

APPLICATION OF CONCURRENCY IN DELAY CLAIMS

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ABSTRACT

It was observed that the consideration of concurrency in delay claims in Sri Lankan construction industry is significantly low. A study was conducted to identify key reasons for low consideration of concurrency in delay claims analysis. A three-round study method was adopted. First was a pilot study by means of interviews to explore concurrent delay practice in Sri Lanka. Second was a round of semi-structured interviews among key parties to a contract to identify significant causes affecting consideration of concurrency in delay claim analysis. Third round was a document survey aiming to identify lapses in documents which could affect successful practice of concurrent claim analysis. The study concludes that quality of documents is the most significant cause affecting the consideration of concurrency in delay claims analysis and identifies number of lapses in documents which contribute to low consideration of concurrency in delay claims. In addition to improving documentation practices, enhancing employers' awareness on concurrency is also suggested as a necessity to improve concurrent delay analysis practice in the Sri Lankan construction industry.

Keywords: Concurrent Delay, Claims Management, Construction, Sri Lanka.

1. INTRODUCTION

An instance where two or more independent delays, which falls under 'Employer Risk' and 'Contractor Risk' occur at the same time and affect the ultimate completion date of the project is defined as 'Concurrent Delay' (Rubin *et al.*, 1983 cited in Arditi and Pattanakichamroon, 2006 and Cushman *et al.*, 1999). This paper presents findings of a study on application of concurrency in delay claims in Sri Lanka. The aim of the study was to identify the key reasons for low consideration of concurrency in delay claims analysis.

Concurrency in delays is a special aspect in claims management. Both Contractors and Employers use concurrency as a shield in defending delay claims. Contractor may use concurrency to defend delay damages, while Employer may use it to avoid paying compensation for the prolongation to the Contractor. Concurrent delays are known to be complex to analyse and difficult to prove. Because whenever Employer and Contractor concurrently delay the work, responsibility for the delay cannot be identified and shared properly (Williams, 2003). However, for accurate accounting of the contractual liability for delays, impact of concurrency cannot be ignored.

It was observed that the consideration of concurrency in delay claims in Sri Lankan construction industry is significantly low. This implied that the contractual liabilities of delays may not be accurately accounted. Therefore, exploring what has been instrumental in discouraging the application concurrency became interesting.

2. STUDY METHOD

The study was conducted in three rounds. The arrangement was effective due to the nature of problem being studied. The first round was a pilot study by means of unstructured interviews with three claims experts. The primary objective was to verify if the authors' personal observation of low application of

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concurrency in Sri Lankan construction delay claims was in fact true. The study also helped to receive a general yet extensive overview of the nature and issues in application of concurrency in delay claims. Verification of the aim of the study was also an objective of the pilot study.

The second round was a semi-structured interview. The objective was to identify the significant causes affecting the consideration of concurrency in delay analysis. 36 professionals representing Employers', Engineers' (consultants) and Contractors' organisations (12 numbers from each) took part in interviews. All participants had minimum of 5 years experience in claim handling and/or post contract management.

By analysing the responses of the interviewees, the primary cause of the problem was hypothesised. Third round was a document survey which was used to test the set hypothesis. The survey was conducted at 24 Engineers' and Contractors' (12 numbers from each) organisations. Binomial test was used to test the statistical hypotheses.

Second and third rounds of the study are detailed below together with their relevant literature synthesis.

3. REQUISITES FOR SUCCESSFUL CONCURRENT DELAY CLAIM PRACTICE

Delays in construction can result in number of changes in a project; for example, they may cause late completion, productivity reduction, need for acceleration, increases in costs, or even contract termination. When one party to the contract has suffered damage, it should be compensated by the other party according to the responsibility of the cause. A construction claim is a statement of demand for compensation, which provides arguments based on evidence (Kululanga *et al.*, 2001).

