

# Environmental Monitoring Report

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Project Number: 47273-003  
Annual Report  
January to December 2017

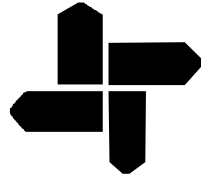
## SRI: Integrated Road Investment Program – Tranche 1 PIC 01 – Southern Province

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

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# DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA

Ministry of Higher Education & Highways  
Road Development Authority



Asian Development Bank Funded  
Integrated Road Investment Program  
**iRoad – Southern Province**  
ADB Loan No - 3171

## ANNUAL ENVIRONMENT COMPLIANCE MONITORING REPORT

**2017**

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**Submitted to:**  
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Road Development Authority



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## LIST OF ABBREVIATIONS

<b>ADB</b>	Asian Development Bank
<b>AIDS</b>	Acquired Immunodeficiency Syndrome
<b>ARE</b>	Assistant Resident Engineer
<b>CEA</b>	Central Environmental Authority
<b>CRCs</b>	Conventional Road Contracts
<b>CSD</b>	Context Sensitive Design
<b>DE</b>	Design Engineer
<b>DPM</b>	Deputy Project Manager
<b>EARF</b>	Environmental Assessment and Review Framework
<b>ECOP</b>	Environmental Code of Practice
<b>EMAP</b>	Environmental Management Action Plan
<b>EMC</b>	Environmental Monitoring Checklist
<b>EMP</b>	Environmental Management Plan
<b>EO</b>	Environmental Officer
<b>ES</b>	Environmental Specialist
<b>ESDD</b>	Environmental & Social Development Division
<b>FFPO</b>	Fauna & Flora Protection Ordinance
<b>GAP</b>	Gender Action Plan
<b>GIS</b>	Geographical Information System
<b>GND</b>	Grama Niladari Division
<b>GoSL</b>	Government of Sri Lanka
<b>GRM</b>	Grievance Redress Mechanism
<b>HIV</b>	Human Immunodeficiency Virus
<b>IA</b>	Implementation Agency
<b>IEE</b>	Initial Environmental Examination
<b>iROAD(SP)</b>	Integrated Road Investment Program Southern Province
<b>LARP</b>	Land Acquisition and Resettlement Plan
<b>ME</b>	Material Engineer
<b>ME&amp;RE</b>	Ministry of Environment & Renewable Energy
<b>MMF</b>	Multi-tranche Financing Facility
<b>MOHEH</b>	Ministry of Higher Education & Highways
<b>MOHPS</b>	Ministry of Highways, Ports and Shipping
<b>NEA</b>	National Environmental Act
<b>OPRC</b>	Output & Performance Based Road Contracts
<b>PAA</b>	Project Approving Agency
<b>PE</b>	Project Engineer
<b>PIC</b>	Project Implementation Consultants
<b>PIU</b>	Project Implementation Unit
<b>PLE</b>	Planning Engineer
<b>PM</b>	Project Manager
<b>PPT</b>	Power Point Presentation
<b>PRDA</b>	Provincial Road Development Authority
<b>PS</b>	Pradeshiya Sabha



<b>RDA</b>	Road Development Authority
<b>RE</b>	Resident Engineer
<b>RF</b>	Resettlement Framework
<b>RRDSE</b>	Rural Road Design & Safety Engineer
<b>RSA</b>	Road Safety Audits
<b>SE</b>	Site Engineer
<b>SGRS</b>	Social Gender Resettlement Specialist
<b>SLRM</b>	Sri Lanka Resident Mission
<b>SO</b>	Safety Officer
<b>SPS</b>	Safeguard Policy Statement
<b>TL</b>	Team Leader
<b>TO</b>	Technical Officer
<b>TOR</b>	Terms of Reference



A photograph of a river flowing through a dense tropical forest. The river is muddy brown and flows from the background towards the foreground. The banks are covered in lush green vegetation, including tall trees and dense undergrowth. The sky is visible through the canopy in the background.

# 1. Introduction



## 1.1 The Project

The ADB's Multi tranche Financing Facility (MFF) for the Integrated Road Investment Program (i-Road) provides loans to Sri Lanka in an aggregate amount of up to \$800 million equivalent. The Government of Sri Lanka (GOSL) will provide counterpart financing of \$106 million for feasibility study and engineering, tax and duties, and part of the contingency. The MFF will comprise a series of loans, to improve the access routes between rural areas and socioeconomic centers, in tranches. The investment program comprises five projects to be implemented between 2014 and 2024. Project 1 is in Southern Province with an estimated cost of \$235 million. The Loan will finance the Project in Southern Province amounting to \$118 million, with ADB financing \$100 million and GOSL providing the balance \$18 million in counterpart funds.

The Loan and project agreements for Tranche 1 became effective on 07 January 2015. The Project in Southern Province will improve and maintain 560 km of rural access roads, including 510 km of local roads and 50 km of provincial roads and a further 20 km of national roads. The rural access roads will be improved to all-weather standards, and be maintained for three years. The national roads will also be improved, and maintained for three years. The national roads will connect the rural access roads to adjacent socioeconomic centers.

## 1.2 Conventional Road Contracts (CRCs)

The 560 km of rural roads and 20 km of national roads covering the districts of Galle, Matara and Hambantota have been packaged in to three Contract Packages in each district resulting in a total of nine Contract Packages in Southern Province.

The three (3) CRCs in Galle District are listed in Tables 1.1, 1.2 and 1.3. The local roads have been identified as Provincial Road Development Authority (PRDA) or Pradeshiya Sabha (PS) and the national roads as Road Development Authority (RDA).

## 1.3 Objectives and Outline of the Project

The broad objective of this project is to improve the existing road surface to all-weather road surface in rural areas of Sri Lanka, so that rural population can be conveniently involved in the nationwide economic and social development.

As per the updated Facilities Administration Manual (FAM) of 1 October 2015 Project 1 in Southern Province includes three components:

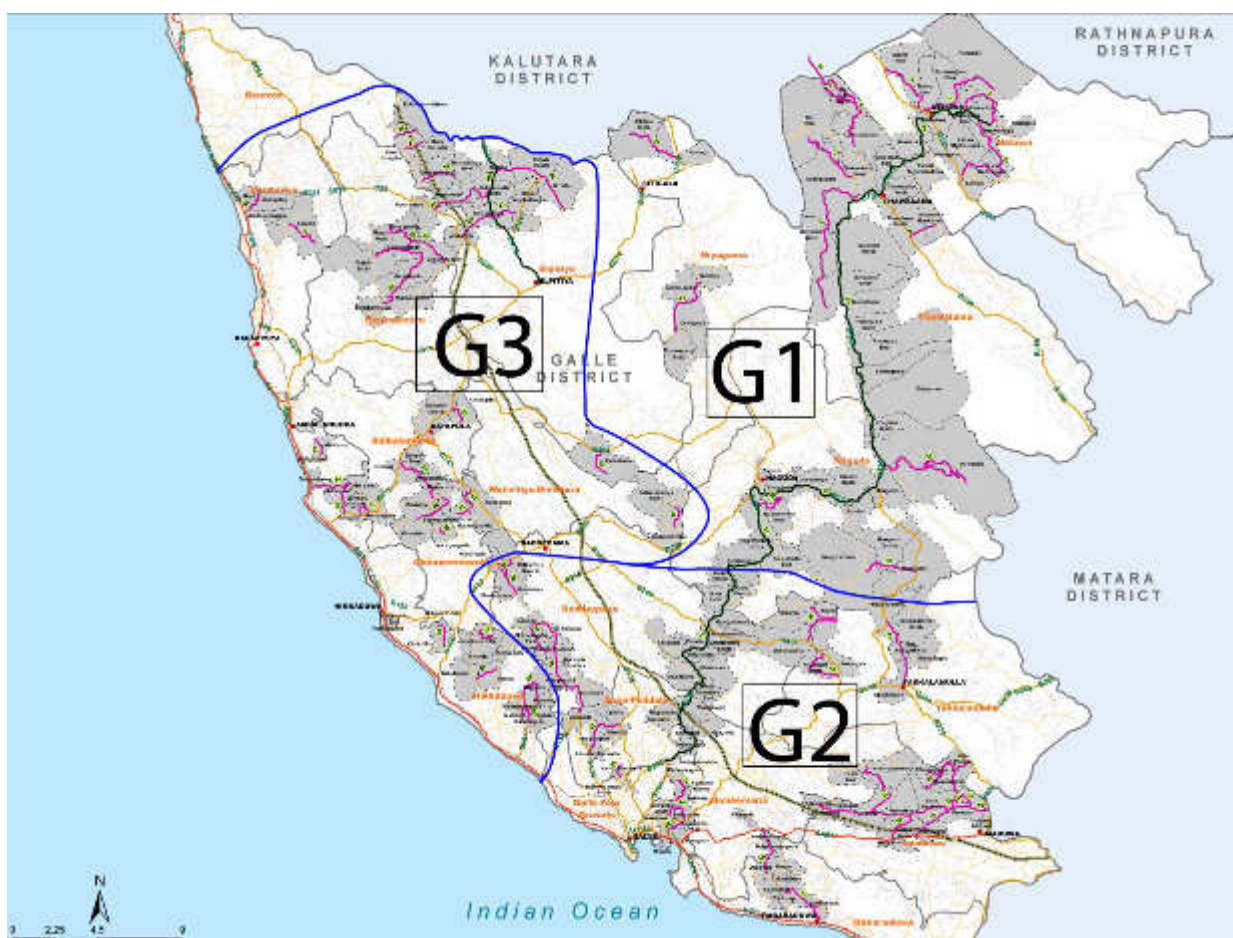
- (a) Improvement of 560 Km of rural access roads to all weather standards and 20 Km of national roads, and maintained for a period of three years, under nine CRCs.
- (b) Capacity development: This includes building the capacity of road agencies, including Ministry of Higher Education and Highways (MOHEH), RDA and provincial and local road agencies, on road asset management, project management, and contract administration.
- (c) Project preparation of following tranches.

The three (3) CRCs in Galle District are listed in Table 1.1

**Table 1.1: CRCs in Galle District**

No.	Contractor	Accepted Contract Amount (LKR)	Commencement Date	RDA (km)/ (nos.)	PRDA (km)/ (nos.)	PRDA & PS (km)/ (nos.)	PS (km)/ (nos.)	Total (km) / (nos.)
<b>G1</b>	K. D. Ebert & Sons Holdings(Pvt) Ltd	1,458,055,706.14	18.05.2015	-	2.8/1	-	61.8/14	64.6/15
<b>G2</b>	K. D. A. Weerasinghe & Co(Pvt) Ltd	1,483,136,252.40	18.05.2015	-	15.7/3	3.0/1	47.3/18	66.0/22
<b>G3</b>	K. D. A. Weerasinghe & Co(Pvt) Ltd	1,733,440,933.20	18.05.2015	9.4/1	2.2/1	15.5/3	46.5/24	73.6/29
<b>Sub Total Galle District</b>		<b>4,674,632,891.74</b>	<b>-</b>	<b>9.4/1</b>	<b>20.7/5</b>	<b>18.5/4</b>	<b>155.6/56</b>	<b>204.2/66</b>

The locations of the 204.2 Km (66 nos.) roads in Galle District are shown in **Map 1.1** below.



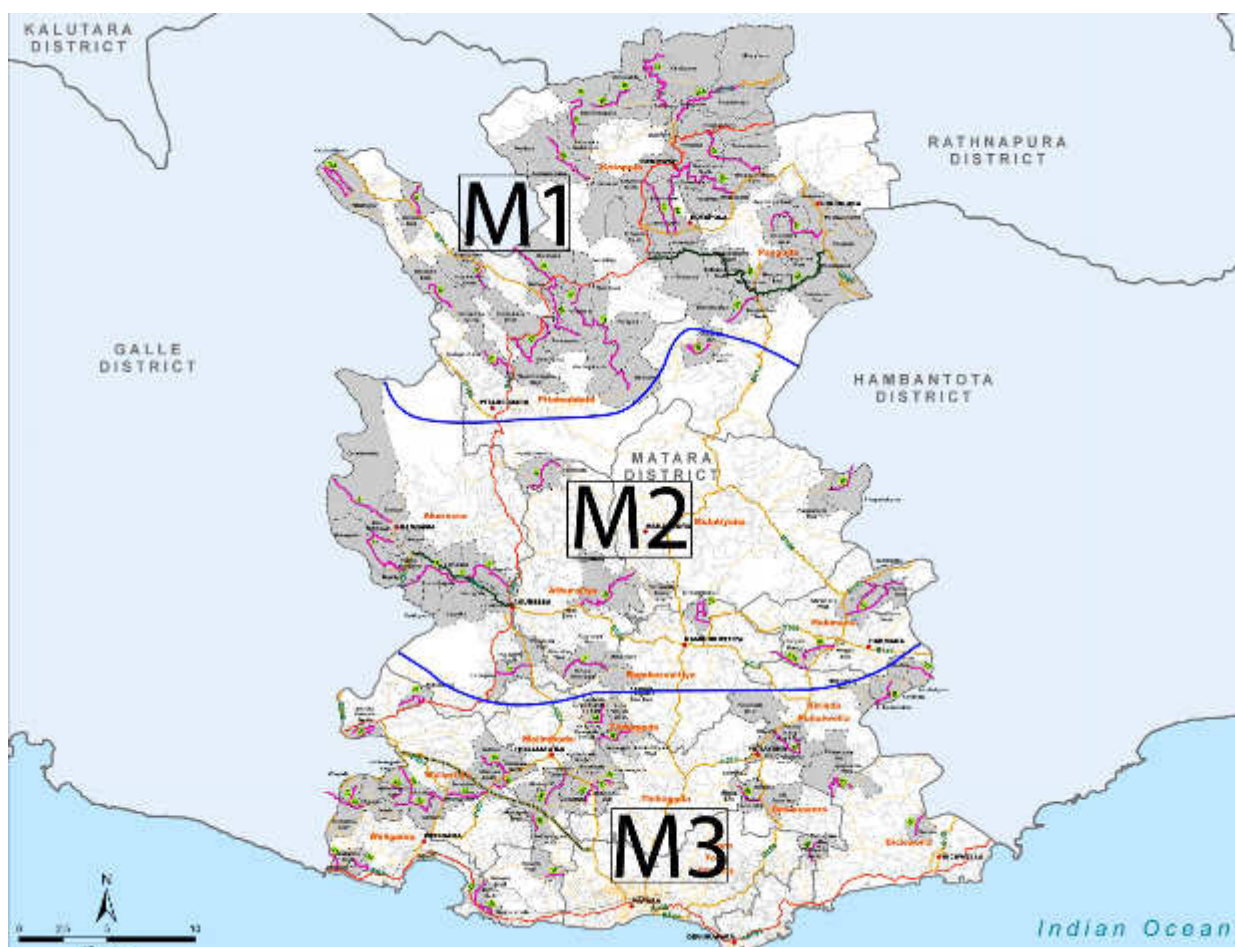
**Map 1.1:** Locations of 204.2 Km (66 nos.) roads in Galle District

The three (3) CRCs in Matara District are listed in Table 1.2

**Table 1.2: CRCs in Matara District**

No.	Contractor	Accepted Contract Amount (LKR)	Commencement Date	RDA (km)/ (nos.)	PRDA (km)/ (nos.)	PRDA & PS (km)/ (nos.)	PS (km)/ (nos.)	Total (km) /(nos.)
<b>M1</b>	CML-MTD Construction Ltd	2,315,346,953.44	18.05.2015	6.3/1	29.4/5	-	61.8/16	97.5/22
<b>M2</b>	K. D. Ebert & Sons Holdings (Pvt) Ltd	1,803,301,712.60	18.05.2015	7.2/1	11.3/2	-	50.7/16	69.2/19
<b>M3</b>	K. D. Ebert & Sons Holdings (Pvt) Ltd	1,207,599,780.58	18.05.2015	-	4.8/2	-	48.6/23	53.4/25
<b>Sub Total Matara District</b>		<b>5,326,248,446.62</b>	<b>-</b>	<b>13.5/2</b>	<b>45.5/9</b>	<b>-</b>	<b>161.1/55</b>	<b>220.1/66</b>

The locations of 220.1 Km (66 nos.) roads in Matara District are shown in **Map 1.2** below.



**Map 1.2: Locations of 220.1Km (66 nos.) roads in Matara District**

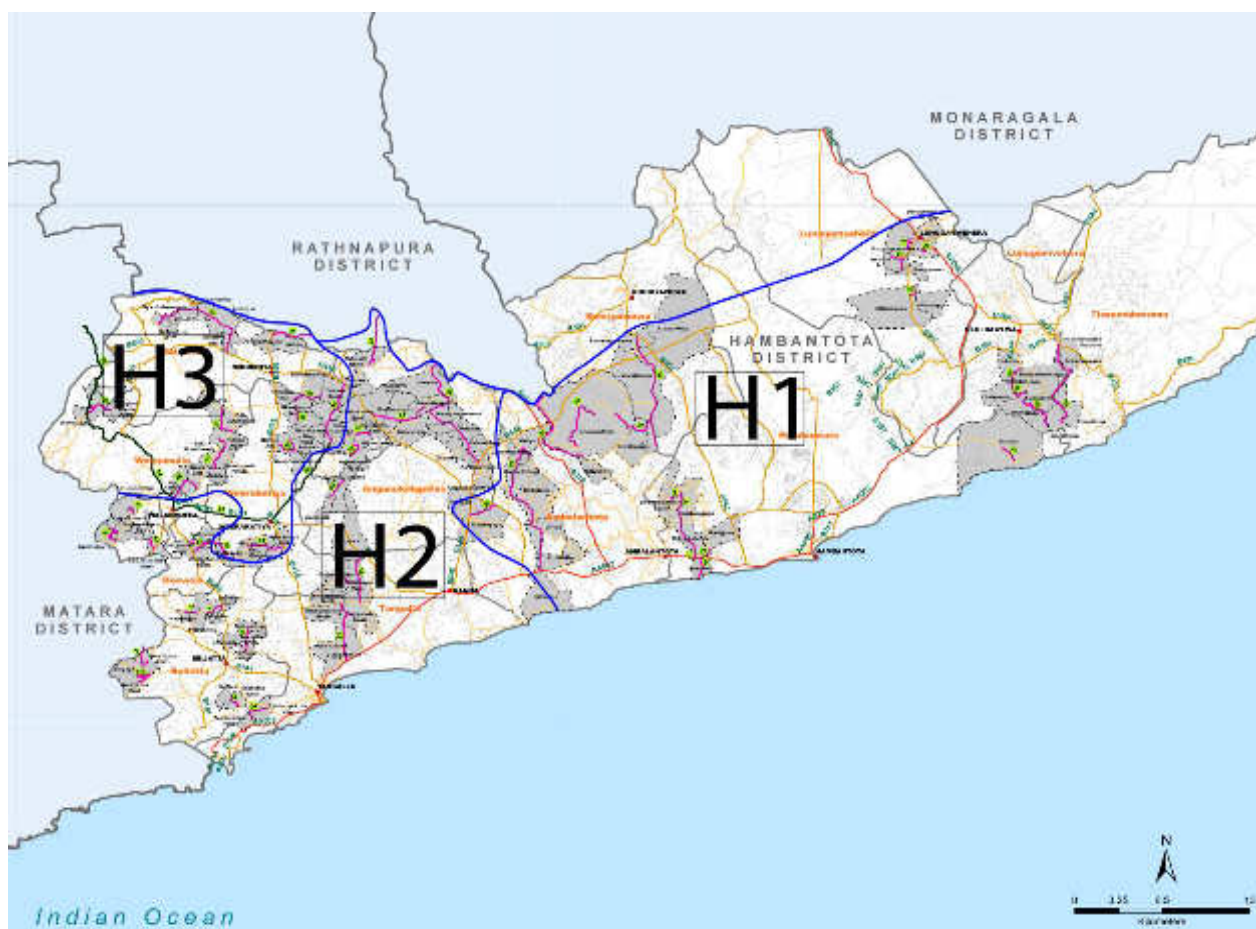


The three (3) CRCs in Hambantota District are listed in Table 2.3

**Table 1.3: CRCs in Hambantota District**

No.	Contractor	Accepted Contract Amount (LKR)	Commencement Date	RDA (km)/ (nos.)	PRDA (km)/ (nos.)	PRDA & PS (km)/ (nos.)	PS (km)/ (nos.)	Total (km) / (nos.)
H1	K. D. A. Weerasinghe & Co (Pvt) Ltd	1,583,594,552.40	18.05.2015	-	19.3/4	-	47.8/15	67.1/19
H2	CML-MTD Construction Ltd	1,210,330,393.84	18.05.2015	-	15.6/1	-	42.4/17	58.0/18
H3	RR Construction (Pvt) Ltd	1,052,141,503.89	18.05.2015	-	8.8/1	-	34.1/13	42.9/14
<b>Sub Total Hambantota District</b>		<b>3,846,066,450.13</b>	-	-	<b>43.7/6</b>	-	<b>124.3/45</b>	<b>168.0/51</b>

The locations of 168.0 Km (51 nos.) roads in Hambantota District are shown in **Map 1.3** below.



