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Analysing EOT (Extension of Time) Claim Procedure in Indian Construction Industry along with Case Study

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Abstract: Project is a sequence of activities having fixed duration. If there is a delay in any activity which lies on the critical path of the project then it will hamper the project completion date and will lead to time overrun. Time overrun is an important factor to judge the success of the project. It may be due to contractor's fault, employer's fault, interface contractor's fault or due to force majeure. There is a need to analyse the cause of delay and if the delay is not due to contractor's fault than contractor is entitled to the EOT. In India contracts are framed according to CPWD and Military engineering services, hence it has some different approach to claim EOT from FIDIC and other international bodies. Claiming of EOT requires the involvement of different departments. This paper discusses the protocols followed in claiming EOT as per Indian law and suggests about the amendments to be taken to eliminate disputes in process of claiming EOT.

Keywords: Extension of Time, Baseline Programme, Delay Analysis, Claims, Dispute Areas.

I.INTRODUCTION

As the project is evaluated through time and cost. The time taken to complete the project and cost incurred in project completion, the success of the project is estimated by these two factors. In India contracts are framed according to CPWD and Military engineering services, hence it has some different approach to claim EOT. It involves following steps-

1. Preparation of initial work program including an outline narrative statement within 15 days from the notice to proceed.
2. First, three months rolling program to be submitted within 30 days of the notice to proceed.
3. Submission of detailed version within employer consent to the proposed initial work program.
4. Submission of the baseline program after consulting with other interfacing contractors if any, against which actual progress of the contract shall be reckoned.
5. Review by employer and correction of the program if any.
6. Proper updating of the program.
7. If the updated program indicates an actual or potential delay in the contract completion date or key dates, identify causes of delays.
8. Split between contractor fault and delay due to the employer, interface contractor and force majeure delays.
9. Prepare evidence for the delay.
10. Claim EOT on delays not due to contractor's fault after deduction of concurrent delays.
11. Update baseline program on granting of an extension of time by the competent authority.

II. CRITICAL PATH METHOD

The computerised Critical path method (CPM) network using Precedence Diagramming Method (PDM), has been developed by the contractor with cost loaded charts and tables. The contractor has to implement and use throughout the duration of the contract a computerised system to plan, execute, maintain and manage the planning, design, pre-construction, construction, and subcontracts in executing the CPM scheduling by PDM. It is the contractor's responsibility to ensure timely coordination with the designated contractors to review, revise and finalise his initial work program so as not to affect the progress of works/and or the works of the designated contractors.

III. WORK PROGRAMME

a) The work program shows the contractor's plan for organising and carrying out the whole of the works.

b) The work programme is to be computerised Critical Path Method (CPM) network developed using the precedence diagramming method (PDM) and to be present in a bar chart and time-scaled network diagram format to the weekly or monthly time scale.

c) The work programme to be adequately detailed to describe activities and events that include, but are not limited to, the following:

1. Key dates.
2. All physical work to be undertaken in the performance of the contract obligations, including temporary works.
3. The requested date for issue of any drawings or information by the employer.
4. Incorporation of principal aspects of design submission programme.
5. Procurement of major materials and the delivery and/or partial delivery date on-Site of principal items of Contractor's equipment.
6. Any off-site work such as production or prefabrication of components.
7. Installation of temporary construction facilities.
8. Interface period with designated contractors or utility undertakings.
9. Design, supply and/or construction activities of subcontractors
10. Any outside influence which can or may affect the works.

d) The work programme has to show achievements of all key dates.

e) Activity descriptions are to be unique, describing discrete elements of work. Any activity creating an imposed time or another constraint to be fully defined by the contractor.

f) The works programme to be organised in a logical work breakdown structure including work stages and phases, and clearly, indicate the critical path/paths.

