



Report and Recommendation of the President to the Board of Directors

Project Number: 49111-005
July 2019

Proposed Loan and Technical Assistance Grant Democratic Socialist Republic of Sri Lanka: Railway Efficiency Improvement Project

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Asian Development Bank

CURRENCY EQUIVALENTS

(as of 11 June 2019)

Currency unit	–	Sri Lanka rupee/s (SLRe/SLRs)
SLRe1.00	=	\$0.0057
\$1.00	=	SLRs176.45

ABBREVIATIONS

ADB	–	Asian Development Bank
EIRR	–	economic internal rate of return
GDP	–	gross domestic product
km	–	kilometer
km ²	–	square kilometer
MOTCA	–	Ministry of Transport & Civil Aviation
PAM	–	project administration manual
PMU	–	project management unit
SLGRTTC	–	Sri Lanka German Railway Technical Training Center
SLR	–	Sri Lanka Railways
TA	–	technical assistance

NOTES

- (i) The fiscal year (FY) of the Government of Sri Lanka ends on 31 December.
- (ii) In this report, "\$" refers to United States dollars.

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PROJECT AT A GLANCE

1. Basic Data		Project Number: 49111-005	
Project Name	Railway Efficiency Improvement Project	Department /Division	SARD/SATC
Country Borrower	Sri Lanka Democratic Socialist Republic of Sri Lanka	Executing Agency	Ministry of Transport and Civil Aviation
2. Sector	Subsector(s)	ADB Financing (\$ million)	
✓ Transport	Rail transport (non-urban)		160.00
		Total	160.00
3. Strategic Agenda	Subcomponents	Climate Change Information	
Inclusive economic growth (IEG)	Pillar 1: Economic opportunities, including jobs, created and expanded	CO ₂ reduction (tons per annum)	6,725
Environmentally sustainable growth (ESG)	Global and regional transboundary environmental concerns	Climate Change impact on the Project	Low
		ADB Financing	
		Adaptation (\$ million)	0.13
		Mitigation (\$ million)	147.70
4. Drivers of Change	Components	Gender Equity and Mainstreaming	
Governance and capacity development (GCD)	Institutional development	Some gender elements (SGE)	✓
5. Poverty and SDG Targeting		Location Impact	
Geographic Targeting	No	Nation-wide	High
Household Targeting	No		
General Intervention on Poverty	No		
SDG Targeting	Yes		
SDG Goals	SDG9, SDG13		
6. Risk Categorization:	Low		
7. Safeguard Categorization	Environment: B Involuntary Resettlement: C Indigenous Peoples: C		
8. Financing			
Modality and Sources		Amount (\$ million)	
ADB		160.00	
Sovereign Project (Regular Loan): Ordinary capital resources		160.00	
Cofinancing		0.00	
None		0.00	
Counterpart		32.00	
Government		32.00	
Total		192.00	
Note: An attached technical assistance will be financed on a grant basis by the Technical Assistance Special Fund (TASF-OTHERS) in the amount of \$1,000,000.			
Currency of ADB Financing: USD			

SRI LANKA RAILWAY EFFICIENCY IMPROVEMENT PROJECT

-  Focus Rail Station
 -  Other Rail Station
 -  Kelani Valley Line
 -  Coast Line
 -  Main Line
 -  Puttalam Line
 -  Proposed Light Rail Transit (Japan International Cooperation Agency)
 -  Road
 -  National Capital
 -  Chief Provincial Town
 -  City/Town
- Boundaries are not necessarily authoritative.

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I. THE PROPOSAL

1. I submit for your approval the following report and recommendation on a proposed loan to the Democratic Socialist Republic of Sri Lanka for the Railway Efficiency Improvement Project. The report also describes proposed technical assistance (TA) for Strengthening of Management Information Systems and Asset Management Capacity, and if the Board approves the proposed loan, I, acting under the authority delegated to me by the Board, approve the TA.

2. The proposed project is the first project loan of the Asian Development Bank (ADB) in Sri Lanka's railway sector, and will finance high-impact subprojects to modernize the country's railway network by improving the operational efficiency, maintenance capacity, safety management, skills development, and implementation capacity of Sri Lanka Railways (SLR). The main components to be financed by the project include modern: (i) telecommunication system, (ii) ticketing system, (iii) operations headquarters and train control center, (iv) railway workshops, (v) maintenance equipment, (vi) housing blocks, and (vii) technical training center. By strengthening the efficiency and sustainability of railway operations, the project will (i) promote inclusive economic growth and the development of competitive services and industries across Sri Lanka; and (ii) contribute to expanding the market share of railway transport and mitigating the impacts of road congestion, particularly in suburban Colombo.

II. THE PROJECT

A. Rationale

3. **Country context.** Sri Lanka benefits from an advantageous geographical position at the crossroads of major maritime trade routes between Asia and Europe. It is densely populated with about 346 people per square kilometer (km²), a land area of 62,710 km², and a population of 21.7 million.¹ Colombo is the center of commercial and administrative functions and accounts for 54.6% of Sri Lanka's urban population. The Western Province includes the districts of Colombo, Gampaha, and Kalutara, where 6.1 million people (28% of the country total) are concentrated on 5.6% of the country's land area, and 38.7% of the gross domestic product (GDP) is generated.²

4. **Economic performance.** After a strong post-war recovery period, with annual GDP growth averaging 8.5% during 2009–2012, growth moderated to 4.1% during 2012–2018, and is forecast to continue at 4.1% in 2019.³ With a gross national income per capita of \$3,840 in 2017, Sri Lanka is on the path to achieving upper middle-income status, and the poverty headcount ratio decreased from 22.7% of the population in 2002 to 4.1% in 2016. However, inadequate transport infrastructure and services delivery hinders the development of industry and services, which account for 91.8% of the GDP, and prevents Sri Lanka from leveraging its geographical position to increase its competitiveness and promote inclusive economic growth. Exports increased by only 2.7% during 2007–2017, while imports increased by 7.3% in the same period.

