
EAM153	153	Theater Road and Cross Road Sec. I	0.083	Ninthavur
EAM153	153.1	Theater Road and Cross Road Sec. II	0.312	Ninthavur
EAM154	154	Kovil Road Sec. I	0.428	Ninthavur
EAM154	154.1	Kovil Road Sec. II	0.168	Ninthavur
EAM158	158	Mr.Duleep house Road Sec. I	0.301	Ampara
EAM158	158.1	Mr.Duleep house Road Sec. II	0.057	Ampara
EAM159	159	Near Ariyawan guest to Saddathissa primary	0.368	Ampara
EAM160	160	Infront of Seeweli Temple Road	0.382	Ampara
EAM161	161	to foreign affaies office Road Sec. I	0.195	Ampara
EAM161	161.1	to foreign affaies office Road Sec. II	0.101	Ampara
EAM161	161.2	to foreign affaies office Road Sec. III	0.071	Ampara
EAM161	161.3	to foreign affaies office Road Sec. IV	0.095	Ampara
EAM162	162	STF camp to mental and Rehabilitation Hospital	0.318	Ampara
EAM163	163	Near no.220 house to Mahamevuna Asapuwa	0.383	Ampara
EAM164	164	7th Avenue Road	1.031	Ampara
EAM165	165	New housing Scheme Road Sec. I	0.377	Ampara
EAM165	165.1	New housing Scheme Road Sec. II	0.246	Ampara
EAM167	167	Behind the Bus Stand Road Sec. I	0.316	Ampara
EAM167	167.1	Behind the Bus Stand Road Sec. II	0.103	Ampara
EAM168	168	Around the vijithapura play ground Road Sec. I	0.563	Ampara
EAM168	168.1	Around the vijithapura play ground Road Sec. II	0.079	Ampara
EAM171	171	infront of No.41 House Rd at Jayawardanapura Sec. I	0.164	Ampara
EAM171	171.1	infront of No.41 House Rd at Jayawardanapura Sec. II	0.206	Ampara
EAM171	171.2	infront of No.41 House Rd at Jayawardanapura Sec. III	0.104	Ampara
EAM171	171.3	infront of No.41 House Rd at Jayawardanapura Sec. IV	0.111	Ampara
EAM173	173	Gunasiri Bakery to Pirivena Road	0.653	Ampara
EAM174	174	Galode Thapassiriyaya Road	1.014	Padiyathalawa
EAM175	175	Hagamwela Main Road	2.003	Padiyathalawa
EAM177	177	Thalapitaoya Kokumawara Sec. I	0.518	Padiyathalawa
EAM177	177.1	Thalapitaoya Kokumawara Sec. II	1.506	Padiyathalawa
EAM178	178	Parana Padiyathalawa Wawa Road Sec. I	0.579	Padiyathalawa

EAM178	178.1	Parana Padiyathalawa Wawa Road Sec. II	0.439	Padiyathalawa
EAM180	180	Wahawa Road	1.047	Padiyathalawa
EAM181	181	Sareef Hajiyar Road	0.779	Addalachchenai
EAM182	182	Central Road, Alamkulam	0.993	Akkaraipattu
EAM183	183	Jabhar PC Road- Addalaichenai 17 Sec. I	0.364	Addalachchenai
EAM183	183.1	Jabhar PC Road- Addalaichenai 17 Sec. II	0.265	Addalachchenai
EAM184	184	Iqrah south Road Addalaichenai -13 Sec. I	0.213	Addalachchenai
EAM184	184.1	Iqrah south Road Addalaichenai -13 Sec. II	0.203	Addalachchenai
EAM184	184.2	Iqrah south Road Addalaichenai -13 Sec. III	0.084	Addalachchenai
EAM187	187	234 Round a bout Road- Deegawapiya0.8	0.811	Addalachchenai
EAM188	188	Saheed Hajiyar Road Addalaichenai -2 Sec. I	0.342	Addalachchenai
EAM188	188.1	Saheed Hajiyar Road Addalaichenai -2 Sec. II	0.125	Addalachchenai
EAM189	189	Alliyar Road. Addalaichenai -06 Sec. I	0.362	Addalachchenai
EAM189	189.1	Alliyar Road. Addalaichenai -06 Sec. II	0.228	Addalachchenai
EAM190	190	Beach Road -Palamunai 02 Sec. I	0.297	Addalachchenai
EAM190	190.1	Beach Road -Palamunai 02 Sec. II	0.722	Addalachchenai
EAM191	191	Univercity Road, Oluvil -01 Sec. I	0.806	Addalachchenai
EAM191	191.1	Univercity Road, Oluvil -01 Sec. II	0.214	Addalachchenai
EAM192	192	Laddies Arabic College Road Oluvil-3,5,7	0.786	Addalachchenai
EAM193	193	Thrikerny Boader Road, Oluvil	0.544	Addalachchenai
EAM194	194	Hajji Road. Palamunai 03,04 Sec. I	0.416	Addalachchenai
EAM194	194.1	Hajji Road. Palamunai 03,04 Sec. II	0.167	Addalachchenai
EAM195	195	Minha Road Sec. I	0.684	Addalachchenai
EAM195	195.1	Minha Road Sec. II	0.297	Addalachchenai
EAM196	196	Central Road - Sambunager Sec. I	0.241	Addalachchenai
EAM196	196.1	Central Road - Sambunager Sec. II	0.547	Addalachchenai,Akkaraipattu
EAM197	197	Al Arsath North Rd,Malayadikkiramam 03	0.442	Samanthurai
EAM198	198	Salam MosqueRd,Kallarchchal 03	0.550	Samanthurai
EAM199	199	Mal 15 th rd, Block J West 01	0.617	Samanthurai
EAM200	200	Am-14, & 15 Th Rd, Udanga 2 Sec. I	0.430	Samanthurai
EAM200	200.1	Am-14, & 15 Th Rd, Udanga 2 Sec. II	0.140	Samanthurai
EAM200	200.1	Am-14, & 15 Th Rd, Udanga 2 Sec. III	0.257	Samanthurai
EAM201	201	Hijra 2 nd Rd.,Block J East 2 Sec. I	0.454	Samanthurai

EAM201	201.1	Hijra 2 nd Rd.,Block J East 2 Sec. II	0.135	Samanthurai
EAM202	202	Mal 6 th rd., Vilikiayadi 1 Sec. I	0.221	Samanthurai
EAM202	202.1	Mal 6 th rd., Vilikiayadi 1 Sec. II	0.122	Samanthurai
EAM203	203	Karuththidda Rd. ,Malayadikkiramam 3	0.464	Samanthurai
EAM204	204	Transformer Rd, Sennekkiramam 2	0.458	Samanthurai
EAM205	205	Am 10, 11 th Rd, Sammanthurai 12 Sec. I	0.317	Samanthurai
EAM205	205.1	Am 10, 11 th Rd, Sammanthurai 12 Sec. II	0.324	Samanthurai
EAM206	206	Asman School Rd.,Sennel Kiramam 1	0.721	Samanthurai
EAM207	207	Majeethpuram School Rd., Malwatha 3	1.030	Samanthurai
EAM208	208	S Channal Irigation Bund Road,Udanga -2	1.313	Samanthurai
EAM209	209	Kulaththady Pullayar Kovil Rd., Malwatha1 Sec. I	0.728	Samanthurai
EAM209	209.1	Kulaththady Pullayar Kovil Rd., Malwatha1 Sec. II	0.223	Samanthurai
EAM210	210	Madeena UmmaRd, Block J Esat 3	0.844	Samanthurai
EAM212	212	Zahira School 5th Road Puliyadi Road	1.116	Samanthurai
EAM213	213	Pannalgama to Bakmitiyaawa	6.037	Damana
EAM214	214	Wadinagala to Karabana Sec. I	3.472	Damana
EAM214	214.1	Wadinagala to Karabana Sec. II	0.501	Damana
EAM215	215	Muthaliyar Road Sec. I	0.240	Pothuvil
EAM215	215.1	Muthaliyar Road Sec. II	0.287	Pothuvil
EAM215	215.2	Muthaliyar Road Sec. III	0.597	Pothuvil
EAM216	216	Al-Fathah Mosque Road Sec. I	0.701	Pothuvil
EAM216	216.1	Al-Fathah Mosque Road Sec. II	0.314	Pothuvil
EAM217	217	Pottuvil Central College Ground Road Sec. I	0.692	Pothuvil
EAM217	217.1	Pottuvil Central College Ground Road Sec. II	0.358	Pothuvil
EAM218	218	Urani Kattukal Road	2.071	Pothuvil
EAM219	219	Al-Abzan Vidiyalaya Road Sec. I	0.902	Pothuvil
EAM219	219.1	Al-Abzan Vidiyalaya Road Sec. II	0.211	Pothuvil
EAM219	219.2	Al-Abzan Vidiyalaya Road Sec. III	0.331	Pothuvil
EAM220	220	Kundumadu Road Sec. I	0.744	Pothuvil
EAM220	220.1	Kundumadu Road Sec. II	0.280	Pothuvil
EAM221	221	Al-Najath School Road Sec. I	0.452	Pothuvil
EAM221	221.1	Al-Najath School Road Sec. II	0.375	Pothuvil
EAM221	221.2	Al-Najath School Road Sec. III	0.356	Pothuvil

EAM221	221.3	Al-Najath School Road Sec. IV	0.321	Pothuvil
EAM222	222	Boys School Road	1.020	Pothuvil
EAM223	223	Cemetery Road, Paddiyadipiddy Sec. I	0.327	Akkaraipattu
EAM223	223.1	Cemetery Road, Paddiyadipiddy Sec. II	0.070	Akkaraipattu
EAM226	226	Ayesha Road, Pallikkudiyiruppu-2	0.607	Akkaraipattu
EAM228	228	Jinnah Mosque Road, Pallikkudiyiruppu-2 Sec. I	0.229	Akkaraipattu
EAM228	228.1	Jinnah Mosque Road, Pallikkudiyiruppu-2 Sec. II	0.204	Akkaraipattu
EAM228	228.2	Jinnah Mosque Road, Pallikkudiyiruppu-2 Sec. III	0.260	Akkaraipattu
EAM229	229	Asmiya Road, Pallikkudiyiruppu-1 Sec. I	0.442	Akkaraipattu
EAM229	229.1	Asmiya Road, Pallikkudiyiruppu-1 Sec. II	0.150	Akkaraipattu
EAM230	230	Thablic Road, Pallikkudiyiruppu-2 Sec. I	0.392	Akkaraipattu
EAM230	230.1	Thablic Road, Pallikkudiyiruppu-2 Sec. II	0.070	Akkaraipattu
EAM232	232	Al Road, Pallikkudiyiruppu-01	0.361	Akkaraipattu
EAM234	234	Central Road. Alim nagar Sec. I	0.256	Akkaraipattu
EAM234	234.1	Central Road. Alim nagar Sec. II	0.174	Akkaraipattu
EAM235	235	School Road, AlimNagar Sec. I	0.199	Akkaraipattu
EAM235	235.1	School Road, AlimNagar Sec. II	0.289	Akkaraipattu
EAM236	236	Canal Road, Isankernichchenai	0.742	Akkaraipattu
EAM237	237	Sammunpokalapoi Road, Paddiyadipiddy	0.588	Akkaraipattu
EAM241	241	Neethai Road - Alim nagar	0.694	Akkaraipattu
EAM242	242	Road from Ruhunugama School Junction to Buddhangala Post Office Sec. I	0.644	Uhana
EAM242	242.1	Road from Ruhunugama School Junction to Buddhangala Post Office Sec. II	0.675	Uhana
EAM242	242.2	Road from Ruhunugama School Junction to Buddhangala Post Office Sec. III	1.266	Samanthurai,Uhana
EAM243	243	Road from 60 Junction to Gonagala Village Sec. I	2.450	Uhana
EAM243	243.1	Road from 60 Junction to Gonagala Village Sec. II	0.188	Uhana
EAM244	244	Road near to Suhadagama Saman Boutique to Rajagama Junction	1.993	Uhana
EAM245	245	Lathugala Road from Dora paha juction to Lathugala Sec. I	1.241	Uhana
EAM245	245.1	Lathugala Road from Dora paha juction to Lathugala Sec. II	0.455	Uhana
EAM245	245.2	Lathugala Road from Dora paha juction to Lathugala Sec. III	2.681	Uhana
EAM246	246.2	Piyangala Nugelanda Road Sec. III	0.214	Uhana
EAM246	246	Piyangala Nugelanda Road Sec. I	0.098	Uhana
EAM246	246.1	Piyangala Nugelanda Road Sec. II	0.512	Uhana

