Serbia Railway Sector Modernization Project

Terms of Reference
For
Electro Engineer with Railway Expertise

Background

The International Bank for Reconstruction and Development (IBRD) launched the Multiphase Programmatic Approach (MPA) to support the Government of Serbia in the continuation of institutional, physical and operational modernization of the railway sector in an integrated manner through providing financial support to Serbia Railway Sector Modernization Project as part of the Multiphase Programmatic Approach to be implemented in three overlapping phases over the ten-year period.

For the purpose of financing Serbia Railway Sector Modernization Project, Phase 1 of the MPA, IBRD and the Agence Francaise de Developpement (AFD), jointly, granted to the Republic of Serbia EUR 102 million loan to support enhancing the efficiency and safety of existing railway assets and improving governance and institutional capacity of the railway sector.

The Project includes the following components:

> Component 1: Infrastructure Investments and Asset Management: Sub-Component 1.1: Reliable and Safe Railway Infrastructure (track rehabilitation, level crossings, railway station "Prokop", Bogojevo station bypass, measurement stations), Sub-Component 1.2: Technical Documentation for the Phase 2, Sub-Component 1.3: Asset Management

> Component 2: Institutional Strengthening and Project Management: Sub-Component 2.1: Sectoral Governance, Sub-Component 2.2: Human capital, Sub-Component 2.3: Project Management and Citizen Engagement

> Component 3: Railway Modernization Enablers: Sub-Component 3.1: Intelligent Railway Systems (ITS) and Safety Management System (SMS), Sub-Component 3.2: Integrated Territorial Development and Sub-Component 3.3: Modal Shift

The project is managed by the Ministry of Construction, Transport and Infrastructure (MoCTI) through the Project Implementation Unit (PIU) supplemented by the Project Implementation Teams (PITs) in Railway Directorate (RD) and in railway companies, respectively Serbian Railway Infrastructure (IZS), Serbia Voz (SV) and Serbia Cargo (SC). PITs will act as subordinate implementing agencies and provide technical support for specific Project subcomponents or activities of the MPA that pertain to their area of expertise. Primary responsibility for Project execution lies on PIU which will ensure that the Project development objectives are met.

Ministry of Construction, Transport and Infrastructure (the Client) intends to engage a highly qualified consultant (individual expert) to provide required services more closely described below. The successful candidate will work closely with the Client and other relevant stakeholders, primarily with the Serbian Railway Infrastructure (IZS) to ensure that the investments in railway infrastructure within the Project are managed efficiently both technically and in compliance with

the objectives of the Project Appraisal Document (PAD), the Loan Agreement, Credit Facility Agreement and the Project Operations Manual. The consultant, always aligned with the Head of the PIU and in collaboration with the other PIU staff, shall interact and liaise with a IZS PIT, contractors, consultants, World Bank, AFD, and others relevant for successful completion of the tasks. He/she will closely monitor the implementation of the activities in order to coordinate the inputs from the different actors, ensure excellent technical execution, quickly address design challenges and efficiently react to unexpected developments. The main challenge is to ensure that works, goods and services are satisfactorily completed on time, within budget, aligned with the contractual requirements and in a coherent way across components.

General information

Individual Consultant Title: Electro Engineer with Railway Expertise in the PIU to support railway infrastructure investments in the Republic of Serbia, Serbia Railway Sector Modernization Project. The Consultant shall report to the Head of the PIU, linked to the MoCTI of the Republic of Serbia.

Position in organization

Immediate superior: Head of the Project Implementation Unit

Main position objective

Generally, the Consultant is responsible for technical support to the implementation of the Component 1: "Infrastructure Investments and Asset Management", respectively Sub-component 1.1. Reliable and Safe Railway Infrastructure, Sub-component 1.2 Technical Documentation, Sub-Component 1.3 Asset Management, and Component 3: “Railway Modernization Enablers” respectively Sub-component 3.1 Intelligent Railway System (IRS).

Component 1, focuses on improving the quality and safety of railway infrastructure and enhancing rail asset management practices. The quality of the railway network will be improved through targeted renewal interventions and the preparation of technical documentation for the investments in the next phases of the Program. Railway safety will be improved through track renewal and also through the upgrading of railway level crossings throughout Serbia.