5. **Travel demand.** The population of Sri Lanka is projected to stabilize at 25.0 million by 2050.⁴ The rising affluence of the middle class is driving a rapid increase in motorization rates. The total number of vehicles increased by 8.8% per year from 3.1 million to 7.2 million during 2007–2017, with 67% of new cars registered in the Western Province. The stagnating efficiency

¹ Compared with 1,265 people per km² in Bangladesh, 450 in India, 204 in Nepal, 255 in Pakistan, and 135 in Thailand.

² Government of Sri Lanka, Department of Census and Statistics. 2018. *Population Estimates by District*. Colombo.

³ ADB. 2019. *Country Information Note: Sri Lanka*. Manila.

⁴ United Nations Population Fund. 2017. *Population Dynamics and Development in Sri Lanka*. Colombo. Driven by internal migration, the population of the Western Province is forecast to increase to up to 8.8 million by 2030.

of the railway network has led to a decline in its market share to about 6% of passenger and 1% of freight demand in 2017 from a peak of 35% of passenger and 80% of freight markets. This results in increasing congestion, particularly in the Western Province, where daily motorized trips are forecast to increase from 7.9 million trips in 2013 to 18.3 million by 2035, while roads cover only about 10.7% of the urban area of Colombo.⁵ Significant investments are thus required to expand the railway market share, in order to increase domestic trade, alleviate the growing pressure on the road network, and mitigate the negative economic impacts of congestion.

6. **Railway network.** Colombo is the central node of the railway, road, air, and port infrastructure networks.⁶ Established in 1858, SLR owns and operates the railway network, and is administratively set up as a department of the Ministry of Transport & Civil Aviation (MOTCA). In 2017, the railway network connected 343 stations along 1,568 kilometers (km) of broad-gauge tracks, and SLR operated about 351 passenger trains and 19 freight trains daily, transporting 136.7 million passengers and 2.0 million tons of goods annually. Four suburban lines radiate out of Colombo, and the 230 km of tracks in the Western Province (16% of the country total) carry over 80% of railway passengers.⁷ SLR owns 250 diesel locomotives and multiple units, but only 76% are operational and 49% of the fleet is more than 30 years old. Tracks and rolling stock suffer from corrosion due to airborne salinity, which hinders the potential for rehabilitation. Signaling mainly consists of an outdated mechanical interlocking system, and only 200 km of tracks in the Western Province are under centralized control. The telecommunication system was installed in 1985, and no spare parts have been received since 1998. Automation is limited, and most of the planning, operating, and recording activities are done manually.

7. **Operational and financial performance.** SLR's aging infrastructure hampers its operational and financial performance, and in turn limits its investment and maintenance capacity. The challenges SLR faces include (i) operational inefficiencies, with low average speeds, frequent delays, insufficient train frequency, and over-capacity operation of trains in peak hours; (ii) inadequate maintenance capacity and a large maintenance backlog; (iii) a poor safety record, including a high incidence of encroachment on railway tracks and frequent accidents at level crossings; and (iv) an inadequately trained workforce with low productivity and limited knowledge of new technologies.⁸ SLR's financial position is weak: passenger traffic generated about \$35.7 million in 2017, or only \$0.004 per passenger-km, and non-passenger revenues amounted to \$7.5 million or \$0.020 per ton-km.⁹ The operating ratio of 1.96 highlights the need to improve SLR's financial performance to strengthen its sustainability, notably by reducing operational losses, improving governance, and leveraging land assets to develop new revenue streams.

8. **Sector road map.** The National Transport Policy, 2018, and the Public Investment Programme, 2017–2020, provide directions for the railway sector and aim to modernize the railway network, improve SLR's operational and financial performance, and increase the railway

⁵ Compared to 25.7% for Paris, 25.0% for London, 21.6% for Inner Tokyo, 13.6% for Seoul, and 7.1% for Bangkok. Japan International Cooperation Agency. 2014. *Urban Transport Master Plan*. Tokyo.

⁶ In 2017, the dense road network comprised 12,400 km of national roads and highways, and 104,900 km of secondary roads. Colombo international airport handled 99% of the 9.8 million international air passengers, while short distances restrict domestic air travel. Colombo port handled about 81.8 million tons of cargo, or 94.6% of the country total.

⁷ Government of Sri Lanka, Department of Sri Lanka Railway. 2018. *Performance Report 2017*. Colombo.

⁸ Operational speeds in suburban Colombo are under 30 km per hour. Over 47% of passenger trains are delayed by an average of 35 minutes due to frequent failures of the signaling and telecommunication systems. A mean time between engine failures of 17 hours also results in 6% of trains being cancelled. More than 2,500 households live within 1 meter of railway tracks, notably on the Kelani Valley line. In 2017, there were 125 derailments, 196 recorded deaths mainly due to collisions with pedestrians, in addition to over 38 cattle and 12 elephant deaths.

