



### DR04 : Delay Analysis Methodology and Techniques; Part 1

The standard forms of contract set out a number of possible contingencies, the risk of which is to be born not by the contractor but by the employer. For example, the JCT form, under clause 25, details Relevant Events which are beyond the control of the contractor. If the occurrence of any of those contingencies occur so as to cause the Works to take longer to complete then, because those contingencies are not at the contractor's risk, that much more time must be added to the contract period. Without provisions for more time to be granted, for example for the effect on the contract period for late issue of information, time would become at large. This means that the contractor would have to complete not within the contract period but within a reasonable time, whatever that happened to be. Furthermore, the employer would not be able to recover liquidated damages for any overrun of the contract period. This is why there are provisions for time to be extended in the event that the contract period is adversely affected by those risks that are borne by the employer.

The amount of time to be added to the contract period for employer responsible delaying events which have caused delay to the completion date should be calculated logically and methodically by the contract administrator, or architect, and he must form his judgement impartially and objectively. This means that if it comes to a dispute as to whether a fair and reasonable extension of time has been granted and the contract administrator has determined the period of that extension of time instinctively, intuitively, or under the instructions of one of the parties, his decision is likely to be overturned.

Unfortunately, none of the standard forms provide any indication of the sort of information or technique upon which such a logical and methodical appreciation of the factual matrix upon which an extension of time should be calculated.

It is important to recognise that, generally, it is only a delay or likely delay to the progress of the Works that the contractor has to notify, but it is the extent, or knock-on effect of such event to the date for completion that the contract administrator has to certify. One of the major difficulties is that the delay in the planned timing of an activity alone gives no clue as to whether it is likely to have an effect on the date for completion. Neither is it of any importance that an activity took longer to achieve than that shown on the contractor's as-planned programme. In the end, the deciding factor to the contract administrator is whether the employer responsible delay event has adversely affected the date for completion.

Except in the most obvious of circumstances, proving a chain of causation in an environment in which many ongoing activities are being carried out concurrently is by no means a simple exercise. Therefore, even if the contractor provides what is required under the contract, the contract administrator will necessarily have to do an awful amount of work to sort out the wheat from the chaff.

Arising out of its role as an aid to the planning of a project and as a monitor of current performance, it was a short step to the programme being used to provide a quick and simple means for appraising delays and showing entitlement for extensions of time. By the early 1970's the use of computers and project planning software meant that the Critical Path Method (CPM) was developed as a tool for assessing responsibility in delay and disruption construction disputes.



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Since then there has been a proliferation of techniques which have evolved with increasing sophistication and ingenuity but most of these suffer from weaknesses to adequately address a number of issues relating to the use of CPM for extension of time submissions and delay claims, such as programme float and concurrency.

Due to the dynamic and often complex nature of a construction project, the use of a simple 'short cut' method of delay analysis has proved to be inappropriate for anything other than providing a relatively informed feel for what happened. However, this can be useful for the purpose of providing an element of support for positions adopted in the context of normal final account negotiation, but it falls considerably short of the burden of proof in the context of legal proceedings.

Previous experiences of various authors and observations by other investigators indicate,

- a. the wide spectrum of extension of time (EOT) assessment and analysis approaches/techniques adopted or adapted by various contractors and consultants at different times,
- b. the lack of consensus on any suitable approach.

Problems often arise in unravelling 'cause' and 'effect' patterns, given that many EOT causes and entitlement are inter-related and may also be concurrent. Concurrent delays are said to arise when two or more delays occur at the same time or overlap to some degree.

However, the critical importance of reliable documentation and records in establishing EOT entitlements cannot be over-emphasised, whatever the technique that is ultimately adopted.

#### Summary

Which technique to use sometimes depends on the reason for preparing the delay analysis. For example, a contractor who makes a submission to the employer, or his representative, for an extension of time as part of the final account settlement, may not have the time for an extensive delay analysis will lean towards one of the simplistic techniques. Going to the other extreme, if the dispute is in arbitration or litigation, one of the prospective analysis or retrospective analysis techniques should be used as the level of sophistication required in these arenas excludes the impressionistic and simplistic techniques.

The claimant is free to choose any format he wishes for presentation of his delay claim but should be aware that the courts have rejected some formats. It may be however, that the claimant has other reasons for selecting a particular format (e.g. as a negotiating tool or because their client has requested a particular type of presentation). Should the claimant proceed with a claim in a particular format for say negotiation purposes and then find that negotiations break down and a dispute ensues, then the claimant may be put to the task (and cost) of reworking the delay claim into a format more acceptable to the court.