EAM247	247	Magulmaha Viharaya Bunt Road, Dewalagoda Sec. I	0.927	
EAM247	247.1	Magulmaha Viharaya Bunt Road, Dewalagoda Sec. II	0.638	
EAM248	248	Bogaslanda Road, Pasalgoda Sec. I	1.214	Lahugala
EAM248	248.1	Bogaslanda Road, Pasalgoda Sec. II	0.151	Lahugala
EAM248	248.2	Bogaslanda Road, Pasalgoda Sec. III	0.130	Lahugala
EAM248	248.3	Bogaslanda Road, Pasalgoda Sec. IV	0.287	Lahugala
EAM248	248.4	Bogaslanda Road, Pasalgoda Sec. V	0.256	Lahugala
EAM249	249.1	Thamitiyawela Round Abound Road, Dewalagoda Sec. II	0.099	Lahugala
EAM249	249.2	Thamitiyawela Round Abound Road, Dewalagoda Sec. III	0.530	Lahugala
EAM249	249.3	Thamitiyawela Round Abound Road, Dewalagoda Sec. IV	0.269	Lahugala
EAM249	249.4	Thamitiyawela Round Abound Road, Dewalagoda Sec. V	0.679	Lahugala
EAM249	249	Thamitiyawela Round Abound Road, Dewalagoda Sec. I	0.313	Lahugala
EAM250	250	New Kumana velag Road, Panama South Sec. I	0.361	Lahugala
EAM250	250.1	New Kumana velag Road, Panama South Sec. II	0.203	Lahugala
EAM250	250.2	New Kumana velag Road, Panama South Sec. III	0.520	Lahugala
EAM251	251	Mahapokana AroundSabhi Road, Panama North Sec. I	0.486	Lahugala
EAM251	251.1	Mahapokana AroundSabhi Road, Panama North Sec. II	0.492	Lahugala
EAM252	252	Kurulam Pokuna Veloge Road Panama South Sec.I	0.471	Lahugala
EAM252	252.1	Kurulam Pokuna Veloge Road, Panama South Sec. II	0.151	Lahugala
EAM252	252.2	Kurulam Pokuna Veloge Road, Panama South Sec. III	0.371	Lahugala
EAM252	252.3	Kurulam Pokuna Veloge Road Panama South Sec IIV	0.145	Lahugala
EAM253	253	Themitiyawela to Perani Lahugala Road	1.640	Lahugala
EAM254	254	Concreting road via Pitawela Amuna	2.102	Padiyathalawa
EAM255	255	Concrete with culverts from Kandabada yaya road to Mahathalawa road	2.487	Padiyathalawa
EAM256	256	Concreting Kadupara Road	1.501	Padiyathalawa
EAM257	257	Tarring of Kehelulla Walagama road	0.563	Padiyathalawa
EAM258	258	Concreting road from Padiyathalawa Siyabalagaha junction to Welikumbura junction	1.920	Padiyathalawa
EAM259	259	Construct a Bridge and Concreting road from Kongaspanwila to Wilathalawa road	2.654	Padiyathalawa
EAM260	260	Concreting Diyarawela Road	2.932	Padiyathalawa

EAM261	261	Development of 5 Nos. by roads which is used by occuping of Paskanda Village Sec.i	0.601	Padiyathalawa
EAM261	261.1	Development of 5 Nos. by roads which is used by occuping of Paskanda Village Sec.ii	0.656	Padiyathalawa
EAM261	261.2	Development of 5 Nos. by roads which is used by occuping of Paskanda Village Sec.iii	0.489	Padiyathalawa
EAM262	262	Concreting 1/2 km of Tepelpola-Wagaspitiya road	0.527	Mahaoya
EAM263	263	Concreting Bulugastalawa Road	1.270	Mahaoya
EAM264	264	Concreting Tekka Watta Road	1.085	Mahaoya
EAM265	265	Repairing the Gonannegoda road close to the Harasgala Temple	1.272	Mahaoya
EAM266	266	Development of Kekirihena-Kalupenibedda road	0.939	Mahaoya
EAM267	267	Concreting all the roads of Dambadeniya Grama Niladari Wasama Sec.i	1.020	Mahaoya
EAM267	267.1	Concreting all the roads of Dambadeniya Grama Niladari Wasama Sec.ii	0.276	Mahaoya
EAM267	267.2	Concreting all the roads of Dambadeniya Grama Niladari Wasama Sec.iii	1.543	Mahaoya
EAM267	267.3	Concreting all the roads of Dambadeniya Grama Niladari Wasama Sec.iv	0.884	Mahaoya
EAM267	267.4	Concreting all the roads of Dambadeniya Grama Niladari Wasama Sec.v	0.817	Mahaoya
EAM267	267.5	Concreting all the roads of Dambadeniya Grama Niladari Wasama Sec.vi	0.636	Mahaoya
EAM267	267.6	Concreting all the roads of Dambadeniya Grama Niladari Wasama Sec.vii	1.813	Mahaoya
EAM267	267.7	Concreting all the roads of Dambadeniya Grama Niladari Wasama Sec.viii	0.612	Mahaoya
EAM267	267.8	Concreting all the roads of Dambadeniya Grama Niladari Wasama Sec.ix	0.975	Mahaoya
EAM267	267.9	Concreting all the roads of Dambadeniya Grama Niladari Wasama Sec.x	0.279	Mahaoya
EAM268	268	Concreting Saranagama-Samagipura by road	1.413	Mahaoya
EAM269	269	Concreting troad close to multi purpose building	1.525	Mahaoya
EAM270	270	Concreting road near the temple	4.203	Mahaoya
EAM271	271	Construct a bridge yaya 70 by road	0.964	Mahaoya
EAM273	273	Concreting Nelligastalawa and Kolongasyaya road Sec.i	0.793	Mahaoya
EAM273	273.1	Concreting Nelligastalawa and Kolongasyaya road Sec.ii	1.261	Mahaoya
EAM275	275	Construct culvert on Malgastalawa road	1.240	Mahaoya
EAM276	276.1	Concreting Tempitiya Dumana road Sec.ii	2.667	Mahaoya
EAM277	277	From Mahaoya Dambadeniya main road to Mudagala	2.811	Mahaoya
□o□□			□□□□□	

APPENDIX I.2 SAMPLE ENVIRONMENT CHECKLISTS

ENVIRONMENTAL CHECKLIST

INTEGRATED ROAD INVESTMENT PROGRAMME (iROAD)

Road Name: Thuwaragala to Kudagala

Road ID: EAM117

District Name: Ampara

DSD & G NDs:

DSD	GNDs
Dehiattakandiya	Rideela, Dehiattakandiya

Total Length of the road: 3.14km

Candidate road starts at Dehiattakandiya – Aralaganwila (B517) Road and traverses along home gardens and paddy lands which were developed under Mahaweli Development Program in 1970s. An irrigation canal could be observed on Right Hand Side (RHS) along the entire road and irrigation structures could also be found across the road. Such structure is located at the starting point of the road at RHS. The road ends at Kudagala Junction.

Climatic Conditions

Temperature	Mean annual temperature: 25 – 27.5°C
Humidity	High: 90% Low: 64%
Rainfall Rainy Season	Mean annual rainfall: 1500 - 2000 mm/year Main rainfall season: November to February

(Source: National Atlas, Second Edition, Department of Survey, Sri Lanka, 2007)

A.□ 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: In general the road traverses along a flat terrain and elevation of the trace varies between 65 – 98m MSL.
2.	Forest Area / Mangrove / Other natural habitats (Explain whether the road passes through forest areas or located along the forest areas and distance		√	

No:	Type of Ecosystem	Yes	No	Explanation
	from shoulder to the forest area)?			
3.	Inhabited Area	√		Residential areas could be observed along the road intermittently with paddy lands.
4.	Agricultural Land	√		Paddy lands are located intermittently along the road
5.	Barren Land		√	

B.□ Specific description of the Road Environment

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)		√	
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)	√		An irrigation canal which is a Distributary canal of Hulanpathanagala Tank runs along the RHS of the road from starting to end point of the road. This canal goes underground at locations; 2.5 – 2.7km and 2.8 – 3.0km.
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)		√	
4.	Are there any trees with a girth of 600mm or more at breast height within the existing ROW (within two fences on either sides) or within 2 m corridor from the edge of the carriageway on either side (if the existing ROW is not clear)? (If yes attach list of trees indicating the location (Right or Left side)and the chainage)	√		12 trees were observed within the existing ROW during the field reconnaissance as given in DV. Tree replanting with suitable native species as specified in Environmental Management Plan (EMP) is recommended to compensate the impact due to trees removal.

No.	Parameter/ Component	Yes	No	Explanation
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)		√	
6.	Along the road and within 100m of the road shoulder is there any evidence of Flora and Fauna species that are classified as endangered / threatened species?		√	During the field reconnaissance, such species were not observed along the study corridor and further, no secondary information is available and local community is not aware of this matter
7.	Are there any utility structures[1] within 2 m on either side from the centre line of the road alignment or within the existing ROW of the road? (If yes, attach list with chainage)		√	Utility structures are not observed within the study corridor however electrical poles are observed well away from the study corridor.
8.	Are there any religious, cultural or community structures/buildings[2] within 50 m on either side from the centre line of the road alignment? (If yes attach list with chainage)		√	Community structure are not observed along the road

C.□ **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)	√		Public was consulted during field reconnaissance carried out for preparation of the Environmental Checklist. Please refer to the annex 1 for the list of public consulted and their views
2.	Any suggestion received in finalizing the alignment and road related environmental issues	√		Public expressed that this is the main road to Aralaganwila – Dehiattakandiya road and plays a major role in transporting agricultural products to markets.
3.	If suggestions received, were they incorporated into the design?	√		It is recommended that the design team will incorporate the findings of

[1] Water tap, hand pump, electric pole, telephone pole, pipe lines and other similar structures
[2] Religious/cultural/historical monuments, school, health centre, public toilet and other similar structures

No.	Consultation Activities	Yes	No	Remarks
				the environment checklist to the designs of the road.

D.□ **Please attach the following:**

I. List of utility structures located within the study area (within exiting ROW or within 2m corridor of either sides of the road from the edge of the carriageway if the ROW is not clear) indicating location and side of the road (Right Hand Side (RHS) or Left Hand Side (LHS)) as required under B.7.

Utility structures are located away from the study corridor.

II. List of community structures indicating location (left or right side of the road) and chainage (as required under B.8)

Community structures are not observed along the study corridor

III. Project location map is attached in annex 2

IV. Photographs of the project area showing at least 2 m on either side from centre line of road alignment are attached in annex 3.

V. List of trees with 600mm of girth (at breast height) or more located within the existing ROW or within 2m on either side of the road from the edge of the carriageway as required in B.4.

Chainage (km)	LHS			RHS		
	Common Name	Botanical name	No. of trees	Common Name	Botanical name	No. of trees
0.0 – 1.0			-			-
1.0 – 2.0	Mango	*Mangifera indica*	1	Mango	*Mangifera indica*	1
	Umbrella tree	*Terminalia catappa*	1	Kon	*Schleichera oleosa*	1
2.0 – 3.0				Tamarind	*Tamarindus indica*	1
				Pini Mara	*Samanea saman*	2
				Kumbuk (Arjun Tree)	*Terminalia arjuna*	1
				Teak	*Tectonia grandis*	4
3.0 – 3.14			-			-
Total			2			10