⁹ Compared to revenues of \$0.009 per passenger-km and \$0.033 per ton-km in Bangladesh. In India, where freight accounts for 68.8% of total revenues, revenues are \$0.006 per passenger-km and \$0.025 per ton-km.

market share to 10% of passenger and 5% of freight demand in 2020 by leveraging the competitive advantage of rail transport in three market segments: suburban passenger services in Colombo and Kandy, freight transport, and competitive long-distance express services.¹⁰ Investment priorities are to (i) rehabilitate and increase the rolling stock fleet; (ii) expand railway lines and improve track capacity; (iii) improve signaling and telecommunications; (iv) enhance railway stations, and ticketing and information systems; (v) improve railway land management; (vi) increase private sector participation; and (vii) rationalize subsidies and tariffs. The program complements urban transport strategies for Colombo and the Western Province that aim to develop multimodal hubs and a rapid transit network.¹¹

9. **ADB's interventions.** The project is consistent with the objectives set out in the country partnership strategy, and is included in ADB's country operations business plan for Sri Lanka, 2019–2021.¹² ADB aims to support the government's inclusive and sustainable growth strategy by (i) strengthening growth drivers to increase productivity and diversify economic activities; and (ii) reducing poverty and inequality, notably through more efficient, integrated, and sustainable rail transport. ADB plans to develop a long-term partnership with Sri Lanka in the railway sector, to improve its railway infrastructure, and strengthen SLR's institutional, operational and financial capacity. ADB's interventions include (i) a TA approved in 2015 to prepare a prefeasibility study for suburban railway improvements, which assisted in defining the outputs of the project; (ii) a TA loan, approved in 2016 to prepare feasibility and detailed design studies for four suburban lines; and (iii) a TA approved in 2017 to prepare a railway master plan that will include an institutional development plan, identify and prioritize investments, and develop operational, commercial, and financial strategies to improve SLR's sustainability.¹³ ADB is expected to finance the Kelani Valley line in 2021, followed by future improvements of the Main, Coast, and Puttalam lines.

10. **Project design.** The project was prepared to support immediate improvements in the operations, maintenance, safety, skills development, and implementation capacity of SLR. The project will (i) address key operational bottlenecks with the modernization of the ticketing, telecommunication, operations headquarters, and train control center systems; (ii) upgrade the railway workshop at Ratmalana, and procure rolling stock and track maintenance equipment; (iii) improve railway safety, mainly through the construction of housing blocks to support the future resettlement of informal dwellers, and improvements of the Colombo Fort and Maradana stations; (iv) upgrade the Sri Lanka German Railway Technical Training Center (SLGRTTC), established in 1983 with support of the Federal Republic of Germany; and (v) support project implementation capacity and readiness, notably for the future modernization of the Kelani Valley line and other suburban lines. The project will increase the efficiency and attractiveness of the railway system, thus contributing to the improvement of SLR's market share and financial sustainability.

11. **Value added by ADB assistance.** ADB's value addition includes improved railway operation for climate change mitigation, and enhanced safety and maintenance capacity. Consulting services packages will support the implementation of a land asset management and value capture strategy to develop new income streams, and the attached TA will improve management information and maintenance planning capacity.

¹⁰ Government of Sri Lanka, MOTCA. 2018. *National Transport Policy*. Colombo; and Government of Sri Lanka, Ministry of National Policies and Economic Affairs. 2017. *Public Investment Programme, 2017–2020*. Colombo.

¹¹ Government of Sri Lanka, Ministry of Megapolis and Western Development. 2016. *Western Region Master Plan 2030*. Colombo; and Japan International Cooperation Agency. 2014. *Urban Transport Master Plan*. Tokyo.

¹² ADB. [Country Partnership Strategy: Sri Lanka, 2018–2022—Transition to Upper Middle-Income Country Status](#); and ADB. [Country Operations Business Plan: Sri Lanka, 2019–2021](#).

¹³ ADB. [Sri Lanka: Colombo Suburban Railway Project](#); ADB. [Sri Lanka: Transport Project Preparatory Facility](#); and ADB. [Sri Lanka: Railway Master Plan](#). The master plan is expected to be completed in December 2019.

B. Impact and Outcome

12. The project is aligned with the following impact: efficient, inclusive, safe, and sustainable movement of people and goods promoted to support sustainable economic development (footnote 10, Public Investment Programme). The project will have the following outcome: efficiency, safety, and sustainability of railway operations in Sri Lanka improved.¹⁴

C. Outputs

13. **Output 1: Operational efficiency improved.** The project will improve three operational bottlenecks by (i) procuring island-wide, long-term evolution telecommunications equipment to replace the system installed in 1985, which does not reach all stations, and cannot communicate with train drivers since the telegraph network was dismantled; (ii) installing a modern multichannel (paper, mobile, and smart card) system to replace the cumbersome ticketing system, which requires more than 60,000 ticket combinations to be printed on custom-made paper; and (iii) constructing a modern operations headquarters and train control center to replace both the current headquarters, which cannot accommodate all operations departments of SLR, and the outdated control center opened in 1962 to monitor railway operations in the Western Province.

