TERMS OF REFERENCE FOR CONSULTANTS

I. Introduction and Background

1. **Background.** The Government of Sri Lanka requested the Asian Development Bank (ADB) on February 2017 to support the preparation of a master plan for Sri Lanka’s railway sector development under a technical assistance (TA) grant. In response, ADB is processing a knowledge and support TA (with policy advice as nature of activity) for $1.5 million, for preparing the *Railway Master Plan* to be provided in Colombo. These terms of reference describe the services to be provided by the Consultants under the TA. Consultant recruitment is carried out as advance procurement action prior to approval of the TA. The consulting contract will be signed after effectiveness of the TA.

2. **Country context.** Sri Lanka has been successful in promoting inclusive and sustainable growth. Gross domestic product growth averaged 6% per year over the past decade. The incidence of poverty has declined, and the country has achieved most of the Millennium Development Goals. With Sri Lanka on the path to becoming an upper middle-income country, the main challenges to consolidate and advance this status are to (i) promote rapid, inclusive, and sustainable growth to reduce poverty and inequality; (ii) shift from a development model driven by debt-financed public spending to greater reliance on private investment, foreign direct investment, and exports; (iii) develop export capacity for future growth as the limited size of the domestic market (and demand) is a constraint; and (iv) diversify production and increase productivity across sectors to expand exports, participate in global value chains, and create productive jobs. Infrastructure development, especially in the Western Province and along the South-Western and North-Eastern development corridors, is essential to tackle these challenges.

3. **Transport sector.** Transport in Sri Lanka is mainly on the road network, which is centered on the capital and commercial hub, Colombo. Road transport accounts for about 93% of land transport in Sri Lanka. The country has 12,000 kilometers (km) of national highways and 152 km of expressways. The state-run Sri Lanka Transport Board and private companies provide bus services, the principal mode of public transport. The Sri Lanka Transport Board serves both urban and rural routes, which are often unprofitable. The railway network consists of a heavy-rail intercity network connecting the main cities of all nine provinces in the country with Colombo, and commuter rail services in Colombo and the Western Province. Sri Lanka has four deep-sea ports including Colombo Port, a major transshipment port in South Asia. It also has two international airports, one in Colombo and the other in Hambantota in the south.

4. **Railway subsector.** The Sri Lanka Railway Department under Ministry of Transport and Civil Aviation (MOTCA), which is branded Sri Lanka Railways (SLR), is the owner and primary operator. It began in 1858, and at its peak in the first half of the 20th century shouldered more than 80% of total freight transport and more than 35% of the passenger market. Successive governments focused mainly on running the rail network at the existing service level with limited investments in modernization, expansion of the capacity and network. The widespread expansion of the road network, gradual advancement of road-based motorized transportation, policy neglect of the railway system, and bureaucratic and noncommercial nature of the management system contributed to the stagnation. This weakened SLR’s performance and eroded its market share. SLR now handles less than 1% of freight and only about 5% of passengers.

5. **Government strategy.** The government’s strategy for public transport and the railway system, as outlined in the Public Investment Program, 2017–2020, is to meet the current and future passenger and goods transport demand by ensuring quality, safety, and affordability with
the widest possible modal mix and technological innovations to provide for mobility requirements. By 2020, the program intends to (i) double the share of railway passenger transport to 10% from 5% in 2015, (ii) increase the share of railway freight transport to 5% from 1%, and (iii) increase the share of public transport passenger movement to 65% from the present level of 58% in 2015. The government intends to achieve these targets by improving the railway system's institutions and management, harmonizing land use planning with infrastructure development, and enhancing multimodal integration. The railway system would have a competitive advantage in three strategic market segments: (i) suburban passenger service (in Colombo and Kandy, in particular); (ii) long distance express service, where the railway could be faster and more comfortable than road transportation and more economical than air transportation; and (iii) redevelopment of freight transportation, which could generate significant socioeconomic benefits, while bringing in revenues to improve the overall institutional economics.