IV. BASELINE PROGRAMME

Once pre-planning is done the contractor produce a baseline programme. The baseline programme shows a sequence of activities performed along with estimated time of each activity in a planned manner. All submission of proposed work programmes subsequently, after approval of the initial work programme, to include the actual physical progress of the work and forecast of the remaining work. The programme is not only a contractual document but also a management tool and more particularly an essential communication method. The follow-up of the program and its audit at general interims is a key point for correspondence between the parties and ought to be utilised as an early cautioning signal by the contractor in case a delay begins to appear. In particular, once a delay event occurs, the programme is to be used as the basis for the impact the delay may have on the completion date. Such a methodology is required to examine the consequences of a delay event and to prepare a contractor's claim in perspective of supporting an extension of time.

V. DELAYS IN PROJECT

Delays in the project are mainly due to:

a) Employer
b) Contractor
c) Other Interface Contractors
d) Force majeure
e) Concurrent delays

Contractor's risk events, in general, are limited to the following:

1. The wrong supposition of the work to be performed.
2. Financial problems.
3. Impractical activity duration or wrong relationships between them.
4. Late delivery of the required materials and machinery.
5. Lack of resources needed to complete the project.
6. Poor workmanship which leads to the addition of extra work (extensive remedies).
7. The obligation to HSE (Health Safety and Environment) requirement.
8. Poor time management.
9. Less productivity of resources than prescribed in codes.

Employer's risk events, in general, are the following:

1. Delay in handing over the land.
2. Due to dissimilar physical conditions found after excavation of the site of geometric or utility survey detail from those provided during the tender stage.
3. Delay in granting permission for utility diversion, tree cutting etc.
4. Changes to the original contract scope.
5. Late engineering deliverable.
6. Late procurement deliverables.
7. Frequent revisions for engineering drawings.

8. Delay in payment.
9. Due to Postponement of the work.
10. Adverse weather conditions.
11. Changes to project specifications.
12. Force Majeure (such as an epidemic or an 'act of God').
13. Delay in approval of architectural drawing.

VI. DELAY ANALYSIS

Delay in the project is identified

I. By seeing deviation in actual programme from the baseline programme.

II. By seeing forecasted cumulative physical progress 'S' curve and actual progress 'S' curve based on the time-phased distribution of cost in the CPM network logic diagram, which is expressed in percentage form. For this Earned value analysis is performed. Earned value (EV) is also referred to as Budgeted Cost of Work Performed (BCWP). EV or BCWP is the total cost of the work completed/performed as of a reporting date.SV or Schedule variance is calculated and if its value is less than 1, then the project is behind the schedule.

For making (EOT) extension of time claims with references of delays following four methods is generally used:
1) As-planned Vs. As-Built Comparison
2) Impacted As-planned.
3) Time-Impact Analysis Method
4) Collapsed As-built Method

The contractor can apply extension of time for completion if work is delayed due to following reasons-

1. Force majeure
2. The contractor is not given access to the site in accordance with the contract.
3. Instruction of the employer to suspend the works and the contractor not in being default as to the reason for the suspension.
4. Acts or omissions of the other designated contractors in executing work not forming part of this contract and on whose performance, the performance of contractor necessarily depends.
5. Any act of prevention or breach of contract by the employer.
6. Any order or court restraining the performance of the contract in full or in part thereof.
7. Any other event or occurrence which, according to the employer is not due to the contractor failure or fault, and is beyond his control without the employer being responsible for the same.
8. An employer's variation.

However, the contractor is not to be entitled to any extension of time where the instructions or acts of the employer or the employer representative are necessitated by or intended to cure any default of or breach of contract by the contractor or where any delay is due to

a) The failure of a subcontractor, to commence or to carry out work in due time.
b) Non-availability, or shortage of contractor's equipment, labour, utility services, plants, and material.
c) Inclement weather conditions and
d) The contractor not fulfilling his obligations given in contract.

