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Procedia - Social and Behavioral Sciences 105 (2013) 54 – 63

Procedia
Social and Behavioral Sciences

AicE-Bs2013London
Asia Pacific International Conference on Environment-Behaviour Studies
University of Westminster, London, UK, 4-6 September 2013
"From Research to Practice"

Assessing Extension of Time Application in Malaysian Construction Industry: Views from professionals

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Abstract

This paper aims to investigate the current practice of extension of time claim assessment by contract administrators and identify difficulties faced by them during the assessment process. A survey approach using questionnaires as an instrument revealed that poor factual evidence and flaws in claim presentation are the principal factors leading to delays in the assessment process. The findings imply that efficient contract administration and well-organised record keeping will lead not only to successful project management but also will increase the chances of a successful contractual claim. These findings are expected to offer a significant contribution to industry players, researchers and also academics, thus helping to identify areas for further improvement.

Selection and peer-review under responsibility of Centre for Environment-Behaviour Studies (cE-Bs), Faculty of Architecture, Planning & Surveying, Universiti Teknologi MARA, Malaysia.

Keywords: Construction industry; delay; extension of time claim; record keeping

1. Introduction

The definition for extension of time by The Society of Construction Law (SCL) as contained in the Delay and Disruption Protocol (SCL 2002), is "the additional time granted to the contractor to provide an extended contractual time period or date by which work is to be, or should be completed and to relieve it from liability for damages for delay (usually liquidated damages)". The contractor must submit a complete Extension of Time (EoT) application claim to the employer, which requires all the relevant facts and documents related to the delays, including a thorough analysis of the delayed events. In preparing an

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Selection and peer-review under responsibility of Centre for Environment-Behaviour Studies (cE-Bs), Faculty of Architecture, Planning & Surveying, Universiti Teknologi MARA, Malaysia.
doi:10.1016/j.sbspro.2013.11.007

application for EoT, the claimant must firstly determine the contract provision under which he/she is entitled to make such claims. A vital prerequisite in establishing entitlement for EoT is for the claimant to produce documentation to absolve them of responsibility for delays and that other parties are accountable.

2. Extension of time claim

Most standard forms of contract provide clauses for an extension of time due to excusable delay events in construction projects. In Malaysia, Pertubuhan Arkitek Malaysia (PAM) Standard Form of Contract, Public Works Department (PWD) Standard Form of Contract and Construction Industry Development Board (CIDB) Standard Form of Contract are among of the local standard forms of contract being used in local construction project. Provision for EoT in PWD 203 A is explained in Clause 43, and it has been clearly stated in this form of contract that the certifier for EoT is the Superintending Officer (S.O). On the other hand, provision for EoT in PAM Form is covered under Clause 23. As in the PWD form of contract, the PAM Form also clearly states the person who has a right to certify an EoT for the contractor, in this case, the architect. CIDB Form of Contract (for Building Works), published by CIDB Malaysia, contains a provision for delays and extensions of time under Clause 24. As PWD 203 A (2007) contract form, CIDB form also named the S.O as the certifier for EoT.

For speedy and amicable settlement of EoT claim, Jergeas and Hartman (1994) have outlined some guidelines for dealing with such claim:

- *Record keeping*; Factual evidence including daily-progress report, photographs and video film, minutes of meeting, memos, transmittals, drawing and many others are among the most important pieces of evidence that should be well-kept, maintained and organised in a proper manner to facilitate contract and project administration tasks.
- *Knowledge of contract*; Often this is neglected by contractors. The contractor should carefully read and understand their obligation and responsibilities as imposed by the contract. Adherence to the contract is vital, and the contractor must fully comply with all contract requirements, especially those that closely related to EoT such as variation clauses, claim clauses, and so on. Failure to do so might diminish chances for a successful claim.
- *Preservation of rights*; In order to preserve their right to claim, written notice of potential claims should be served within the time stipulated in the contract. Among the situations or issues that require written notice to preserve the contractor's right are: any contradiction in contract clauses; instruction to perform work in a particular manner different from the original agreement; any stop-work order; owner-supply material or equipment related matters; and many others.
- *Qualify change orders;* Any change order that involves extra cost should be given proper attention prior to negotiation or signing off.
- *Planning and scheduling*; This is the backbone of the project. Proper planning will ensure adequate resources are available at the time they are needed, adequate time for each activity, and all activities start at the appropriate times. As the critical path may change as the work progresses, the client and the consultants should be kept updated by regular or periodic updates to the work programme.
- *Proactive actions*; A claim-conscious attitude is encouraged as it will facilitate the claim management process. Proactive measures include quick response to every client complaint, requesting written confirmation on any important verbal conversation or instruction, EoT requests on excusable delay events, records on any disagreement arises with the client or his representatives and clarify any instruction or change order prior to the commencement of such extra works.