The main requisites for successful concurrent delay claim practice are,

- a) Parties' awareness on contractual entitlement for Extension of Time (EOT) for completion and Delay Damages (DD)
- b) Parties' awareness on concurrent delay and its analysis methods
- c) Parties' proper documentation or record keeping

The party suffered from a delay should have the ability to recognise the delay event, potential damage and the parties who are responsible, in order to recover the time and cost incurred. The identification of delay causes should be timely done with the proper understanding of claim process (Arditi and Pattanakichamroon, 2006 and Kumaraswamy, 1997).

3.1. CONTRACTUAL PROVISIONS AND ENTITLEMENTS

When the Contractor caused a delay and if it has impacted on project completion, the Contractor shall pay DD to the Employer. DDs are reasonable pre-estimates of losses of the Employer which are likely to incur if the project completion gets delayed.

If Contractor suffers delay and/or incurs cost as a result of the Employer's failure, Contractor is entitled for EOT and payment of cost plus profit. If it occurred from causes beyond the parties control, such as weather and fossils found on the site, the Contractor will only be entitled for EOT and cost incurred, but not for the profit.

The provisions are reviewed primarily in respect of FIDIC Conditions of Contract for Construction-1999 (known as FIDIC99) which has global application. However, the Sri Lankan standard form, ICTAD Standard Bidding Document for major contracts-2007 (SBD) (ICTAD, 2007), is very much similar to FIDIC (1999). Both FIDIC and SBD are used in Sri Lankan projects.

3.2. CLAIM PROCESS

Time related claims are often very difficult from preparation to evaluation. Any time related claim situations need to be resolved with regard to three basic elements: Causation, Liability and Damages (Cushman *et al.*, 1999). It is necessary to follow a proper claim process for effective claim management. Key steps of a claim process are identified below.

Step 01: Claim Identification

Construction claim identification should be done accurately and at the right time by the Contractor. This is the first and critically important ingredient of the claim process (Kululanga *et al.*, 2001). Due to failure of identification, a claim can be completely lost. Identification is effected mainly by two factors.

- a) Contractor's awareness of possible claim causes and claim processes required, according to contractual provisions.
- b) Contractor's awareness of job and identification of direct actions on site that initiate the claim. e.g. Work content, Each activity description, Duration of each activity, Party who will perform the activity, Resource allocation for each activity, Lag between two activities, Any one or more activities are to be sequenced in relation to other activities (Pickavance, 2005 and O'Connor, 2003)

Step 02: Claim Notification

The purpose of a timely notice is to provide the other party with an opportunity to assess the circumstances to determine whether there is an alternate method of dealing with the problem and to avoid the costs associated with a claim. The prevention of notification will lose the other party's opportunity to mitigate the loss (O'Connor, 2003 and Barnard, 2004). Therefore, if notice of a claim is not given within the specified period given, the time for completion shall not be extended. Further, Contractor shall not be entitled to additional payment (FIDIC, 1999 - Sub Clause 20.1).

The notice should be short, clear, simple, conciliatory and cooperative (Kululanga *et al.*, 2001). It should be with the relevant circumstances, including the cause or causes of the delay and illustrate any event which in Contractor's opinion is an Employer's time risk event, date which the event took place, cause, likely duration and potential impacts (Pickavance, 2005; Birkby and Brough, 1993).

Step 03: Claim Examination and Presentation

Claim examination should be done by the Contractor. This involves;

- a) Establishing the legal and factual grounds on which the claim is to be based
- b) Estimates of potential recovery

The primary sources for claim examination are the documentation and records maintained in the site itself, written correspondences, memos, meeting minutes, etc. Within given time in condition of contract, the Contractor shall prepare a fully detailed claim which includes full supporting particulars and send it to the Engineer.

Step 04: Claim Evaluation

Upon receiving a claim and supporting particulars, within a specified time agreed in conditions of contract, Engineer shall respond with approval or disapproval with detailed comments. Before approving or disapproving the claim, the Engineer should evaluate it. Evaluation of claims is not an exact science. The basis of calculation depends on the complex interaction of factors which may be unique to the project (Thomas, 2001). There are three steps to be taken to judge a delay event. These are, (a) occurrence of a causal event, (b) a delay to progress of the works, and (c) delay to completion (Pickavance, 2005).

