Project Administration Manual

Project Number: 44350-013
Loan xxxx-SRI
September 2016

Democratic Socialist Republic of Sri Lanka: Transport Project Preparatory Facility

CONTENTS

Project Administration Manual Purpose and Process

The project administration manual (PAM) describes the essential administrative and management requirements to implement the project on time, within budget, and in accordance with Government and Asian Development Bank (ADB) policies and procedures. The PAM should include references to all available templates and instructions either through linkages to relevant URLs or directly incorporated in the PAM.

The Ministry of Higher Education & Highways (MOHEH), Ministry of Transportation and Civil Aviation (MOTCA), and Ministry of Ports and Shipping (MOPS), as executing agencies; Road Development Authority (RDA), Sri Lanka Railways (SLR), and Sri Lanka Ports Authority (SLPA), as implementing agencies, are wholly responsible for the implementation of ADB-financed projects, as agreed jointly between the borrower and ADB, and in accordance with Government and ADB's policies and procedures. ADB staff is responsible to support implementation including compliance by MOHEH, MOTCA, MOPS, RDA, SLR, and SLPA of their obligations and responsibilities for project implementation in accordance with ADB's policies and procedures.

At loan negotiations the borrower and ADB shall agree to the PAM and ensure consistency with the loan agreement. Such agreement shall be reflected in the minutes of the loan negotiations. In the event of any discrepancy or contradiction between the PAM and the loan agreement, the provisions of the loan agreement shall prevail.

After ADB Board approval of the project's report and recommendations of the President (RRP), changes in implementation arrangements are subject to agreement and approval pursuant to relevant Government and ADB administrative procedures (including the Project Administration Instructions) and upon such approval they will be subsequently incorporated in the PAM.

ABBREVIATIONS

ADB	=	Asian Development Bank
ADF	=	Asian Development Fund
AFS	=	audited financial statements
CQS	=	consultant qualification selection
DMF	=	design and monitoring framework
EARF	=	environmental assessment and review framework
EIA	=	environmental impact assessment
EMP	=	environmental management plan
ESMS	=	environmental and social management system
GACAP	=	governance and anticorruption action plan
GDP	=	gross domestic product
ICB	=	international competitive bidding
IEE	=	initial environmental examination
IPP	=	indigenous people plan
IPPF	=	indigenous people planning framework
LAR	=	land acquisition and resettlement
LIBOR	=	London interbank offered rate
MOHEH	=	Ministry of Higher Education & Highways
MOPS	=	Ministry of Ports and Shipping
MOTCA	=	Ministry of Transport and Civil Aviation
NCB	=	national competitive bidding
NGOs	=	nongovernment organizations
PAI	=	project administration instructions
PAM	=	project administration manual
PIU	=	project implementation unit
QBS	=	quality based selection
QCBS	=	quality- and cost based selection
RPPF	=	road project preparatory facility
RRP	=	report and recommendation of the President to the Board
SBD	=	standard bidding documents
SGIA	=	second generation imprest accounts
SLPA	=	Sri Lanka Port Authority
SLR	=	Sri Lanka Railways
SOE	=	statement of expenditure
SPS	=	Safeguard Policy Statement
SPRSS	=	summary poverty reduction and social strategy
TOR	=	terms of reference

I. PROJECT DESCRIPTION

1. The proposed Transport Project Preparatory Facility (the Project) will improve the startup efficiency of priority transport projects in the road, railway, and port subsectors by (i) preparing the feasibility study, detailed design, and procurement documents, and (ii) providing implementation support during the inception stage of project implementation. The Project will contribute to good portfolio performance of transport sector projects.

2. **Sector Context.** Sri Lanka occupies a strategic position in fast-growing South Asia, and is near the main sea lanes between Europe and Asia, which allowed Colombo to develop very early as an international port city, and subsequently as a transshipment point for cargo originating or destined for the Indian sub-continent. The real GDP growth was 4.8 percent in 2015, slightly higher than the previous year. The strong growth in services, continued growth in agriculture, and positive (albeit declining) contribution from industry helped the country maintain its growth. However, a slowdown in public and private investment, as well as the negative effects of slowing world trade, prevented Sri Lanka from achieving even faster growth. To achieve high, inclusive, and sustained growth, the country needs to further invest on its international and domestic transport infrastructures.

3. The government had good experience of using a technical assistance loan when it implemented a road project preparatory facility (RPPF) between 2004 and 2015.[1] The RPPF significantly improved the implementation readiness and portfolio performance of loans in the road subsector. Through the proposed Transport Project Preparatory Facility, the government intends to continue the successful model in the road subsector with a focus on expressway network development in both urban and rural areas, and replicate it to the railway and port subsectors.

4. **Impact and Outcome.** The impact will be successfully implemented transport projects. The outcome will be improved readiness of priority transport projects.

5. **Outputs.** The outputs will be (i) feasibility studies and/or detailed designs of transport projects are completed, and (ii) implementation support for transport projects is provided. The facility will be implemented through three components: road, railway, and port.[2] The components may involve cross-cutting interventions in urban transport, regional cooperation and integration, multimodal transport connectivity, and other related areas.

6. **Eligibility Criteria.** All transport projects to be prepared under the TA loan should be in line with (i) the government's national strategy and sector development plans, and (ii) Asian Development Bank (ADB)'s country partnership strategy for Sri Lanka. In accordance with the criteria, a preliminary list of projects includes: (i) SASEC Port Access Elevated Highway, (ii) Expressway Development Project, (iii) Colombo Suburban Railway Project, and (iv) SASEC Port Development Project. Terms of reference for consulting services have been prepared for the four covering engineering design, road safety, climate change mitigation and adaptation, regional cooperation and integration, multimodal connection, urban transport, social and environmental safeguards and other related areas.

[1] ADB. 2004. *Report and Recommendation of the President to the Board of Directors: Proposed Technical Assistance Loan to the Democratic Socialist Republic of Sri Lanka for the Road Project Preparatory Facility*. Manila.

II. IMPLEMENTATION PLANS

A. Overall Project Implementation Plan

		2016				2017				2018				2019				2020				2021				2022			
		AA				Year 1				Year 2				Year 3				Year 4				Year 5				Year 6			
	Activity	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
A	**Project Preparation**																												
1	Establishment of PMU																												
B	**Project Management**																												
1	Consultant Selection																												
2	Contract Administration																												
C	**Consulting Services**																												
1	Road Component																												
a	*Expressway Development Project*																												
b	*SASEC Port Elevated Highway*																												
2	Railway Component																												
a	*Colombo Suburban Railway Project*																												
3	Port Component																												
a	*SASEC Port Development Project*																												

Feasiblity Study and Detailed Engineering Procurement and Safeguard Implementation

AA = advance actions, PMU = project management unit, SASEC = South Asian Subregional Economic Cooperation.

Source: Government of Sri Lanka.

III. PROJECT MANAGEMENT ARRANGEMENTS

A. Project Implementation Organizations – Roles and Responsibilities

Project Stakeholders	Management Roles and Responsibilities
Executing agencies/implementing agencies • Road Component: Ministry of Higher Education and Highways/Road Development Authority • Railway Component: Ministry of Transport and Civil Aviation through its Department of Sri Lanka Railways • Port Component: Ministry of Port and Shipping/Sri Lanka Port Authority	☐ interagency coordination ☐ day-to-day project management ☐ consultant recruitment ☐ prepare and submit withdrawal applications ☐ prepare and submit project progress reports ☐ maintain project accounts, including imprest accounts and complete loan financial records
Steering Committees Three steering committees to be established and respectively chaired by: • Road Component: Ministry of Higher Education and Highways • Railway Component: Ministry of Transport and Civil Aviation • Port Component: Ministry of Port and Shipping Members: • Ministry of National Policies and Economic Affairs, represented by the External Resources, National Planning, and Project Management and Monitoring departments • Ministry of Finance, represented by the National Budget department • Ministry of Megapolis and Western Development • Urban Development Authority • For SASEC Port Access Road, members also include the Sri Lanka Port Authority and Sri Lanka Customs • For Railway Component, members also include Ministry of Power, and Ceylon Electricity Board.	☐ Oversee and monitor project implementation as well as the adequacy of overall project funding ☐ Hold quarterly meeting at the minimum to discuss overall status and project issues, and as necessary invite representatives from the Central Environmental Authority and Wild Life and Forest Department of the Ministry of Environment, Survey Department, and any other relevant agencies.
Asian Development Bank	☐ Monitor and review overall implementation of the project in consultation with the executing agencies/Implementing agencies including: the project implementation schedule; actions required in terms of poverty reduction, environmental impacts, and resettlement plans if applicable; timeliness of budgetary allocations and counterpart funding; project expenditures; progress with procurement and disbursement; statement of expenditure when applicable; compliance with particular loan covenants; and the likelihood of attaining the project's immediate development objectives.

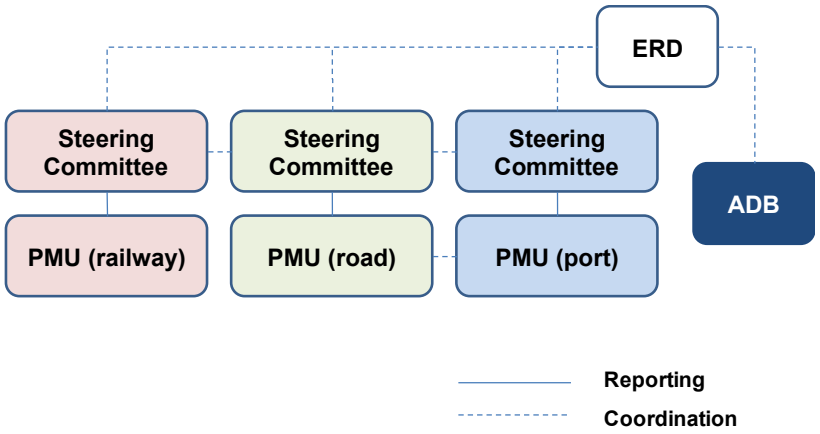
B. Key Persons Involved in Implementation

Executing Agencies and Implementing Agencies	
Road Component	Mr. D. C. Dissanayake Secretary, Ministry of Higher Education and Highways Maganeguma Mahamedura 8th Floor, Denzil Kobbekaduwa Mawatha, Koswatta, Battaramulla, Sri Lanka Tel No. +94 11 2862705 Mr. Nihal Sooriarachchi Chairman, Road Development Authority Maganeguma Mahamedura Denzil Kobbekaduwa Mawatha Battaramulla, Sri Lanka Tel No. +94 11 286-2767 Fax No. +94 11 286-4801 Mr. Rohitha Swarna Director General, Road Development Authority Tel No. +94 11 286-2795 Mr. A.H. M. Nizar, Project Coordinator Mr. L. V. S. Weerakoon, Project Director (Expressway Development) Mr. Lalith Fernando, Project Director (SASEC Port Access Elevated Highway)
Railway Component	Mr. Nihal Somaweera, Secretary, Ministry of Transport and Civil Aviation 7th Floor, Sethsiripaya, Stage II, Battaramula, Sri Lanka Tel No. +94 11 218-7200 Fax No. +94 11 286-5093 Mr. B.A.P. Ariyaratne, General Manager, Department of Sri Lanka Railway Mr. A.T.L.P. Samarasinghe, Project Director
Port Component	Mr. L.P. Jayampathy Secretary, Ministry of Ports and Shipping No. 19, Chaithya Road, Colombo 01 Tel No. +94 11 243-9352 Mr. Dammika Ranatunga, Chairman, SLPA Mr. Sarathkumara Premachandra, Managing Director, SLPA Mr. Susantha Abaysiriwardena, Project Director, SLPA
ADB	
	Mr. Hiroaki Yamaguchi Director, SATC, South Asia Regional Department Asian Development Bank 6 ADB Avenue, Mandaluyong City 1550 Philippines Tel No. +63 632-6794 Mr. Chen Chen (Mission Leader) Senior Transport Specialist, SATC Tel No. + 632 632-6268 Mr. Kanzo Nakai (Road Component) Senior Transport Specialist, SATC

	Tel No. +632 632-6392 Mr. Markus Roesner (Railway Component) Principal Transport Specialist, SATC Tel No. +632 632-6261 Mr. Kaoru Kasahara (Port Component) Transport Specialist, SATC Tel No. +632-632-6414

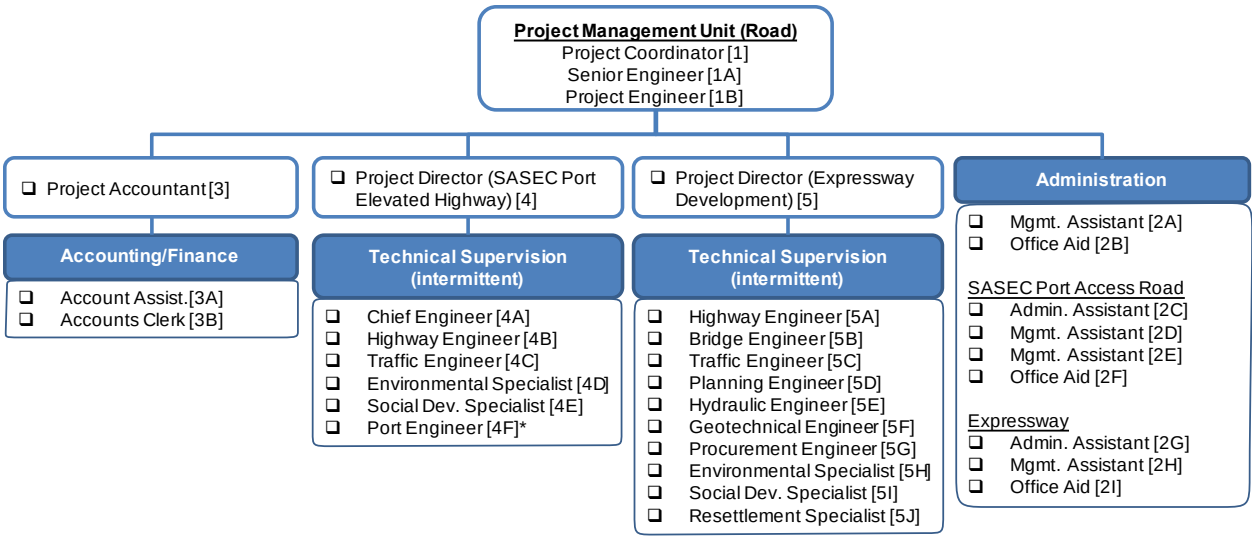
C. Project Organization Structure

7. The following flow chart shows the reporting lines and essential internal coordination of the project implementation agencies.



ADB = Asian Development Bank, ERD = Department of External Resources, PMU = project management unit.

8. **Road Component**. The following flow chart and table show the reporting lines and essential internal structures of the project implementation units and their staffing assignments.

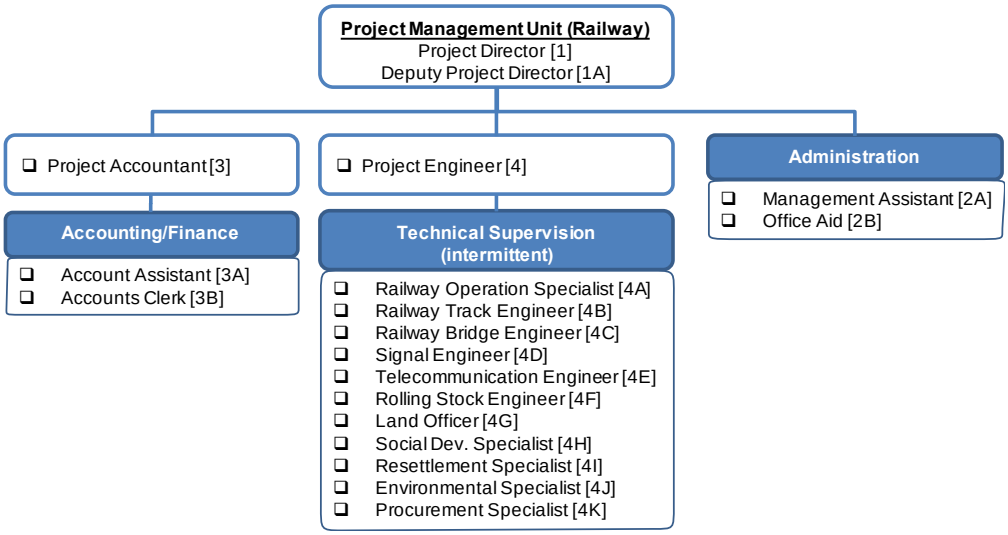


	Sr. No	Position	Name	Existing	Appointment Timeframe
1	**[1]**	**Project Coordinator**	A.H. M. Nizar	☒ appointed	
2	[1A]	Senior Engineer		☐ appointed	31 Dec 2016
3	[1B]	Project Engineer		☐ appointed	31 Dec 2016
4	[2A]	Management Assistant		☐ appointed	31 Dec 2016
5	[2B]	Office Aid		☐ appointed	31 Dec 2016
6	[2C]	Administrative Assistant		☐ appointed	31 Dec 2016
7	[2D]	Management Assistant		☐ appointed	31 Dec 2016
8	[2E]	Management Assistant		☐ appointed	31 Dec 2016
9	[2F]	Office Aid		☐ appointed	31 Dec 2016
10	[2G]	Administrative Assistant		☐ appointed	31 Dec 2016
11	[2H]	Management Assistant		☐ appointed	31 Dec 2016

	Sr. No	Position	Name	Existing	Appointment Timeframe
12	[2I]	Office Aid		☐ appointed	31 Dec 2016
13	**[3]**	**Project Accountant**		☐ appointed	31 Dec 2016
14	[3A]	Account Assistant		☐ appointed	31 Dec 2016
15	[3B]	Accounts Clerk		☐ appointed	31 Dec 2016
16	**[4]**	**Project Director (SASEC Port Access EH)**	**Lalith Fernando**	☒ **appointed**	
17	[4A]	Chief Engineer (Bridge)		☐ appointed	31 Dec 2016
18	[4B]	Highway Engineer		☐ appointed	31 Dec 2016
19	[4C]	Traffic Engineer		☐ appointed	31 Dec 2016
20	[4D]	Environmental Specialist		☐ appointed	31 Dec 2016
21	[4E]	Social Development Specialist		☐ appointed	31 Dec 2016
22	[4F]	Port Engineer*		☐ appointed	31 Dec 2016
23	**[5]**	**Project Director (Expressway Development)**	**L. V. S. Weerakoon**	☒ **appointed**	
24	[5A]	Highway Engineer		☐ appointed	31 Dec 2016
25	[5B]	Bridge Engineer		☐ appointed	31 Dec 2016
26	[5C]	Traffic Engineer		☐ appointed	31 Dec 2016
27	[5D]	Planning Engineer		☐ appointed	31 Dec 2016
28	[5E]	Hydraulic Engineer		☐ appointed	31 Dec 2016
29	[5F]	Geotechnical Engineer		☐ appointed	31 Dec 2016
30	[5G]	Procurement Engineer		☐ appointed	31 Dec 2016
31	[5H]	Environmental Specialist		☐ appointed	31 Dec 2016
32	[5I]	Social Development Specialist		☐ appointed	31 Dec 2016
33	[5J]	Resettlement Specialist		☐ appointed	31 Dec 2016

* To be appointed by Sri Lanka Port Authority.

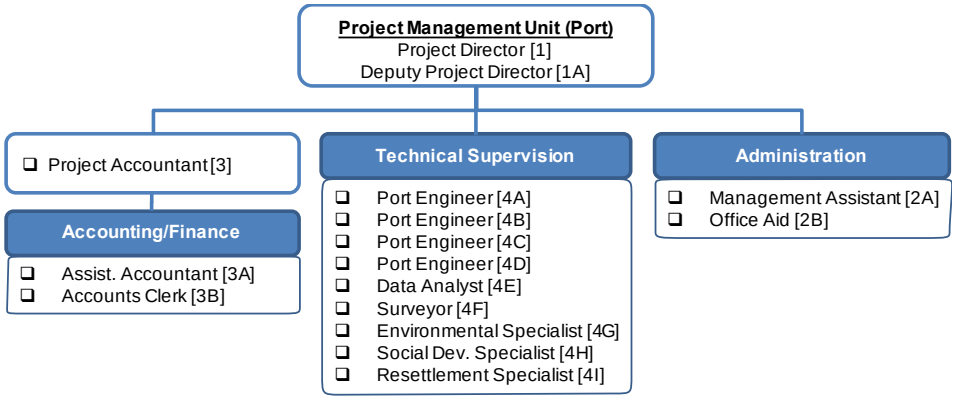
9. **Railway Component**. The following flow chart and table show the reporting lines and essential internal structures of the project implementation units and their staffing assignments.



	Sr. No	Position	Name	Existing	Appointment Timeframe
1	**[1]**	**Project Director**	A.T.L.P. Samarasinghe	☒ appointed	
2	[1A]	Deputy Project Director		☐ appointed	31 Dec 2016
3	[2A]	Management Assistant		☐ appointed	31 Dec 2016
4	[2B]	Office Aid		☐ appointed	31 Dec 2016
5	**[3]**	**Project Accountant**		☐ appointed	31 Dec 2016
6	[3A]	Account Assistant		☐ appointed	31 Dec 2016
7	[3B]	Accounts Clerk		☐ appointed	31 Dec 2016

	Sr. No	Position	Name	Existing	Appointment Timeframe
8	**[4]**	**Project Engineer**		☐ appointed	31 Dec 2016
9	[4A]	Railway Operation Specialist		☐ appointed	31 Dec 2016
10	[4B]	Railway Track Engineer		☐ appointed	31 Dec 2016
11	[4C]	Railway Bridge Engineer		☐ appointed	31 Dec 2016
12	[4D]	Signal Engineer		☐ appointed	31 Dec 2016
13	[4E]	Telecommunication Engineer		☐ appointed	31 Dec 2016
14	[4F]	Rolling Stock Engineer		☐ appointed	31 Dec 2016
15	[4G]	Land Officer		☐ appointed	31 Dec 2016
16	[4H]	Social Development Specialist		☐ appointed	31 Dec 2016
17	[4I]	Resettlement Specialist		☐ appointed	31 Dec 2016
18	[4J]	Environmental Specialist		☐ appointed	31 Dec 2016
19	[4K]	Procurement Specialist		☐ appointed	31 Dec 2016

10. **Port Component**. The following flow chart and table show the reporting lines and essential internal structures of the project implementation units and their staffing assignments.



	Sr. No	Position	Name	Existing	Appointment Timeframe
1	**[1]**	**Project Director**	Susantha Abaysiriwardena	☒ appointed	
2	[1A]	**Deputy Project Director**		☐ appointed	31 Dec 2016
3	[2A]	Management Assistant		☐ appointed	31 Dec 2016
4	[2B]	Office Aid		☐ appointed	31 Dec 2016
5	**[3]**	**Project Accountant**		☐ appointed	31 Dec 2016
6	[3A]	Assistant Accountant		☐ appointed	31 Dec 2016
7	[3B]	Accounts Clerk		☐ appointed	31 Dec 2016
8	[4A]	Port Engineer		☐ appointed	31 Dec 2016
9	[4B]	Port Engineer		☐ appointed	31 Dec 2016
10	[4C]	Port Engineer		☐ appointed	31 Dec 2016
11	[4D]	Port Engineer		☐ appointed	31 Dec 2016
12	[4E]	Data Analyst		☐ appointed	31 Dec 2016
13	[4F]	Surveyor		☐ appointed	31 Dec 2016
14	[4G]	Environmental Specialist		☐ appointed	31 Dec 2016
15	[4H]	Social Development Specialist		☐ appointed	31 Dec 2016
16	[4I]	Resettlement Specialist		☐ appointed	31 Dec 2016

IV. COSTS AND FINANCING

11. The Project is estimated to cost $27.7 million including taxes and duties, physical and price contingencies, interest and other charges during implementation. The government has requested a TA loan in various currencies equivalent to SDR17,471,000 from ADB's Special Funds resources to help finance the facility. The loan will have a 25-year term, including a grace period of 5 years, an interest rate of 2% per annum during the grace period and thereafter, and such other terms and conditions set forth in the draft loan and project agreements. The government will provide $3.28 million to finance taxes and duties, and a portion of the contingencies.

A. Cost Estimates Preparation and Revisions

12. The cost estimates have been prepared by ADB staff, based on information provided by the implementing agencies. The cost estimates shall be further revised during the implementation by the project management units (PMU).

B. Key Assumptions

13. The following key assumptions underpin the cost estimates and financing plan:

(i) Exchange rate: SLRs 145.65 = $1.00 (as of 1 July 2016)
(ii) Price contingencies based on expected cumulative inflation over the implementation period as follows:

Table 1: Escalation Rates for Price Contingency Calculations (%)

Item	2017	2018	2019	2020	2021	Average
Foreign rate of price inflation	1.4	1.5	1.5	1.5	1.5	1.5
Domestic rate of price inflation	2.4	2.4	2.4	2.4	2.4	2.4

Source: Asian Development Bank estimates.