14. **Output 2: Maintenance capacity strengthened.** The project will construct three workshops at SLR's main maintenance facility at Ratmalana for engine overhaul and testing and repair of coach brakes. The project will also procure equipment to improve track and ballast alignments, locomotive engine cleaning, and motor parts repair. The attached TA will support the development of a detailed road map for the implementation of an asset maintenance strategy.

15. **Output 3: Railway safety improved.** The project will construct housing blocks to enable the future resettlement of informal dwellers on the right-of-way of the Kelani Valley line.¹⁵ Over 2,000 households live on the right-of-way within a meter of passing trains, resulting in frequent accidents and low operating speeds. The project will also upgrade an old railway underpass between two major stations in Colombo to improve traffic and pedestrian safety, and improve passenger safety and facilities at Colombo Fort and Maradana, the network's largest stations.

16. **Output 4: Technical training center upgraded.** The SLGRTTC will be upgraded with a new training wing, a train simulator, and equipment packages to support the modernization of the current four curricula and the development of six new curricula. The center, established in 1983, produced 83 graduating students in 2017 from its four technical and vocational courses for machinists, diesel engine mechanics, electricians, and welders. While it is well-maintained and provides a valuable source of staff for SLR, its facilities and curricula need to be improved to support SLR's long-term modernization program and changing skill set requirements.

17. **Output 5: Project implementation capacity and readiness of future railway projects strengthened.** The project will finance consulting services to (i) carry out a study on transit-oriented development and land value capture, (ii) prepare a railway asset inventory and a land management strategy, (iii) prepare a feasibility and detailed design study for the Kandy suburban railway network, and (iv) provide safeguard and gender support for the preparation of upcoming projects. Consulting firms and independent consultants will also be engaged for supervision, advisory, and capacity-building services required for the implementation of outputs 1–4.

¹⁴ The design and monitoring framework is in Appendix 1.

¹⁵ Relocation will be carried out as part of a separate project for the Kelani Valley line. The project is under preparation with ADB support, considered for ADB financing, and relocation will comply with ADB's Safeguard Policy Statement.

D. Summary Cost Estimates and Financing Plan

18. The project is estimated to cost \$192.0 million (Table 1). Detailed cost estimates by expenditure category and by financier are included in the project administration manual (PAM).¹⁶

Table 1: Summary Cost Estimates (\$ million)

Item	Amount ^a
A. Base Cost^b	
1. Operational efficiency improved	72.12
2. Maintenance capacity strengthened	27.95
3. Railway safety improved	27.77
4. Technical training center upgraded	16.58
5. Project implementation capacity and readiness of future railway projects strengthened	16.89
Subtotal (A)	161.30
B. Contingencies^c	22.00
C. Financial Charges During Implementation^d	8.71
Total (A+B+C)	192.00

Note: Numbers may not sum precisely because of rounding.

^a Includes taxes and duties of \$24.3 million. This amount does not represent an excessive share of the project cost. The government will finance taxes and duties of \$19.8 million by cash contribution for civil works and equipment, and the Asian Development Bank will finance taxes and duties of \$4.5 million for consulting services.

^b In mid-2019 prices as of 22 January 2019.

^c Physical contingencies computed at 10.0% for information technology equipment and consulting services, 7.5% for civil works, and 5.0% for goods. Price contingencies computed at an average of 4.9% on foreign exchange costs and 10.5% 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 the ordinary capital resources loan has been computed at the 5-year United States dollar fixed swap rate plus an effective contractual spread of 0.50% and a maturity premium of 0.20%. Commitment charges for the ordinary capital resources loan are 0.15% per year to be charged on the undisbursed loan amount.

Source: Asian Development Bank estimates.

19. The government has requested a regular loan of \$160.0 million from ADB's ordinary capital resources to help finance the project. The loan will have a 29-year term, including a grace period of 8 years; an annual interest rate determined in accordance with ADB's London interbank offered rate (LIBOR)-based lending facility; a commitment charge of 0.15% per year (the interest and other charges during construction to be capitalized in the loan); and such other terms and conditions set forth in the draft loan agreement. Based on the straight-line method, the average maturity is 18.75 years, and the maturity premium payable to ADB is 0.20% per year.¹⁷

20. The summary financing plan is in Table 2. ADB will finance the expenditures in relation to civil works, equipment, consulting services, and financing charges during construction. The government will finance part of taxes and duties and contingencies, for a total of \$32.0 million.

Table 2: Summary Financing Plan

Source	Amount (\$ million)	Share of Total (%)
Asian Development Bank		
Ordinary capital resources (regular loan)	160.00	83.33
Government of Sri Lanka	32.00	16.67
Total	192.00	100.00

Source: Asian Development Bank estimates.

¹⁶ Project Administration Manual (accessible from the list of linked documents in Appendix 2).

¹⁷ This is based on the above loan terms and the government's choice of repayment option and dates.

21. Climate mitigation is estimated to cost \$162.1 million, and climate adaptation \$0.15 million. ADB will finance 91.1% of climate mitigation and 91.1% of climate adaptation costs.¹⁸

E. Implementation Arrangements

22. The project will be implemented by SLR, through the project management unit (PMU) set up under MOTCA to implement the railway component of the Transport Project Preparatory Facility.¹⁹ SLR deposes staff to the PMU, and assets created under the project will be for the benefit of SLR; while the PMU oversees all technical, procurement, financial management, accounting, auditing, monitoring, reporting, and implementation activities under the project. Implementation arrangements are summarized in Table 3 and detailed in the PAM (footnote 16).