II. Scope

6. The consultants will conduct a study to assess the characteristics of existing railway operations of existing and planned infrastructure, other assets such as railway land, rolling stock, and prepare the overall railway sector development framework. The consultants will further study the institutional set-up of the railway sector in Sri Lanka and prepare an institutional development plan. The TA will also identify potential future projects for public and private sector funding, including projects for possible ADB financing.

7. The scope of works shall include, but not be limited to, the following:

a. Traffic forecast and traffic demand analysis

   (i) Collect and review available socio-economic, travel, traffic, and planning data. In consultation with relevant stakeholders, plan, define and carry out additional surveys, interviews and data collection as necessary, such as infrastructure inventory survey, traffic count survey, boarding-alighting survey, loading survey, and/or stated preference survey.

   (ii) Carry out surveys and interviews with passengers and potential passengers or users of the railway as required to prepare the traffic forecast.

   (iii) Undertake an analysis of existing passenger and freight travel demand and its modal split distributions at a national level, using available and surveyed data.

   (iv) During collection, analysis and forecasting of traffic, provide also sex-disaggregated data to highlight the use and need of male and female passengers.

   (v) Identify opportunities and challenges for future railway passenger and freight traffic demand, such as mode shift potential, increasing motorization rate, infrastructure capacity constraints, and future possible industry developments.
(vi) Prepare a set of three reference traffic forecasts based on different socio-economic scenarios, for a minimum of two forecast years. For each of the reference socio-economic scenarios, prepare a set of infrastructure scenarios in accordance with tasks (b) and (e) below, and prepare passenger and freight traffic demand forecasts.

(vii) Based on the traffic forecasts, prepare maps and charts detailing the number of required trains, tentative spread (schedule) of trains over a typical day and/or week and capacity per train required to accommodate the projected traffic demand.

b. Assessment of railway operation and commercial strategies

(viii) Assess current mode of operation and the ability to satisfy the forecasted demand. Suggest different options for the use of updated railway operation practices and technologies to cope with the future demand.

(ix) Assess the relationship between the supply of infrastructure and rolling stock with operational requirements to satisfy the demand from the future role of the railway sector in Sri Lanka.

(x) Assess the passenger information system and discuss options for improvement.

(xi) Assess the relation between operation and commercial functions, carry out a critical analysis about the accounting process which needs to match railway operational accounting and government accounting requirements.

c. Assessment of infrastructure, rolling stock, operation and maintenance

(xii) Study the existing situation and assess the potential for future infrastructure from ongoing and planned projects, considering the probability of these projects being realized and their implementation schedule.

(xiii) Study multimodal connectivity of the public transport system and assess the pathways for improvement. Suggest potential improvements in the station vicinity and development of railway stations. Consider aspects of urban development in the station area and suggest improvements for selected typical sample stations.

(xiv) Suggest physical and operational efficiency improvements and propose alternative measures to remove barriers for intermodal connectivity.

(xv) Work with the Ministry of Environment and Natural Resources and the Ministry of Disaster Management to obtain information on climate, natural hazard, elevation and hydro-meteorological data for the existing and proposed railway network.

(xvi) Review operation and maintenance of the infrastructure and rolling stock and suggest improvements where needed.
(xvii) Assess the current infrastructure and rolling stock maintenance strategy, update the strategy considering future demand-centric railway operation, use of mechanized maintenance equipment and suggest improvement of maintenance facilities, maintenance planning, preparation and scheduling through IT-Systems and updated maintenance manuals and procedures. Prepare a list of maintenance equipment for infrastructure, rolling stock, and railway station maintenance.

(xviii) Identify needs for improvements of the existing infrastructure such as tracks, stations, maintenance and stabling facilities, signaling system, etc., to cater to the future traffic demand and desired train timetable.

(xix) Assess whether other methods of capacity improvement such as upgrading of the signaling system, extending platforms and operating longer trains and/or electrification of sections may be technically feasible and economically viable to cater to the forecast demand.

(xx) Review the operational performance of railway operations, identify possible cost and efficiency improvements, and prioritize necessary key actions.