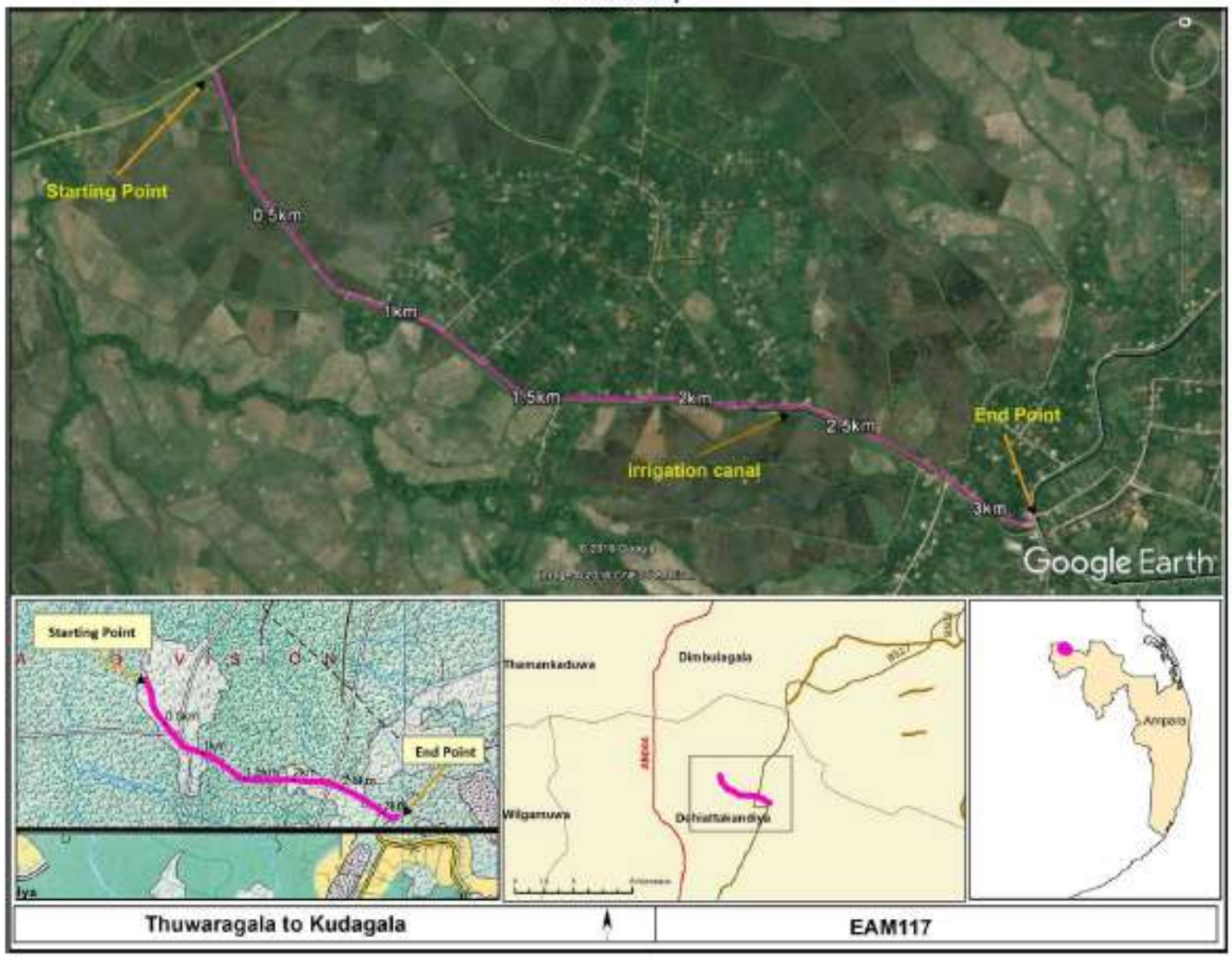
Annex 1

Public Consultation - Thuwaragala to Kugdagala

Name of Respondent	Age	Sex	Address	Views
Mr. BWP Jayalath	51	Male	355, Kudagala, Dehiattakandiya (0723145451)	• This road is the main road to access Dihiattakandiya and plays a major role in transporting agricultural products to the markets. Road improvement will benefit around 12 villages which are connected through this road.
Mr. E. Anura Chandrasiri	43	Male	324, Kudagala, Dehiattakandiya	• This road is important to access schools, hospitals, markets and other infrastructure available in Dehiattakandiya Township. Therefore it is important to improve this road.

Annex 2

Location Map



Annex 3

Plate 1: Starting point of the road

Plate 2: Along the road (to the reverse direction)

Annex 3

Plate 3: Along the irrigation canal (to the reverse direction)

Plate 4: End point

ENVIRONMENTAL CHECKLIST

INTEGRATED ROAD INVESTMENT PROGRAMME (iROAD)

Road Name: Valaichenai Oddamavady road

Road ID: EBT 010

District Name: Batticaloa

DSD & G NDs:

DSD	GNDs
Koralai pattu West	Oddamavadi ward 01 south Thiyavedduvan
Koralai pattu	Valaichenai Muslim 5 South Valaichenai Muslim 5 North Valaichenai Muslim 4

Total Length of the road: 1.613 km

The proposed Valaichenai Oddamavady road starts from Valaichchenai – Nasuvantivu – Navaladi (AB38) road. The road traverses along an area consists of residents with commercial structures and government buildings. Road surface is macadam and poor surface condition could be observed. Railway track is crossing at 1.590km. The existing carriageway varies between 5.0m to 6.0m while the Right of Way (ROW) of the road varies within 6.0 to 7.0m. The proposed road section ends at Oddamavadi roundabout in Trincomalee–Batticaloa (A15) road.

Climatic Conditions

Temperature	Mean annual temperature: 25 - 27.5°C
Humidity	High: 90% Low: 60%
Rainfall Rainy Season	Mean annual rainfall: 1500 -2000 mm/year Main rainfall season: October - January

(Source: National Atlas, Second Edition, Department of Survey, Sri Lanka, 2007)

A.□ 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	√		Altitude: In general the road traverses along a flat terrain and elevation of the trace varies between 09 - 12m MSL.

No:	Type of Ecosystem	Yes	No	Explanation
	km of the road are located in the hilly area)			
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)?		√	Natural habitats were located
3.	Inhabited Area	√		Residential with commercial structure can be observed from 0.000 to 1.613km in both side
4.	Agricultural Land		√	No agricultural lands were located
5.	Barren Land		√	No barren land were located

B.□ Specific description of the Road Environment

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)		✓	According to the public view, no such previous incidents have been located.
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)		√	No water bodies were located
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)	√		According to the public view, storm water collected in larger pothole and gets muddy condition during rainy season. Therefore drainage facilities are required
4.	Are there any trees with a girth of 600mm or more at breast height within the existing ROW (within two fences on either sides) or within 2 m corridor from the edge of the carriageway on either side (if the existing ROW is not clear)?		√	No trees were observed within the existing ROW during the field reconnaissance.

No.	Parameter/ Component	Yes	No	Explanation
	(If yes attach list of trees indicating the location (Right or Left side)and the chainage)			
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)		√	During the field reconnaissance, such area were not observed along the study corridor and further, 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 are classified as endangered / threatened species?		√	During the field reconnaissance, such species were not observed along the study corridor and further, no secondary information is available and local community is not aware of this matter
7.	Are there any utility structures[1] within 2 m on either side from the centre line of the road alignment or within the existing ROW of the road? (If yes, attach list with chainage)		√	No electric poles & telecommunication poles located within the study corridor
8.	Are there any religious, cultural or community structures/buildings[2] within 50 m on either side from the centre line of the road alignment? (If yes attach list with chainage)	√		School, mosques, post office, divisional secretariat & one clock tower were found along the road *Please refer section D II for information* However none of these structures will be affected due to the road improvement. However, it is recommended to implement mitigation measures as specified in the EMP to minimize impacts due to degradation of air quality and noise at these sensitive receptors. In addition safety measures are recommended at the school during both construction and operational phases of the project.

C.□ **Public Consultation**

No.	Consultation Activities	Yes	No	Remarks
1.	Consultation with local community was conducted before finalizing the	√		Public was consulted during field reconnaissance carried out for preparation of the Environmental

[1] Water tap, hand pump, electric pole, telephone pole, pipe lines and other similar structures
[2] Religious/cultural/historical monuments, school, health centre, public toilet and other similar structures

No.	Consultation Activities	Yes	No	Remarks
	alignment. (Attach list of people met and dates)			Checklist. Please refer to the annex 1 for the list of public consulted and their views
2.	Any suggestion received in finalizing the alignment and road related environmental issues	√		Public expressed the need to improving side & cross drainage system. Because road gets muddy condition during rainy season.
3.	If suggestions received, were they incorporated into the design?	√		It is recommended that the design team will incorporate the findings of the environment checklist to the designs of the road.

D.□ Please attach the following:

I. List of utility structures located within the study area (within exiting ROW or within 2m corridor of either sides of the road from the edge of the carriageway if the ROW is not clear) indicating location and side of the road (Right Hand Side (RHS) or Left Hand Side (LHS)) as required under B.7.

II. List of community structures indicating location (left or right side of the road) and chainage (as required under B.8)

Chainage (km)/ GPS	Location	Left	Right
0.100	Mosque	√	
0.300	Mosque	√	
0.500	School	√	
0.800	Mosque	√	
0.900	Clock tower		√
0.320	Divisional Secretary office	√	

III. Project location map is attached in annex 2

IV. Photographs of the project area showing at least 2 m on either side from centre line of road alignment are attached in annex 3.

V. List of trees with 600mm of girth (at breast height) or more located within the existing ROW or within 2m on either side of the road from the edge of the carriageway as required in B.4.

No trees were observed within the study corridor□□□□□□□□□□□□□□□□□

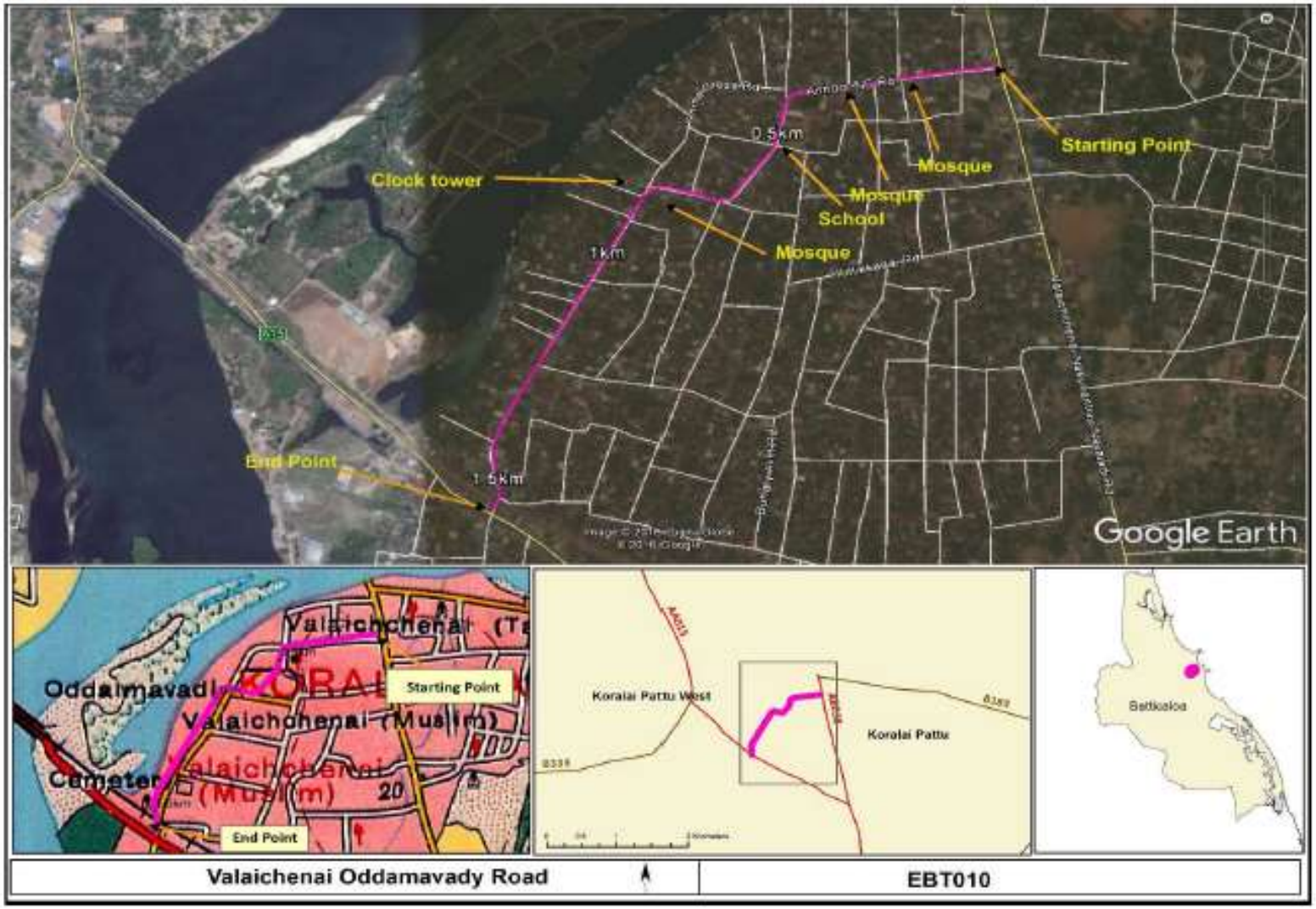
Annex 1

Public Consultation - EBT 010 – Valaichenai Oddamavady road

Name of Respondent	Age	Sex	Address	Views
M. Najeeth	35	Male	No 270/5, Oddamavady	• Road improvement is very important • This road is a short cut road to connect Oddamavady to Valaichenai – Navaladi (AB38) road. • Existing road surface is very bad therefore road development very important, School & several government offices are located along this road • During rainy season, storm water gets collected in pothole and gets muddy condition, road users are facing many difficulties. • Improvement of road side & cross drainage system is essential along the road

Annex 2

Location Map



Annex 3

Photographs of the Valaichenai Oddamavady road

Road ID : EBT 010

Figure 1: The proposed road starts from Valaichchenai – Nasuvantivu – Navaladi (AB38) road

Figure 2: School located at 0.500km LHS

Annex 3

Figure 3: Clock tower located at 0.900km

Figure 4: Commercial structures located at 1.400km area

Annex 3

Figure 5: The proposed road ends at Oddamavady roundabout in (A 15) road

ENVIRONMENTAL CHECKLIST

INTEGRATED ROAD INVESTMENT PROGRAMME (i ROAD)

Road Name: Kakkamunai Central Road, Kakkamunai
Road ID: ETR 037
District Name: Trincomalee
DSD & G NDs:

DSD	GNDs
Kinniya	Naduthivu

Total Length of the road 0.956 km

Proposed development of Kakkamunai Central Road, Kakkamunai starts at local road from Kakamunai to Kurinchakerny. And ends at same road. The Road traverses along an area consist of residences and home gardens. The existing Right of Way (ROW) of the road varies around 07m-08m and the carriageway of the road varies from 4 m to 4.5m, while the surface is gravel. However, the road is upgrading to Asphalt by local authority.