Sub-Component 1.1 Reliable and Safe Railway Infrastructure will support IZS in carrying out a program of track and catenary network renewal and safety interventions to restore service performance. The investments will include reconstruction of the catenary network and power supply devices and facilities on the rail section Pancevo Bridge – Pancevo Main as well as improvement of about 150 railway level crossings with the introduction of automatic safety and interlocking devices around the country. In addition, this subcomponent will finance construction of Bogojevo Station Bypass with the deployment of the interlocking system that will enable the switches and signals on the bypass to be controlled from the station device of Bogojevo station, as well as the installation of four measurement stations to monitor the condition of rolling stock, provide data to predict and prevent future failures, and help to identify maintenance needs proactively. Financing will include supervision of all works. These systems will assist IZS to better managing its network by ensuring that operators comply with operational and safety standards.

Respected given, the Consultant will plan, monitor, control, and provide technical expert advice on all electrotechnical infrastructure (mainly: signaling and safety systems; telecommunications system) related activities in the Project to ensure achievement of Project objectives. The Consultant will be responsible for review of designs for subsequent phases, conducting on-site investigations and analyzing data (maps, reports, tests, drawings, and other), assessing potential risks, materials, and costs, providing advice and resolving creatively any emerging problems/deficiencies, monitor progress and compile reports on work execution status. These will be done in close cooperation with the Head of the PIU and the contractors and consultants, as well as the Client, and other agencies (as described in the Project Operation Manual). He/she will closely monitor the implementation of the activities in order to coordinate the inputs from the different actors, ensure excellent technical execution, quickly address design challenges and efficiently react to unexpected developments.

Subcomponent 1.2 Technical documentation; This subcomponent will support preparatory technical work to ensure the readiness of the infrastructure investment pipeline for subsequent phases of the MPA, and, as such, increase the absorption capacity of IZS. Activities to be financed will include, but will not be limited to feasibility studies and/or preliminary designs, detailed designs, environmental management plans, and environmental impact assessments, and resettlement plans, if needed. All preparatory work will consider the effects of climate change and assess options for mitigation and adaptation. Works for these investments will be executed in the subsequent phases of the MPA. One of the activities within this sub-component is the modernization of the rail line Pancevo Main - Vrsac - the Romanian border, which includes complete electrification of the line as well as the installation of modern signaling and traffic management systems. Responsibilities of the Consultant will include, but won't be limited to, review of designs for subsequent phases in terms of electrotechnical infrastructure, liaise with authorities to ensure that authority approvals are gained in an efficient and timely manner, site inspections for each infrastructure investment to ensure site conditions are considered in the design process, attendance to meetings with local authorities and stakeholders if needed, monitoring and coordination of the preparation of design drawings to ensure that they comply with specific standards, laws and client requirements and they are within defined timeframes and budgets, provision of engineering proposals for improvement of railway infrastructure resilience to natural hazards.

Sub-component 1.3 will support the adoption of a specialized Railway Infrastructure Asset Management System (RI-AMS) that will cover all rail infrastructure assets related to the Track Superstructure, Civil Works, Engineering structures, Overhead Line, Power systems, Signalling and Telecommunications systems as IZS's standard tool for planning and decision making for financing activities. Further, the introduction and establishment RI-AMS will be financed to assist IZS to manage all railway infrastructure assets and make tangible savings within the domain of railway infrastructure maintenance and renewal (M&R), as well as raise the overall M&R work performance and management quality to the level of the developed railways. This sub-component includes procurement and customization of basic RI-AMS system, procurement of basic software for database and accompanying hardware if there is a need, and annual maintenance and support fees which depend on the supplier's licensing policy. Implementing targeted system initiatives such as Intelligent Railways, Safety Management, and Asset Management not only goes hand-in-hand with EU's standards but also promotes the modernization of human capacity and organizational change toward a culture of putting customers at the center of the organization's

activities. The new asset management system will facilitate the efficient maintenance and use of infrastructure, mitigating emissions through longer asset life cycles. The asset management cycle will also be adapted to the requirements of the changing climate, e.g. more frequent tamping of track ballast.

Component 3, Railway Modernization Enablers, will finance measures for strengthening the enabling environment for the railway sector through selected innovations. In Serbia, utilization of information technologies in railway transport is still in its infancy. Knowledge of market potentials is not structured, and strategies for attracting unconventional users are absent. The GoS would like to introduce new approaches that have been proven to improve efficiency, effectiveness, and safety.

Subcomponent 3.1 Intelligent Railway System; This subcomponent will support the initiation of structured planning and development pilot projects related to the introduction of IRSs. Support of the Consultant is expected in the preparation of the assignments for technical assistance for the development of an implementation plan for the IRSs introduction and further support in the implementation phase.

