

# **FIDIC AND NHAI CONDITIONS OF CONTRACT: A COMPARATIVE STUDY ON INDIAN HIGHWAY CONSTRUCTION PROJECT**

**Arun Chandramohan\* and Vinay Mohan Agrawal\*\***

\* \*\*National Institute of Construction Management and Research – Goa, Ponda, Goa, India

**ABSTRACT:** The contract is one of the most essential elements of any construction project. National highway development in India is financed predominantly by World Bank which envisages the need for global tendering and contracting procedures, which envisages adopting any of the global contracting techniques. One of the proven systems of contract that is adopted globally is Fédération Internationale Des Ingénieurs-Conseils (FIDIC) contracts. However in Indian context the contracts are developed based on the guidelines and specifications laid down by Ministry of Road Transport and Highways (MORTH) and National Highway Authority of India (NHAI) conditions of contract. The main aim was to identify and analyse contractual issues in National Highway and State highway construction projects based on Engineering, Procurement and Construction (EPC) contract scheme laid down by National Highway Authority of India (NHAI) guidelines. The study compared selected clauses and outlined various aspects regarding execution of real time highway construction project based on EPC mode of NHAI conditions of contract for with FIDIC contract.

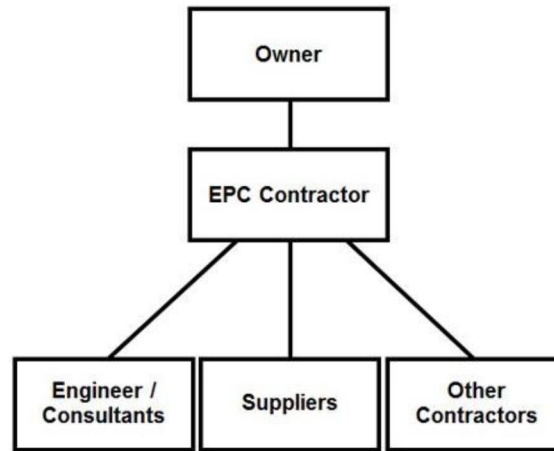
**KEYWORDS:** FIDIC, EPC, Highway construction, contracts, infrastructure.

## **INTRODUCTION**

Based on Cullen et. al (2011) EPC stands for Engineering, Procurement and Construction. Under an EPC delivery model, an EPC contractor will generally be responsible for the design, construction and commissioning of a facility. An EPC contract is similar to a design and construct contract, with reference to contracting methods, the contractor delivery of completed project from design. However, the EPC contracting model is typically associated with developing an operating facility (eg a mine processing plant, power station or wind farm) as opposed to a building (which is not usually constructed for the purpose of providing some form of output or operative process). Therefore, an EPC contract will normally contain a performance specification which outlines performance standards that, the completed facility is required to achieve. An EPC contract will typically function as a "turnkey" contract where the EPC contractor is responsible for commissioning of the facility. That is, upon completion, the owner will (ideally) only need to "turn the key" to commence operation of the facility. Alternatively, an EPC contractor may only be required to complete the facility (at mechanical completion) without being responsible for commissioning. The diagram below shows a basic structure for an EPC delivery model. According to NHAI, the conditions of contract for the highway construction project depend of the funding agency viz.

- Private sector funded projects on the basis of model concession agreement.
- Externally funded projects; based on the standard formats approved by funding agencies like World Bank, Asian Development Bank, etc.
- Funded by NHAI through budgetary resources based on contract specific & FIDIC conditions.

Since the form of contract vary widely with the funding agency and the stake holders involved, a comparative analysis is carried out on EPC contract based on conditions laid down in FIDIC Silver Book and the EPC contract for up gradation and rehabilitation of the existing National Highway construction project viz., NH-365 from Km 154/0 to Km 187/0 (Mangalvarpet to Mallampally section) to two lane with paved shoulder in the state of Andhra Pradesh under NHDP-IV.