On the other hand, Harbans Singh (2003) emphasised that the assessment process should not neglect several key principles that form as a basis for assessment, which are:

- EoT can only be validly granted if the procedures which the contract lays down are strictly followed

- An extension of time can only be granted in respect of an event that is expressly included in the contract as a 'relevant event' and which has delayed or is likely to delay completion
- The delay must be one affecting activity or activities that are on the critical path. i.e. one that has 'little or no float' and cannot be delayed without affecting the others
- The 'nett effective' delay must be assessed based on the contractor's approved work programme
- In the assessment, a logical analysis (not a merely impressionistic assessment) must be undertaken in a methodological way of the impact which the relevant matters had or were likely to have on contractor's planned programme
- The overriding requirement is the satisfaction of the 'Fair and Reasonableness Test' on the part of the assessor

2.1. Delay analysis methods

A complete EoT claim must include an analysis on the duration of the delay. When a delay is anticipated in a construction project, it is necessary to develop a time impact analysis to quantify the delay, demonstrate the impact on the critical path, and establish entitlement to a time extension (Ciccarelli & Cohen, 2005). The main concern in carrying out a delay analysis, as mentioned by Farrow (2007), is to measure the impact of employer events on the contractor's work program and to identify the extent to which progress will be affected. The most-cited delay analysis methods in the literature are: 1) As-planned vs. As-Built, 2) Impacted As-Planned, 3) Collapsed As-Built, 4) Window Analysis and 5) Time Impact Analysis.

2.1.1. As planned vs. as-built

This is among of the most preferred delay analysis method used in analysing delays because it simply compares the activities on the as-planned schedule with the as-built schedule for detailed assessment of the delay. According to Lovejoy (2004), the main advantage of this methodology is that it provides a straightforward analysis which is easy to use. However, its limitations include making no allowance for mitigation of delays, assuming that the baseline's schedule logic holds, and failing to identify critical paths (Lovejoy, 2004).

2.1.2. Impacted as-planned

This methodology operates by incorporating delay into the as-planned schedule and determines its effect on the project completion dates. As it works using the as-planned schedule and does not require an as-built schedule so that the analysis can be prepared quickly and easily (Stumpf, 2000). However, there are some limitations of this method. First, it may assume that the as-planned schedule is perfect and that the contractor has always followed the original schedule with nothing else to blame for delays except the owner (Stumpf, 2000). Second, this method relies heavily on the baseline (as-planned) schedule to determine the impact of delay and does not measure the effect of actual work performed; unfortunately, an analysis based on an unrealistic baseline schedule will not only suffer from faulty logic, but also from overestimated project durations (Arditi & Pattanakitchamroon, 2006). The third reason which undermines the use of this method, as identified by Arditi & Pattanakitchamroon (2006) and Stumpf (2000)) is that it works based on the assumption that the owner is the only party responsible for delay and only owner-caused delays are inserted into the as-planned schedule to prove the case.

2.1.3. Collapse as built

Using this method, an as-built schedule, including all the delays encountered, will first be created. Then, delays are removed from the schedule to create a "collapsed" as-built schedule, which indicates

how the project would have progressed without those delays (Braimah & Ndekugri, 2008). According to Stumpf (2000), this method can be prepared quickly and easily if there is a good as-built schedule. On the other hand, Lovejoy (2004) gave his opinion that this approach produces an accurate result at a low cost compare to Window Analysis method. However, as with any other method, it also has flaws. First, it only considers owner-caused delay to prove the case, and because contractor-caused delay is excluded from the analysis, concurrent delay is not recognised using this method (Zack (2001) as cited in Arditi & Pattanakitchamroon (2006)). Second, as it works based on the assumption that the as-built schedule makes use of the contractors original as-planned to execute the project, with the same sequence of activities and the same productivity, it fails to recognize any events causing delay along the course of the project (Arditi & Pattanakitchamroon, 2006). Third, this technique is very subjective in nature and is subject to manipulation by analysts; hence, mutual agreement from both parties on certain issues is required prior to the commencement of the analysis process (Arditi & Pattanakitchamroon, 2006).