Table 3: Implementation Arrangements

Aspects		Arrangements	
Implementation period	September 2019–December 2024		
Estimated completion date	31 December 2024		
Estimated loan closing date	30 June 2025		
Management			
(i) Oversight body	Project Steering Committee; Department of External Resources, Ministry of Finance; Department of Project Management and Monitoring, Ministry of National Policies and Economic Affairs, Resettlement and Rehabilitation, Northern Province Development and Youth Affairs; Ceylon Electricity Board; Ministry of Megapolis and Western Development; Ministry of Telecommunication, Foreign Employment and Sports; Road Development Authority; Urban Development Authority		
(ii) Executing agency	Ministry of Transport & Civil Aviation		
(iii) Implementing agency	Department of Sri Lanka Railway		
(iv) Management unit	Colombo Suburban Railway Project-Project Management Unit		
Procurement	International competitive bidding	2 information technology contracts	\$44.5 million
		4 design–build contracts	\$52.5 million
		2 large works contracts	\$4.4 million
		11 goods contracts	\$13.2 million
	National competitive bidding	10 goods contracts	\$2.5 million
Consulting services	Project implementation and project preparation consultants (QCBS 90:10)	308 person-months of international services and 1,955 person-months of national services (6 contracts)	\$21.4 million
	Individual consultants	30 IPM, 100 NPM	\$1.0 million
Retroactive financing and advance contracting	ADB will provide retroactive financing for expenditures incurred by MOTCA prior to loan effectiveness but not earlier than 12 months before the date of signing of the loan agreement and not exceeding 20% of the loan amount.		
Disbursement	The loan proceeds will be disbursed following ADB's <i>Loan Disbursement Handbook</i> (2017, as amended from time to time) and detailed arrangements agreed between the government and ADB.		

ADB = Asian Development Bank, QCBS = quality- and cost-based selection.

Source: Asian Development Bank.

III. ATTACHED TECHNICAL ASSISTANCE

23. The transaction TA for Strengthening of Management Information Systems and Asset Management Capacity will support the implementation of three outputs:

- (i) **Management information system modernization strategy developed.** The TA will prepare a road map for the implementation of a modern information system through the preparation of a business process map, resource planning framework, integration plan, and functional software requirement specifications.

¹⁸ Climate Change Assessment (accessible from the list of linked documents in Appendix 2).

¹⁹ ADB. [Sri Lanka: Transport Project Preparatory Facility](#).

- (ii) **Implementation road map for the asset management strategy prepared.** The TA will define an overall framework for the delivery and implementation of the infrastructure and rolling stock maintenance strategy, identify information technology options to support the strategy, and develop a staged implementation program for hardware and software solutions.
- (iii) **Pilot program for an accounting and ticketing module implemented.** The TA will prepare and implement a small-scale pilot program for an identified software gap, with accounting and ticketing identified as a priority potential subproject.

24. The TA is estimated to cost \$1,100,000, of which \$1,000,000 will be financed on a grant basis by ADB's Technical Assistance Special Fund (TASF-Others).²⁰ The government will provide counterpart support in the form of counterpart staff, data, maps, and other in-kind contributions.

IV. DUE DILIGENCE

A. Technical

25. The project was designed to provide immediate improvements in the operational efficiency, maintenance, and safety of railway operations. It will address operational bottlenecks, reduce delays due to communication failures, decrease waiting times and operating costs with a modern ticketing system, and improve traffic management. Safety will be strengthened, notably through the construction of housing blocks to support the future relocation of informal dwellers on the right-of-way of existing lines. Improvements of the main workshop facilities at Ratmalana, and procurement of track and rolling stock maintenance equipment are priority interventions for the long-term improvement of SLR's maintenance capacity. Physical and institutional improvements to the SLGRTTC will support skills building for modern rail operations. The project was designed to garner external support by providing improvements with high external visibility, such as the ticketing system, and internal institutional support by addressing operational gaps across most of SLR's subdepartments. The project also supports institutional capacity building to facilitate the preparation of pipeline projects, including the improvement of the Kelani Valley line, for which detailed design studies are being prepared with ADB assistance (footnote 19).

B. Economic and Financial

26. **Economic viability.** The economic evaluation of the project was conducted in accordance with ADB's guidelines, by comparing life cycle costs in with- and without-project cases, using a 9% discount rate and the economic internal rate of return (EIRR) as decision criteria.²¹ The project is expected to deliver significant benefits through travel time savings from improved operational efficiency, maintenance cost savings, vehicle operating cost savings from avoided road travel, safety benefits, and greenhouse gas emission savings. The EIRR of the project is estimated at 13.1%. Sensitivity analysis demonstrated the robustness of the economic viability of the project under adverse changes in costs and benefits, with the EIRR decreasing to 9.9% under the most sensitive scenario involving a 10% increase in capital costs and a 10% decrease in benefits.

27. **Financial sustainability.** The project was not designed to be revenue-generating, and as SLR is a government department, the financial analysis assessed its capacity to sustain the project's incremental recurrent costs.²² In the context of a tight fiscal space, budgetary support

²⁰ Attached Technical Assistance Report (accessible from the list of linked documents in Appendix 2).