Climatic Conditions

Temperature	Mean annual temperature: > 27.5°C
Humidity	High: 80% Low: 60%
Rainfall Rainy Season	Mean annual rainfall: 1500-2000 mm/year Main rainfall season: October to January

(Source: National Atlas, Second Edition, Department of Survey, Sri Lanka, 2007)

A.□ 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: In general, the road traverses along a flat terrain and elevation of the trace varies between 02 – 09m MSL.
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)?		√	No natural habitats were located
3.	Inhabited Area	√		Residences were located beside the road.

No:	Type of Ecosystem	Yes	No	Explanation
4.	Agricultural Land		√	Home garden were observed beside the road
5.	Barren Land		√	No barren land were observed beside the road

B.□ Specific description of the Road Environment

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)		√	According to the public view no such previous incidents have been recorded.
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)		√	No water bodies were located
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)		√	According to the public view no such previous incidents have been recorded.
4.	Are there any trees with a girth of 600mm or more at breast height within the existing ROW (within two fences on either sides) or within 2 m corridor from the edge of the carriageway on either side (if the existing ROW is not clear)? (If yes attach list of trees indicating the location (Right or Left side)and the chainage)		√	No trees were located along the road
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)		√	During the field reconnaissance, such incidence was not observed along the study corridor and further, no secondary information is available and local community is not aware of this matter.

No.	Parameter/ Component	Yes	No	Explanation
6.	Along the road and within 100m of the road shoulder is there any evidence of Flora and Fauna species that are classified as endangered / threatened species?		√	During the field reconnaissance, such species were not observed along the study corridor and further, no secondary information is available and local community is not aware of this matter
7.	Are there any utility structures[1] within 2 m on either side from the centre line of the road alignment or within the existing ROW of the road? (If yes, attach list with chainage)		√	No electrical and telephone poles were located beside the road within the existing ROW No Water supply pipeline was observed during the field inspection.
8.	Are there any religious, cultural or community structures/buildings[2] within 50 m on either side from the centre line of the road alignment? (If yes attach list with chainage)	√		Dispensary, Social care centre, cemetery, mosque and school were located at either side of the road. *Please refer section D II for information* However, it is recommended to implement mitigation measures as specified in the EMP to minimise impacts due to degradation of air quality and noise at sensitive receptors. In addition, safety measures are recommended during both construction and operational phases of the project.

C.☐ 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)	√		Public was consulted during field reconnaissance carried out for preparation of the Environmental Checklist. Please refer to the annex 1 for the list of public consulted and their views
2.	Any suggestion received in finalizing the alignment and road related environmental issues	√		Public expressed their happiness of road rehabilitation, done by local authority
3.	If suggestions received, were they incorporated into the design?	√		It is recommended that the design team will incorporate the findings of the environment checklist to the designs of the road.

[1] Water tap, hand pump, electric pole, telephone pole, pipe lines and other similar structures
[2] Religious/cultural/historical monuments, school, health centre, public toilet and other similar structures

D.□ **Please attach the following:**

I. List of utility structures located within the study area (within exiting ROW or within 2m corridor of either sides of the road from the edge of the carriageway if the ROW is not clear) indicating location and side of the road (Right Hand Side (RHS) or Left Hand Side (LHS)) as required under B.7.

II. List of community structures indicating location (left or right side of the road) and chainage (as required under B.8)

Chainage (km)/ GPS	Location	Left	Right
0.000	Dispensary	In front of the starting point	
0.000	Social Care Centre		
0.000- 0.060	Cemetery	√	√
0.460	Mosque		√
0.500	School	√	

III. Project location map is attached in annex 2

IV. Photographs of the project area showing at least 2 m on either side from centre line of road alignment are attached in annex 3.

V. List of trees with 600mm of girth (at breast height) or more located within the existing ROW or within 2m on either side of the road from the edge of the carriageway as required in B.4.

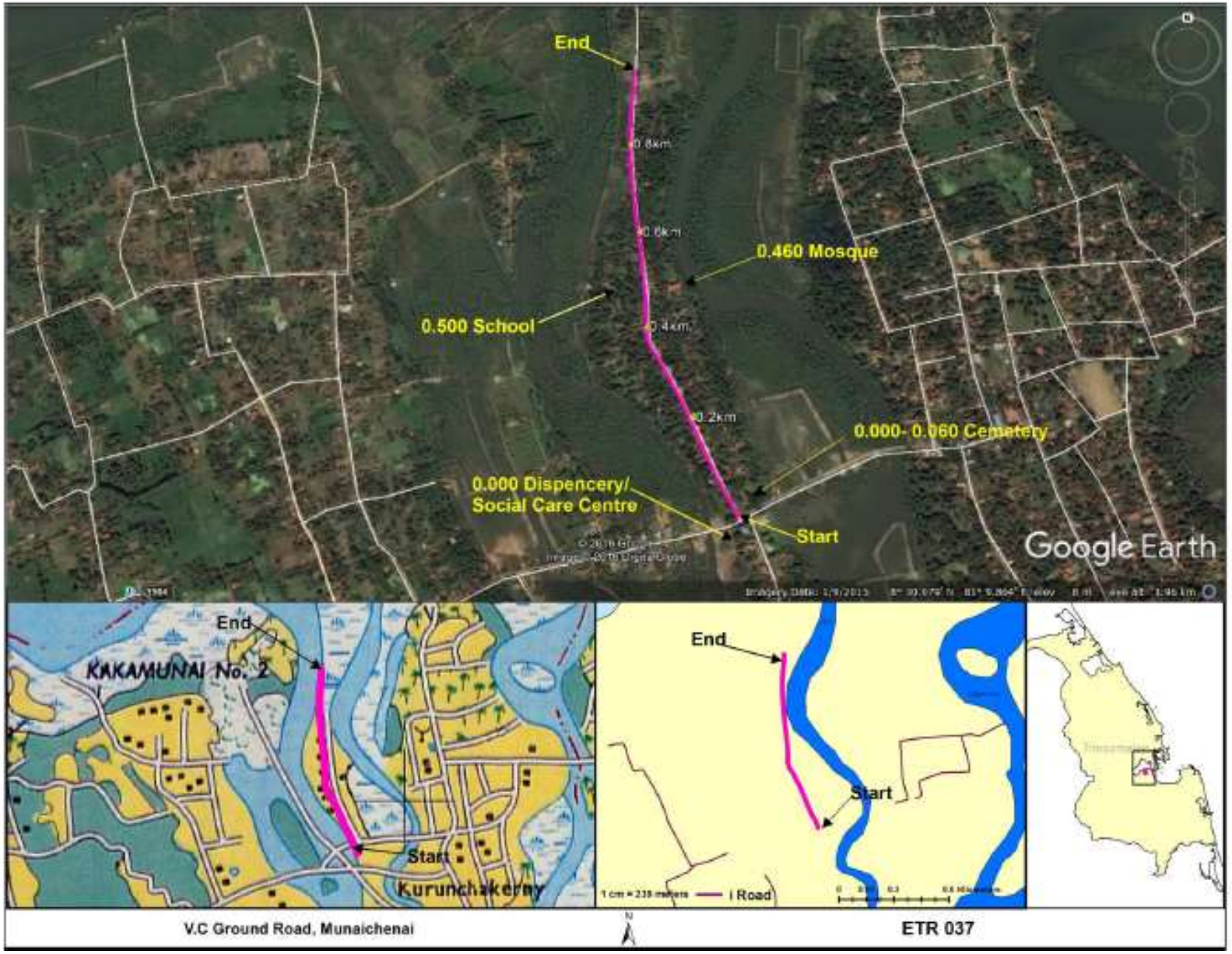
Annex 1

Public Consultation Kakkamunai Central Road, Kakkamunai

Name of Respondent	Age (Yrs)	Sex	Address	Views
Mr. Jayaseeyan Isham	About 35	Male	GR 134, Naduththeevu.	• This is the only road in this village, many people are using this road for their activities • This road is under developing by local authority. • We are Happy with the road improvement.

Location Map

Annexure 2



Annexure III

Photographs of Kakkamunai Central Road, Kakkamunai ETR 037

Starting point of the road

Cemetery located at starting point of the road

Annexure III

The road is under upgrading work.

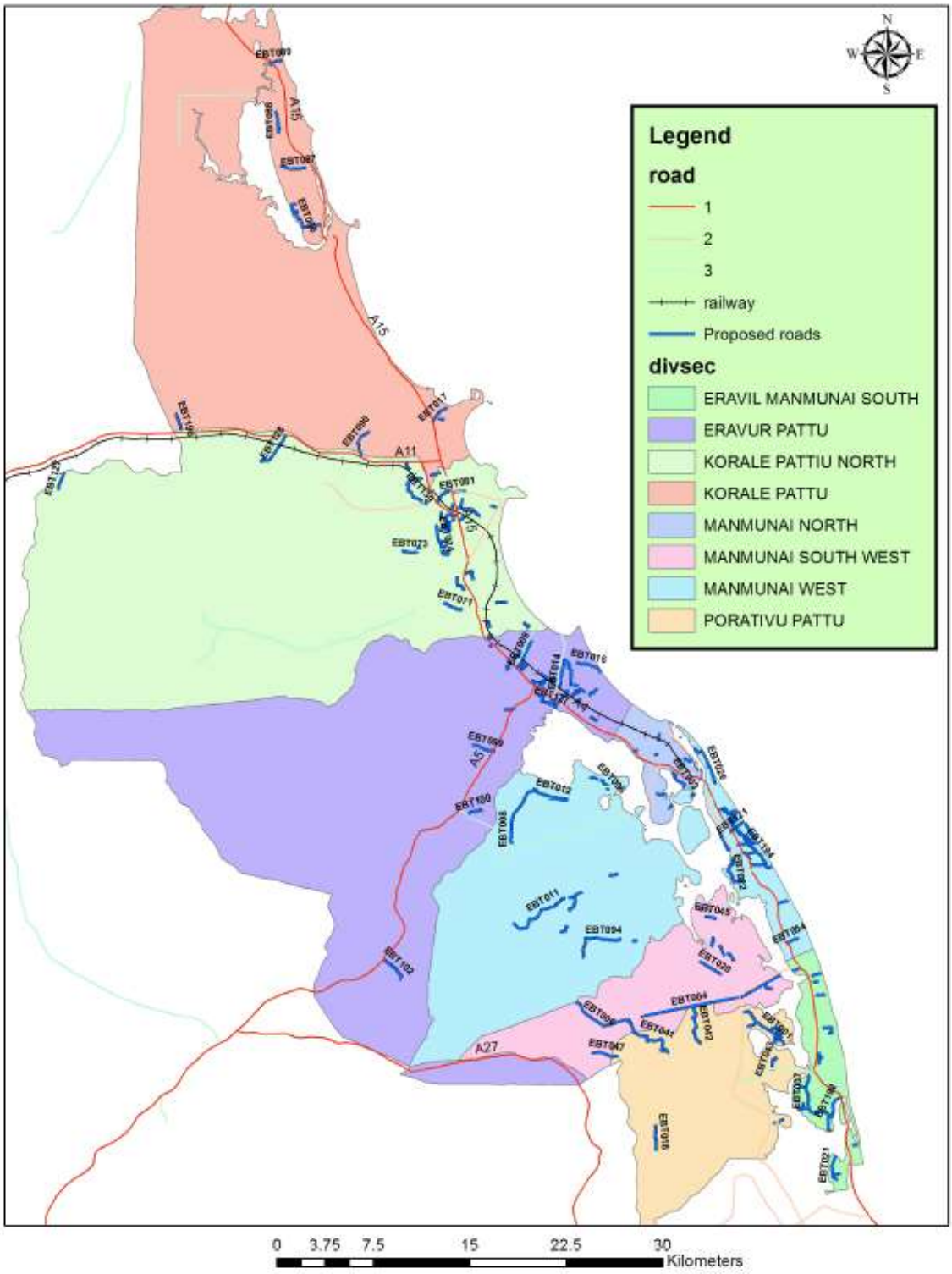
Mosque located at 0.460km RHS of the road