**Map 1.3:** Locations of 168.0 Km (51 nos.) roads in Hambantota District

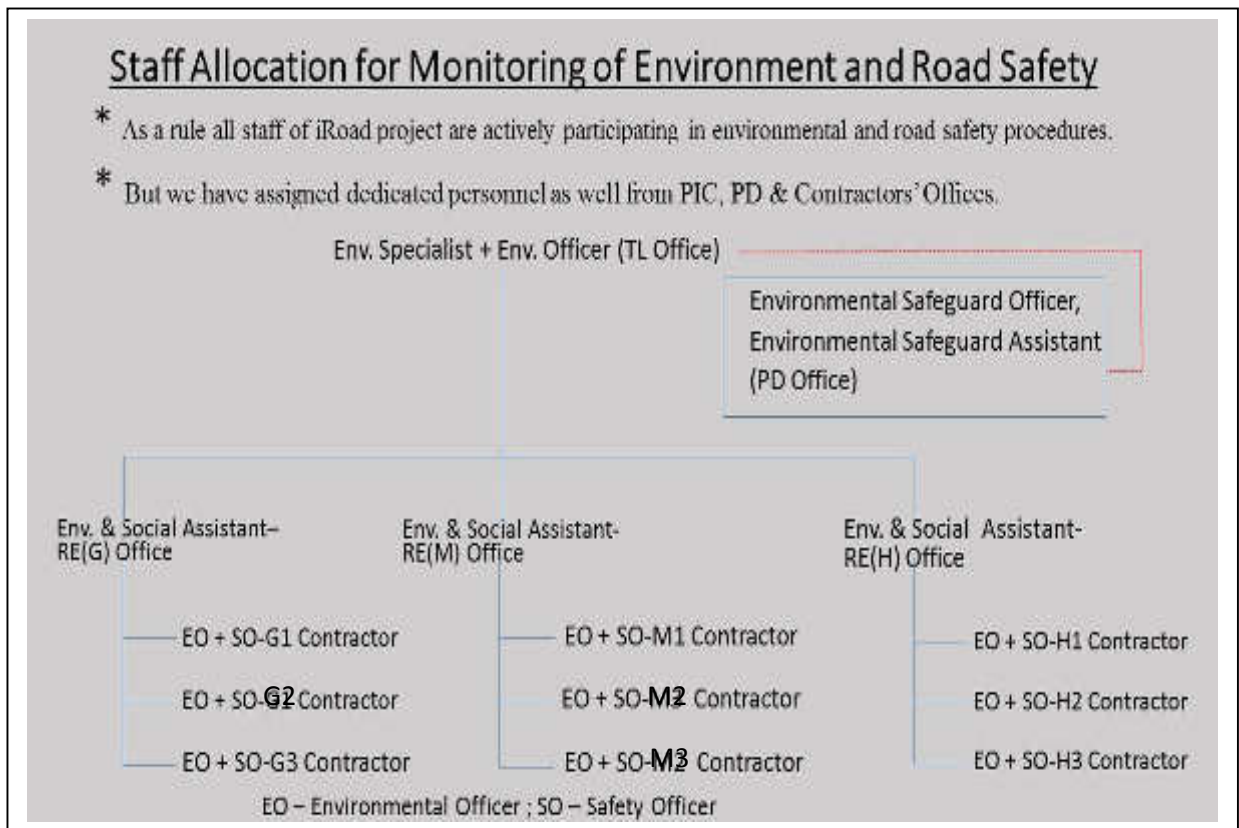
#### **1.4. Supervision, Responsibilities and Staffing, for Environmental Safeguard Implementation**

The Project Implementation Unit (PIU) under RDA, MOHEH is responsible for overall conduction of environmental assessments, implementation and monitoring of environment safeguards for specific project roads under the investment program. Within RDA there is a separate unit, the Environment and Social Development Division (ESDD) to cover social and environment safeguards. ESDD was established in response to capacity building needs identified in earlier ADB projects such as the Southern Transport Development Project. This division comprises of approximately 7 environment safeguard officers and 9 social safeguard officers who are well experienced in implementing ADB projects. The division is responsible for developing manuals and guidelines, providing assistance in conduction of proper safeguard assessments, and implementation and monitoring of environment and social safeguards in accordance with environmental policies of GOSL and donor agencies.

However since ESDD is responsible for all projects under RDA and given the large scale of the investment program, this division does not have adequate time and resources to implement and monitor safeguards for the iRoad program. Therefore, a separate safeguard team dedicated to the investment program has been created (Environment and Social Unit-ESU) within the PIU for managing safeguard. ESDD provides technical support and monitor the implementation of safeguards under the iRoad program on regular basis as necessary.

The safeguards team was comprised of sufficient social and environment safeguard officers as necessary to cover the quantum and geographic distribution of works in all provinces under the investment program. The safeguard team (fig. 01) supported by a team of environmental consultants under the Project Implementation Consultants (PIC), daily monitor the implementation of EMAP and compilation of monitoring checklists and reports. Overall supervision done by ADB CSD/ SG specialist in the PIC 01 and the main role was to advise PIU and PIC safeguard officials regarding project safeguard aspects and how it implement according to the guideline set by ADB.

Detailed safeguard training workshops were conducted for the PIU, safeguard team, SAPE and PIC to clarify the roles and responsibilities of each party, method of consultation and record keeping and reporting requirements before the conduction of environmental assessment studies for each tranche. After the award of civil works contract and before the start of physical works training workshops were conducted for the PIU, safeguard team, PIC and contractor on roles and responsibilities of each party for Environmental Management Action Plan (EMAP) implementation and monitoring methods, record keeping and reporting requirements. Thereafter other subject specific or on the job training were organized by the PIU and PIC on a need basis.



**Figure 01.** The staff allocation for monitoring environment safeguard, health and safety at iRoad (SP).

### 1.5. Purpose of the Report

Environmental Assessment and Review Framework (EARF), which has been prepared during the Project Preparatory Technical Assistance (PPTA) sets out guidelines and procedures, which need to be complied under environmental safeguards of the iRoad project. As mentioned in section VII of EARF on “Monitoring and Reporting”, it is required to prepare an annual Environmental Compliance Monitoring Report (ECMR) on the progress of environmental safeguards compliance of the project.

The report is prepared to serve as the annual ECMR safeguards and the reporting period is cover from 1 January to 31 December 2017. However, the report is giving some of main highlights and information, which was not covered, from the other previous annual ECMR.



## 2. Progress of Civil Works





## 2.1 Civil Works Progress

Civil works progressed according to the guidelines set in contract document 5B [Environmental Monitoring Plan, (EMP)] to compliance with environmental safeguards. Before actual physical road works start in each road in all 9-contract packages, contractors have submitted their Environmental Monitoring Action Plan (EMAP) and Site Specific Environmental Monitoring Action Plan (SSEMAP) reports to PIC. Environmental Specialist has commented and approved each report by ES's signature and the date on the report. Following photographs (Pics.01-03) show how the contractors followed up safeguard in every aspects of completing road construction activity.



**Picture 01.** At site, consultation with community regarding safeguard- G1 package



**Picture 02.** Workers' safety- PPE progress- G1 package



**Picture 03.** Minimum construction impact to the surrounding environment- G3 package

## 2.2 Performance Based Maintenance (PBM)

The issue of Taking Over Certificates (TOC) for individual completed roads commenced from February 2017 and to end of December 2017 a total of 55 nos. roads (167.6 km) has been taken over. PBM works have commenced on these 55 nos. roads and monthly inspections are being carried out as per contract requirements. Details of 55 nos. roads taken over are shown in Table 2.0.

**Table 2.0** Summary of completed roads – iRoad (SP).

Serial No	District	Contract Package	DSD	Road Name	Road ID	Road Length (KM)	Road Category	Taken-Over Date	Commencement of PBM Period	End of 3 yrs PBM Period
-		G1	Nil							
1	Galle District	G2	Bope - Poddala	Hapugala - Eriyagaha Junction	22	2.9	PRDA	13-Feb-17	14-Feb-17	14-Feb-20
2				Edirisinghe Mawatha - Navinna	23	0.9	PS			
3			Baddegama	Wackwella - Ginimallagaha	36	7.0	PRDA			
4				K. G. Palis Mawatha	37	2.0	PS			
5			Habaraduwa - Imaduwa	Mayakaduwa - Kombala Temple - Wativadeniya - Heenpandala Road	12	0.9	PS	10-Aug-17	11-Aug-17	11-Aug-20
6				Galkatiya - Jayasumanaramaya, Govivapana Junction Road	15	1.5	PS			
7				Kombala - Halamulla - Niriwella Road	19	3.2	PS			
8			Almeemana	Hiyare East - School Road via Kaluwala B	27	1.3	PS			
9	Galle District	G3	Elpitiya	Goluwamulla - Atakohota Road	40	2.2	PRDA	3-Mar-17	4-Mar-17	4-Mar-20
10			Hikkaduwa	Galduduwa Aranya Road	64	2.3	PS			
11			Elpitiya	Amuna Junction - Maitrigama Road	42	3.9	PS	17-Oct-17	18-Oct-17	18-Oct-20
12			Hikkaduwa	Kahawa - Galduduwa Road	56	1.89	PS	3-Oct-17	4-Oct-17	4-Oct-20
13	Matara District	M1	Kotapola - Morawaka	Porupitiya - Annasigalawila Road	21	1.4	PS	28-Feb-17	1-Mar-17	1-Mar-20
14				Bengamuwa-Dabogala Road up to Napath Ella	24	3.2	PS			
15			Pitabeddara	Morawaka - Millawa Road	10	2.9	PRDA	13-Oct-17	14-Oct-17	14-Oct-20
16			Kotapola - Morawaka	Kolawenigama - Uggalpotha Road	66	1.6	PS			
17			Pitabeddara	Millagahahena - Kudalahena Road	11	4.4	PS	30-Nov-17	1-Dec-17	1-Dec-20
18			Kotapola - Morawaka	Kiriwalladola Junction to Hingurahena Road	19	2.1	PS			
19				Morawaka - Paragala Diyadawa Road	14	11.7	PS	30-Nov-17	1-Dec-17	1-Dec-20

Serial No	District	Contract Package	DSD	Road Name	Road ID	Road Length (KM)	Road Category	Taken-Over Date	Commencement of PBM Period	End of 3 yrs PBM Period
20	Matara District	M1	Pitabeddara	Alapaladeniya – Thalpekumbura Road	8	2.52	PS	6-Dec-17	7-Dec-17	8-Dec-20
21			Kotapola - Morawaka	Diyadawa - Olakumbura via Kosmodara Road	64	2.52	PS			
22				Diyadawa - Bata Adura Road	65	7.5	PS			
-		M2	Nil							
23		M3	Weligama - Welipitiya	Ibbawala - Panchaliya – Andugoda Road	30	2.28	PRDA	20-Oct-17	21-Oct-17	21-Oct-20
24				Jamburagoda Heeeligoda Junction – Bodduduwa Road	35	1.87	PS			
25	H'tota District	H1	Hambanthota	4 Ela - School Road	9	0.9	PS	30-Aug-17	31-Aug-17	31-Aug-20
26				Boralukanda Co-operative - Boralukanda Handiya Road (Laksiri Road)	11	0.8	PRDA			
27				Godawaya Junction - Temple Road	12	1.6	PS			
28				Manchgawa Layma Handiya Road	13	0.8	PS			
29	H'tota District	H2	Beliatta	Anamaduwa – Aranwela Road (Angulmaduwa – Aranwela Road)	6	1.9	PS	18-Apr-17	19-Apr-17	19-Apr-20
30				Pattiyawela – Tharapeliya Road	7	1.0	PS			
31			Thangalla	Pattiyapola – Marakolliya Road	33	3.1	PS			
32				Pattiyapola - Akkarawela Thalunna Road	35	4.2	PS			
33			Angunukolapelassa	Uswewa Via Pahalagama Sooriyapokuna Junction Road	25	6.4	PS	5-May-17	6-May-17	6-May-20
34			Thangalla	Kadurupokuna - Seenimodara Road	34	2.6	PS	30-Jun-17	1-Jul-17	1-Jul-20
35			Angunukolapelassa	Uswewa Binkama Road	22	15.6	PRDA	15-Jul-17	16-Jul-17	16-Jul-20
36			Angunukolapelassa	Dambarella Co-op Kanabandi Area Road	23	4.5	PS	7-Sep-17	8-Sep-17	8-Sep-20



Serial No	District	Contract Package	DSD	Road Name	Road ID	Road Length (KM)	Road Category	Taken-Over Date	Commencement of PBM Period	End of 3 yrs PBM Period
37	H'tota District	H2	Beliatta	Pattiyawela – Pallattara Road	1	3.9	PS	29-Sep-17	30-Sep-17	30-Sep-20
38				Edirisinghe Mawatha Road	3	1.2	PS			
39				Siyabalapa hena Road (Siyabalahena Road)	5	1.1	PS	31-Oct-17	1-Nov-17	1-Nov-20
40				Upaskagoda (Upasakagoda) Well - Water Tank Road	2	1.2	PS	21-Nov-17	22-Nov-17	22-Nov-20
41				Polapotha Watta Road	4	0.9	PS			
42	H'tota District	H3	Walasmulla	Bariyar Junction to Galwadiya 4th Mile Post Road	38	2.6	PS	6-Jun-17	7-Jun-17	7-Jun-20
43			Weeraketiya	Kakunayaya Market to Bhuweliara Road	45	1.0	PS			
44				Maregawa Road	46	0.8	PS			
45			Katuwana	Thorakolayaya - Gammampara Road	31	3.1	PS	3-Apr-17	4-Apr-17	4-Apr-20
46			Weeraketiya	Okandayaya Paluwaththa Road	48	1.5	PS			
47				Gonadeniya – Kaluwagahayaya – Thalawa Road	49	5.2	PS	20-Jun-17	21-Jun-17	21-Jun-20
48	H'tota District	H3	Walasmulla	Ela Banteka Road (Ela Banteka Para)	37	4.5	PS	19-Jul-17	20-Jul-17	20-Jul-20
49			Weeraketiya	Kudabihula Lidagawa Road	47	1.1	PS			
50			Weeraketiya	Perahara Mawatha / Mulkirigala School Road	50	1.4	PS	22-Aug-17	23-Aug-17	23-Aug-20
51			Weeraketiya	Katuwewa to Mulgirigala School Road	51	2.8	PS			
52			Weeraketiya	Wataraua Road	52	3.6	PS	27-Sep-17	28-Sep-17	28-Sep-20
53			Walasmulla	School to Ela Banteka Para	40	2.3	PS	27-Sep-17	28-Sep-17	28-Sep-20
54			Katuwana	Welipitiya Ambagasara via Siyarapitiya Road	32	8.8	PRDA	30-Sep-17	1-Oct-17	1-Oct-20
55			Walasmulla	Warapitiya Hospital to Karadeniya Road	39	3.2	PS			
Total - Completed Km						167.58				

## 2.3 Contract Progress

The overall progress of the contracts to 31 December 2017 is shown in Table 2.1  
The status of various Contractor submittals required for compliance with the Contract is listed in Table 2.2.

Summaries of activities and progress in each Contract Package are provided as in sub-sections (Tables 2.1- 2.11; Charts 1.1-1.9).

**Table 2.1: Overall Progress**

Contract No.	Description	Length of Road (km)	Contractor	Commencement Date	Scheduled Completion Date /3 Yr Maintenance	Accepted Contract Amount (Rs. Mil)	Days Worked	Period Elapsed (%)	% Physical Progress		% Financial Progress	
									Target	Actual	Target	Actual
G1	Rehabilitation/ Improvements of 65 Km of rural roads in the Galle District - Contract 1 including Performance Based Maintenance for three years	64.6	K.D.Ebert & Sons Holdings (Pvt.) Ltd	18-May-15	18-May-17 / 18-May-20	1,458.06	958	131.2%	100.0%	69.0%	100.0%	56.1%
G2	Rehabilitation/ Improvements of 63 Km of rural roads in the Galle District - Contract 2 including Performance Based Maintenance for three years	66.0	K.D.A. Weerasinghe & Co (Pvt) Ltd	18-May-15	18-May-17 / 18-May-20	1,483.14	958	131.2%	100.0%	96.5%	100.0%	86.8%
G3	Rehabilitation/ Improvements of 74 Km of rural roads in the Galle District - Contract 3 including Performance Based Maintenance for three years	73.6	K.D.A. Weerasinghe & Co (Pvt) Ltd	18-May-15	18-May-17 / 18-May-20	1,733.44	958	131.2%	100.0%	96.0%	100.0%	88.2%
M1	Rehabilitation/ Improvements of 98 Km of rural roads in the Matara District - Contract 1 including Performance Based Maintenance for three years	97.5	CML-MTD Construction Ltd	18-May-15	18-May-17 / 18-May-20	2,315.35	958	131.2%	100.0%	96.5%	100.0%	96.3%
M2	Rehabilitation/ Improvements of 66 Km of rural roads in the Matara District - Contract 2 including Performance Based Maintenance for three years	68.2	K.D.Ebert & Sons Holdings (Pvt.) Ltd	18-May-15	18-May-17 / 18-May-20	1,803.30	958	131.2%	100.0%	79.0%	100.0%	58.4%

Contract No.	Description	Length of Road (km)	Contractor	Commencement Date	Scheduled Completion Date /3 Yr Maintenance	Accepted Contract Amount (Rs. Mil)	Days Worked	Period Elapsed (%)	% Physical Progress		% Financial Progress	
									Target	Actual	Target	Actual
M3	Rehabilitation/ Improvements of 56 Km of rural roads in the Matara District - Contract 3 including Performance Based Maintenance for three years	53.4	K.D.Ebert & Sons Holdings (Pvt.) Ltd	18-May-15	18-May-17 / 18-May-20	1,207.60	958	131.2%	100.0%	89.0%	100.0%	72.2%
H1	Rehabilitation/ Improvements of 72 Km of rural roads in the Hambantota District - Contract 1 including Performance Based Maintenance for three years	67.1	K.D.A. Weerasinghe & Co (Pvt) Ltd	18-May-15	18-May-17 / 18-May-20	1,583.59	958	131.2%	100.0%	88.0%	100.0%	80.2%
H2	Rehabilitation/ Improvements of 60 Km of rural roads in the Hambantota District - Contract 2 including Performance Based Maintenance for three years	58.0	CML-MTD Construction Ltd	18-May-15	18-May-17 / 18-May-20	1,210.33	958	131.2%	100.0%	100.0%	100.0%	94.6%
H3	Rehabilitation/ Improvements of 42 Km of rural roads in the Hambantota District - Contract 3 including Performance Based Maintenance for three years	42.9	R.R Construction (Pvt.) Ltd	18-May-15	18-May-17 / 18-May-20	1,052.14	958	131.2%	100.0%	100.0%	100.0%	94.2%
	<b>Total</b>	<b>591.3</b>				<b>13,846.95</b>			<b>100.0%</b>	<b>90.2%</b>	<b>100.0%</b>	<b>80.8%</b>

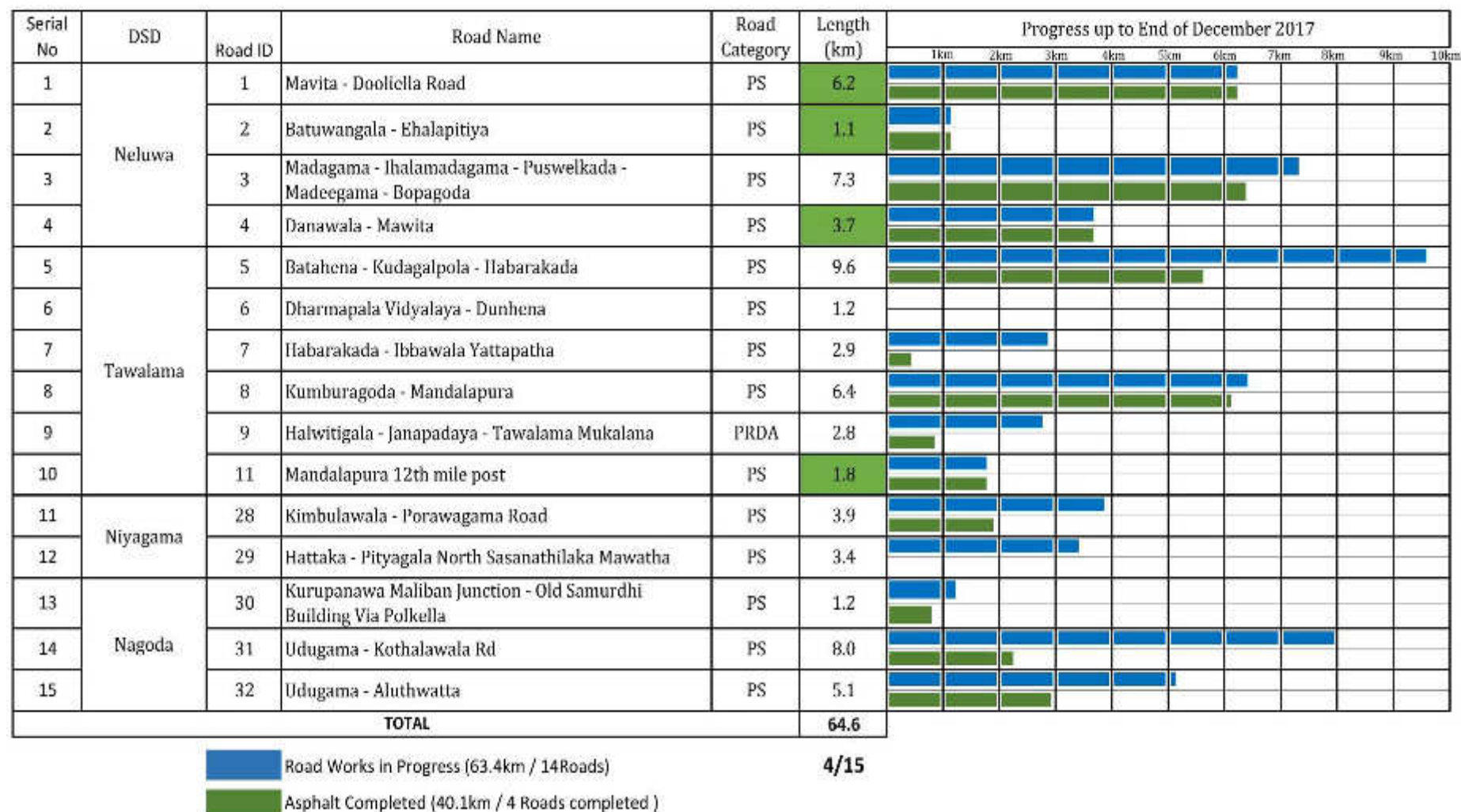


**Table 2.2:** Contractor Submittals

Description	G1	G2	G3	M1	M2	M3	H1	H2	H3
Work Program / Cash Flow	Approved on 06-Nov-2015	Approved on 12-Nov-2015	Approved on 12-Nov-2015	Approved on 30-Nov-2015	Approved on 06-Nov-2015	Approved on 06-Nov-2015	Approved on 17-Nov-2015	Approved on 17-Nov-2015	Approved on 17-Nov-2015
Method Statements excluding Bridges	Approved on 06-Nov-2015	Approved on 12-Nov-2015	Approved on 12-Nov-2015	Approved on 30-Nov-2015	Approved on 30-Nov-2015	Approved on 30-Nov-2015	Approved on 17-Nov-2015	Approved on 17-Nov-2015	Approved on 17-Nov-2015
Method Statement for Bridges	Submitted (3Nos)	Submitted (2Nos)	Submitted (5Nos)	Submitted (3 Nos)	NA	NA	To be Submitted (2Nos)	To be Submitted (3Nos)	NA
Quality Assurance Plan	Approved on 06-Nov-2015	Approved on 12-Nov-2015	Approved on 12-Nov-2015	Approved on 22-Oct-2015	Approved on 22-Oct-2015	Approved on 22-Oct-2015	Approved on 17-Nov-2015	Approved on 17-Nov-2015	Approved on 17-Nov-2015
Environmental Management Action Plan	Final Report Approved on 21-Sep-2015	Final Report Approved on 06-Nov-2015	Final Report Approved on 22-Oct-2015	Final Report Approved on 28-Sep-2015	Final Report Approved on 19-Oct-2015	Final Report Approved on 02-Oct-2015	Final Report Approved on 17-Sep-2015	Final Report Approved on 14-Sep-2015	Final Report Approved on 17-Sep-2015
Safety Plan	Approved on 06-Nov-2015	Approved on 12-Nov-2015	Approved on 12-Nov-2015	Approved on 22-Oct-2015	Approved on 22-Oct-2015	Approved on 22-Oct-2015	Approved on 17-Nov-2015	Approved on 17-Nov-2015	Approved on 17-Nov-2015