2.1.4. Window analysis

This method, which is also known as the contemporaneous period analysis (CPA), has been recognized as one of the most credible techniques for analysing construction delays (Hegazy & Menesi, 2008). In this methodology, the project is divided into specific time periods or windows. As outlined by Ndekugri, Braimah, and Gameson (2008), the delay analysis begins first by updating the schedule within the first window using as-built information, including all the delays encountered in that period, whereas maintaining the remaining as-planned schedule beyond this window, the difference between the project completion date of the schedule resulting from this and that prior to the review process gives the amount of project delay as a result of the delays within the first window. The same step is repeated to analyse the remaining window to determine the overall delay period. This method has been recognised as one of the most accurate delay analysis method due to its ability to take into account the dynamic nature of the critical path (Ndekugri et al., 2008). Due to this characteristic, it can be very accurate, and has the potential to be the least controversial and can be equitable to all parties (Stumpf, 2000). However, the main drawback of this method is it requires too much time and effort to complete (Ciccarelli & Cohen, 2005; Stumpf, 2000) and is usually more costly.

2.1.5. Time impact analysis

This approach has been recognised as the most reliable technique of delay analysis by Society of Construction Law; Delay and Disruption Protocol, 2002. Arditi & Pattanakitchamroon (2006) in their study identify some limitations of this method. First, it requires a large amount of information in order to perform the analysis and as-planned schedule in CPM format is necessary, and periodically updated schedule is strictly required. Second, as this method offers detailed analysis and involves a periodically updated schedule, time and effort are the key elements in performing the analysis, making it time consuming and costly to operate, particularly in situations where large numbers of delaying events are involved (Ndekugri et al., 2008). Third reason as identified by Arditi & Pattanakitchamroon (2006), the result of the analysis may be influenced by a variety of factors because time impact analysis is intricate as it determines accumulative results from many sources of contemporaneous data.

3. Research methodology

3.1. Questionnaire development

A quantitative approach using a questionnaire survey was adopted to collect data with the intent of investigating current practices by contract administrators in assessing EoT claims and to identify

difficulties faced by them during the process. Following an extensive review of previous related research, consolidated by interviews with industry experts, a set of self-administered questionnaires containing four (4) sections were prepared. However, this paper presents only the analysis results of Section B; current practice in assessing EoT claims by the contract administrator and problems faced by them during the process.

The questions in Section B of the questionnaire were adopted from Kumaraswamy & Yogeswaran (2003) with some modifications to suit the Malaysian construction industry and form of contracts used in the local construction industry. Two (2) phases of a pilot study were conducted prior to the commencement of the final survey in order to improve the quality and efficiency of the questionnaire. To start with, a first round pilot study was conducted amongst academics in the Built Environment field, intending to check the wordings, order, and layout of the questionnaire. To confirm the content of the questionnaire and to ensure it reflects real industry scenarios, the next phase of the pilot study was conducted with a panel of experts consisting of industry practitioners experienced in dealing with EoT claims, in order to validate and comment on the questionnaire. Although the Section B of the questionnaire was adopted from Kumaraswamy & Yogeswaran (2003), the pilot study was still needed to ensure a fit for answering the objectives and make a survey suited to the nature of the local construction industry. Five (5) experts with profound knowledge and experience dealing with EoT claims were involved in the pilot test. The pilot study produced several improvements to the questionnaire, which was then finalized and distributed to the respondents.

3.2. Population and sample size

The questionnaires were distributed on a voluntary basis to only professional architects registered with PAM, based on the limitation that this study focused on construction projects using PAM 2006 contract forms which require the architect to act as the assessor for EoT application. Respondents were randomly selected from a list obtained from PAM. A total of 500 questionnaires were distributed to potential respondents via mail, email, or by-hand, in order to ensure that a satisfactory response was received from the respondents. The choice of distribution method was based on the location of the respondents, accessibility and support from research assistant and others (i.e. close friends, colleagues, and so on).