**Figure.1.** EPC Delivery Model [source: Cullen et al (2011)]

## LITERATURE REVIEW

The Twelfth Plan envisions investment of approximately INR56.3 trillion in Indian infrastructure between 2012 and 2017. This, in turn, is expected to offer significant opportunities for EPC players across various sectors. During the period, the construction opportunity in the infrastructure sector is estimated to be around INR26.7 trillion. Significant investments in infrastructure projects, along with the revival in the real estate sector and growth in industrial capital expenditure are likely to boost the construction industry and act as a catalyst for growth of EPC companies in India.

Dr. Indrasen Singh, [2009] Investigated the idea that construction is a business sustained by money advanced by clients and progress payments made later during the course of the project. Under an EPC contract, a contractor is obliged to deliver a complete facility to a developer who need only turnkey to start operating the facility, hence EPC contracts are sometimes called turnkey contracts. The price and date for delivery of the contract is generally fixed, failing which a contractor has to incur monetary liabilities. This study tried to highlight the reasons why several road developers would choose the EPC route compared to the PPP route—which is being pushed by the government, in times of financial crisis. The studies carried out are limited to contractual claims and execution of the project. However attempts need to be made to compare the standard EPC contract with international system of contract.

Zhao Yanhua et. al (2007) brought out differences on the scope of applications, the features of utilizations, and the forms of tender for an EPC Contract. In this paper, the comparison and analysis of the meaning between the two, the respective advantages and disadvantages are given in order to gain a comprehensive understanding and applications on the two modes in practice. This study is limited to Design–Build contract with EPC contract.

Patricia (2009) analyzed failure to consider these new emerging risks and document the decision-making process for any of these factors could result in a design-build/EPC contractor being faced with potential losses and/or disputes with the owner that could further lead to being deemed to be negligent or even grossly negligent. Since very limited comparative study between standard Indian EPC contract and FIDC EPC contract with real time field study on highway contract has been carried out, an attempt has been made to analyze these features. Moreover vast infrastructure investment has been made by the government in developing the highway network in India with the aid of external agencies viz. World Bank, Asian Development Bank, etc, which emphasizes on FIDIC contracts.

## COMPARITIVE STUDY

Comparative study has been carried out by analyzing selected clauses relating to the employer and contractor in NHAI conditions of contract in EPC mode with that of FIDIC Silver Book for execution of highway construction project.

### General Condition

All the contract conditions normally provide a clause for resolving any ambiguity or discrepancies among the contract documents and gives the preferential sequence to be followed in case of any ambiguity. In this study various clauses regarding the same in various MORTH contract conditions is compared with FIDIC conditions.

FIDIC Silver Book, clause 1.5 defines documents forming the contract are to be taken as mutually explanatory of one another. For the purposes of interpretation, the priority of the documents shall be in accordance with sequence viz., contract agreement, particular conditions, general conditions, employer's requirements, tender and any other documents forming part of the contract. While NHAI conditions of contract, clause 2.3 specifies that the documents forming the

contract shall be interpreted in the order viz. agreement, letter of acceptance and notice to proceed with works, contractor's bid, contract data, conditions of contract including special conditions of contract, specifications, drawings, bill of quantities and any other documents listed in the contract data as forming part of the contract.

NHAI condition of contract for the project suggests that contract to be interpreted in the order of priority listed while FIDIC conditions also suggests the similar order of priority except that it clearly mentions the special conditions of contract to be preferred to the General Conditions of contract. FIDIC conditions further specify that documents forming the contracts to be mutually explanatory and in case of ambiguity the same to be adjusted and explained by the Engineer. NHAI condition only list out the priority of document to be followed avoiding the Engineer's role to adjust and explain in case of any ambiguity as in FIDIC conditions. This results in contractor vulnerable to risk arising from responsibility of the work due to ambiguity or discrepancies.

