

# Overview of the framework

India has the fourth largest railway network in the world in terms of route kilometres, totalling 64,460 km. However, the Indian Railways have added only 11,864 km of new lines since independence and has not been able to cover large unserved areas in many States, particularly the North-East States. As a result of inadequate capacity creation, the share of railways in the freight traffic has shown a continuous decline, with the share declining from 89 per cent in 1950-51 to 36 per cent at present. The Twelfth Plan envisages reversing this declining trend and has set a target to enhance rail share in freight traffic by at least 2 per cent during the Plan period. This along with the growing requirements of the economy will necessitate faster expansion of the freight network through new capacity creation. Considering that improved and modernised project execution capabilities would be critical for speedy capacity creation, it has been decided to adopt the Engineering, Procurement and Construction (EPC) mode of contracting for construction of railway projects.

**A modern EPC framework is a pre-requisite for efficient delivery**

## Need for EPC contracts

Railways had hitherto been undertaking construction projects through the conventional item rate contracts where the Government provides the detailed design as well as the estimates of quantities for different items of work (Bill of Quantities). Payments to the Contractor are made on the basis of measurements of the work done in respect of each item. Experience in railway projects shows that item rate contracts are prone to excessive time and cost overruns, besides recurrent disputes involving large claims. The reasons for their poor performance include inadequate project preparation and estimation coupled with allocation of several construction risks to the Government. For these reasons, the item rate mode of contracting has long been discarded in the developed countries as well by the private sector in India. The structure currently in vogue is in the nature of turnkey contracts where the responsibility for design, procurement and construction is assigned to the Contractor. Such contracts are typically known as EPC contracts.

**Item rate contracts are outdated**

## Model EPC Agreement

The aforesaid drawbacks of item rate contracting are addressed by the EPC approach that relies on assigning the responsibility for investigations, design and construction to the Contractor for a lump sum price determined through competitive bidding. The objective is to ensure implementation of the project to specified standards with a fair degree of certainty relating to costs and time while transferring the construction risks to a private sector Contractor.

With a view to enabling a transparent, fair and competitive roll out of railway projects, a model EPC Agreement has been evolved. This Model EPC Agreement incorporates international best practices and provides a

**The Model EPC Agreement incorporates best practices**

sound contractual framework that specifies the allocation of risks and rewards, equity of obligations between the Authority and the Contractor, precision and predictability of costs, force majeure, termination and dispute resolution, apart from transparent and fair procedures.

The Model EPC Agreement specifies the required design and performance standards and allows the Contractor to design and construct the project using best practices and innovation to optimise on efficiency and economy as compared to the rigidity of the item rate contract that relies on a rigid design provided by the project authorities. The Contractor also has full freedom to plan the construction schedule for efficient use of its manpower, equipment and other resources while payments are linked to specified stages of construction as compared to payment for individual items or units specified in the item rate contracts. Awarding contract for a lump sum price ensures predictability and financial discipline, both for the Contractor and the Authority. Moreover, clearly stated obligations and risks of the respective parties help in achieving timely completion of the project while minimising disputes.

### **Technical parameters**

Unlike the normal practice of focussing on construction specifications, the technical parameters proposed in the Agreement are based mainly on output specifications. Only the core requirements of design, construction and operation that have a bearing on the quality and safety of the project are to be specified and enough room is left for the Contractor to innovate and add value.

**Technical parameters based on output specifications**

In sum, the framework focuses on the ‘what’ rather than the ‘how’ in relation to the works to be delivered by the Contractor. This would provide the requisite flexibility to the Contractor in evolving and adopting innovative designs without compromising on quality of the works.

### **Contract Price**

The Contract Price is a fixed lump sum amount for construction of the railway project. The Contract Price is subject to adjustment on account of changes in the relevant price index as well as changes in law or changes in the scope of the project since the Contractor can not be expected to bear or manage the risks arising out of such changes.

**Contract price to be lump sum**

### **Contract period**

The contract period is normally determined on a project-specific basis depending on the nature and volume of construction work involved. The Contractor shall be liable to damages for any delay beyond the specified date of completion, subject to the damages not exceeding 10 per cent of the contract price. However, the Contractor shall be entitled to time extension arising out of delays on account of change of scope and force majeure or delays caused by or attributable to the Authority.