(iii) In-kind contribution cannot be easily measured and have not been quantified.

C. Detailed Cost Estimates by Expenditure Category

Table 2: Project Investment Plan ($ million)

Item			Amount[a]
A.	**Base Cost**[b]		
	1.	Road component	9.69
	2.	Railway component	9.69
	3.	Port component	4.27
		Subtotal (A)	**23.65**
B.	**Contingencies**[c]		**3.10**
C.	**Financing Charges During Implementation**[d]		**0.95**
		Total (A+B+C)	**27.70**

[a] Includes taxes and duties of $2.90 from government resources by cash contribution.
[b] In 2016 prices.
[c] Physical contingencies computed at 5%. Price contingencies computed at 1.4 – 1.5% on foreign exchange costs and 2.4% on local currency costs; includes provision for potential exchange rate fluctuation under the assumption of a purchasing power parity exchange rate.
[d] Includes interest and commitment charges. Interest during construction for ADB loan(s) has been computed at 2.0% per annum for the loan from ADB's Special Funds resources.

Source: Asian Development Bank.

Table 3: Financing Plan

Source	Amount ($ million)	Share of Total (%)
Asian Development Bank		
Special Funds resources (technical assistance loan)	24.42	88.1
Government	3.28	11.9
Total	**27.70**	**100.0**

Source: Asian Development Bank.

D. Allocation and Withdrawal of Loan Proceeds

CATEGORY			ADB FINANCING
Number	**Item**	**Total Amount Allocated for ADB Financing (SDR) Category**	**Percentage and Basis for Withdrawal from the Loan Account**
1	Consulting Services and Project Management Unit	16,791,000	100% of total expenditure claimed*
2	Interest Charge	680,000	100% of amounts due
	Total	**17,471,000**	

* Exclusive of taxes and duties imposed within the territory of the Borrower.

E. Detailed Cost Estimates by Financier

Item	Base ($M)	Taxes ($M)	Total ($M)	% of Total	ADB ($M)	Govern-ment ($M)	ADB (%)	Govern-ment (%)
A. Consulting Services and PMU [a] [b]								
1. Consulting Services								
a. Expressway Project	6.00	0.90	6.90	24.9	5.93	0.90	87.0	13.0
b. SASEC Port Access Road	1.91	0.28	2.19	7.9	1.89	0.28	87.0	13.0
c. Railway Project	7.99	1.20	9.19	33.1	7.80	1.20	87.0	13.0
d. Port Project	3.45	0.52	3.97	14.3	3.40	0.52	87.0	13.0
Subtotal (1)	19.35	2.90	22.25	80.3	19.35	2.90	87.0	13.0
2. Project Management								
a. Road	0.60		0.60	2.2	0.60		100.0	
b. Railway	0.50		0.50	1.8	0.50		100.0	
c. Port	0.30		0.30	1.1	0.30		100.0	
Subtotal (2)	1.40		1.40	5.1	1.40		100.0	
3. Contingencies								
a. Physical Contingency [d]	1.04	0.15	1.18	4.3	1.04	0.15	87.7	12.3
b. Price Contingency	1.68	0.23	1.91	6.9	1.68	0.23	87.7	12.3
Subtotal (3)	2.72	0.38	3.10	11.2	2.72	0.38	87.7	12.3
Subtotal (A)	**23.47**	**3.28**	**26.75**	**96.6**	**23.47**	**3.28**	**87.7**	**12.3**
B. Financing Charges During Implementation								
1. Interest During Implementation [e]	0.95		0.95	3.4	0.95		100.0	0.0
Subtotal (B)	**0.95**		**0.95**	**3.4**	**0.95**		**100.0**	**0.0**
Total Project Cost (A+B+C+D)	**24.42**	**3.28**	**27.70**	**100.0**	**24.42**	**3.28**	**88.1**	**11.9**

Notes:

[a] In 2016 prices.

[b] Inclusive of taxes and duties computed at 15.0% for consulting services.

[c] Incremental administrative expenditures, including bank charges related to imprest accounts.

[d] Computed at 5% for base costs.

[e] Capitalized during implementation period at 2.0% per annum for ADF.

F. Detailed Cost Estimates by Outputs/Components

Item	A. Road		B. Railway		C. Port		Total	
	Base ($M)	Taxes ($M)	Base ($M)	Taxes ($M)	Base ($M)	Taxes ($M)	Base ($M)	Taxes ($M)
A. Consulting Services [a] [b]								
1. Consulting Services								
a. Project Preparation	7.91	1.18	7.99	1.20	3.45	0.52	19.35	2.90
Subtotal (A)	**7.91**	**1.19**	**7.99**	**1.20**	**3.45**	**0.52**	**19.35**	**2.90**
B. Recurrent Costs [c]								
1. Project Management	0.60		0.50		0.30		1.40	
Subtotal (B)	**0.60**		**0.50**		**0.30**		**1.40**	
C. Contingencies								
1. Physical Contingency [d]	0.43	0.06	0.43	0.06	0.19	0.03	1.04	0.15
2. Price Contingency	0.69	0.10	0.69	0.10	0.30	0.04	1.68	0.24
Subtotal (C)	**1.11**	**0.16**	**1.12**	**0.16**	**0.49**	**0.07**	**2.72**	**0.38**
D. Financing Charges During Implementation								
1. Interest During Implementation [e]	0.38		0.38		0.18		0.95	
Subtotal (D)	**0.38**		**0.38**		**0.18**		**0.95**	
Total Project Cost (A+B+C+D)	**10.00**	**1.34**	**10.00**	**1.36**	**4.42**	**0.58**	**24.42**	**3.28**

Notes:

[a] In 2016 prices.

[b] Inclusive of taxes and duities compute at 15.0% for consulting services.

[c] Incremental administrative expenditures, including bank charges related to imprest accounts.

[d] Computed at 5% for base costs.

[e] Capitalized during implementation period at 2.0% per annum for ADF.

G. Detailed Cost Estimates by Year

Item	Total Cost ($M)	2017 ($M)	2018 ($M)	2019 ($M)	2020 ($M)	2021 ($M)	2022 ($M)
A. Consulting Services [a] [b]							
1. Consulting Services							
a. Expressway Project	6.00			2.40	2.53	0.56	0.51
b. SASEC Port Access Road	1.91	1.74	0.17				
c. Railway Project	7.99		3.57	3.18	0.41	0.83	
d. Port Project	3.45		1.03	1.28	0.83	0.31	
Subtotal (A)	**19.35**	**1.74**	**4.77**	**6.86**	**3.77**	**1.70**	**0.51**
B. Recurrent Costs [c]							
1. Project Management							
a. Road	0.60	0.25	0.25	0.05	0.02	0.02	0.01
b. Railway	0.50	0.10	0.16	0.14	0.05	0.05	
c. Port	0.30		0.10	0.10	0.07	0.03	
Subtotal (B)	**1.40**	**0.35**	**0.51**	**0.29**	**0.14**	**0.10**	**0.01**
C. Tax and Duties	**2.90**	**0.62**	**1.09**	**0.75**	**0.27**	**0.17**	
D. Contingencies	**3.10**		**0.90**	**1.25**	**0.95**		
E. Financing Charges During Implementation	**0.95**	**0.04**	**0.10**	**0.15**	**0.20**	**0.23**	**0.23**
Total Project Cost (A+B+C+D+E)	**27.70**	**2.75**	**7.37**	**9.30**	**5.33**	**2.20**	**0.75**

Notes:

[a] In 2016 prices.

[b] Inclusive of taxes and duities compute at 15.0% for consulting services.

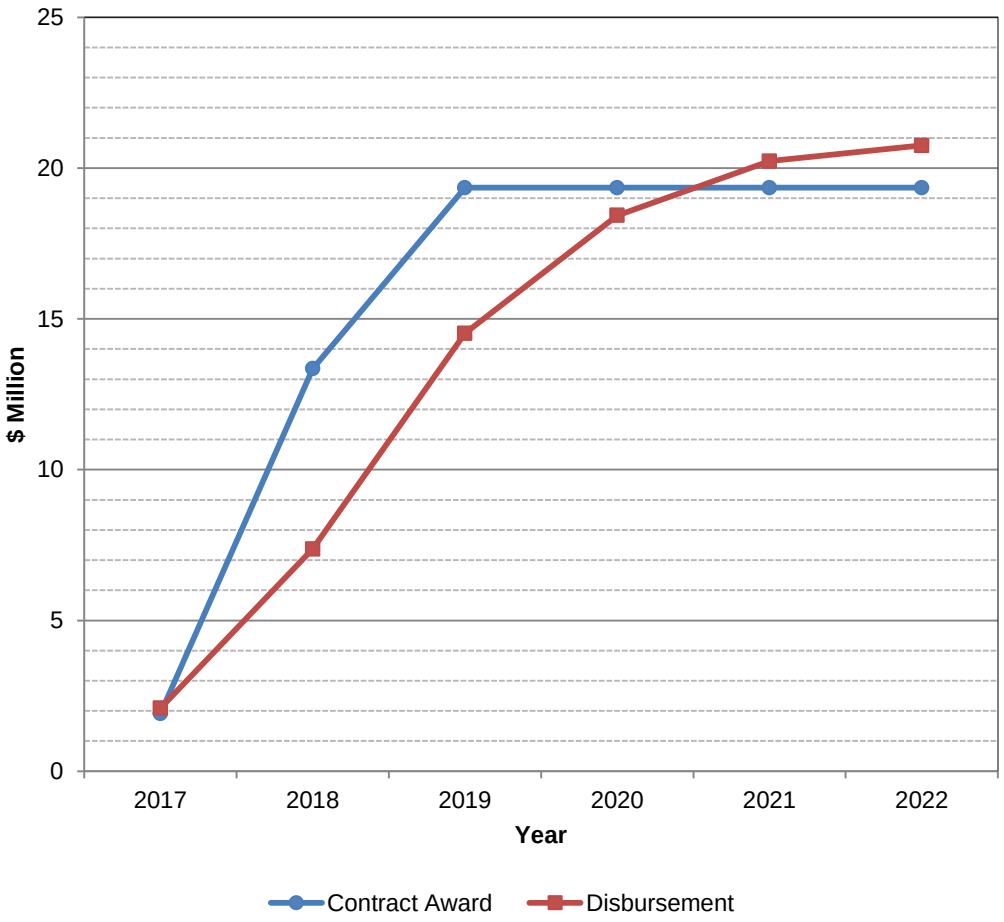
Item	Total Cost ($M)	2017 ($M)	2018 ($M)	2019 ($M)	2020 ($M)	2021 ($M)	2022 ($M)

[c] Incremental administrative expenditures, including bank charges related to imprest accounts.

[d] Computed at 5% for base costs.

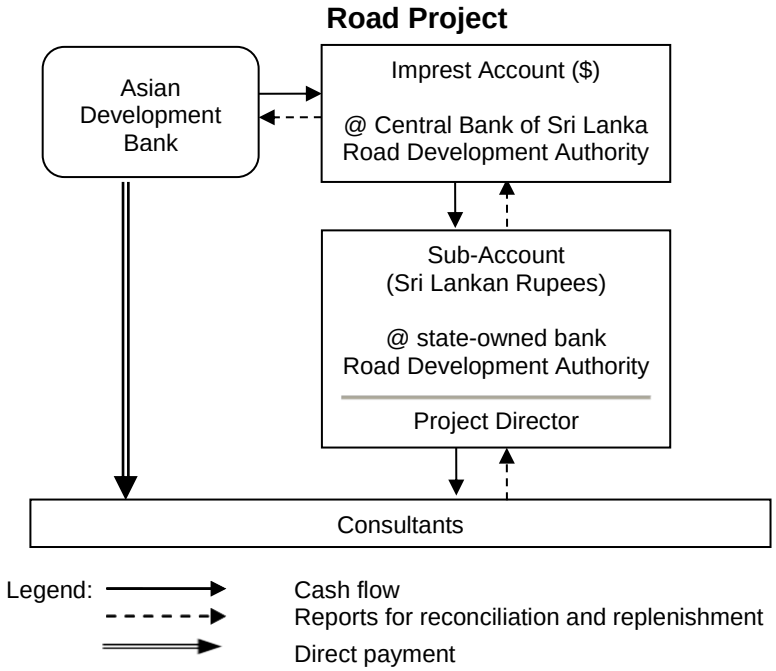
[e] Capitalized during implementation period at 2.0% per annum for ADF.

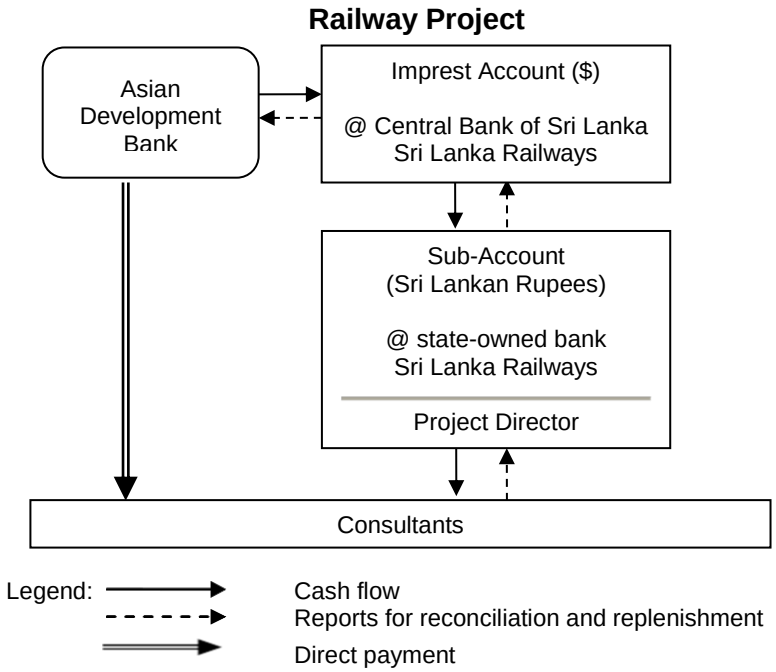
H. Contract and Disbursement S-curve

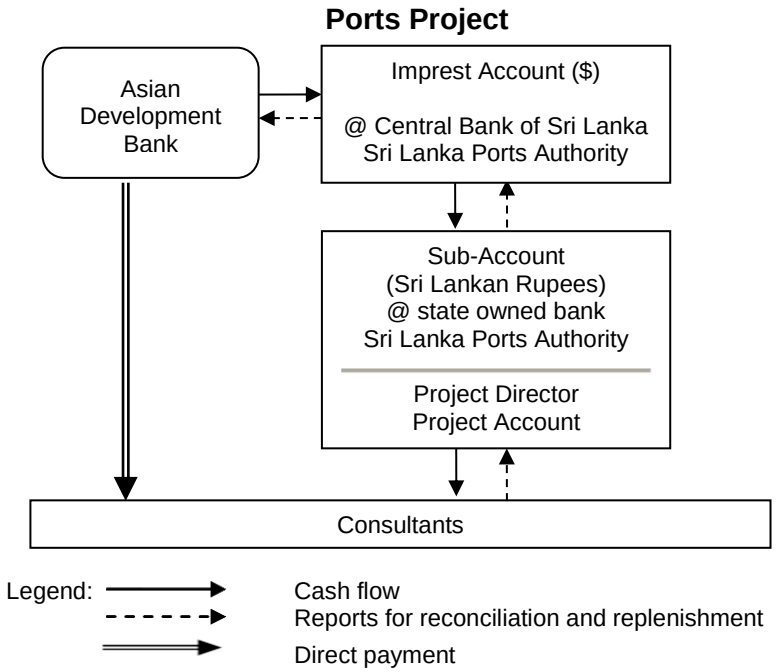


I. Fund Flow Diagram

14. The following diagrams show how the funds will flow from ADB and the Borrower to implement project activities.







Notes on funds flow:

1. **From ADB to the Imprest Account.** Loan proceeds will be channeled through an imprest account opened at the Central Bank of Sri Lanka to a sub account to be managed by respective implementing agencies (IAs) of each project component (RDA, SLR, and SLPA) at state owned banks acceptable to the Government and ADB. ADB funds will be allocated based on the annual budget estimates prepared by the IA. IA will process all other disbursement requests to ADB, including direct payment to contractors and consultant fee. The imprest account will be liquidated and replenished according to the ADB's *Loan Disbursement Handbook*.
2. **From ADB to contractors as well as consultants.** Payments above $200,000 for consultants, contracted by the IA, will be paid directly by ADB, which requires the IA's submission of approved invoices and documentation to ADB in accordance with ADB's *Loan Disbursement Handbook.*

V. FINANCIAL MANAGEMENT

A. Financial Management Assessment

15. An updated financial management assessment (FMA) for RDA, SLR and SLPA was conducted in July 2016 in accordance with ADB's *Guidelines for the Financial Management and Analysis of Projects and the Financial Due Diligence: A Methodology Note*. The FMA considered the capacity of the implementing agencies, including funds-flow arrangements, staffing, accounting and financial reporting systems, financial information systems, and internal and external auditing arrangements. Based on the assessment, the key financial management risks identified are (i) accounting deficiencies (SLR), and (ii) financial sustainability (RDA, SLR and SLPA). The overall premitigation financial management risk of RDA, SLR and SLPA is moderate. Details of the FMA of each agency are mentioned below. Further financial management assessment will be conducted under the ensuing investment projects. Financial management action plans will be developed with each executing agency during preparations of investment projects.

1. Road Development Authority

16. RDA has comprehensive experience in implementing ADB-funded projects and has satisfactory capacity in terms of project financial accounting and knowledge of ADB procedures. RDA has a dedicated project accounting and finance team with suitable qualified accountants: a project accountant, an accounts assistant, four accounts clerks and a computer operator. RDA will maintain separate project records and accounts to identify the financing resources received and expenditures made for the project, ensuring an adequate audit trail. RDA operates with the Computer Integrated Government Accounting System (CIGAS) for monthly cash reports under statutory reporting. PIU, PMUs under RDA use a combination of manual and off-the-shelf packages for accounting and recording purposes depending on the size of the projects implemented. The government's Office of Auditor General annually audits the project financial statements and related accounts in accordance with Sri Lanka Auditing Standards. Audited project financial statements for previous ADB-funded projects implemented by RDA were of adequate quality and there are no significant unresolved audit observations.

17. RDA's own audited statutory financial statements for the FY 2014 indicate that the entity is functioning primarily with treasury grants, but has adequate financial management and internal controls. The financial statements are prepared in accordance with Sri Lanka Accounting Standards. RDA is primarily governed by financial regulations of the government. RDA has an internal audit department and ADB-funded projects are subject to internal audit. The internal audit department should include this facility in their annual audit program.

18. Timely availability of counterpart funds has been identified as an issue in previous projects. To minimize the risk of implementation delays, ADB's direct payment procedure will be used for disbursement above $200,000 for consulting services. Furthermore the continuation of staff throughout the implementation period is also essential. Frequent transfer of staff should be minimized. Continuous training should be given to the new staff and existing staff to minimize this type of loss.

19. Financial management risks should be considered and updated throughout the life of the project. Risk mitigation measures should also be updated accordingly.

2. Sri Lanka Railways

20. SLR was established as a government department by Parliament under Railway Ordinance, No. 9 of 1902 and amendments thereafter. Though SLR has rather limited experience in handling externally-financial projects, SLR has managed several Indian Line of Credit financed projects. Since this will be the first time that SLR will be involved in ADB's operation, training on financial management and ADB's disbursement processes, particularly on imprest fund and SOE procedures, will be provided. SLR has accounting division headed by the Chief Finance Officer. Chief Finance Officer is supported by four chief accountants and three deputy chief accountants in the head office with supporting staff. All staff are permanent government officers. SLR keeps all its financial transactions according to financial regulations of the Government. It follows accrual basis accounting in accordance with Sri Lanka Accounting Standards and is also consistent with International Accounting Standards. There is a separate internal audit division which directly reports to the General Manager and closely works with the audit committee. The Government's Office of Auditor General is the external auditor of SLR. The annual audit is carried out annually in accordance with Sri Lanka Auditing Standards.

21. The 2011, 2012 and 2013 audit reports pointed out accounting deficiencies leading to errors in carry forward balances in the financial statements. These include (i) delay in follow up of advance settlement after completion of the activities, (ii) entering into contracts with third parties without using agreements approved by the Attorney General, and (iii) non-reconciliation with the control accounts. Vacancies in the positions of the accounting division and internal audit divisions may cause the delay in submission of the financial statements and audit reports.

22. Timely availability of counterpart funds has been identified as an issue in previous projects in Sri Lanka. Though SLR is a revenue-earning department, the revenue is not sufficient to meet the necessary expenditure of SLR. To minimize the risk of implementation delays, ADB's direct payment procedure will be used for disbursement above $200,000 for consulting services. Furthermore the continuation of staff throughout the implementation period is also essential. Frequent transfer of staff should be minimized. Continuous training should be given to the new existing staff to minimize this type of loss.

23. Financial management risks should be considered and updated throughout the life of the project. Risk mitigation measures should also be updated accordingly.

3. Sri Lanka Ports Authority

24. SLPA is established as a government entity by Parliament under Ports Authority Act No. 51 of 1979 and amendments thereafter. SLPA has satisfactory capacity in project financial accounting and ADB disbursement processes. SLPA accounts division is headed by the Director (Finance). The Director is supported by deputy directors and assistant directors in the head office supported by the support staff. All the staff are permanent SLPA officers. SLPA keeps all its financial transactions according to financial regulations of the Government. It follows accrual basis accounting in accordance with Sri Lanka Accounting Standards and is also consistent with International Accounting Standards. The internal audit division of the SLPA is also under the Chief Internal Auditor. The Government's Office of Auditor General is the external auditor of SLPA. The annual audit is carried out annually in accordance with Sri Lanka Auditing Standards.

25. Accounting deficiencies were brought up by the auditors in their audits for the year 2012. It includes non-confirmation of balances and timely availability of counterpart funds in previous

projects in Sri Lanka. Though SLPA is a revenue earning department, the revenue is not sufficient to meet the necessary expenditure of SLPA. To minimize the risk of implementation delays, ADB's direct payment procedure will be used for disbursement above $200,000 for consulting services.

26. Financial management risks should be considered and updated throughout the life of the project. Risk mitigation measures should also be updated accordingly.

B. Disbursement

27. The Loan proceeds will be disbursed in accordance with ADB's *Loan Disbursement Handbook* (2015, as amended from time to time), and detailed arrangements agreed upon between the Government and ADB. [3] Online training for project staff on disbursement policies and procedures is available at: http://wpqr4.adb.org/disbursement_elearning. Project staff is encouraged to avail of this training to help ensure efficient disbursement and fiduciary control. ADB's disbursement procedures (direct payment, commitment, reimbursement, and/or imprest fund) will be used for withdrawal of project funds. A separate imprest account in US dollar at the Central Bank of Sri Lanka and a sub-account in local currency will be established and maintained by each implementing agency. A local currency account for the related sub-account will also be established and administered by each implementing agency to facilitate disbursement of local currency costs.

28. The imprest accounts will be established, managed, replenished and liquidated in accordance with the Loan Disbursement Handbook. The total outstanding advance to each imprest account should not exceed the estimate of ADB's share of expenditures to be paid through the imprest account for the forthcoming 6 months. The request for initial advance to the imprest account should be accompanied by an Estimate of Expenditure Sheet[4] setting out the estimated expenditures for the first six months of project implementation, and submission of evidence satisfactory to ADB that the advance account has been duly opened. The imprest accounts are to be used exclusively for ADB's share of eligible expenditures. The IA who administers the imprest account is accountable and responsible for proper use of advances to the imprest account.

29. ADB's statement of expenditure (SOE) procedure will be utilized for reimbursement and liquidation and replenishment of advance to the imprest account. However, SLR can use SOE procedure for payments less than $100,000. SOE records should be maintained and made readily available for review by ADB's disbursement and review mission or upon ADB's request for submission of supporting documents on a sampling basis, and for independent audit.[5]

30. Before the submission of the first withdrawal application, the borrower should submit to ADB sufficient evidence of the authority of the person(s) who will sign the withdrawal applications on behalf of the borrower, together with the authenticated specimen signatures of each authorized person. The minimum value per withdrawal application is in accordance with the Loan Disbursement Handbook. Individual payments below such amount should be paid (i) by the executing agencies/implementing agencies and subsequently claimed to ADB through reimbursement, or (ii) through the imprest fund procedure, unless otherwise accepted by ADB.