## **Security Deposit**

Security deposits in any contract are deposited by the contractor as an assurance to the client to complete the work as required by him within the specified time in the form of performance guarantee and retention money. The percentage of these deposits, method of collection and repayment to contractor vary with respect to different contract conditions.

Based on FIDIC Silver Book clause 4.2, contractor shall obtain (at his cost) a performance security for proper performance, in the amount and currencies stated in the particular conditions, if the condition is specified in the contract. Further, the contractor shall deliver the performance security to the employer within 28 days after both parties have signed the contract agreement. The performance security shall be issued by an entity and from within a country (or other jurisdiction) approved by the employer, and shall be in the standard form or in the form approved by the employer.

The contractor shall ensure that the performance security is valid and enforceable until the contractor has executed and completed the works and remedied any defects. If the terms of the performance security specify its expiry date, and the contractor has not become entitled to receive the performance certificate by the date 28 days prior to the expiry date, the contractor shall extend the validity of the performance security until the works have been completed and any defects have been remedied.

The employer shall not make a claim under the performance security, except for amounts to which the employer is entitled under the contract in the event of:

- Failure by the contractor to extend the validity of the performance security as described in the preceding paragraph, in which event the employer may claim the full amount of the performance security,
- Failure by the contractor to pay the employer an amount due, as either agreed by the contractor or determined under sub-clause 2.5 [employer's claims] or clause 20 [claims, disputes and arbitration], within 42 days after this agreement or determination,
- Failure by the contractor to remedy a default within 42 days after receiving the employer's notice requiring the default to be remedied, or
- Circumstances which entitle the employer to termination under sub-clause 15.2 [termination by employer], irrespective of whether notice of termination has been given.

The employer shall indemnify and hold the contractor harmless against and from all damages, losses and expenses (including legal fees and expenses) resulting from a claim under the performance security to the extent to which the employer was not entitled to make the claim. The employer shall return the performance security to the contractor within 21 days after the contractor has become entitled to receive the performance certificate.

NHAI conditions of contract clause 52.1 specifies performance security (including additional security for unbalanced bids) shall be provided to the employer not later than the dates specified in the letter of acceptance (LOA) to the employer, and denominated in Indian Rupees. The performance security shall be valid until a date 28 days from the date of expiry of defects liability period and additional security for unbalanced bids shall be valid until a date 28 days from the date of issue of certificate of completion. Moreover, NHAI conditions of contract clause 48.1 specify employer shall retain from each payment due to the contractor the proportion stated in the contract data until completion of the whole of the works. This clause also specifies that on completion of whole of the works half the total amount retained to the contractor and half when the defects liability period has passed and the Engineer has certified that all defects notice by the Engineer to the contractor before the end of this period have been corrected. Moreover, it specifies that when cumulative retention money reaches maximum limit as stated in contract data, the contractor may substitute the retention money with "on demand" bank guarantee.

## **Suspension of work**

Works are usually suspended for one or more reasons during the execution of the project. Contract conditions carries clauses related to such suspensions elaborating measures to be taken during such suspension and effect of such suspension on original agreement. Such provisions reduce chances of dispute in FIDIC and Indian conditions of contract

regarding suspension of work. Based on FIDIC silver book clause 8.8, the employer may at any time instruct the contractor to suspend progress of part or all of the works. During such suspension, the contractor shall protect, store and secure such part or the works against any deterioration, loss or damage. The employer may also notify the cause for the suspension.

According to clause 8.9 for consequence of suspension of work, if the contractor suffers delay and/or incurs cost from complying with the employer's instructions under sub-clause 8.8 [suspension of work] and/or from resuming the work, the contractor shall give notice to the employer and shall be entitled subject to sub-clause 20.1 [contractor's claims] an extension of time for any such delay, if completion is or will be delayed, under sub-clause 8.4 [extension of time for completion], and payment of any such cost, which shall be added to the contract price.