After several attempts were made to get respondents to respond to the survey, including follow-up calls and a reminder by email, only 111 responses were received. Of these, three (3) were incomplete with a few sections left unanswered by the respondents. According to Sekaran & Bougie's (2010) rule of thumb; if 25% of a questionnaire is left unanswered, it should be excluded from the analysis. Unfortunately, all three (3) questionnaires were found to exceed the rules; therefore it has been discarded from this research. This left only 108 questionnaires satisfactorily completed, yielding a response rate of 21.6%. This is consistent with the norm of 20%-30% response rate for postal questionnaire surveys of the construction industry (Akintoye, 2000).

3.3. Data analysis

The raw data obtained from returned questionnaire were inputted and analysed with the aid of the Statistical Package for Social Sciences (SPSS) version 20.00. As the data was in terms of ratings measured on a 5-point Likert scale, it was considered ordinal in nature. Therefore, a descriptive analysis by means of identifying the mean score of each issue was found to be the most appropriate analysis to analyse the data.

4. Result and discussion

4.1. Profile of the respondents

From the survey result, a majority of the respondents have served the industry for more than ten years, with close to half of them possessing more than twenty years of industry experience. This suggests that most respondents have been in the industry for a considerable number of years; thus, information gathered from them was considered reasonably reliable and realistic for achieving the goals of this research. In term of years of experience dealing with EoT claim, a majority of the respondent (67%) claimed that they had dealt with this type of contractual claim for more than ten years. Only one-third of the respondents had dealt with EoT claims for less than ten years. Since the majority of the respondents were well-experienced in dealing with EoT claims, this implies that they were in the ideal position to comment and answer on any issues dealt with in this survey; thus, their opinions were expected to reflect the real industry situation and could yield a highly credible and quality result.

4.2. Current practice in assessing EoT claims

To investigate the respondent's practice in assessing EoT application, they were asked to indicate the level of frequency with the question: Do contractors submit EoT claims in time pursuant to PAM 2006, using a 5-point Likert scale (where 1= very rarely, 2=rarely, 3=occasionally, 4=frequently, 5=very frequently). The results show that respondents are of the opinion that contractors occasionally submit their EoT claim in time as stipulated in Clause 23 PAM 2006 contract form. A study by Yoke-Lian et al. (2012) revealed that site staff inexperienced with contract procedure, prompt action taken for weather-related claim, and contract administrators requesting excessive detail were found to be the top three reasons for delays in submitting EoT claims by Malaysian contractor. The next question was asked of respondents to indicate the level of frequency for the proposition: Do you evaluate EOT claims guided by the contractor approach? Findings from the survey revealed that, the evaluation process by the Architect only occasionally is guided by the contractor approach. Both parties have their own preferred way for performing the evaluation process. However, interview session subsequent to the questionnaire survey revealed that, in most cases, a preliminary discussion will take place prior to the submission of EoT claims to reach agreement on certain issues.

The respondents of the survey were requested to state the timing of assessment of EoT claims based on four distinguished timings with reference to PAM 2006 provisions; the results are summarized in Table 1 below. It appears that, in most cases, the architect carries out the assessment within a reasonable time from the date of submission of a detail claim by the contractor. This is in contrast with what has been practiced in Hong Kong construction projects, where a study by Kumaraswamy & Yogeswaran (2003) discovered that usually the assessment process takes place 'at the end of the construction period.' The respondents were next asked to state their preferred method in evaluating EoT claims. As shown in Table 1, the 'As-planned vs. As-Built' method is the most preferred delay evaluation technique as affirmed by the respondents.