[3] Available at: http://www.adb.org/Documents/Handbooks/Loan_Disbursement/loan-disbursement-final.pdf
[4] Available in Appendix 10B of the *Loan Disbursement Handbook.*
[5] SOE form is available in Appendix 9B of the Loan Disbursement Handbook.

31. The implementing agencies will be responsible for (i) preparing disbursement projections, (ii) collecting supporting documents, and (iii) preparing and sending withdrawal applications to ADB.

C. Accounting

32. The implementing agencies will maintain, or cause to be maintained, separate books and records by funding source for all expenditures incurred on the project, following accrual-based accounting that is according to the international standard and national accounting standards. The IAs will prepare project financial statements in accordance with the government's accounting laws and regulations which are consistent with international accounting principles and practices.

D. Auditing and Public Disclosure

33. RDA, SLR, and SLPA will cause the detailed project accounts to be audited in accordance with International Standards on Auditing by an independent auditor acceptable to ADB. The audited project financial statements together with the auditor's opinion will be presented in the English language to ADB within 6 months from the end of the fiscal year by the implementing agencies.

34. The audit report for the project financial statements will include a management letter and audit opinions which cover (i) whether the project financial statements present an accurate and fair view or are presented fairly, in all material respects, in accordance with the applicable financial reporting standards; (ii) whether the proceeds of the loan were used only for the purposes of the project or not; (iii) whether the borrower, executing agencies or implementing agencies in comply with the financial covenants contained in the legal agreements (where applicable).

35. Compliance with financial reporting and auditing requirements will be monitored by review missions and during normal program supervision and followed up regularly with all concerned, including the external auditor.

36. The Government, executing agencies and implementing agencies have been made aware of ADB's approach to delayed submission, and the requirements for satisfactory and acceptable quality of the audited project financial statements. [6] ADB reserves the right to require a change in the auditor (in a manner consistent with the constitution of the borrower), or for additional support to be provided to the auditor, if the audits required are not conducted in a

[6] ADB's approach and procedures regarding delayed submission of audited project financial statements:

(i) When audited project financial statements are not received by the due date, ADB will write to the executing agency advising that (a) the audit documents are overdue; and (b) if they are not received within the next 6 months, requests for new contract awards and disbursement such as new replenishment of imprest accounts, processing of new reimbursement, and issuance of new commitment letters will not be processed.

(ii) When audited project financial statements are not received within 6 months after the due date, ADB will withhold processing of requests for new contract awards and disbursement such as new replenishment of imprest accounts, processing of new reimbursement, and issuance of new commitment letters. ADB will (a) inform the executing agency of ADB's actions; and (b) advise that the loan may be suspended if the audit documents are not received within the next 6 months.

(iii) When audited project financial statements are not received within 12 months after the due date, ADB may suspend the loan.

manner satisfactory to ADB, or if the audits are substantially delayed. ADB reserves the right to verify the project's financial accounts to confirm that ADB's financing shar is used in accordance with ADB's policies and procedures.

37. Public disclosure of the audited project financial statements, including the auditor's opinion on the project financial statements, will be guided by ADB's Public Communications Policy 2011[7]. After review, ADB will disclose on its website the audited project financial statements and the opinion of the auditors on the financial statements no later than 14 days from ADB's confirmation of their acceptability. The management letter, additional auditor's opinions, and audited entity financial statements will not be disclosed.[8]

[7] Public Communications Policy: http://www.adb.org/documents/pcp-2011?ref=site/disclosure/publications

[8] This type of information would generally fall under public communications policy exceptions to disclosure. ADB. 2011. *Public Communications Policy*. Paragraph 97(iv) and/or 97(v).

VI. PROCUREMENT AND CONSULTING SERVICES

A. Advance Contracting and Retroactive Financing

38. All advance contracting and retroactive financing will be undertaken in conformity with ADB's *Procurement Guidelines* (2015, as amended from time to time) (ADB's *Procurement Guidelines)*[9] and ADB's *Guidelines on the Use of Consultants* (2013, as amended from time to time) (ADB's *Guidelines on the Use of Consultants).*[10] The issuance of requests for proposals under advance contracting and retroactive financing will be subject to ADB approval. The borrower, MOHEH, MOTCA, MOPS, RDA, SLR, and SLPA have been advised that approval of advance contracting and retroactive financing does not commit ADB to finance the Project.

39. Advance contracting includes the recruitment of consulting services. The detailed advance action schedule and actual dates are presented as follows.

Table 4: Detailed Engineering Consultant for Port Access Elevated Highway

S.No	Activity	Days	Time Frame
1	EOI (Pre-qualification)		18-Jun-16
2	Closing & Opening of EOI	30	18-Jul-16
3	Shortlisting & CAPC Approval	14	01-Aug-16
4	ADB's no - objection for Shortlisting (Submission 1)	7	08-Aug-16
5	Invite Request for Proposal (RFP)	2	10-Aug-16
6	Closing & Opening of Proposals	42	21-Sep-16
7	Evaluation of Technical Proposal & CAPC Approval	14	05-Oct-16
8	ADB's no-objection for Technical Proposal Evaluation (Submission 2)	7	12-Oct-16
9	Opening of Financial Proposal	2	14-Oct-16
10	Evaluation of Financial Proposal & CAPC Approval	7	21-Oct-16
11	ADB's no-objection for Financial Proposal Evaluation (Submission 3)	7	28-Oct-16
12	Contract Negotiation & CAPC Approval	14	11-Nov-16
13	ADB's no-objection for Draft Contract (Submission 4)	7	18-Nov-16
14	Award of Consultancy Service Including Cabinet Approval	28	16-Dec-16
15	Signing of Agreement	7	23-Dec-16

ADB = Asian Development Bank, CAPC = Cabinet Appointed Procurement Committee, EOI = expression of interest, RFP = request for proposals

40. Under retroactive financing, withdrawals from the loan account may be made to finance eligible expenditures incurred under the Project before the effective date, but not earlier than 12 months before the date of the loan agreement in connection with items to be retroactively financed, subject to maximum amount equivalent to 20% of the loan amount.

B. Procurement of Goods, Works and Consulting Services

41. An 18-month procurement plan indicating threshold and review procedures for the consulting service contract packages is in Section C.

[9] Available at: http://www.adb.org/Documents/Guidelines/Procurement/Guidelines-Procurement.pdf
[10] Available at: http://www.adb.org/Documents/Guidelines/Consulting/Guidelines-Consultants.pdf

42. All consultants will be recruited according to ADB's *Guidelines on the Use of Consultants*.[11] The terms of reference for all consulting services are detailed in Section D.

43. For the three main components of the project (road, railway and port), an estimated 1,629 person-months of (408 international, 1,221 national) of consulting services are required for (i) conceptual study, (ii) feasibility study, (iii) detailed design, and (iv) project management and implementation. Consulting firms will be engaged using the quality- and cost-based selection (QCBS) method with a standard quality-cost ratio of 90:10.

C. Procurement Plan

44. The procurement plan is in Appendix 1 and describes all procurement of goods, works, and consulting services to be undertaken for the Project.

D. Consultant's Terms of Reference

45. The consultant's terms of reference are provided in the following:

Expressway Development Project	-	Appendix 2
SASEC Port Access Elevated Highway Project	-	Appendix 3
Colombo Suburban Railway Project	-	Appendix 4
SASEC Port Development Project	-	Appendix 5

[11] Checklists for actions required to contract consultants by method available in e-Handbook on Project Implementation at: http://www.adb.org/documents/handbooks/project-implementation/

VII. SAFEGUARDS

46. The project scope involves preparation of feasibility studies, detailed design and safeguard documents of transport projects. There will be no physical construction works. Hence, the safeguards category for environment, involuntary resettlement and indigenous people will be "C". The Project is expected to ensure development of environmentally and socially viable follow-on investment projects. Projects under follow-on loans will be prepared in compliance with ADB's Safeguard Policy Statement (2009) and government guidelines, regulations, and policies.

47. For each project being prepared, the project consultants will prepare all required safeguard documents in accordance with government guidelines and regulations, and ADB's Safeguard Policy Statement (2009).

48. **Environment safeguard.** Planning documents include: (a) environmental assessment and review framework as necessary, (b) initial environmental examinations, (c) environmental impact assessments, and (d) environmental management plan.

49. **Social safeguard.** Planning documents include: (a) resettlement framework as necessary, (b) resettlement plan, and (c) social due diligence report.

50. **Indigenous peoples safeguard.** Planning documents include: (a) indigenous people planning framework as necessary, and (b) indigenous peoples plan.

51. Pursuant to ADB's Safeguard Policy Statement (2009) (SPS),[12] ADB funds may not be applied to the activities described on the ADB Prohibited Investment Activities List set forth at Appendix 5 of the SPS.

[12] ADB. 2009. *Safeguard Policy Statement*. Manila

VIII. GENDER AND SOCIAL DIMENSIONS

52. The project activities (feasibility study and project design and preparation) are not expected to have any adverse impact on women and/or widen gender inequality. Projects being studied will be prepared in compliance with Handbook on Poverty and Social Analysis: A Working Document (2012). Gender, consultation and participation, labor, HIV/AIDS, and other social risks relating to follow-on loans will be assessed and mitigation plans will be prepared to address those issues.

53. Specifically for the gender dimension, the studies should be guided by the ADB's Gender Toolkit: Transport (2013). Sex-disaggregated data on the range of socioeconomic indicators relevant to the subprojects should be collected, with focus on the needs, demands, constraints faced by the poor, women and vulnerable groups in the project area, in terms of their equitable access to the benefits and opportunities associated with road, rail and port construction. Gender analysis should be carried out to integrated gender-related features into the design of the project, where appropriate.

IX. PERFORMANCE MONITORING, EVALUATION, REPORTING AND COMMUNICATION

A. Project Design and Monitoring Framework

54. The design and monitoring framework (DMF) for the project is in Appendix 1 of the Report and Recommendation of the President (RRP).

B. Monitoring

55. **Project performance monitoring.** The achievement of the project performance targets will be assessed following the DMF. RDA, SLR, and SLPA, will establish their respective project performance management systems. Indicators to be monitored include (i) contracts awarded within one year of loan approval, (ii) the number of investment loans, (iii) the number of bid documents ready before loan effectiveness, and (iv) the extent of due diligence of social and environmental safeguard measures completed at ensuing loan fact-finding mission stage. Progress will be monitored and reported monthly by the consultants. These reports will provide information necessary to update ADB's project performance reporting system. [13]

56. **Compliance monitoring.** Regular monitoring of Project Consultants' outputs to ensure compliance with policies will be conducted through the Sri Lanka Resident Mission and SATC. As necessary, special loan administration missions and a midterm review mission will be fielded. The implementing agencies will monitor project implementation in accordance with the schedule and time-bound milestones, and keep ADB informed of any significant deviations that may result in non-achievement of the milestones.

57. **Safeguards monitoring**: Regular safeguards monitoring of Project Consultants' outputs to ensure that ADB's Safeguard Policy Statement (2009) are met will be conducted by ADB. As necessary, special loan administration missions and a midterm review mission will be fielded to ensure safeguard policy compliance. The executing agencies will monitor project implementation in accordance with the schedule and time-bound milestones, and keep ADB informed of any significant deviations that may result in non-achievement of the milestones.

58. **Gender and social dimensions monitoring:** Regular gender and social dimensions monitoring of Project Consultants' outputs to ensure ADB's Gender and other social related policies are met will be conducted by ADB. As necessary, special loan administration missions and a midterm review mission will be fielded to ensure compliance of gender and other social related policies. The executing agencies will monitor project implementation in accordance with the schedule and time-bound milestones, and keep ADB informed of any significant deviations that may result in non-achievement of the milestones.

C. Evaluation

59. An inception mission will be fielded soon after the loan agreement for the Project is declared effective; thereafter, regular reviews will follow at least annually. As necessary, special loan administration missions and a midterm review mission will be fielded, under which any changes in scope or implementation arrangement may be required to ensure achievement of project objectives. RDA, SLR, and SLPA will monitor project implementation in accordance with the schedule and time-bound milestones, and keep ADB informed of any significant deviations

[13] ADB's project performance reporting system is available at: http://www.adb.org/Documents/Slideshows/PPMS/default.asp?p=evaltool

that may result in the milestones not being met. Within 6 months of physical completion of the Project, RDA, SLR, and SLPA will submit a project completion report to ADB.[14]

D. Reporting

60. The RDA, SLR, and SLPA will provide ADB with (i) quarterly progress reports in a format consistent with ADB's project performance reporting system; (ii) consolidated annual reports including (a) progress achieved by output as measured through the indicator's performance targets, (b) key implementation issues and solutions; (c) updated procurement plan and (d) updated implementation plan for the next 12 months; and (iii) a project completion report within 6 months of physical completion of the Project. To ensure projects continue to be both viable and sustainable, project accounts and the executing agency audited financial statements (AFS), together with the associated auditor's report, should be adequately reviewed.

E. Stakeholder Communication Strategy

61. While conducting poverty, social and environmental assessments, the Project consultants will conduct field visits and meaningful consultations/interactions (in accordance with SPS) with stakeholders using participatory approaches at the local and line Ministry levels and relevant non-government organizations if available particularly for category A (resettlement, environment or indigenous people) projects. If there are any gaps emerging from the communication needs assessment, the Project consultants will have to formulate, in discussion with internal stakeholders and key decision-makers, a communications strategy for the TA loan.

[14] Project completion report format is available at: http://www.adb.org/Consulting/consultants-toolkits/PCR-Public-Sector-Landscape.rar

X. ANTICORRUPTION POLICY

62. ADB reserves the right to investigate, directly or through its agents, any violations of the Anticorruption Policy relating to the Project.[15] All contracts financed by ADB shall include provisions specifying the right of ADB to audit and examine the records and accounts of the executing agency and all Project contractors, suppliers, consultants and other service providers. Individuals/entities on ADB's anticorruption debarment list are ineligible to participate in ADB-financed activity and may not be awarded any contracts under the Project.[16]

63. To support these efforts, relevant provisions are included in the loan agreement/ regulations and the bidding documents for the Project.

[15] Available at: http://www.adb.org/Documents/Policies/Anticorruption-Integrity/Policies-Strategies.pdf
[16] ADB's Integrity Office web site is available at: http://www.adb.org/integrity/unit.asp

XI. ACCOUNTABILITY MECHANISM

64. People who are, or may in the future be, adversely affected by the project may address complaints to ADB, or request the review of ADB's compliance under the Accountability Mechanism.[17]

65. The RDA, SLR, and SLPA and consultants will undertake studies in line with ADB safeguard policies and requirements, which will ensure greater accountability, including consultations concerning environment, resettlement and social aspects.

[17] For further information see: http://www.adb.org/Accountability-Mechanism/default.asp.

XII. RECORD OF PAM CHANGES

Ver.	Date	Description of Revisions
0.1	June 2016	Draft during fact-finding mission.
1.0	August 2016	Loan Negotiation

PROCUREMENT PLAN

Basic Data

Project Name: Transport Project Preparatory Facility	
Project Number: TBD	**Approval Number**:
Country: Democratic Socialist Republic of Sri Lanka	**Executing Agency and Implementing Agency**: • Ministry of Higher Education and Highways (EA), and Road Development Authority (IA) • Ministry of Transport and Civil Aviation through the Department of Sri Lanka Railways (EA) • Ministry of Ports and Shipping (EA), and Sri Lanka Port Authority (IA)
Project Procurement Classification: B **Procurement Risk:** Low	
Project Financing Amount: $ 27.70 million **ADB Financing: $24.42 million** **Non-ADB Financing: $3.28 million**	**Project Closing Date: 31 December 2022**
Date of First Procurement Plan:1 June 2016	**Date of this Procurement Plan**: 9 August 2016

A. Methods, Thresholds, Review and 18-Month Procurement Plan

1. Procurement and Consulting Methods and Thresholds

Except as the Asian Development Bank (ADB) may otherwise agree, the following process thresholds shall apply to procurement of goods and works.

Consulting Services	
Method	**Comments**
Quality and Cost Based Selection (QCBS)	

2. Goods and Works Contracts Estimated to Cost $1 Million or More

The following table lists goods and works contracts for which the procurement activity is either ongoing or expected to commence within the next 18 months.

Package Number	General Description	Estimated Value	Procurement Method	Review	Bidding Procedure	Advertisement Date	Comments
N.A.							

3. Consulting Services Contracts Estimated to Cost $100,000 or More

The following table lists consulting services contracts for which the recruitment activity is either ongoing or expected to commence within the next 18 months.

Package Number	General Description	Estimated Value	Recruitment Method	Review	Advertisement Date	Type of Proposal	Comments
1	Detail Design of SASEC Port Access Elevated Highway Project	$2.17 million	**QCBS**	Prior	Q2/2016	full	90:10
2	Conceptual Study, Feasibility Study, and Detailed	$6.82 million	**QCBS**	Prior	Q2/2018	full	90:10

Package Number	General Description	Estimated Value	Recruitment Method	Review	Advertisement Date	Type of Proposal	Comments
	Engineering of Expressway Development Project						
3	Feasibility Study and Detail Design of Colombo Suburban Railway Project	$8.86 million	**QCBS**	Prior	Q3/2017	full	90:10
4	Feasibility Study and Detail Design of SASEC Port Development Project	$3.91 million	**QCBS**	Prior	Q1/2018	full	90:10

4. Goods and Works Contracts Estimated to Cost Less than $1 Million and Consulting Services Contracts Less than $100,000 (Smaller Value Contracts)

The following table groups smaller-value goods, works and consulting services contracts for which the activity is either ongoing or expected to commence within the next 18 months.

Goods and Works								
Package No.	**General Description**	**Est. Value**	**Number of Contracts**	**Procurement Method**	**Review**	**Bidding Procedure**	**Advertisement Date**	**Comments**
N.A.								

Consulting Services								
Package No.	**General Description**	**Est. Value**	**Number of Contracts**	**Procurement Method**	**Review**	**Bidding Procedure**	**Advertisement Date**	**Comments**
N.A.								

B. Indicative List of Packages Required Under the Project

The following table provides an indicative list of goods, works and consulting services contracts over the life of the project, other than those mentioned in previous sections (i.e., those expected beyond the current period).

Goods and Works							
Package Number	**General Description**	**Estimated Value (cumulative)**	**Estimated Number of Contracts**	**Procurement Method**	**Review** [Prior / Post/Post (Sampling)]	**Bidding Procedure**	**Comments**
N.A.							

Consulting Services							
Package Number	**General Description**	**Estimated Value (cumulative)**	**Estimated Number of Contracts**	**Recruitment Method**	**Review** (Prior / Post)	**Type of Proposal**	**Comments**
N.A.							

C. List of Awarded and On-going, and Completed Contracts

The following tables list the awarded and on-going contracts, and completed contracts.

1. Awarded and On-going Contracts

Goods and Works							
Package Number	**General Description**	**Estimated Value**	**Awarded Contract Value**	**Procurement Method**	**Advertise-ment Date**	**Date of ADB Approval of Contract Award**	**Comments**
N.A.							

Consulting Services							
Package Number	**General Description**	**Estimated Value**	**Awarded Contract Value**	**Recruitment Method**	**Advertise-ment Date**	**Date of ADB Approval of Contract Award**	**Comments**
N.A.							

2. Completed Contracts

Goods and Works								
Pack-age No.	**General Descrip-tion**	**Est. Value**	**Contract Value**	**Procurement Method**	**Advertise-ment Date**	**Date of ADB Approval of Contract Award**	**Date of Completion**	**Comments**
N.A.								

Consulting Services								
Pack-age No.	**General Descrip-tion**	**Est. Value**	**Contract Value**	**Procurement Method**	**Advertise-ment Date**	**Date of ADB Approval of Contract Award**	**Date of Completion**	**Comments**
N.A.								

D. Non-ADB Financing

The following table lists goods, works and consulting services contracts over the life of the project, financed by Non-ADB sources.

Goods and Works				
General Description	**Estimated Value (cumulative)**	**Estimated Number of Contracts**	**Procurement Method**	**Comments**
N.A.				

Consulting Services				
General Description	**Estimated Value (cumulative)**	**Estimated Number of Contracts**	**Recruitment Method**	**Comments**
N.A.				

Outline Terms of Reference:

Conceptual Study, Feasibility Study and Detailed Engineering Designs of Expressway Development Project

A. Introduction

1. The Democratic Socialist Republic of Sri Lanka has applied a loan for the Transport Preparatory Facility from the Asian Development Bank (ADB) and this loan will be made available for preparatory works of transport sector projects under Ministry of Higher Education and Highways (MOHEH), Ministry of Transport and Civil Aviation (MOTCA) and Ministry of Port and Shipping (MOPS).

2. The executing agency (EA) for the project is MOHEH and the implementing agency (IA) is RDA. A Steering Committee (SC) chaired by MOHEH will be established, comprising RDA, Ministry of National Policies and Economic Affairs (represented by External Resources, National Planning, and Project Management and Monitoring departments), Ministry of Finance (represented by National Budget department), and Urban Development Authority, to coordinate among stakeholders and oversee project implementation from time to time. RDA will also establish a project management unit (PMU) to implement the project. The PMU will coordinate and communicate the review comments to the consultant and will provide necessary guidance from time to time.

3. Under this loan, the Road Development Authority (RDA), MOHEH, will engage an international consultancy firm to: (a) carry out pre-feasibility study for selecting the possible new expressways for the proposed expressway network (b) select the future expressways to be included in the proposed expressway network, for feasibility study, detailed engineering designs, land acquisition and resettlement, environment and procurement of civil works, (c) carry out feasibility study for one of the proposed expressways having first priority in order to select the final trace, (d) undertake detailed engineering designs for the selected expressway final trace, (e) assist in improving the design standards and construction technology, (f) deliver training programs about the planning methodology, design standards and construction technology, and (g) improve road safety in the expanded expressway network.

B. Background

4. The government of Sri Lanka has planned to have an Effective Expressway Network for several decades in order to achieve the expected economic development, to cope with the increasing traffic demand, upgrade life condition of people and alleviating the poverty in distant areas of the country. As a result of this effort, Sri Lanka constructed several expressways, and more under construction are under planning stage.

5. Expressways in Operation

   (i) Southern Expressway (E 01) from Kottawa to Godagama – 126.1km
   (ii) Outer Circular Highway (E 02) – From Kottawa to Kadawatha (Section 1&2) – 19.9km
   (iii) Colombo Katunayaka Expressway (E 03) – from Paliyagoda to Katunayaka – 25.8km

6. Expressways under Construction

(i) Extension of Southern Expressway Section I - from Godagama to Beliatta – 30km
(ii) Extension of Southern Expressway Section II - from Beliatta to Wetiya – 15km
(iii) Extension of Southern Expressway Section III - from Wetiya to Andarawewa – 26km
(iv) Extension of Southern Expressway Section IV - from Mattala to Hambantota via Andarawewa – 25.0km
(v) Outer Circular Highway (E 02) – From Kadawatha to Kerawalapitiya (Section 3) – 9.3km

7. Expressways in planning stage

(i) Central Expressway from Kadawatha to Meerigama (Section 1) – 37km
(ii) Central Expressway from Meerigama to Kurunagala (Section 2) – 39.8km
(iii) Central Expressway from– Pothuhera to Galagedara (Section 3 – Kandy Link) – 32.5km
(iv) Central Expressway from Kurunagala to Dambulla (Section 4) - 61km
(v) Ruwanpura Expressway from Kahathuduwa (On Southern Expressway) to Pelmadulla via Rathnapura – 73.5km

8. Expansion of Expressway Network. The government plans to further extend expressways to effectively connect major cities such as **Jaffna, Trincomallee, Anudarapura, Puttalam, Pollonnaruwa, Mannar, Badulla and Batticaloa** with the existing network. Tentative expressway routes are identified subject to further analysis in terms of economic development of the country in the fields of industry, agriculture, tourism, fishing etc.; township development; social development of the country; poverty alleviation; mitigation of environmental impacts; resettlement and social consideration, fair distribution of income; ethnic cooperation and so on.

C. Scope of the Consulting Services

1. Conceptual Study

9. The Consultant should analyze alternatives of the expressway network expansion to effectively connect major cities, and identify optimal expressway alignments in consultation with the MOHEH, RDA, and ADB, supported by the following reviews and preliminary surveys. The aim of this study is to identify an effective expressway network for Sri Lanka and select one expressway with most priority for feasibility study and detailed design.

(i) Carry out desk study by reviewing existing road and transport studies including expressway feasibility studies, and studies on other development projects recently completed or undergoing in Sri Lanka, to gain an understanding of existing development initiatives, transport needs, etc. and to determine long term requirements of expressways.
(ii) Develop a traffic model using a software acceptable to RDA for expressway network and national road network in Sri Lanka.
(iii) Review existing surveys and data, (e.g. Traffic data) relating to all expressways, whether completed, ongoing or planned.