(xxi) Assess the safety performance of the railway system and develop institutional, procedural and infrastructure recommendations to improve railway safety considering expected future demand, including railway level-crossing, station safety, passenger coach safety, station layout and footbridges, station accessibility, safety reporting and management procedures, or safety awareness campaigns.

(xxii) Assess the timetabling, project planning and project management capacity of SLR and provide specific recommendations on substantial institutional improvements and capacity development.

(xxiii) Prepare preliminary cost estimates for various improvement measures, and assess the economic viability of the proposed options.

(xxiv) Undertake a preliminary environmental assessment, social assessment, and assessment of the potential need for land acquisition and resettlement in particular for major priority infrastructure improvements. Assess the potential positive and negative impacts of the railway system development, on issues like public health and safety, HIV/AIDS risks, culture, water resource, habitat disruption, waste generation, etc.

(xxv) Study the safety and security issues of women using railway transport, its impacts on women’s mobility and economic empowerment and recommend strategies to address these issues.

(xxvi) Conduct a gender audit for the railway sector in Sri Lanka (covering rail operators, maintenance, government departments and agencies) and identify challenges for a gender equitable workforce; propose strategies to promote participation of women in all types of occupations.
d. **Institutional development plan for the Sri Lankan railway sector**

(xxvii) Review the organization structure of SLR and identify areas to improve the operational efficiency and the management and accounting for cost and revenues through an enhanced organization structure. Review the existing accounting structure and develop recommendations to establish a modern accounting structure based on international commercial practices.

(xxviii) Review SLR’s financial performance, analyze the revenue categories (currently approximately 30 types) and assess their viability, suggest a strategy such as concentrating on critical revenues while extending other services, evaluate the costing structure and suggest a pricing strategy, assess the source and nature of cost and revenue of the railway sector, and suggest options to reduce the operational deficit of SLR.

(xxix) Review the passenger and freight tariff structure, and support SLR and the MOTCA in establishing a tariff adjustment mechanism which aims at annual reviews of the tariff to offset inflation and other increase in operation cost, and targets to eliminate the operational deficit within the next 5 to 10 years. Identify the data source for annual tariff adjustments.

(XXX) Review opportunities and suggest solutions to integrate different modes of transport by an integrated tariff and/or coordinated electronic fare collection system, which may provide better incentives to use multimodal transport chains. Suggest solutions for a coordinated electronic fare collection system, and determine costs and benefits and institutional requirements to implement such system.

(XXxi) Identify the need for public service obligations for railway services that shall be provided to satisfy basic transport needs. Advise on options for targeted compensation to be provided to SLR for providing such public service obligation, e.g. based on concession agreements.

(XXxii) Define an institutional development plan and process realignment plan to support the modernization of the organizational structure of SLR and define the interface to the MOTCA. Identify the need for IT-based management information systems, enterprise resource system, and IT-based accounting system to support the implementation of the institutional development plan. To achieve the staff development plan and introduce IT-System, identify the needs for staff training for qualification of current staff.

(XXxiii) Identify the need for capacity development and training at the different levels of staff in SLR and the MOTCA and suggest a training strategy and training plan.

(XXxiv) Assess the need for a training center for SLR to provide railway sector related knowledge to newly recruited staff and support continuous learning on the job for the entire workforce. Assess the level of technical infrastructure required in the training center and suggest options for staffing and partnerships to provide such training.
(xxxv) Provide training on the methodology for establishing the master plan to enable SLR and the MOTCA to update the plan in regular intervals.

(xxxvi) Suggest a communications strategy for the communication between passengers and freight shippers and the railway management.

e. **Land Asset Management Unit**

(xxxvii) Assess the land use of the railway, potential of developing surplus land for revenue generating and assess the current and future demand and location of railway staff quarters. Suggest options how to carry-out railway land asset management.

(xxxviii) Prepare a land use and land management plan for railway operational use including operation, maintenance and staff quarters as well as for potential commercial use and suggest an institutional set-up for land development. Suggest options to structure land asset management for the railway sector.