After receiving this notice, the employer shall proceed in accordance with sub-clause 3.5 [determinations] to agree or determine these matters. The contractor shall not be entitled to an extension of time for, or to payment of the cost incurred in, making good the consequences of the contractor's faulty design, workmanship or materials, or of the contractor's failure to protect, store or secure in accordance with sub-clause 8.8 [suspension of work]. However NHAI condition does not provide any clause regarding the suspension of works whereas FIDIC conditions provides detailed procedure in case of suspension of work and the provisions relating to prolonged suspension.

### **Extension of Time**

Time is the essence in most of construction contract, since the construction work is affected by several unforeseen events there is always a chance of additional time required to complete the work due to such events. Extension of time clause is provided considering occurrence of such events or additional works ordered. According to FIDIC silver book clause 8.4, contractor shall be entitled subject to sub-clause 20.1 [contractor's claims] to an extension of the time for completion if and to the extent that completion for the purposes of sub-clause 10.1 [taking over of the works and sections] are or will be delayed by any of the following causes:

- A variation (unless an adjustment to the time for completion has been agreed under sub-clause 13.3 [variation procedure]),
- A cause of delay giving an entitlement to extension of time under a sub-clause of these conditions, or
- Any delay, impediment or prevention caused by or attributable to the employer, the employer's personnel, or the employer's other contractors on the site.

If the contractor considers himself to be entitled to an extension of the time for completion, the contractor shall give notice to the employer in accordance with sub-clause 20.1 [contractor's claims]. When determining each extension of time under sub-clause 20.1, the employer shall review previous determinations and may increase, but shall not decrease, the total extension of time. However NHAI conditions of contract clause 28.1 specifies the engineer shall extend the intended completion date if a compensation event occurs or a variation is issued which makes it impossible for completion to be achieved by the intended completion date without the contractor taking steps to accelerate the remaining work and which would cause the contractor to incur additional cost.

The engineer shall decide whether and by how much to extend the intended completion date within 21 days of the contractor asking the engineer for a decision upon the effect of a compensation event or variation and submitting full supporting information. If the contractor has failed to give early warning of a delay or has failed to cooperate in dealing with a delay, the resultant time overrun shall not be considered in assessing the new intended completion date.

### **Variations**

Construction work, most of the time involves changes in nature of work that was originally provided, additional work etc. scope for each such changes are incorporated in conditions of contract under the headings of variations. This will not only provide the client the flexibility to modify his original plan but also gives the contractor sufficient knowledge of such work.. Based on FIDIC Silver Book, clause 13.1 variations may be initiated by the employer at any time prior to issuing the Taking-Over Certificate for the Works, either by an instruction or by a request for the Contractor to submit a proposal. The variation shall not comprise the omission of any work which is to be carried out by others.

The contractor shall execute and be bound by each variation, unless the contractor promptly gives notice to the employer stating (with supporting particulars) that

- The contractor cannot readily obtain the goods required for the variation,
- It will reduce the safety or suitability of the works, or
- It will have an adverse impact on the achievement of the performance Guarantees. Upon receiving this notice, the employer shall cancel, confirm or vary the instruction.

Based on NHAI conditions of contract clause 39.1 all variations shall be included in updated programs produced by the contractor as per clause 39.2 subject to the condition that engineer is authorized to issue order regarding variation is up to

1% of contract value. However, based on Clause 39.3, the engineer can issue order to execute new items of work with prior technical approval from NHAI. According to Clause 39.4, new items/BOQ items beyond the limits prescribed, the rates may be determined in accordance with the clause 39 & 40 of conditions of the contract and with prior approval from the employer. However according to clause 39.5, subject provision under clause 39.2, 39.3 & 39.4 the Engineer is authorized to issue cumulative variation up to the limit of 10% of the original contract value (less negative variations/savings). The overall limit shall apply collectively on all BOQ items as well as non-BOQ items and shall include all the variations issued till that point of time including those approved by the Engineer. The overall limit shall be exclusive of escalation. However, according to clause 39.6 any variation beyond above limits (individual items and overall variations) shall be approved by the employer. All variations approved under the contract shall be intimated by the Engineer to the Employer on a quarterly basis.