(iv) The conceptual study will review those expressway alignments, taking into account their role in terms of the development objectives of the country. The conceptual study will also take into account traffic volume, easy access to major cities, future township developments, traffic diversion, road safety, social and environmental considerations, serving areas that contain significant levels of unemployment and poverty and the costs and benefits of construction of each option.

(v) The output of the conceptual study will be a list of expressways with priority ranking that needs to be studied further and that requires construction to form an Effective Expressway Network (criteria for selecting expressways should be approved by SC). The list will be considered by RDA, ADB and the consultants at a tripartite meeting. Out of the final list, the expressway alignment that is prioritizes the most will be selected for the subsequent feasibility study.

(vi) Prepare an implementation program for the expressways selected under the conceptual study based on prioritization by the EA and IA.

2. Feasibility Study

10. The aim of the feasibility study is detailed investigations of the different alternative traces of the selected expressway and selection of the final trace of the expressway which will be used for the detailed engineering designs. The Consultant should select an expressway route to connect a major city, in consultation with the MOHEH, RDA, and ADB. The terms of reference for the consultants for feasibility study include, but are not limited to, the following:

a. Engineering Study

11. The consultants will have the following tasks:

(i) Condition survey of the alternative traces of the selected expressway, including geometric features, hydrology condition, geotechnical condition, social conditions, environmental conditions, historical and cultural conditions, and economic conditions;

(ii) Investigate the suitability of local construction materials, and, where necessary, locate new quarries and borrow pits, and assess the quality and quantity of materials and hauling distances;

(iii) Study and propose technical options for constructing sections on expressway traces, including consideration of geometric alignment, pavement strengthening, embankment stabilization, soft ground treatments, drainage construction and bridges & culvert construction, taking into account traffic forecasts and, seeking to minimize land acquisition and involuntary resettlement;

(iv) Prepare cost estimates (with 20% accuracy level) for proposed construction for each expressway traces, separating foreign exchange, local currency, and tax and duty elements;

(v) Propose an approach to contract packaging, taking into account (a) the location of the expressway sections, size of contracts, and other project-specific factors; (b) ADB's Guidelines for Procurement; and (c) the aim of supporting development of strong, competitive domestic private sector capacity in expressway construction and engineering services;

(vi) Prepare a report summarizing the findings and recommendations, and presenting the supporting data and analysis, for review by the Government and ADB;

(vii) In cooperation with RDA, consult with stakeholders regarding project design, and ensure that the selected expressway reflect the result of consultation;
(viii) Conduct road safety audits using internationally accepted standards in consultation with RDA and ADB;
(ix) Develop an expressway inventory database and a digital mapping of the expressways, traffic volume and other existing data with use of geographic information systems (GIS) in consultation with RDA.

b. Economic and Financial Analysis

12. The consultants will carry out the following tasks:

(i) Review existing traffic data, conduct traffic counts and origin-destination and axle-load surveys, and forecast traffic for each candidate expressway traces for 20-year projections.
(ii) Prepare an economic analysis of the alternative expressway traces using the Highway Department and Management model (version 4) individually and in combination; distribution analysis; and estimation of the poverty impact ratio following ADB's Guidelines for the Economic Analysis of Projects. Calculate the economic internal rate of return (EIRR) individually, overall.
(iii) Undertake sensitivity analysis on the risk factor for various scenarios such as changes to the cost, generated and diversion traffic, model shift, construction period, etc.
(iv) Prepare and submit Economic Assessment Report, presenting the following :
  a) Introduction
  b) General Considerations
  c) Input Data for Vehicle Operating Cost Components and Other Components for Economic Analysis
  d) Economic Benefits (including those due to regional implications)
  e) Construction and Maintenance Alternatives and Cost Estimates
  f) Economic Analysis
  g) Sensitivity Analysis
  h) Conclusions – summarizing the economic assessment, approach & methodology, findings (EIRRs and sensitivity analysis), and overall economic viability.
  i) Appendices :
    A. Details of completed, ongoing and proposed expressways (should be available from main report)
    B. Traffic studies (base year traffic, traffic generation, traffic diversion assessments)
    C. Economic growth trend and traffic forecast (including the basis)

(v) Conduct willingness-to-pay and other relevant surveys. In consultation with RDA, propose appropriate toll rate(s). Calculate the financial internal rate of return (FIRR) on the same basis of EIRR calculation;
(vi) Estimate the required budget for appropriate operation and maintenance of each project road. Assess the financial sustainability by comparing the required budget with the current budget allocation, and make recommendations as appropriate;
(vii) During detailed design stage, if required, update the economic analysis based on updated cost estimate and prepare two-page economic assessment summary for ADB's review; and

(viii) Develop a monitoring and evaluation framework in accordance with ADB's Guidelines for Preparing a Design and Monitoring Framework. Include in the framework appropriate indicators with baseline data and targets.

c. Social Assessment

15. The consultants will carry out the following tasks but are not limited to:

(i) Conduct 20% poverty & social assessment taking into account socioeconomic and poverty status of the project area of influence, including the nature, extent and determinants of poverty in the project areas and the country. Identify and estimate the likely socioeconomic and poverty reduction impacts of the project. Collect and present sex-disaggregated data where appropriate. Assess local demand for the proposed investment in expressway network, employment opportunities, child labor, affordability, gender specific capacity to take advantage of the likely socioeconomic opportunities that would result from the project. This will be in accordance with *ADB's Handbook on Poverty and Social Analysis (2012)*.
(ii) Identify project-related interests of key stakeholders, likely barriers to their participation in and benefiting from the project resources, and suggest possible strategies for addressing their concerns.
(iii) Conduct studies by using participatory approaches. With the participation of stakeholders, identify and analyze the reasons behind the vulnerability of at risk groups, including their exposure to risks. Suggest participatory development strategies for key stakeholders to apply when designing and implementing the project.
(iv) Prepare a detailed gender analysis. Identify project design elements (policy, investment, or implementation) in which women can participate in and thus benefit from the project. Coordinate closely with engineering team to incorporate appropriate design elements.
(v) Conduct assessment of risks of human trafficking and HIV/AIDS due to the project. Provide suggestions for measures to be incorporated in the project to mitigate possible adverse impacts through human trafficking and HIV/AIDS, and identify possible partners for assisting in implementing such measures.
(vi) Identify any necessary mitigation measures and a strategy for implementing them. Identify potential proactive measures, in terms of additional components and design options, which will make it easy for the poor and vulnerable to benefit from the project.
(vii) In coordination with the economic analysis, design a time-bound benefit monitoring and evaluation program, including monitoring indicators and baseline data, to assess the project benefits to local communities before and after the construction of project. The program should address not only the economic benefits but also poverty reduction impacts and other social benefits such as stability of the region and integration with other parts of the country.
(viii) Submit a draft final Poverty and Social Analysis (PSA) report to ADB and RDA for review and comments. Incorporate comments and finalize the PSA accordingly, then re-submit the revised PSA to ADB through RDA. Summarize and submit these PSA findings in the Summary Poverty Reduction and Social Strategy (SPRSS) report format.

d. Environmental Assessment

(ii) The consultants will carry out an environmental assessment of the identified expressway traces in accordance with the Government's, ADB's Safeguard Policy Statement 2009 (SPS), as well as their environmental regulations and policies. The major tasks include, but are not limited to, the following :

(i) Prepare the Central Environmental Authority (CEA) BIQ to classify the expressway in accordance with the Government's environmental impact assessment requirements and ADB's Screening Checklist for Environmental Classification;
(ii) Depending on the classifications, prepare initial environmental examination (IEE) as per relevant guidelines of CEA and ADB, and if environmental impact assessment (EIA) is required, prepare TOR acceptable to the Government;
(iii) Ensure that the IEE/EIA be prepared in accordance with the requirements of the National Government and as well as ADB's SPS 2009;
(iv) In preparing the IEE/EIA the following issues must be covered:
  a) Adequate baseline data representing the environmental conditions of the project site must be collected on physical (air, noise, surface and ground water, soil), ecological (flora, fauna, protected areas) and socio-economic (physical cultural resources, heritage sites, etc.) environmental components,
  b) Potential impacts on biodiversity including modified, natural, critical habitat and protected areas and necessary measures to minimize, mitigate and offset impacts,
  c) Potential waste issues including hazardous materials and wastes and appropriate measures for their disposal, treatment and other forms of management,
  d) Potential contamination and pollution issues of air, noise, soil and water,
  e) Screening of climate change risks for the sub-projects. Where potential risks exists necessary adaptation steps to mitigate the risks must be recommended for inclusion in the project design,
  f) Estimation of greenhouse gas emission levels with and without the project activities and measures that are technically and financially feasible to reduce or off-set project related greenhouse gas (GHG) emissions during project design, construction and operation stages,
  g) Occupational health safety issues and measures for the construction workers as well as the local communities in and around the project site as provided in the World Bank Environmental Health and Safety Guidelines,
  h) Potential impacts on physical and cultural resources and measures to avoid minimize or mitigate impacts,
  i) Conduct meaningful consultations with affected persons, local communities and relevant government agencies and non-government organizations,
  j) Grievance redress mechanism to address concerns and grievances of the affected people in the course of the project cycle,
  k) Assessment of the institutional set up and capacity of the EA for meeting the environment safeguard requirements of the National Government as well as ADB. Institutional and capacity needs, if any, must be identified and planned for with adequate budget provisions,
(v) The EIA/IEE report including EMPs must be prepared and revised to incorporate feedback from all relevant stakeholders including the EA, ADB, affected persons and others.

e. Resettlement and Indigenous Peoples Assessment

17. The consultants will carry out Resettlement and Indigenous People Planning of the expressway in accordance with the ADB's Safeguard Policy Statement 2009, Public Communications Policy 2012 as well as Government's acts, regulations and policies. The major tasks include, but are not limited to, the following:

(i) Conduct a preliminary social impact assessment for the project including assessment of possible land acquisition/resettlement impacts for the candidate road alignments in accordance with ADB's Safeguard Policy Statement 2009 (SPS). Prepare and complete screening and impact categorization form for involuntary resettlement for the candidate road alignments;
(ii) Identify whether the project will be located in, or pass through, areas of significant indigenous people's settlements, and if this is the case propose how to specifically include indigenous peoples in project planning and implementation in accordance with ADB's Safeguard Policy Statement 2009 (SPS). If relevant, make an overview of population characteristics in the project area and anticipate project impacts. Prepare and complete checklist for indigenous people screening and impact categorization for the candidate road alignments; and
(iii) For the whole program, review existing resettlement frameworks (RF) and adjust them to the expressway as necessary, acceptable to the Government and ADB in compliance with the Government's National Involuntary Resettlement Policy and ADB's Safeguard Policy Statement 2009 and other government related acts and policies.

3. Detailed Engineering Design

a. Engineering Study

18. The Consultant should choose a section with a length of not more than 60 km, from the selected expressway route, in consultation with the MOHEH, RDA, and ADB to carry out detailed engineering design. The aim of this detailed engineering designs include preparation of engineering technical specifications and design standards; preparation of detailed design drawings through necessary investigations; preparation of right of way (ROW) acquisition drawings and resettlement plans. The Consultant's responsibilities will include the following:

(i) For the expressway trace selected for detailed engineering designs, including geometric features, type and condition of drainage structures, estimated traffic volumes, details of structures such as bridges, culverts, via ducts, tunnels etc., carryout detailed topographic survey and prepare a digital terrain model;
(ii) In order to prepare a digital terrain model, establish GPS coordinates, connecting to national grid and carry out engineering surveys, including horizontal and vertical alignments and cross-sections. Establish horizontal control points, bench marks, and reference beacons as required to prepare detailed engineering designs to enable construction quantities to be calculated with reasonable accuracy (5%).
(iv) Carry out geotechnical investigations for soft soil treatment and stability of slopes and record data in the digital terrain model. Borehole investigations shall be carried out at a reasonable spacing including locations of the structures to identify the underlying soil strata.
(v) Prepare detailed design, applying sound engineering practice and giving due regard to environmental and social safeguard aspects in accordance with the

ADB's Safeguard Policy Statement 2009 and Government related regulations and policies.

(vi) Investigate the suitability of local construction materials and, locate new quarries and borrow pits and assess the quality, quantity of materials, ownership, and hauling distance. Prepare necessary documents for RDA to obtain approval to operate borrow pits and material quarries.

(vii) Study the hydrological regime in detail, based on an analysis of rainfall and flood records, supplemented by engineering field investigations, to establish the adequacy of road embankment levels, culverts, and side ditches, and design bed and slope protection for the drainage structures and bridges.

(viii) Assess cross-drainage requirements and propose structures (bridges, culverts, and causeways as appropriate).

(ix) Prepare practical and cost-effective geometric (horizontal, vertical, intersection, interchanges etc.) pavement and structural designs using internationally accepted software on the basis of projected traffic levels; pavement structure studies; axle-load considerations, as determined from activities (i) to (viii) and from previous studies; traffic safety; environmental assessment; and other relevant inputs.

(x) Determine the most cost-effective construction option for each expressway section.

(xi) Prepare engineering technical specifications in accordance with best international practice and standards (AASHTO, Austroads etc.) including any applicable domestic standards (i.e. "Standard Specifications for Construction and Maintenance of Roads and Bridges" Second Edition, published in June 2009 by the Construction Industry Development Authority).

(xii) Assess and record in the digital terrain model the degree of vulnerability of each road section, in respect of the potential impacts of; climate zone shift, floods, landslides, sea level rise and drought exposure as a result of climate change.

(xiii) Prepare detailed engineering designs of road, pavement, and structures; and bill of quantities and calculate engineering costs estimates for civil works broken down into foreign (direct and indirect) and local components as well as taxes and custom duties.

(xiv) In consultation with RDA, establish contract packages, taking into account (a) the location of the expressway sections, size of contracts, and other project specific factors; (b) ADB's Guidelines for Procurement; and (c) the aim of supporting development of strong, competitive domestic private sector capacity in road industry.

(xv) Prepare engineering project implementation schedules showing anticipated progress of works and expenditures for each contract package. The schedules will reflect seasonal climate effects at the work sites and take into account typical outputs on earlier ADB-financed road projects.

(xvi) Prepare preliminary engineering drawings, including road plans (1:2,000 scale), longitudinal profiles (scales: 1:2,000 horizontal and 1:200 vertical), road cross sections at minimum 20 meters interval, structure plans, and other requirements.

(xvii) Prepare Right of way Acquisition drawings and resettlement plans in order to commence the land acquisition process of the expressway.

b. Road safety

19. The service will include the following tasks when the draft preliminary designs are available:

(i) Conduct road safety audits using internationally accepted standards in consultation with RDA and ADB. The following will be carried out:
   a) pre-audit meetings with RDA and the detailed design team to review project information and drawings;
   b) review of road safety issues on the current expressways in Sri Lanka and identify critical points which need to be addressed;
   c) conduct of office road safety audit analysis and preparing concise Road Safety Audit Reports for each of the expressway section with the list of road safety issues identified, highway risk for each issue assessed, and specific countermeasures proposed to be incorporated into detailed designs;
   d) present RSA findings and recommendations to RDA and engineering design team;
   e) checking the revised detailed designs to ensure that measures to address road safety issues, as endorsed by RDA, are incorporated in designs; and
   f) prepare provisions for managing road safety aspects appropriately during construction to be included in all bidding documents.
   g) based on findings above, prepare road safety measures as a manual to be applied to whole expressway network, including both engineering and non-engineering measures.

c. Resettlement Planning and Implementation Assistance

20. The consultants will carry out the following tasks. Some tasks may need to be commenced during the feasibility study.

(i) Carry out a screening of involuntary resettlement and indigenous peoples' impact in accordance with the Government's policies and regulations and ADB's Safeguard Policy Statement 2009 (SPS). Identify whether the project road is likely to lead to private land acquisition and lead to impact on non-titled holders. The screening exercise will also include an assessment of past social impacts, viz., if land acquisition has been accomplished in anticipation of the ADB project.
(ii) Confirm that there are no indigenous people's settlements along project location.
(iii) Prepare and complete the checklist for involuntary resettlement and indigenous people screening.
(iv) Prepare a resettlement plan (RP) in compliance with the Government's policies and regulations, and ADB's Safeguard Policy Statement 2009 (SPS). RP should define categories for impact, eligibility of affected people for compensation and provide an Entitlement Matrix covering compensation and other assistance for all types of impacts. The RP should provide the methodology for the calculation of compensations based on replacement cost to fully replace the asset. RP should pay close attention to assistance to non-titleholders and ensure security of tenure.
(v) Based on the detailed design, determine the legal status of private land within the RoW, verify application of customary and traditional laws governing land tenure, usufruct rights, leasehold. Verify legal boundaries of the right of Way (RoW) with the relevant ministry.
(vi) Based on the detailed design, conduct census survey of 100% of affected people (APs) and an inventory of lost assets.
(vii) Conduct a socioeconomic assessment of all APs residing/using the corridor of impact to collect data on family composition, details on age and sex of all the members of the household, income levels and occupational pattern, vulnerability

status, legal ownership status of land (private, traditional and customary rights, lease), asset occupancy status and skills possessed.

(viii) Assess whether the compensation standards for all types of assets, crops, and trees are based on replacement cost and describe in detail the valuation methodology used. Undertake market surveys to compute replacement value of land.

(ix) Prepare a comprehensive income and livelihood restoration program, supported by adequate budget, to help APs improve, or at least restore, their incomes and livelihoods. Identify specific measures for the affected poor, ethnic minorities, or other vulnerable households.

(x) Conduct in-depth consultations with the affected persons, ensuring the involvement of women in the process. Consultations should take the forms of public meetings, focus group discussions and one-on-one interviews. Ensure that the consultation process is well documented and demonstrate how the concerns of the affected persons are included to the design of the RP.

(xi) Establish a cut-off date for eligibility criteria for non-title holders and ensure and document that it has been publicly disseminated.

(xii) Prepare overall budget for compensation, resettlement and rehabilitation assistance.

(xiii) Based on the draft Resettlement and Rehabilitation (R&R) entitlements prepare an appropriate action plan for additional support required for the vulnerable

(xiv) Organize workshops on draft R&R policy to receive feedback from identified stakeholders, including implementing agency, line agencies (specifically revenue, forest, tribal welfare, etc.), NGOs and others.

(xv) Assist RDA to develop a computerized database management system for recording affected persons (APs) and lost assets. The system should reflect the present impact on APs and accordingly the entitlements for APs are planned. The system should be in place from the beginning of the resettlement survey. Also, develop cadastral mapping of affected plots for construction of new alignments using road inventory map developed under the engineering study.

(xvi) Assess the capacity of the Government in implementing the proposed RP, and recommend improvements and actions required.

(xvii) Prepare relevant chapters and appendixes of the detailed design report on resettlement and indigenous peoples planning. The appendixes should include the RP for each project road where resettlement impacts have been identified.

d. Environmental Studies

21. Depending on the findings of the environmental assessment carried out in the feasibility study and the final design of the project, prepare or update an EIA in accordance with the following:

(i) Carry out an environmental assessment of the project roads in accordance with ADB's Safeguard Policy Statement 2009 (SPS), and the Government's environmental regulations and policies;

(ii) Classify the road in accordance with the environmental impact assessment requirements under CEA and ADB's Screening Checklist for Environmental categorization according to the SPS;

(iii) Depending on the classifications, prepare IEE as per relevant guidelines of CEA and ADB, and if EIA is required, prepare TOR that is acceptable to CEA. In preparing the IEE and/or EIA a minimum of the following issues must be covered:

a) Adequate baseline data representing the environmental conditions of the project site must be collected on physical (air, noise, surface and ground water, soil), ecological (flora, fauna, protected areas) and socio-economic (physical cultural resources, heritage sites, etc.) environmental components
b) Potential impacts on biodiversity including modified, natural, critical habitat (as defined in the SPS) and protected areas and necessary measures to minimize, mitigate and offset impacts.
c) Potential waste issues including hazardous materials and wastes and appropriate measures for their disposal, treatment and other forms of management.
d) Potential impacts on ambient air and water quality, noise levels and soil during construction and operation and recommendations for suitable mitigation measures. Impacts must be compared with the national standards and World Bank Environmental Health and Safety (WB_EHS) standards
e) Climate change related risks for the project (such as more and stronger storm surges, sea level rise, more flooding etc.) in consultation with the government and ADB, and recommendations for adaptation measures in the engineering design. The adaptation measures must be clearly identified and the additional costs for those measures quantified.
f) Quantification of greenhouse gas emissions expected from the construction and operation stages of the project with recommendations for suitable mitigation and/or offset measures. It is recommended that appropriate tools such as transport emissions evaluation model (TEEMP) be used for the GHG quantification exercise.
g) Risks related to occupational health safety and safety of workers and local community and traffic safety must be assessed and appropriate mitigation measures recommended following the WB-EHS guidelines.
h) Potential impacts on physical and cultural resources including sensitive receptors (temples, schools, hospitals etc.) and measures to avoid, minimize, or mitigate impacts. This must include modelling of air pollution, noise and vibration levels during operation stage at various distances from the edge of the road ROW with clear identification of sensitive receptors that will be impacted due to air pollution, noise and vibration levels being higher than baseline levels or higher than the national or WB-EHS standards. For such receptors clear mitigation measures must be provided.
i) Public consultations with affected people in the project area including men, women, vulnerable or indigenous groups with clear documentation on dates of meeting and issues discussed and total number of male and female participants. Consultations must also be carried out with relevant government agencies (eg. Forest Department, Agriculture Department etc.) and relevant local NGOs if any.
j) Grievance Redress Mechanism to address concerns and grievances of the affected people in the course of the project cycle.
k) Cumulative and induced impact assessment with recommendations for mitigation measures to be implemented within the project where feasible, and for implementation by other agencies responsible for other projects
l) Alternative analysis including the no project option (required only for EIA under the ADB SPS)
m) Assessment of the institutional set up and capacity of the EA for meeting environment safeguard requirements of the Government as well as ADB.

Institutional and capacity needs if any must be identified and planned for with adequate budge provisions.

(iv) Prepare the IEE or EIA report to fulfil the requirements of CEA and ADB;

(v) Prepare an Environmental Management Plan (EMP) and Environmental Monitoring Plan (EMOP) to implement and monitor the mitigation measures will be prepared with clear information on costs, time frame, responsible agencies, monitoring methods and monitoring indicators and targets,

(vi) Incorporate into the EIA/IEE report including EMP feedback from all relevant stakeholders including the EA, ADB, affected persons and others. An environment assessment and review framework (EARF) will be prepared if necessary,

(vii) During the feasibility study stage, the outputs will be complete IEE or EIA reports and EARF as necessary, fulfilling requirements of both CEA and the ADB SPS including as many site-specific details as possible. For roads with different requirements under CEA and ADB SPS to the extent possible one report will be prepared to fulfill requirements of both agencies.

(viii) The IEE or EIA report must provide clear recommendations for follow up activities that need to be taken during preparation of the detailed design. Recommendations may include but not be limited to: (a) updating the EMP to provide more site specific details or other updates; (b) providing more detailed or updated information and analysis on location, expected impact and mitigation measure on sensitive receptors; (c) updating the number of trees required for removal; (d) conducting air and noise impact modelling; and (e) other updates in the reports based on design updates. The output of the detailed design stage will be the final IEE or EIA reports and EARF as necessary fulfilling requirements of both CEA and the ADB SPS.

e. Procurement Assistance

22. Prepare procurement plan, the prequalification (if applicable) and bidding documents using ADB's sample Bidding Documents – Procurement of Civil Works. Upon the client's request, assist the government in advertising, issuing bidding documents, responding to queries, receiving and evaluating applications, and other procurement-related activities.

D. Design Standard Development

23. The consultants, in close consultation with RDA, will prepare design standard manuals for expressway, taking into account internationally recognized standards as well as modern construction technologies applicable to Sri Lanka. The consultants will deliver training programs to RDA staff with regard to the design standards, construction technology and planning methodology for expressway.

E. Reports, Time Schedule and Payment

24. The consulting services will be implemented over 34 calendar months from the commencement date. The following reports, in the English language, will be submitted by the consultant to the Government (4 copies) and ADB (2 copies), including CD-ROM.