²¹ ADB. 2017. *Guidelines for the Economic Analysis of Projects*. Manila.

²² ADB. 2005. *Guidelines on the Financial Management and Analysis of Projects*. Manila.

has been strong, and SLR's budget for recurrent expenses increased by 5.3% per year, in real terms, during 2012–2018. While operating revenues increased by 5.7% per year in the same period, the operating ratio of 1.96 indicates a potential sustainability gap. The annual life cycle incremental recurrent costs of the project components are estimated at \$4.9 million, or 2.3% of SLR's overall budget. This represents a high sustainability risk, particularly for equipment and goods that account for 73% of recurrent costs. To assist with maintenance liabilities, the contracts for goods and equipment include up to 8 years of warranty and maintenance by the private sector.

28. The project will also attract additional demand and reduce unit operation and maintenance costs, resulting in a net operating profit increase of \$6.7 million, which is higher than the incremental recurrent costs of the project. Thus, the project is expected to have a net positive impact on SLR's sustainability. However, the project's sustainability risk remains high, and the maintenance of project assets will be monitored during implementation. The analysis strengthens the need for strong support to the government in implementing the institutional, operational, tariff, and accounting reform action plan under preparation by the railway master plan (footnote 13). Support for policy reforms will be actively considered for ADB's subsequent large-scale infrastructure investment project, planned in 2021 for the improvement of the Kelani Valley line.

C. Governance

29. **Institutional capacity.** MOTCA is the executing agency, and has sufficient capacity and experience to procure works and equipment, select consultants, and administer contracts. The PMU will be the primary implementing and management entity of the project. It was established to oversee feasibility and detailed design studies of four suburban railway lines in Colombo, and is headed by a project director, who reports to the secretary of MOTCA (footnote 19). SLR is a department under MOTCA, and is headed by a general manager overseeing 13 subdepartments. SLR mainly focuses on its day-to-day operational requirements, and deputes technical staff to the PMU. Frequent meetings are held with the Railway Steering Committee to ensure close collaboration with the PMU and SLR. The project will improve the capacity of the PMU in project preparation, implementation, accounting, and compliance with ADB requirements. The capacity of the PMU is being strengthened through consulting services contracts, which include training for design, contract management, safeguards, and quality assurance.

30. **Financial management.** The financial management risk is assessed as moderate, as the PMU is successfully implementing an ongoing ADB project. However, project financial records are mostly maintained manually, and the PMU requires additional human resources and training. The PMU has agreed to implement a financial management action plan that includes procurement of a management information system and training on disbursement, financial management, and ADB's procedures. The attached TA will also prepare the modernization of SLR's management information system, which is a prerequisite for the introduction of management accounting in SLR.

31. **Procurement.** The assessment of the procurement capacity of the PMU has concluded that it has a reasonable capacity to undertake procurement activities under the project, and the overall procurement risk is *moderate*. The PMU is staffed by officials from MOTCA and SLR who have adequate procurement experience, and international consultants have been engaged to supplement its technical capacity. Procurement will be carried out in accordance with ADB's Procurement Guidelines (2015, as amended from time to time). All consulting firms will be recruited using the quality- and cost-based selection method with a quality–cost ratio of 90:10. Advance actions started in May 2018 for the recruitment of project implementation consultants, and in September 2018 for the procurement of the telecommunication and ticketing systems.

32. ADB's Anticorruption Policy (1998, as amended to date) was explained to and discussed with the government and MOTCA. The specific policy requirements and supplementary measures are described in the PAM (footnote 16).

D. Poverty, Social, and Gender

33. **Poverty.** The project is expected to improve access to economic and social opportunities for project beneficiaries, including train passengers across all ticketed classes, and freight transport users. Although the project does not directly target the poor, it will support their mobility needs, as the railway remains one of the most affordable transport modes in Sri Lanka. The project is expected to have limited impacts on the incidence of HIV/AIDS and human trafficking.

34. **Gender.** The project is categorized *some gender elements*. Women will benefit equally from the project as they are prominent railway users. The project's gender benefits include improved public transport accessibility; improved access to services and markets; inclusive and gender-friendly improvements to railway stations and housing blocks for the elderly, women, children, and disabled users; and increased opportunities for skills development at the SLGRTTC.

E. Safeguards

35. In compliance with ADB's Safeguard Policy Statement (2009), the project's safeguard categories are as follows.²³

36. **Environment (category B).** Six project components feature civil works: the construction of an office building, a training building, workshops, and housing blocks; the upgrading of a railway underpass; and the improvement of two stations. No significant and irreversible environmental impacts are expected, and impacts will be limited to the construction stage within the immediate vicinity of construction sites. Other anticipated impacts involve dust, noise, exhaust, construction and domestic waste, water contamination, occupational health and safety, erosion, siltation, and traffic congestion during the construction of the underpass. The initial environmental examination, submitted in August 2018, includes a composite environmental management plan and a grievance redress mechanism. Site-specific environmental management plans were prepared for all works components, will be included in respective bid documents, and provide mandatory mitigation measures to be implemented by contractors. Public consultations were carried out during project preparation and will continue during implementation. A reduction of carbon dioxide emissions is expected due to the modal shift from road- to rail-based transport.