(xxxix) Review legal requirements and suggest adjustments, where required.

f. **Overall railway sector development framework and master plan**

(xl) Prepare a strategic railway sector development framework and master plan for the years 2020 to 2040, with inputs from the evaluation of the above studies such as traffic demand, technical feasibility, multimodal integration, economic and financial viability, environment, and social and resettlement aspects.

(xli) Propose the overall strategy and focus areas for development of SLR until 2040 including strategy in market segments such as freight business, commuter and long-distance passenger traffic.

(xlii) Prepare a railway freight operation business plan until 2040.

(xliii) Develop a strategy to achieve universal access to the railway system. Suggest recommendations to develop an optimized platform height in relation to the rolling stock to facilitate access and accelerate passenger movements.

(xliv) Suggest a strategy for an integrated multimodal transport sector in Sri Lanka including improved access for passengers and freight to railway stations and an integrated timetabling, ticketing and passenger information system for passengers and freight operations.

(xlv) Prepare a phased plan for railway sector development based on different scenarios of the traffic demand and a prioritization of projects based on a cost-benefit analysis.
(xlvi) Establish a target operation plan (timetable) for the train operation in the year 2035 to 2040 based on the traffic forecast and identify infrastructure, rolling stock and operation and maintenance-related interventions required to deliver this operation plan.

(xlvii) Review manpower requirements, and occupational health and safety measures based on different development scenarios and suggest improvements.

(xlviii) Assess the need for legal reforms covering relevant laws, rules and manuals, etc.

(xlix) Recommend projects to be implemented with possible external financing from development partners or potential financing by the private sector. Propose alternative financing schemes for effective utilization of private sector financing and/or management expertise, and identify the need for further study and/or support for implementation.

III. Schedule, Reporting and Staff Requirements

8. The consulting services will be completed in 20 months, from January 2018 to September 2019. 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.

9. The consultant team will comprise 32 person-months international and 46 person-months national inputs as stated below:

<table>
<thead>
<tr>
<th>International Experts</th>
<th>Person-months</th>
<th>National Experts</th>
<th>Person-months</th>
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<tr>
<td>Team Leader and Rail Transport Expert (expertise in the railway sector and multimodal logistics)</td>
<td>10</td>
<td>Deputy team leader and transport planner</td>
<td>18</td>
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<tr>
<td>Railway Engineer</td>
<td>3</td>
<td>Railway Engineer</td>
<td>8</td>
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<tr>
<td>Transport Economist and Traffic Modeler</td>
<td>3</td>
<td>Traffic modeler and Survey Engineer</td>
<td>6</td>
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<tr>
<td>Railway Operations Expert</td>
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<td>Railway Operations Expert</td>
<td>4</td>
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<tr>
<td>Institutional Expert (Railway management, organization, tariff)</td>
<td>4</td>
<td>Legal and Institutional Expert</td>
<td>3</td>
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<td>Land Development and Asset Management Expert</td>
<td>2</td>
<td>Urban Development Expert</td>
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<td>Rolling Stock Expert</td>
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<td>Social Development/Gender Expert</td>
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<td>Signaling and Telecom Expert</td>
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<td>Power Supply and Railway Electrification Expert</td>
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<td>Railway Operations and Timetabling Expert</td>
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<td><strong>Total (International)</strong></td>
<td><strong>32</strong></td>
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10. **Reporting.** The consultants will submit (i) an inception report within 2 months of starting their services; (ii) an interim report within 11 months after starting their services, including the findings of a first stakeholder consultation workshop to be scheduled within the first 6 months of the assignment; the interim report shall also include the traffic and demand forecast, various assessments of existing situation and the institutional and tariff improvement plan; (iii) the draft final report after 18 months of services including all other tasks as mentioned in the terms of reference; and (iv) the final report on TA completion, incorporating comments by the government and ADB, to be completed 4 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.

11. **Stakeholder workshops.** Two national workshops will be conducted during TA implementation. The first workshop will discuss the objective, approach, and methodology to establish the master plan for and collect inputs from the stakeholders and present initial findings of the study. The first workshop shall be held within 6 months from the start of services. The second workshop will discuss TA outputs for finalization after submission of the draft final report.