Report	Description/Technical Accomplishments	Submission deadline (no. of months after the commencement date)

Inception Report	Highlight the progress made, initial findings, and any recommendations and proposed changes to the work program. Program of mobilizing teams with detailed work schedule. Expressways with safeguard issues and other risks to be studied at the initial stage. Such expressways will be identified in consultation with RDA and ADB.	1
Conceptual study Report	Review existing studies and programs, surveys and data, screening assessment, adopting Multi Criteria Analysis (MCA), prepare transport modeling, and propose suitable expressways, in order to formulate an effective expressway network, and ranking expressways to select one for feasibility study.	5
Draft/ Feasibility Study Report	(a) summary of activities, (b) documentation of data, analyses, and recommendations developed under the terms of reference, (c) stakeholder assessments (social and environments data); IEEs, (d) assessment of the effectiveness of the activities undertaken and (e) conclusion.	10
Final Feasibility Study Report	Revised FS report incorporating the comments.	11
Draft Final Report (including the detailed design)	Design services with: (a) summary of activities; (b) documentation of data, analyses, and recommendations developed under the terms of reference, (c) Engineering technical specifications and design standards (d) Detailed engineering design drawings, and BOQ's (e) land acquisition Documents, including ROW acquisition drawings and resettlement plans; (f) procurement plan; (g) Design Standard Manuals for expressways in Sri Lanka; and (h) any other necessary documents.	20
Final Report	Revised final report incorporating the comments	22

F. Consultants' Inputs

24. This assignment will be carried out over a period of 36 months from the date of commencement and will require about **68 *person – months*** of International experts' inputs and **293 *person – months*** of national experts' inputs. It is anticipated that the consultant's staffing inputs will generally be as set below:

SE. No.	Expert	Experience and Qualifications in relevant field	Input (Person Month)
International Experts			
IC-1	Team Leader/ Highway Engineer	• Bachelor degree in civil engineering, • Professional qualification • Master degree in Highway engineering, • Min. 20 years of highway sector experiences with Min. 10 years leading a feasibility/ design team	22
IC-2	Highway Design Engineer	• Bachelor degree in civil engineering, post- graduate degree preferred • Professional qualification • Min.12 years of experience in Highway designs • Min. 5 years of experience in site	9
IC-3	Bridge/ Structural Design Engineer	• Bachelor degree in civil engineering, post- graduate degree preferred • Professional qualification • Min.12 years of experience in Bridge/ structural designs	9

SE. No.	Expert	Experience and Qualifications in relevant field	Input (Person Month)
		• Min. 5 years of experience in site	
IC-4	Transport & Traffic Specialist	• Bachelor degree in civil engineering, post- graduate degree preferred • Professional qualification • Min. 15 year experience in traffic & transport sector • Min. 5 year experience in transport planning • Min. 5 experience as an economist in road sector • Minimum 5 year experience as Transport Modeler	6
IC-5	Pavement Design Engineer	• Bachelor degree in civil engineering, post- graduate degree preferred • Professional qualification • Min.12 years of experience in pavement design • Min. 5 years of experience in site	6
IC-6	Road Safety Engineer	• Bachelor degree in civil engineering, post- graduate degree preferred • Professional qualification • Min. 10 year experience in road safety design and auditing • Min. 5 years of experience in site	6
IC-7	Drainage Engineer	• Bachelor degree in civil engineering, post- graduate degree preferred • Professional qualification • Min. 10 year experience in hydrology and drainage design • Min. 5 years of experience in site	6
IC-8	Tolling and ITS Specialist	• Bachelor degree in civil engineering, post- graduate degree preferred • Professional qualification • Min. 10 year experience in design of toll systems and as a ITS specialist	4
	Sub Total		**68**
National Experts			
NC-1	Highway Design Engineer	• Bachelor degree in civil engineering, post- graduate degree preferred • Professional qualification • Min.7 years of experience in Highway designs	34
NC-2	Transport Economist/ Financial analyst	• Bachelor degree in economics/ finance, post- graduate degree preferred • CA/CPA equivalent preferred • professional qualification • Min.10 years of experience in highway sector	6
NC-3	Bridge/ Structural Design Engineer	• Bachelor degree in civil engineering, post- graduate degree preferred • Professional qualification • Min.7 years of experience in Bridge/ Structural designs	22
NC-4	Pavement Engineer/ Materials Engineer	• Bachelor degree in civil engineering, post- graduate degree preferred • Professional qualification • Min.10 years of experience as a material engineer • Min.5 years of experience in pavement design	6

SE. No.	Expert	Experience and Qualifications in relevant field	Input (Person Month)
NC-5	Hydrologist & Drainage Engineer	• Bachelor degree in civil engineering, post- graduate degree preferred • Professional qualification • Min.10 years of experience as hydrologist	12
NC-6	Geotechnical Engineer	• Bachelor degree in civil engineering/ geological engineer, post- graduate degree preferred • Professional qualification • Min.10 years of experience in as a geotechnical engineer	18
NC-7	Climatic Specialist	• Master's degree in climate science, meterology, hydrology or related fields • Professional qualification • Min.5 years of experience in conducting climate risk assessment for infrastructure projects or climate studies or hydrological studies	3
NC-8	Traffic Engineer	• Bachelor degree in civil engineering/ traffic engineer, • Professional qualification • Min.7 years of experience in Bridge/ Structural designs	9
NC-9	Procurement Specialist	• Bachelor degree in civil engineering, post- graduate degree preferred • Professional qualification • Min.10 years of experience in preparation of contract documents and specifications	15
NC-10	Quantity Surveyor (1)	• Bachelor degree in quantity surveying, • Min.4 years of experience in highway sector OR • National Diploma Certificate in quantity surveying, • Min.7 years of experience in highway sector	9
NC-11	Quantity Surveyor (2)	• Bachelor degree in quantity surveying, • Min.4 years of experience in highway sector OR • National Diploma Certificate in quantity surveying, • Min.7 years of experience in highway sector	9
NC-12	Environmental Specialist	• Master's degree in environmental science, environmental engineering or related fields • Min.10 years of experience in environment assessment/ management for transport projects • Preferred experience in ADB Safe Guard Policies and Guidelines, and major highway projects	12
NC-13	Social Development Specialist	• Bachelor degree in sociology, • Min.7 years of experience as a Social Development Specialist • Preferred experience in ADB Safeguard Policies and Guidelines	12
NC-14	Resettlement Specialist	• Bachelor degree in sociology/ environmental science, • Min.7 years of experience as a Resettlement Specialist • Preferred experience in ADB Safeguard Policies and Guidelines	12
NC-15	Surveyor	• Bachelor degree in Surveying, • Be a licensed surveyor • Min.10 years of experience in survey work in highway	12

SE. No.	Expert	Experience and Qualifications in relevant field	Input (Person Month)
		sector	
NC-16	Junior Engineer (1)	• Bachelor degree in civil engineering • Min.3 years of experience in highway sector	22
NC-17	Junior Engineer (2)	• Bachelor degree in civil engineering • Min.3 years of experience in highway sector	22
NC-18	Junior Engineer (3)	• Bachelor degree in civil engineering • Min.3 years of experience in highway sector	22
NC19	Junior Environmental Specialist	• Bachelor degree in environmental science or environment engineering • Min.3 years of experience in infrastructure construction projects	12
NC-20	Junior Social Development Specialist	• Bachelor degree in sociology, • Min.3 years of experience in the relevant field	12
NC-21	Junior Resettlement Specialist	• Bachelor degree in sociology/ environmental science, • Min.3 years of experience in the relevant field	12
	Sub Total		**293**

Outline Terms of Reference:

Consultancy Services for Detailed Design of SASEC Port Access Elevated Highway Project

A. Background, Objective, Scope, and Detailed Tasks of the Assignment

1. **Background.** Colombo – Katunayake Expressway (CKE) was completed and has been operational since 2013. Hence, there is considerable increase in the volume of traffic entering Colombo city along the CKE. With the construction of the Colombo Port Development Project and Port City Project, traffic flow in the Colombo metropolitan area will further increase. The future Central Expressway will also contribute to congestion as it will be connected to the Outer Circular Expressway (OCH) at Kadawatha and part of this traffic will enter the Colombo metropolitan area via New Kelani Bridge (NKB), increasing the volume of traffic entering Colombo city along the CKE. As CKE ends at NKB, which is at the periphery of the expressway traffic has to merge with the local traffic to reach destinations within the city. Extension of the Expressway Network to the economic, administrative and transport hubs in Colombo has become important to improve the overall transport efficiency within.

2. Widening of existing roads has become economically unviable due to potentially large scale land acquisition and resettlement requirements. To explore and assess alternative options, the government has undertaken a feasibility study and preliminary design for an elevated highway along the existing road corridors within Colombo. However, it has also revealed that the construction of an elevated highway within an existing road corridor could cause an obstruction to traffic during the construction stage. Considering the above, Ministry of Higher Education and Highways has decided to construct an elevated highway from the New Kelani Bridge to Fort via the proposed Port Access Elevated Highway. The proposed SASEC Port Access Elevated Highway traverses from Ingurukade junction and ends at Galle Face. The total length of the elevated road is 5.4 kilometers with four lanes. Entry/exit ramps at both ends of the road as well as at an appropriate location in Colombo port area will be constructed. The project also includes widening of the existing four lane ground-level Port Access Road to six lanes, and other related facilities such as toll gates, weighing stations, and custom and port inspection facilities.

3. A feasibility study comprising preliminary design and preliminary environmental impact assessment (EIA) has been completed by Katahira & Engineers International associated with Bangladesh Consultants Ltd. and Engineering Consultants, with the financial assistance of the Asian Development Bank.

4. **Objective.** The main objective is to prepare the SASEC Port Access Elevated Highway project ready for investment and implementation.

5. **Scope.** The consultancy services include, but are not limited to: (i) assessing traffic composition and axle loads on the elevated road; (ii) review and updating of traffic demand forecast with due consideration of Colombo Port Development Plan and Port City project; (iii) review and updating of the feasibility study and the preliminary design; (iv) preparing detailed engineering design of the elevated road including entry/exit ramps and related facilities; (v) conducting of economic analysis including toll rate survey; (vi) conducting of road safety audit; (vii) conducting of environmental and social impact analyses and prepare appropriate safeguard planning documents; (viii) preparation of appropriate construction management and operation plan with due consideration of construction alternatives, to minimize the traffic congestion of port

vehicles; and (ix) preparation of detailed engineering design for the expansion of the existing Port Access Road. The consultants will also support procurement of civil works upon the government's request and provide supports to ADB missions during loan processing.

6. **Implementation Arrangements.** The Ministry of Higher Education and Highways (MOHEH) is the executing agency, and Road Development Authority (RDA) is the implementing agency. A Steering Committee chaired by MOHEH will be established, comprising RDA, Ministry of National Policies and Economic Affairs (represented by External Resources, National Planning, and Project Management and Monitoring departments), Ministry of Finance (represented by National Budget department), Sri Lanka Ports Authority (SLPA) and Sri Lanka Customs, to coordinate among stakeholders and oversee project implementation from time to time. RDA will also establish a project management unit (PMU) to implement the project. The PMU will coordinate and communicate the review comments to the consultant and will provide necessary guidance from time to time. An authorized port engineer from SLPA will be assigned as a member of PMU.

7. **Detailed Tasks.** For each project road, the consultant will carry out the following tasks.

Task 1. Review, Inventory, Condition, and Traffic Surveys

(i) Review existing reports including Traffic and Transport Study Report, Preliminary Engineering Design Report, Resettlement Assessment Report, Social Assessment Report and Environmental Assessment Report to identify gaps.

(ii) Prepare a survey plan for the client's approval to collect the inventory, condition, design requirements and traffic data of existing roads influencing the proposed road. The plan should clarify the location and duration of each survey activities and the schedule of conducting the survey on all project roads.

(iii) Conduct digital video survey of the proposed road corridor and existing roads connecting from the proposed road. The digital video should be chainage-rand geo-referenced for ease of review. The video should focus on the establishments on pavement condition, and clearly show the width of existing roads, the rights-of-way and both side.

(iv) Collect inventory data from the video and site investigation. The inventory data should include at least existing buildings and facilities in the port area, geometric features, pavement surface, drainage type and capacity, structures, and other related facilities.

(v) Collect condition data of existing roads, including pavement condition, roughness, drainage, structure, bridges, roadside furniture, and other related facilities.

(vi) Consult and identify SLPA's requirements with regard to design parameters (e.g. minimum head clearance 10m), ramp locations, necessary facilities to operate the port, and efficient construction management and operation plan to avoid disruption of port operation.

(vii) Conduct traffic survey of all roads influencing the proposed road for the purpose of economic analysis and detailed engineering design. The survey should at least include classified traffic counts, intersection volume count, origin-destination, and axle-load spectrum.

(viii) Use the survey results, and other literature to forecast the future traffic for a period up to 20 years after the completion of construction for the project road. Future development plans along the project (e.g. Colombo Port Development Plan and Port City project) are appropriately incorporated into the traffic demand forecast.

(ix) Assess the impact of traffic from the project on existing road networks in Galle Face area, and propose improvements and design alternatives.

Task 2. Engineering Study and Design

(i) Investigate the suitability of local construction materials, and where necessary, identify the location of new quarry and borrow pit, and assess the quality and quantity of materials and hauling distances.

(ii) Study and propose technical solutions and alternatives for the project, including geometric alignment, structures, and pavement strengthening. The solutions should consider the traffic forecasts, SLPA's requirements, construction alternatives and work management and operation plan to minimize the traffic congestion of port vehicles during the construction, avoid land acquisition and involuntary resettlement wherever possible, and environment mitigation requirements.

(iii) Consult with stakeholders regarding engineering design, and address the findings of consultation into the design as appropriate.

(iv) Consult the Ceylon Electricity Board (CEB), Lanka Electricity Company (LECO), DIALOG, National Water supply and Drainage Board (NWS&DB), Colombo Municipal Council and any other utility agencies and identify existing utility services and possible options of relocation of utility services.

(v) Review the past practices and lessons of performance-based road maintenance, and prepare appropriate terms and conditions for 10-year performance-based maintenance contracts.

(vi) Carry out engineering surveys for the purpose of detailed engineering design to enable the estimation of construction quantities with an accuracy of ±10%. The surveys should include, but are not limited to, topography (including center line survey and cross section survey with establishment of survey points and bench marks connected to GPS and levels), geotechnical (i.e. subgrade and sub-soil characteristics, soft ground treatment, sub-soil investigation and bore hole investigation), material, hydrology, drainage and structure.

(vii) Prepare practical and cost-effective geometric design (horizontal, vertical, ramps, toll collection area, and intersection, etc.) for road and structure on the basis of traffic forecast, pavement structural assessment, axle-load, road safety, environmental assessment, SLPA's requirements, and other relevant factors.

(viii) Prepare designs, applying sound engineering practices and giving due regard to environmental aspects as indicated in the initial environmental examination (IEE) or environmental impact assessment (EIA) report. The government and ADB's environmental regulations and policies should be followed.

(ix) Study the hydrological regime in detail, based on an analysis of rainfall, storm and flood records, supplemented by filed investigations. The hydrological data analysis should be done using a mathematical modelling approach with appropriate software. Use the findings to establish the adequacy and economics of road embankment levels, culverts, and side drainages, and to design roadbed and slope protection for the drainage, structures and bridges.

(x) Assess drainage requirements and accordingly propose the construction of structure. Prepare the detailed engineering design for the structures.

(xi) Design provisions on the project road to consider possible future link to the proposed multimodal center at Pettah.

(xii) Design of toll plaza, wayside amenities, traffic signs, information board and lane making. Intelligent transport system (ITS) needs to be fully considered. Find out locations where longer spans are to be provided.

(xiii) Design ramps with due attention to traffic forecast and the port operation.
(xiv) Prepare landscape design and street lightning.
(xv) Prepare drawings for existing utilities and identifying shifting needs.
(xvi) Identify a list of measures to secure smooth traffic flows and efficient port operation during preparation and construction and in longer term after completion. Based on these findings, prepare efficient construction management and operational plan (including design alternatives) to minimize negative impact on port traffic flows.
(xvii) Design axle load control facilities (including the station and equipment) for the project roads following RDA's policies and guidance. Prepare the technical specifications and cost estimate for axle load control facilities as part of the detailed engineering design and bidding documents.
(xviii) Design custom clearance facilities and/or SLPA's traffic flow control facilities following Sri Lanka Customs' or SLPA's policies and guidance. Prepare technical specifications and cost estimate for the facilities and equipment. Consider contract package as deemed appropriate.
(xix) Determine the most cost-effective option for pavement structure. Where new pavements are required, the pavement structure design will follow an internationally recognized procedure to ensure a design life of 10 years, with provision for overlays during or at the end of design life to extend the life to 20 years.
(xx) Prepare engineering design for substructure and superstructure (including access ramps, toll plazas, pavement, drainage system, lighting system, noise control system, signage, traffic management system, and etc) in accordance with best international practice and standards, including any applicable domestic standards. Assess various tolling options, including location, toll plaza design, and applicable technology, their possible impact on cost and financial viability.
(xxi) Prepare engineering drawings, including road plans (1:2,000 scale), longitudinal profiles (scales: 1:2,000 horizontal and 1:200 vertical), cross-sections, structure plans, and other requirements of the government.
(xxii) Review and finalize the contract packages in consultation with the client, ADB, and other relevant stakeholders.
(xxiii) Prepare project implementation schedules showing the planned physical and financial progress. Efficient construction management and operational plan is duly considered to minimize the negative impact on the port traffic flows. The schedule should be prepared on the basis of a review of recent ADB-financed road projects in the country, and the schedule should also reflect seasonal climatic impacts to the works.
(xxiv) Prepare bills of quantities, and make engineer's estimates of the costs for relocation of existing utility services and civil works. The cost estimates should be broken down into foreign (direct and indirect), local currency, and tax and duty components.
(xxv) Prepare engineering technical specifications for each work item, taking into account relevant specifications being used in the country or elsewhere for similar works.
(xxvi) Prepare an overall implementation schedule for the project road, including preconstruction activities, such as necessary land acquisition, if any, resettlement, environment clearance, and procurement, construction activities, construction supervision, and monitoring and evaluation activities.

Task 3. Road Safety

(i) Collect and review relevant literature and existing reports about road safety. Review the relevant road safety consultation in Task 5: Poverty and Social Assessment. Meet stakeholders to obtain further information and understand the project background.
(ii) Conduct field visit to the project road to assess the current situation of road safety and the potential impacts of the project on road safety.
(iii) Conduct road safety audits using internationally accepted standards in consultation with RDA and ADB.
(iv) Provide recommendations to address road safety issues of the operation and maintenance period, and include the recommendations as appropriate into the provision of performance-based maintenance in the bidding documents.
(v) Review the draft bidding documents of each package and confirm that all recommendations of road safety audits are incorporated properly.

Task 4. Economic and Financial Assessment

(i) Prepare an economic analysis of the proposed road improvements using the highway development and management model (HDM, version 4) and/or other more appropriate models for urban connectivity projects. The economic analysis should follow ADB's guidelines for the economic analysis of projects.
(ii) Calculate the economic internal rate of return (EIRR) for the project. Undertake sensitivity analysis on the risk factor basis for various scenarios such as changes to the capacity costs, operation and maintenance costs, traffic volume, and construction period, etc.
(iii) Conduct willingness-to-pay and other relevant survey. In consultation with RDA, propose appropriate toll rate(s). Calculate the financial internal rate of return (FIRR) on the same basis of EIRR calculation.
(iv) Estimate the required budget for appropriate operation and maintenance of each project road. Assess the financial sustainability by comparing the required budget with the current budget allocation, and make recommendations as appropriate.
(v) Prepare study report on economic and financial assessment with detailed data annex.
(vi) Develop a monitoring and evaluation framework in accordance with ADB's Guidelines for Preparing a Design and Monitoring Framework. Include in the framework appropriate indicators with baseline data and targets.

Task 5. Poverty and Social Assessment

(i) Review the existing reports and identify gaps to be filled in. Carry out a poverty & social assessment (PSA) that focuses on the determinants of poverty and social characteristics of mobility and transport use in the project area of influence.
(ii) Identify beneficiaries and stakeholders. Identify key beneficiaries and assess local demand for the proposed road investments. Identify project-related interests of key stakeholders, likely barriers to their participation in and benefits from the project resources, and suggest possible strategies for addressing their concerns.
(iii) Assess the existing social characteristics of mobility and transport use. Provide a gender-disaggregated baseline on the existing primary patterns of transport use, which include but are not limited to: the characteristics of use/ownership of transport modes; use of non-motorized transport (NMT) and by which groups; perceptions and satisfaction of public (collective) on transport modes; monthly transport expenditure (public/private); ability and willingness to pay for transport

services; links between transport and livelihood; key origin-destination patterns of transport users; average travel time to essential services (disaggregate: hospitals, higher education, administrative services, markets, jobs). Assess how social characteristics such as age, ethnicity, religion, disability, and income affect mobility and use of transport services.

(iv) Identify the constraints and needs of the poor and excluded. Identify the direct and indirect impact channels through which the poor and vulnerable will benefit from the project and how these groups are supported through the project designs. With the participation of stakeholders, identify and analyze the reasons behind the vulnerability of at risk groups, including their exposure to risks. Identify potential proactive measures, in terms of additional components and design options, which will make it easy for the poor and vulnerable to benefit from the project.

(v) Prepare a gender analysis and when relevant propose a gender action plan. Assess the general socio-characteristics of women: source of income; decision-making power over household budget; time spent in household chores and child-rearing activities; work outside the household. Assess the different needs and demands of women for transport. Provide baseline on the existing primary patterns of transport use (see item iii above) and include in addition perceived safety on public transport, including incidence of harassment; use of NMT; employment away from the vicinity of their home. Through consultation with the technical experts and the executing agency, assess the feasibility to include women, elderly and children friendly designs features in the project as and other activities (i.e. targeted awareness campaigns) that would make the project more responsive to women's needs.

(vi) Conduct an assessment of the risk of spread of HIV/AIDS and other communicable diseases due to the project. Assess the existing prevalence and awareness of HIV/AIDS and provide suggestions for measures to be incorporated in the project to mitigate this risk.

(vii) Conduct an assessment on the risk of human trafficking. Assess the existing incidence of human trafficking in the project area and map any government or NGO programs and initiatives that address this issue. Identify possible entry points for project to use social mobilization programs to raise awareness about the dangers of trafficking (awareness programs around construction camps; introduction of good behavior codes for construction contractors; services and information to vulnerable people at key points such as bus stops and border crossing points).

(viii) Conduct assessment of road safety practices. Identify existing practices detrimental to road safety (use of the Right of Way, unwillingness to wear seatbelts, helmets, etc.). Identify groups who may be most at risk. Propose measures to increase safety awareness and traffic education campaigns, including building-up on existing programs conducted by government agencies or NGOs.

(ix) Ensure participatory process. Ensure proper consultations and participation through public consultation meetings in the major settlements along the corridor; focus group discussions with key stakeholder groups and one-on-one interviews. Ensure the representation of women and include relevant community-based groups and civil society organizations in the participatory process. Ensure proper documentation of the consultation process. Through the PSA, assess how participants' concerns can be integrated into the project design. Propose follow-up participatory measures for implementation activities.

(x) The PSA data will be based on (a) sample surveys collected during public consultation meetings and focus group discussions; (b) feedback from discussions

during public consultation meetings, focus groups and one-on-one interviews, and (c) secondary data. The PSA will be in accordance with ADB's Technical Note on Social Analysis in Transport Project, Guidelines for the Incorporation of Social Dimensions in ADB Operations and Hand book on Poverty and Social Analysis. [18]

(xi) The PSA should provide baseline data that in coordination with the economic analysis should be used for the design of a time-bound benefit monitoring and evaluation program, including monitoring indicators, to assess the project benefits to local communities before and after the construction of project. Further suggestions for additional baseline data should be included. The program should address not only the economic benefits but also poverty reduction impacts and other social benefits such as stability of the region and integration with other parts of the country.

Task 6. Resettlement and Indigenous People Planning

(i) Carry out a screening of involuntary resettlement and indigenous peoples' impact in accordance with the Government's policies and regulations and ADB's Safeguard Policy Statement 2009 (SPS). Identify whether the project road is likely to lead to private land acquisition and lead to impact on non-titled holders. The screening exercise will also include an assessment of past social impacts, viz., if land acquisition has been accomplished in anticipation of the ADB project.

(ii) Confirm that there are no indigenous people's settlements along project location.

(iii) Prepare and complete the checklist for involuntary resettlement and indigenous people screening.

(iv) Prepare a resettlement plan (RP) in compliance with the Government's policies and regulations, and ADB's Safeguard Policy Statement 2009 (SPS). RP should define categories for impact, eligibility of affected people for compensation and provide an Entitlement Matrix covering compensation and other assistance for all types of impacts. The RP should provide the methodology for the calculation of compensations based on replacement cost to fully replace the asset. RP should pay close attention to assistance to non-titleholders and ensure security of tenure.

(v) Based on the detailed design, determine the legal status of private land within the RoW, verify application of customary and traditional laws governing land tenure, usufruct rights, leasehold. Verify legal boundaries of the right of Way (RoW) with the relevant ministry.

(vi) Based on the detailed design, conduct census survey of 100% of affected people (APs) and an inventory of lost assets.