**Time extension only for specified event or circumstance**

## **Selection of Contractor**

Selection of the Contractor will be based on open competitive bidding. All project parameters such as the contract period, price adjustments and technical parameters are to be clearly stated upfront, and short-listed bidders will be required to specify only the lump sum price for the railway project. The bidder who seeks the lowest payment should win the contract.

**Competitive bidding on single parameter will be the norm**

## **Risk allocation**

As an underlying principle, risks have been allocated to the parties that are best suited to manage them. Project risks have, therefore, been assigned to the private sector to the extent it is capable of managing them. The transfer of such risks and responsibilities to the private sector would increase the scope of innovation leading to efficiencies in costs and services. Accordingly, project risks such as commercial and technical risks relating to design and construction have been assigned to the Contractor. The Authority would, however, be liable to damages for any delays in handing over land, securing environment clearances, shifting of utilities or approvals in respect of engineering scale plan, signalling interlocking plan and route control chart.

**Risk alleviation and mitigation is critical to engagement with private sector**

## **Design and Construction**

The EPC agreement specifies the dates on which different sections of the project land will be handed over to the Contractor. It defines the scope of the railway project with precision and predictability to enable the Contractor to determine its costs and obligations. It also lays down a ceiling of 10 per cent of contract price to cater for any changes in the scope of the project, the cost of which the Authority shall bear.

**Incentives and penalties to ensure timely completion**

The Contractor shall carry out survey and investigations and also develop designs and drawings in conformity with the specifications and standards laid down in the Agreement. It will get these checked by a proof consultant and a safety consultant who are to be appointed with the approval of the Authority. The design and drawings would be reviewed by the Authority's engineer to ensure that they conform to the scope of the project as well as the prescribed standards and specifications. The EPC agreement also stipulates provisions for quality control and assurance.

A provision has been made for damages which the Contractor shall pay to the Authority for not achieving the prescribed milestones. The Authority will pay bonus to the Contractor for completion of the project before the scheduled completion date.

## **Force majeure**

The EPC agreement contains the requisite provisions for dealing with force majeure events. In particular, it provides protection to the Contractor against political actions that may have adverse effect on the timely completion of the project.

**Contractor will be protected against arbitrary actions**

## **Termination**

Termination payments have been quantified precisely. Political force majeure and defaults by the Authority would qualify for adequate compensatory payments to the Contractor and thus guard against any discriminatory or arbitrary action by the Authority. In the event the Authority terminates the agreement on account of any of the specified defaults of the Contractor, the Agreement allows the Authority to forfeit the performance security and retention money of the Contractor.

**Pre-determined termination payments should provide predictability**

## **Monitoring and supervision**

Day-to-day interaction between the Authority and the Contractor has been kept to the bare minimum following a ‘hands-off’ approach. Checks and balances have, however, been provided for ensuring full accountability of the Contractor.

**A credible and fair arrangement for supervision is essential**

Monitoring and supervision of construction is proposed to be undertaken through an Engineer (a qualified firm) that will be selected by the Authority through a transparent process. Its independence would provide added comfort to all stakeholders.

## **Milestone based payments**

A simple and rational method for estimating interim payments to the Contractor has been provided in the Agreement. It would ensure that payments are made for all works conforming to the Agreement and commensurate with the stages of completion of works. Works have been broadly divided into three categories, namely, civil and track works, signalling and telecommunication works and electrification works, which could be taken together under a single project or separately under different projects. Each item of work has been further sub-divided into stages and payment will be made for each completed stage of work.

## **Defects liability period**

Though normally a defects liability period of one year is specified in most contracts, a defects liability period of two years has been specified in the Agreement in order to provide additional comfort to the Authority.

## **Miscellaneous**

The Agreement also addresses issues relating to dispute resolution, suspension of rights, change in law, insurance and indemnity.

**An effective dispute resolution mechanism is critical**

## **Conclusion**

Together with the Schedules, the proposed framework of the Model EPC Agreement incorporates international best practices and embodies an enabling contractual framework for construction of railway projects in an efficient, economical and competitive environment. It will minimise, if not eliminate, the time and cost over-runs characteristic of the extant item rate

contracts. Further, this will enable a faster roll-out of projects with least costs and greater efficiency while minimising the potential for excessive discretion.