37. **Involuntary resettlement (category C).** All civil works under the project will be undertaken on land owned by SLR, and no land acquisition is required. Due diligence conducted to determine the potential impacts of construction on structures and livelihoods on SLR land indicates that there are no private occupants or businesses on the sites. Hence, the project is not expected to entail involuntary resettlement due to land acquisition or restriction of access. The project implementation consultant will conduct periodic monitoring to verify that there are no adverse impacts during implementation, and that consultation, information disclosure, and grievance redress are carried out throughout the construction period.

38. **Indigenous peoples (category C).** Due diligence carried out during project preparation indicates that there are no indigenous peoples' communities in the urban and suburban project sites. Hence, no impacts on indigenous peoples are expected under the project.

²³ ADB. [Safeguard Categories](#).

F. Summary of Risk Assessment and Risk Management Plan

39. Significant risks and mitigating measures are summarized in Table 4 and described in detail in the risk assessment and risk management plan.²⁴ The overall risk assessment is *moderate*. The integrated benefits and impacts are expected to outweigh the costs.

Table 4: Summary of Risks and Mitigating Measures

Risks	Mitigation Measures
New technologies and resistance to change delays effectiveness.	The labor force of Sri Lanka Railways (SLR) requires adequate training to ensure successful adoption of modern technologies in planning, operation, maintenance, and administration. The project will support the modernization of the technical training center of SLR and was designed to support all subdepartments of SLR.
Financial sustainability is uncertain due to external debt.	Sri Lanka's debt service repayments are expected to significantly increase during 2019–2027, and credit rating agencies downgraded Sri Lanka's rating in December 2018. The grace period of the loan will be increased to 8 years to assist with the sustainability of Sri Lanka's outstanding debt repayments.
Maintenance is inadequate due to insufficient budgetary allocation.	The government has consistently provided the budget to cover recurrent expenses of SLR, which is a department under its parent ministry. Railway fares were increased by 15% on 1 October 2018, and the Asian Development Bank is supporting the preparation of a tariff formula. The project will assess the development of additional revenue streams through land value capture.

Source: Asian Development Bank.

V. ASSURANCES AND CONDITIONS

40. The government and MOTCA have assured ADB that implementation of the project shall conform to all applicable ADB policies, including those concerning anticorruption measures, safeguards, gender, procurement, consulting services, and disbursement as described in detail in the PAM and loan documents.

41. The government and MOTCA have agreed with ADB on certain covenants for the project, which are set forth in the draft loan agreement.

VI. RECOMMENDATION

42. I am satisfied that the proposed loan would comply with the Articles of Agreement of the Asian Development Bank (ADB) and recommend that the Board approve the loan of \$160,000,000 to the Democratic Socialist Republic of Sri Lanka for the Railway Efficiency Improvement Project, from ADB's ordinary capital resources, in regular terms, with interest to be determined in accordance with ADB's London interbank offered rate (LIBOR)-based lending facility; for a term of 29 years, including a grace period of 8 years; and such other terms and conditions as are substantially in accordance with those set forth in the draft loan agreement presented to the Board.

Takehiko Nakao
President

16 July 2019

²⁴ Risk Assessment and Risk Management Plan (accessible from the list of linked documents in Appendix 2).

DESIGN AND MONITORING FRAMEWORK

Impact the Project is Aligned with Efficient, inclusive, safe, and sustainable movement of people and goods promoted to support sustainable economic development (Public Investment Programme, 2017–2020) ^a			
Results Chain	Performance Indicators with Targets and Baselines	Data Sources and Reporting	Risks
Outcome Efficiency, safety, and sustainability of railway operations in Sri Lanka improved	By 2025: a. Average delay per passenger reduced by 10% (2018 baseline: 15.8 minutes per passenger) b. Total railway accidents on the network decreased by 4% (2017 baseline: 213 accidents) c. Students benefiting from improved training facilities of the SLGRTTC increased by 40% (of which 5% are female) (2017 baseline: 181 students and 1% female) ^b	a–c. SLR annual performance reports	Reduced economic growth results in passenger ridership below traffic forecasts.
Outputs 1. Operational efficiency improved	By 2024: 1a. Long-term evolution telecommunication system installed at 343 stations and 275 trainsets (2018 baseline: 0 stations and 0 trainsets) 1b. Multi-sales and multi-payment channels smart ticketing and seat reservation system operational, with 50 ticket vending machines installed (2018 baseline: 0 ticket vending machines) 1c. Operations headquarters and train control center constructed (2018 baseline: Not applicable)	1a–c. PCR and monitoring reports by SLR	New technologies and resistance to change delay implementation and effectiveness.
2. Maintenance capacity strengthened	By 2024: 2a. One railway workshop and two stores at Ratmalana constructed for locomotive and coach repairs and brake testing (2018 baseline: Not applicable) 2b. Rolling stock and track maintenance equipment procured (2018 baseline: Not applicable)	2a–b. PCR and monitoring reports by SLR	
3. Railway safety improved	By 2024: 3a. 300 housing units constructed, with inclusive features for elderly people, women, children, and people with disabilities installed ^d (2018 baseline: 0) 3b. Railway underpass for roads and pedestrians between Maradana and Dematagoda upgraded (2018 baseline: Not applicable)	3a–c. PCR and monitoring reports by SLR	