### **Valuation of Variation**

Variation result in additional expenses and time to the contractor. Conditions of contract generally provide the detailed procedure for valuation of such variation. Based on FIDIC Silver Book clause 4.2, if the employer requests a proposal, prior to instructing a variation, the contractor shall respond in writing as soon as practicable, either by giving reasons why he cannot comply (if this is the case) or by submitting:

- A description of the proposed design and/or work to be performed and a programme for its execution
- The contractor's proposal for any necessary modifications to the programme according to Sub-Clause 8.3 [Programme] and to the Time for Completion, and
- The contractor's proposal for adjustment to the Contract Price.

The Employer shall, as soon as practicable after receiving such proposal (under Sub- Clause 13.2 [Value Engineering] or otherwise), respond with approval, disapproval or comments. The Contractor shall not delay any work whilst awaiting a response. Each instruction to execute a variation, with any requirements for the recording of Costs, shall be issued by the employer to the Contractor, who shall acknowledge receipt.

Upon instructing or approving a variation, the employer shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine adjustments to the contract price and the Schedule of Payments. These adjustments shall include reasonable profit, and shall take account of the Contractor's submissions under Sub Clause 13.2 [Value Engineering] if applicable.

Based on NHAI conditions of contract clause 39.8, all variations referred to in clause 39 and any additions to the contract price which are required to be determined in accordance with clause 40 (for the purpose of this clause referred to as "varied work"), and shall be valued at the rates and prices set out in the contract, including rebate if any, if in the opinion of the Engineer, the same shall be applicable. If the contract does not contain any rates or prices applicable to the varied work, the rates and prices in the contract shall be used, including rebate if any, as the basis for valuation so far as may be reasonable; failing which, after due consultation by the engineer with the employer and the contractor, suitable rates or prices shall be agreed upon between the Engineer and the Contractor. In the event of disagreement the engineer shall fix such rates or prices as are, in his opinion, appropriate and shall notify the contractor accordingly, with prior approval of the Employer.

As per clause 40.1 of NHAI conditions of contract, the contractor shall provide the engineer with a quotation (with breakdown of unit rates) for carrying out the variation when requested to do so by the engineer. The engineer shall assess the quotation, which shall be given within seven days of the request or within any longer period stated by the engineer and before the variation is ordered.

According to clause 40.2 of NHAI conditions of contract, if the work in the variation corresponds with an item description in the Bill of Quantities and if, in the opinion of the Engineer, the quantity of work above the limit stated in Sub Clause 38.1 or the timing of its execution do not cause the cost per unit of quantity to change, the rate in the Bill of Quantities shall be used to calculate the value of the Variation. If the cost per unit of quantity changes, or if the nature or timing of the work in the Variation does not correspond with items in the Bill of Quantities, the quotation by the Contractor shall be in the form of new rates for the relevant items of work. However according to NHAI conditions of contract clause 40.3, if the contractor's quotation is unreasonable, the Engineer may order the variation and make a change to the contract Price which shall be based on engineer's own forecast of the effects of the variation on the contractor's costs. Clause no.40.4 specifies if the engineer decides that the urgency of varying the work would prevent a quotation being given and considered without delaying the work, no quotation shall be given and the variation shall be treated as a compensation event. Moreover, clause 40.5 the contractor shall not be entitled to additional payment for costs which could have been avoided by giving early warning.

## Claims

Claims forms a major part of construction contract as it provides solution to disputed matter in contracts. Providing detailed procedure for claims in conditions of contract will reduce ambiguity and result in smooth resolution of disputes. If the Contractor considers himself to be entitled to any extension of the time for completion and/or any additional payment, under any clause of these conditions or otherwise in connection with the contract, the contractor shall give notice to the employer, describing the event or circumstance giving rise to the claim. The notice shall be given as soon as practicable, and not later as 28 days after the Contractor became aware, or should have become aware, of the event or circumstance.