(vii) Conduct a socioeconomic assessment of all APs residing/using the corridor of impact to collect data on family composition, details on age and sex of all the members of the household, income levels and occupational pattern, vulnerability status, legal ownership status of land (private, traditional and customary rights, lease), asset occupancy status and skills possessed.

(viii) Assess whether the compensation standards for all types of assets, crops, and trees are based on replacement cost and describe in detail the valuation methodology used. Undertake market surveys to compute replacement value of land.

[18] Technical Note is available on http://www.adb.org/sites/default/files/institutional-document/33483/files/social-analysis-transport-projects.pdf

(ix) Prepare a comprehensive income and livelihood restoration program, supported by adequate budget, to help APs improve, or at least restore, their incomes and livelihoods. Identify specific measures for the affected poor, ethnic minorities, or other vulnerable households.
(x) Conduct in-depth consultations with the affected persons, ensuring the involvement of women in the process. Consultations should take the forms of public meetings, focus group discussions and one-on-one interviews. Ensure that the consultation process is well documented and demonstrate how the concerns of the affected persons are included in the design of the RP.
(xi) Establish a cut-off date for eligibility criteria for non-title holders and ensure and document that it has been publicly disseminated.
(xii) Prepare overall budget for compensation, resettlement and rehabilitation assistance.
(xiii) Based on the draft R&R entitlements prepare an appropriate action plan for additional support required for the vulnerable
(xiv) Organize workshops on draft R&R policy to receive feedback from identified stakeholders, including implementing agency, line agencies (specifically revenue, forest, tribal welfare, etc.), non-governmental organizations and others.
(xv) Assist RDA to develop a computerized database management system for recording affected persons (APs) and lost assets. The system should reflect the present impact on APs and accordingly the entitlements for APs are planned. The system should be in place from the beginning of the resettlement survey. Also, develop cadastral mapping of affected plots for construction of new alignments using road inventory map developed under the engineering study.
(xvi) Assess the capacity of the Government in implementing the proposed RP, and recommend improvements and actions required.
(xvii) Prepare relevant chapters and appendixes of the detailed design report on resettlement and indigenous peoples planning. The appendixes should include the RP for each project road where resettlement impacts have been identified.

Task 7. Environmental and Climate Change Risk Assessment

(i) Carry out an environmental assessment of the project roads in accordance with ADB's Safeguard Policy Statement 2009 (SPS), and the Government's environmental regulations and policies.
(ii) Classify the road in accordance with the environmental impact assessment requirements under Central Environmental Authority (CEA) and ADB's Screening Checklist for Environmental categorization according to the SPS.
(iii) Depending on the classifications, prepare IEE as per relevant guidelines of CEA and ADB, and if EIA is required, prepare TOR that is acceptable to CEA. In preparing the IEE and/or EIA a minimum of the following issues must be covered:
    a) Adequate baseline data representing the environmental conditions of the project site must be collected on physical (air, noise, surface and ground water, soil), ecological (flora, fauna, protected areas) and socio-economic (physical cultural resources, heritage sites, etc.) environmental components
    b) Potential impacts on biodiversity including modified, natural, critical habitat (as defined in the SPS) and protected areas and necessary measures to minimize, mitigate and offset impacts.
    c) Potential waste issues including hazardous materials and wastes and appropriate measures for their disposal, treatment and other forms of management.

d) Potential impacts on ambient air and water quality, noise levels and soil and recommendations for suitable mitigation measures. Impacts must be compared with the national standards and World Bank Environmental Health and Safety (WB-EHS) standards
e) Climate change-related risks for the project (such as more and stronger storm surges, sea level rise, more flooding etc.) in consultation with the government and ADB, and recommendations for adaptation measures in the engineering design. The adaptation measures must be clearly identified and the additional costs for those measures quantified.
f) Quantification of greenhouse gas emissions expected from the construction and operation stages of the project with recommendations for suitable mitigation and/or offset measures. It is recommended that appropriate tools such as transport emissions evaluation model (TEEMP) be used for the GHG quantification exercise. [19]
g) Occupational Health Safety issues and measures for the construction workers as well as the local communities in and around the project site following the WB-EHS guidelines.
h) Potential impacts on physical and cultural resources including sensitive receptors (temples, schools, hospitals etc.) and measures to avoid, minimize, or mitigate impacts. This must include modelling of air pollution, noise and vibration levels during operation stage at various distances from the edge of the road, ROW with clear identification of sensitive receptors that will be impacted due to air pollution, noise and vibration levels being higher than baseline levels or higher than the national or WB-EHS standards. For such receptors clear mitigation measures must be provided.
i) Public consultations with affected people in the project area including men, women, vulnerable or indigenous groups with clear documentation on dates of meeting and issues discussed and total number of male and female participants. Consultations must also be carried out with relevant government agencies (eg. Forest Department, Agriculture Department etc.) and relevant local NGOs, if any.
j) Grievance Redress Mechanism to address concerns and grievances of the affected people in the course of the project cycle.
k) Cumulative and induced impact assessment with recommendations for mitigation measures to be implemented within the project where feasible and for implementation by other agencies responsible for other projects
l) Alternative analysis including the no project option (required only for EIA under the ADB SPS)
m) Assessment of the institutional set up and capacity of the EA for meeting environment safeguard requirements of the Government as well as ADB. Institutional and capacity needs if any must be identified and planned for with adequate budge provisions.

(iv) Prepare the IEE or EIA report to fulfill the requirements of CEA and ADB.
(v) Prepare an environmental management plan (EMP) and environmental monitoring plan (EMOP) to implement and monitor the mitigation measures, with clear information on costs, time frame, responsible agencies, monitoring methods and monitoring indicators and targets.

[19] Transport Emissions Evaluation Model for Projects is an excel-based tool that is freely available and can be downloaded from http://cleanairasia.org/portal/TEEMPTool. The findings of the traffic studies can be used as inputs in the tool.

(vi) Incorporate into the EIA/IEE report including EMPs feedback from all relevant stakeholders including the EA, ADB, affected persons and others. An environmental assessment and review framework (EARF) will also be prepared, if necessary.
(vii) During the feasibility study stage, the outputs will be complete IEE or EIA reports and EARF as necessary, fulfilling requirements of both CEA and the ADB SPS including as many site specific details as possible. For roads with different requirements under CEA and ADB SPS to the extent possible one report will be prepared to fulfill requirements of both agencies.
(viii) The IEE or EIA report must provide clear recommendations for follow up activities that need to be done during preparation of the detailed design. Recommendations may include but not be limited to: (a) updating the EMP to provide more site specific details or other updates; (b) providing more detailed or updated information and analysis on location, expected impact and mitigation measures on sensitive receptors; (c) updating the number of trees required for removal; (d) conducting air and noise impact modelling; and (e) other updates in the reports based on design updates. The output of the detailed design stage will be the final IEE or EIA reports and EARF as necessary, fulfilling requirements of both CEA and the ADB SPS.

Task 8. Procurement Assistance

(i) Prepare the procurement plan and the bidding documents for each contract package using ADB's standard bidding document for procurement of civil works.
(ii) Prepare provisions for 10-year performance-based maintenance for the bidding documents based on the findings of reviewing past practices.
(iii) Upon the client's request, assist the government in advertising, issuing bidding documents, responding to queries, receiving and evaluating applications, and other procurement-related activities.

B. Consultant's Inputs

8. The assignment will be carried out over a period of 22 months from the date of commencement by a consulting firm. It is anticipated that about 51 person-months of input by international consultants and 142 person-months by national consultants will be required.

Table 1: Required Experts

No.	Title	Relevant Experience and Qualification	Positions	Person-Months
International				
IC01	Team Leader/ Senior Design Manager	• Bachelor degree in civil engineering, post-graduate degree preferred • Should be a member of a recognized professional engineer's institution • Min. 20 years of professional experience • Min. 10 years of experience in design of bridges and 5 years in elevated expressway design manager	1	8
IC02	Highway Design Engineer	• Bachelor degree in civil engineering, post-graduate degree preferred • Min. 10 years of professional experience • Min. 5 years of experience in expressway design	1	7
IC03	Structural Design Engineer	• Bachelor degree in civil engineering, post-graduate degree preferred	1	7

No.	Title	Relevant Experience and Qualification	Positions	Person-Months
		• Min. 15 years of professional experience • Min. 10 years of experience in structural/ bridge design engineer on expressway projects		
IC04	Geotechnical Engineer	• Bachelor degree in civil engineering, post-graduate degree preferred • Min. 10 years of professional experience • Min. 5 years of experience in site investigations and design of treatments	1	5
IC05	Pavement Design Engineer	• Bachelor degree in civil engineering, post-graduate degree preferred • Min. 10 years of professional experience • Min. 5 years of experience in pavement design	1	3
IC06	Toll system/ Toll Facility Design Engineer	• Bachelor degree in mechanical/ electrical engineering, post- graduate degree preferred • Min. 15 years of professional experience • Min. 5 years of experience in toll gate system design • Min. 5 years of experience in design of electrical communication and associated facilities for toll gates and plazas	1	2
IC07	Traffic/ Road Safety Engineer	• Bachelor degree in civil engineering, post-graduate degree preferred • Min. 10 years of professional experience • Min. 6 years of experience in traffic engineering designs such as traffic signals, safety system and installations	1	2
IC08	Procurement Specialist	• Bachelor degree in civil engineering or construction science, post-graduate degree preferred • Min. 15 years of experience in contract administration, preparation/management of construction contracts and procurements for international bidding	1	7
IC09	Transport Economist	• Bachelor degree in engineering or economics, post-graduate degree preferred • Min. 10 years of professional experience • Min. 5 years of experience in economic and financial analysis,3 years of which on transport/infrastructure projects	1	4
IC10	Port Engineer	• Bachelor degree in transport, civil engineering, or related fields, post-graduate degree preferred • Minimum 10 years of experience in working in port sectors	1	4
IC11	Landscape Specialist	• Bachelor degree in landscape study, engineering or other related field, post- graduate degree preferred • Min. 10 years of professional experience • Min. 6 years of experience in landscape design	1	2
		Subtotal	**11**	**51**
National				
NC01	Bridge/ Structure Design Engineer	• Bachelor degree in civil engineering, post-graduate degree preferred	1	12

No.	Title	Relevant Experience and Qualification	Positions	Person-Months
		• Min. 15 years of professional experience • Min. 10 years in structural and bridge design		
NC02	Structural Design Engineer	• Bachelor degree in civil engineering, post-graduate degree preferred • Min. 15 years of professional experience • Min. 10 years in structural and bridge design	1	8
NC03	Geotechnical Engineer	• Bachelor degree in civil engineering • Min. 15 years of professional experience • Min. 6 years in site investigations and design of treatments	1	6
NC04	Pavement Design Engineer	• Bachelor degree in civil engineering • Min. 12 years of professional experience • Min. 6 years in expressway pavement design	1	4
NC05	Highway Design Engineer	• Bachelor degree in civil engineering • Min. 12 years of professional experience • Min. 6 years in highway design	1	9
NC06	Drainage/ Hydrologic Engineer	• Bachelor degree in engineering or construction science and post graduate qualifications • Min. 12 years of professional experience • Min. 6 years of experience in dranage/ hydrologic engineering	1	2
NC07	Surveyor	• Bachelor degree in civil engineering • Min. 12 years of professional experience • Min. 6 years of experience in relevant field	1	8
NC08	Environment Specialist	• Bachelor degree in environment science, preferably post-graduate degree • Min. 10 years of professional experience in environment impact assessment and monitoring	1	5
NC09	Social / Resettlement Specialist	• Bachelor degree in social development • Min. 10 years of professional experience • Min. 5 years of experience in preparation of resettlement framework and action plans	1	5
NC10	Procurement Specialist	• Bachelor degree in civil engineering or construction science • Min. 10 years of experience in contract administration, preparation/management of construction contracts and procurements for international bidding	1	12
NC11	Electrical Engineer	• Bachelor degree in electrical engineering • Min. 12 years of professional experience • Min. 6 years of experience in electric engineering	1	3
NC12	Quantity Surveyor	• Bachelor degree in civil engineering • Min. 12 years of professional experience • Min. 6 years of experience in relevant field	1	11
NC13	Transport Economist/ Financial analyst	• Bachelor degree in engineering, economics or finance • Min. 12 years of professional experience • Min. 6 years of experience in economic and financial analysis • CA/CPA equivalent preferred	1	4
NC14	Junior Engineer	• Bachelor degree in civil engineering or related	4	39

No.	Title	Relevant Experience and Qualification	Positions	Person-Months
		field • Min. 5 years of professional experience		
NC15	Junior Quantity Surveyor	• Bachelor degree in civil engineering • Min. 5 years of professional experiences	2	14
		Subtotal	**19**	**142**

Note: Key positions for technical evaluation should be IC01, IC02, IC03, IC04, NC01, NC02, NC03, NC05, and NC12

C. Output and Reporting Requirements

9. The consultant will carry out activities according to the following time schedule, and submit reports about the activities and outputs.

Table 2: Reporting Requirements

Report	Submission Deadline (no. of months after commencement)
1. Inception Report	1
2. Feasibility Review Report	2
3. Environmental Assessment Report/ Resettlement Monitoring Report/ Social Assessment Report	3
4. Draft Final Report (including the detailed design)	5
5. Final Report	6

Outline Terms of Reference:

Consultancy Services for Feasibility Study and Detail Design of Colombo Suburban Railway Project

A. Objective, Scope, and Implementation Arrangements

1. The Government of Sri Lanka intends to improve the railway system in the Western Province, the Colombo Metropolitan Region (CMR) with a population of 5.8 million (29% of Sri Lanka's population), which generates 43% of the country's GDP. The population growth in CMR is expected to be 1.5% annually until 2035 and CMR is facing growing traffic congestion. The railway system carries about 13% of the passenger transport within CMR. The government aims to substantially increase the share of railway in the overall passenger and freight traffic.

2. **Background.** The development of the railway network in Sri Lanka started in 1864. Currently ten railway network, which consists of around 1,500 route-km, is operated by the Department of Sri Lanka Railways (SLR). Almost 90% of the railway network of the country is single track, with 126 km of double tracks, 14 km of three tracks and 3 km of four tracks with all multiple lines located within the CMR. The network covers much of the CMR along four major corridors, namely Main Line, Coastal Line, Kelani Valley Line and Puttlam Line totaling to 230 km. Railway provides an important service during the peak period as it acts as a commuter service from the outer suburbs to central Colombo.

3. There are long distance trains and commuter trains operated in the CMR. Out of the four railway lines radiating from Colombo and serving the CMR, the Main Line and the Coastal Line are well patronized especially during peak periods. The Puttlam Line and the Kelani Valley Line are single track and not as attractive due to low train speeds and frequencies. The Colombo Fort to Maradana section has the highest passenger volume of 136,438 passengers per day, followed by the Maradana to Ragama section with 120,876 passengers per day. The train frequency between Maradana and Fort is 228 trains per day, transporting on an average around 950 passengers per train followed by the Maradana to Ragama section, with 150 trains per day carrying on an average around 750 passengers per train. The Coastal Line is also fully utilized with an average passenger volume of 800–1,100 per train.

4. The average speed on the Main Line in CMR during peak traffic periods is around 33 kilometers per hour (kph) while the speed during peak traffic periods on the coastal line is around 28 kph. The average speed in Kelani Velley line is around 26 kph. Long delays occur due to failures in the signaling system (especially during rainy days), and the frequent failures also occur in the outdated communication system. The poor condition of the tracks also contribute to long delays. High loading level is another issue on the Main Line and the Coast Line especially during the peak period.

5. The project will improve the capacity and operating speed of the railway network in the CMR by modernizing and upgrading track, signaling and telecommunication infrastructure; and potentially electrifying the suburban railway lines, focusing initially on the 64 km Veyangoda–Colombo Fort–Panadura section. The project will also support procurement of fast and modern commuter trains and modernization of rolling stock maintenance facilities, and upgrade railway stations to provide improved intermodal connectivity with other modes of public transport and through park-and-ride facilities at selected stations. The project will increase the capacity and attractiveness of the railway system, thus increasing its market share and reducing road

congestion by shifting passengers to rail transport. The project will be designed on a modular basis to allow future expansion, e.g., until the Puttlam Line and Colombo Airport or until Galle, Kanday and the Kelani Valley Line and Battaramulla, connect to Colombo Port.

6. **Objective.** The main objective is to prepare the railway project(s) ready for investment and implementation by completing feasibility studies, detailed engineering, safeguards planning documents, and bidding documents. All designs prepared under this project shall enable future electric operation of the railway network with overhead catenary system (OCS), although the OCS may not be installed in the individual projects at an initial stage. Preparation of engineering in the Veyangoda – Panadura section will be the last component of the designs. The prepared projects and/or components shall be designed in a modular way with a clear prioritization of components to schedule implementation in accordance with financial resources. All improvements on existing lines shall be designed in such a way that the disruption of ongoing operation will be minimized to a level acceptable to SLR.

7. **Scope.** The main CMR railway corridors to be considered under the consultancy assignment are the corridors linking Colombo to Kandy and Galle (Main Line and Coastal Line), the Puttlam Line towards Negambo and the Airport and the Kelani Valley line. New railway lines and increasing number of platforms at stations may also be identified. The required interventions may include climate-resilient track rehabilitation, station upgrading, modernization of signaling and telecom system, railway electrification, rolling stocks, and maintenance facility to be identified under the ADB-funded TA for Colombo Suburban Railway Project.[20] For the priority projects, the consultant will prepare feasibility study, detailed engineering design, safeguard planning documents, and bidding documents. The consultants will also provide support to the procurement of civil works and equipment upon the government's request and provide support to ADB missions for loan processing.

8. **Implementation Arrangements.** The Ministry of Transport and Civil Aviation (MOT&CA) is the executing agency for the railway component of the Transport Project Preparatory Facility. MOT&CA will implement the railway component through its Project Management Unit and through Department of Sri Lanka Railway (SLR). An inter-ministry steering committee chaired by the Secretary of MOT&CA will oversee and guide the implementation. MOT&CA has established a project management unit to engage the consultants, manage contracts, review consultant's reports and provide technical guidance as required.

B. Detailed Tasks of the Assignment

9. For each priority project, the consultant's tasks include, but are not limited to the following.

Task 1. Technical Feasibility

(i) Collect and review all available relevant studies, reports, materials, documents, and information including findings from the PPTA.

(ii) Collect all necessary information of existing, ongoing and future planned development works of government and private sector in and around the project

[20] ADB approved a Project Preparatory Technical Assistance (PPTA) grant for $1 million on 18 December 2015 to assess the railway system in the CMR including the corridors linking to Kandy and Galle, proposed new railway lines and improvement of the Kelani Valley Line, and identify and prioritize interventions.

site and consult all relevant agencies/stakeholders. Take all findings into consideration in the study.

(iii) Examine all existing infrastructure, operational facilities, rolling stock maintenance facilities, line capacity and business opportunities and make specific recommendations for their improvement.

(iv) Finalize detailed scope of work, technical aspects & design parameter of all components/projects in consultation with SLR and develop new design standard, e.g., based on new rolling stock and operational procedures for suburban trains, future railway electrification, etc. Develop design standards for all relevant track components, bridges, stations, signaling and telecom, rolling stock and workshops that will enable future railway electrification with OCS.

(v) Calculate the power demand for the electric trains based on traffic forecast and proposed operation program considering also degraded operation and emergency operation and power demand in case of partial failures of the power supply system; define feeding points and capacity of the substations; develop a layout of feeding lines from the national grid that minimizes the risk of total power failure in case of planned blockage, e.g., due to scheduled maintenance or failure of individual supply lines in the national grid.

(vi) Consider effects of electromagnetic compatibility between the future railway electrification and signaling and telecom system, as well as external systems such as power lines, pipes, pipelines or communications networks and define minimum safety distances to avoid interference.

(vii) Define requirements on the track structure to support return current to the traction power substations and requirements on linkage of tracks and bonding, installation of CWR and insulated rail joints, etc.

(viii) Assess the need and justification of the proposed components/projects for railway improvement in CMR as outlined under the ongoing PPTA. Assess probable effects upon project implementation including direct and indirect effects. Assess benefits of the proposed project, not only in terms of financial or economical, but also in terms of safety, environmental impacts, transportation and travel costs, poverty reduction, enhancement of trade and commercial activities likely to be created as an outcome of all the components.

(ix) Identify the various technical solutions and various options for implementing all the components involving construction of track and bridge including signaling and operational facilities such as stations yards, maintenance sheds, etc. with a view to identify the most suitable solution. Carry-out survey and necessary investigations covering surrounding areas of each option for option analysis and to finalize the most suitable solution.

(x) Seriously consider the safety issue in operating trains with different operating specifications, higher speeds, and increased frequency.

(xi) Carry-out detailed topographical survey. The topographic works have to be performed in relation to the required accuracy using satellite base survey equipment (DGPS, data logger & total station) that can be used for detailed design and construction.

(xii) Prepare topographic maps at suitable scale following international standards which would give a good definition of all the necessary details for good approximation concerning earthwork quantities to avoid further problems during construction.

(xiii) Finalize alignment and layouts duly considering the topography, land formation, commercial aspects, economical and safeguard considerations, existing infrastructures of the area, ongoing and future development plan and schemes of

both the government and private sectors in the area. Drafts are to be consulted and presented to SLR before finalization. Finalize 'Construction Right of Way' (CROW) in the final alignment.

(xiv) Carry-out detailed traffic, social, environmental, hydrological and other engineering survey and detailed soil, hydrological & morphological, environmental investigations on the finalized alignment and layouts. Identify the need for additional survey/investigations for detailed design.

(xv) Analyze the existing traffic of various modes of transports. Assess the effects of the project over other modes of transportation. Assess detailed traffic forecasts of national and local freight and passenger traffic for all the components/projects with due consideration of other modes of transport, other ongoing and future development plans for other modes of transport such as Light Rail and Monorail, etc., bus service improvements and private sectors investments.

(xvi) Conduct traffic census on existing roads crossing railway line (both authorized and unauthorized) and re-categorize the types and location of level crossing gates as required based on traffic forecast. Recommend upgradation and closure of existing level crossing gates, authorization of level crossing gates, new level crossing gates to improve safety at level crossings and measures to prevent illegal track trespassing.

(xvii) Review the design of existing station, redesign if necessary and recommend improvements to accommodate increased traffic based on the traffic forecast.

(xviii) Design facilities for multimodal connectivity of the railway with other public and individual modes of transport, suggest location for bus terminals, taxi stands, parking lots for cars, motorbikes and bikes, etc.

(xix) Recommend areas for commercial development in the stations for supporting establishments such as coffee shops, kiosks, food stores, restaurants, bookshops, convenience stores etc. depending on the size and category of stations and the commercial functions available in the station environment.

(xx) Review the access from the road level to the platforms, calculate the number and dimension of stairs, ramps, elevators and/or escalators required for operation of the railway service, for degraded operation and for emergency evacuation. Ensure access to all stations including supporting functions such as ticket offices, waiting rooms, toilets, etc. for elderly-children-women and disabled persons.

(xxi) Identify the locations of level crossing gates required, grade separation between railway and road by either overpass or underpass based on traffic forecast.

(xxii) Review the location and status of existing bridges over the railway, evaluate bridge condition and remaining economic lifespan, recommend design options on how to operate the railway with the existing bridges, considering future railway and rolling stock design, railway electrification, etc.

(xxiii) Examine existing signaling and interlocking system and telecommunication system. Identify the scope of work to establish computer-based signaling and Interlocking system and optical fiber based telecommunication system and centralized train control (CTC) system in all the components/projects. Interconnection and interoperability with Electric Control Center also need to be considered.

(xxiv) Safety issues and interoperability with Signalling System needs to be considered when designing rolling stock

(xxv) Finalize the phasing of construction considering work plan, interfacing, railway operation and signaling issues. Consultant shall make specific recommendation to resolve interfacing issues.

(xxvi) Regular train operation must not be interrupted during the project construction period and accordingly, safety measures are to be considered based on the latest technology.

(xxvii) Develop an operation concept plan during and after construction of all the proposed projects.

(xxviii) Finalize procurement packages and frame suitable investment projects covering all the components mentioned in section-4. Consultant may suggest inclusion of additional component which might be essential to achieve the full benefit of all the components.

(xxix) Conduct mathematical hydrodynamic modeling study for major bridges having waterway 100m and above to establish hydrological parameters for fixation of the location of bridge, formation level of the railway track identifying the highest flood level, catchments area at bridge openings, identify scour & erosion in the vicinity of major bridges and river banks and design river training works and protection works.

(xxx) Conduct an in-depth study covering the surrounding area for fixation of formation level of the proposed structures, recommend proper drainage system identifying the out fall of the drainage system.