Step 05: Claim Negotiation

At the negotiation, both parties have an equal opportunity to represent and discuss findings before making a decision. It is an approach to identify party's own position in complex circumstances of claims. A successful negotiation should be flexible, because the result achieved should be fair to both Employer and Contractor. Negotiation is not just the final settlement for resolving a claim; if the parties are not be able to come to an agreement they can go for other alternative dispute resolution methods (Turner and Turner, 1999; Pickavance, 2005 and Omar, 2007).

3.3. CONCURRENT DELAYS AND APPROACHES TO APPORTIONMENT

When there is a concurrent delay, which both the Contractor and Employer simultaneously delay the project's critical path, it becomes difficult to identify the responsible party for the delay. In case of concurrent delays, consequences should be apportioned between Contractor and Employer on the basis of their contribution. The apportionment should answer the following questions (Marrin, 2002).

- a) Is the Contractor to be granted an EOT?
- b) Is the Contractor entitled to recover worth of prolongation costs? or
- c) Is the Employer entitled to recover worth of DDs?

Compensation and DD are decided according to the apportionment entitlement for the EOT (Davison and Mullen, 2009). When there are number of delays affecting project's completion date, there is no hard and fast rule concerning which delay takes the priority. Each case has to be judged on its own merits (Knowles, 2005). Therefore apportioning method should be selected depending on the circumstances. Common methods in practice are (a) But for Test, (b) Dominant Case Approach, and (c) use of common sense.

By reviewing the requisites along with what was found through the pilot study, lists of causes which are likely to impact the consideration of concurrency in delay claims were developed. Three lists were prepared to cover three main parties involving in delay claims viz. Employers, Engineers, and Contractors. The lists can be found in Tables 1, 2 and 3 below.

4. IDENTIFICATION OF SIGNIFICANT CAUSES AFFECTING THE CONSIDERATION OF CONCURRENCY

The significance of the causes identified as described above was analysed through descriptive methods using the data collected through the semi-structure interviews (i.e. second round of the study). Analysis was conducted separately for each group (party); and a global analysis was not possible because there were differences among the lists of possible causes of three groups, and in fact the causes acts differently in influencing concurrent delay consideration.


The objective of analysis was to identify if a cause considered has been instrumental. There are two possible outcomes when analysing an organisation:

- Organisations which have considered concurrency
- Organisations which have not considered concurrency

First outcome could occur either with the presence or absence of a cause in concern. Similarly second outcome could also occur either with the presence or absence of a cause in concern.

In order to identify if the selected cause significantly impacts on consideration of concurrency, the pooled number of organisations which fall into following categories were counted against the total number of organisations in the group.

- Consideration of concurrency with the presence of the cause in concern
- Non consideration of concurrency with the absence of the cause in concern,

which is denoted by  in Tables 1, 2, and 3..

How this pooling yield the significance can be explain by taking the data shown in Table 1 below as examples. "Capacity to involve in post-contract management" was there with most organisations (9 numbers) among 10 organisations which did not consider concurrency. That shows that, while the capacity is there, organisations still did not consider concurrency, which means that "capacity to involve in post-contract management" is not a significant cause. Therefore, more of "Yes" in "Not Considered" group means, the cause is not significant. Inversely, more of "No" in this group means that the cause is

significant. In the group which considered concurrency, more of “Yes” means that the cause is significant, and vice-versa.

4.1. SIGNIFICANT CAUSES FOR EMPLOYERS TO CONSIDER CONCURRENCY

Table 1 shows the analysis results of the Employer group’s response. Accordingly, only about 17% from the sample had considered concurrency. Employers’ awareness on concurrent delay was a significant cause on considering concurrency in delay claim analysis. The level of significance was 83% from total sample. The result came from the fact that 8 out of 10 who did not consider concurrency also did not have the awareness; and all who considered concurrency also had the awareness. Thus the consideration of concurrency is significantly impacted by Employer’s awareness on concurrent delays and assessing techniques.

