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RESEARCH ARTICLE

FIDIC SUIT AND MCA BASED CONTRACTS: CHOOSING APPROPRIATE FORM OF CONSTRUCTION CONTRACTS FOR HIGHWAY PROJECTS IN INDIA

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ABSTRACT

The Indian highway development sector has seen unprecedented scale of programs in last couple of decades which also resulted experience-based generation of knowledge. One of the areas where this sector has developed is the Form of Contract Agreement between the Road Authorities and the Contractors/Concessionaires. This paper outlines the various forms of Contracts used in India for cash contracts as well as PPP projects. The major two forms, FIDIC and MCA based contracts, are discussed in totality and guidelines are framed to choose most appropriate form of the Contract based on source of funding risk and sharing between the parties to the Contract.

INTRODUCTION

Growth of highways development in India: By mid-nineties, the highway transportation in India had a share of more than 60% of freight and 80% of passenger traffic of the country, indicating its dominance. National Highways, which are less than 2% of the total length of road network in India, carried about 40% of the total traffic. With the liberalization of Indian economy and the share of road transportation, strengthening and development of road networks was inevitable. The National Highways Development Programme (NHDP) was launched in 1999-00, which included more than 55 thousand Kilometres of roads to be developed to two/four/six /eight lanes in VII phases. National Highways Authority of India (NHAI) is responsible for more than 48 thousand kilometres of this length. Traditionally, the Government's budgetary support and the loans from the multilateral development banks were the sources of funding for highway development works. However, to support the massive road development plan of NHDP, these two funding sources were certainly not enough and hence, the Public Private Partnership (PPP) form of projects got introduced in India.

Construction contract forms: Prior to the introduction of PPP projects in highways, the most common form of Construction Contracts used for major highway projects in India were FIDIC Conditions of Contracts, besides some very own formats by Central and State government Road Authorities. For, projects funded by Multilateral Development Banks, the Contract forms used were invariably FIDIC conditions of Contracts. Introduction of PPP, demanded a new format for Construction Contract, and thus the Model Concession Agreement (MCA) came into existence through Planning Commission of India for PPP forms of projects. This paper discusses the two major forms of Contracts that are used in India for almost all major Highway Development Projects which are FIDIC based Contracts and Model Concession Agreement (MCA) based Contracts.

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FIDIC conditions of contracts

FIDIC is the acronym for 'Fédération Internationale Des Ingénieurs-Conseils' which is French version for 'International federation of Consulting Engineers. Founded in 1913, FIDIC is known for Standard Forms of Contracts between Employer and Contractor on large international projects. First standard form of contract was issued by FIDIC in 1957 which is called as the first 'Red Book'. First 'Yellow Book' in 1963, Revised 'Red Book' in 1987, 'Orange Book' in 1995 are some important milestone before publication of FIDIC's suit of new Standard Forms of Contracts in September 1999. All the Standard Forms in the 1999 suit of FIDIC are labelled as 'First Edition 1999'. The FIDIC (1999) suit comprising following

Standard Forms, with subsequent updating, are suitable and adoptable for majority of construction projects across the globe.

1. **Short Form of Contract (Green Book) – First Edition (1999):** This form of Contract is basically designed for smaller, shorter and simpler projects. Guidelines suggests using Green Book for projects of less than half million US Dollars costing, or project duration of less than 6 months or the activities involved are simpler and repetitive.

2. **Conditions of Contract for Construction, For Building and Engineering works, designed by the Employer, (Red Book) - First Edition (1999):** The Red Book offers the ideal contract form for construction works where the designs are provided by the Employer. Payments are assessed and made based on the measurements of the executed works using the rates provided in the bill of quantities (BOQ). Contract administration and supervision of the works is carried out by the Engineer appointed by the Employer, who is also responsible for issuing instructions / notices, payment certification and completion certification.

3. **Conditions of Contract for Construction, For Building and Engineering works, designed by the Employer, (Red Book MDB Edition) - MDB Edition (2005):** Prior to MBD Edition 2005, all the Multilateral Development Banks (MDB) were commonly using FIDIC Conditions of Contracts, particularly the 1999 Red Book; however with significant amendments in the form of additional clauses etc. These amendments were varying from Bank to Bank and were often repetitive. The MBDs then realized the need to harmonise the 1999 Red Book by including the frequently and commonly adopted amendments by the MDBs, in the General Conditions of Contract. Thus the working together between MDBs and FIDIC officials produced the harmonised form of 1999 Red Book, which is referred as Red Book MDB Edition. The MDB Edition simplifies use of Condition of Contracts for MDBs, borrowers, Engineers and Contractors. Essentially, MDB Edition is for the projects designed by the Employer and funded by any of the MDBs for Cash Contract projects.

The MDBs involved in preparation of MDB Edition were, African Development Bank, Asian Development Bank, Black Sea Trade and Development Bank, Caribbean Development Bank, European Bank of reconstruction and Development, Inter-American Development Bank, International Bank for Reconstruction and Development (The World Bank), Islamic Bank for Development and Nordic Development Fund.