(xxxi) Examine existing rolling stock day to day maintenance facilities and assess scope of works to establish modern, improved rolling stock maintenance preferably for modern diesel-electric multiple units and future electrical multiple units. Identify new rolling stock maintenance facilities requirements for all new construction lines including stabling yards, scheduled maintenance facilities and worshops for overhaul of the rolling stock.

(xxxii) Examine the age profile of existing rolling stock fleet and assess demand of rolling stock considering replacement of old ones. Estimate additional new rolling stock requirements with types based on traffic forecast for all the components.

(xxxiii) Study different types of rolling stock, such as loco-driven trains, push-pull trains and diesel-electric or electric multiple units and recommend suitable rolling stock procurement program; study best way to accommodate changes in demand based on traffic forecast by splitting and joining trains and recommend locations for stabling facilities for suplus trains during daytime off-peak hours.

(xxxiv) Prepare Rolling stock demand analysis report on rolling stock requirement for replacement of old-aged rolling stocks and new demand to be created due to the projects mentioned in Section 4.

(xxxv) Assess operation and maintenance (O&M) personnel and other resources/facilities requirements for operation and maintenance works for all components.

(xxxvi) The study should also include conceptual engineering design and layout plan for all necessary railway tracks, stations and yards, signaling and telecom, bridges, culverts, over pass/fly over/underpass, level crossing gates, other structure, residential and functional buildings, cuts and other facilities. Prepare cost estimates for proposed project, showing foreign and local currencies, and tax and duty elements, etc.

(xxxvii) Prepare Feasibility study report which will contain main report with detailed scope of work, all technical aspects, drawings/layouts, cost estimate and Resettlement Plan (RP), Land Acquisition Plan (LAP), Environment Management Plan (EMP), Operational plan, Hydrological & Morphological report and other required documents.

(xxxviii) Review manuals and rulebooks of SLR and recommend updates and additional documentation required due to modern technologies or new

technologies introduced in SLR such as CWR, electric train operation, modern signaling system, etc.

Task 2. Economic and Financial Assessment

(i) Prepare an economic analysis of the proposed priority projects. The economic analysis should follow ADB's guidelines for the economic analysis of projects.
(ii) Provide all analysis and calculations of costs and benefits of the project to the executing agency. Assess benefits of the proposed rail line, not only in financial terms or economical, but also in terms of safety, environmental impacts, time savings, savings of transportation and travel costs, poverty reduction, increase of life standard and enhancement of trade and commercial activities likely to be created as an outcome of the proposed projects.
(iii) Calculate the economic internal rate of return (EIRR) for each railway project. Undertake sensitivity analysis on the risk factor basis for various scenarios such as changes to the capacity costs, operation and maintenance costs, traffic volume, and construction period, etc.
(iv) Conduct willingness-to-pay and other relevant survey. In consultation with SLR, propose appropriate fare. Calculate the financial internal rate of return (FIRR) on the same basis of EIRR calculation.
(v) Estimate the required budget for appropriate operation and maintenance of each project. Assess the financial sustainability by comparing the required budget with the current budget allocation, and make recommendations as appropriate.
(vi) Prepare relevant chapters and appendixes of the feasibility study report on economic and financial assessment.
(vii) Develop a monitoring and evaluation framework in accordance with ADB's Guidelines for Preparing a Design and Monitoring Framework. Include in the framework appropriate indicators with baseline data and targets.

Task 3. Poverty and Social Assessment

(i) Conduct 20% poverty and social assessment taking into account socioeconomic and poverty status of the project area of influence. The baseline socio-economic survey (SES) is to be designed to capture information on the PAPs their resources, employment, and vulnerability. The survey data will lead to the development of management information system (MIS) that will help consultation process and assist in planning and implementation.
(ii) Conduct a benchmark video recording of the physical situation of the dwellings and belongings as well as community assets before the commencement of SES conducted.
(iii) Identify safeguards and non-safeguards social issues relevant to the project's objectives, scope and operational characteristics, and specify verifiable social development outcomes of the project.
(iv) Identify and estimate the likely socioeconomic and poverty reduction impacts of the project.
(v) Assess local demand for the proposed investments, employment opportunities, child labor, HIV/AIDS and human trafficking, affordability, gender and other social risks that would result from the project and include measures to mitigate social impacts, if any. This will be in accordance with ADB's Safeguard Policy Statement (2009), and ADB's Handbook on Social Analysis (2012).

(vi) Propose design features and measures for inclusion in the follow-on investments (including the need for any technical assistance) to address gender, labor, HIV, trafficking, and other social parameters identified in the analysis above.

(vii) Conduct Stakeholder consultation with key stakeholder groups in terms of social and economic characteristics (gender, ethnic and indigenous minorities; socioeconomic vulnerability, etc.) who would be directly and indirectly affected by the project's objectives and scope, design alternatives, likely positive and negative impacts, possible measures to mitigate adverse impacts and other information that would be of use to the stakeholders. Consultant shall keep the records of such stakeholder consultations.

(viii) With the participation of stakeholders, identify and analyze the reasons behind the vulnerability of at risk groups, including their exposure to risks. Suggest participatory development strategies for key stakeholders to apply when designing and implementing the project.

(ix) Collect sex-disaggregated data during poverty and social assessment for all applicable indicators. Focus on how women may have different use or needs when traveling by rail, and on issues of safe transport. Prepare project specific 'gender action plan' for gender development in and around the project location of all the projects. Identify project design elements (policy or implementation) in which women can participate in and thus benefit from the project.

Task 4. Land Acquisition and Resettlement Planning and Indigenous Peoples

(i) For each project, carry out a screening of involuntary resettlement and indigenous peoples' impact in accordance with the Government's policies and regulations, and ADB's Safeguard Policy Statement 2009 (SPS). Identify whether the project is likely to lead to private land acquisition, thus, impact on non-titleholders. The screening exercise will also include a due diligence of past social impacts, viz., if land acquisition has been accomplished in anticipation of the ADB project.

(ii) Identify whether the project will be located in, or pass through, areas of significant indigenous people's settlements, and if this is the case propose how to specifically include indigenous peoples in project planning and implementation in accordance with ADB's Safeguard Policy Statement 2009 (SPS). If relevant, make an overview of population characteristics in the project area and anticipate project impacts.

(iii) Prepare and complete the checklist for involuntary resettlement and indigenous people screening.

(iv) Since this is ADB's first project with SLR, experience of recent and ongoing resettlement activities financed by ADB and similar multilateral development agencies in Sri Lanka should be reviewed. After review, draft a resettlement frameworks (RF) as necessary that meets the Government and ADB policy compliance standards. The RF should define categories for impact, eligibility of affected people for compensation and provide an entitlement matrix covering compensation and other assistance for all types of impacts. The RF should provide the methodology for the calculation of compensations based on replacement cost to fully replace the asset. The entitlement matrix should focus on assistance provided to non-titleholders in the urban context.

(v) For the whole program and should impacts on indigenous peoples be identified during the screening process, even if indicative, prepare an Indigenous Peoples Planning Framework (IPPF) as necessary.

(vi) Both the RF and IPPF should be based on a consultative process with the executing agency and ADB and draw from broad-level consultations with the communities likely to be affected by the subprojects.

(vii) Prepare relevant chapters and appendixes of the feasibility study report on resettlement and indigenous peoples planning. The appendixes should include the screening checklist for each subproject; one Resettlement Framework as necessary; one Indigenous Peoples Framework as necessary (if impacts on indigenous peoples are identified during the screening exercise).

(viii) Prepare a resettlement plan (RP) for each proposed subproject, and if impacts on indigenous peoples are identified, an indigenous peoples plan (IPP) in compliance with the Government's policies and regulations and ADB's Safeguard Policy Statement 2009 (SPS).

(ix) Based on the detailed design, determine the legal status of private land within the right of way (RoW), verify application of customary and traditional laws governing land tenure, usufruct rights, and leasehold. Verify legal boundaries of the RoW with the relevant ministry.

(x) Based on the detailed design, conduct census survey of all affected people (APs) and an Inventory of Lost Assets.

(xi) Conduct a socioeconomic assessment of all APs residing/using the corridor of impact to collect data on family composition, details on age and sex of all the household members, income levels and occupational pattern, vulnerability status, legal ownership status of land (private, traditional and customary rights, lease), asset occupancy status and skills possessed.

(xii) Assess whether the compensation standards for all types of assets, crops, and trees are based on replacement cost and describe in detail the valuation methodology used. Undertake market surveys to compute replacement value of land.

(xiii) Undertake market survey to assess the rental market in nearby areas to ensure security of tenure for non-titleholders.

(xiv) Prepare a comprehensive income and livelihood restoration program, supported by adequate budget, to help APs improve, or at least restore, their incomes and livelihoods. Identify specific measures for the affected poor, ethnic minorities, or other vulnerable households.

(xv) Conduct in-depth consultations with the APs, ensuring the involvement of women in the process. Consultations should take the form of public meetings, focus group discussions and one-on-one interviews. Ensure that the consultation process is well documented and demonstrate how the concerns of the affected persons are included to the design of the RP.

(xvi) Establish a cut-off date for eligibility criteria for non-title holders and ensure and document that it has been publicly disseminated.

(xvii) Prepare overall budget for compensation, resettlement and rehabilitation assistance.

(xviii) Based on the draft R&R entitlements prepare an appropriate action plan for additional support required for the vulnerable

(xix) Organize workshops on draft R&R policy to receive feedback from identified stakeholders, including implementing agency, line agencies (specifically revenue, forest, tribal welfare, etc.), NGO and others.

(xx) Assist the SLR to develop a computerized database management system for recording APs and lost assets. The system should reflect the present impact on APs and accordingly the entitlements for APs are planned. The system should be in place from the beginning of the resettlement survey. Also, develop cadastral mapping of affected plots for construction of new alignments using inventory map developed under the feasibility study.

(xxi) Assess the capacity of the Government in implementing the proposed RP and IPP, and recommend improvements and actions required.

(xxii) If impacts on Indigenous Peoples are identified, prepare an Indigenous Peoples' Development Plan to minimize adverse impacts on tribal communities and to enhance their access to project benefits on par with others.

(xxiii) Prepare relevant chapters and appendixes of the detailed design report on resettlement and indigenous peoples planning. The appendixes should include the RP for each project where resettlement impacts have been identified; IPP for each project, where impacts on indigenous people have been identified.

Task 5. Environmental and Climate Change Risk Assessment

(i) Carry out an environmental assessment of the project in accordance with ADB's Safeguard Policy Statement 2009 (SPS), and the Government's environmental regulations and policies.

(ii) Classify the project in accordance with the environmental impact assessment requirements under the Central Environmental Authority, Ministry of Environment and Forests and ADB's screening checklist for environmental categorization according to the SPS.

(iii) Depending on the classifications, prepare IEE as per relevant guidelines of CEA and ADB, and if EIA is required, prepare TOR that is acceptable to CEA. In preparing the IEE and/or EIA, a minimum of the following issues must be covered:

a) Adequate baseline data representing the environmental conditions of the project site must be collected on physical (air, noise, surface and ground water, soil), ecological (flora, fauna, protected areas) and socio-economic (physical cultural resources, heritage sites, etc.) environmental components

b) Potential impacts on biodiversity including modified, natural, critical habitat (as defined in the SPS) and protected areas and necessary measures to minimize, mitigate, and offset impacts. If the project area has any critical or natural habitat or any critically endangered/locally protected species, detailed back ground information on such areas and species must be provided and the significance of impact clearly defined. Where necessary, mitigation may include physical measures such as design and construction of wildlife overpass or underpass, linkage of rail signaling systems to detection of wildlife on the rail corridor, implementation of biodiversity conservation activities and other innovative measures. Overall, there should be no net loss of biodiversity as a result of the project.

c) Potential waste issues including hazardous materials and wastes and appropriate measures for their disposal, treatment, and other forms of management.

d) `Potential impacts on ambient air and water quality, noise levels and soil and recommendations for suitable mitigation measures. Impacts must be

compared with the national standards and World Bank Environmental Health and Safety (WB-EHS) standards

e) Climate change risks for the project (such as more and stronger storm surges, sea level rise, more flooding, etc.) in consultation with the government and ADB, and recommendations for adaptation measures in the engineering design. The adaptation measures must be clearly identified and the additional costs for those measures quantified.

f) Quantification of greenhouse gas (GHG) emissions expected from the construction activities under the project and GHG emissions and reductions during operation of the railway lines and improved systems. If the gross operation related GHG emissions exceed 100,000 tons per annum, provide recommendations for suitable mitigation and/or offset measures.

g) Occupational Health Safety issues and measures for the construction workers as well as the local communities in and around the project site following the WB-EHS guidelines.

h) Potential impacts on physical and cultural resources including sensitive receptors (temples, schools, hospitals, etc.) and measures to avoid, minimize, or mitigate impacts. This must include modelling of air pollution, noise and vibration levels during operation stage at various distances from the edge of the rail ROW with clear identification of sensitive receptors that will be impacted due to air pollution, noise and vibration levels being higher than baseline levels or higher than the national or WB-EHS standards. For such receptors, clear mitigation measures must be provided.

i) Public consultations with affected people in the project area including men, women, vulnerable or indigenous groups with clear documentation on dates of meeting, issues discussed, and total number of male and female participants. Consultations must also be carried out with relevant government agencies (eg. Forest Department, Agriculture Department, etc.) and relevant environmental NGOs if any.

j) Grievance Redress Mechanism to address concerns and grievances of the APs in the course of the project cycle.

k) Cumulative and induced impact assessment with recommendations for mitigation measures to be implemented within the project, where feasible and for implementation by other agencies responsible for other projects.

l) Alternative analysis including the no project option (required only for EIA under the ADB SPS.

m) Assessment of the institutional set up and capacity of the EA for meeting environment safeguard requirements of the government as well as ADB. Institutional and capacity needs, if any must be identified and planned for with adequate budge provisions.

(iv) Prepare the IEE and EIA reports to fulfill the requirements of the government and ADB.

(v) Prepare an Environmental Management Plan (EMP) and Environmental Monitoring Plan (EMOP) to implement and monitor the mitigation measures with clear information on costs, time frame, responsible agencies, monitoring methods and monitoring indicators and targets.

(vi) Incorporate into the EIA/IEE report including EMPs/APs, feedback from all relevant stakeholders including the EA, ADB, and others. Prepare an Environment Assessment and Review Framework (EARF), if necessary.

(vii) During the feasibility study stage, the outputs will be complete IEE or EIA reports and EARF, as necessary fulfilling requirements of both the government and the ADB SPS, including as many site specific details as possible. For projects with different requirements under the government and ADB SPS (for example the government requires an EIA but ADB requires an IEE) to the extent possible one report will be prepared to fulfill requirements of both agencies.

(viii) The IEE or EIA prepared during the feasibility study stage must provide clear recommendations for follow-up activities required during the detailed design stage. Recommendations may include but not be limited to: (a) updating the EMP to provide more site specific details or other updates; (b) providing more detailed or updated information and analysis on location, expected impact and mitigation measures on sensitive receptors; (c) updating the number of trees required for removal; (d) conducting air and noise impact modelling; and (e) other updates in the reports based on design updates. The output of the detailed design stage will be the final IEE and/or EIA reports and EARF, as necessary fulfilling requirements of both the government and the ADB SPS.

Task 6. Detailed Engineering Design

(i) Conduct additional field survey and soil, hydrological, seismic, geometric features, type and condition of drainage structures and foundation investigations required for detailed design along the selected alignment.

(ii) Conduct hydrological and morphological studies for major bridges having spanned more than 100 meters and separate reports have to be submitted to the client.

(iii) Detailed engineering design have to be done in accordance with the design codes/guidelines/manuals of SLR, neighboring countries and International codes based on the findings of investigations and feasibility study, recommendations of safeguard policy study and universal design for the elderly & disabled persons. All bridges, culverts and sub-structures have to be designed in accordance with related standards considering double stacking of containers, future electric traction lines, and oversized consignments.

(iv) Detailed design for the railway project shall be based on the updated conceptual design of the feasibility study and results from additional investigations conducted. Detailed alignment design and layout plan shall be prepared for the proposed route alignment selected in the Feasibility Study.

(v) Detailed design and drawings has to include universal access for the elderly & disabled persons such as access to the station building, parking area and platforms by ramps and/or elevators. Detailed design and drawings should also include gender sensitive design in all station buildings, such as separate ticket counters, waiting areas/rooms, and toilets for women, etc.

(vi) Prepare key map for all stations proposed in the project showing all existing, proposed dismantling works and proposed new structures and station yard layout.

(vii) Design multimodal facilities in the station areas as well as areas for commercial development as recommended in the feasibility study.

(viii) Prepare detailed technical specifications for each work item, taking into account relevant proven specifications in use in Sri Lanka and elsewhere for similar works.

(ix) The consultant shall also be required to take into consideration the findings and recommendations of social and environmental studies carried out by separate consultants during preparation of detailed design and cost estimates.

(x) Update safeguard related documents such as RP, EIA and LAP, indigenous people plan, etc. based on the detailed design. Facilitate effective coordination and lines of communication between ADB and relevant government agencies and line departments, organizations, and individuals implementing safeguard aspects, including obtaining government clearances.

(xi) Re-assess benefits and capital costs of the proposed projects and update the economical and financial analysis based on revised cost and benefits and other findings of detailed design.

(xii) Detailed design of upgradation and new construction of level crossing gates re-categorized (both authorized and un-authorized) in the feasibility study to ensure safety. Detailed design of road flyover/overpass/underpass, pedestrian bridges etc as recommended in the feasibility study.

(xiii) Detailed design for establishment of computer based interlocking (CBI) signaling system and optical fiber based telecommunication system and centralized traffic control center (CTCC) in all the components/projects as identified in the feasibility study.

(xiv) Design the power supply system including transmission lines from the existing grid to substations and the overhead catenary system (OCS) for the railway lines, sectioning in stations, yards, and on the open lines and operations control to be situated in the CTCC.

(xv) Prepare the detailed work plan/schedule covering phasing of construction considering work plan, interfacing issues, railway operation issues, and signaling and safety issues

(xvi) Prepare detailed design for existing tracks, additional tracks for areas with doubling and new lines including drainage, cable ducts for signaling, telecom and electric power cables, maintenance and emergency walkways and fencing in built-up areas. The loading standards of bridge/culverts on the existing track have to be examined and detailed design for required up-gradation, if required. Electrification designs to be prepared at the end.

(xvii) Prepare detailed operational plan for construction and after construction period. Prepare maintenance plan. Finalize operation and maintenance (O&M) personnel and other resources/facilities requirements for operation and maintenance works for all components

(xviii) Prepare engineering design, drawings and layout plan for railway embankment, tracks, stations and yards, signaling and telecom, bridges, culverts, over pass/fly over/underpass, level crossing gates, protection works, other structure, residential and functional buildings, drainage, sanitation, electrical works, rolling stock maintenance facilities such as wash pits, sick lines, sheds, watering facilities and passenger amenities, operational and other facilities.

(xix) Prepare detailed design for establishment of rolling stock depots, carriage and wagon workshop, loco workshop and fuelling facilities including all infrastructure and allied facilities or new construction as identified in the feasibility study.

Task 7. Cost Estimates and Bidding Documents

(i) Prepare detailed cost estimate of each of the project based on detailed design and detailed BOQ. The Consultant shall consider the findings and recommendations of social and environmental studies and reflect those in

necessary clauses in the tender documents and cost for implementation EMP, if any, are to be included in detailed in the cost estimate and BOQ.

(ii) Prepare separate BOQ and bid documents of construction works as phased by the consultant based on detailed in the engineering design and detailed cost estimates following ADB's and government's guidelines for procurement.

(iii) Prepare unit rate analysis report for each items included in the cost estimate along with all background/ breakup calculation.

(iv) The cost estimate should be broken down in local and foreign currencies. Local currency costs are again to be broken down to works, equipment, and tax and duties.

(v) Prepare detailed scope of station-wise civil, signaling and telecom works, level crossing gate wise works and bridge wise works and their cost estimates to monitor the construction works.

(vi) Prepare and/or update technical specification for all components required in the selected projects/components to be used as Employer's Requirements in the bid documents.

Task 8. Procurement Assistance

(i) Prepare the procurement plan and the bidding documents for each contract package using ADB's standard bidding document for procurement of civil works.

(ii) Upon the client's request, assist the government in advertising, issuing bidding documents, responding to queries, receiving and evaluating applications, and other procurement-related activities.

C. Consultant's Inputs

10. The assignment will be carried out over a period of thirty six (36) months from the date of commencement by a consulting firm. It is anticipated that about 198 person-months of input by international consultants and 676 person-months by national consultants will be required.

Table 1: Required Experts

No.	Title	Relevant Experience and Qualification	Positions	Person-Months
International				
IC01	Team Leader/ Senior Railway Specialist	• Bachelor degree in railway engineering or related areas with post- graduate degree in the relevant field • Min. 20 years of professional experience • Min. 15 years in planning, preparation and design of railway systems and projects, at least 5 years as project team leader	1	30
IC02	Transport Economist	• Bachelor degree in economics or engineering • Min.15 years of professional experience • Min. 10 years of experience in economic and financial analysis,5 years of which on transport/infrastructure projects	1	9

No.	Title	Relevant Experience and Qualification	Positions	Person-Months
IC03	Rail Operation Specialist	• Bachelor degree in railway engineering or related areas • Min. 15 years of professional experience • Min. 10 years of experience in rail operation	1	12
IC04	Railway Track Engineer	• Bachelor degree in railway engineering or related areas • Min. 15 years of professional experience • Min.10 years of experience in railway track engineering	1	15
IC05	Railway Bridge Engineer	• Bachelor degree in civil engineering, post- graduate degree preferred • Min. 15 years of professional experience • Min.10 years of experience in railway bridge/structure design	1	10
IC06	Station Architect	• Bachelor degree in architecture, post-graduate degree preferred • Min. 15 years of professional experience • Min. 10 years of experience in railway station design	1	15
IC07	Power Supply Engineer	• Bachelor degree in electrical engineering, post-graduate degree preferred • Min. 15 years of professional experience • Min. 10 years of experience in railway electrical engineering	1	6
IC08	Railway Electrification Engineer	• Bachelor degree in electrical engineering, post-graduate degree preferred • Min. 15 years of professional experience • Min. 10 years of experience in railway electrification engineering	1	15
IC09	Geotechnical Engineer	• Bachelor degree in geotechnical engineering • Min. 15 years of professional experience • Min. 10 years of experience in geotechnical engineering,5 years of which on railway projects	1	9
IC10	Hydrologist	• Bachelor degree in hydraulic engineering, or related areas • Min. 15 years of professional experience • Min. 10 years of experience in hydraulic engineering	1	9
IC11	Signal Engineer	• Bachelor degree in railway engineering,	1	10

No.	Title	Relevant Experience and Qualification	Positions	Person-Months
		or related areas • Min. 15 years of professional experience • Min. 10 years of experience in railway signal engineering		
IC12	Telecommunication Engineer	• Bachelor degree in telecommunication engineering or related areas • Min. 15 years of professional experience • Min.10 years of experiences in railway telecommunication	1	6
IC13	Rolling Stock and Workshop Engineer	• Bachelor degree in railway engineering, or mechanical engineering, or related areas • Min. 15 years of professional experience • Min. 10 years in railway rolling stock, maintenance and workshop design and operations	1	15
IC14	Environmental Specialist	• Master's degree in environment science or environmental engineering or related areas, • Min. 15 years of professional experience • Min. 10 years in preparation/management of environment impact assessment	1	3
IC15	Social Development/Resettlement Specialist	• Bachelor degree in social science • Min. 15 years of professional experience • Min. 10 years of experience in social development and resettlement for infrastructure projects	1	3
IC16	Procurement Specialist	• Bachelor degree in engineering or construction science, post-graduate degree preferred • Min. 15 years of professional experience • Min. 10 years in preparation/management of construction contracts and procurements for international bidding	1	9
IC17	Quantity Surveyor	• Bachelor degree in civil engineering or other relevant subject • Min. 15 years of professional experience • Min. 10 years as a quantity surveyor.	1	10
IC18	CAD Specialist	• Bachelor degree in civil engineering or other relevant subject • Min. 15 years of professional experience • Min. 10 years in railway engineering	1	12

No.	Title	Relevant Experience and Qualification	Positions	Person-Months
		CAD.		
		Subtotal	**18**	**198**
National				
NC01	Deputy Team Leader/ Senior Railway Engineer	• Bachelor degree in railway engineering or related areas, post- graduate degree preferred • Min. 15 years of professional experience • Min. 10 years in planning, preparation and design of railway projects	1	33
NC02	Transport Financial Analyst	• Bachelor degree in finance, economics or engineering • Min. 10 years of professional experience • Min. 8 years of experience in economic, 3 years of which on transport/infrastructure projects • CA/CPA equivalent preferred	2	20
NC03	Financial Analyst	• Bachelor degree in accounting or related areas • Min. 10 years of professional experience • Min. 8 years of experience in financial analysis, 3 years of which on transport/infrastructure projects	2	20
NC04	Railway Track Engineer	• Bachelor degree in railway engineering or related areas • Min. 10 years of professional experience • Min. 8 years of experience in railway track engineering	2	30
NC05	Railway Bridge Engineer	• Bachelor degree in civil engineering, post- graduate degree preferred • Min. 10 years of professional experience • Min. 8 years of experience in bridge/structure design	2	36
NC06	Geotechnical Engineer	• Bachelor degree in geotechnical engineering • Min. 10 years of professional experience • Min. 8 years of experience in geotechnical engineering	2	20
NC07	Foundation Engineer	• Bachelor degree in civil engineering or related areas • Min. 10 years of professional experience • Min. 8 years of experience in foundation engineering	4	48
NC08	Signal Engineer	• Bachelor degree in railway engineering, or related areas • Min. 10 years of professional	1	15

No.	Title	Relevant Experience and Qualification	Positions	Person-Months
		experience • Min. 8 years of experience in railway signal engineering		
NC09	Telecommunication Engineer	• Bachelor degree in telecommunication engineering or related areas • Min. 10 years of professional experience • Min.8 years of experiences in railway telecommunication	1	9
NC10	Rolling Stock Engineer	• Bachelor degree in railway engineering, or mechanical engineering, or related areas • Min. 10 years of professional experience • Min. 8 years in railway rolling stock.	1	9
NC11	Environmental Specialist	• Bachelor degree in environment science, environmental engineering or related areas, post-graduate degree preferred • Min. 10 years of professional experience • Min. 5 years in preparation/management of environment impact assessment for transport infrastructure projects	2	48
NC12	Social/Resettlement/Gender Specialist	• Bachelor degree in social science • Min. 10 years of professional experience • Min. 5 years of experience in social development and resettlement for infrastructure projects	4	96
NC13	Embankment Engineer	• Bachelor degree in civil engineering • Min. 8 years of professional experience • Min. 5 years in embankment engineering	2	20
NC14	Electrical Engineer	• Bachelor degree in electrical engineering, post-graduate degree preferred • Min. 10 years of professional experience • Min.8 years of experience in railway electrical engineering	2	20
NC15	Procurement Specialist	• Bachelor degree in engineering or construction science, post-graduate degree preferred • Min. 10 years of professional experience • Min. 8 years in preparation/management of construction contracts and procurements for international bidding	1	12
NC16	CAD Engineer	• Bachelor degree in civil engineering	6	120

No.	Title	Relevant Experience and Qualification	Positions	Person-Months
		• Min. 5 years of professional experience • Min. 3 years in preparing engineering drawings in railway projects.		
NC17	Quantity Surveyor	• Bachelor degree in civil engineering or other relevant subject • Min. 5 years of professional experience • Min. 3 years as a quantity surveyor in transport projects.	4	120
		Subtotal	**39**	**676**

D. Output and Reporting Requirements

11. The consultant will carry out activities according to the following time schedule, and submit reports about the activities and outputs.