NA – Not Applicable

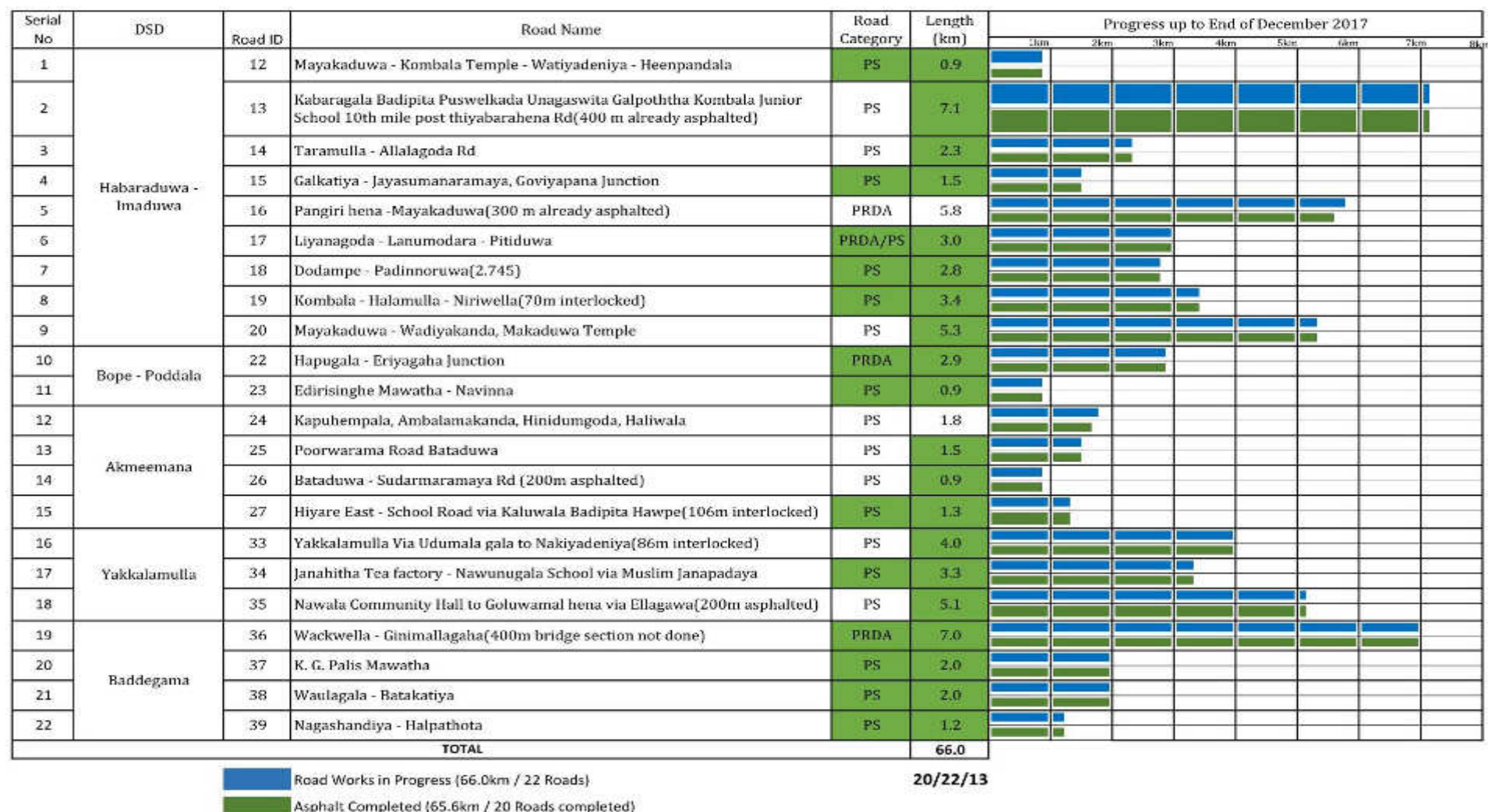
**Chart 1.1: G1 Asphalt Progress Bar Chart**



**Table 2.3: G1 Detail Physical Progress on Road Works**

D.S.D	Road Category	ROAD ID No	Length km	Clearing and Grubbing, km	Excavation for Widening, km	Embankment for Widening, km	Sub-Base for Widening, km	GS Shoulder km	Aggregate Base Course, km	MC 30 Prime Coat km	Asphalt Wearing Course km
Neluwa	PS	1	6.2	6.1	6.1	6.1	6.1	6.0	6.1	6.1	6.1
	PS	2	1.1	1.1	1.1	1.1	1.1	1.0	1.1	1.1	1.1
	PS	3	7.3	7.4	7.4	4.1	6.9	2.7	6.9	6.4	6.4
	PS	4	3.7	3.7	3.7	3.6	3.7	3.4	3.7	3.7	3.7
Tawalama	PS	5	9.6	9.6	9.6	5.7	6.5	5.0	6.5	6.3	5.6
	PS	6	1.2	1.2	-	-	-	-	-	-	-
	PS	7	2.9	2.9	2.9	0.5	0.4	0.2	0.4	0.4	0.4
	PS	8	6.4	6.4	6.4	6.2	6.4	4.3	6.4	6.2	6.1
	PRDA	9	2.8	1.3	1.3	1.2	1.2	0.2	1.0	1.0	0.9
	PS	11	1.8	1.8	1.8	1.8	1.8	1.6	1.8	1.8	1.8
Niyagama	PS	28	3.9	3.9	3.0	3.3	2.8	1.5	2.5	2.0	1.9
	PS	29	3.4	3.5	1.0	0.8	1.2	-	-	-	-
Nagoda	PS	30	1.2	1.2	1.2	1.2	1.2	0.8	0.9	0.8	0.8
	PS	31	8.0	8.1	3.5	1.4	2.3	1.8	2.3	2.3	2.2
	PS	32	5.1	4.8	4.2	4.8	4.1	5.1	4.1	3.3	3.0
<b>Totals:</b>			<b>64.6</b>	<b>62.8</b>	<b>53.0</b>	<b>41.9</b>	<b>45.7</b>	<b>33.7</b>	<b>43.7</b>	<b>41.4</b>	<b>40.1</b>
<b>% of Completion:</b>				<b>97%</b>	<b>82%</b>	<b>65%</b>	<b>71%</b>	<b>52%</b>	<b>68%</b>	<b>64%</b>	<b>62%</b>

Chart 1.2: G2 Asphalt Progress Bar Chart

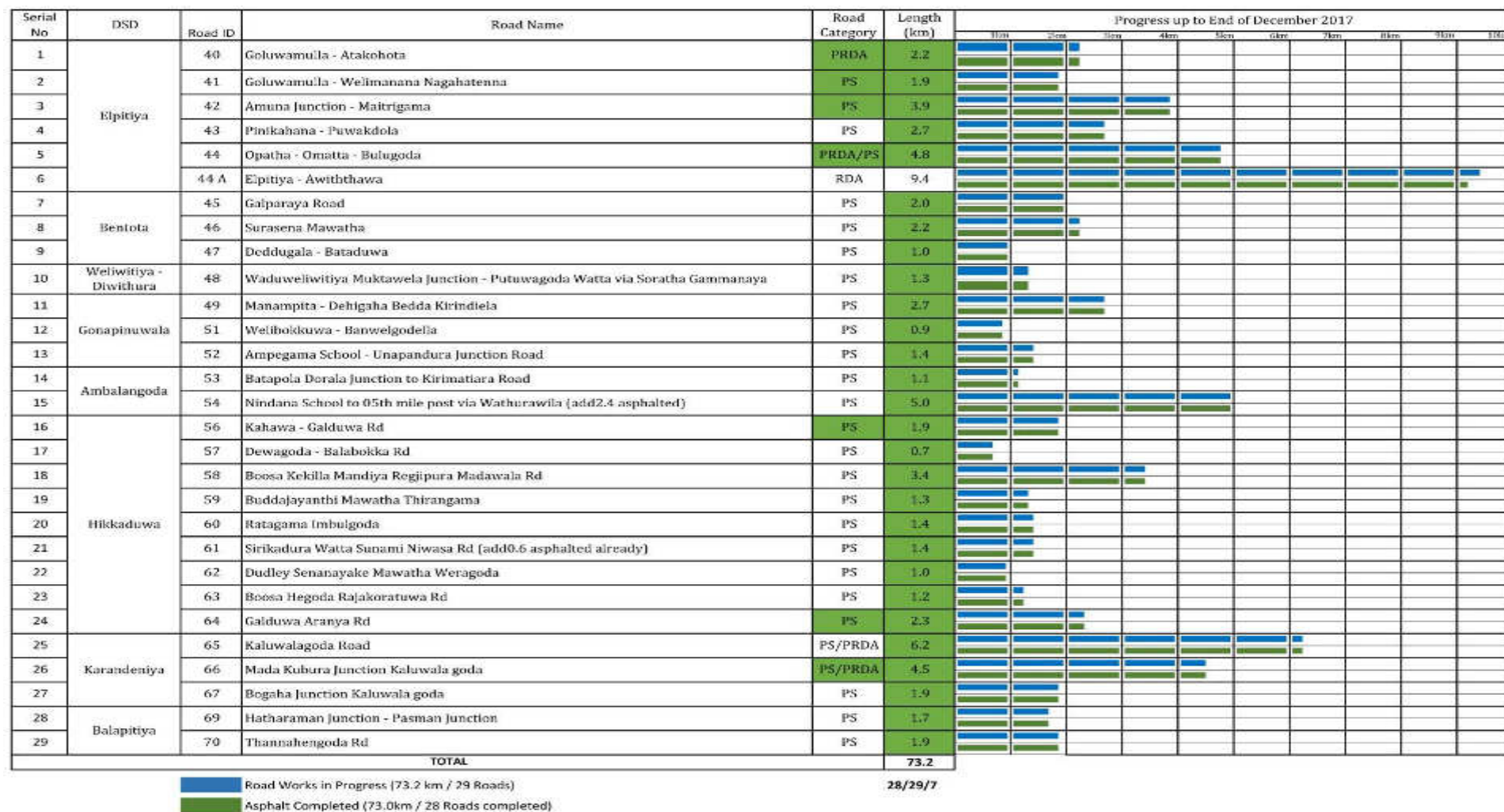


**Table 2.4:** G2 Detail Physical Progress on Road Works

D.S.D	Road Category	ROAD ID No	Length (km)	Clearing and Grubbing (km)	Excavation for Widening (km)	Embankment for Widening (km)	Sub-Base for Widening (km)	Earthen Shoulder (km)	Aggregate Base Course (km)	MC 30 Prime Coat (km)	Asphalt Wearing Course + Concrete Pavement (km)
Habaraduwa - Imaduwa	PS	12	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.7	0.9
	PS	13	7.1	6.7	6.7	5.5	6.7	5.0	6.7	6.1	6.7
	PS	14	2.3	2.3	2.3	0.0	2.3		2.3	0.4	2.3
	PS	15	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
	PRDA	16	5.8	5.5	5.5	5.2	5.5	4.8	5.4	5.2	5.3
	PRDA/PS	17	3.0	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1
	PS	18	2.8	2.7	2.7	2.5	2.7	2.7	2.7	2.7	2.7
	PS	19	3.4	3.4	3.4	3.4	3.4	3.4	3.4	2.7	3.4
	PS	20	5.3	5.3	5.3	5.3	5.3	5.3	5.3	4.3	5.3
Bope - Poddala	PRDA	22	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9
	PS	23	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.8	0.9
Akmeemana	PS	24	1.8	1.8	1.8	1.8	1.8	1.7	1.8	1.6	1.7
	PS	25	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.4	1.5
	PS	26	0.9	0.7	0.7	0.0	0.7	0.9	0.7	0.7	0.7
	PS	27	01.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
Yakkalamulla	PS	33	4.0	3.9	3.9	2.0	3.9	1.5	3.9	3.1	3.9
	PS	34	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.2	3.2
	PS	35	5.1	4.9	4.9	0.0	4.9		4.9	4.9	4.9
Baddegama	PRDA	36	7.0	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6
	PS	37	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
	PS	38	2.0	2.1	2.1	2.1	2.1	2.1	2.1	1.9	2.1
	PS	39	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.1	1.1
<b>Total:</b>			<b>66.0</b>	<b>65.9</b>	<b>65.9</b>	<b>53.9</b>	<b>65.9</b>	<b>53.6</b>	<b>65.9</b>	<b>59.9</b>	<b>65.6</b>
<b>% Completed:</b>				<b>100.0%</b>	<b>100.0%</b>	<b>81.8%</b>	<b>100.0%</b>	<b>81.3%</b>	<b>99.9%</b>	<b>90.8%</b>	<b>99.3%</b>



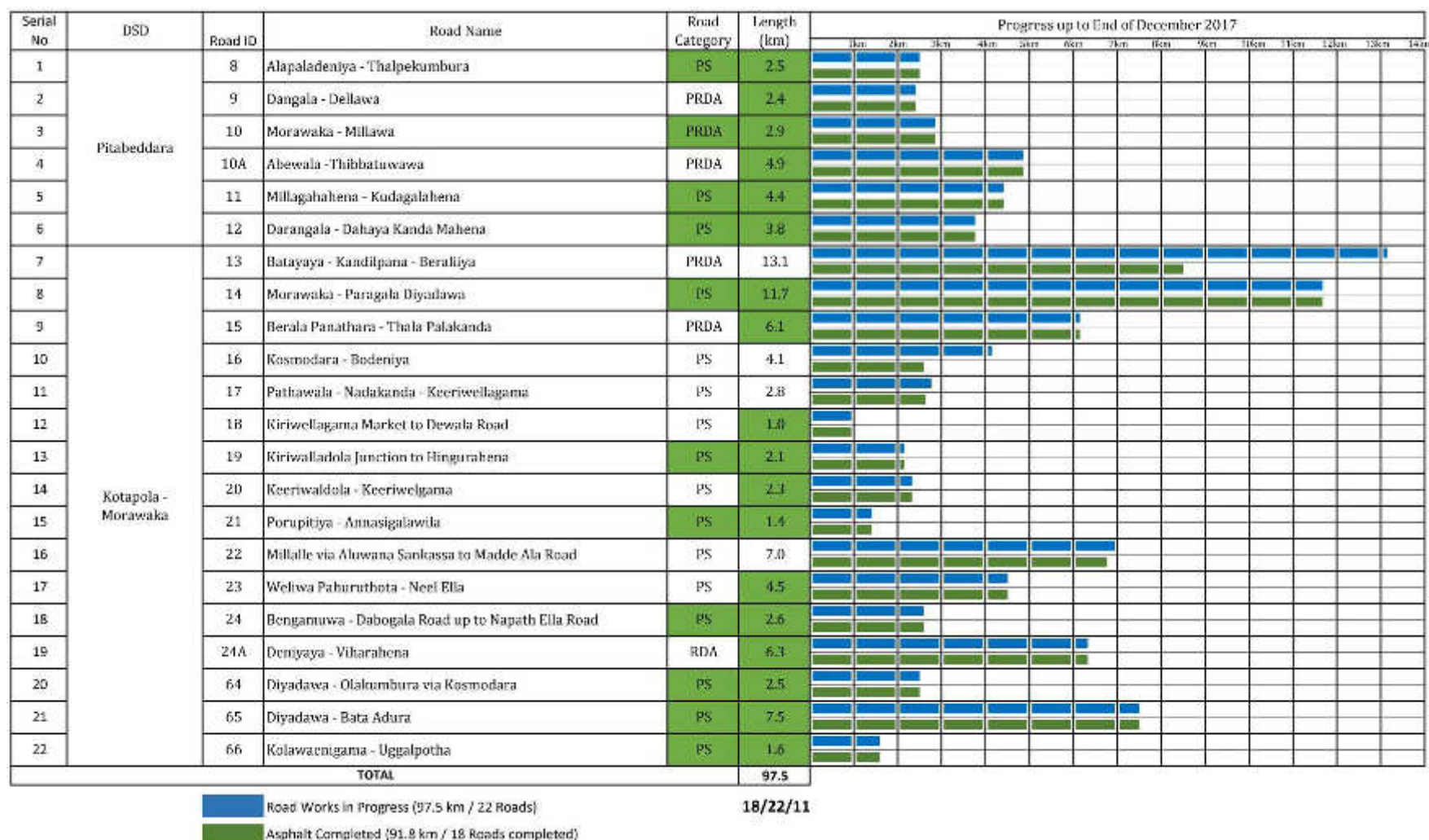
Chart 1.3: G3 Asphalt Progress Bar Chart



**Table 2.5: G3 Detail Physical Progress on Road Works**

D.S.D	Road Category	ROAD ID No	Length (km)	Clearing and Grubbing (km)	Excavation for Widening (km)	Embankment for Widening (km)	Sub-Base for Widening (km)	Earthen Shoulder (km)	Aggregate Base Course (km)	MC 30 Prime Coat (km)	Asphalt Wearing Course (km)
Elpitiya	PRDA	40	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2
	PS	41	1.9	1.9	1.9	1.9	1.9	1.8	1.9	1.9	1.9
	PS	42	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9
	PS	43	2.7	2.7	2.7	2.7	2.7	0.4	2.7	2.5	2.7
	PRDA/PS	44	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8
	RDA	44A	9.4	9.4	9.4	9.4	9.4	5.9	9.2	9.2	9.2
Benthota	PS	45	2.0	2.0	2.0	2.0	2.0		2.0	1.8	2.0
	PS	46	2.2	2.2	2.2	2.2	2.2		2.2	2.2	2.2
	PS	47	1.0	1.0	1.0	1.0	1.0		1.0	0.6	1.0
Weliwitiya – Diwithura	PS	48	1.3	1.4	1.4	1.4	1.4	0.1	1.4	1.1	1.3
Gonapinuwalla	PS	49	2.7	2.7	2.7	2.7	2.7	0.7	2.7	2.7	2.7
	PS	51	0.9	0.9	0.9	0.9	0.9	0.7	0.9	0.9	0.9
	PS	52	1.4	1.4	1.4	1.4	1.4	0.8	1.4	1.4	1.4
Ambalangoda	PS	53	1.1	1.1	1.1	1.1	1.1		1.1	1.1	1.1
	PS	54	5.0	2.6	2.6	2.6	2.6		2.6	2.4	2.6
Hikkaduwa	PS	56	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9
	PS	57	0.7	0.7	0.7	0.7	0.7		0.7	0.7	0.7
	PS	58	3.4	3.4	3.4	3.4	3.4		3.4	3.4	3.4
	PS	59	1.3	1.3	1.3	1.3	1.3	0.3	1.3	1.3	1.3
	PS	60	1.4	1.4	1.4	1.4	1.4		1.4	1.4	1.4
	PS	61	1.4	0.8	0.8	0.8	0.8		0.8	0.8	0.8
	PS	62	1.4	1.0	1.0	1.0	1.0		1.0	1.0	1.0
	PS	63	1.2	1.2	1.2	1.2	1.2		1.2	1.2	1.2
	PS	64	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3
Karandeniya	PS/PRDA	65	6.2	6.1	6.1	6.1	6.1	6.1	6.1	6.1	6.1
	PS/PRDA	66	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
	PS	67	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9
Balapitiya	PS	69	1.7	1.7	1.7	1.7	1.7		1.7	1.7	1.7
	PS	70	1.8	2.0	2.0	2.0	2.0		2.0	2.0	2.0
<b>Total:</b>			<b>73.2</b>	<b>73.2</b>	<b>73.2</b>	<b>73.2</b>	<b>73.2</b>	<b>41.9</b>	<b>73.1</b>	<b>72.6</b>	<b>73.0</b>
<b>% Completed:</b>				<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>52.7%</b>	<b>99.8%</b>	<b>99.6%</b>	<b>99.7%</b>