Table 1. Timing of assessment and approaches in evaluating EoT claim

Timing of assessment	Mean	SD	Rank
Within a reasonable time from the date of submission of details of claim by the contractor	3.69	1.220	1
28 days of the end of the cause of delay (Clause 23.1 (b) of PAM 2006)	3.04	1.282	2
Within 28days from the date of the delay events	2.63	1.250	3

At the end of the construction period	2.32	1.359	4
Approaches in evaluating EoT	Mean	SD	Rank
As Planned vs As Built	3.77	1.250	1
Time Impact Analysis	3.63	1.316	2
Impacted As Planned	2.72	1.373	3
Window Analysis	2.09	1.172	4
Collapsed As Built	1.99	1.140	5

Provision for timely submission and assessment of EoT claim has been recognized in most Standard Forms of Contract. As recommended by the Society of Construction Law; Delay and Disruption Protocol (SCL, 2002), EoT claims "should be made and dealt with as close in time as possible to the delay event that gives rise to the application." In addition, Braimah (2008) emphasized that timely submission and prompt assessment of EoT claims are essential as this will reduce the difficulties of claim resolution since all claim-related facts will still be 'fresh in mind' of everybody involved. Thus, any disputes relating to claims may be eluded. However, assessing EoT claims is not easy as it sounds. Kumaraswamy and Yogeswaran (2003) argued that the claimant and the assessor often spend a considerable amount of time on substantiating and assessing EoT claims.

In recognition on the importance of the prompt claim assessment, the respondents were asked to state the level of frequency of 14 identified list of reasons that contribute to delay in the assessment process. Table 2 illustrates the ranking of the reasons for late assessment of EoT claim based on the survey outcome. Following the interpretation of five-point Likert scales, the analysis of surveyed data indicated the mean score for the 14 reasons, ranging from 4.16 to 1.56. The top three reasons for late assessment were as follows: poor submissions by contractors, late submission of claims by contractors, and time for collection of relevant facts from site records to establish the principle of the claim. In contrast, the top three least frequent reasons for the late assessment of claims were insufficient personnel, architects unfamiliar with the delay analysis method, and architects being too busy with other tasks.

Table 2. Reasons for late assessment of EoT claim

Reasons for delay in assessing EoT claim	Mean	SD	Rank
Poorly submission by contractor/lack of details and particulars	4.16	.919	1
Late Submission of claim by the contractor	4.05	1.045	2
Collection of relevant facts from site records to establish the principle of the claim and quantification/time consuming to check records	3.20	1.074	3
Delay analysis methods used by contractor different with the method used by the Architect	2.81	1.247	4
Delay in approval by Employer	2.68	1.267	5
Contractor submit global claim	2.64	1.343	6
Wait until the end of job because actual delay could not be determined until end of delay or construction	2.54	1.293	7
Employers attitude/interference from employer	2.44	1.225	8
As motivational factors to contractor (absence of EOT may put pressure on contractor to perform more efficient)	2.37	1.116	9
The effect are not known/could not foresee that an event would cause a delay until the delay occurred	2.28	1.040	10
No clear guideline/pre-contract agreement for assessing EOT claim	2.10	1.215	11
Insufficient Personnel to assist in assessment process/lack of experiences	1.95	1.088	12
Architect unfamiliar with delay analysis methods	1.81	.958	13
Architect too busy with other tasks	1.56	.930	14

4.3. Discussion on reasons for late assessment

The following subsections discuss the top three (3) reasons for late assessment of EoT claim as depicted in Table 2.

4.3.1. Poorly submission by contractor

"Poor submission of claim by the contractor" such as lack of details and supporting documents to support the claim was ranked first (mean=4.16) by the respondents, implying that this is the biggest challenge faced by architects in performing the assessment process. The results also suggests that the industry is still facing with same problems after many years, such as failure to effectively and efficiently maintain and manage records of project activities leading to a poor contract administration. Kartam (1999) contended that keeping all project data and information in an accurate and well organized manner throughout the life cycle of a project is a key task in preparing, analyzing and resolving claims. In addition to that, J.K.Yates and Apstein (2006) argued that, a proper construction delay claim management requires extensive documentation and the ideal time to start documenting, or maintaining detailed records regarding construction delays, is not when it is first realised that a project being delayed but much earlier.

As emphasised by Gibson (2008), a successful EoT claim and time-related costs is highly dependent on the strength of the case; how it can be proved by the factual records. He further emphasised the key element of a successful claim rest on project's records; "*success in claim is about keeping them; and then using them to demonstrate cause, effect and entitlement*." However, it is not uncommon in a construction project for the management and recording of project data and information to be undertaken on an ad hoc basis, making it difficult to dig up all project files to find relevant facts and documents for a particular claim. This ends up resulting in poorly substantiated claims that might open the door for unsatisfactory claim resolution, or worse, might spark a dispute amongst the parties involved.