Annexure III

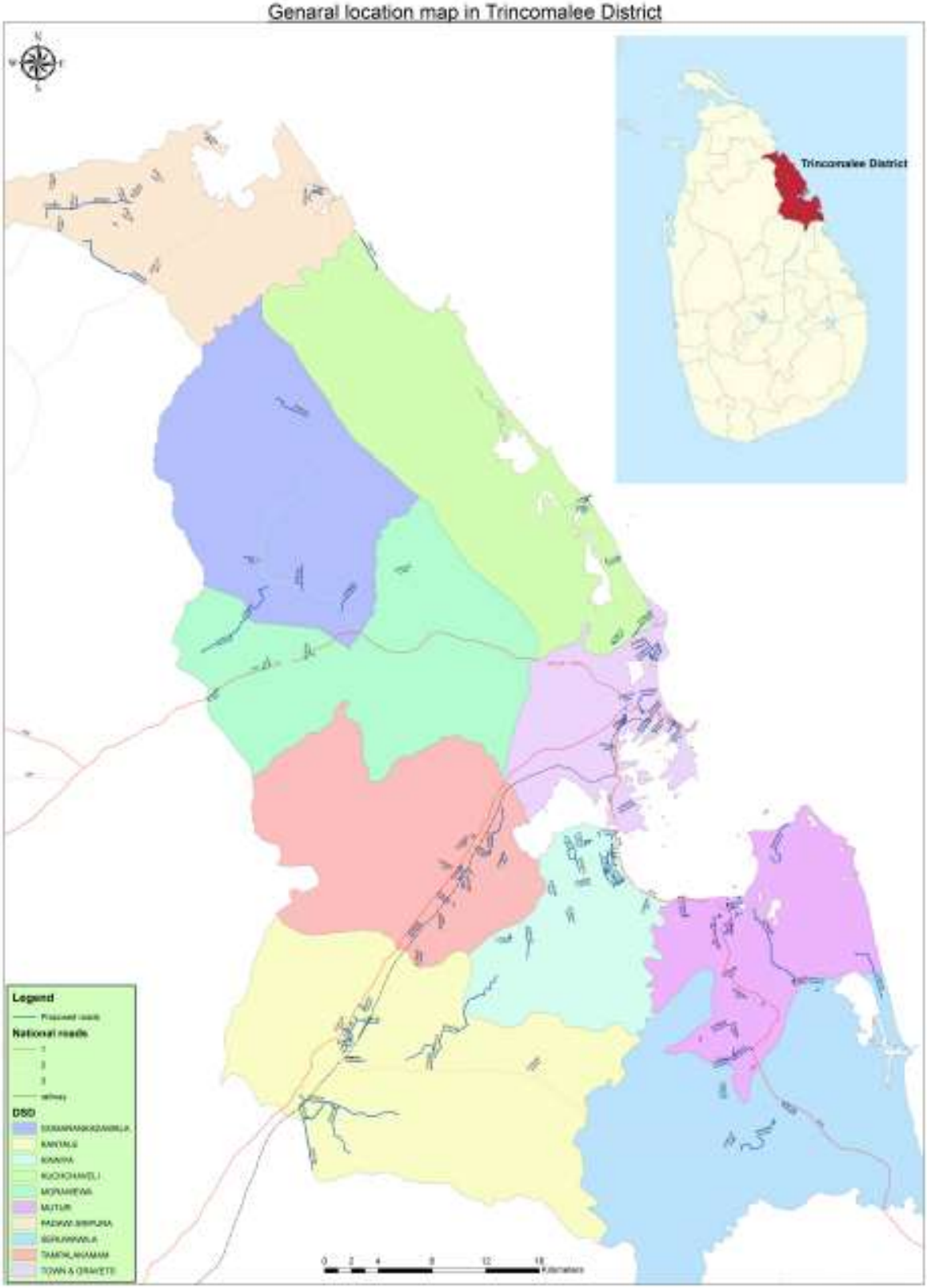
End point of the road

APPENDIX II.1 MAPS OF RURAL AND NATIONAL ROADS

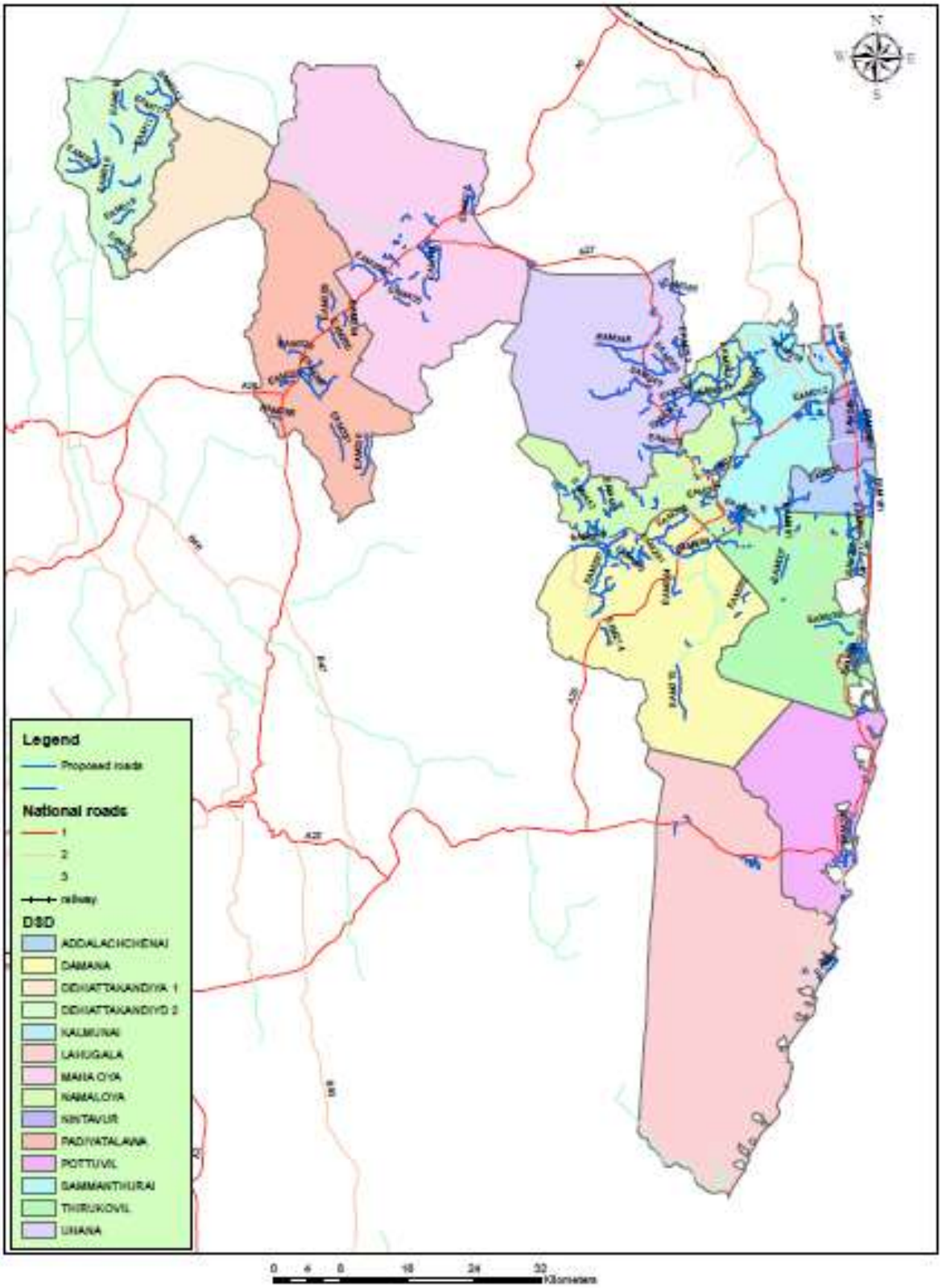
General location map in Batticaloa District