4. **Conditions of Contract for Plant and Design-Build for Electrical and Mechanical Plant and for Building Works, Designed by the Contractor (Yellow Book) - First Edition (1999):** Though the first edition of Yellow Book had mention of 'Electrical' and 'Mechanical' in its title, but the current edition does not include them. Like the rest of the FIDIC documents, more attention now is towards type of procurement rather than nature of the works. Hence the Yellow Book is appropriate for electrical and/or mechanical plant, and for the design and execution of building or engineering works.

These Conditions of Contract are suitable for projects where the Contractor is responsible for detailed designs and other detailing in line with the product outline or performance specifications prepared by the Employer. The Engineer for the project administers the Contract, supervises the erecting of plant and equipment etc. and certifies the payments which are generally lump sum payments on achievement of pre decided milestones.

5. **Conditions of Contracts for EPC / Turnkey Projects (Silver Book) – First Edition (1999):** FIDIC's Conditions of Contract for EPC/Trunkey Projects (Silver Book) is suitable for projects of lump sum in nature, where the degree of uncertainty is less and where the employer does not want to overrun in terms of cost and time. In this form of Contract, the contractor takes the responsibility of the design and has more control over the project as the Employer does not want to get involved into day-to-day matters and is concerned with the end product with specified results. Payments are lump sum and are made at pre-decided milestones.

6. **Conditions of Contracts for Design, Build and Operate Projects (Gold Book), First Edition (2008):** To address the demand of having one Contract for Design-Build and Operation, FIDIC came up with this DBO Contract in the year 2008. The said standard form of Contract for Design Build and Operate is meant for 'Green Field' Projects with 20 years scenario of operations. The Contract is quite similar to the silver book in first part of its implementation (Design-Build), however, it also includes, operation Contract post construction.

Contracts based on model concession agreement (MCA): Model Concession Agreement (MCA) forms the principal of public private partnership (PPP) projects in India. It provides a framework for execution of highway projects on PPP form by clearly defining roles and obligations of the two parties namely, the Concessionaire and the Road Authority. The Model Concession Agreement (MCA), after its first draft published in 2000 by Haldea (2000), prepared for the Planning Commission (PC), Government of India went through several modifications and process of evolution till it was published in 2009 as 'Amended MCA'. The various MCA based contracts which are currently in use in India are described below.

1. **BOT (Toll) mode of PPP Contracting:** The BOT (Toll) Concession Agreement and all its other forms like DBFOT (Design, Build, Operate and Transfer), the concessionaire is expected to arrange for finances for construction and Operation & Maintenance of the project highway. The return on Investment is through collection of Toll for the duration of Concession period which can be up to 30 years. The revenue risk in such form of Contract rests with the Concessionaire.
2. **BOT (Annuity) mode of PPP Contracting:** BOT (Annuity) form of MCA Contracts is very similar to BOT (Toll) except the fact that the road Authority pays the Concessionaire a fixed semi-annual annuity for the

entire concession period as return on investment. There could be toll on such projects which is generally collected by the Authority itself. Hence the risk of revenue stays with the Road Authority.

3. **OMT mode or TOT mode of PPP Contracting:** In case of Operation, Maintenance and Tolling (OMT) form of PPP Contracts or Toll Operate and Transfer (TOT) mode of Contract, the developed highway is handed over to the Concessionaire for operation and Maintenance. The Concessionaire, for the period of Concession, operates and maintains the facility to the laid down standards. The Concessionaire recovers its returns through toll collections. The Concessionaire shares the revenue on high capacity and viable project corridors with the Road Authorities.
4. **BOT (HAM) mode of PPP Contracting:** BOT (HAM) or hybrid annuity model combination of BOT (Toll) and BOT (Annuity) form of the MCA formats. Projects with limited viability need support in capital investment besides Annuity. BOT (HAM) is therefore suitable for projects where the Concessionaire needs to be paid grants at the time of Construction in addition to the annuity payments during operation of the projects. In India, currently 'grant plus annuity' is the BOT (HAM) model in use.
5. **EPC Mode of Contracting for Cash Contracts:** THE MCA Format has been found suitable and its basic framework has been adopted even for the Engineer, Procure and Construct (EPC), which is basically a cash Contract with design responsibilities resting on the EPC Contractor. Post Construction, the contractor is also responsible for maintaining the highway for a period of 2 to 5 years against fixed quarterly payments towards maintenance.

Choosing appropriate form of contract for highway projects in India: All the major highway development projects in India can be broadly classified into two categories based on the sources of funding.

The first one is the cash contracts where, the employer or the Road Authority arranges and finances the development of the highway, either through budgetary provisions or through financial assistance from Multilateral Development Banks (MDB) like the World Bank, Asian Development Bank etc. The second category is of Public Private Partnership projects which are popularly known as the PPP of 3P projects. The responsibility of arranging for finances for the PPP projects, fully or partially stays with the Concessionaire. The appropriate form of contract to be chosen for a particular project of highway development in India is dependent on the type of contract based on its funding i.e, cash contract or PPP contract.