4.3.2. Late submission of claims by the contractor

The second most frequent reason for late assessment of EoT claims was "late submission of claim by the contractor" (mean=4.05). Most contracts contain provisions that list the relevant events that will enable the contractor to apply an extension of time, and the contract expressly states that the claim should be made and dealt with as near as possible to the delaying events. Unfortunately, there are no specific explanations with regards to the assessment of the claim; this is left to the professionals involved in the project to decide. Often, this varies depending on the experience and preference of individual parties. The absence of clear guidelines is also one of the contributing factors to the late submission of claims, which in turn leads to the late assessment of claims by the contract administrator. Other than that, time taken in claim substantiating process by the contractor was also found to be a main reason for late submission of EoT claims. Alkass et al.(1995) stated that 70 per cent of effort in a claim is spent on searching and organizing information. This is supported by Carmichael and Murray (2006), who contended that, the problem in substantiating the delay claim is it involve thorough investigation of the project, often retrospectively, which requires a vast number of documents to be reviewed and people to be interviewed, which can be a time-consuming and resource-hungry process. Therefore, it is essential for construction professionals to understand and be aware what are the documents and supporting data and information needed so support their claim. But again, the key to the process is contemporaneous project records.

4.3.3. Collection of relevant facts from site records

"Collection of relevant facts from site records" was ranked third by the respondents (mean=3.20) indicating that coordination and record-keeping management might affect the efficiency of project administration, especially in claim management process. It is not uncommon in a construction project for

the tasks of managing projects and handling contractual claims to be delegated to different people. In most cases, the documentation, assessment or project administration matters, especially a "paperwork-based" task, will be taken care by the head office staff. Often, miscommunication between site staff and head office staff will prolong the assessment process, especially when the delegated person to assess the claim is someone who has no previous knowledge about that particular project. As pointed out by Ismail, Ahmad, Janipha, and Ismail (2012), the establishment of clear and precise responsibility and authority will help each and every individual at various levels to perform his/her task unambiguously.

5. Conclusion

Construction time overrun has become prevalent in the construction industry globally despite the considerable effort trying to avoid it. Delays in the construction activities have given rise to the need for the application of extension of time, providing more time to complete projects. Most standard contracts contain provisions that list relevant events that enable the contractor to apply for an extension of time. Unfortunately, there is no specific explanation with regard to the assessment of the claim, and this is often left to the professionals involved in the project. The absence of clear guidelines is also one of the contributing factors to the late submission of claims, which in turns leads to the late assessment of claims by the contract administrator, especially when the responsibility in assessing the claim rests on the shoulder of a newcomer or an individual with insufficient experience in dealing with such claims.

This research aimed to investigate current practice in assessing EoT claim performed by the contract administrator and underlying reasons for late assessment of claim. With a total response rate of 21%, which is considered common for construction management research, it was successfully discovered that, poor submission of claims by contractor (such as lack of details and particulars), late submission of claims by the contractor, and collection of relevant facts from site records to establish the principle of the claim were ranked highest by the respondent as reasons for a late assessment of EoT claim. These results imply that major reasons which might prolong the assessment process are closely related with the management of a project's records. It suggests that efficient contract administration with a well-organised record keeping will lead to not only a successful project management, but also will increase the chances of a successful contractual claim. Although there is no guarantee to get everything, at least proper factual evidence and adequate supporting documents will facilitate the claim management process, thus helping to diminish conflict and disputes resulting from unsatisfactory claim resolution.

It is expected that the findings from this research will offer a significant contribution to the industry players, construction organisations, researchers and also academicians thus helping to identify areas for further improvement.

Acknowledgements

The authors would like to acknowledge the support of funding from the Ministry of Higher Education of Malaysia under the Fundamental Research Grant Scheme (FRGS) for this research. Special thanks also go to the reviewers for their invaluable comments on this paper. Not forgetting that special gratitude is given to those industry practitioners who responded and contributed their valuable input in completing the questionnaire surveys and interviews.

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