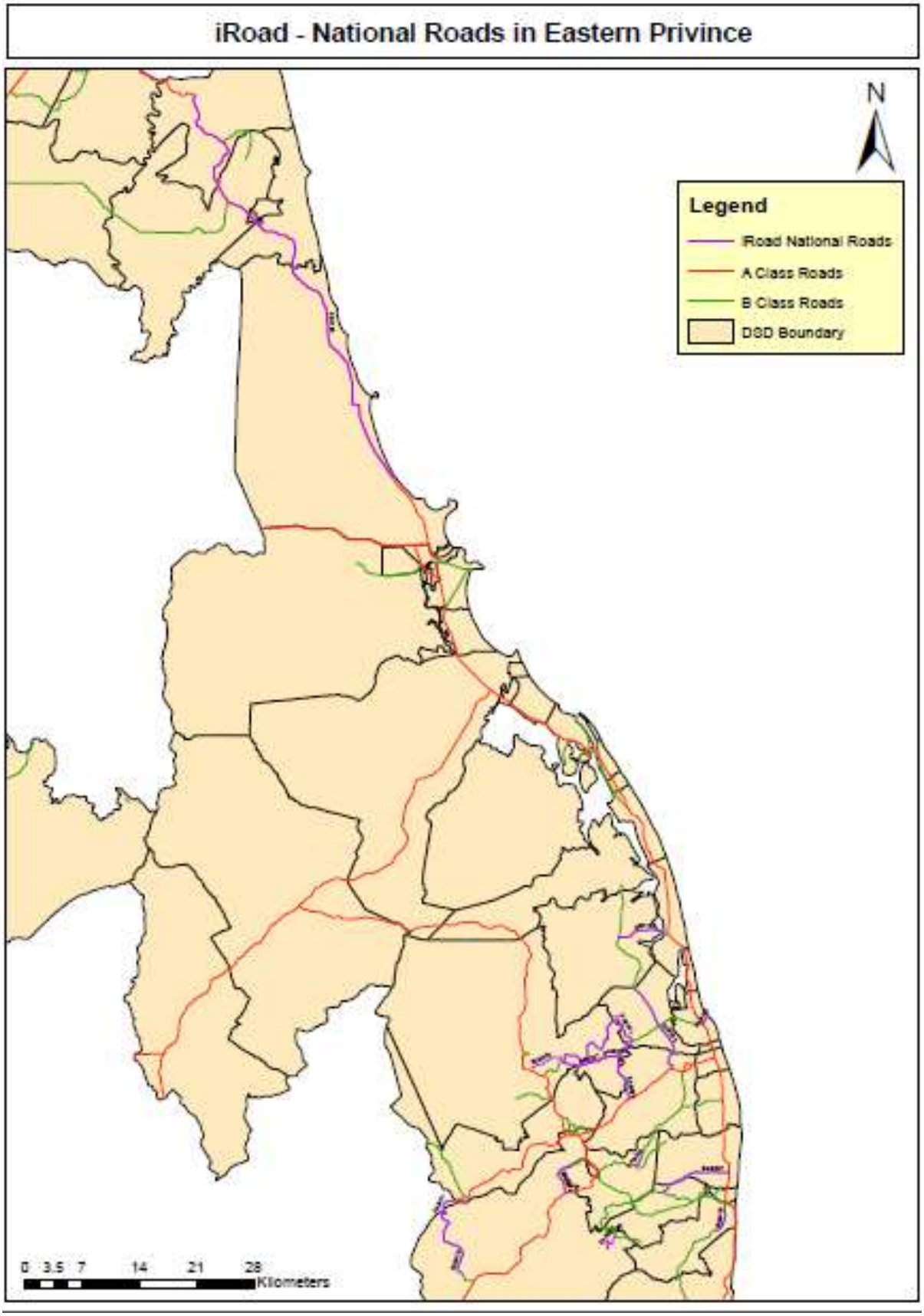


Genaral location map in Trincomalee District

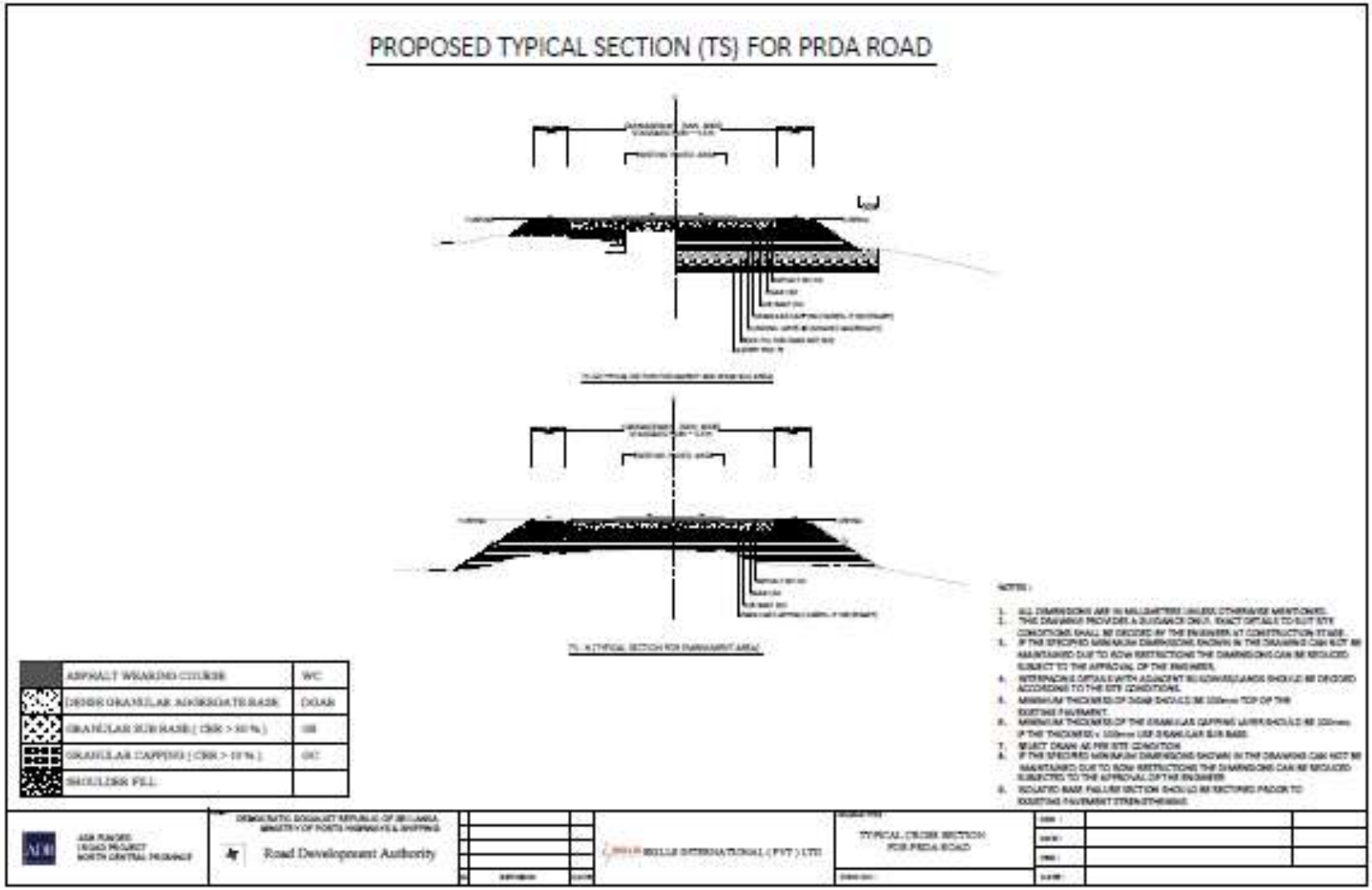


Genaral location map of Ampara District

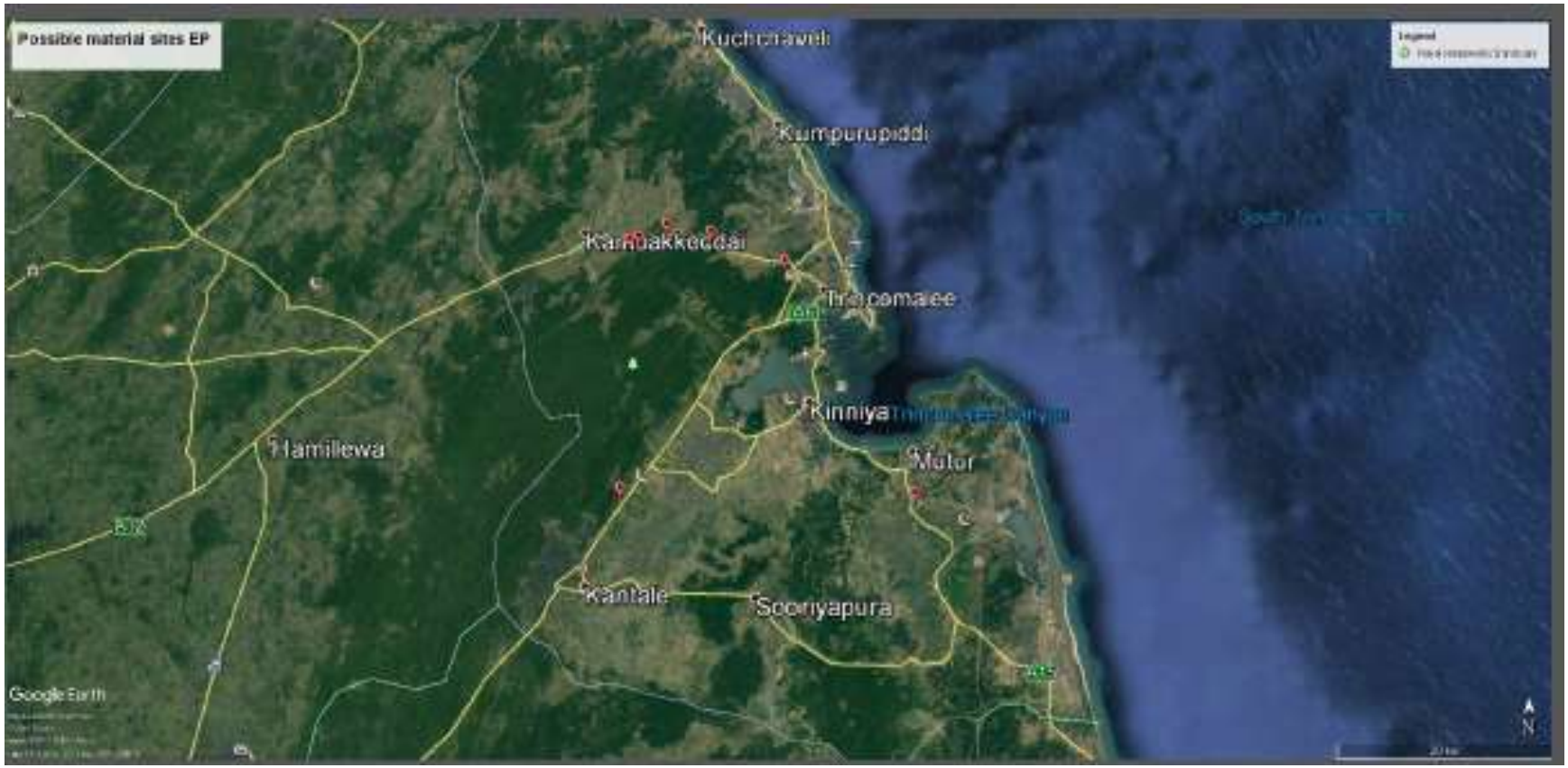



iRoad - National Roads in Eastern Privince
N
Legend
iRoad National Roads
A Class Roads
B Class Roads
DSD Boundary
0 3.5 7 14 21 28
Kilometers

APPENDIX II.2 TYPICAL CROSS SECTIONS



APPENDIX II.3 POTENTIAL SITES FOR MATERIAL EXTRACTION




Possible material sites EP
Eastern
Batticaloa
Dehattakandiya
Nawa Madagama
Maha Oya
Kaluwanchikudy
Kalmunai
Mahiyanganaya
Ampara
Addalaichena
Google Earth
N

APPENDIX IV.1 LETTER FROM FOREST DEPARTMENT

Appendix IV.2

වන සංරක්ෂණ දෙපාර්තමේන්තුව

FOREST DEPARTMENT

Head Office, Sampathpaya, P. O. Box 3, Battaramulla, Sri Lanka

Telephones: 2866631, 2866632, 2875540

Fax: (94-1) 2866633

E-mail: [illegible]

My Ref: EMD/EIA/RD/rural roads/2014

Your Ref:

Date: 2014.08.27

[illegible]

RDA/DG/07/113, 2014.07.25, RDA/ESD/road 2014.08.04, 2014.08.26 [illegible]

02. [illegible]

03. [illegible]

[illegible]

Conservator-General of Forests: 2866618

Conservator of Forests

Operations: 2866628

Research: 2866628

Administration: 2866633

Appendix IV.2

Translation of the letter

27.08.2014

Director
Environment and Social Development Division
RDA

Program for upgrading of Rural roads - Road Development Authority

This refers to the letter no. RDA/DG/07/113 dated 25th of July 2014 and subsequent letters no RDA/ESD/IROAD dated 4th of August 2014 and 26th of August 2014 on above.

It seems that it will take a long time to inspect and give specific conditions on roads that are within the forest areas.

Therefore, considering the urgency of this program, Forest Department is able to grant approval to carry out the road construction work without using additional lands and removal of any trees within sensitive forest areas and it is recommend to carry out the development work under the supervision of the relevant District forest Officer of the Department of Forest.

Mahinda Senevirathne
Forest Conservator
(Environment Management)
For Conservator General of Forests

APPENDIX VI.1 STANDARD ENVIRONMENT MANAGEMENT PLAN (RURAL AND NATIONAL ROADS)

Appendix VI.1 : Environment Management Plan: Upgrading of Rural Roads- Eastern Province

No	Action of the Project	Mitigation Measures	Approximate Location	Mitigation cost	Institutional responsibility	
					Implementing	Monitoring
A: Design and Pre construction stage						
01	Land acquisition	• Land acquisition will not be involved for the project except realignment of bends or construction of cross drainages in several locations based on the design requirements • If land need from the public, negotiation with property owners will be carried out with involvement of third party • All effort will be made to avoid land acquisition for the project	Several project roads	To be included under the total project cost	PIU and PIC	Client, PIC, DS
02	Selection of temporary use lands	• Effort shall be taken to minimize use of temporally land for the construction activities • Selection of temporary lands with considering of social and environmental background adhering to laws and regulations in the county • Approval for the temporally use lands shall be obtained from Engineer and need to sign agreement with the land owners.	Throughout the project roads if need to use temporary lands	To be included under the Contractors' cost	Contractor	PIU, PIC
03	Removal of trees	• Effort shall be taken to minimize removal of road side trees • Avoid removal of trees within road sections located within reserves. • No removal of religious and cultural important trees and avoid removal of trees from temporary use lands • Removal of tree should be based on the final design of the roads • Preparation of inventory prior to removal of potential trees and permission shall be taken from DS for removal	Throughout the all project roads Roads listed in table vi.7 in chapter iv of IEER (i.e. roads located adjacent or through reserves)	Removal cost of trees and compensatory tree planting	Contractor	PIU, PIC, Divisional Secretory (DS)

		• Remove trees shall be handed over to Timber cooperation or rightful owners • Provision shall be made to additional compensation tree planting program with native species • Organizing of tree planting program in compensation at least one tree cut with planting 3 plants. • Tree planting should be done where ever possible with the help of DOFC, DS in the area, CBOs, NGOs etc.				
04	**Shifting of public utilities**	• Proper utility survey shall be carried out in order to identify the effected utilities and the exact locations • Consent & action shall be obtained from relevant service providers (CEB, NWS&DB, and SSLT) to minimize time and the duration of utility disruption • Approval shall be obtained from DOI for any proposed construction works on Irrigation canals • Advance notice to the public about time and the duration of utility disruption • Use of well trained and experienced machinery operators for the shifting/reestablishment of utilities to minimize accidental damage and functional purposes • Special attention shall be taken to provide relevant services to the public without long delay. • Water and other utilities shall be provided to the public if long delay to reestablish services with the instruction of PIC	Throughout the project roads: if those facilities are available and need to shifted for improvement activities	To be included under the total project cost	Contractor/Service providers	PIU, PIC, CEB, NWS&DB, SLT, DOI, Community water supply schemes
05	**Impact to the public properties**	• Construction activities are restricted to the existing ROW, no impact to the road side properties • Religious and culturally important structures within ROW will not be affected due to project activities • Action should be taken to minimize impact to the common properties within ROW	Throughout the project roads: if public properties are available	To be included under the cost of removing and repairing of common properties	Contractor	PIU, PIC
06	**Hydrology and drainage**	• Design of new culverts and other drainage structures by considering hydrological investigation report and consultation with Department of Irrigation and Provincial Irrigation Department	All cross drainages, streams and Aru cross the rods,	To be included under the project cost	PIU, contractor	PIU, PIC

		• Provision of adequate drainage facilities to the inundation and flood prone locations • Temporary diversion of water ways during construction should be ensured that no obstruction to natural water flow. • Construction work affecting water bodies should be prevented and work should be scheduled during the dry season. • Excavation of beds of any streams, irrigation systems and other water resources should be avoided by the Contractor. • Contractor shall not divert, close or block existing canals and streams in a manner that adversely affect downstream intakes.	inundation and flood prone locations			
B: Construction stage						
01	**Flood and inundation**	• Construction activities should be scheduled to avoid flood and inundation as a result of construction e.g. blockage of drainage path • Construction should minimize during the rainy season and drains should keep clean all the time without any obstruction. • Increase height of embankment in flood prone and inundation sections, construction of new culverts and other cross drainages as required to above locations • If flood and inundation cause due to negligence of the contractor, contractor should rectify all the damages with his own cost	Throughout the project roads, special attention to flood prone and inundation sections	To be included under the Contractors' cost	Contractor	PIU, PIC
02	**Extraction of construction materials**	• Suitable quarry sites, sand mines and borrow pits shall be identified at the initial stage within project influence area • Use existing licenses quarries and borrow pits which are approved by the GSMB and CEA as much as possible • Prior approval should be obtained from GS&MB/CEA for new quarries/borrow pits or sand mines • Use alternative sources for river sand such as sea sand and screen crusher fines with the consent of PIC	Throughout the project area including Identified material extraction sites for the project	To be included under the Contractors' cost	Contractor	PIU, PIC