**Chart 1.4: M1 Asphalt Progress Bar Chart**

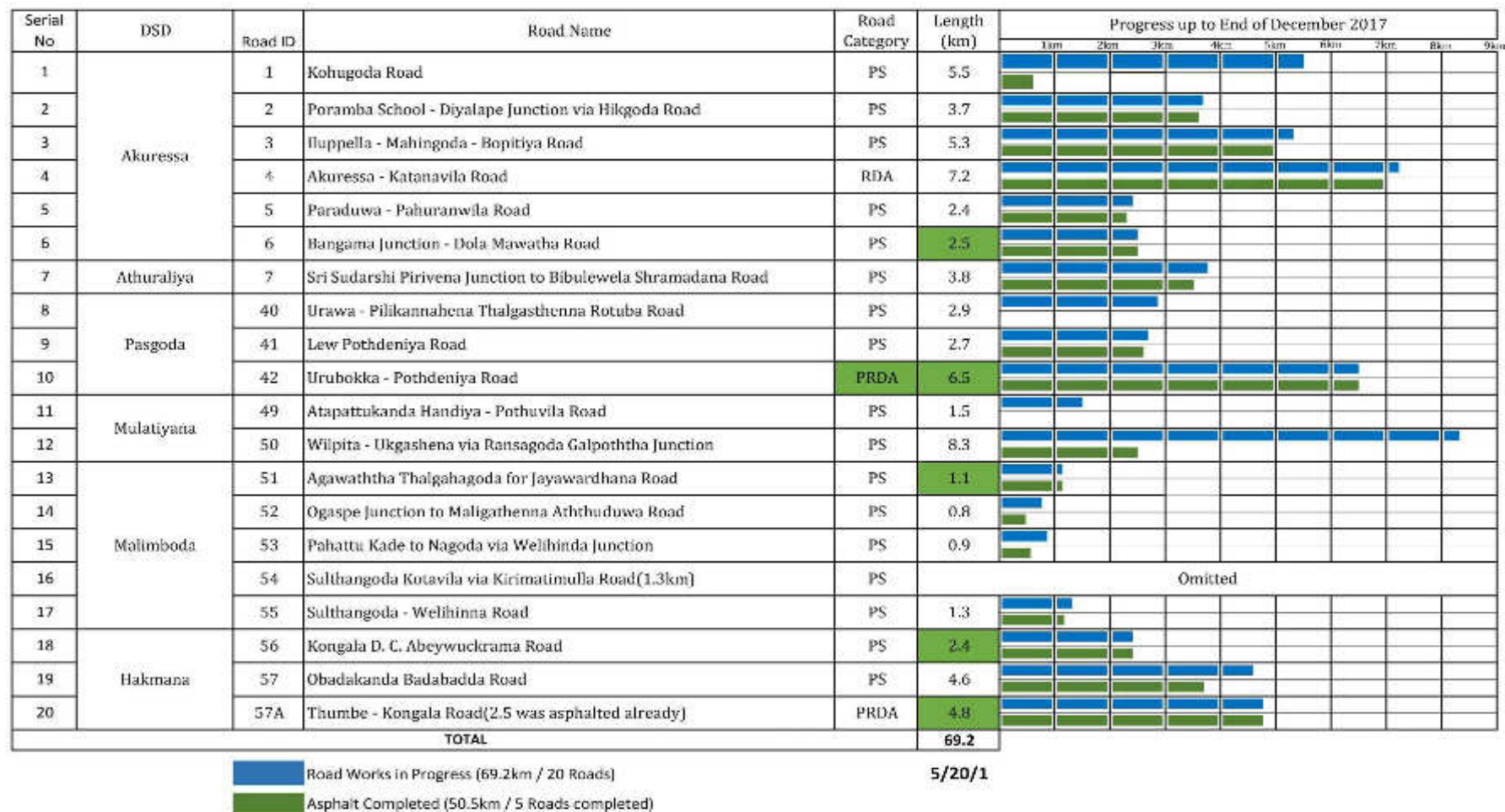




**Table 2.6:** M1 Detail Physical Progress on Road Works

D.S.D	Road Category	ROAD ID No	Length (km)	Clearing and Grubbing (km)	Excavation for Widening (km)	Embankment for Widening (km)	Sub-Base for Widening (km)	Earthen Shoulder (km)	Aggregate Base Course (km)	MC 30 Prime Coat (km)	Asphalt Wearing Course (km)
Pitabeddara	PS	8	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
	PRDA	9	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4
	PRDA	10	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9
	PRDA	10A	4.5	4.9	4.9	4.9	4.9	4.4	4.9	4.9	4.9
	PS	11	4.0	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4
	PS	12	3.8	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7
Kotapola-Morawaka	PRDA	13	13.1	13.6	13.6	13.6	9.0	4.5	9.0	9.0	8.5
	PS	14	11.7	11.2	11.2	11.2	11.2	11.2	11.2	11.7	11.7
	PRDA	15	6.1	6.1	6.1	6.1	6.1	5.5	6.1	6.1	6.1
	PS	16	4.1	4.1	4.1	4.1	4.0	2.7	4.0	2.7	2.6
	PS	17	2.8	2.8	2.8	2.8	2.8	2.3	2.8	2.7	2.7
	PS	18	1.0	1.2	1.2	1.2	1.2	1.2	1.2	1.1	1.1
	PS	19	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
	PS	20	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3
	PS	21	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4
	PS	22	7.0	6.9	6.9	6.9	6.9	4.5	6.9	6.6	6.6
	PS	23	4.5	4.5	4.5	4.5	4.5	3.0	4.5	4.5	4.5
	PS	24	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6
	RDA	24a	6.3	6.3	6.3	6.3	6.3	6.3	6.3	6.3	6.3
	PS	64	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
	PS	65	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5
	PS	66	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6
<b>Totals:</b>			<b>97.5</b>	<b>97.5</b>	<b>97.5</b>	<b>97.5</b>	<b>92.8</b>	<b>81.5</b>	<b>92.8</b>	<b>90.4</b>	<b>91.8</b>
<b>% of Completion:</b>				<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>95.0%</b>	<b>80.3%</b>	<b>95.0%</b>	<b>91.7%</b>	<b>94.1%</b>

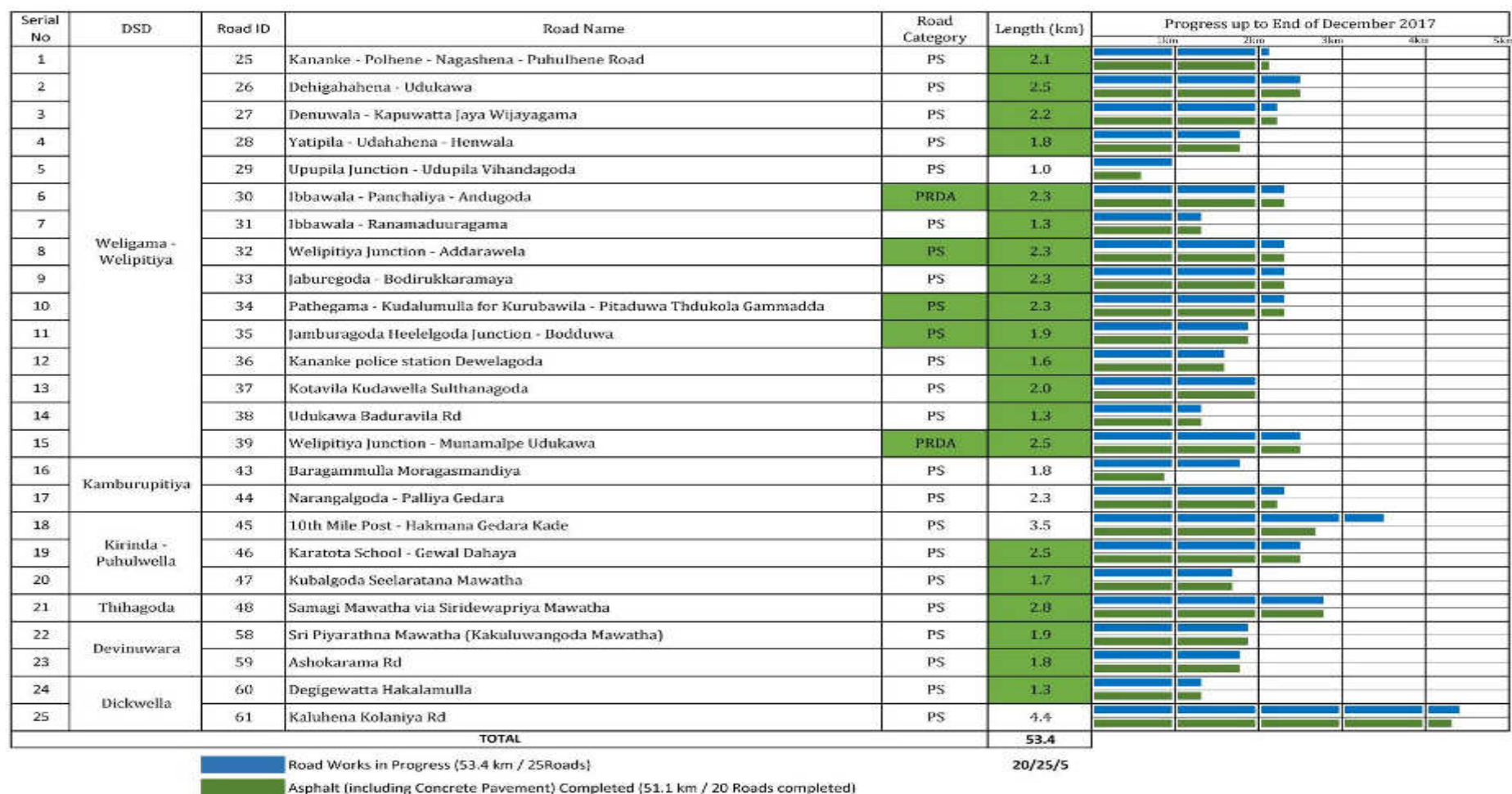
**Chart 1.5: M2 Asphalt Progress Bar Chart**



**Table 2.7: M2 Detail Physical Progress on Road Works**

D.S.D	Road Category	ROAD ID No	Length (km)	Clearing and Grubbing (km)	Excavation for Widening (km)	Embankment for Widening (km)	Sub-Base for Widening (km)	Earthen Shoulder (km)	Aggregate Base Course (km)	MC 30 Prime Coat (km)	Asphalt Wearing Course+Concrete Pavement (km)
Akuressa	PS	1	5.5	4.6	2.0	2.3	2.0	-	0.7	0.6	0.6
	PS	2	3.7	3.7	3.7	3.3	3.7	3.2	3.7	2.6	3.6
	PS	3	5.3	5.3	5.3	5.3	5.3	0.6	5.0	4.9	5.0
	RDA	4	7.2	7.2	7.2	7.1	7.0	3.5	7.0	7.0	7.0
	PS	5	2.4	2.4	2.4	2.1	2.4	0.1	2.4	2.0	2.3
	PS	6	2.5	2.6	2.6	2.6	2.6	2.4	2.5	2.5	2.5
Athuraliya	PS	7	3.8	3.8	3.8	3.7	3.8	1.4	3.7	3.5	3.5
Pasgoda	PS	40	2.9	0.3	-	-	-	-	0.2	0.2	-
	PS	41	2.7	2.7	2.7	2.7	2.7	2.4	2.7	2.6	2.6
	PRDA	42	6.5	6.3	6.3	6.3	6.3	6.3	6.3	6.3	6.3
Mulatiyana	PS	49	1.5	1.0	1.0	-	-	-	0.2	-	-
	PS	50	8.3	4.9	3.8	3.2	2.9		2.3	2.1	2.5
Malimboda	PS	51	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.0	1.1
	PS	52	0.8	0.8	0.8	0.8	0.8	0.0	0.3	0.0	0.5
	PS	53	0.9	0.9	0.7	0.8	0.7	0.1	0.6	0.6	0.6
	PS	54	-								
	PS	55	1.3	1.3	1.3	1.3	1.3	0.1	1.3	1.3	1.3
Hakmana	PS	56	2.4	2.4	2.4	2.4	2.4	1.5	2.4	2.2	2.4
	PS	57	4.6	4.6	4.0	4.0	4.0	2.8	3.8	3.8	3.7
	PRDA	57A	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8
<b>Totals:</b>			<b>68.2</b>	<b>61.0</b>	<b>56.0</b>	<b>54.7</b>	<b>53.7</b>	<b>30.2</b>	<b>51.5</b>	<b>48.3</b>	<b>50.3</b>
<b>% of Completion:</b>				<b>92.9%</b>	<b>85.2%</b>	<b>83.2%</b>	<b>81.7%</b>	<b>46.0%</b>	<b>78.4%</b>	<b>73.5%</b>	<b>76.6%</b>

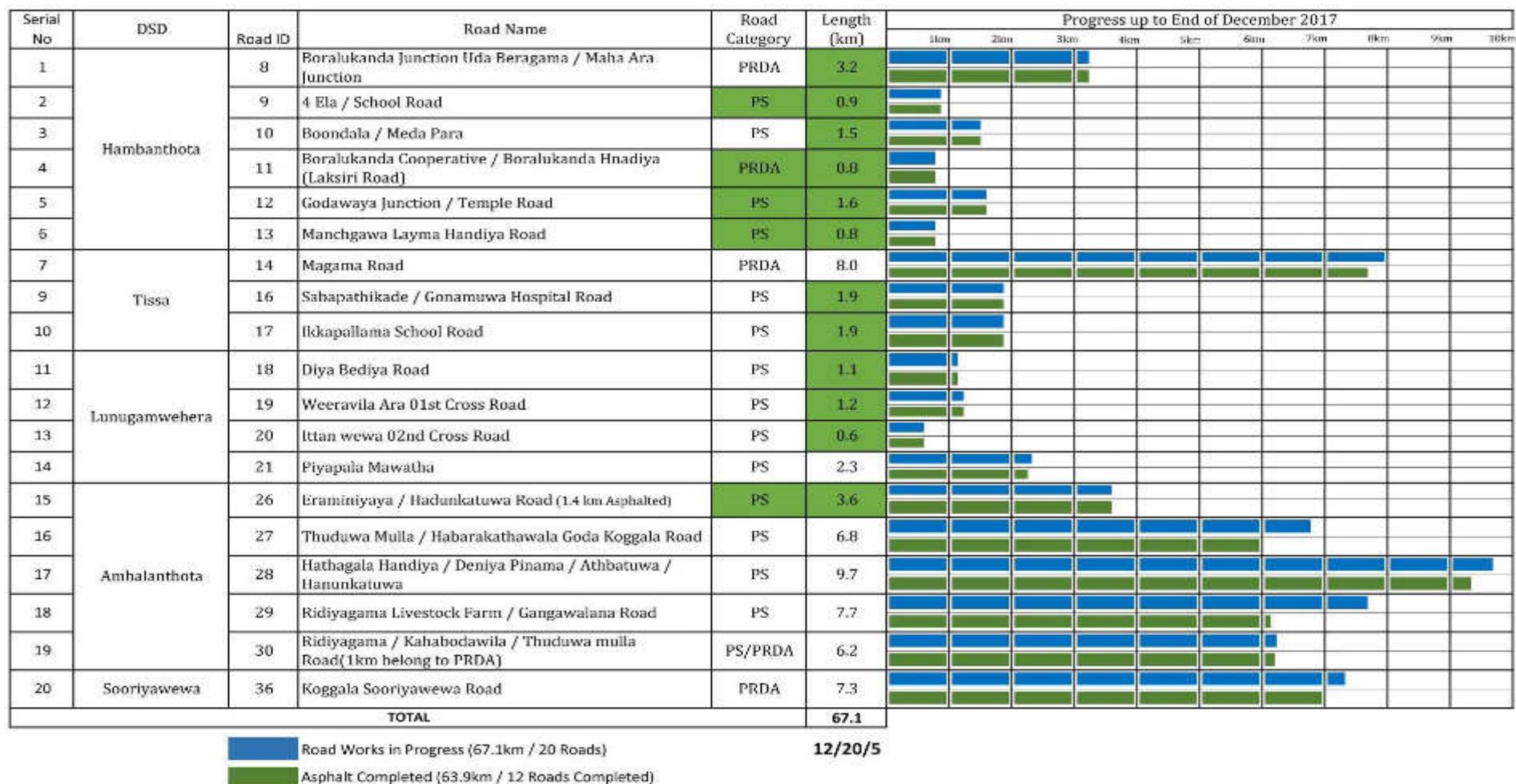
**Chart 1.6: M3 Asphalt Progress Bar Chart**



**Table 2.8 M3 Detail Physical Progress on Road Works**

D.S.D	Road Category	ROAD ID No	Length (km)	Clearing and Grubbing (km)	Excavation for Widening (km)	Embankment for Widening (km)	Sub-Base for Widening (km)	Earthen Shoulder (km)	Aggregate Base Course, (km)	MC 30 Prime Coat (km)	Asphalt Wearing Course + Concrete Pavement (km)
Weligama – Welipitiya	PS	25	2.1	2.1	2.1	2.1	2.1	1.8	2.1	2.1	2.1
	PS	26	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
	PS	27	2.2	2.2	2.2	2.0	2.2	1.1	2.2	2.2	2.2
	PS	28	1.8	1.8	1.8	1.7	1.8	0.3	1.8	1.8	1.8
	PS	29	1.0	1.0	0.6	0.6	0.6	0	0.6	0.6	0.6
	PRDA	30	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3
	PS	31	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
	PS	32	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3
	PS	33	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3
	PS	34	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3
	PS	35	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9
	PS	36	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6
	PS	37	2.0	2.0	2.0	2.0	2.0	0.3	2.0	2.0	2.0
	PS	38	1.3	1.3	1.3	1.3	1.3	0.6	1.3	1.3	1.3
	PRDA	39	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
Kamburupitiya	PS	43	1.8	1.8	1.8	1.6	1.3	0	0.9	0.9	0.9
	PS	44	2.3	2.3	2.3	1.8	2.3	0	2.2	2.2	2.2
Kirinda – Puhulwella	PS	45	3.5	3.5	3.5	2.7	2.7	0	2.7	2.7	2.6
	PS	46	2.5	2.5	2.5	2.5	2.5	0	2.5	2.5	2.5
	PS	47	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
Thihagoda	PS	48	2.8	2.8	2.8	2.5	2.8	0	2.4	2.0	2.6
Devinuwara	PS	58	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9
	PS	59	1.8	1.8	1.8	1.8	1.8	1.4	1.8	1.8	1.8
Balapitiya	PS	60	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
	PS	61	4.4	4.4	4.4	4.4	4.4	1.6	4.3	4.3	4.3
<b>Total</b>			<b>53.4</b>	<b>53.4</b>	<b>53.4</b>	<b>53.0</b>	<b>50.9</b>	<b>31.5</b>	<b>51.1</b>	<b>51.1</b>	<b>51.1</b>
<b>% of Completion:</b>				<b>100.0</b>	<b>99.3</b>	<b>95.3</b>	<b>95.3</b>	<b>59.0</b>	<b>96.8</b>	<b>95.7</b>	<b>95.7</b>

**Chart 1.7: H1 Asphalt Progress Bar Chart**

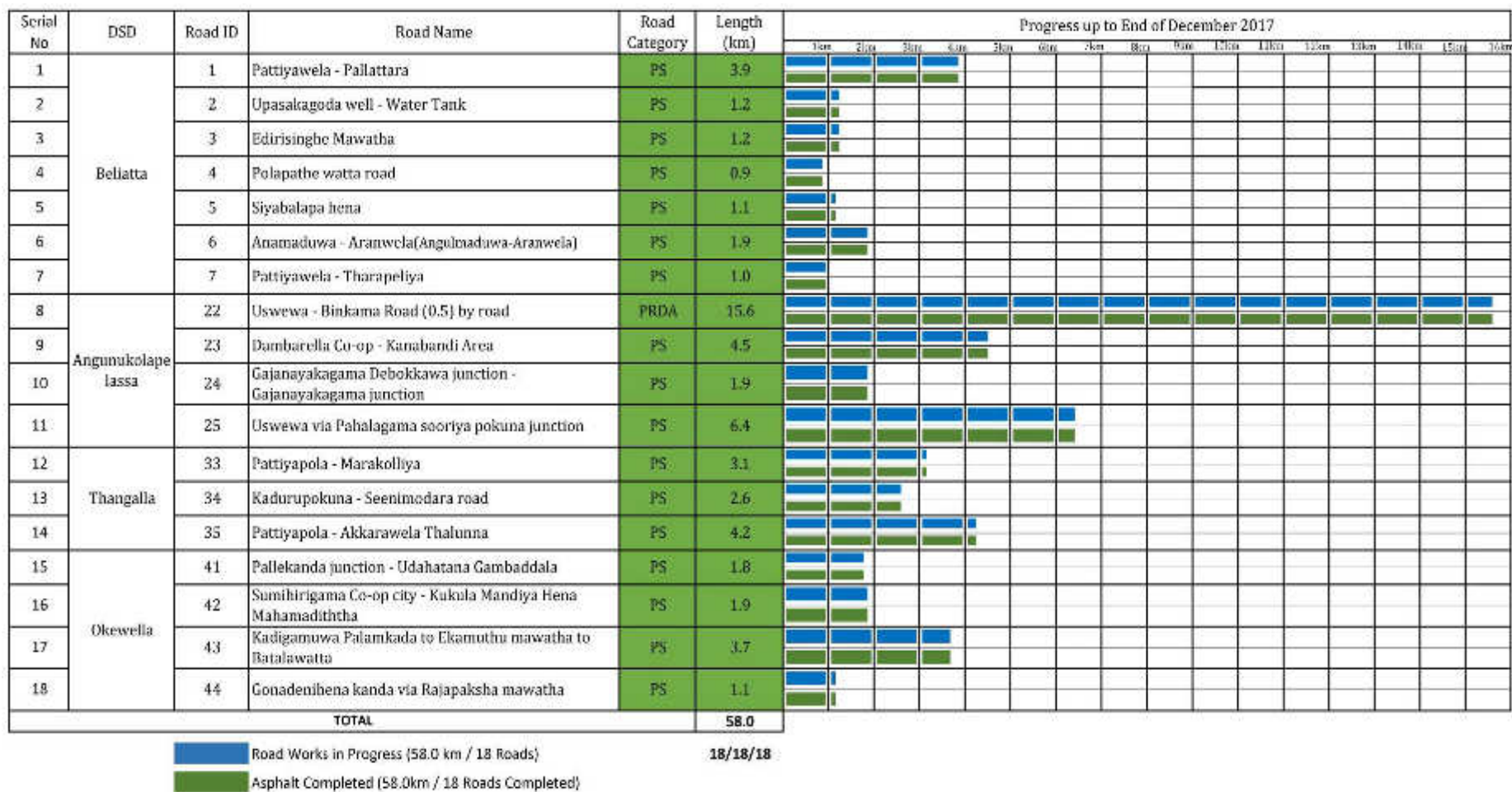




**Table 2.9:** H1 Detail Physical Progress on Road Works

D.S.D	Road Category	ROAD ID No	Length (km)	Clearing and Grubbing (km)	Excavation for Widening (km)	Embankment for Widening (km)	Sub-Base for Widening (km)	Earthen Shoulder (km)	Aggregate Base Course (km)	MC 30 Prime Coat (km)	Asphalt Wearing Course (km)
Hambantota	PRDA	8	3.2	3.2	3.2	3.2	3.2	0.4	3.2	3.2	3.2
	PS	9	0.9	0.9	0.9	0.9	0.9	0.7	0.9	0.9	0.9
	PS	10	1.5	1.5	1.4	1.4	1.4	0.8	1.4	1.4	1.5
	PRDA	11	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
	PS	12	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6
	PS	13	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
Tissa	PRDA	14	8.0	8.0	8.0	8.0	8.0	0.0	8.0	6.0	7.7
	PS	15	Omitted								
	PS	16	1.9	1.9	1.9	1.9	1.9	0.0	1.9	1.2	1.9
	PS	17	1.9	1.9	1.9	1.9	1.9	0.0	1.9	1.9	1.9
Lunugamvehera	PS	18	1.1	1.1	1.1	1.1	1.1	0.0	1.1	1.1	1.1
	PS	19	1.2	1.2	0.9	0.9	0.9	1.0	0.9	0.9	1.2
	PS	20	0.6	0.6	0.6	0.6	0.6	0.1	0.6	0.6	0.6
	PS	21	2.3	2.3	2.3	2.3	2.3	0.0	2.3	2.3	2.2
Ambalamtota	PS	26	3.6	2.2	2.2	2.2	2.2	1.8	2.2	2.2	3.6
	PS	27	6.8	6.8	6.8	5.8	5.8	4.6	5.7	5.5	6.0
	PS	28	9.7	9.7	9.7	9.7	9.6	2.9	9.6	9.3	9.3
	PS	29	7.7	7.7	7.7	6.3	6.2	0.5	6.2	6.1	6.1
	PS/PRDA	30	6.2	6.2	6.2	6.2	6.2	5.1	6.2	6.2	6.2
Sooriyawewa	PRDA	36	7.3	7.3	7.3	7.1	7.1	2.5	7.1	6.8	7.0
<b>Total:</b>			<b>67.1</b>	<b>67.1</b>	<b>67.1</b>	<b>65.1</b>	<b>64.9</b>	<b>25.0</b>	<b>64.8</b>	<b>60.8</b>	<b>63.9</b>
<b>% of Completion:</b>				<b>100.0%</b>	<b>100.0%</b>	<b>97.0%</b>	<b>96.7%</b>	<b>37.3%</b>	<b>96.6%</b>	<b>90.6%</b>	<b>95.2%</b>