Table 1: Causes for Employers to Consider Concurrency

Concurrency Employer's	Not Considered		Considered		Bar Chart (Green, Blue, Red, Brown)										Impact %
	Yes	No	Yes	No											
Capacity to involve in post contract management	9	1	2	0	[Bar chart showing 100% 'No' for Not Considered, 0% 'Yes' for Not Considered, 0% 'No' for Considered, 100% 'Yes' for Considered]										25.0
Awareness on losses incur & right to recover DD	5	5	2	0	[Bar chart showing 50% 'No' for Not Considered, 50% 'Yes' for Not Considered, 0% 'No' for Considered, 100% 'Yes' for Considered]										58.3
Awareness on provisions on EOT & Compensation	8	2	2	0	[Bar chart showing 80% 'No' for Not Considered, 20% 'Yes' for Not Considered, 0% 'No' for Considered, 100% 'Yes' for Considered]										33.3
Awareness on concurrent delay	2	8	2	0	[Bar chart showing 20% 'Yes' for Not Considered, 80% 'No' for Not Considered, 0% 'No' for Considered, 100% 'Yes' for Considered]										83.3
Acceptable quality of documentation	1	9	2	0	[Bar chart showing 10% 'Yes' for Not Considered, 90% 'No' for Not Considered, 0% 'No' for Considered, 100% 'Yes' for Considered]										91.7
No preference for negotiated solution	6	4	1	1	[Bar chart showing 60% 'Yes' for Not Considered, 40% 'No' for Not Considered, 10% 'Yes' for Considered, 90% 'No' for Considered]										41.7

However, the most significant cause in terms of Employer became the acceptable quality of documents with a calculated significance level of 91.67%. Therefore proper documentation and records becomes the most critical cause to enable consideration of concurrency from the Employers’ end.

4.2. SIGNIFICANT CAUSES FOR ENGINEERS TO CONSIDER CONCURRENCY

Analysis results of the Engineer group’s response are shown in Table 2. It was found that only 25% of the sample had considered concurrency in analysis of delay claims.

Accordingly, two causes, Engineer’s satisfaction with current practice of claims management, and proper communication between Head Office (HO) and sites have 83.34% impact on consideration of concurrency. Interestingly, the most significant cause found in this group also was the acceptable quality of documentation showing 100% impact towards successful consideration of consideration of concurrency in delay claims.

Table 2: Causes for Engineers to Consider Concurrency

Concurrency Engineer's	Not Considered		Considered		Impact %
	Yes	No	Yes	No	
Capacity to involve in post contract management	9	0	3	0	25.0
Acceptable communication between HO and Site	2	7	3	0	83.3
Awareness on provisions on EOT & Compensation	9	0	3	0	25.0
Awareness on concurrent delay	7	2	3	0	41.7
Acceptable quality of documentation	0	9	3	0	100.0
Satisfied with delay claims management	1	8	2	1	83.3

4.3. SIGNIFICANT CAUSES FOR CONTRACTORS TO CONSIDER CONCURRENCY

A quarter of the Contractors' organisations analysed had considered concurrency in delay claims. Acceptable quality of documentation became the most significant cause also in this group with an impact score of 83%. This was followed by their reluctance for a negotiated solution (i.e. preference for contractual entitlement) with an impact score of 75%.

Table 3: Causes for Contractors to Consider Concurrency

Concurrency Contractor's	Not Considered		Considered		Impact %
	Yes	No	Yes	No	
Capacity to involve in post contract management	9	0	3	0	25.0
Acceptable communication between HO and Site	7	2	3	0	41.7
Awareness on provisions on EOT & Compensation	9	0	3	0	25.0
Awareness on concurrent delay	6	3	3	0	50.0
Acceptable quality of documentation	1	8	2	1	83.3
No preference for Negotiated solution	1	8	1	2	75.0

The interesting finding was that the acceptable quality of documentation is the most significant cause for all three groups. Among the groups, other causes had varying degrees of impact on consideration of concurrency. Comparing this result with the comments made by the experts during the pilot study, it was hypothesised that the acceptable quality of documentation being the most significant cause, unacceptable

quality of documentation is in fact the primary cause for low consideration of concurrency in Sri Lankan construction industry. To verify this, a further study was conducted.