		• Quarries and borrow pits should not be located in productive agricultural lands, environment and public sensitive areas • Restoration of borrow pits and quarry sites once after extraction based on IML instructions of GS&MB				
03	**Transportation and storage of construction materials**	• Lording of construction materials should not exceed the caring capacity of tucks • Materials shall be properly covered during transportation with no spillage • Lording, unloading and transport of materials shall not be inconvenient to the road side community or road users • Selection of sites for stock piling with the approval of PIC away from environment and public sensitive locations • Storage of fuel, lubricant and chemicals use for the construction activities on paved surface without contamination to the environment and storm water runoff • Approval shall be taken prior to use of local roads from relevant authorities and need to maintenance during the use by the Contractor	Throughout the project area including Identified material extraction sites, transportation roads, stockpiling yards	To be included under the Contractors' cost	Contractor	PIU, PIC
04	**Establishment of construction camp, offices and other temporally facilities**	• Labour camps and other temporally facilities should be located away from water bodies, residential and environment sensitive areas. • Provision of proper drainage facilities to the labour camps and prevent breeding of mosquitoes, flies and other vector borne diseases. • Provision of proper sanitary facilities to the labour camps offices and other temporally facilities including water, urinals, toilets bathing facilities, mosquito nets with adequate capacity of septic tanks and soak pits. • Handling and disposal of domestic solid waste in acceptable manner without contamination of surrounding environment with consultation of Local authorities.	Throughout the project area including labour camps, offices, other temporally facilities	To be included under the Contractors' cost	Contractor	PIU, PIC, LAs

		• Provision of first aid facilities and health care facilities to the labour camps offices and other temporally facilities Provision of garbage bins to labour camps, construction sites and those should be dumped regularly in a hygienic manner.				
05	**Impact to the ground and surface water quality and quantity**	• Temporary storage of material should be done in approved sites by the Engineer where natural drainage is not disturbed. • Construction activities effecting the quantity of water sources should be carried out during the dry season • All toxic and hazardous materials should be sited at least 500m away from water bodies and should prevent their entering into these locations. • Water that contaminate with fuel, oil and grease should not be directly released to storm water or natural water drainage system. • Vehicles and equipment used for the construction activities should be maintained in good condition, ensuring no undue leakage.	Throughout the project roads including streams, Aru, marshlands, wetlands, community and public wells	To be included under the Contractors' cost	Contractor	PIU, PIC
06	**Soil erosion, sedimentation and siltation**	• Construction activates: excavation and earth work around vulnerable area for soil erosion, inundation and flood prone mainly restricted to the dry season and removal of green cover vegetation of above locations shall be minimized • Temporary soil dumps should be removed from the construction sites and top soil shall be prevented to use for tree planting or turfing activities • Use of erosion control measures to the particular locations; ripraps, fiber mats, planting of deep rooted grasses, shrubs or other suitable plant species • Proper drainage facilities shall be established to the construction sites, material stock piling sites and dumping sites to drain water to the law laying areas • Silt traps shall be placed to the erodible locations specially construction sites of bridges and culverts	Throughout the project area including temporally use lands for the project	To be included under the Contractors' cost	Contractor	PIU, PIC

		• Temporally land use for the construction relate facilities should be reestablished to its original status before handover to rightful owners				
07	**Contamination of soil**	• All the vehicles, machineries and other equipment shall be serviced only in vehicle surviving yards • Oil soaking materials shall be used to the places where possible leakage • Collected waste oil and soaking materials shall be correctly stored and disposed to the approved location • Oil traps should be provided to the vehicle surviving yards and fuel pilling points • Fuel and lubricant should be properly stored in impervious surface with collecting point of spills	Throughout the project area including temporally use lands for vehicle surviving yards and fuel storage	To be included under the Contractors' cost	Contractor	PIU, PIC
08	**Impact on biodiversity**	• Awareness programs should be organized for the workforce about conservation of important terrestrial & aquatic habitats with their flora and fauna. • Construction activities near forested areas, elephant habitats or around migration paths should be carried out under the instruction of DOFC and DWLC. • Material extraction sites, processing plants and waste disposal sites should not be located around above locations. • Construction activities around these locations should be limited to daytime and completed within short period of time. • No introduction of invasive alien species to the project area due to construction and other related activities. • Avoid removal of religious, cultural and aesthetic important trees as well as removal should not be impacted to the breeding season of birds, important roosting sites of mammals and other species of fauna	Around environment sensitive, ecological important and forested areas	To be included under the Contractors' cost	Contractor	PIU, PIC
09	**Construction debris and wastes**	• Selection of unproductive lands for disposal sites with adequate capacity away from public and environment sensitive locations	Throughout the project area including Identified disposal yards	To be included under the Contractors' cost	Contractor	PIU, PIC

		• Excavated materials from the construction shall be re used to backfilling with the approval of PIC • Top soil 20 to 25 cm depth should be stored in properly for tree planting and turfing • Debris, residual spoil & dismantled & demolished structures should not be sited to the agricultural lands, irrigation canals, flood prone locations, water bodies and wetlands or to the marshy areas. • All debris and residual spoil materials including left earth should be disposed to the location approved by the LAs.				
10	**Traffic management and road safety**	• Traffic Management Plan should be implemented to required location based on daily traffic volume with close coordination of local police • Installation of traffic warning signs, temporary traffic lights, or flagmen at the construction site or location of road diversion • Since number of proposed roads under the project cross the railway line in different locations warning signs shall be provided both side of the railway crossing • Road furniture including footpaths, crash barrier, traffic signs, speed limits, pavement markers, center line etc., should be provided to the essential locations with the improvement of roads • Stage construction or provision of safe convenient passage to the vehicles/ passengers and livestock from the road side during the construction • Avoid/limit peak hours for transportation of construction materials, movement of heavy vehicles through urban and other public sensitive areas and use of alternative roads to avoid traffic congestion	Throughout the project roads	To be included under the Contractors' cost	Contractor	PIU, PIC
11	**Air Quality**	• Sprinkling of water in material extraction sites, processing plants and construction area as well as, road which use for the transportation of construction materials in regular intervals	Throughout the project roads including public	To be included under the Contractors' cost	Contractor	PIU, PIC

		• Dust extraction unit should be fitted to the construction vehicles equipment and plants (Crushers, Asphalt, Concrete & Batching plants) • Materials shall be properly covered during transportation and proper storage to ensure protection from dust and other emissions • Regularly maintenance of construction vehicles, equipment and machineries to meet National Emission Standards • Erection of dust barriers to the public, religious and other social important locations • Metal quarries, crushers and all the plants should be located at least 500m from public sensitive and residential areas	sensitive locations			
12	**Noise and Vibration**	• Implement of Noise Control Regulations for construction equipment, machineries and plants (Crushers, Asphalt, Concrete & Batching plants) • Construction activities that create noise should be limited to day time from 6.00am to 6.00pm and no work during night time specially around residential and public sensitive locations • Special approval should be obtained from CEA for night time work through PIC • Exhaust silencers should be fitted to heavy construction equipment (Loaders, Compactors, Cranes & Plants), limit the noise less than 75db • Regularly maintenance of all construction vehicles, equipment and machineries to limit generate of excess noise and vibration • Contractor should be taken proper action to safeguard road side properties due to vibration of construction equipment and machineries	Throughout the project road including public sensitive locations	To be included under the Contractors' cost	PIU, PIC	
13	**Occupational Health and Safety**	• Organize awareness programs about personal safety of workers with proper briefing and training on safety precautions. • Provision of Personal Protective Equipment (PPE) high visibility jackets for night time work with necessary lighting arrangements. • Providing firefighting equipment to the construction sites and arrangement of the workshop and training	Throughout the project roads	To be included under the Contractors' cost	Contractor	PIU, PIC

		program about use of firefighting equipment in emergency situation • Regular inspection of construction sites and other related locations to ensure use of proper PPE by workforce and their safety. • Arrangement of first aid facilities to the all construction sites, trained paramedical personal and transport facilities for emergency situation. • Organize awareness program of STD/HIV/ AIDS for the work force to avoid risk of speeding STD.				
14	**Planting of trees**	• Tree planting shall be done in compensation at least one tree cut with 3 trees along the road side if the space available or find the suitable locations of project affected area with the approval of PIC • Identification of the suitable nurseries with native species for the tree planting process with the consent of DOFC • Planting of trees should be carried out with close coordination of DOFC with participation of local communities/ CBO • Proper maintenance of planted saplings for a minimum of 3 years	Throughout the project roads	To be included under the Contractors' cost	Contractor	PIU, PIC
C: Post construction and Operational stage						
1	**Hydrology and drainage**	• Rooting maintenance, repairing, removal of sediments and rubbish to avoid drainage congestions and obstruction to storm water flow.	All the drainage structures of project roads	Maintenance cost	During the maintenance period by Contractor after handed over by RDA, PRDA, LAs UC or MC	PIU/RDA
2	**Air quality and noise**	• Construction of noise and dust barriers to the required location • Enforcement of speed limits, traffic rules/ regulations and installation of sign boards to the particular locations.	All the project roads	Maintenance cost	During the maintenance period by Contractor after handed over by RDA, PRDA, LAs UC or MC	PIU/RDA/ PRDA/ LAs /UC / MC

3	**Site restoration**	• Restoration of borrow pits, crusher plants and quarry sites based on IML instructions of GS&MB. • Re-establishment of material storage yards, material processing plants and temporary constructed offices , labour camps and toilets to the original situation as per the agreement by the land owners	Temporary constructed labour camps and offices, Material extraction sites, storage yards	To be included under the Contractors' cost	Contractor	PIU/RDA/ PRDA/ LAs /UC / MC
4	**Maintenance of roads**	• Implementation of proper maintenance program after handed over by the contractor	All the project roads	Maintenance cost	RDA, PRDA, LAs UC or MC	PIU/RDA/ PRDA/ LAs /UC / MC
5	**Encroachment of ROW**	• Rooting checking and removal of unauthorized structures	All the project roads	Maintenance cost	RDA, PRDA, LAs UC or MC	PIU/RDA/ PRDA/ LAs /UC / MC
6	**Replanting of trees**	• Upkeep planted saplings for a minimum of 3 years until proper establishment in the ground • Survivability assessment should be carried out by the Contractor and need report to PIU regarding the status of compensatory tree plantation • Supplementary sapling should be implanted for dead plants	All replanted areas	To be included under the Contractors' cost	During the maintenance period by Contractor after handed over by RDA, PRDA, LAs UC or MC	PIU/RDA/ PRDA/ LAs /UC / MC

APPENDIX VI.2 SAMPLE OF AN ENVIRONMENT MONITORING CHECKLIST

Appendix VI.2: Environment Monitoring Checklists : Upgrading of Rural Roads- Eastern Province

No	Action of the Project	Mitigation Measures	Location	Compliance status	Corrective actions if any
A: Design and Pre construction stage					
01	Land acquisition	• Land acquisition will not be involved for the project except realignment of bends or construction of cross drainages in several locations based on the design requirements • If land need from the public, negotiation with property owners will be carried out with involvement of third party • All effort will be made to avoid land acquisition for the project	Several project roads		
02	Selection of temporary use lands	• Effort shall be taken to minimize use of temporally land for the construction activities • Selection of temporary lands with considering of social and environmental background adhering to laws and regulations in the county • Approval for the temporally use lands shall be obtained from Engineer and need to sign agreement with the land owners.	Throughout the project roads if need to use temporary lands		
03	Removal of trees	• Effort shall be taken to minimize removal of road side trees • No removal of religious and cultural important trees and avoid removal of trees from temporary use lands • Removal of tree should be based on the final design of the roads • Preparation of inventory prior to removal of potential trees and permission shall be taken from DS for removal • Remove trees shall be handed over to Timber cooperation or rightful owners • Provision shall be made to additional compensation tree planting program with native species • Organizing of tree planting program in compensation at least one tree cut with planting 3 trees • Tree planting should be done where ever possible with the help of DOFC, DS in the area, CBOs, NGOs etc.	Throughout the all project roads		

04	**Shifting of public utilities**	• Proper utility survey shall be carried out in order to identify the effected utilities and the exact locations • Consent & action shall be obtained from relevant service providers (CEB, NWS&DB, and SSLT) to minimize time and the duration of utility disruption • Approval shall be obtained from DOI for any proposed construction works on Irrigation canals • Advance notice to the public about time and the duration of utility disruption • Use of well trained and experienced machinery operators for the shifting/reestablishment of utilities to minimize accidental damage and functional purposes • Special attention shall be taken to provide relevant services to the public without long delay. • Water and other utilities shall be provided to the public if long delay to reestablish services with the instruction of PIC	Throughout the project roads: if those facilities are available and need to shifted for improvement activities		
05	**Impact to the public properties**	• Construction activities are restricted to the existing ROW, no impact to the road side properties • Religious and culturally important structures within ROW will not be affected due to project activities • Action should be taken to minimize impact to the common properties within ROW	Throughout the project roads: if public properties are available		
06	**Hydrology and drainage**	• Design of new culverts and other drainage structures by considering hydrological investigation report and consultation with Department of Irrigation and Provincial Irrigation Department • Provision of adequate drainage facilities to the inundation and flood prone locations • Temporary diversion of water ways during construction should be ensured that no obstruction to natural water flow. • Construction work affecting water bodies should be prevented and work should be scheduled during the dry season. • Excavation of beds of any streams, irrigation systems and other water resources should be avoided by the Contractor. • Contractor shall not divert, close or block existing canals and streams in a manner that adversely affect downstream intakes.	All cross drainages, streams and Aru cross the rods, inundation and flood prone locations		