**Chart 1.8: H2 Asphalt Progress Bar Chart**

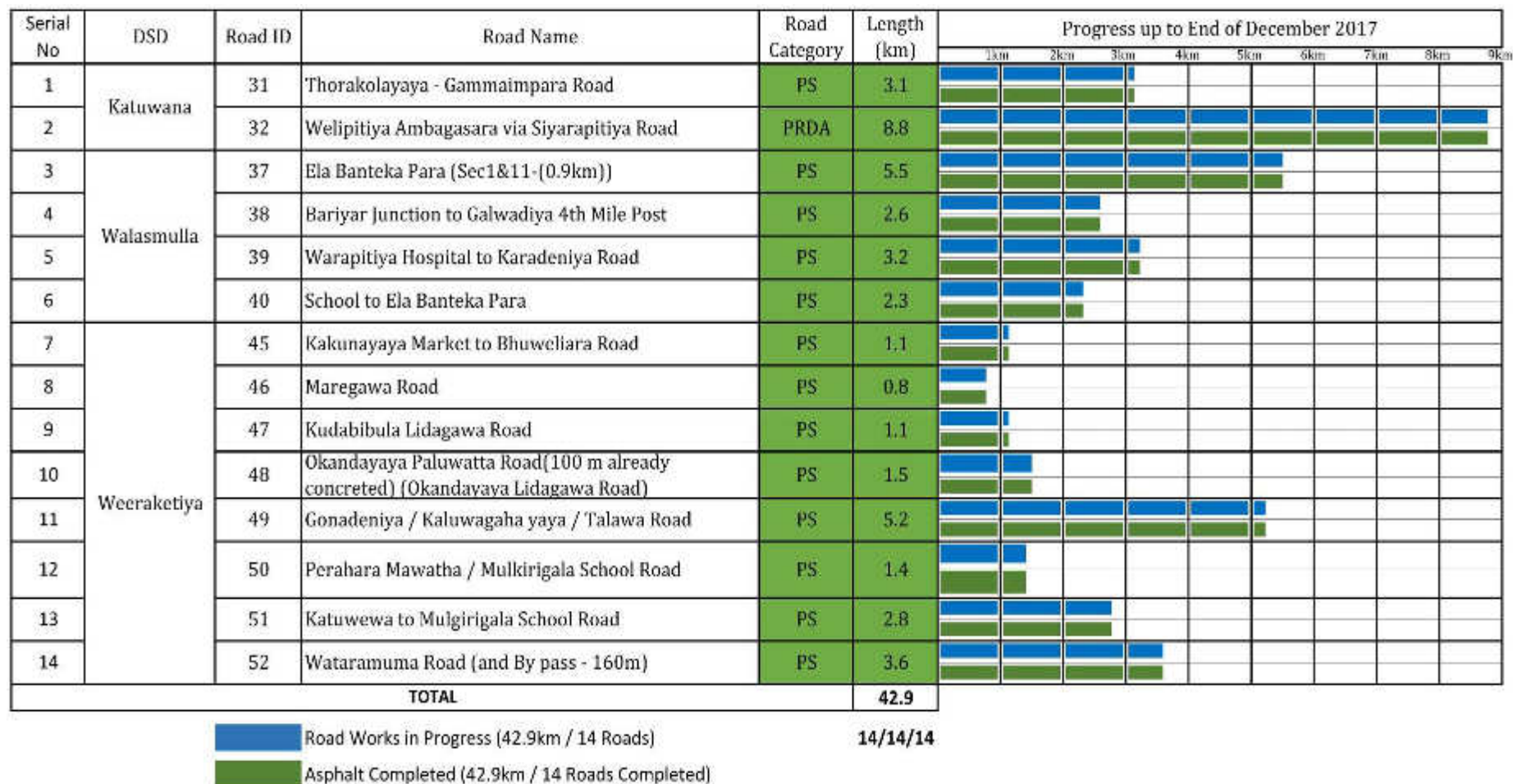




**Table 2.10:** H2 Detail Physical Progress on Road Works

D.S.D	Road Category	ROAD ID No	Length (km)	Clearing and Grubbing (km)	Excavation for Widening (km)	Embankment for Widening (km)	Sub-Base for Widening (km)	Earthen Shoulder (km)	Aggregate Base Course (km)	MC 30 Prime Coat (km)	Asphalt Wearing Course & Concrete Pavement (km)
Beliatta	PS	1	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9
	PS	2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
	PS	3	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
	PS	4	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
	PS	5	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
	PS	6	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9
	PS	7	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Angunukolapelassa	PRDA	22	15.6	15.6	15.6	15.6	15.6	15.6	15.6	15.6	15.6
	PS	23	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
	PS	24	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9
	PS	25	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4
Tangalle	PS	33	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1
	PS	34	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6
	PS	35	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2
Okewella	PS	41	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8
	PS	42	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9
	PS	43	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7
	PS	44	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
<b>Total:</b>			<b>58.0</b>	<b>58.0</b>	<b>58.0</b>	<b>58.0</b>	<b>58.0</b>	<b>58.0</b>	<b>58.0</b>	<b>58.0</b>	<b>58.0</b>
<b>% of Completion:</b>				<b>100.0%</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>

**Chart 1.9: H3 Asphalt Progress Bar Chart**



**Table 2.11:** H3 Detail Physical Progress on Road Works

D.S.D	Road Category	ROAD ID No	Length (km)	Clearing and Grubbing (km)	Excavation for Widening (km)	Embankment for Widening (km)	Sub-Base for Widening (km)	Earthen Shoulder (km)	Aggregate Base Course (km)	MC 30 Prime Coat (km)	Asphalt Wearing Course (km)
Katuwana	PS	31	3.1	3.08	3.08	3.08	3.08	3.08	3.08	3.08	3.08
	PRDA	32	8.8	8.81	8.80	8.81	8.81	8.81	8.81	8.81	8.81
Walasmulla	PS	37	5.5	4.52	4.52	4.52	4.52	4.52	4.52	4.52	4.52
	PS	38	2.6	2.58	2.58	2.58	2.58	2.58	2.58	2.58	2.58
	PS	39	3.2	3.18	3.18	2.96	2.96	2.96	2.96	2.96	3.18
	PS	40	2.3	2.28	2.28	2.28	2.28	2.28	2.28	2.28	2.28
Weeraketiya	PS	45	1.1	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10
	PS	46	0.8	0.76	0.76	0.76	0.76	0.76	0.76	0.76	0.76
	PS	47	1.1	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07
	PS	48	1.5	1.49	1.49	1.49	1.49	1.49	1.49	1.49	1.49
	PS	49	5.2	5.21	5.21	5.21	5.21	5.21	5.21	5.21	5.21
	PS	50	1.4	1.36	1.36	1.36	1.36	1.36	1.36	1.36	1.36
	PS	51	2.8	2.80	2.80	2.80	2.80	2.80	2.80	2.80	2.80
	PS	52	3.6	3.63	3.63	3.63	3.63	3.63	3.63	3.63	3.63
<b>Total:</b>			<b>42.9</b>	<b>42.9</b>	<b>42.9</b>	<b>42.9</b>	<b>42.9</b>	<b>41.9</b>	<b>42.9</b>	<b>42.9</b>	<b>42.9</b>
<b>% of Completion:</b>				<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>





3. Compliance with Environment  
Safeguards Requirements with  
Respect to Loan Documents



### **3.1 Environmental Safeguard Compliance Monitoring Complying with Environmental Assessment Review Framework (EARF).**

Environmental safeguard is one of the major compulsory component of the iRoad(SP) project and the EARF is prepared to guide selection, screening, categorization, impact assessments, project implementation and monitoring of environment safeguards according to requirements of the GOSL as well as the ADB Safeguard Policy Statement (SPS) for succeeding tranches and their project roads under the investment program. Following requirements must be fulfilled;

1. The National Environment Act (NEA) No. 47 is the key environmental policy framework, which is administered through the Central Environment Authority (CEA) of the Ministry of Mahaweli Development and Environment.
2. Ensure that the Project is complying with ADB's SPS (2009) (TOR 15b (ii)) & EARF for the iRoad project.
3. Assist and guide the Implementing Agency (IA) to ensure compliance of environmental and social safeguard (TOR 15b (ii)).
4. If required, collect baseline data to prepare a Land Acquisition and Resettlement Plan (LARP) and other impact assessments carried out in accordance with ADB's SPS (2009) and relevant laws and regulations of the host country (TOR 15 b (iii), (iv) & (v)).
5. If land donation is necessary, assist IA to prepare and supervise the implementation of the land donation and title transfer process as per Resettlement Framework (RF) [TOR 15 b (iii), (iv) & (v)].
6. Help the Government in establishing a Grievance Redress Mechanism (GRM) and in its proper functioning and management [TOR 15b (vi)].
7. Monitor the implementation of Gender Action Plan (GAP) and ensure activities are carried out as planned and relevant baseline and monitoring database collected (TOR 15b (vii)).
8. Carryout the following duties related environmental safeguard;
  - (a) Ensure that all the environmental mitigation measures required to be implemented are incorporated in the Contract Documents,
  - (b) Supervise and monitor the implementation of Environmental Management Plan (EMP); and,
  - (c) In the event of occurrence of any unexpected environmental impacts, coordinate with the Contractor and Employer to ensure that necessary mitigation measures are implemented;
  - (d) Provide technical advice to the Contractors, if necessary (Pic.05);
  - (e) Prepare periodic monitoring reports monthly and annually and submit to IA; and
  - (f) Facilitate grievance redress in the case of environmental related issues [TOR 15b (viii)].
9. Monitor contractors' compliance with and performance of required actions regarding Human Immunodeficiency Virus (HIV) / Acquired Immunodeficiency Syndrome (AIDS), human trafficking and labour core standards in accordance with the contract documents, such as awareness and education of labourers and workers (TOR 15b(vii) & (ix)). These requirements are fulfilled during either SAPE work stage or being complied with during construction stage (Pic.04).



**Picture 04.** Safeguard inspection at site level- G3 package



**Picture 05.** Technical advice and Safeguards inspection at site level- H2 package

### 3.2 Environment safeguards compliance with respect to Facility Administration Manual (FAM).

According to the guidelines set in Facility Administration Manual (FAM), no widening and no roads falling inside protected areas are included in the project in SP.

The PIC ensured that all environment safeguard requirements under the program have been implemented as required by the EARF, respective province level IEE included a standard Environmental Management Plan (EMP), and Environmental Monitoring Plan (EMOP). Environment checklists has been completed for each road in accordance with the actual physical progress. The contractor who is responsible for preparing the final detailed design of the roads, has prepared contract package specific EMPs, EMAPs, SSEMAPs and EMOPs based on the final detailed design and subjected to approval by the PIC and PIU. A provincial level IEER and a standard EMP has been prepared for SP. Contractors have prepared SSEMAPs and EMCs as required.

According to the EMOP plan for monitoring various environment quality parameters and checked the effectiveness of the EMP. It comprised of activities on tested quality of air, water and noise level through laboratory tests and physical monitoring of problems of soil erosion, tree planting and habitat enhancement activities carried out and occupational health and safety issues. Quality testing of air, water, noise level, fauna and flora was outsourced by the contractor to recognized and approved laboratories (Pic. 06).

All required clearances, permits and licenses as applicable must be obtained by the project implementation unit (PIU) before start of construction works in the respective road sections. Permits, licenses etc. for activities such as operation of asphalt plants, quarries, borrow areas etc. must be obtained by the contractor before the implementation of the respective construction activity. RDA has obtained a conditional concurrence from CEA for SP project (Attachment 01).



**Picture 06.** Fauna and flora monitoring- G2 package



## 4. Monitoring of Environmental Compliance at Field Level



#### 4.1 Staffing of Environment and Safety Officers.

All construction and related works were monitored according to Environmental Management Action Plan (EMAP) submitted by contractor's environmental officer in each package and contactors' Environmental and Safety Officers followed it on a daily basis, under the supervision and guidance of Environmental Specialist (ES) of PIC and his supporting staff in each District. ES made regular field inspections and monitoring visits to Galle, Matara and Hambantota districts, and has given instructions and correction procedures where found necessary, with regards to environmental and safety mitigation actions. In addition to above system, each District comprised one Environment Assistant (EA) based in ARE office-Hirimbure, RE office Akuressa and RE office Agunukolapelessa respectively. They were coordinating in each District contract packages regarding environment, safety/health and social components.

Staffing of contractors' environment and safety officers were approved in a systematical manner. Initially, Curriculum Vitas (CV's) of environment and safety officers were approved by the PIC. Then PIC has given induction sessions to all officers regarding environmental safeguards. Finally, onsite trainings programs were conducted in their respective contact packages. During the contract period, PIC organized 19 nos. of workshops to educate and increase awareness among PICs, PDs' and contractors' team (Pic.07).

Following tables show the recruited safeguards officers in PIU, PIC (Table 03.) and of each contract package [(Table 04.), total number of environmental, health and safety officers trained up to 31 Dec 2017)].



**Picture 07.** Safeguard team members

**Table 03.** Details of the staffing and training conducted for the PIU and PIC up to 31 Dec 2017

Institution/ Location	Officer's Name	Designation	Start Date	End Date/Status	# Awareness Programs Participated (workshops (W) and special meetings (M) regard environment safeguards
RDA-PD office Matara	Miss. Madushani Silva	Environment Safeguard Assistant	23.06.2016	31.10.2017	8 W & 3 M
PIC-TL office Matara	Mr. Roshan K Rodrigo	Environmental Specialist	02.07.2015	On duty	16 W & 7 M
	Mr. Amith Bandara	Environment Officer	18.08.2015	On duty	14 W & 7 M
PIC-RE-Galle office	Mr. Nalaka Siriwardena	Env. Assistant	05.02.2016	01.07.2016	3 W & 2 M
	Miss. Sawini Sewwandi	Env. Assistant	01.07.2016	On duty	7 W & 3 M
PIC-RE-Matara office	Miss. Thakshila Shipadi	Env. Assistant	19.03.2016	31.03.2017	9 W & 4 M
	Miss. H. R. H. Imalka	Env. Assistant	06.02.2017	On duty	9 W & 4 M
PIC-RE- Hambantota office	Miss. Lakmini Wickramasinghe	Env. Assistant	17.03.2016	03.08. 2016	9 W & 4 M
	Miss. Anuradha Wijesinghe	Env. Assistant	03.08. 2016	30.09.2016	1 W & 0 M
	Miss. S. Munasinghe	Env. Assistant	01.12.2016	31.12.2016	1 W & 0 M
	Mr. Prince Manamperi	Env. Assistant	22.06.2017	On duty	7 W & 3 M





Miss. Madushani Silva



Mr. Roshan K. Rodrigo



Mr. Amith Bandara



Mr. Nalaka Siriwardena



Miss. Sawini Sewwandi



Miss. Thakshila Shilpadi



Miss. H. R. H. Imalka



Miss. Lakmini  
Wickramasinghe



Miss. Anuradha  
Wijesinghe



Miss. S. Munasinghe



Mr. Prince Manamperi

**Table 04.** Details of the staffing and training conducted for the contractors.

Contract Package	Officer's Name	Designation	Start Date	End Date/Status	# Awareness Programs Participated (workshops and special meetings regard environment safeguards)
G1	Mr. Udara Senananyake	Env. & Safety Officer	24.09.2015	18.11.2016	7W & 3M
	Mr. S.H.P.Udayanga	Env. & Safety Officer	18.11.2016	On duty	3W & 2M
G2	Mr. T.P Tharanga	Env. & Safety Officer	23.09.2015	15.06.2017	7W & 3M
	Mr. H.V Amila Chinthaka	Env. Officer	15.09.2017	On duty	7W & 3M
G3	Mr. Rasanga Weligala	Env. & Safety Officer	24.09.2015	12.09.2016	5W & 3M
	Mr. Mathisha Menuka	Env. & Safety Officer	12.09.2016	31.12.2016	1W & 1M
	Mr. I. V. Samantha kumara	Safety Officer	02.06.2015	On duty	4W & 4M
M1	Mr. Ajith Kumara Ranaweera	Env. Officer	23.09.2015	On duty	7W & 5M
	Mr. P.D.N.N.Janaka	Safety Officer	06.06.2016	22.02.2016	3W & 1M
M2	Mr. R. Dayarathne	Env. Officer	10.07.2015	03.01.2016	4W & 1M
	Mr. M.A.S Maddumage	Env. Officer	03.01.2016	18.11.2016	3W & 3M
	Mr. M. S. Mohomad Fasly	Env. Officer	18.11.2016	On duty	2W & 2M
	Mr. O.M Senarathne	Safety Officer	02.09.2016	31.12.2016	3W & 1M
M3	Mr. Prasanna Gunasekara	Env. Officer	23.09.2015	31.11.2016	7W & 4M
	Mr. P.D.S Nissanka	Safety Officer	02.06.2015	27.02.2016	3W & 2M
	Miss. Nimanthika Wijesooriya	Env. Officer	13.03.2017	On duty	2W & 1M
	Mr. K.J.P.D Silva	Safety Officer	01.09.2016	On duty	6W & 4 M
H1	Mr. Manjula Andrahendri	Env. & Safety Officer	23.09.2015	On duty	7W & 4M
H2	Mr. Roshan Wejesuriya	Env. & Safety Officer	23.09.2015	On duty	7W & 4M
H3	Mr. Chaturanga Hatnagoda	Env. & Safety Officer	23.09.2015	08.08.2016	6W & 3M
	Mr. Chaminda Pushpakumara	Env. & Safety Officer	08.08.2016	31.01.2018	2W & 2M



Mr. Udara Senanayake



Mr. S.H.P Udayanga



Mr. T.P Taranga



Mr. H.V Amila Chinthaka



Mr. Rasanga Weligala



Mr. Mathisha Menuka



Mr. I. V. Samantha  
Kumara



Mr. Ajith Kumara



Mr. P. D. D.N Janaka



Mr. R. Dayarathne



Mr. M.A.S Madumage



Mr. M.S. Mohomad



Mr. O. M. Senarathne



Mr. Prasanna  
Gunasekara



Mr. P.D.S Nissanka



Mr. Manjula  
Andrahendri





Mr. Roshan  
Wejsooriya



Mr. Chaturanga  
Hathnagoda



Mr. Chaminda  
Pushpakumara



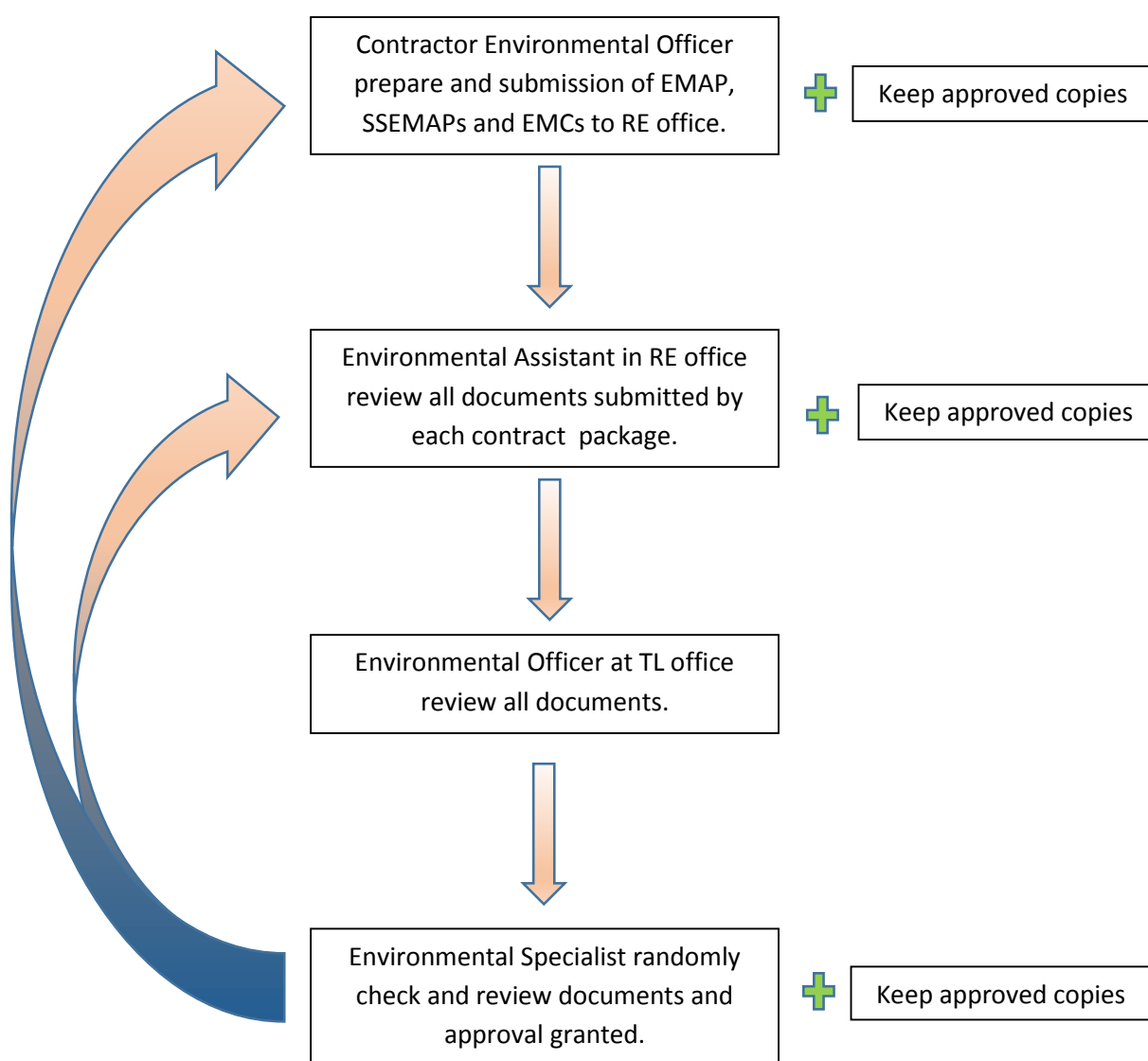
Mr. K.J.P.D Silva



Miss. Nimanthika  
Wijesooriya

## 4.2 Review, Approval of EMAP, SSEMAP and EMC and Document Keeping.

Typical formats for EMAPs', SSEMAPs' and EMCs' distributed among contractors' and informed them to fill up information as required by PIC. The draft EMAPs' SSEMAPs' and EMCs' reports are reviewed on site by Environmental Specialist (ES), Environmental Assistant (EA) and with respective officers. Final EMAPs, SSEMAPs' and EMCs' reports were approved by PIC-ES for construction activities (Table 05). Approved documents are kept at TL, REs and respective contractor offices for information. Following figure 02 shows the documentation process in a diagrammatically.