5. DOCUMENT REQUISITES FOR SUCCESSFUL CONCURRENT DELAY CLAIM PRACTICE

Claim documentation is a collection of hard facts that depicts the actual history of a claim. At claim presentation and evaluation it is vital to refer the relevant records and documents as evidence, to establish the truth of facts and the opinions based on those facts. Clear factual evidence is crucial to a successful claim (Davison and Mullen, 2009; Turner and Turner, 1999; Kululanga *et al.*, 2001 and Pickavance, 2005). Documentary evidence requirement, vary from claim to claim. Therefore, it is hard to list out all the documents or records necessary (Birkby and Brough, 1993). Thus, most common supportive documents required for a successful claim management were identified for the verification study.

Document requisites for a successful concurrency consideration were studied initially through a literature survey. Identified key requisites are introduced together with their status in Sri Lankan construction industry through subsections 0 to 0 below.

6. STATUS OF DOCUMENTARY REQUISITES IN SRI LANKAN CONSTRUCTION INDUSTRY

Status of document requisites was assessed through a document survey. Documents used and produced at 24 numbers of organisations were scrutinised in detail to identify whether they are at appropriate standard to be used in a concurrent delay analysis. The required were identified through literature, and a checklist was prepared as the assessment tool. What checked were the availability, completeness and timeliness of the documents. However, it was impractical to assess the accuracy of the documents. This is a limitation of the study, albeit is unlikely to be significant due to the fact that once the document is presented, any errors (inaccuracies) would be challenged by the other party. Binomial test was used to make inference about the population using the sample data. Analysis of the status of the common document requisites for concurrent delay analysis is followed.

6.1. NOTICE OF CLAIM

Notice of Claim initiates the claim process, in a delay context, it also ensures that the delay causing party is made aware of it and is given the opportunity to mitigate the delay if possible. Importance of notice of claim was discussed in subsection 3.2 – Step 02: Claim Notification. Table 4 shows the summary data on quality (primarily in terms of completeness) of claim notices found in sample Contractor organisations.

Table 4: Content of Notice

	Event	Events occurred dates	Cause	Likely duration	Potential impact	Only necessary details
No	0	7	2	9	9	12
Yes	12	5	10	3	3	0

Significant weaknesses identified in the notice are;

- Including unnecessary details – with 95% confidence level
- Not including likely duration and potential impacts of delay – each with 90% confidence level

6.2. DAILY SITE RECORD

Diary records of site observations provides useful source of information or evidence on day to day events (Birkby and Brough, 1993). Any notable events such as events that may cause delay or affect the productivity shall be included in records. It should be ensured that entries express facts, rather than opinions. Examples of records include-instructions issued, weather condition, manpower utilised, visitors' arrivals to the site, Subcontractors on site, and key deliveries of material. The survey results showed that

all organisations in sample maintained these records and therefore it is likely that this is not a weakness in Sri Lankan construction organisations.

6.3. CONSTRUCTION PROGRAMME

Among numerous documentation required in concurrent delay analysis, most imperative document is the construction programme. This is because, the damage caused to project’s time and cost targets due to an Employer caused delay and a Contractor caused delay cannot be distinguished without it, especially due to following features of it;

- a. an as-planned programme and its critical path shows the Contractor’s intended work programme to achieve project targets. Further, revised programme is the changed programme while work in progress according to circumstances and revised to achieve projects time target. Few examples for such circumstances are: variations, required acceleration, and granted EOT.
- b. an as-built programme demonstrate the work and sequence actually carried out (The SCL Delay and Disruption Protocol - 1.10.5 and Davison and Mullen, 2009).

Table 5 shows the availability of three types of programmes in the sample which included both Engineers’ and Contractors’ organisations.

Table 5: Programme

	As-planned	As-build	Revised
No	0	0	19
Yes	24	24	5

It can be stated with 95% confidence that the majority of organisations are not used to prepare revised programmes in cases of actual progress deferring from as-planned programme.