Principle responsibilities

The Electro Engineer with Railway Expertise of the PIU will be responsible for the following duties:

- Prepare and participate in the preparation of the Terms of References and Bidding Documents as well as in assisting the evaluation committee on the evaluation of expressions of interest and proposals related to the above listed subcomponents;
- Coordination, commenting, guiding, and overseeing rail engineering design(s) and electrotechnical works;
- Providing expert advice on electrotechnical engineering issues related to the Project, including electrotechnical engineering interfaces with other rail infrastructure components;
- Ensuring the safety and legal compliance of all design/construction work;
- Participating in drafting and reviewing the tender documents for the supervision consultant;
- Liaise with the PIT, Central Fiduciary Unit (CFU) and Head of the PIU regarding technical inputs needed for the preparation of Bidding Documents,
- Technical Specifications, Requests for Proposals, Terms of Reference, Monitoring Reports etc.
- Active participation and assistance during the tender preparation, processing, evaluation, and selection;
- Review and evaluate contractors'/consultants' technical documentation, and schedule;
- Assist the Client to the management of the execution of work and/or service contracts ensuring their completion within the defined timeframe, budget and at the required quality;
- Implementation of Project activities related to IRS through introduction/implementation of new technologies, system design development and maintenance;
- Assistance for IRS infrastructure budgeting, procurement and asset control within the project scope;

- Visit construction site to monitor progress;
- Assist the Head of the PIU in preparing the PIU Reports to the Client and World Bank Cost, Time, Resources, and Scope;
- Close cooperation with other PIU staff to be selected for support to the implementation of the Project, and
- Any other task assigned by the Head of the PIU.

Reporting requirements

The Consultant will provide Monthly Progress Reports, within 5 (five) days after the end of the month for which the report is due. The report should contain at least:

- List of meetings held with a brief description of objectives and conclusions;
- The status of progress, problems encountered, corrective actions needed, the rationale for actions and
- Any further comments relevant for the reporting period.

The Consultant shall prepare ad-hoc reports on any major issues raised during Project implementation, at the Head of the PIU, Client or Bank's request.

Knowledge, experience, skills and competencies

- Advanced degree or minimum 5-year university degree in electro engineering or similar;
- Area of professional expertise: Railway Sector;
- Minimum 10 years of general professional experience;
- Minimum 7 years of professional experience in the railway sector;
- Good knowledge and practice of the regulations and technical directives applicable to electrotechnical engineering and technical designs for railway projects;
- Experience working with or within the public sector will be an advantage;
- Experience working on IFI or EU projects will be an advantage;
- Experience in preparation of tender documentation and other relevant project documentation (e.g. feasibility studies, designs, etc.) will be an advantage;
- Experience in deployment of the modern signaling system and train management system (i.e. ERTMS), SCADA, or similar control-command systems;
- Knowledge in the introduction of the intelligent railway systems will be an advantage;
- Knowledge of local (regional) language will be an advantage;
- Good knowledge of the English language;
- Computer skills: AutoCAD, Word, Excel, scheduling tools (e.g.: MS Project or similar)
- Project Management with multiple stakeholders will be an advantage;
- Self-Planning & Organizing, Problem Solving, Communication, Teamwork, Initiative.

Length of the assignment

It is expected that the period over which the consultant The Consultant shall provide full-time services for the life of the Project, i.e. until December 31, 2026, with a probationary period of six (6) months.

The Consultant should be available to commence no later than one month after the contract signature. The Consultant should be available to provide services for at least 8 hours each day, Monday to Friday, for a minimum period of 40 hours per week. All leave to be allowed to the Consultant is included in the staff months of service. The Consultant will have 30 days of paid vacation leave per year. The leave for national holidays is to be considered paid.

Facilities to be provided by the Client

The Client will be responsible for provision of the following:

- Fully equipped office space, with access to Internet, local telephone line, printing, photocopying and document binding;
- Access to necessary documents

Where the Consultant is required to travel, to site or elsewhere in accordance with the Client's instruction, transportation costs will be borne by the Client.

Confidentiality

The Consultant undertakes to maintain confidentiality on all information that is not in the public domain and shall not be involved in another assignment that represents a conflict of interest to the prevailing assignment.

Selection of Consultant

The Consultant will be selected applying Open competitive method. The

candidates will be evaluated applying the following evaluation criteria:

- Qualifications and General experience (40 Points)
- Specific Experience relevant to the Assignment (60 Points)

The Consultant is eligible, and his selection does not create any conflict of interest as provided in the Banks Procurement Regulations.