01	**Flood and inundation**	• Construction activities should be scheduled to avoid flood and inundation as a result of construction e.g. blockage of drainage path • Construction should minimize during the rainy season and drains should keep clean all the time without any obstruction. • Increase height of embankment in flood prone and inundation sections, construction of new culverts and other cross drainages as required to above locations • If flood and inundation cause due to negligence of the contractor, contractor should rectify all the damages with his own cost	Throughout the project roads, special attention to flood prone and inundation sections		
02	**Extraction of construction materials**	• Suitable quarry sites, sand mines and borrow pits shall be identified at the initial stage within project influence area • Use existing licenses quarries and borrow pits which are approved by the GSMB and CEA as much as possible • Prior approval should be obtained from GS&MB/CEA for new quarries/borrow pits or sand mines • Use alternative sources for river sand such as sea sand and screen crusher fines with the consent of PIC • Quarries and borrow pits should not be located in productive agricultural lands, environment and public sensitive areas • Restoration of borrow pits and quarry sites once after extraction based on IML instructions of GS&MB	Throughout the project area including Identified material extraction sites for the project		
03	**Transportation and storage of construction materials**	• Lording of construction materials should not exceed the caring capacity of tucks • Materials shall be properly covered during transportation with no spillage • Lording, unloading and transport of materials shall not be inconvenient to the road side community or road users • Selection of sites for stock piling with the approval of PIC away from environment and public sensitive locations • Storage of fuel, lubricant and chemicals use for the construction activities on paved surface without contamination to the	Throughout the project area including Identified material extraction sites, transportation roads, stockpiling yards		

		environment and storm water runoff • Approval shall be taken prior to use of local roads from relevant authorities and need to maintenance during the use by the Contractor			
04	**Establishment of construction camp, offices and other temporally facilities**	• Labour camps and other temporally facilities should be located away from water bodies, residential and environment sensitive areas. • Provision of proper drainage facilities to the labour camps and prevent breeding of mosquitoes, flies and other vector borne diseases. • Provision of proper sanitary facilities to the labour camps offices and other temporally facilities including water, urinals, toilets bathing facilities, mosquito nets with adequate capacity of septic tanks and soak pits. • Handling and disposal of domestic solid waste in acceptable manner without contamination of surrounding environment with consultation of Local authorities. • Provision of first aid facilities and health care facilities to the labour camps offices and other temporally facilities Provision of garbage bins to labour camps, construction sites and those should be dumped regularly in a hygienic manner.	Throughout the project area including labour camps, offices, other temporally facilities		
05	**Impact to the ground and surface water quality and quantity**	• Temporary storage of material should be done in approved sites by the Engineer where natural drainage is not disturbed. • Construction activities effecting the quantity of water sources should be carried out during the dry season • All toxic and hazardous materials should be sited at least 500m away from water bodies and should prevent their entering into these locations. • Water that contaminate with fuel, oil and grease should not be directly released to storm water or natural water drainage system. • Vehicles and equipment used for the construction activities should be maintained in good condition, ensuring no undue leakage.	Throughout the project roads including streams, Aru, marshlands, wetlands, community and public wells		
06	**Soil erosion, sedimentation and siltation**	• Construction activates: excavation and earth work around vulnerable area for soil erosion, inundation and flood prone mainly restricted to the dry season and removal of green cover	Throughout the project area including temporally use		

		vegetation of above locations shall be minimized • Temporary soil dumps should be removed from the construction sites and top soil shall be prevented to use for tree planting or turfing activities • Use of erosion control measures to the particular locations; ripraps, fiber mats, planting of deep rooted grasses, shrubs or other suitable plant species • Proper drainage facilities shall be established to the construction sites, material stock piling sites and dumping sites to drain water to the law laying areas • Silt traps shall be placed to the erodible locations specially construction sites of bridges and culverts • Temporally land use for the construction relate facilities should be reestablished to its original status before handover to rightful owners	lands for the project		
07	**Contamination of soil**	• All the vehicles, machineries and other equipment shall be serviced only in vehicle surviving yards • Oil soaking materials shall be used to the places where possible leakage • Collected waste oil and soaking materials shall be correctly stored and disposed to the approved location • Oil traps should be provided to the vehicle surviving yards and fuel pilling points • Fuel and lubricant should be properly stored in impervious surface with collecting point of spills	Throughout the project area including temporally use lands for vehicle surviving yards and fuel storage		
08	**Impact on biodiversity**	• Awareness programs should be organized for the workforce about conservation of important terrestrial & aquatic habitats with their flora and fauna. • Construction activities near forested areas, elephant habitats or around migration paths should be carried out under the instruction of DOFC and DWLC. • Material extraction sites, processing plants and waste disposal sites should not be located around above locations. • Construction activities around these locations should be limited to daytime and completed within short period of time. • No introduction of invasive alien species to the project area due	Around environment sensitive, ecological important and forested areas		

		to construction and other related activities. • Avoid removal of religious, cultural and aesthetic important trees as well as removal should not be impacted to the breeding season of birds, important roosting sites of mammals and other species of fauna			
09	**Construction debris and wastes**	• Selection of unproductive lands for disposal sites with adequate capacity away from public and environment sensitive locations • Excavated materials from the construction shall be re used to backfilling with the approval of PIC • Top soil 20 to 25 cm depth should be stored in properly for tree planting and turfing • Debris, residual spoil & dismantled & demolished structures should not be sited to the agricultural lands, irrigation canals, flood prone locations, water bodies and wetlands or to the marshy areas. • All debris and residual spoil materials including left earth should be disposed to the location approved by the LAs.	Throughout the project area including identified disposal yards		
10	**Traffic management and road safety**	• Traffic Management Plan should be implemented to required location based on daily traffic volume with close coordination of local police • Insolation of traffic warning signs, temporary traffic lights, or flagmen at the construction site or location of road diversion • Since number of proposed roads under the project cross the railway line in different locations warning signs shall be provided both side of the railway crossing • Road furniture including footpaths, crash barrier, traffic signs, speed limits, pavement markers, center line etc., should be provided to the essential locations with the improvement of roads • Stage construction or provision of safe convenient passage to the vehicles/ passengers and livestock from the road side during the construction • Avoid/limit peak hours for transportation of construction materials, movement of heavy vehicles through urban and other public sensitive areas and use of alternative roads to	Throughout the project roads		

		avoid traffic congestion			
11	**Air Quality**	• Sprinkling of water in material extraction sites, processing plants and construction area as well as, road which use for the transportation of construction materials in regular intervals • Dust extraction unit should be fitted to the construction vehicles equipment and plants (Crushers, Asphalt, Concrete & Batching plants) • Materials shall be properly covered during transportation and proper storage to ensure protection from dust and other emissions • Regularly maintenance of construction vehicles, equipment and machineries to meet National Emission Standards • Erection of dust barriers to the public, religious and other social important locations • Metal quarries, crushers and all the plants should be located at least 500m from public sensitive and residential areas	Throughout the project roads including public sensitive locations		
12	**Noise and Vibration**	• Implement of Noise Control Regulations for construction equipment, machineries and plants (Crushers, Asphalt, Concrete & Batching plants) • Construction activities that create noise should be limited to day time from 6.00am to 6.00pm and no work during night time specially around residential and public sensitive locations • Special approval should be obtained from CEA for night time work through PIC • Exhaust silencers should be fitted to heavy construction equipment (Loaders, Compactors, Cranes & Plants), limit the noise less than 75db • Regularly maintenance of all construction vehicles, equipment and machineries to limit generate of excess noise and vibration • Contractor should be taken proper action to safeguard road side properties due to vibration of construction equipment and machineries	Throughout the project road including public sensitive locations		
13	**Occupational Health and Safety**	• Organize awareness programs about personal safety of workers with proper briefing and training on safety precautions. • Provision of Personal Protective Equipment (PPE) high visibility jackets for night time work with necessary lighting arrangements. • Providing firefighting equipment to the construction sites and arrangement of the workshop and training program about use	Throughout the project roads		

		of firefighting equipment in emergency situation • Regular inspection of construction sites and other related locations to ensure use of proper PPE by workforce and their safety. • Arrangement of first aid facilities to the all construction sites, trained paramedical personal and transport facilities for emergency situation. • Organize awareness program of STD/HIV/ AIDS for the work force to avoid risk of speeding STD.			
14	Planting of trees	• Tree planting shall be done in compensation at least one tree cut with 3 trees along the road side if the space available or find the suitable locations of project affected area with the approval of PIC • Identification of the suitable nurseries with native species for the tree planting process with the consent of DOFC • Planting of trees should be carried out with close coordination of DOFC with participation of local communities/ CBO • Proper maintenance of planted saplings for a minimum of 3 years	Throughout the project roads		
1	Hydrology and drainage	• Rooting maintenance, repairing, removal of sediments and rubbish to avoid drainage congestions and obstruction to storm water flow.	All the drainage structures of project roads		
2	Air quality and noise	• Construction of noise and dust barriers to the required location • Enforcement of speed limits, traffic rules/ regulations and installation of sign boards to the particular locations.	All the project roads		
3	Site restoration	• Restoration of borrow pits, crusher plants and quarry sites based on IML instructions of GS&MB. • Re-establishment of material storage yards, material processing plants and temporary constructed offices , labour camps and toilets to the original situation as per the agreement by the land owners	Temporary constructed labour camps and offices, Material extraction sites, storage yards		
4	Maintenance of roads	• Implementation of proper maintenance program after handed over by the contractor	All the project roads		
5	Encroachment of ROW	• Rooting checking and removal of unauthorized structures	All the project roads		
6	Replanting of trees	• Upkeep planted saplings for a minimum of 3 years until proper establishment in the ground • Survivability assessment should be carried out by the Contractor and need report to PIU regarding the status of	All replanted areas		

		compensatory tree plantation • Supplementary sapling should be implanted for dead plants			

APPENDIX VI. 3 STANDARD ENVIRONMENT MONITORING PLAN (RURAL AND NATIONAL ROADS)

Annex VI.3 : Common Environment Monitoring Plan (EMOP) for the Eastern Province

Environmental component	Project Stage	Parameters	Frequency	Standard	Unit cost	Total Cost	Responsibility	
							Implementation	Supervision
Air Quality	Design stage	TSPM, PM_{10}, NO_2 , CO, So_2 , Pb	A single time	National Air Quality Standers of Sri Lanka	Rs. 22000.00	Rs. 22000.00	RDA/PRDA by engaging approved monitoring agency of GoSL	CEA
	Construction stage	TSPM, PM_{10}, NO_2 , CO, So_2 , Pb	Three times per year/ two years	National Air Quality Standers of Sri Lanka	Rs. 22000.00	Rs. 132000.00	Contractor by engaging approved monitoring agency of GoSL	CEA/ RDA/PRDA
	Operation	TSPM, PM_{10}, NO_2 , CO, So_2 , Pb	Single time Per year/ 3 years	National Air Quality Standers of Sri Lanka	Rs. 22000.00	Rs. 66000.00	By RDA/PRDA, by engaging approved monitoring agency by GoSL	CEA
Water Quality	Design stage	EC, pH, DO, TSS, BOD, Oil and grease, Lead, E. Coli	A single time	National water Quality Standers	Rs. 8500.00	Rs. 8500.00	RDA/PRDA by engaging approved monitoring agency of GoSL	CEA
	Construction Stage	EC, pH, DO, TSS, BOD, Oil and grease, Lead, E. Coli	Three times per year/ two years	National water Quality Standers	Rs. 8500.00	Rs. 51000.00	Contractor by engaging approved monitoring agency of GoSL	CEA/ RDA/PRDA
	Operation stage	EC, pH, DO, TSS, BOD, Oil and grease, Lead, E. Coli	Single time Per year/ 3 years	National water Quality Standers	Rs. 8500.00	Rs. 25500.00	RDA/PRDA by engaging approved monitoring agency of GoSL	CEA

Noise	Design Stage	dB levels	A single time	National Environmental Noise Control Regulations	Rs. 4200.00	Rs. 4200.00	RDA/PRDA, by engaging approved monitoring agency of GoSL	CEA
	Construction Stage		Three times per year/ two years	National Environmental Noise Control Regulations	Rs. 4200.00	Rs. 25200.00	Contractor by engaging approved monitoring agency of GoSL	CEA/ RDA/PRDA
	Operation stage		Single time Per year/ 3 years	National Environmental Noise Control Regulations	Rs. 4200.00	Rs. 12600.00	RDA/PRDA, by engaging approved monitoring agency of GoSL	CEA
Total						**Rs. 347000.00**		

TSPM: Total Suspended Particulate Matter
CO: Carbon Monoxide
EC: Electrical Conductivity
BOD: Biological Oxygen Demand
CEA: Central Environment Authority
Development Department

PM_{10}: Particulate Matter < 10
So_2: Sulphur Dioxide
DO: Dissolved Oxygen
E. Coli: Escherichia coli
RDA: Road Development Authority

NO_2: Nitrogen Dioxide
Pb: Lead
TSS: Total Suspended Solids
pH: Potential of hydrogen
PRDA: Provincial Road