VII.REVISION OF PROGRAMME

For the revision of the programme the contractor has to immediately notify the employer's representative in writing of the need for any changes in works programme, whether due to a change of intention or of the circumstances or for any other reason. If there is a delay and such delay affects timely completion of works or any other key date then contractor shall within 14 days of the date of notifying the employers representative submit for the employer consent its proposed revised works programme and accompanying narrative statement. The proposed revised works programme shall show the sequence of operation of any and all works related to the change and impact of changed work and changed condition. If the delay is not due to contractor's fault than contractor is entitled to the EOT

Rescheduling of milestones is done after acceptance of extension of time (EOT).The first milestone is rescheduled based on the hindrances occurred during the time allowed for that milestone. The other milestones are also suitably shifted based on the rescheduling of the milestone as mentioned above.

VIII. DISPUTE AREAS

Following are the major areas of the dispute between Contractor & Employer-

1. Critical Path
2. Ownership of the Float
3. Concurrent (or Contractor) Delays and how these effect Entitlement

The critical path is the longest path in a project. Project duration is calculated by calculating the duration of time taken by activities along the critical path. The entire project will be delayed by if any activity is delayed on the critical path. During

execution phase, the critical path keeps on changing from the baseline programme. When investigating the impact of the Employer's Delay Events, both the parties keep disputing as to which critical path should be referred to check the impact of delay events.

Float or slack is the amount of time that an activity in a project network can be delayed without causing a delay to the project. If the contract is silent about ownership of float then it will be available on first come-first served basis. As the contractor argues that these floats are given by him to compensate any delay in the non-critical activities and client argue that he is a stakeholder in the project hence he should have share or rights on the float. There is always a dispute between parties on the ownership of float.

Concurrent delay refers to the complex situation where more than one event occurs simultaneously, but where not all of those events enable the contractor to claim an extension of time or to claim loss and expense. In the case of delay overlapping with employer and interface contractors delay, there is a state of dispute arises between the main contractor and employer/interface contractor or between interface contractors.

IX. CASE STUDY

A case study of an infrastructure project of construction of underground metro station involving complex and tremendous activities.

Project: Construction of Vinobapuri metro station

Contractor: J Kumar-CRTG JV

Employer: Delhi metro rail corporation

TABLE I

Causes of delay and their impact on completion of various key dates		
Sr. No.	**Activity/ Cause of delay**	**Delay (in months) w.r.t. Base Line Programme**
1	**Land Handing Over/ Taking Over**	11.84
2	**Tree cutting permission**	5.00
3	**Traffic diversion**	0.28
4	**Change in DBR**	3.7
5	**Non - allocation of dumping yard and frequent changes in dumping yard locations**	5.96
6	**Major Utilities**	6.53
a)	**33 KVA OHE Line**	1.20
b)	**DTL 06 Nos. Cables**	1.39
c)	**Gravity Duct**	3.94
7	**Delay in providing Architectural drawings for block work**	1.95

The contractor has applied Time Impact Analysis method and was fruitful in getting a time extension due to the various delay which didn't involve contractor fault. The overlapping delays or concurrent delays were deducted with the consent of the employer. The contractor used the As Impacted Baseline Program method to find out the concurrent delays from his side and after granting of EOT contractor had used this record to claim monetary compensation.

CONCLUSION

The disputes over ownership of Total Float & definition of Critical Path should be minimised by referring to rules set out by SCL, UK or by framing rules similar to these with some modification if required as per Indian scenario. Calculating delay in an infrastructure project is not an easy task and requires lots of data and records. It requires integration of all the departments like planning, contracts, and execution etc. A lot of effort is required to record and to analyse delay causes. It is also suggested to not to wait until the completion of the project to claim EOT and should be applied for the claim of EOT as the delay occur if it is excusable and consumable. Critical path must be chosen by the consent of both the parties during updating of programme. For concurrent delay, it is necessary to carry out an investigation of each delay individually and in the order in which they arose. This study is vital for determining whether any compensation will be due for the employer delay. Delays are analysed, manipulate and segregate only by following protocols given in contract document or by following international protocols.

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