If the contractor fails to give notice of a claim within such period of 28 days, the time for completion shall not be extended, the contractor shall not be entitled to additional payment, and the employer shall be discharged from all liability in connection with the claim. The contractor shall also submit any other notices which are required by the contract, and documents supporting the claim. However, without admitting liability, the employer may, after receiving any notice under this sub-clause, of FIDIC may monitor the record-keeping and/or instruct the contractor to keep further contemporary records. The contractor shall permit the employer to inspect all these records, and shall (if instructed) submit copies to the employer. Within 42 days after the contractor becoming aware (or should have become aware) of the event or circumstance giving rise to the claim, or within such other period as may be proposed by the contractor and approved by the employer, the contractor shall send to the employer a fully detailed claim which includes full supporting particulars of the basis of the claim and of the extension of time and/or additional payment claimed. If the event or circumstance giving rise to the claim has a continuing effect:

- This fully detailed claim shall be considered as interim;
- The contractor shall send further interim claims at monthly intervals, giving the accumulated delay and/or amount claimed, and such further particulars as the employer may reasonably require; and
- The contractor shall send a final claim within 28 days after the end of the effects resulting from the event or circumstance, or within such other period as may be proposed by the contractor and approved by the employer.

Within 42 days after receiving a claim or any further particulars supporting a previous claim, or within such other period as may be proposed by the employer and approved by the contractor, the employer shall respond with approval, or with disapproval and detailed comments. He may also request any necessary further particulars, but shall nevertheless give his response on the principles of the claim within such time.

The employer shall proceed in accordance with sub-clause 3.5 [determinations] to agree or determine (i) the extension (if any) of the time for completion (before or after its expiry) in accordance with sub-clause 8.4 [extension of time for completion], and/or (ii) the additional payment (if any) to which the contractor is entitled under the contract. The requirements of this sub-clause are in addition to those of any other sub-clause which may apply to a claim. If the contractor fails to comply with this or another sub-clause in relation to any claim, any extension of time and/or additional payment shall take account of the extent (if any) to which the failure has prevented or prejudiced proper investigation of the claim, unless the claim is excluded. However NHAI conditions do not provide any clause which brings out the procedure for claims whereas FIDIC conditions provide a detailed procedure to deal with the raising of notice to payment of claims. This eventually results in arbitration and court litigation of disputes that arise from ambiguity and disputed matter in contracts

## Settlement of Disputes

A well-defined methodology for dispute resolution in place will always result in better judgment of differences arising from the contract. Conditions of contract should specify detailed methodology to be followed by parties concerned in case of any disputes. It should allow the parties to go ahead with their higher authorities and panels till they get a fair judgment with an ideal win-win situation.

Based on FIDIC silver book clause 20.4 if a dispute (of any kind whatsoever) arises between the parties in connection with, or arising out of contract or the execution of works, including any dispute as to any certificate, determination, instruction, opinion or valuation of the employer, a Dispute Adjudication Board (DAB) has to be appointed based on sub-clauses 20.2 [appointment of the dispute adjudication board] and 20.3 [failure to agree dispute adjudication board], either party may refer the dispute in writing to the DAB for its decision, with a copy to the other party.