**Figure 02.** Review, approval of EMAP, SSEMAP and EMC and documentation process

### 4.3 Preparing of Environmental Monitoring Checklist (EMC).

EMCs were prepared for each road in pre-construction and construction stages for all 9 contract packages. Before the construction starts pre-construction stage, EMCs' were approved for all roads in each package (Pics. 08 & 09). Construction stage EMC's were prepared in four segments according to road construction physical progress, which was at 25%, 50%, 75% and 100% (Table 05).



**Picture 08.** Initial preparation phase of EMAPs, SSEMAPs and EMCs with all stakeholders



**Picture 09.** Examples of EMAPs, SSEMAPs and EMCs

**Table 05:** Status of the EMAPs, SSEMAPs and EMCs approved by PIC and indicate as road ID's (31 December 2017)

Package	EMAP	SSEMAP	EMC					Post- Construction
			Pre- Construction	Construction stage				
				25%	50%	75%	100%	
G1	Approved for all roads	Approved for all roads	Approved for all roads	Approved for 1, 2, 3, 4, 5, 8, 9, 11, 28, 30 & 32 roads	Approved for 1, 2, 3, 4, 8 & 11 roads	Approved for 1, 2, 4 & 11 roads	None	None
G2	Approved for all roads	Approved for all roads	Approved for all roads	Approved for all roads except 33	Approved for all roads	Approved for 12, 13, 15, 16, 22, 23 & 36 roads	Approved for 22, 23 & 36 roads	None
G3	Approved for all roads	Approved for all roads	Approved for all roads	Approved for all roads	Approved for all roads	Approved for all roads except 44A	Approved for 40, 42, 56 & 64 roads	None
M1	Approved for all roads	Approved for all roads	Approved for all roads	Approved for all roads	Approved for all roads	Approved for all roads except 13	Approved for 8 & 11 roads	None
M2	Approved for all roads	Approved for all roads	Approved for all roads	Approved for all roads	Approved for all roads except 6, 40 49 & 52	Approved for all roads except 1, 6, 7, 49, 50, 52, 53, 55 & 57	Approved for 42 road	None
M3	Approved for all roads	Approved for all roads	Approved for all roads	Approved for all roads	Approved for all roads except 43, 45 & 48 roads	Approved for all roads except 29, 36, 43, 44 & 48 roads	Approved for 25, 26, 27, 30, 32, 33, 35, 36, 39, 47, 58 & 59 roads	None
H1	Approved for all roads	Approved for all roads	Approved for all roads	Approved for all roads	Approved for all roads	Approved for 9, 11, 12, 13, 14, 19, 26, 28 & 30 roads	Approved for 9, 11, 12, 13 & 26 roads	None

H2	Approved for all roads	Approved for all roads	Approved for all roads	Approved for all roads	Approved for all roads	Approved for all roads except 4, 24 & 43 roads	Approved for all roads except 41, 42, 43 & 44 roads	None
H3	Approved for all roads	Approved for all roads	Approved for all roads	Approved for all roads	Approved for all roads	Approved for all roads	Approved for all roads	None



#### 4.4 Status of licenses, approvals and consent letters.

**Table 06:** Summary of license, approvals and consent letters obtained for materials extraction, plants and disposal sites in each contract packages (up to 31 December 2017)

Package	Material/Plant	Location	Ownership	Capacity/Extent/Source	Details of the neighboring lands	Reference/Status
G1	Soil	Pamankada, Neluwa (Selected location)	Ms. Latha Athapattu	01 acre	North-Home garden, East-Natural Stream called Ranketa Ela, South-Home garden, West Neluwa - Palawatta main road.	Not functioning/ remediated according to the agreement.
	Sand	Diganawatta, Hiniduma	G L Damith Rangana	Ging Gaga (500 m from location to both direction)	North-Small Tea land, East- Home garden, South-Tea Land, West -Ging Gaga embankment.	AL/B/MT/173/LR/03 expired on 16.09.2016. Not functioning.
	Metal	Thudugala Estate, Thudugala Dodangoda	M/S Metal Quarry Sunbee Granite Project (Pvt) Ltd	16 acres	North-small water fall, East-Forest area, South-Asplnt plant & crusher, West-Rubber estate	(No:00376) expired on 23.06.2017, renewal in progress.
	ABC	Thudugala Estate, Thudugala Dodangoda	K D Ebert & Sons Holding (Pvt) Ltd	3.5 acres	North-Quarry, East-Naboda-Dodangoda Road, South-Palm oil plantation, West-Rubber plantation	Renewal (04481) in progress.
		Thudugala Estate, Thudugala Dodangoda	K D Ebert & Sons Holding (Pvt) Ltd	3.5 acres	North-Quarry, East-Naboda-Dodangoda Road, South-Plam oil plantation, West -Rubber plantation	(No: 05067) expired on 15.03.2017, renewal in progress.
	Concrete	Batching plant not operated. Concrete mixtures operated on site.				
	Water	Batuwangala-Ehalapitiya Road, 2nd Natural Stream Just pass the School	Divisional Secretariat	Small stream	North-Batuwangala- Ehalapitiya Road & Small Tea land, East - Batuwangala- Ehalapitiya Road, South-Private road, West -Paddy field	Approval received from Divisional Secretary- Elpitiya.
		Neluwa-Palawatta road, Pamankada. Near stockyard.	Divisional Secretariat	Natural Stream-Rankata Ela	North-Home garden, East - Batuwangala- Ehalapitiya Road, South-Private road, West -Paddy field	Approval received from Divisional Secretary.
		Mavita -Doolialla Road at 1st small bridge	Divisional Secretariat	Natural stream	North- Small tea lands, East - Road, South-Mavita -Doolialla road, West - Small tea land	Approval received from Divisional Secretary
	Disposal sites	Small-scale sites were selected at desire locations, consent letters obtained from the landowners and Grama Niladari.				

G2	Soil	Akmeemana	Akmeemana Pradeshiya sabhawa	0.5 acre	Road Abandoned land Barron land Disturbed forest	Remediated.
	Metal	Batapola	KDA Weerasinghe	2.5 acre	Disturbed forest Abandoned land	Approved and expired on 13/08/2016, renewal in progress.
	Asphalt	Batapola	KDA Weerasinghe	2.5 acre	Disturbed forest Abandoned land	Approved and expired on 13/08/2017, renewal in progress.
	ABC	Batapola	KDA Weerasinghe	2.5 acre	Disturbed forest Abandoned land	Approved and expire on 13/08/2017, renewal in progress.
	Disposal	Small-scale sites were selected at desire locations, consent letters obtained from the landowners and				Grama Niladari.
G3	Metal	Neboda Quarry	KDA Weerasinghe	3 acres	Rubber plantations and scrublands	Approved and expired on 16/02/2017, renewal in progress.
		Batapola Quarry	KDA Weerasinghe	-	Cinnamon plantations	Approved and expired on 13/08/2017, renewal in progress.
	ABC	Kumbaduwa Crusher Plant	KDA Weerasinghe	1.2 acres	Private Paddy field lands, approximately 100m away from the Quarry site	Approved and expired on 26/08/2017 renewal in progress.
		Neboda Quarry	KDA Weerasinghe	3 acres	Rubber plantations and scrublands	Approved and expired on 16/02/2017, renewal in progress.
		Batapola Quarry	KDA Weerasinghe	-	Cinnamon plantations	Approved and expired on 13/08/2017, renewal in progress.
	Asphalt	Neboda Quarry	KDA Weerasinghe	3 acres	Rubber plantations and scrublands	Approved and expired on 16/02/2017, renewal in progress.
		Batapola Quarry	KDA Weerasinghe	-	Cinnamon plantations	Approved and expired on 13/08/2017, renewal in progress.
	Concrete	Kurudugaha hathakma Batching Plant & Precast yard	KDA Weerasinghe	2.1 acres	Most of surrounding area is Cinnamon lands and Ambalangoda side of the land is having a bare land	Approval obtained
	Water	Nearby 7/7 Bridge at Elpitiya - Awiththawa road	Government reserved area	Natural stream	Bare land and some paddy field area at down stream	Approval obtained by DS
	Disposal	Small-scale sites were selected at desire locations, consent letters obtained from the landowners and				Grama Niladari.
M1	Soil	Paragala School Ground	Ministry of Education (Provincial Council)	50P	Road, school garden and tea estate	Approval granted by CEA
	ABC	Lakshawaththa, Thudugala, Dodangoda	CML-MTD	-	Bare lands	Approved and expired on 28/01/2017, renewal in progress.
		Samodagama Bandiyakanda, Hambantota	CML-MTD	-	Bare lands	Approved and expired on 11/02/2017, renewal in progress.
		Dankaluwa Pitabeddara	S. Kaluarachchi	-	Isolated forest area	Approved and expired on 11/03/2016, Not in use.
		Mawaralawatte, Mawarala	S.I Witharana	-	Tea estate and isolated forest area	Approved and expired on 18/02/2016, not functioning.

		Kalugalwihena Kiriwelkale Darangala	M.P Sarathchandra	-	Cinnamon garden	Approved and expired on 18/05/2017, renewal in progress.
	Asphalt	Hambanthota	CML-MTD	-	Bare land	Approval obtained.
		Dodangoda	CML-MTD	-	Bare land	Approval obtained.
	Concrete	Produce on site by mixtures				
	Disposal	Small-scale sites were selected at desire locations, consent letters obtained from the landowners and Grama Niladari.				
M2	Soil	Eramudugoda State (G.S.Division) Neraluwa Village	N.W.Gunasekara	2.3 acres	Road and bare lands	Approval obtained.
	Metal	Bangama, Akuressa	Upali Kodagoda	10 acres	Barren lands	Approval obtained.
	ABC	Pallaththara	A.M.Kapila Priyadarshana	3 acres	Barren lands	Approved and expire on 12/09/2016, Not in use.
	Asphalt	Modarawana, Beliatta.	K.D.Ebert & Sons Holding (pvt) Ltd	6.1 acres	Coconut and scrublands	Approval obtained.
	Concrete	Eramudugoda State (G.S.Division) Neraluwa Village	N.W.Gunasekara	2.3 acres	Scrublands and road	Approval obtained.
	Water	Akuressa Katanvila Road 3+300	Irrigation department	River canal	Bare lands	Irrigation Department consent letter.
	Disposal	Small-scale sites were selected at desire locations, consent letters obtained from the landowners and Grama Niladari.				
M3	Soil	Kokmaduwa	Privet	-	Bare land	Approval obtained
	Metal	Welipitiya	Gamage Metal Crusher	-	Bare land	Approved and expired on 10/12/2017.
	ABC	Neboda	KDESH	2 acres		Obtained approval.
		Beliatta	Private (Kapila Metal Crusher)	2 acres	Coconut plantation	Obtained approval.
	Asphalt	Neboda	KDESH	2 acres		Obtained approval.
	Disposal	Small-scale sites were selected at desire locations, consent letters obtained from the landowners and Grama Niladari.				
H1	Soil	Hatagala temple, Hungama	Hatagala temple	1.5 acres	Temple, road and secondary forest	Day permits by DS
	Metal	Rathna construction metal crusher, NO 09, Mayurapura, Hambantota	K.G. Rathna kumara, Rathna Metal Crusher, Bata ata, Hungama	2 acres	N-State land, E-State land, S-Metal quarry land W-state	Approved and expired on 23/03/2017, Renewal in progress.
		Kariyamadiththa, Thalawa, Nugekoratuwa, Angunakolapelassa	Kamal Dharmajith Samarasinghe, Sinthagiri, Thalawa, Kariyamadiththa	1.5 acres	N-State land, E-State land, S-Access road, W-state land	Approved and expired on 28/09/2017, renewal in progress..
	ABC	Rathna construction metal crusher, NO 09, Mayurapura, Hambantota	K.G. Rathna kumara, Rathna Metal Crusher, Bata ata, Hungama	2 acres	N-State land, E-State land, S-Metal quarry land W-state	Approved and expired on 21/01/2017, renewal in progress..

		Kariyamadiththa, Thalawa, Nugekoratuwa, Angunakolapelassa	Kamal Dharmajith Samarasinghe, Sinhagiri, Thalawa, Kariyamadiththa	1.5 acres	N-State land, E-State land, S-Access road, W-state land	Approved and expired on 18/09/2015, Not in use.
	Asphalt	Rathna construction metal crusher, N0 09, Mayurapura, Hambantota	K.G. Rathna kumara, Rathna Metal Crusher, Bata ata, Hungama	2 acres	N-State land, E-State land, S-Metal quarry land, W-state	Approved and expired on 31/12/2017, renew.
	Disposal	Small-scale sites were selected at desire locations, consent letters obtained from the landowners and Grama Niladari.				
H2	Soil	Debokkawa	Mr. Chinthaka	4 acres	Scrublands	Approval given by DS.
		Uswewa Binkama, Adjust land to B/Gurugodalla W.K.V	Hanguranketha, Weerasinghe Kanishta Vidyalaya	1 acre	North-Gurugodalla School, South-Houses, East-Priavte land, not functioning West- 100m away small stream	Approved by the Pradeshiya Saba.
	Metal	Samodhagama, Mahawali land, Bondiya Kandha.	C.K Dissanayake	2 acres	There is no residence in the circular area with the radius of 500m (forest area)	Approved and expired on 31/12/2015, not in use.
	Concrete	K.A.P.M Weerasena, Kaluwalawewa Road, Bolhida, Koggala, Ambalanthota	CML-MTD Construction LTD.	-	There is no any houses in the circular area with the radius of 100m (duff area)	Approval obtained.
	Asphalt	K.A.P.M Weerasena, Kaluwalawewa Road, Bolhida, Koggala, Ambalanthota	CML-MTD Construction LTD.	-	There is no any houses in the circular area with the radius of 100m (duff area)	Approved and expire on 31/12/2017, renewal in progress.
	Disposal	Small-scale sites were selected at desire locations, consent letters obtained from the landowners and Grama Niladari.				
H3	Soil	Debokkawa	Mr. Chinthaka	4 acres	Scrublands	Approval given by DS.
	Metal	Maha ellala, Hambanthota	Chanaka metal crusher	1 acre	surrounding area covered with scrub forest	Approved and expired on 03/11/2017, renewed.
	ABC	Ellalla, Hambanthota	Tharaka dilshan	1 acre	Surrounding area covered with secondary forest	Approved and expired on 11/03/2017, renewed.
	Asphalt	Buweli ara	RRC	10 acres	Surrounding area covered with secondary forest	Approved and expired on 12/03/2016, renew.
	Concrete	Buweli ara	RRC	10 acres	Surrounding area covered with secondary forest	Approval obtained.
	Disposal	Small-scale sites were selected at desire locations, consent letters obtained from the landowners and Grama Niladari.				

#### 4.5 Remediation work done for borrow pits, stockpiles, disposal sites and yards.

Remediation works have been carried out in all packages to the satisfaction of the, PIU, PIC and the landowners. Here contractors' environmental officers have taken landowners consent in writing that the remediation work has been carried out at a satisfactory level agreed by all parties. Following are some of remediated sites in each district (Pics.10-15).



**Picture 10.** Disposal yard, after remediation- G3 package



**Picture 11.** Stockpile- G3 package



**Picture 12.** Borrow pit, after remediation- M1 package



**Picture 13.** Borrow pit renovated as a school ground- H3 package



**Picture 14.** Disposal yard- M2 Package



**Picture 15.** Remediated borrow pit- H1 package



## 4.6 Establishing of public notices

### - Public awareness

In addition to the community awareness meetings held at the commencement of the project, a public notice developed in local language was displayed at community-attracted places in the project area. The main purpose of the notice was to create awareness among communities on the project, understand to what extent the community can be involved in project activities and how to make complaints, suggestions, grievances and requests to the project. The public notice brought the key information about the project and contact numbers of relevant officers of the project whom to be contacted regarding social and environment issues (Pic.16).

### - Channels of receiving public grievances

A system of channels has been established to receive public suggestions, requests, complaints and grievances by the project. The public was clearly informed that they can follow any of the following channels in submitting their complaints/ grievances/ suggestions or requests to the project (Pic. 17).

### - Complaints & suggestion boxes

Availability of complaint & suggestion box at the site has been identified as one of the effective methods to share views of communities prior to the designing stage. Complaint & suggestion boxes were installed at Contractor's site offices in all Contract packages and public are expected to put their written grievances in to the Complaint & Suggestion box. Complaints/ suggestions are collected from the box at the end of each day (Pic.18).

### - Office of Grama Niladhari (GN)

Grama Niladhari is the Government Administrative Officer at Grama Niladhari Division (GND). GN also plays the role of the Chairman of the Grievance Redress Committee (GRC) established under the project at GND level. A public notice is also displayed at each GND offices in the project area.

### - Office of the Divisional Secretary

Divisional Secretary (DS) is the Government Administrative Officer at Divisional Level. DS also plays the role of Chairman of Grievance Redress Committee (GRC) established under the project at Divisional Secretary level (DSD)). A public notice is also displayed at each DS offices in the project area.

In addition to the above channels, all the field staff of the project is instructed to accept public grievances and hand them over to the Project Engineer (PE)/ Environment Officer (EO) /Social Safeguard Officer (SSO) of PIU on the same day or the following day for further action.

### - Maintenance of Records for Public Grievances

Maintenance of relevant records are considered as a prime requirement. All the received complaints/suggestions were registered at the Project Manager's office of the Contractor and attended.

It was evident that this mechanism is very effective and shown better results. All the grievances received were classified according to the nature, as complaint, suggestions, request, and improvements.

Grievances from the affected people on social and environmental issues during project implementation were addressed mainly through the existing local administrative system. Depending on the nature and significance of the grievances or complaints, grievances addressed at three levels. The first is at the grass root level where complaints are directly received and addressed by the contractor, PIC or PIU representative on site.

Grievances, which were simple but still, cannot be addressed at the grass root level were escalated addressed at the Grama Niladhari Division (GND) level. More complex grievances, which cannot be addressed at the GND level were escalated addressed at the Divisional Secretariat Division (DSD) level. There was a Grievance Redress Committee (GRC) at the GND and DSD levels. Very few grievances (3 nos.) which could not be addressed at DS level were escalated to Chief Secretary (SP) level and satisfactory solution were obtained.

Composition of GND level the GRC members were 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), Female representative from the local community (Member). Composition of DSD Level GRC members were 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) and Female representative from the local community (Member).

To make the GRM process gender responsive the GRC included one female member to represent the local female community. Further, when grievances or complaints are submitted to the GRC, both female and male complainants are treated equally and necessary measures are taken to address the grievance in the best way possible (Pics. 19-22). This system followed the guidelines given in the EARF.

Recommended steps with timeline on the operation of the GRM is shown in figure 03. In addition, a complaints contact person was designated within the PIU to help address all concerns and grievances of the local communities and affected parties. Contact details of this person was provided in the project information display board that is placed at the project site. The flow chart of the GRM is presented in figure 03.