1. **Contracts Forms for Cash Contracts:** Cash Contracts, where the Employer takes the responsibility of funding, can be 'Employer Designed' projects or the 'Contractor Designed' Projects. If the Employer does not to take the risks of uncertainties, cost overruns or does not want to get involved into day-to-day matters during implementation, the preferred form is 'Contractor Designed' project. If the Employer wants to take full control of the project by owning the design related and other risks, it has to be 'Employer Designed' Project.

For 'Employer Designed' Projects, the best suited Contract forms are '*FIDIC Conditions of Contract for Construction, For Building and Engineering works, designed by the Employer, (Red Book) - First Edition 1999'*and '*FIDIC Conditions of Contract for Construction, For Building and Engineering works, designed by the Employer, (Red Book MDB Edition) - MDB Edition 2005'*. If the cash contracts, designed by Employer are funded through MDBs, the MDBs prefer *FIDIC Conditions of Contract for Construction, For Building and Engineering works, designed by the Employer, (Red Book MDB Edition) - MDB Edition 2005'*. For 'Contractor Designed' Projects, the best suited Contract forms are '*FIDIC Conditions of Contracts for EPC / Turnkey Projects*

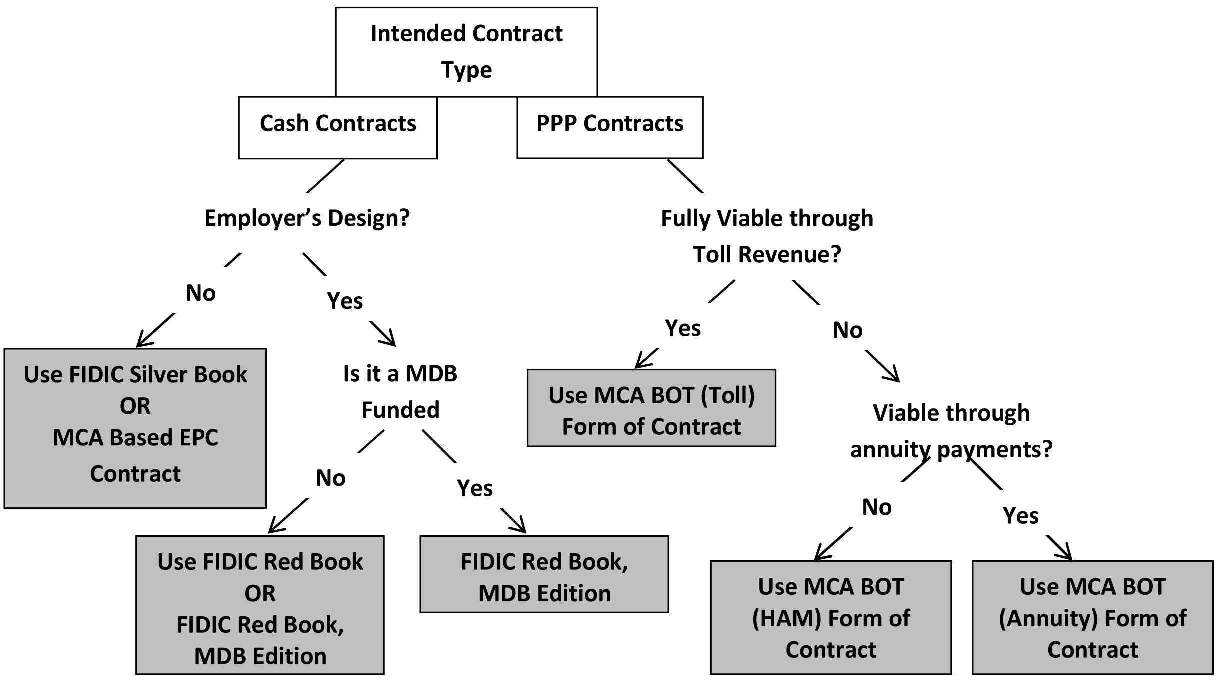

Figure 1. Shows a flow chart as guidelines to choose most appropriate form of Contracts for Highway Development Projects in India

(Silver Book) – First Edition 1999' or '*MCA based EPC Contracts'*

2. **Contracts Forms PPP Contracts:** For the PPP form of the Contracts in India, the most suitable Contract forms are Model Concession Agreement based Contract Agreements. For highway development projects the most commonly used MCA Contracts are BOT (Toll), BOT (Annuity) and BOT (HAM).

If the projects are fully viable for returns on investment through revenue generated out of tolling alone, BOT (Toll) is the most preferred and suited form of Contract. However, if the expected tolling revenue is either missing or not adequate enough to provide returns on investment, Employer chooses the BOT (Annuity) form of Contract, wherein, the initial financing is arranged by the Concessionaire and the Employer pays fixed periodic Annuity payments to the Concessionaire for the duration of Concession period as return on investment. Further, there could be projects, where, even the fixed periodic Annuity payments made by the Employer to the Concessionaire are not sufficient enough to recover the investments. For such projects, BOT (HAM) of BOT, Hybrid Annuity Model is used. In this form of Contract, the Concessionaire, besides fixed periodic Annuity payments, also gets additional capital support (partial) during the construction phase of the project.

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