Accordingly, both parties should responsibly make available to the DAB all information, access to the site, and appropriate facilities, as the DAB may require for the purposes of making a decision on such dispute. The DAB shall be deemed to be not acting as arbitrator(s). Within 84 days after receiving such reference, or the advance payment referred to in Clause 6 of the General Conditions of Dispute Adjudication Agreement, whichever date is later, or within such other period as may be proposed by the DAB and approved by both Parties, the DAB shall give its decision, which shall be reasoned and shall state that it is given under this Sub-Clause. However, if neither of the Parties has paid in full the invoices submitted by each member pursuant to Clause 6 General Conditions of Dispute Adjudication Agreement of the

DAB shall not be obliged to give its decision until such invoices have been paid in full. The decision shall be binding on both parties, who shall promptly give effect to it unless and until it shall be revised in an amicable settlement or an arbitral award as described below. Unless the contract has already been abandoned, repudiated or terminated, the contractor shall continue to proceed with the works in accordance with the contract.

If either party is dissatisfied with the DAB's decision, then either party may, within 28 days after receiving the decision, give notice to the other party of its dissatisfaction. In, this case, the notice of dissatisfaction shall state that it is given under this Sub- Clause, and shall set out the matter in dispute and the reason(s) for dissatisfaction. Except as stated in sub-clause 20.7 [failure to comply with dispute adjudication board's decision] and sub-clause 20.8 [expiry of dispute adjudication board's appointment], neither party shall be entitled to commence arbitration of a dispute unless a notice of dissatisfaction has been given in accordance with this sub-clause.

If the DAB has given its decision as to a matter in dispute to both parties, and no notice of dissatisfaction has been given by either party within 28 days after it received the DAB's decision, then the decision shall become final and binding upon both parties.

As per FIDIC Silver Book clause 20.5, if notice of dissatisfaction has been given under Sub-Clause 20.4, both Parties shall attempt to settle the dispute amicably before the commencement of arbitration. However, unless both parties agree otherwise, arbitration may be commenced on or after the fifty-sixth day after the day on which notice of dissatisfaction was given, even if no attempt at amicable settlement has been made.

Based on NHAI conditions of contract clause 24.1 the contractor believes that a decision taken by the engineer was either outside the authority given to the engineer by the contract or that the decision was wrongly taken, the decision shall be referred to the Dispute Review Expert within 14 days of the notification of the engineer's decision. However based on clause no.25.1 the Dispute Review Expert shall present a decision in writing within 28 days of receipt of a notification of a dispute. Moreover, based on clause no.25.2, either party may refer a decision of the Dispute Review Expert to an Arbitrator within 28 days of his written decision. If neither party refers the dispute to arbitration within the above 28 days, the Dispute Review Expert's decision will be final and binding on both parties. Eventually, clause.25.3 states that arbitration shall be conducted in accordance with the arbitration procedure stated in the Special Conditions of Contract.

## CONCLUSION

The study carried out to highlight the contrast between the contract documents prepared for real time National Highway construction project based on NHAI guidelines, which is executed in EPC mode and standard contract document based on FIDIC. The analysis is carried out on the selected clauses that have high influence in execution of construction activity. The study also highlights the ambiguity associated with the EPC contract by NHAI, which is an evident risk to the contractor. The study identifies clearly that role of Engineer in charge in dealing the ambiguity and claims in the construction project is minimal while clear guidelines on the priority of documents are envisaged in EPC contract by NHAI. However FIDIC contract specifies the role of engineer in resolving the issues. FIDIC and EPC contract by NHAI brings out similar clauses regarding security deposit. It is observed that FIDIC specifies clear guidelines regarding precautions and procedures for suspension of work due to poor workmanship while NHAI specifies on performance bond to guarantee workmanship.

FIDIC provides extension of time clause to be determined by the engineer based on the early warning provided by the contractor due to unprecedented factors while NHAI specifies the extension of time based on the discretion of the engineer in charge. While NHAI specifies clear guidelines and hierarchy of responsibility to grant the variation of work, FIDIC specifies that variation of work other than omission of work can be executed by contractor with the consent of engineer based on value engineering principles.

Even though dispute resolution by both EPC contract of NHAI and FIDIC mode is based on similar time bound procedures, wide contrast exists in the settlement of claim by both system as NHAI does not specify on an intermediate resolution paving way to arbitration and court litigation.

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