**Picture 16.** iRoad project public notice at Grama Niladhari Office- G1 package.



**Picture 17.** Information gathering of flood situations- G2 package



**Picture 18.** Suggestions and proposal box at H2 office



**Picture 19.** Public protest and on site discussion with Engineer- G1 package



**Picture 20.** Discussion with government officials regarding road construction- M2 package



**Picture 21.** Discussion with disaster management coordinating unit Culvert at Godawaya road- H1 package



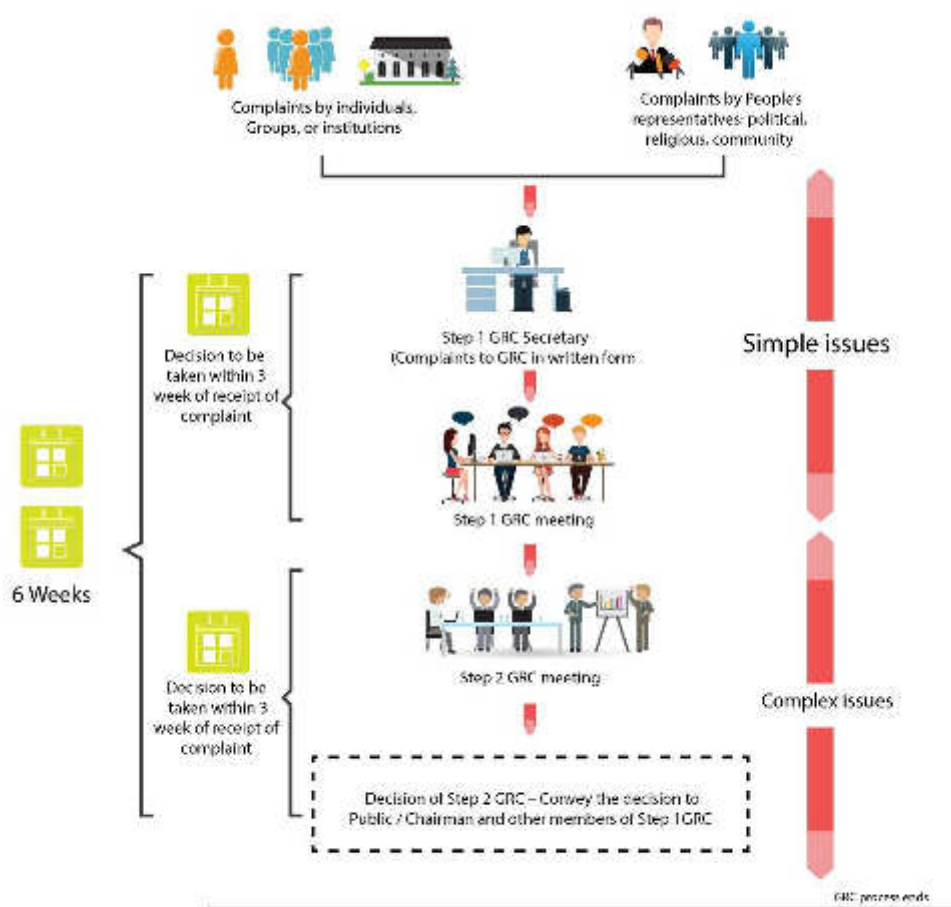
**Picture 22.** Explaining available options to contractor EO, regarding ROW- M1 package

## 4.7 Consultation, Information Disclosure and Grievance Redress Mechanism

The public consultation and information disclosure is an important part of the environmental safeguard requirements under ADB SPS (2009). In addition, the NEA of GOSL also considers stakeholder engagement as a key element for successful management of environmental impacts.

Meaningful public consultations held early on and continuously throughout the project development stage to allow the incorporation of relevant views of the stakeholders in the final project road design, mitigation measures, implementation issues, and enhance the distribution of benefits. Stakeholders included project beneficiaries, local affected people, government bodies, and non-governmental organizations. The consultations must encourage participation of women and vulnerable groups (handicapped people, senior citizens, schoolchildren) and engage as many stakeholders as possible.

Consultations has carried out in an environment free of influences and done during conduction of transect walks while completing the environment checklists and/or through focus group discussions and/or household level or key person interviews which starts with the description of the project road design and initial identification of potential impacts. Feedback and recommendations received during the consultations have addressed and where relevant incorporated in the Detail Design Stage.



**Figure 03.** The flow chart shows of the GRM process adapted in to the iRoad(SP)

#### **4.8 Environmental Monitoring Structure and Site Inspection**

Daily supervision and guidance were done in each contract package by environmental specialist (PIC), environment officer (PIC) and environmental and safety officers (15 nos., contractors).

Regular site inspections (every 4-6 week) were jointly conducted by ADB representative, RDA-ESDD team (Social and Environment officer, Hydrologist and Monitoring officer) and PIC team Environmental Specialist, Environment Officer, Environmental Assistant and Social, Gender and Resettlement Specialist. At the end of the site inspection progress, review meetings were held. One special progress review meeting was held in this reporting period (24-25 April 2017) (Pic. 23-30).





**Picture 23.** A special progress review meeting held at TL office, Matara regarding Safeguards at iRoad(SP)



**Picture 24.** A field discussion held with ADB representatives regarding safeguards



**Picture 25.** Environmental officers having a meeting with TL regarding safeguards



**Picture 26.** ADB Safeguard Specialist (Mr. Saranga) is inspecting a wastewater recycling facility- G3 package



**Picture 27.** Design engineer testing of a proposed solution for low cost embankment conservation, by “Barrel Revetment” method- M1 package



**Picture 28.** Documentation check by ADB Safeguard Specialist in contractor office- H2 package



**Picture 29.** Borrow pit inspection by ESDD- G2 package



**Picture 30.** Document check of disposal yard by ESDD- G1 package



**Table 07.** Monthly monitoring schedule for iRoad SP by PIC team.

Contract Package	# of roads	Length (Km)	# of days of monitoring by ES	# of days of monitoring by EO & EA
G1	15	64.6	2	6
G2	22	66	2	6
G3	29	73.6	3	6
M1	22	97.5	4	6
M2	19	69.2	3	6
M3	25	53.4	3	6
H1	19	67.1	3	6
H2	18	58	3	6
H3	14	42.9	2	6



**Picture 31.** Data gathering by EO- PIC for monitoring fauna and flora before the road diversion begins on Welipitiya Junction-



**Picture 32.** Pre-cast yard inspection by Environmental Assistants (Miss. Thakshila and Miss. Lakmali) Matara and



## 5. Issues Observed and Status of Compliance





**Table 08:** Major issues observed and mitigated (1 Jan to 31 Dec 2017)

Construction activity	Major impact/s	Package/s	Mitigation measure/s proposed in the SSEMAP	Mitigation measure/s adopted	Monitoring indicator	Additional action recommended by PIC	Effectiveness	Example/s
A). Roadside vegetation clearing	1.0 Destruction and displacement of native flora and fauna.	G1, G2, M1, M2, M3, H1 & H2	1.1 Minimize of trees removing.	1.1.1 Minimized of clearing vegetation.	1.1.2 No. of trees listed to be removed vs. No. of trees actually removed	1.1.3 Demarcation of very important areas regarding fauna and flora.	1.1.4 Total of 210 trees in G2, M1, H1 and H3 packages have been left without removal (through design modifications).	Picture 33.
			1.1.1a Replanting trees 1:3 ratio.	Replanting of trees at 1:3 ratio.	1.1.2a Number of plants replanted.	1.1.3a Daily monitoring of environmental sensitive sites by EO and EA.  1.1.3b Identification of plant nurseries for purchase plants for replanting.	1.1.4b 10222 nos. of plants have been replanted in all packages, against 3809 Nos. of trees removed.	
			1.2. Road construction activities shall be conduct within the	1.2.1 Construction activities mainly	1.2.2 No. of locations where design modifications done to avoid	1.2.3 None	1.2.4 A total of 210 trees in G2, M1, H1 and H3 packages	



			available ROW.	restricted to existing ROW.	removal of trees.		have been left without removal (through design modifications)	
	2.0 Soil erosion and sedimentation of fresh water streams.	G1, G2, M1, M2, M3, H1 & H2	2.1. Minimized vegetation clearing.  2.1.1a Proposed environmental friendly designs.	2.1.1 Environmental friendly designs changes adopted to avoid/ minimize soil erosion and sedimentation	2.1.2 No. of incidents where vegetation cleared beyond the ROW.  2.1.2a No. of incidents reported (complains) on sedimentation of streams	2.1.3 Optimum use of existing ROW for road construction.  2.1.3a Use of local & expert knowledge for road designs.	2.1.4 Only around 10 Nos. of public complaints received on sedimentation of water bodies during the reporting period.  2.1.4a Only around 20 Nos. of significant soil erosion incidents were reported during the reporting period.	
			2.2 Embankment protected	2.2.1 Minimized the exposure of	2.2.2 Number of embankment	2.2.3 Design changes in accordance	2.2.4 Exposed earth areas were	

			using wide-spread weed species/ turfing to prevent erosion.  2.2a Cut slopes finished according to the standard procedures proposed by design engineer.	top soil through measures suggested in the SSEMAP	protected areas.  2.2.2a Number of eroded areas.	with design engineers and the community representative's suggestions.  2.2.3a Exposed earth surfaces shall be temporarily covered until permanent measures are in place.	protected and well maintained.	
	3.0 Dust generation.	G1, G2, M1, M2, M3, H1 & H2	3.1. Spraying of water as required.  .	3.1.1 Spraying water as required.	3.1.2 Number of water bowsters deployed.  3.1.2a Number of times water spraying.	3.1.3 Dust generation sources shall enclosed, Spraying of water as required.	3.1.4 No major complaint on dust during the reporting period.	
			3.2 Dust generation	3.2.1 Stock piles located away from	3.2.2 Compulsory water bowser	3.2.2 Stock piles shall maintain	3.2.3 Minimum number of	

			sources are well enclosed.	settlement areas.	deployed and spraying of water at site two times in dry season and additional done if needed.	according to the proposed SSEMAP procedure.	complaints received from the communities.	
B) Extraction of embankment materials.	1.0 Habitat damage.	G1, G2, G3, M1, M2, M3, H1, H2 and H3	1.1 Pre identified and approved excavation sites selection.  1.1.1a Replanting trees 1:3 ratio.	1.1.1 Extraction of materials only done at pre-approved sites.  1.1.1a Vegetation damaged minimized and large trees conserved in-situ.	1.1.2 No. of material extraction sites operated without approval  1.1.2a Number of large trees conserved within material extraction sites.	1.1.3 Demarcation of very important areas regarding fauna and flora.  1.1.3a Daily monitoring of environmental sensitive sites by EO and EA.	1.1.4 No. of sites operated with approvals was around 90 and no public complaints received. 1.1.4b No complaints or issues observed in significant damage to habitat due to material extraction.	Picture 36

	2.0 Dust generation at excavation sites/ transportation.	G1, G2, G3, M1, M2, M3, H1, H2 and H3	2.1. Spraying of water as required at sites.	2.1.1 Spraying water as required.	2.1.2 Dust generation was minimum at sites.	2.1.3 When transport of dust generation materials shall covered.	2.1.4 No public complain received.	
			2.2 Fencing off the material extraction sites/ maintaining the vegetation belt around the material sites	2.2.1 Stock piles located away from settlement areas.	2.2.2 No. of stock piles covered.	2.2.2 Stock piles shall maintain according to the proposed EMAP procedure.	2.2.3 No public complain received.	
	3.0 Soil erosion, earth slips, siltation and sedimentation of water bodies.	G1, G2, G3, M1, M2, M3, H1, H2 and H3	3.1. Minimized vegetation clearing.  3.1.1a Proposed environmental	3.1.1 Excavations done systematically to minimize soil erosion and sedimentation.	3.1.2 No. of earth slips occurrences.  3.1.2a number of opened earth	3.1.3 Slopes and cuts shall maintain and protect as much as possible.	3.1.4 Recorded less than 20 number of earth slips.  3.1.4a All materials	

			friendly extraction methods (slope cutting done step wise).	3.1.1a Opened earth cuts/slopes temporarily covered in rainy season as much as possible.  3.1.1b Road surface rain water ran off speed controlled by barriers.	surface covered.	3.1.3a Use of local & expert knowledge for prevention of soil erosion.	extracted locations were remediated.	
C). Sub base preparation, shoulders construction, ABC laying and compaction.	1.0 Roadside air, water and noise pollution at sensitive areas.	G1, G2, G3, M1, M2, M3, H1, H2 and H3	1.1 Completion of all construction works within/ close to settlement areas within the shortest possible time period.	1.1.1 No. of complaints received on dust, noise and vibration	1.1.2 Monitoring of air, water, sound quality, fauna and flora parameters were measured at pre and during the construction activities.	1.2.3 One additional location was sampled for air, water, noise, fauna and flora.  1.2.3.a	1.2.4 Monitoring of air, water, sound quality, fauna and flora parameters were measured at pre and during the construction activities and all were at	Pictures 34 & 35



							accepted levels.	
			1.2 Public complaint system establishing such as GRC and complaint boxed establish at site and public places.	1.2.1 GRC established at GND/DSD levels in all packages for each road.	1.2.2. No. of GRC held to resolve public complaints on dust, noise and vibration.	1.2.3 Public matters shall address at site level as much as possible.	1.2.4 Around 50 Nos. of public complaints related to environmental issues settled at site level.	
D) Plants operations	1.0 Dust generation, air, noise, surface and ground water pollution	M1, M2, M3, G1, G2, G3, H1, H2, H3	1. 1 EPL obtain and maintenance.	1.1.1 All plants operated with proper and valid licenses and approvals.  Regular inspections were carried out by ES in all processing plants in each packages.	1.1.2 Number of public complaints received by surrounding communities.	1.1.3 Materials stock piles shall be covered.  1.1.3a Waste water shall treated before released to the environment.	1.1.4 Only three public complaints received in G3, M2 and M3 packages.	



**Picture 33.** Vegetation clearing for road improvements- M2 package



**Picture 34.** Earth slip occurred at newly built road- M2 package





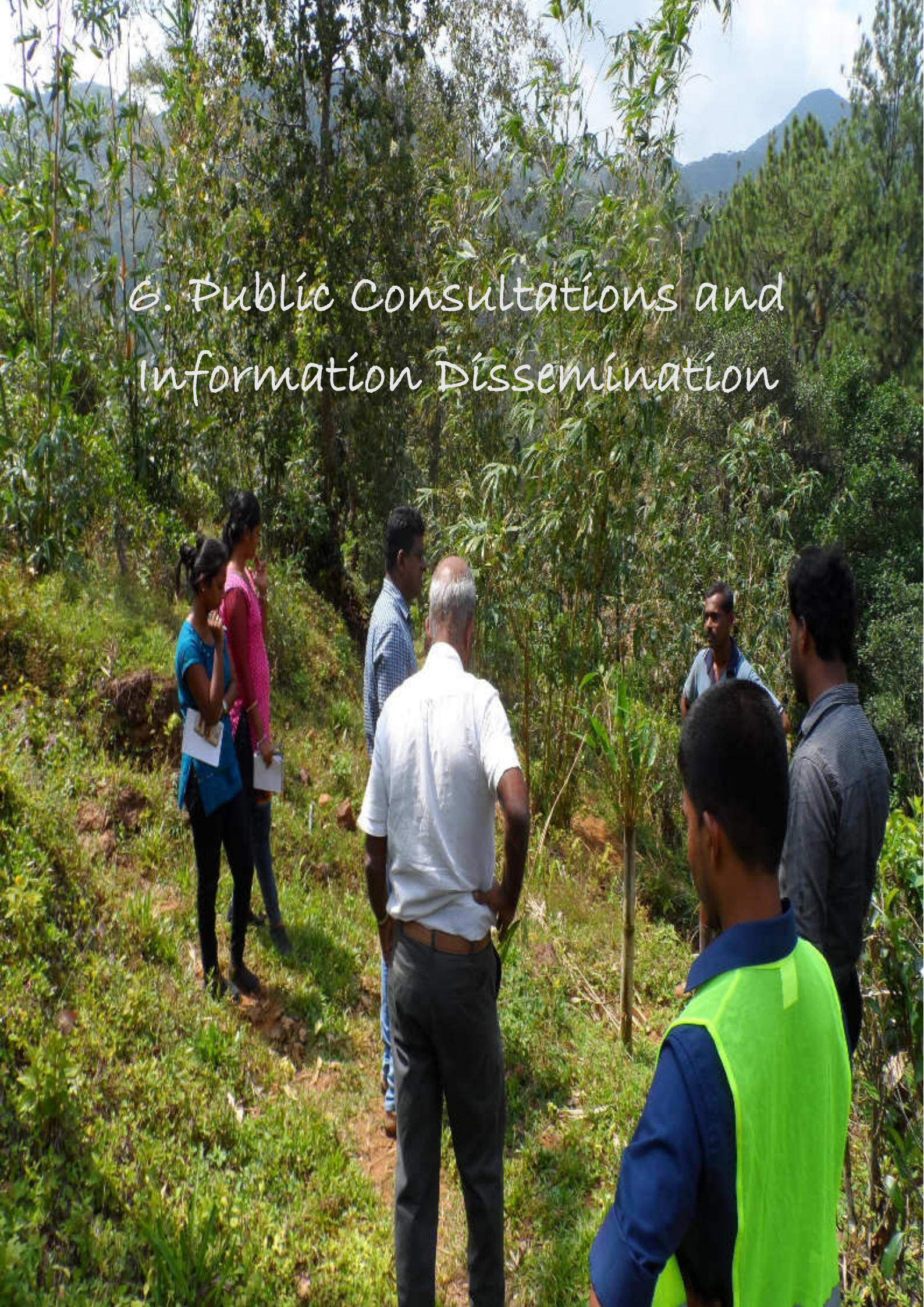
**Picture 35.** Carefully constructed and maintained shoulder at H2 package



**Picture 36.** Unplanned quarry operation- G3 package



## 6. Public Consultations and Information Dissemination





In addition to the community awareness meetings held at the commencement of the project, a public notice developed in local language is being displayed at community-attracted places including Grama Niladhari (GN) offices and Divisional Secretariats (DS) in the project area. The main purpose of the notice is to create awareness among communities on the project, understand to what extent the community can involve in project activities and how to make complaints, suggestions, grievances and requests to the project. The public notice gives the key information about the project and contact numbers of relevant officers of the project who are to be contacted regarding social and environment issues (Pic. 37). Also locally and internationally have disseminated information, work experiences and expertise gathered on iRoad(SP), specially on the CSD system adapted for rural road improvements (Pic. 38).



**Picture 37.** Experience sharing with Professor Jane-Marie from Cornell University, USA



**Picture 38.** The team attending to resolve a public complaint- M2 package





7. Programs and activities to  
enhance Environment



## **7. 1 Greening programs.**

### **7.1. 1 The procedure followed up of tree identification and removal process.**

- a) Contractor's Design Engineer, Environmental Officer and consultant's Design Engineer and Environmental Assistant made onsite joint inspection and decided required number of trees removal according to the road design plan.
- b) If the tree removal essential Contractor, informed/requested to the Resident Engineer regarding the tree removal.
- c) Carefully considering the requirements, especially for space for construction activity and safety of the road users, Resident Engineer informed to the Environmental Specialist for approval.
- d) With the consent of the Environmental Specialist Resident Engineer, informed Project Engineer (PE) to carry out the tree removal procedure, here (PE) engaged with permission procedures.
- e) Resident Engineer officially informed to the contractor for removal of trees and if the tree was privately own it was handed over to the owner and if the tree was owned by the government, it was handed over to the relevant department (Timber Cooperation, District Seretrieriat ect.).
- f) If a tree removal was resisted by the villagers or other parties, it was directed to GRM procedure.
- g) Tree removal done by the private owner or by the contractor.

### **7.1.2 Tree planting procedure**

Tree planting program done according to the 1: 3 ratio (3 trees planted for every tree removed) at pre- decided locations. When it started, it adheres to the EMP, tree selection for tree planting activity the contractor shall select native or endemic saplings. However, Environment Specialist and others related parties collectively agreed to re-plant at a height of 0.5 -1 m high plants. This approach was taken to help to protect the plant and its maintenance.

Considerable numbers of tree-planting programs were conducted across the Southern Province, mainly focused on public places such as schools, libraries, temples and community grounds. The school children and the public under the supervision of contractor's representative (Environmental Officer) maintained planted trees. All plants were tagged for monitoring purpose, this was monitored by the PIC, Environmental Specialist (Table 09) (Pics. 39-51).

## **7.2 Collaborative activities.**

Southern Expressway Management requested from iRoad (SP) to support their "Green Expressway Network" planting program by providing 8,000 nos. of plants and 2 nos. of Earth Auger Machines. As a result of the request iRoad(SP) fulfilled their requirement and a planting program was conducted on 14 Oct 2017 from Godagama to Galle Entrance (Pics. 39-42).

iRoad(SP) also established a good private and public participation by establishing collaborative tree planting program with Bevaraliya Tea Estate, Deniyaya (Pics. 43-44).