Results Chain	Performance Indicators with Targets and Baselines	Data Sources and Reporting	Risks
	3c. Passenger facilities modernized, with improved sanitary facilities, including separate sanitary facilities for women, and breastfeeding and diaper-changing room, at Maradana and Colombo Fort stations ^c (2018 baseline: Not applicable)		
4. Technical training center upgraded	By 2024: 4a. New training wing at the SLGRTTC constructed (2018 baseline: Not applicable) 4b. Train simulator procured and installed (2018 baseline: Not applicable) 4c. Institutional capacity strengthened, including six new curricula developed and four curricula upgraded (2018 baseline: Four curricula) 4d. 20 equipment packages procured to support modern railway operations and new curricula (2018 baseline: Not applicable)	4a–b. SLR annual performance report 4c–d. PCR and monitoring reports by SLR	
5. Project implementation capacity and readiness of future railway projects strengthened	By 2024: 5a. About 20 stations and 36 kilometers of tracks along the Kelani Valley line assessed for public–private partnership development, land value capture, and transit-oriented development options (2018 baseline: Not applicable) 5b. Railway asset inventory completed and land management strategy developed (2018 baseline: Not applicable) 5c. Feasibility and detailed design study completed for 55 kilometers of tracks in Kandy suburban railway system (2018 baseline: Not applicable) 5d. At least 20 staff of the project management unit and 50 staff of SLR trained in environmental safeguards, social safeguards, and gender, in accordance with the Asian Development Bank's Safeguard Policy Statement (2009), with women representing at least 25% of participants (2018 baseline: Not applicable)	5a–d. PCR and monitoring reports by SLR	

Key Activities with Milestones 1. Operational efficiency improved 1.1 Award contract for the telecommunications package by Q1 2020. 1.2 Award contract for the smart ticketing and seat reservation system by Q1 2020. 1.3 Award contract for the operations headquarters and train control center by Q1 2020. 1.4 Complete implementation of the telecommunication system by Q1 2022. 1.5 Complete implementation of the smart ticketing and seat reservation system by Q2 2024. 2. Maintenance capacity strengthened 2.1 Award contract for the new railway workshops at Ratmalana by Q1 2020. 2.2 Prepare business processes reengineering study for the enterprise resource planning and maintenance strategy by Q4 2021. 3. Railway safety improved 3.1 Complete design specifications for the housing blocks by Q2 2019. 3.2 Award contract for the housing blocks by Q2 2020. 3.3 Award contract for the railway underpass by Q3 2020. 3.4 Award contracts for the improvement of Colombo Fort and Maradana stations by Q3 2021. 4. Technical training center upgraded 4.1 Award contract for the improvement of the training center by Q1 2020. 4.2 Award consulting services contract for capacity building of the SLGRTTC by Q1 2020. 4.3 Award contract for the procurement and installation of a train simulator by Q3 2021. 5. Project implementation capacity and readiness of future railway projects strengthened 5.1 Award consulting services contract for project implementation consultants by Q2 2019. 5.2 Award consulting services contract for detailed design of Kandy railway by Q3 2019. 5.3 Award consulting services contract for social development specialists by Q3 2019. 5.4 Award consulting services contract for transit-oriented development and land value capture by Q1 2020.
Project Management Activities Ensure full staffing of the project management unit by Q3 2019. Ensure counterpart fund availability by Q3 2019.
Inputs Asian Development Bank: \$160.0 million (loan) Technical Assistance Special Fund (TASF-Others): \$1.0 million (grant) Government of Sri Lanka: \$32.0 million
Assumptions for Partner Financing Not applicable

PCR = project completion report, Q = quarter, SLGRTTC = Sri Lanka German Railway Technical Training Centre, SLR = Sri Lanka Railways.

^a Government of Sri Lanka, Ministry of National Policies and Economic Affairs. 2017. *Public Investment Programme, 2017–2020*. Colombo.

^b Target of about 253 students including 13 women by 2025, up from 181 students including 2 women in 2017.

^c Inclusive features for elderly people, women, children, and people with disabilities, such as bus stops and escalators, are also proactively being considered in the technical feasibility study.

^d Inclusive features notably include day care facilities within housing blocks to promote employment of women.

Source: Asian Development Bank.

LIST OF LINKED DOCUMENTS

<http://www.adb.org/Documents/RRPs/?id=49111-005-3>

1. Loan Agreement
2. Sector Assessment (Summary): Transport (Rail Transport [Nonurban])
3. Project Administration Manual
4. Contribution to the ADB Results Framework
5. Development Coordination
6. Economic and Financial Analysis
7. Country Economic Indicators
8. Summary Poverty Reduction and Social Strategy
9. Risk Assessment and Risk Management Plan
10. Attached Technical Assistance Report
11. Climate Change Assessment
12. Initial Environmental Examination

Supplementary Documents

13. Social Due Diligence Report: Construction of Operations Headquarters and Train Control Center at Maradana
14. Social Due Diligence Report: Construction of New Workshop and Stores for Chief Mechanical Engineer's Subdepartment at Ratmalana
15. Social Due Diligence Report: Reconstruction of Underpass for Roadway and Pedestrians at School Lane at Maligawatta
16. Social Due Diligence Report: Construction of Passenger Facilities at Colombo Fort and Maradana Railway Stations
17. Social Due Diligence Report: Construction of New Training Wing for Sri Lanka German Railway Technical Training Center at Ratmalana
18. Social Due Diligence Report: Construction of Housing Schemes