Table 2: Reporting Requirements

Report	Submission Deadline (no. of months after commencement)
1. Inception Report	3
2. Draft Feasibility Study Report	10
3. Final Feasibility Study Report	12
4. Draft Final Report (including the detailed design)	24
5. Draft Bidding Documents	27
6. Final Report	30
7. Procurement Report	36

Outline Terms of Reference:

Consultancy Services for Feasibility Study and Detailed Design of SASEC Port Development Project

A. Background and Objectives

1. Maritime transport is essential for Sri Lanka as an island nation because it relies on international trade. Sri Lanka has been playing a significant role as a regional transport hub due to its strategic location within the vicinity to major international shipping routes. Low-cost logistics is critical to its economic efficiency and transition to export-oriented economy. Logistic costs in the country affect both competitiveness of exported goods and consumer price of imported goods. Introduction of larger vessels and emergence of gigantic shipping line alliances aggravated competition among international ports. The Sri Lankan port sector needs to keep strengthening its capacity and competitiveness by improving infrastructure, operational efficiency, and institutions, to survive the competition. Following national economic growth and rapid growth of international container shipping demand, the needs to strengthen their capacity is urgent.

2. To meet the development needs, the technical assistance for National Port Master Plan (NPMP) will be provided by ADB to ensure that port infrastructures will be developed and operated in an optimum manner with concomitance with urban areas and in line with long term planning. The NPMP will identify priority projects, promote public and private investment, and boost economic efficiency improvement by reducing logistics cost along with restructuring of Sri Lanka Ports Authority (SLPA).

3. This technical assistance loan is to support SLPA to prepare for development of port facilities following the NPMP. SLPA will engage a firm of international consultants (the Consultant) to undertake: (i) feasibility study, (ii) economic and financial assessment; (iii) detailed design; (iv) preparatory activities for processing of a new projects for funding by Asian Development Bank (ADB) or other development institutions; (v) environment impact assessment/ initial environment evaluation in line with ADB requirements and domestic legislation; and (vi) social assessment including gender and poverty reduction assessment.

B. Scope of Services

4. The brief scope of consultancy services is to conduct; i) feasibility study, ii) Detailed Design, iii) economic and financial assessment, iv) Bidding document preparation, and v) safeguard assessment for the projects (the selected project, hereafter), which will be selected by SLPA based on the list of priority projects under the NPMP.

Task 1. Feasibility Study including preliminary design

5. The consultant will update feasibility studies of the selected projects in the NPMP, including technical feasibility, hinterland access assessment, economic and financial viability, environment, and social and resettlement aspects. Consultation with SLPA shall be conducted to prepare for the feasibility study as necessary. The feasibility studies shall be conducted in line with the requirements for internal processing in the Government of Sri Lanka, SLPA and ADB.

(i) Collect and review the National Port Master Plan, road development plans, railway development plans, urban development plans and other related plans. Consult all relevant agencies/stakeholders and assess consistency of the plans in terms of hinter land connectivity, land use (i.e. zoning) and other development issues. Take all findings into consideration in the study.
(ii) Review existing engineering surveys and collect necessary data for feasibility study, including traffic survey, topographic survey, geotechnical survey, and bathymetric and sediment survey.
(iii) Carry-out additional engineering surveys which are needed for preliminary design.
(iv) Based on engineering data, determine most suitable infrastructures, construction methods and other engineering aspects for selected projects and related facilities with comparison matrix of possible options.
(v) Develop preliminary design of the selected projects with cost estimation, including capital expenditure and operational expenditure, and revenue estimation.
(vi) Develop terminal area plans in case of terminal project among the selected projects, indicating arrangements of gates, truck lanes, buildings and cargo storage, following consultation with SLPA. Draft terminal area plans shall be submitted to SLPA to seek their comments before finalization.
(vii) Assess navigability of channels and propose necessary measures to secure smooth navigation.
(viii) Prepare preliminary economic and financial assessment with updated cost estimations.
(ix) Review the existing Port Facility Security Plan (PFSP) and prepare updated PFSP for the selected projects in line with the International Convention for the Safety of the Life at Sea (SOLAS), following consultation with SLPA.
(x) Undertake a preliminary environmental assessment, social assessment, and assessment of the potential need for land acquisition and resettlement.
(xi) Assess availability of local resources for construction material and transportation.
(xii) Prepare phased construction schedule for the selected projects taking into account project readiness, terminal operation during construction, mass curve for earth moving and traffic forecast.
(xiii) Compare construction modality i.e., PPP or public financing for each of the selected projects, present in a matrix and recommend the most appropriate modality.
(xiv) Develop feasibility reports containing results of the items above with draft documents for internal processing, with a format instructed by SLPA.

Task 2. Detailed Design

6. The Consultant will develop detailed design of the selected projects for precise cost estimation and preparation for procurement process, following confirmation on layout and specification of the selected projects with SLPA. Scope of detailed design will include utilities, building, light, IT systems, firefighting facility, fence, gates, access road, breakwaters, basins and channels as well as quay. Specification for IT systems will be also determined.

(i) Review all of the available engineering data to be utilized for detailed design, and identify additional surveys needed with description of survey type and location, etc, to supplement existing engineering data
(ii) Review utility networks and their availability in project site, including electricity, water, gas, sewage, drainage and telecommunication.

(iii) Carry out engineering surveys identified above to prepare detailed designs as appropriate to enable construction quantities to be calculated with reasonable accuracy (10%). The topographic surveys shall be done using satellite-based survey equipment (DGPS, Data Logger & Total Station) for required accuracy.
(iv) Review available Geographic information map covering the port and hinterland, and prepare updated GIS map at suitable scale using international standard, which can be used for cadastral and base maps for detailed design, with a good approximation concerning earthwork quantities.
(v) Consult with SLPA and finalize specifications to develop detailed designs and terminal area plans in case of terminal project.
(vi) Confirm specifications of cargo handling equipment and numbers of equipment to install. Prepare an equipment operation and maintenance plan including installation/replacement schedule, cost estimation and maintenance standard.
(vii) Investigate the suitability of local construction materials and, where necessary, locate new quarries and borrow pits and assess the quality and quantity of materials and hauling distance.
(viii) Prepare engineering technical specifications for each work item, taking into account relevant specifications in use in the country and elsewhere for similar works.
(ix) Prepare detailed designs of the selected projects and related road/railway developments at appropriate scale.

Task 3. Bidding Documents and other procurement assistance

7. The Consultant will prepare bidding documents and other related documents in line with ADB procurement guidelines for the selected projects.

(i) Prepare bills of quantities and calculate engineering costs estimates for civil works broken down into foreign (direct and indirect) and local components, and with specification of each work item.
(ii) Prepare contract packages, taking into account (a) ADB's Guidelines for Procurement; and (b) bidding size and domestic contractor's capacity.
(iii) Prepare engineering project implementation schedules showing anticipated progress of works and expenditures for each contract package. The schedules will reflect seasonal climatic effects at the work sites and take into account typical outputs on earlier ADB-financed projects.
(iv) Prepare engineering drawings as per Client's requirements.
(v) Finalize procurement packages with relevant procurement mode, and frame suitable investment projects covering all the components covered in detailed design as well as other additional components such as supervising consulting services.
(vi) Prepare bidding documents for each contract packages in accordance with the latest ADB standard bidding documents template available on the ADB website. Also, develop documents summarizing procurement packages for each project using template provided by SLPA, i.e., project administration manual.

Task 4. Economic and Financial Analysis

8. The consultants will carry out economic and financial analyses in accordance with ADB's Guidelines for the Economic Analysis of Projects for considering the project viable. The consultants will conduct the following tasks but will be limited to:

(i) Review the related analyses conducted in the NPMP and collect necessary latest data.
(ii) Assess benefits of the selected project, not only in terms of financial or economic, but also in terms of safety, environmental impacts, time savings, savings of transportation and travel costs, poverty reduction, increase of quality of life and enhancement of trade and commercial activities likely to be created as an outcome of the projects.
(iii) Calculate the economic internal rate of return (EIRR) of each of the selected project individually.
(iv) Undertake a sensitivity analysis on the risk factor basis for various scenarios such as changes to the cost, generated and diversion traffic, modal shift, construction period, etc.
(v) Conduct willingness-to-pay and other relevant surveys. In consultation with SLPA, propose appropriate fees. Calculate the financial internal rate of return (FIRR) on the same basis of EIRR calculation.
(vi) Estimate the required budget for appropriate operation and maintenance of each project. Assess the financial sustainability by comparing the required budget with the current budget allocation, and make recommendations as appropriate.
(vii) Undertake sustainability analysis to assess whether the project benefits are sustained through adequate provision of funds (or revenue generated) for operation and maintenance as well as to cover investment cost and also discuss fiscal implications for the agency and the national exchequer.
(viii) Prepare and submit Economic and Financial Assessment Report, presenting the following:
    a) Introduction
    b) General Considerations
    c) Summary of the project
    d) Traffic forecast of the port
    e) Economic Benefits
    f) Construction and Maintenance Alternatives and Cost Estimates
    g) Economic Analysis
    h) Sensitivity Analysis
    i) Conclusions – summarizing the economic assessment, approach & methodology, findings (FIRRs, EIRRs and sensitivity analysis), and overall economic and financial viability.
    j) Appendices:
        A. Project details
        B. Traffic studies (base year traffic, traffic generation, traffic diversion assessments)
        C. Economic growth trend and traffic forecast (including the basis)

Task 5. Social Assessment

9. The consultants will carry out the following tasks but will be limited to:
(i) Conduct 20% poverty & social assessment taking into account the socioeconomic and poverty status of the project area of influence, including the nature, extent and determinants of poverty in the project area. Identify and estimate the likely socioeconomic and poverty reduction impacts of the project. Assess local demand for the proposed projects, employment opportunities, child labor, affordability, gender-specific capacity to take advantage of the likely socioeconomic opportunities that would result from the project. This will be in accordance with

ADB's Guidelines for the Incorporation of Social Dimensions in ADB Operations and its Handbook on Poverty and Social Analysis.

(ii) Identify project-related interests of key stakeholders, likely barriers to their participation in and benefiting from the project resources, and suggest possible strategies for addressing their concerns.

(iii) Prepare a gender analysis to identify project elements (policy, investment, or implementation) in which women can participate in and thus benefit from the project.

(iv) Conduct assessment of risks of human trafficking and HIV/AIDS due to the project. Provide suggestions for measures to be incorporated in the project to mitigate possible adverse impacts through human trafficking and HIV/AIDS, and identify possible partners for assisting in implementing such measures.

(v) Identify any necessary mitigation measures and a strategy for implementing them. Identify potential proactive measures, in terms of additional components and design options, which will make it easy for the poor and vulnerable to benefit from the project.

(vi) In coordination with the financial and economic analysis, design a time-bound benefit monitoring and evaluation program, including monitoring indicators and baseline data, to assess the project benefits to local communities before and after the construction of the project. The program should address not only the economic benefits but also poverty reduction impacts and other social benefits such as stability of the region and integration with other parts of the country.

(vii) Submit a draft final Poverty and Social Analysis (PSA) report to ADB and SLPA for review and comments. Incorporate comments and finalize the PSA accordingly, then resubmit the revised PSA to ADB through SLPA. Summarize and submit these PSA findings in the Summary Poverty Reduction and Social Strategy (SPRSS) report format.

Task 6. Resettlement and Indigenous People Assessment

10. The consultants will carry-out resettlement and indigenous people planning of the selected projects in accordance with the ADB's Safeguard Policy Statement 2009, Public Communications Policy 2005 as well as Government's acts, regulations and policies. The major tasks include, but are not limited to, the following:

(i) Conduct a preliminary social impact assessment for the project including assessment of possible land acquisition/resettlement impacts for the selected projects in accordance with ADB's Safeguard Policy Statement 2009. Prepare and complete screening and impact categorization form for involuntary resettlement for the selected projects.

(ii) Identify whether the project will be located in areas of significant indigenous people's settlements, and if this is the case propose how to specifically include indigenous peoples in project planning and implementation in accordance with ADB's Safeguard Policy Statement 2009. If relevant, make an overview of population characteristics in the project area and anticipate project impacts. Prepare and complete checklist for indigenous people screening and impact categorization for the selected projects.

(iii) Prepare a land acquisition plan (LAP) based on the cadastral map with estimated cost.

(iv) Prepare a resettlement plan (RP) and indigenous people plan (IPP) as necessary, acceptable to the government and ADB in compliance with the ADB's Safeguard

Policy Statement 2009, and government-related acts and policies. RP and IPP should be based on 100% census which covers a complete enumeration of all displaced persons (DPs) and their affected assets.

(v) Define categories for impact and eligibility of affected people for compensation and prepare a matrix of entitlements covering compensation and other assistance for all types of impacts to fully replace lost assets, income, and livelihood. Assess whether the compensation standards for all types of assets, crops, and trees are based on replacement value and discuss in detail the valuation methodology used.

(vi) Prepare a comprehensive income and livelihood restoration program, supported by adequate budget, to help DPs improve, or at least restore, their incomes and livelihoods. Identify specific measures for the affected poor, ethnic minorities, or other vulnerable households.

(vii) Ensure that (a) the compensation standards are based on replacement value, and (b) the overall resettlement budget is sufficient to implement the resettlement plan based on the proposed entitlements and rehabilitation plans.

(viii) Assist Government officials to initiate and expand consultation with the affected communities, local leaders, proponents, and stakeholders who may be opposed to the Project. Prepare a consultation plan for SLPA and a format for documenting consultations with affected people.

(ix) Assess the capacity of SLPA in implementing the proposed RP and IPP, recommend improvements and actions required before land acquisition, and proposed necessary training to enable SLPA and the Government to implement the RP and IPP and assess the social and resettlement issues of the follow-on subprojects, if required. Assist SLPA to (i) prepare a resettlement implementation schedule, (ii) recruit NGO/Agency for RP and IPP implementation (if required), and (iii) recruit consultants for external monitoring and evaluation.

(x) Assist SLPA to develop a computerized database management system for recording DPs and lost assets. The system should reflect the present impact on DPs and accordingly the entitlements for DPs are planned. The system should be in place from the beginning of the resettlement survey. Also, develop cadastral mapping of affected plots for construction of the selected projects, if necessary.

(xi) While preparing IPPs, conduct (a) social impact assessment, (b) meaningful consultation and (c) ascertain consent of affected IP communities. For items (b) and (c), proper recording and full documentations are required. These documents must be annexed to IPPs. These IPPs should also incorporate the findings of the resettlement census.

(xii) Prepare a final RP and IPP, and summary RP and IPP based on detailed design, taking into account comments from ADB and the Government, and based on 100% census survey. The RP and IPP should include a record of consultation with affected persons.

(xiii) Conduct a workshop training to provide guidance to SLPA on Project-related social issues and ADB's Safeguard Policy Statement (2009) procedural requirements during Project preparation and implementation. The scope of training should include the differences between the provisions of the ADB policy and the relevant country laws.

Task 7. Environmental Assessment

11. The Environment Specialist will prepare the following tasks, but will be limited to:

(i) In accordance with Government's policies on environmental assessment and ADB's guidelines, confirm the environmental classification of the project;

(ii) Conduct EIA for terminals or project components which are classified as "A" and develop EIA reports in line with Government's requirements and ADB's Safeguard Policy Statement (2009);

(iii) If the project components is classified as "B", undertake initial environmental examination (IEE) study and prepare an IEE report including an environmental management plan (EMP) for each project in accordance with ADB's Safeguard Policy Statement (2009);

(iv) In preparing the IEE and/or EIA a minimum of the following issues must be covered:

a) Adequate baseline data representing the environmental conditions of the project site must be collected on physical (air, noise, surface and ground water, soil), ecological (flora, fauna, protected areas) and socio-economic (physical cultural resources, heritage sites, etc.) environmental components.
b) Potential impacts on biodiversity including modified, natural, critical habitat (as defined in the SPS) and protected areas and necessary measures to minimize, mitigate and offset impacts.
c) Potential waste issues including hazardous materials and wastes and appropriate measures for their disposal, treatment and other forms of management.
d) Potential impacts on ambient air and water quality, noise levels and soil and recommendations for suitable mitigation measures. Impacts must be compared with the national standards and World Bank Environmental Health and Safety (WB-EHS) standards.
e) Climate change related risks for the project (such as more and stronger storms surges, sea level rise, more flooding etc.) in consultation with the government and ADB, and recommendations for adaptation measures in the engineering design. Recommended adaptation measures must be incorporated in the design in consultation with the engineers and additional costs for those measures clearly quantified.
f) Quantification of greenhouse gas emissions expected from the construction and operation stages of the project with recommendations for suitable mitigation and/or offset measures.
g) Occupational health safety issues and measures for the construction workers as well as the local communities in and around the project site following the WB-EHS guidelines.
h) Potential impacts on physical and cultural resources including sensitive receptors (temples, schools, hospitals etc.) and measures to avoid, minimize, or mitigate impacts. This must include prediction/modelling of air pollution, noise and vibration levels during operation stage at various distances from the terminals with clear identification of sensitive receptors that will be impacted due to air pollution, noise and vibration levels being higher than baseline levels or national and WB-EHS standards. For such receptors, clear mitigation measures must be provided.
i) Public consultations with affected people in the project area including men, women, vulnerable or indigenous groups with clear documentation on dates of meeting and issues discussed and total number of male and female

participants. Consultations must also be carried out with relevant government agencies and NGOs, if any.

j) Grievance redress mechanism to address concerns and grievances of the affected people in the course of the project cycle.

k) Cumulative and induced impact assessment with recommendations for mitigation measures to be implemented within the project where feasible and for implementation by other agencies responsible for other projects.

l) Alternative analysis including the no project option (required only for EIA under the ADB SPS).

m) Assessment of the institutional set up and capacity of CPA for meeting environment safeguard requirements of the Government as well as ADB. Institutional and capacity needs if any must be identified and planned for with adequate budget provisions.

(v) Prepare an environmental management plan (EMP) and monitoring plan to implement and monitor the mitigation measures will be prepared with clear information on costs, time frame, responsible agencies, monitoring methods and monitoring indicators and targets.

(vi) Incorporate into the EIA/IEE report including EMPs feedback from all relevant stakeholders including the CEA, ADB, affected persons and others.

(vii) An Environmental Assessment and Review Framework (EARF) will also be prepared if necessary.

C. Project Management, Design Coordination, and Quality Assurance

12. The Consultant shall be responsible for management and overall coordination and integration of the project in close cooperation with SLPA. The responsibilities also include standardization of design, quality management and quality assurance for all stages in the design process and compliance of the works with all applicable codes, rules and processes of the Government of Sri Lanka, SLPA and ADB. The specific responsibilities for project management, design coordination and quality assurance are as follows but are not limited to:

(i) **Project management and coordination.** The Consultant shall prepare detailed task schedule during inception and follow the schedule; follow-up on internal and external deliverables and approvals; closely monitor and coordinate survey and investigations to be conducted by third parties and verify their reports.

(ii) **Establish design standards and approval procedures**. The Consultant shall review and where necessary, revise or supplement in close cooperation with SLPA the design criteria, standard designs and drawings, cost estimate, standard specifications, codes etc. applicable for all the projects. Consultant shall understand the approval process within SLPA, the Government and ADB, and take necessary action accordingly. Consultant shall immediately inform SLPA, if any, of agreed or approved scope of work/findings/issue/design/drawings/ specification/cost estimate etc. needed to be changed with proper justification.

(iii) **Quality control and quality assurance**. Establish and enforce quality control and quality assurance system for all design steps and deliverables.

D. Reports and Time Schedule

13. The consulting services for each contract package will be implemented over 36 calendar months from the commencement date. The following reports, in the English language, will be

submitted by the consultant to the Government (4 copies) and ADB (2 copies), including CD-ROM.

14. The consultants will submit (i) an inception report within 4 weeks of starting their services, detailing the initial work program; (ii) quarterly reports after starting their services; (iii) the draft final report; and (iv) the final report on project completion, incorporating comments by the government and ADB, to be completed 2 weeks after receipt of the comments. The consultants will also submit monthly progress reports with a summary of activities and recommendations for action on issues.

Report	Description/Technical Accomplishments	Submission Deadline (no. of months after the commencement date)
Inception Report	Description of proposed methodology, works and staffing schedules; comments on the TOR for this variation and comment and observation on issues which may have technical or financial implications or which may affect the progress of the works.	1
Draft Feasibility Study Report	This report contains components which are fundamental and precedent to initial approval on the project.	5
Final Feasibility Study Report	Revised F/S report incorporating the comments by ADB and SLPA to the draft F/S report.	6 (or 3 weeks after receiving comments, whichever is later)
Draft Final Report (including the detailed design)	This report covers all components which are required for project approval and procurement of the project;	20
Final Report	Revised final report incorporating the comments.	36

E. Schedule and Staff Requirements

15. The consulting services will be completed in 36 months. A firm of consultants will be engaged in accordance with ADB's Guidelines on the Use of Consultants (2013, as amended from time to time). The consultants shall be selected using ADB's quality- and cost-based selection method with a quality-cost ratio of 90:10.

16. The consultant team will comprise 86 person-months international and 105 person-months national inputs as stated below:

Composition of Consulting Team

International Experts	Person-Months	National Experts	Person-Months
Team leader and Senior Port Engineer (expertise in port infrastructure engineering and multimodal logistics)	30	Deputy team leader and ports engineer	25
Road engineer	8	Civil engineer	20
Traffic engineer-cum-economist	12	Traffic modeler and survey engineer	20
Port infrastructure engineer	12	Social safeguard expert	20
Procurement Specialist	6	Environment expert	20
Financial analyst	6		

Social safeguard specialist	6		
Environment expert specialist	6		
Total	**86**	**Total**	**105**

Source: Asian Development Bank.