6.4. CONTENT OF PROGRAMME

An as-planned programme is submitted by the contract at the beginning of the project, usually because of the contractual requirement. The programme should include several details so that the programme can be effectively used in concurrent delay analysis. Table 6 provides summary results of status of those details in as-planned programmes observed in the sample organisations.

At 95% confidence level, it was recognised that following were not included in majority of as-built programmes in Sri Lankan industry: critical path identification, labours and suppliers in each activity or work sections, earliest and latest start and finish of activities or sections, milestones and key dates, dates of design works or test to be submitted to the Engineer, dates the Engineer will re-submit after approval or disapproval and dates the information required by the Engineer and work contain as provisional sums. It can also be stated with 90% confidence level that the delivery dates of major items are not included in majority of programmes.

Table 6: Content of Programme

	Identification of Critical Path	Activities - work packages	Labour & suppliers	Earliest & latest start & finish of activities	Access dates for sections	Earliest & latest start & finish of sections	Milestones & key dates	Holidays	Designs, tests submit dates to Engineer	Engineer’s re-submit dates	Delivery dates of major items	Information required dates	Provisional Sums	Commissioning period
No	23	0	21	24	6	24	17	3	23	24	16	22	24	10
Yes	1	24	3	0	18	0	7	21	1	0	8	2	0	14

6.5. METHOD STATEMENT

A method statement demonstrates the assumptions that have been made in forming the factual basis for setting key dates and logic for which the programme has been developed. Therefore it is essential that an as-planned programme will necessarily be followed by the methodology stated in the method statement (Pickavance, 2005 and Birkby and Brough, 1993). Status of important details in a Method Statement required for successful consideration of concurrency in a delay event is shown in Table 7.

Table 7: Content of Method Statement

	Method of construction	Resources to be used	Work included in activities	Logical interface between activities	Lag between activities	Productivity expected	Method of calculation of time lags	Manpower	Work rate	Monitory value of the activity
No	0	10	21	24	24	24	24	14	21	24
Yes	23	14	3	0	0	0	0	10	3	0

Significantly large weaknesses are identified in Method Statements. It can be stated with 95% confidence that the organisations do not include a proper description on work included in each activity, logical interface between activities, lag between activities, productivity expected and methods of calculations of the time lags, work rates, and monitory values of the activities.

7. CONCLUSIONS AND RECOMMENDATIONS

The significant causes that affect the consideration of concurrency in delay claims slightly varied among three major parties - Employers, Engineers and Contractors. Interestingly, acceptable quality of documents became the most significant cause for all three groups. Awareness of concurrent delays became the second significant cause for Employers, while it was not so for Engineers. For Engineers, their satisfaction on current delay management practice became second. For Contractors, their disfavour for negotiated solution became the second significant.

Acceptable quality of documents was identified to be the primary or root cause for low consideration of concurrency in delay claims in Sri Lanka. Documents were found to have number of lapses in causing successful concurrence delay analysis difficult or often impractical. Among the identified lapses; absence of potential impacts of delays but other unnecessary details in claim notices, absence of revised construction programmes, and omission of important information in as-planned programme, found to be critical. Significant lapses were found also within the Method Statements. These included absence of proper description on work included in each activity, logical interface between activities, lag between activities, and productivity expected.

Synthesising the findings it can be concluded that the above identified lapses in the documents are the primary reasons for low consideration of concurrency in delay claims in Sri Lankan construction industry. Therefore, improving the documentation practice in the industry is a necessity. In addition, increasing the awareness of concurrent delays among Employers is important. Once the Employers demand, Engineers will no longer be able to disregard concurrency in delay claim analysis. When the practice is established and the documents are in order, establishment of contractual entitlements will not be difficult. As a result, preference for negotiated settlement for delay claims will diminish. The resulting overall context will establish a good concurrent delay claim practice. This will enable accounting of contractual liabilities of delays more accurately in construction contracts in Sri Lanka.

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