**Table 09.** Status of tree removal and re-planting in each contractor package up to 31 Dec 2017

Package	# of Tree removed	# Tree planted
G1	165	165
G2	64	321
G3	214	840
M1	1488	2145
M2	470	620
M3	871	2769
H1	88	636
H2	301	1309
H3	148	708
Total	<b>3809</b>	<b>9513</b>



**Picture 39.** Tree planting at Southern Expressway



**Picture 40.** Initiation ceremony with ADB, RDA, MG Consultants and contractors



**Picture 41.** Media coverage regarding tree-planting program at Southern Expressway



**Picture 42.** Providing Earth Auger machines to "Green Expressway"





**Picture 43.** Bevaraliya Tea Estate tree planting program with the participation of Hon. Minister Mr. Sagala Rathnayake, Estate Manager and Project Manager- M1 package



**Picture 44.** iRoad Project Director Mr. S. R. Pathirana also participated in the Bevaraliya Tea Estate tree planting program- M1 package

**Table 10:** Summary of total tree planting programs conducted in each Contract packages up to 31 Dec 2017

Package	Location no.	Location	Planted Date	No. of Trees planted
G1	L1	Mandalapura Maha Vidyalaya	07/11/2016	60
	L2	Halvitigala Saripuththra Maha Viddyalaya	21/11/2016	55
	L3	Udugama Aluthwaththa road	21/11/2016	50
G2	L4	G/Ginimellagaha School	20/06/2016	5
	L5	G/Hapugala Primary School	25/06/2016	5
	L6	Southern Expressway (Galle to Godagama)	14/10/2017	309
G3	L7	Karadeniya Public library	11/08/2016	55
	L8	Ganegoda Maha Vidyalaya	21/10/2016	97
	L9	Ganedoga Temple		71
	L6	Southern Expressway (Galle to Godagama)	14/10/2017	672
M1	L10	Paragala School	03/06/2016	35
	L11	Morawaka Kirthi Abewickrama National School	03/06/2016	15
	L12	Morawaka Kanishta Vidyalaya	03/06/2016	51
	L13	Viharahena Temple and School	03/06/2016	175
	L14	Economic Development Office premeses	02/06/2016	43
	L15	Sunila Community Base Society, Thanipita	02/06/2016	112
	L16	Porupitiya School	03/06/2016	30
	L17	Beveraliya Estate	09/04/2017	224
	L18	Sri Sadaham Sevana, Adaradeniya	03/06/2016	118
	L6	Southern Expressway (Galle to Godagama)	14/10/2017	1445
M2	L19	Bangama bypass lane	10/02/2016	68
	L19	Bangama bypass lane	11/05/2016	60
	L20	MR/Bopitiya Vidyalaya	08/07/2016	60
	L21	Athuraliya Sri Sudarshi Pirivena	30/07/2016	61
	L22	MR/Bopitiya Kanishta Vidyalaya	25/08/2016	65
	L22	MR/Bopitiya Kanishta Vidyalaya	31/10/2016	36
	L6	Southern Expressway (Galle to Godagama)	14/10/2017	709
M3	L23	Weligama- Welipitiya AGA Division	08/01/2016	85
	L24	MR/Denipitiya Maha Vidyalaya	08/01/2016	25
	L23	Weligama- Welipitiya AGA Division	04/02/2016	150
	L25	Ganegoda Temple	14/02/2016	100
	L6	Southern Expressway (Galle to Godagama)	14/10/2017	2434
H1	L26	H/Habaraththawala Maha Vidyalaya	25/11/2016	12



	L6	Southern Expressway (Galle to Godagama)	14/10/2017	626
H2	L27	Kadurupokuna Rajapaksha Vidyalaya	02/05/2016	10
	L28	Industrial Development Board-Vitharandeniya	03/06/2017	50
	L29	Galkema Prurana Temple	30/06/2016	15
	L30	Eramini Yaya Youth Centre	04/10/2016	15
	L31	Uswewa Kanishta Vidyalaya	18/12/2016	10
	L6	Southern Expressway (Galle to Godagama)	14/10/2017	1156
H3	L32	Kudabibula Temple	11/11/2016	11
	L33	H/Kudabibula Junior School	11/11/2016	15
	L34	Kudabibula Water Catchment Area and Ground	14/11/2016	30
	L35	Maha Bibula Resevation Area	11/11/2016	40
	L36	Julawadiya Ela Bund Road	11/11/2016	20
	L37	Megas Ara Navoda School	21/07/2017	50
	L38	Okada Yaya Viduhala	16/01/2016	25
	L6	Southern Expressway (Galle to Godagama)	14/10/2017	289



**Picture 45.** Temple Sunday school, children participation in tree planting program- G3 package



**Picture 46.** RE-Matara participation in tree planting program- M2 package





**Picture 47.** RE-Galle participating in tree planting program- M1 package



**Picture 48.** Team Leader (Mr. Anil Perera) introducing a tree-planting program- M3 Package



**Picture 49.** Environmental Officer (Mr. Bandara, PIC 01) checking the quality of tree to be planted- M1 package





**Picture 50.** Environmental Specialist, Mr. Roshan K Rodrigo demonstrating of planting a tree in a proper manner to a school environmental group- M2 package



**Picture 51.** Teenagers having advised by SGRS Mr. Somathilaka regarding the importance of tree planting activity



### 7.3. Awareness programs

Four school education awareness programs were conducted in M1, M2 and H3 packages. Target age group of school children were class 6-11 (Pic.52).

**Table 11:** Summary of school education awareness program conducted.

Package	Location	Description
M1	Paragala Kanishta Vidyalaya	Delivered a speech on rain forest of Sri Lanka
M2	Bopitiya Maha Vidyalaya	Delivered a speech on rain forest of Sri Lanka, and snake of Sri Lanka
	Bopitiya Maha Vidyalaya	Road construction and forest conservation
H3	Kudabibula Temple	Snake of Sri Lanka



**Picture 52.** Field workshop on environmental conservation- H3 package

#### 7.4. Environmental friendly design changes.

Some contractors have changed their design to suit to the existing environmental condition and enhance road aesthetic value. Following are some of the examples (Pics. 53-61).



**Picture 53.** Saved trees along the roadsides- G2 package



**Picture 54.** Enhanced the aesthetic value of the road- H1 package





**Picture 55.** Allowing flood to move freely and protect the road pavement (Concrete Pavement)- H3 package



**Picture 56.** Prevent soil erosion by extending hard shoulder up to drainage- G3 package





**Picture 57.** Slope protection by low cost “Barrel Revetment” method- M1 package



**Picture 58.** Major river (Kirindi Oya) bank protection by erosion- H1 package





**Picture 59.** Conservation of “Na” tree- G2 package



**Picture 60.** Embankment protection- H1 package





## 8. Case Studies



## 8.1 Some of the case studies focused in Galle District.

### Case study 01.

#### **Introducing a proper wastewater collecting system to concrete mixing plant.**

The concrete mixing plant of G3 contract package is located in Kurundugaha Hethekma area. A huge amount of water is used in the plant daily. But unfortunately since the beginning of the plant there was no a waste water treatment unit. Therefore, they used to release that wastewater to natural water stream which is flowing along the boundary the plant without any treatments.

There was a possibility to mix that untreated wastewater with natural water bodies that people are used around the area. It was identified that fauna and flora of the water stream were also damaged due to this harmful water which contained hazardous chemicals.

The releasing of untreated water to natural water stream was stopped immediately. Contractor's team of G3 package agreed to introduce a new proper wastewater collecting system as the solution.

They created a settlement tank and wastewater was collected in this tank. It allowed the deposit of sediment in the tank and continuously sediments were removed properly under environmental friendly manner. The treated water was re – used for curing purposes of the concrete mixing plant.



Settlementment tanks



Treated water

## **Case Study 02**

### **Supporting cultural value, Bo Gaha junction – Kaluwalagoda road**

Bo Gaha junction – Kaluwalagoda road under Karandeniya Divisional Secretariat is a rural area still respecting natural beauty. This road was selected to be improved because it is a connection road to Kaluwalagoda Madakumbura and Bo Gaha Handiya.

There is a Bo tree at the Bo Gaha junction, which creates a three-way junction. Majority of the people in the area are Buddhists. The community considers the Bo (*Ficus religiosa*) has a religious and a cultural value. The villagers requested not to remove or damage the Bo tree during road construction process.

It is our vision in the project to cause minimum harm to the environment. Also it was not a requirement to remove the Bo tree for road improvements. The landowners near the junction supported us to the improvement of the junction by donating their land for the junction widening, regulated by the community.

The junction was improved without damaging the Bo tree as requested by the villagers.



Before the improvements



After the improvements



### **Case Study 03**

#### **Value added program for the community to enhance aesthetic value, Nawala Community Hall to Goluwamalahena via Ellagawa (ID 35).**

Yakkalamulla is a suburb of Galle city. It is located approximately 17 km from the city center of Galle. It is a 3-way junction (and nearby area) which connects Yakkalamulla-Makumbura Road, Yakkalamulla-Imaduwa Road and Yakkalamulla- Ketanwila(Akuressa) Road.

It is originally a working-class and farming area Around Yakkalamulla area and there are many rural villages. Some of them are Goluwamalhena, Newungala, Thalawa, Kosgahahena and Nawala.

Goluwamalahena one of a rural village is enriched with natural beauty. The area is filled with natural water sources and it gives beauty to the area. Total population is around 300 and most of them are self-employees. Small-scale tea planting is the main income source for them. Few of them are also planting cinnamon in small scale.

G/Nawala Primary School is located in Nawala Community Hall on Goluwamalhena road (ID 35), which is a very rural school. At present less than 100 nos.of students are studying in the school. The school is a sign of the rurality of the village. Before the improvement of the road (ID35) the students had faced lot of difficulties due to the bad road condition, especially during rainy season.



Only building for the school



Entrance to the school

As early mentioned, there are lot of natural water sources in the village. After the improvement of the road, the beauty became more. There was a small water stream at 0+000 RHS in the road which was difficult to reach and identified. With the development of the road now a day there is a nice and attractive lake built by the land owner with the help of villagers. In near future the place will attract more and more for local visitors as well as tourists. The place is protected with safety signboards and the main access for the place is Goluwamalahena road (RID 35). Not only that, tea plantations and rubber plantation around the lake also bring more attraction.





The lake named as “PEELI DOLA WEWA”



Safety and warning sign boards around the

Already the place has been named as a biodiversity area. Several endemic fresh water fish species can be identified in the lake. During the road construction, action was taken to minimize the damage to the water as well as aquatic lives and now they are remaining under the protection.



*Garra ceylonensis*

Other than that, *Dawkinsia singhala* (Sinhala Pethiya) one of another endemic fresh water species which survived in the lake can be seen. At present their habitat has become more favorable for them, therefore lot of individuals of the species are living here.



*Garra ceylonensis*

*Garra ceylonensis* (Gal paandiya) an endemic species, can be seen in the lake commonly. The living species here, in the lake was survived and confirmed. iRoad contractor's team of G2 took care not to damage them and protect their natural habitats well. Environmental parameters are being monitored during road improvement to remove damages to biotic lives. This is a best result of environmental parameter monitoring during road construction.

On this road there is also a very old and huge Nuga tree at chain age 4+960 RHS. Villagers made several requests to remove the Nuga tree. Therefore PE –RDA, ARE/SE- PIC, EO –KDAW, SE-KDAW inspected the place and it was decided there was not any reason to remove the Nuga tree. The tree brings an aesthetic value and shade to the road. Our vision to minimize the tree removal became practical in here. The tree was saved.



*Dawkinsia singhala*



#### **Case study 04**

##### **Visibility improvement and protecting a national tree, Na Gaha Handiya –Halpathota, Baddegama**

Halpathota is a rural area in Baddegama Division. Wawulagala –Bataketiya (ID38) is one of the improved rural roads by iRoad project. Creating the Nagaha junction (Nagaha handiya) this road runs up to Halpathota. (Nagaha handiya – Halpathota ID 39)

There is a Na tree at the junction, which brought the name “Nagaha handiya”. Before start of road construction villagers requested not to remove or damage the tree so the junction was named as Na gaha handiya. As well as Na is our national tree (*Messua nagassarium*) and it seems that protecting the tree will bring much more value to the road. The contractor was instructed to not to damage the tree and also improve the surrounding of the tree.



It is a three-way junction around the Na tree. The roads were in very poor condition, which could be used only by foot, bicycle or three-wheeler with lots of difficulties. Most of the villagers are farmers and few of them are workers of tea in small size tea plantations. Rest of them are attached to cinnamon planting in their homelands. The main problem facing them is the transport of crops on poor road conditions. This condition got worse during the flood. Even schooling is difficult for children to walk on mud and pits on rainy days.

“Na Gaha Handiya”. The three-way junction before road improvement. RD ID 30 , CH- 0+000.



The condition of the road is shown in picture below.



Before improvement of the road

The junction was beautifully designed and finished by G2 team confirming minimum damages to the environment. Land owners just near the Na gaha handiya voluntarily agreed to donate their land for the junction improvement.



After improvement, Naa Gaha junction

## 8.2 Some of the case studies focused in Matara District.

### Case study 01.

#### **Conservation of a very old Sal Tree, contract package-M1, Batayaya –Kandilpana – Bewaraliya Road (ID 13), 4+200 LHS.**

There was a safety issue at Chainage 4+200 LHS due to existing Salwa –Shorea tree (Sal Tree) was a barrier to safety at this location and villages did not want to remove it. Site inspection was carried out together with Mr. Saranga Gajasinghe (Safeguards Consultant of ADB), Resident Engineer-Matara, Environmental Specialist, RDA officers, PM (M1) and other relevant officers participated in site visit on 17/08/2017 to monitor safeguards compliance of construction activities.

Mr. Saranga informed it is possible to call up GRC at District Secretariat level to take an environmental friendly decision. Before the GRC, the Design Engineer prepared options on the issue, and to enhance the visibility at this location. After the GRC, all agreed to do design changes to avoid removing the “Sal” tree.



Team discussion at the site.



Yellow line show location of the tree



Construction done with a minimum damage to the stream

## Observation and lesson learnt

- Trees are important elements in the city landscape and valuable assets in the community. They are dynamic living components of the urban ecosystem and their growth and structural stability change over time and environmental conditions.
- The entire world pay attention towards the sustainable development, environmental friendly construction method etc., although most of the time we neglect about that when doing construction works. Tree removal is a normal thing but project team should have to have an environmental friendly solution/practices to minimize environmental damages.
- Tree preservation is valuable thing because it plays an important role environmentally. Tree removal is integral part of a development project and require careful planning in all stages from initial planning, design, construction to post-construction. Preserving the right trees and protecting them from damage can maintain greenery and minimize subsequent costs for the rehabilitation of a tree or its ultimate removal.



## **Case study 02.**

### **Indigenous & low cost construction methods used for environmental protection of the site, contract package M1, Morawaka –Paragala -Diyadawa Road, (ID 14).**

“Barrel Revetment” is a one of indigenous methods, which is used as environmental protection method. In Morawaka –Paragala-Diyadawa road had a dangerous erosion situation at chainage 4+390-4+410. The location was a water gully with a steep slope area.



During the construction



After construction with bamboo planting in barrels

### **Observation and lesson learnt**

“Barrel Revetment” is one of best environmental friendly method that act as a retaining wall. Actually it is an environmental friendly low cost method, enhance the visibility of that area and it will helpful to reduce probable accidents in the area. The use of barrel revetment where applicable is helpful to entire ecosystem rather than using a concrete based retaining wall solution.

### **Case study 03.**

#### **Road condition enhancement and prevention of soil erosion at site – Batayaya – Kandilpana -Bewaraliya Road, RD ID 13, Dry RRM wall construction at 9+130-9+150(LHS).**

Batayaya –Kandilpana \_Bewaraliya Road hilly area in Deniyaya. The estimated terrain elevation above sea level is 643 meters. There are variety of methods that were applied for environmental protection at the site as follows,



Retaining wall construction



Side drains construction



Catch pit construction



"L" drain construction

#### **Observation and lesson learnt**

- For the retaining wall, the contractor has used recycled boulders and other excavated materials from the same location. Different methods of drain and retaining wall construction has led to minimizing the soil erosion at site.

## **8.2 Some of the case studies focused in Hambantota District.**

### **Case study 01.**

#### **A case study on environmentally sustainable road renovation (recycling & reuse of materials for sub base structures), H1 package.**

A rehabilitation was done on Hathagala road (Road ID: 28). The existing road was concrete paved, but it was degraded due to reinforcement collapse. During the rehabilitation of road, the challenge that we had to face was disposal of the demolished existing concrete pavement. Because, usually such demolished construction disposal materials were used only for land filling activities in urban and rural areas in the island. Even though, these land filling activities have never been effective as long as, due to some environmental impact has been arisen and the other hand, in Sri Lanka, most of the construction materials are natural resources and lesser renewable. Excavation of materials for sub base works such like soil and metal etc., is being toned down by the rules and regulations strictly being enforced by the government.

Prioritizing the above work, Resident Engineer (Hambantota), Project Engineer (RDA), Designing Engineer, Material Engineer, Environmental Assistant and the Contractor team of H1 package with the participation of other responsible authorities inspected the particular site and discussed with the contractor about the possible use of demolished concrete as sub base material.

Considering the feasibility and assessing the risk of the task, all parties agreed and decided to construct the road, using demolished concrete pavement as sub base construction material. During that particular task, the Material Engineer and Design Engineer were the persons that for the lead role, authenticating the material, following the laboratory tests and under taking the responsibility of whole work on site. As the final product of the road renovation, a good road appeared ensuring social and environmental safety.

#### **Conclusion**

There is an increasing pressure on the construction industry to diminish costs and improve the quality of environment. The fact is that both of these objectives can be achieved at the same time. Although construction and demolition (C&D) constitutes a major source of waste in terms of volume and weight, its management and recycling efforts have not yet seen the light in developing countries. The use of recycled aggregates in various construction activities and products has been gaining interest all over the world. As the quarrying activities for natural aggregates production are responsible for significant environmental repercussions, using recycled aggregates could effectively minimize waste generation.

Even though, in Sri Lanka road material-recycling activities are lesser known and documented. According to the personal communication, one might state that, most of the authorized parties are not willing to undertake the responsibility to use the road recycling materials as sub base construction materials. However, Southern iRoad project as the pilot implementation of the whole iRoad projects, the southern iRoad team introduced some important innovative methods in a sustainable manner, setting up good coordination with the other responsible stakeholders.





Excavation of existing materials



Recycling of excavated materials

## Case study 02.

### Religious and Belief based Environmental Protection, Ridiyagama Livestock farm to Gangawalana Handiya road (Road ID: 29), H1 package.

Botanically, *Ficus benghalensis* “Nuga tree” belongs to Family Molluginaceae. The large tree locate on road at H1 package in Ridiyagama area. Just beside the tree there was not enough space to improve the road and was vulnerable to accidents due to poor visibility. Accordingly, there were two options available for improvement.

- (1) Reduce or minimize of accident vulnerability through tree removing.
- (2) Saving tree instead of removal by donating the appropriate particular land from the adjacent landowner/s.

Accordingly, Resident Engineer (Hambantota), Project Engineer (RDA), Design Engineer, Environmental Specialist, Social Gender and Resettlement Specialist and the Contractor team of H1 package inspected the site and held a discussion with the surrounding community/beneficiaries about the situation that we had to face and the options proposed. Fortunately, the community, living in the area were the Buddhists but their devotions were cling to believes based on worship and honour. Accordingly, they entirely agreed with the second option to save the sacred Nuga tree and donating the required land space enough to finish the road works.



Before construction starts.

After construction starts.







9. Conclusion, recommendations  
and lessons learnt



## **Conclusion and Recommendations**

The iRoad(SP), have 9 contract packages, which are distributed from coastal to highlands of the Southern Province, Sri Lanka. The iRoad(SP) was the pilot project, where the CSD concept, was introduced and practiced in the 9 contract packages. The CSD concept was new and it was successfully introduced to the project by conducting several CSD related workshops and onsite practical sessions, at the very commencement of the project.

Environmental safeguard is a major component of the iRoad(SP) project, its compliance with Sri Lankan law and ADB safeguard policies. Regular monitoring of environmental conditions and compliances of the Southern Province road construction works enabled to protect and conserve unique ecosystems. Various education and awareness programs conducted to the public kept the safeguard of the environment.

Following are recommended to the iRoad(SP) to keep up its quality and assurance of the environmental safeguard.

- Regular monitoring of the road construction sites that the contractors are in compliance with approved EMAP.
- Education and awareness programs to public on environment safeguard.
- Record keeping and reporting of environmental related activities.
- Dissemination of the knowledge all stakeholders and related parties.
- Onsite training programs regarding environment safeguard to the staff were very successful and need to continue in a regular manner.
- Additional environmental officers/ assistants based in district level were useful to closely monitor the contractors' activities and recommended.
- Education awareness program for school children were very successful and recommend continuing such kind of programs.
- Regular progress monitoring was very essential to keep all project staff on track regarding environmental safeguards.
- Changed designs an appropriate to the site conditions were able to conservation of roadside vegetations as well as protection of some important microhabitats.
- Record keeping such as SSEMAPs' and EMCs' were helpful to monitor environmental conservation progress in each road. This also supported some of the critical decisions where the problems occurred.
- Tree planting programs should be closely monitored if planting is done in a school, grounds, public places and roadside location. Tree survivorship will totally depend on the regular maintenance. Where it possible tree planting programs should conducted on mass quantities with available land belongs to Forest Department, Department of Wildlife and other crown lands.

## **Lessons learnt from the iRoad Project Southern Province (Environmental Safeguards).**

### **1. Reporting and documentation**

- Additional relevant rules and regulations were adapted by initially, referred relevant documents such as ADB guideline set for the iRoad project in Sri Lanka, National and local rules, regulations and laws and; and project back ground reports.
- Streamlined the reporting formats, which was suitable for the need of the ADB, RDA, in consultation with in-depth discussion with all the stakeholders.

### **2. Workshops and Discussions**

- Arranged preliminary workshops for stakeholders of the project regarding project objectives other than construction of 591 Km.
- Identified weakness and strengths of CSD (Context Sensitive Design) concept by conducting several workshops regarding CSD for stakeholders' in collaboration with ADB, RDA and PIC (consultants) resource personnel.
- Design changes were done according to the ground situations e.g. Concrete drainage pathways were diverted at where the trees were obstructed the drainage pathways.

### **3. Grievances Redress Mechanism**

- Developed a problem solving system by establishing a GRM (Grievance Redress Mechanism) process, which was covered in each road under the iRoad project by establishing GRC at GND (Grama Niladari Division) and DSD (Divisional Secretariat Level) levels. If the process is not able to solve the problem further it goes through higher level to Chief Secretary (SP) for final decision which in iRoad (SP) escalated in only 3 occasions.

### **4. Monitoring and Evaluation**

- Close monitoring of ground activities were developed by recruiting additional supporting staff to TL and RE offices, Environmental Officer and three Environmental Assistants based at each RE office in each district.
- Close monitoring/ follow up monitoring procedures done in the field to clarify the project is running smoothly with its set objectives. This was conducted by Safeguard Specialists- ADB; Social Safeguard Officer, Environmental Officer –ESDD-RDA; Environmental Assistants, Environmental Officer, Environmental Specialist –PIC.
- Contractual requirements (vol. 5B) were amended which was not need for the project such as environmental monitoring procedures and sampling rates.

- It is experienced that there is a strong need of appointing an officer each for Environment safeguards and Social safeguards aspects at contractor office to produce efficient results in those two disciplines.

## 5. Awareness programs

- A mechanism was developed to educate the young generation on environment conservation and sustainable development by conducting school awareness programs for several school children, emphasis on the project need and environmental conservation.
- Importance of considering environmental protection in construction activities by developing additional awareness field workshops to all stakeholders. This was mainly targeted the themes of Sri Lankan biodiversity, Road construction and conservation of bio diversity and the practical use of GPS (Global Position System) etc.
- Developed sense of wellbeing with environment by engaging senior staff of the iRoad project by field trips in different areas, which represented the different ecosystems, this developed the wellbeing with the nature.

## 6. Communication

- Identified weakness of the communication and it has been addressed by establishing good relationships among the stakeholders (team members) and establishing a systematic communication system from Bottom-to, top- bottom approach with many team.
- On the job training provided for EAs, EOs and SOs which enhanced their efficiency to implement the project effectively.

## 7. Options and collaborations

- Optional tree planting sites were identified due to scarcity of the lands available for tree planting in the respective contract packages. E.g. planting program was established in Southern Expressway incorporated with Green Expressway Program allocating 8,000 trees from iRoad(SP).